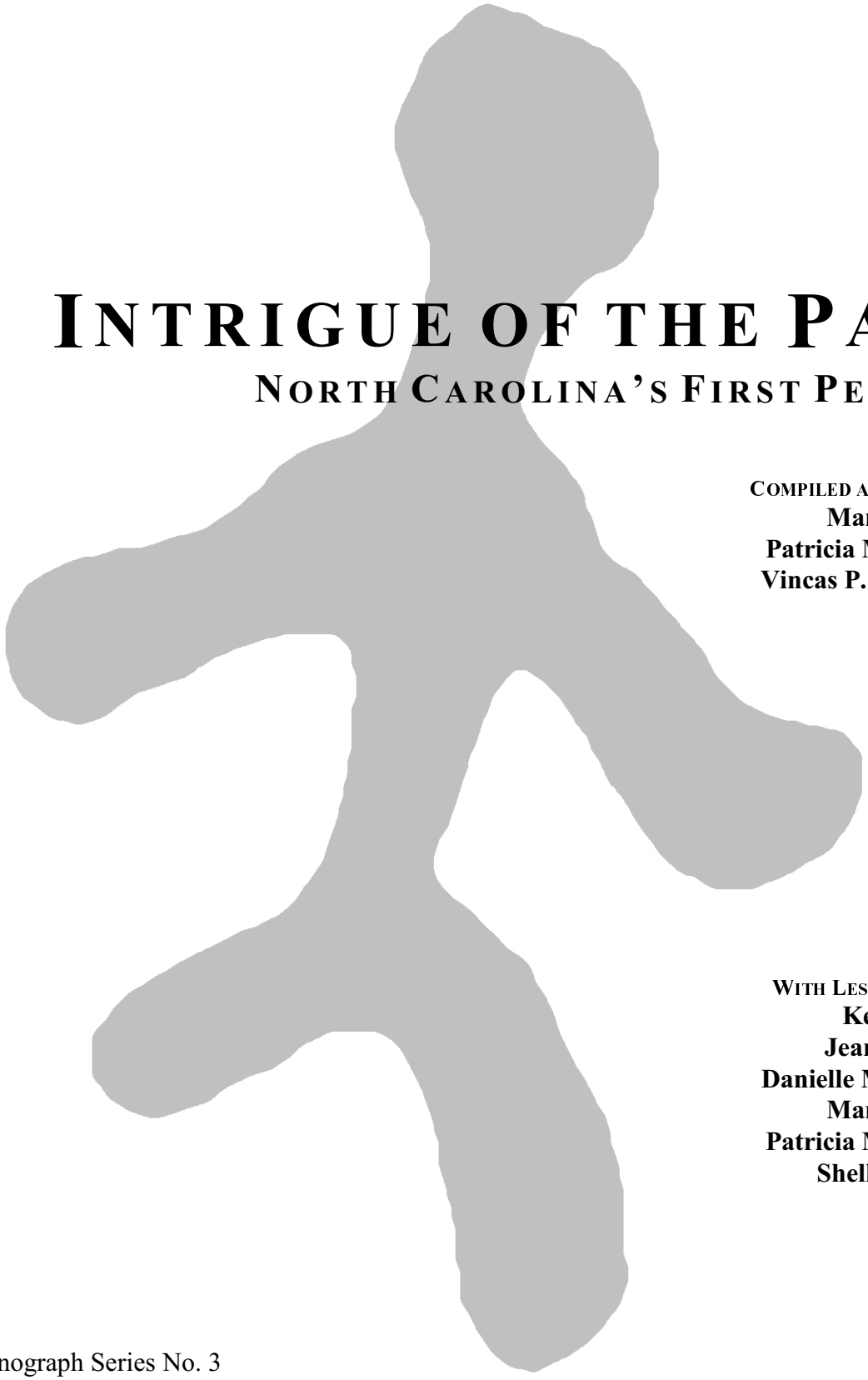
INTRIGUE OF THE PAST

NORTH CAROLINA'S FIRST PEOPLES

A Teacher's Activity Guide for
Fourth through Eighth Grades



INTRIGUE OF THE PAST

NORTH CAROLINA'S FIRST PEOPLES

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FOREWORD

It is often said that in order to appreciate where you are, you have to know where you have been. In *Intrigue of the Past: North Carolina's First Peoples,* the lessons use archaeology as a tool to foster the development of an interest in learning about North Carolina's first people. It is through the preparation and implementation of these lesson plans that teachers and students can experience the rich history and diversity of North Carolina's first people.

This type of work is long overdue. For too long the story of the Indian has been that of an almost mythical being. The lessons in *Intrigue of the Past*: *North Carolina's First Peoples* portray the Indian people of North Carolina as a live, vibrant, and thriving group who have lived in North Carolina for more than 12,000 years.

It is hoped that as Native American children are exposed to these lessons, they will feel proud of their heritage and intrigued by their history. Likewise, it is hoped that non-Native children will be impressed with the wealth of contributions that Native peoples have made and will be intrigued to learn more about them as a unique and diverse group of people living today.

I strongly support efforts aimed toward achieving a better understanding of Indian culture, both historical and present-day cultures. What better way to promote such an understanding than through the education of students and teachers?

I applaud this effort to bring about a better understanding of our past so that our future may be enlightened.

Gregory A. Richardson
Executive Director
North Carolina Commission of Indian Affairs

PREFACE

"Without the past, we are bereft of the future," explains the renowned historian William Leuchtenburg about his intrigue with history.

The past, Leuchtenburg believes, shapes the person we are today and conditions who we become tomorrow. For those of us from dominant cultures, our past grounds us firmly. The histories we learn in school walk us through our country's burgeoning development, with all the attendant glories and pain. How our ancestors prospered, failed, and endured lend us perspectives on who we are, personally and culturally, so we readily find our place in society.

For most of North Carolina's Indian peoples, however, the past is elusive. Few know about the state's 12,000-year Indian history. Texts for public school social studies and history classes tend to include scant reference to the state's Indian cultures, typically limiting discussions to their geographic range at contact and subsequent removal when Europeans settled the area. With so little available, the diversity and longevity of Indian peoples' histories, along with the contributions they made are obscured. For Indian children, this historical void has intensely personal ramifications, as well as cultural and ultimately societal ones. For non-Indian children, they grow to adulthood thinking North Carolina history is limited to the 500-year window after Europeans arrived.

Archaeology is a key to help change such perceptions and to help, in particular, North Carolina's more than 80,000 Indian people understand their ancient past.

Archaeology tells stories not found in the pages of books, but in the earth's layers. The words are the things, or artifacts, Indian peoples left behind; they are the dark stains of decayed house posts, the fire-cracked rocks and charcoal of cooking hearths or any number of other traces left untouched by generations. Fragile and irreplaceable, hundreds of sites where Indian people in North Carolina lived, worked, and died have been mapped; some have been scientifically excavated and studied. What archaeologists find in these places answers, at least partly, key questions: How did Indians live in the very places we live now? How did long-term climatic changes affect them? How did they solve problems? Who did they interact with? How were they different from each other? In what ways were they alike? What can we learn from their experiences?

Until recently, much of what archaeologists had discovered was tucked in technical reports written mostly for other scholars. Committed to make the information more widely available, two of us (VPS and MP) conceived the North Carolina Indian History Project in 1992. Based in the Research Laboratories of Archaeology (RLA) at the University of North Carolina at Chapel Hill, this project is guided by the assumption that teachers in the state's schools are one of the best ways to share what archaeologists have learned about Indian history. The project's goal is to raise public awareness of this state's long history of Indian settlement. One means of achieving that goal is to organize and give workshops for teachers that let them understand how archaeologists as scientists work and what archaeology can and can't say about a people's past.

Early on, we had to face the issue of how to present archaeological information to K–12 teachers. We realized that teachers had limited classroom time and that they had to fulfill very

specific curriculum requirements. So we turned for help to another university unit: the Center for Mathematics and Science Education (CMSE), a part of UNC's School of Education. The staff at CMSE, experienced in organizing continuing education courses for teachers accredited by the North Carolina Department of Instruction, became our partners. They helped chart and administer a pilot two-week teacher residency workshop funded by the Z. Smith Reynolds Foundation. Dedicated to showing teachers how to teach science in innovative ways, the CMSE's internal mission dovetailed with the RLA's. Archaeology inherently fascinates students, luring them into the realms of hypothesis testing, classification, and other science processes at the same time it crosses multidisciplinary borders like social studies, history, geography, math, and art.

Preparing for the pilot workshop soon led us to another partner. Contacts through the Society for American Archaeology's Public Education Committee led to the Bureau of Land Management's (BLM's) Cultural Heritage Education Program based in Colorado. In their own multi-agency effort, they had devised Project Archaeology, an archaeology-education program for teachers of grades 4 through 6 built on a Utah curriculum called *Intrigue of the Past.* Talking with the BLM staff, RLA and CMSE organizers found the BLM not only shared similar goals, but they had a jump start. Their *Intrigue of the Past* held a series of extensively tested and teacher-friendly lessons designed to draw on students' interest in archaeology and simultaneously to enhance their skills in science, math, higher-order thinking and communication. *Intrigue*'s lessons also fostered a sense of responsibility for stewardship of irreplaceable archaeological sites.

The *Intrigue* curriculum was used in the North Carolina Indian History Project's pilot workshop. Even though its text featured examples and illustrations drawn largely from archaeological research in the West, the approach to teaching archaeological processes, concepts, and ethics was generic. North Carolina archaeologists and instructors verbally substituted information relevant to North Carolina. Teachers applauded it. Yet they pointedly said they needed the verbal input in writing.

Today, the North Carolina Indian History Project is the child of the three partnerships and the experience of the pilot workshop. With BLM's permission, the *Project Archaeology* curriculum has taken on a distinctively North Carolina look to become *Intrigue of the Past: North Carolina's First Peoples*.

While the integrity of BLM's Project Archaeology lesson structure remains, most of its original text has been modified. In this version, all background texts, examples, and illustrations reflect local archaeological research. Also, 13 additional lessons have been created, each of which, like the original *Intrigue*'s, satisfies an array of skills requirements and is cross-linked to complementary lessons within the guide. Newly created Part 3 is written mostly for teachers; four essays give teachers additional background on what archaeologists have learned about North Carolina's pre-European past. Yet even this part is designed with students in mind. Each essay has a "Quick Study" of salient points. These can be used in conjunction with Part 4's lessons, which build on information in Part 3's lessons.

There is one caveat for those who wish to use this book of the lesson plans: it will never be finished. Over time, the guide will be modified as teachers, Native Americans, archaeologists, and other educators give feedback about what works, what doesn't, and what else they would like.

ACKNOWLEDGMENTS

The project could never have been completed without the assistance of a great many people, who gave freely of their knowledge and talents and provided much-needed support.

First and foremost, we gratefully acknowledge the help and support of the Heritage Education staff at the Bureau of Land Management, U.S. Department of the Interior, particularly that of Megg Heath and Jeanne Moe. They introduced us to Project Archaeology and encouraged us to prepare a North Carolina version of *Intrigue of the Past*. Even more importantly, they gave us permission to use their *Intrigue* as a model for ours, and provided valuable comments on the draft as it evolved. Virtually all the lessons in Parts 1, 2, and 5 are adapted from originals that they and their colleagues developed. Without this foundation to build upon, our task would have been far more difficult. Thanks also go to the Society for American Archaeology and its extraordinary Public Education Committee, for fostering and encouraging our efforts to bring this project to fruition.

Closer to home, archaeologists Trawick Ward and Stephen Davis shared their vast knowledge of North Carolina archaeology and provided valuable help and suggestions at many points along the way. Thanks go, too, to Randy Daniel for a long-ago trip to Morrow Mountain along with updated insights into the Paleoindian past. Numerous other archaeologists and archaeology-education specialists helped in large and small ways by sharing thoughts and information: Stephen Claggett, Joffre Coe, Elaine Davis, Stanley Knick, Mark Mathis, David Moore, David Phelps, Anne Rogers, and Archie Smith.

Members of North Carolina's Native American community gave us help, support and encouragement. Thanks go to the members of the North Carolina Commission of Indian Affairs, especially to executive director Greg Richardson, staffer Mickey Locklear, and member Lila Spaulding, who chaired the Commission's Education Committee. Special thanks, too, go to board member Ray Littleturtle and his wife Kat, along with Jim Chavis, John and Lynette Jeffries, Zoe Locklear, Derek Lowry, Laura Hill Pinnix, Ruth Revels, and Rosa Winfrey. In Chapel Hill, Danny Bell and Anthony Locklear offered steady words of encouragement.

Staff and students affiliated with UNC–Chapel Hill's School of Education have helped with this project since its inception. The Center for Mathematics and Science Education was (and continues to be) an essential partner in organizing the teacher workshops at which many of these lesson plans were first deployed and refined; we thank Pat Bowers, Lin Dunbar Frye, and Russ Rowlett for being such helpful collaborators. Learn North Carolina, another service unit now based at the school, offered the opportunity to distribute these lesson plans throughout the state by means of their innovative, on-line database for K-12 teachers; we are particularly grateful to Catherine Etheridge, Emily Gibbons, Bobby Hobgood, Phil Kaufman, Anne Parker,and Doug Short for their expertise and support over the years. We also thank students Kim Chaney Bay, Lisa Carboni, Claudia Ceccon, Thomas Parks, and Leslie Wyatt, who worked to develop and improve a number of lesson plans; although not all their lessons made it into this book, their input greatly improved the ones that did.

Our thanks go to the North Carolina elementary and middle-school teachers—Judy Rucker,

Dede Gray, Larry Johnson, and Ruby Jones—who commented on the lessons and fit them into the North Carolina Standard Course of Study. We are also grateful to the many teachers who anonymously reviewed our lesson plans prior to their inclusion in the Learn North Carolina database.

Other individuals deserve special thanks for their assistance with the preparation of particular lessons. These are Margaret Scarry and Gayle Fritz for Lesson 2.5, Archie Smith and the education staff at Town Creek Indian Mound for Lesson 2.7, Meredith Poole for Lesson 2.10, Mark Mathis for Lesson 2.11, Joseph Herbert and Jane McManus Eastman for Lesson 3.4, Christopher Rodning and Lily Steponaitis for Lesson 4.5, Thomas Hargrove for Lesson 4.2, Linda Carnes-McNaughton and David Moore for Lesson 5.1, Scott Ashcraft and David Moore for Lessons 5.2 and 5.3, John Jeffries for Lesson 5.5, and Dolores Hall for Lesson 5.5 and Appendix 3. Fiona Clem provided key bibliographic assistance. Tim Jones of the Playmakers Repertory Company supplied props for the "Child's Bedroom" in Lesson 4.5. David Deese, editor of the *Stanly News and Press*, kindly allowed us to combine and paraphrase two of his articles for use in Lesson 5.5. Michael Caduto and his publisher Fulcrum, Inc. granted permission to reprint "The Coming of Corn" in Lesson 3.4. Chris Hughes drew the colonial coin used in Lesson 1.3. Rebecca Dobbs prepared the maps used in Lessons 4.6 and 4.7. We are also grateful to April Higgins, who provided invaluable advice on design matters and created this book's cover.

Most of the illustrations in this book were produced by the staff of the Research Laboratories of Archaeology; some were made specifically for this book while others were drawn from our files. Many illustrations were also directly adapted from previous versions of *Intrigue of the Past*, with the gracious permission of the Bureau of Land Management. We are also grateful to the University of North Carolina Press for allowing us to reuse or adapt illustrations that have appeared in their books; although these instances are not always credited individually, the books in which they appeared are generally listed among the sources at the end of each lesson plan.

Special thanks go to Thomas Maher, who held our hand through countless computer problems and maintained his good humor and patience with our technology-related questions. Sharon Riley prepared the initial electronic versions of these lesson plans for distribution via the World Wide Web, and helped with countless other technology issues. Christopher Rodning provided crucial technical help in creating the final electronic versions. Brenda Moore, secretary of the Research Laboratories of Archaeology, provided valuable and unstinting clerical support. Special thanks also go to Dr. John Florin, who, as chair of the Geography Department at UNC–Chapel Hill, donated a quiet space, a computer, paper, phone access, and a cartographer just because, as a member of the university community, he believed in what we were doing.

Finally, we gratefully acknowledge the generous funding received from the Z. Smith Reynolds Foundation, the North Carolina Department of Cultural Resources, the North Carolina Archaeological Society, and T. Lewis Hooper, without which this book would never have come into existence. A Blackwell Fellowship at UNC's Institute for the Arts and Humanities gave one of us (VPS) the time to edit the final manuscript. We also thank UNC's College of Arts and Sciences and the Arts and Sciences Foundation for their valuable support.

INTRODUCTION FOR EDUCATORS

We all feel connected to our personal history, how it has shaped the person we are today and will condition who we become tomorrow. Our society, too, has been formed by its history. For hundreds of generations, people have lived in the very places we do, have prospered, failed, and endured. The past offers us a unique perspective on who we are, personally and culturally.

North Carolina's past is rich almost beyond belief. Archaeological and historical sites offer the opportunity to travel in time. We can explore an old mining camp in our western mountains, walk through 18th-century Moravian streets in Old Salem, or contemplate the meanings of the drawings etched on Judaculla Rock by sure hands centuries ago. Take a walk in the fertile floodplains by rivers and note the chipped stone and broken pottery at your feet; it tells you that you are only the most recent visitor to a place that was visited by countless earlier people. In some places in North Carolina, you can stand at a site and take in a landscape little changed by centuries. You see what those who came before you saw and imagine another way of life. You become richer for knowing the human history of your home.

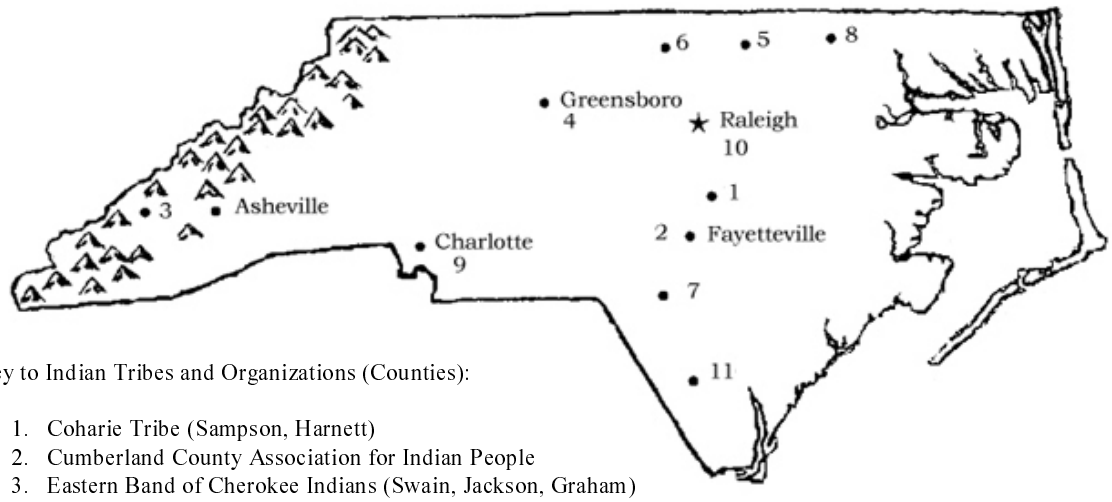
Studying the past gives us a rare chance to examine our place in time and forge links with the human continuum. Archaeologists also want to learn about the many cultural lifeways people have chosen and how these lifeways have changed over time. Anthropology, archaeology's parent discipline, seeks to understand human behavior in a broad sense. Archaeology contributes to anthropological knowledge by studying behavior through the artifacts and other material evidence that people left behind.

Archaeologists study both ancient and recent historic periods. Archaeology is one way we have to study people who left no written records; in North Carolina, this includes almost 97% of the human occupation span—all of which comprises the history of Indian peoples who preceded the arrival of Europeans in the 1500s.

North Carolina Indians Today

The living descendants of pre-Columbian people on this continent are the American Indians. According to the North Carolina Commission of Indian Affairs, more than 80,000 Indian people live in North Carolina today, representing 1.2% of the state's population. In fact, North Carolina has the largest Indian population east of the Mississippi River. At least some Indian people reside in each of the North Carolina's 100 counties, but about 80% of the state's Indian population is concentrated in 11 counties: namely, Columbus, Cumberland, Guilford, Halifax, Hoke, Jackson, Mecklenburg, Robeson, Scotland, Swain, and Wake. About half of the state's Indian people live in Robeson County, where they comprise 39% of the county's population.

Seven tribes have state recognition: Coharie, Eastern Band of Cherokee, Haliwa-Saponi, Indians of Person County, Lumbee, Meherrin, and Waccamaw-Siouan. The Eastern Band of Cherokee also have Federal recognition. Other state recognized Native organizations include: Cumberland County Association for Indian People, Guilford Native American Association, Metrolina Native American Association, and Triangle Native American Society. Detailed information on North Carolina's Indian peoples, both past and present, can be found in the



Key to Indian Tribes and Organizations (Counties):

1. Coharie Tribe (Sampson, Harnett)
2. Cumberland County Association for Indian People
3. Eastern Band of Cherokee Indians (Swain, Jackson, Graham)
4. Guilford Native American Association (Guilford)
5. Haliwa-Saponi Tribe (Halifax, Warren)
6. Indians of Person County
7. Lumbee Tribe (Robeson, Scotland, Hoke)
8. Meherrin Tribe (Hertford)
9. Metrolina Native American Association (Mecklenburg)
10. Triangle Native American Society (Wake, Durham, Orange)
11. Waccamaw-Siouan Tribe (Bladen, Columbus)

Map of state-recognized Indian tribes and organizations in North Carolina (courtesy of the North Carolina Commission of Indian Affairs).

readings compiled in Appendix 2.

It is important to realize that teaching lessons in this guide is also teaching Indian peoples' ethnic history. Teach it with sensitivity and respect, as you would the story of your own ancestral past. Also keep in mind that this guide represents the archaeological view of North Carolina's Native American history, which is only one perspective. The scenario of the past as told by the things people left behind provides some information about their ancestors' cultures—what people ate, what their homes were like, how their culture changed over time. However, archaeological methods cannot give information regarding their thoughts, beliefs, and hopes. Nor is it possible to dig up religion, medicinal knowledge, kinship reckoning, dances, festivals, calendar-keeping, recipes, child-rearing practices, or a multitude of other aspects of what it means to be human.

Indian people traditionally have their own ways to pass along details about their ancestors' lifeways, handed down from generation to generation through stories, ritual, religion, teaching, and myth. They sometimes have a view of their history that differs from the archaeological perspective. It is important to realize that the Indian view and the archaeologist's view are two different ways of looking at the past; neither one is inferior or superior to the other. Archaeology makes inferences about the past based on a scientific analysis of material data. Scientific rules of evidence are applied. For some Indian people, a scientific view based on archaeological evidence is often not regarded as the most meaningful explanation of their cultural tradition.

Recently, there have been many examples of Indians and archaeologists learning about each others' perspectives and the different kinds of information each group can provide. Most importantly, both Indian people and archaeologists agree that sites and artifacts should be

protected and that cooperation in saving them is essential.

Certain issues, however, remain very sensitive, especially regarding human burials encountered by archaeologists as they excavate sites. Archaeologists sometimes have been insensitive to the spiritual and religious beliefs of Indian people, and unfortunate confrontations have occurred. Conversely, cooperation between archaeologists and Indian people in documenting information from burials or in recovering those in danger of destruction by development or natural forces demonstrates how positive the relationship between the two groups can be.

While it is important to be sensitive to Native American cultural considerations, don't stereotype all Indian people as being closely connected to their traditional culture. Just as all European Americans do not relate to a European heritage, Indian people connect in varying degrees to their ancestral past. Also realize that there is no such thing as a single "Indian culture." At the time of European contact, many different tribes lived in North Carolina, divided linguistically, geographically, and culturally.

Indian people today can be as diverse in their views of an issue as is American society in general. They can have a range of opinions and lifeways practiced within one tribe or organization, just as within any community.

There is a danger of conveying two erroneous concepts when studying the distant past. One is stereotyping pre-Columbian people either as primitive, backward, and warlike savages or, conversely, as noble savages living an idyllic life perfectly in tune with nature. The other misconception is that archaeologists are interested only in artifacts.

Both misconceptions can be remedied by emphasizing that archaeologists study people in all their cultural variation. Archaeologists come to understand them by studying the artifacts they left. These objects are important because they are messengers of ancient people's culture. Stripped of context and viewed solely as mute things, artifacts are of little use in deciphering history.

Like people everywhere, pre-Columbian people exhibited an array of talents and personalities. Some were worriers, and some were light-hearted; there were born leaders and shy people, hard-workers and lazy folks. They faced conflict and war and benefitted from cooperation and friendship.

As a group, pre-Columbian people possessed considerable skill and understanding of their world. Their knowledge enabled them to live successfully in environments that today seem inhospitable to us. Most of us would not survive a week in the wilds without the accompaniment of many pounds of modern technology. The natural world was the Indian's pharmacy, grocery, clothing, and hardware store, supplying food and raw materials for all manner of things, from baskets to houses to medicine and clothing. Pre-Columbian people had a deep and special knowledge of their world, and this fact cannot be trivialized if we are to perceive them accurately.

It will become obvious after studying this guide how little we really understand about the people who lived in North Carolina millennia before us. The data archaeologists rely upon to tell us the story of their past is fragile and is disappearing at an alarming rate.

A theme to emphasize throughout this guide is the role every person can play in protecting archaeological sites so that the data will be available to help us fill in gaps in our knowledge. It is illegal to collect artifacts and to dig Indian sites or historic sites on federally or state-owned lands. Don't encourage others to destroy the past by buying artifacts. Report violations you witness to law enforcement authorities or land-managing agencies, such as the U.S. Forest Service, the National Park Service, or the North Carolina Office of State Archaeology.

The Challenge of Protecting the Past

Everyone has the opportunity to touch the past and to access information gained by archaeological research. Sadly, however, that opportunity is disappearing in North Carolina. The number of sites that have not been disturbed or looted is dwindling at an alarming rate. Greed and ignorance rob us of our heritage and the chance to experience and connect with the past. For Indian people living in North Carolina today, archaeology is the only way they have to supplement the knowledge handed down by their elders through legends and oral histories. Sometimes, archaeology is the only echo of their ancestors' voices.

An illegal and thriving market in antiquities supports the destruction of sites by looters in search of artifacts. Vandals dig up Indian villages and burials, ignorant or uncaring of the fact they are destroying information or desecrating places of spiritual and historical significance to Native Americans. Also, many people innocently collect a few projectile points, glass beads, or rusty horseshoes, not knowing they are walking away with the data archaeologists rely on to study the lifeways of past people.

State and federal laws protect sites on public lands, but law enforcement is only part of the solution to protecting our past. Education and teachers can influence whether the school children of today will know and experience North Carolina's rich cultural legacy as the adults of tomorrow.

Why Teach Archaeology?

Education in archaeology serves three purposes. First, it promotes a sense of responsibility and stewardship of America's cultural heritage. Secondly, archaeology is an innovative means to capture students' attention while addressing many educational concerns in the classroom. This interest is perhaps the most attractive aspect of teaching with archaeology. Almost everyone seems to be curious about it—the intrigue of the past.

Archaeology is an integrative, interdisciplinary field. Archaeologists ask questions rooted in the social sciences and research those questions using scientific methods. This fusion of the social and physical sciences means that archaeology is an excellent way to teach students to think holistically, to integrate information from different topics. The study of archaeology can also address some of the concerns of educators today, such as scientific inquiry, problem solving, cooperative learning, and citizenship skills.

Using this Book as a Teaching Tool

Intrigue of the Past: North Carolina's First Peoples results from a marriage of the Bureau of Land Management's Project Archaeology and the University of North Carolina's Research Laboratories of Archaeology's commitment to provide a program designed to share with and teach North Carolina students about our state's rich and fascinating past. Equally important, the program emphasizes that the archaeological evidence of that past is fragile and threatened, and we all have a responsibility to see to its wise use.

Intrigue's teaching materials include two main components. Activities form the foundation; they include information about the fundamental concepts, processes, and issues of archaeology. Essays in Part 3 give teacher-oriented, more detailed information about four periods in North Carolina's ancient history as archaeologists have come to understand it. Ideally, the essays should be skimmed prior to starting *Intrigue* lessons with your students; they are written to give you better grounding for activities in the other four parts. Students can benefit from Part 3's "Quick Studies." Appendixes include places to visit suitable for all ages and a bibliography of selected

readings. Items suitable for young readers are specifically noted.

Intrigue presents an integrated means of teaching archaeology. Activities provide comprehensive understandings of concepts, issues, and insights in archaeology; information from the essays reinforce them through additional culture history. Designed with you, the educator, in mind, all activities are self-contained and use readily available materials that require little preparation to teach. Many of the activities help you teach required concepts and skills.

Intrigue of the Past: North Carolina's First Peoples does not include guidance for undertaking time- and labor-intensive activities, such as mock digs and dioramas. While these activities can enliven the study of archaeology, they are best built on the basic ideas presented here and are not necessary for giving students a grounding in the science and issues of archaeology. Also, be aware that conducting a dig or collecting artifacts at a real site on public land without a federal or state permit is a violation of law. Be aware that digging on private lands without the guidance of professional archaeologists destroys valuable information that can never be replaced.

Ideally, you will be introduced to *Intrigue* teaching materials by attending a workshop. If this is not the case, you have only one piece of the complete program. Workshops provide a forum for experiencing the activities first hand, for asking questions and exchanging ideas with teachers and archaeologists, and for providing current information about archaeology in your area. Also, you can get information about networks in your area you may want to tap into, such as avocational archaeology clubs, speakers, newsletters, and ongoing field-work.

To find out about workshops, or to share suggestions or comments, you may contact the Research Laboratories of Archaeology, University of North Carolina at Chapel Hill, Chapel Hill, NC 27599-3120; telephone (919) 962-6574.

How to Use This Book

Intrigue's teaching materials support many state curriculum requirements in the subjects of science, social studies, language arts, mathematics, and visual arts. Current teaching strategies—such as scientific inquiry, problem solving, values clarification, higher-level thinking skills, and teaching and learning styles—are woven into the lessons.

Teaching cooperative skills at all levels of thinking is important. Specific cooperative learning lessons have not been included. Rather, most of the lessons lend themselves to the cooperative learning process.

Instructors are encouraged throughout the guide to adapt the lessons according to teaching and learning styles, class size and age, time, subject, or any other considerations. Educators in scouting, outdoor education, youth groups, and after school programs will also find this material useful.

This book is organized into the five parts listed below.

- Part 1: "Fundamental Concepts."
- Part 2: "The Process of Archaeology."
- Part 3: "North Carolina's First Peoples."
- Part 4: "Shadows of People."
- Part 5: "Issues in Archaeology."

These parts are followed by a set of appendixes.

The activities are flexible; many of the lessons can be taught individually, although Part 1 is a prerequisite to the rest of the guide and is to be taught as a whole. Parts 1 and 2 are prerequisites for activities in Part 4. Part 5 activities are best taught after students have received a background

in archaeological concepts and methods.

Intrigue can be used as a unit or as part of a year's thematic study. Because there is no prescribed sequence, some information is repeated in several places.

Part 1: Fundamental Concepts

Activities in this part teach the fundamental concepts necessary for understanding archaeology: the importance of the past, culture, observation and inference, context, chronology, classification, and scientific inquiry. Teaching this part as a unit prior to other lessons will prepare students to more easily assimilate information from the rest of the guide. The lesson "It's in the Garbage," is an activity in which students use each of the concepts they have covered in Part 1 to analyze and interpret archaeological evidence.

Part 2: The Process of Archaeology

This part is about the process of archaeology: finding, excavating, analyzing, and interpreting archaeological sites and data. The lessons build on the basic concepts presented in Part 1. If taught as a whole, this part will give students a broad understanding of the archaeological process, but the lessons are designed to be taught singly as well.

Part 3: North Carolina's First Peoples

This part focuses on aspects of Native American lifeways during the time from 12,000 years ago until European contact, and it contains four substantive essays. The essays themselves are teacher-oriented, but they are also accompanied by "Quick Studies," which summarize key points about each cultural period and can be distributed as study aids for students. Use them to foster discussion about how lifeways differed across time, or how they compare to the way we live now. Each essay links to activities in Part 4.

Part 4: Shadows of People

While each is self-contained, Part 4's lessons feature some aspect of life discussed in Part 3. All but one require grounding in concepts covered in Parts 1 and 2. The exception is Part 4's opening lesson "Shadows of North Carolina's Past." It can be used prior to beginning lessons in Part 1. Use it as a hook to lead students into basic archaeological inquiry: How do we know what we know about the past? Or use it to launch into a comparative study of lifeways over time, based on Part 3's "Quick Studies."

Part 5: Issues in Archaeology

Many archaeological issues today revolve around how sites and artifacts are to be conserved and used. This part presents lessons about these issues and gives students a chance to examine their own beliefs and values about the past. Students need background knowledge to thoughtfully form values. Therefore, lessons in this part should be taught only after students have a broad understanding of archaeology. It is very important to give students the opportunity to draw together their knowledge and feelings about the past. Values clarification brings closure to the learning process and promotes personal responsibility. A lesson on "Archaeology as a Career" is also included.

Appendixes

The appendixes present supplementary material that teachers will find useful in both

presenting the lessons and extending them. Appendix 1 is an alphabetical listing of defined vocabulary words used in this guide. Appendix 2 contains a list of titles for further reading, including books geared to young readers. Appendix 3 compiles information on archaeological sites in North Carolina that are open to the public and that can be visited on school or family trips. And Appendix 4 indexes the lessons in this book by subject areas, skills, and strategies.

Lesson Format

Each lesson is designed to teach one or two archaeological concepts. Lessons are organized using the following outline of headings.

- *Objectives:* highlights the content, process, and product of the lesson.
- *Materials:* lists all materials needed.
- *Vocabulary:* list of key words, defined.
- *Background:* information for the teacher.
- *Setting the Stage:* an activity to hook students' interest.
- *Procedure:* step by step process to teach the lesson.
- *Closure:* an activity to conclude the lesson.
- *Evaluation:* suggestions for assessing student learning.
- *Extension:* some lessons contain additional activities.
- *Links:* a reference to other lessons that address similar concepts.
- *Sources:* sources from which background materials are drawn.

A key (at the head of each lesson) lists subjects addressed, skills learned, strategies used to teach skills and concepts, duration, and class size.

Activity sheets for students to complete are included in many lessons. Some lessons include masters that can be used as teaching aids. Both activity sheets and masters are reproducible as transparencies or handouts. The activities are easy to prepare and all materials are included or readily available.

Strategies for Using this Book

The following are examples of ways to use *Intrigue of the Past* to teach units in social studies, science, mathematics, language arts, and visual arts. This guide can also be used to teach a unit in interdisciplinary studies. In all cases you are encouraged to teach all of Part 1 so that students understand the fundamental concepts of archaeology. Some suggestions for choosing and organizing lessons follow.

Social Studies

Intrigue of the Past lessons can be easily integrated into the social studies curriculum. The following is an example of how to use the lessons; many other strategies are possible.

- Part 1: all lessons.
- Part 2: "Stratigraphy and Cross-Dating"; "Artifact Classification"; "Tree-Ring Dating"; "Measuring Pots"; "Looking at an Object"; "Inference by Analogy."
- Part 3: focus on cultural history and change over time.
- Part 4: "Shadows of North Carolina's Past"; "Pottery Traditions"; "A Siouan Village"; "Language Families"; "North Carolina Place Names."
- Part 5: "Rock Art"; "Artifact Ethics"; "Site Robbers"; "A Guided Journey into the Past"; "Take Action, Save the Past."

Science

Science objectives can be taught using many lessons in the guide.

- Part 1: all lessons.
- Part 2: all lessons.
- Part 3: focus on technology and past environments.
- Part 4: "Shadows of North Carolina's Past"; "Shifting Coastlines"; "Name That Point!"; "Pottery Traditions."
- Part 5: "Archaeology as a Career"; "Rock Art"; "Creating Your Own Rock Art"; "Site Robbers"; "A Guided Journey into the Past"; "Take Action, Save the Past."

Language Arts

Language arts are used in many lessons; others can be adapted to focus on language

- Part 1: all lessons.
- Part 2: "; "Gridding a Site"; "Artifact Classification"; "Tree-Ring Dating"; "Archaeobotany"; "Experimental Archaeology: Making Cordage"; "Inference by Analogy."
- Part 3: focus on comparing how lifeways change; e.g., foods, technology, houses.
- Part 4: "Shadows of North Carolina's Past"; "Name That Point!"; "Pottery Traditions"; "A Siouan Village"; "Language Families"; "North Carolina Place Names."
- Part 5: "Rock Art"; "Artifact Ethics"; "Site Robbers"; "A Guided Journey into the Past"; "Take Action, Save the Past."

Mathematics

Many lessons contain mathematical applications.

- Part 1: all lessons.
- Part 2: "Tree-Ring Dating"; "Archaeobotany"; "Measuring Pots"; "Experimental Archaeology: Making Cordage"; "Archaeological Soils."
- Part 3: focus on activities using charts and graphs.
- Part 4: "Name That Point!"; "Language Families."

Visual Arts

These lessons contain art activities based on the art work of ancient people

- Part 1: all lessons.
- Part 2: "Experimental Archaeology: Making Cordage"; "Mending Pottery."
- Part 3: focus on art activities.
- Part 4: "Rock Art"; "Creating Your Own Rock Art"; "A Guided Journey into the Past."

Interdisciplinary Studies

Because of its interdisciplinary nature, archaeology is a perfect topic to teach across traditional subjects. Archaeologists use scientific inquiry (science) to research questions about past cultures and people (social studies). Some of their research requires the manipulation of numerical data (mathematics). Research results must be communicated to an audience using a variety of writing and communication techniques (language arts and visual arts).

Although Part 1's lessons have been categorized into subject areas, it is suggested they still be taught first as a unit. Supplement all phases of interdisciplinary study with appropriate readings for children.

Language Arts

- Part 1: "Observation and Inference"; "Chronology: The Time of My Life."
- Part 3: focus on language arts activities.
- Part 4: "Shadows of North Carolina's Past."
- Part 5: "Artifact Ethics"; "Site Robbers."

Science

- Part 1: "Observation and Inference"; "Archaeological Context"; "Classification and Attributes"; "Scientific Inquiry."
- Part 2: "Archaeobotany"; "Stratigraphy and Cross Dating"; "Tree-Ring Dating."
- Part 3: focus on technology and past environments.
- Part 4: "Shifting Coastlines."

Social Studies

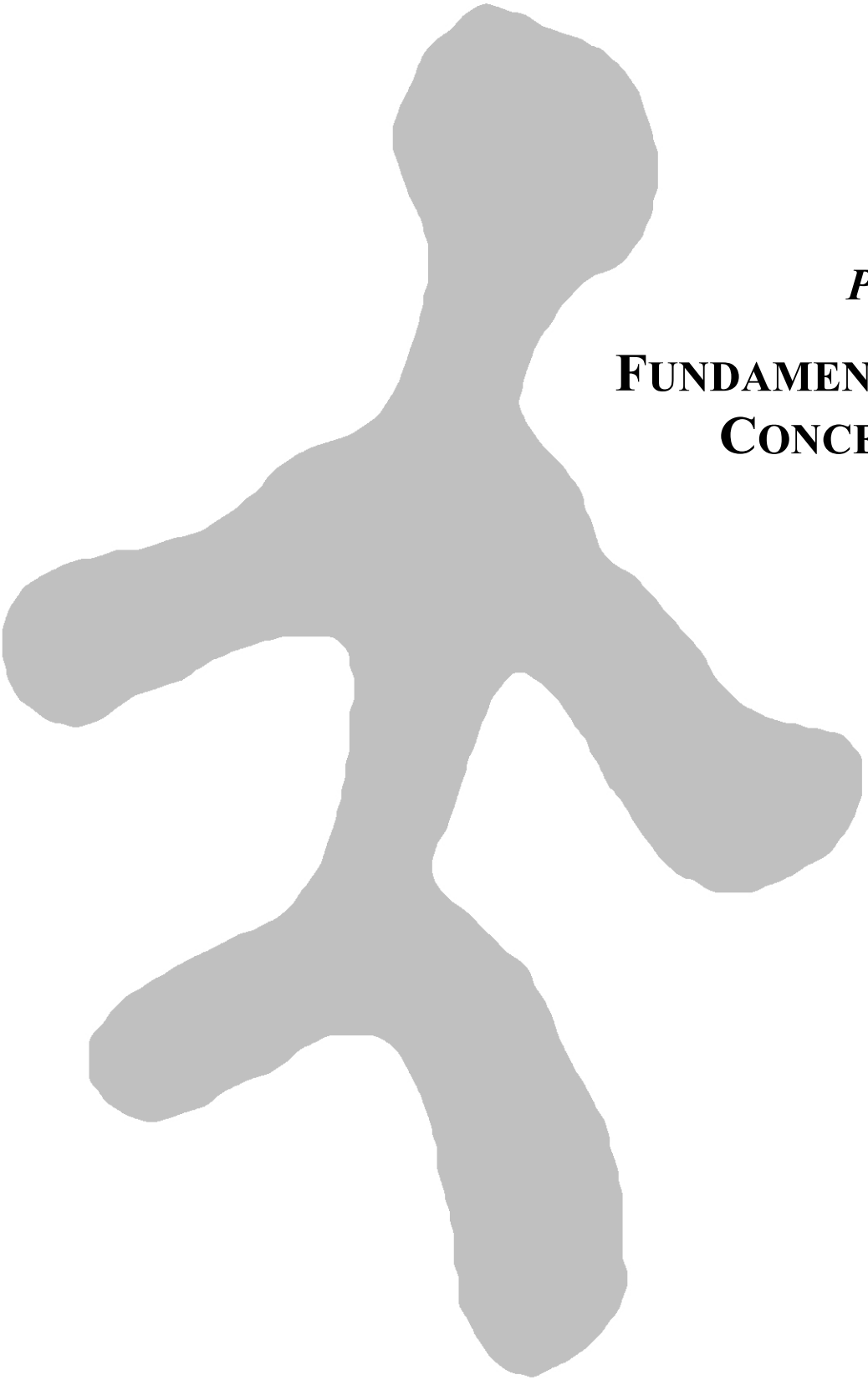
- Part 1: "Why is the Past Important?"; "Culture Everywhere"; "Chronology"; "It's in the Garbage."
- Part 2: "Looking at an Object"; "Inference by Analogy."
- Part 3: focus on culture history.
- Part 4: "Pottery Traditions"; "North Carolina Place Names."
- Part 5: "A Guided Journey into the Past"; "Take Action, Save the Past."

Visual Arts

- Part 1: "Culture Everywhere."
- Part 2: "Mending Pottery."
- Part 5: "Rock Art"; "Creating Your Own Rock Art."

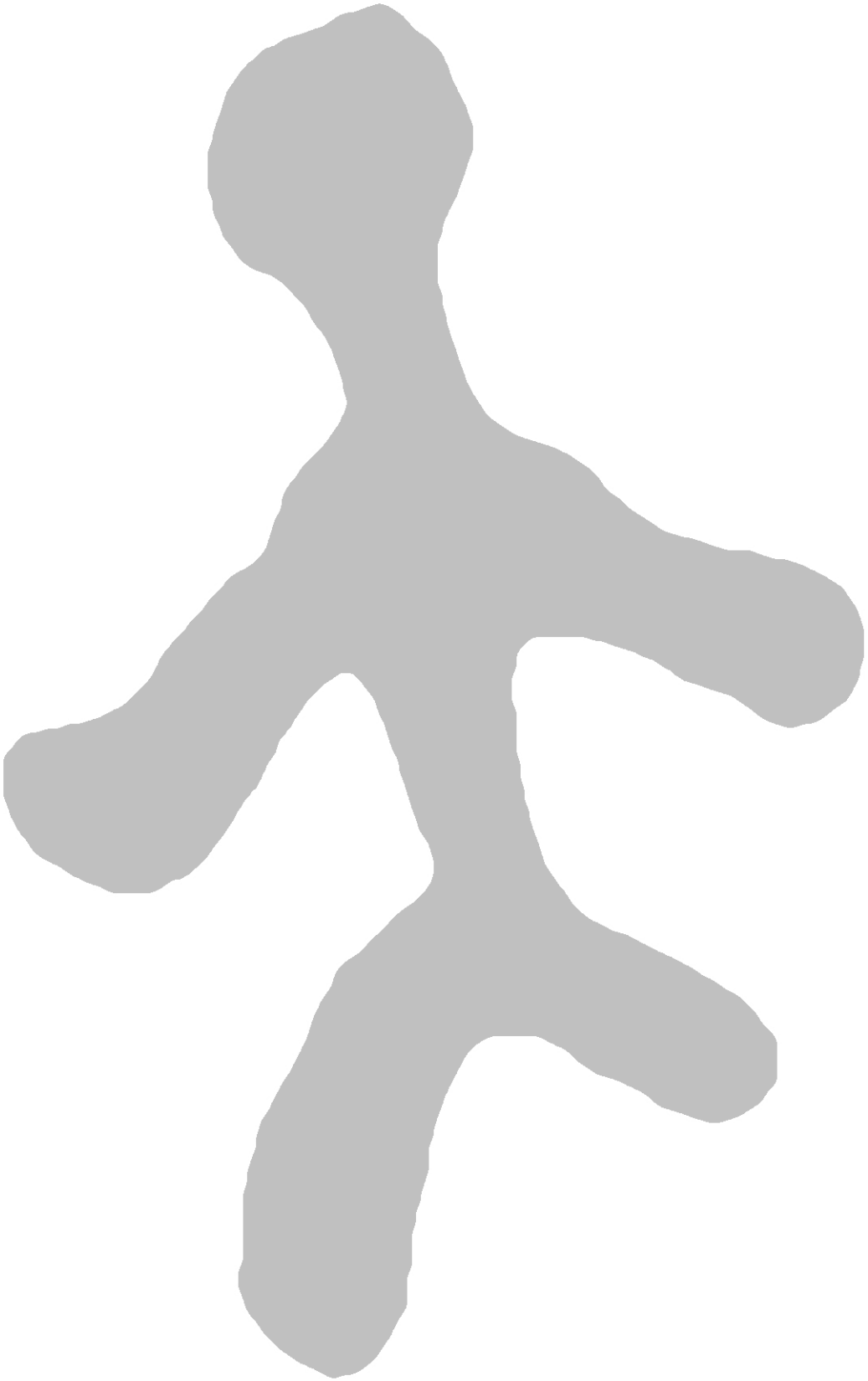
Mathematics

- Part 1: "Observation and Inference"; "Archaeological Context."
- Part 2: "Gridding a Site"; "Measuring Pots."



Part 1

FUNDAMENTAL CONCEPTS



Part 1

INTRODUCTION

Conch-shell gorget from Stokes County, North Carolina, AD 1450–1600.

British archaeologist Stuart Piggott once called archaeology "the science of rubbish." There is truth to his statement. Archaeologists spend lifetimes investigating the abandoned remains of ancient societies. Contrary to popular images about archaeologists, what intrigues them is not spectacular treasure, but the buried and mundane pieces of daily life. Today's archaeologists are as interested in *why* people lived the way they did, as in the objects they made and the buildings they erected. Today's archaeology is guided by scientific methods. It is a rigorous and demanding discipline, requiring a broad range of skills and techniques.

Archaeology: Then and Now

In the early 1900s, most archaeologists were self-trained. They merely had to like the past, have some experience in excavation and be able to classify artifacts. Their predecessors of the 1800s were often mere treasure hunters who ravaged sites for collectibles. Tackling sites from Neolithic burial barrows in England to Hopewell mounds in Ohio, they wielded spades for adventure, fun, and curiosity. Even those tempered by intellectual curiosity, like Heinrich Schliemann who discovered Homer's Troy in 1873, left a mixed legacy. With little regard for preservation, he, like other early archaeologists, destroyed almost as much as he discovered. Excavation techniques were brutal as hired laborers shoveled out dirt to search for precious objects to display in museums or private collections.

Modern archaeology, however, is a complex process that has two facets. One comprises the *techniques*—like precise excavation, accurate recording, and laboratory analysis—that archaeologists use to recover, order, and describe data. The other is *interpretation* of this evidence to gain insights into the events, livelihoods, environments, and landscapes that compose the unwritten history of the people who once lived in the places archaeologists investigate.

Modern archaeologists must tuck an array of specialized skills and scientific methods under their belts. They must be versed in *theoretical skills* in order to form precise research hypotheses to test and specific objectives to achieve. As research progresses, they must be proficient in *methodological skills* so they can select appropriate ways to collect and analyze data. In the field, it is not enough just "to dig" in a careful way. Archaeologists must decide what sampling and trenching systems to use, develop recording strategies, deal with preservation conditions for fragile objects, select and work with specialists in other disciplines, such as botanists and geologists, and do myriad other things.

Technical skills overlap with methodological skills. As archaeologist Brian Fagan puts it, knowing about something "in theory" is quite different from putting it into practice under working conditions. Archaeological excavations require precise implementation of find-recovery

systems that keep artifacts in order from the moment they are found until they are taken to the laboratory for analysis. Keeping track of provenience is crucial. In other words, the sense of what went on at a site can only be gleaned when the exact location and relationship of things like artifacts, botanical remains, and dwellings in the site is known. This means archaeologists have to be comfortable assuming roles like photographer, digger, surveyor, recorder, soil scientist, and supervisor.

Both in the field and in the laboratory, archaeologists rely on *analytical and writing skills* as well. Because excavation destroys a site's original configuration, archaeologists have the responsibility to analyze finds and prepare detailed field-work reports that form part of a permanent research record. Perhaps the least favorite but nonetheless important set of skills archaeologists must hone are *administrative and managerial.* Not only must archaeologists be able to coordinate research and excavation activities with the various skilled, unskilled, and sometimes temperamental people involved, but also they must raise and administer research funds, set up field camps, and arrange for items ranging from permits to stationery.

All these skills—theoretical, methodological, technical, administrative, managerial, analytical, and writing—are essential to archaeology. But the discipline's fundamental identifier as a science is this: Like scientists of any field, archaeologists obtain knowledge using the scientific method, based on the principle that knowledge about the world is cumulative and subject to constant rechecking.

As scientists, archaeologists learn about past human societies by observing objects, events, and phenomena. In assessing observations, they use either inductive or deductive reasoning. *Inductive reasoning* takes specific observations and makes generalizations from them. For instance, archaeologists observed that some items found in North Carolina sites dated 1,000 years ago either came from or were made from material not locally available, like copper from the Great Lakes region or conch shell from the Gulf Coast. They inferred that the American Indians living in those places then benefitted from extensive trade networks.

When archaeologists use *deductive reasoning*, on the other hand, they start with a generalization and then deduce specific implications. For example, based on certain theories about how people choose where to live, an archaeologist might deduce where ancient settlements might be located. These areas could then be searched for archaeological sites, to test whether these theories hold up.

As archaeology has become more sophisticated, archaeologists have developed standard approaches to investigation. First they make decisions about a research question and a geographic area they want to study. Once these are identified, archaeologists do background research, involving both library and field work. This preliminary work helps them refine (and sometimes re-define) the initial question so specific research objectives can be set. These generally include testing hypotheses that are either related to prior research or are new ones that emerge from the background work. Once the hypotheses are refined, archaeologists locate and survey suitable sites and excavate selected ones. All materials and records from the excavations are taken to the laboratory where archaeologists do detailed analyses that include not just classifying artifacts and identifying materials from which they were made, but also studying food remains, pollen samples, and other kinds of information. Specialized tests, like radiocarbon dating, may be done. After they synthesize the information, archaeologists test the hypotheses they formed at the project's start to help explain the history of the site or region. Publishing the research results is the archaeologists' final responsibility.

Archaeology: Breadth and Goals

Archaeology has many subfields. Broad categories include classical archaeologists who study Greece and Rome; prehistoric archaeologists who study human history before written records; and historic archaeologists who use archaeology in conjunction with written records. Because no one can be expert for the entire time span covered by archaeology, archaeologists specialize. For example, prehistoric archaeologists are either New or Old World scholars. Among those, some study pottery, some study the origins of agriculture, and some study animal bones or other remnants of past life. Among those, some study North Carolina coastal pottery dating between 3,000 to 2,000 years ago, some study what Eastern seed plants Indian people domesticated, and so on. Collaboration lets archaeologists put their pieces of the past's puzzle together.

Regardless of specialization, archaeologists generally agree their research has three broad goals: to study human history, to reconstruct past lifeways, and to generalize about human cultures and how they change. The human history of a place emerges by studying sites and the artifacts, structures, and other debris people left there. Context, both in time and space, is crucial because archaeologists piece together local history by building up sequences of human activity that extend over hundreds or thousands of years. Among questions archaeologists ask are: How did particular cultures evolve? How did they change over time?

Archaeologists can reconstruct the lifeways of people who lived in a place by investigating how their lives changed and played out against complicated backgrounds of changing environments. As archaeologists learn about the ways in which people made their livings in the past, they can understand the interplay among where people lived, what they ate, and the environment. Generalizing about human cultures, sometimes called the study of "cultural process," usually involves archaeologists' concern with explaining *why* and *how* cultures changed and adapted. To explore this facet, archaeologists devise a framework of testable propositions (i.e., inferences based on observations) that can be supported, modified, or rejected when they review excavated and analyzed archaeological data.

Archaeology: Window on Time

Archaeologist Brian Fagan summed up archaeology's relevance this way: Archaeology is the only viable way to discover the history of many of the world's societies whose documented past began only in recent times. To peoples whose window to their past opens only onto sketchy or nonexistent written and oral records, it offers support for fostering cultural identity. Most American Indian groups, for example, adopted writing only in the past three centuries. For eons before contact, Indian history consisted mostly of oral traditions handed down from generation to generation. Through archaeology, knowledge is gained that adds perspective on that history.

In the following lessons, students will be introduced to some of the fundamental concepts archaeologists use. Working through the lessons' activities, students will begin to discover why archaeologists study the past and, importantly, why they approach it as they do.

Sources

Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this chapter's main heading is taken from Figure 4.18.]

Lesson 1.1

WHY IS THE PAST IMPORTANT?

Subjects: science, social studies, language arts.
Skills: knowledge, application, evaluation.
Strategies: brainstorming, discussion.
Duration: 15 to 30 minutes.
Class Size: any; groups of 3 to 4.

Spear point from Montgomery County, North Carolina, 6000–5000 BC.

Objectives

As an introduction to the study of North Carolina's archaeological heritage, students will use personally owned object to:

- share the importance of their past;
- connect this importance with reasons why the human past is important.

Materials

Students bring to class an object, photograph, or drawing of an object that represents their past.

Vocabulary

Archaeologist: a scientist who seeks to understand past human cultures by careful study of the artifacts and other evidence from archaeological sites.

Archaeology: a method for studying past human cultures based on material evidence (artifacts and sites).

Artifact: any object made, modified, or used by humans; usually this term refers to a portable item.

Culture: the set of learned beliefs, values, styles, and behaviors generally shared by members of a society or group.

History: the study of past events and cultures using written records, oral traditions, and archaeological evidence as sources of information.

Prehistory: the period of human experience prior to written records; in the Americas, prehistory refers to the period before Europeans and their writing systems arrived, covering at least 12,000 years.

Site: a place where human activities occurred and material evidence of these activities was left.

Background

Sites and *artifacts* can be messengers from the past. If we know how to read their messages, they can tell us about the people who made and used them and then left them behind. Although the owners of the artifacts and the inhabitants of the sites may have lived hundreds or even thousands of years ago, they undoubtedly had many of the same needs and concerns, hopes and fears, joys and sorrows that we have today.

The messengers from the past belong to everyone. Everyone has a right to know how the world came to be and to know his or her place in the world. Material traces and their context play a universal role "in providing *cultural* continuity and perspective, and hence in linking past, present and future within the experience of any given human generation" (Lipe 1984, p. 2, emphasis added).

The link to the past is provided through scientific analysis as well as through traditional heritage values placed on *archaeological sites* and artifacts. For example, Old Salem in Winston-Salem provides a tangible link to the colonial *history* of North Carolina, and it is valued for that reason. By examining Old Salem's historic buildings, objects, and residents' journals, archaeologists hope these items will provide scientific information about the lives of the Moravian people who lived there. Similarly, the *prehistoric* sites throughout North Carolina represent aspects of the heritage of American Indians and are valued accordingly. These sites are also capable of providing scientific information about the history of the region.

Setting the Stage

This lesson sets the stage for Part 1. It will help students begin to discover *why* we study the past. The remainder of Part 1 explores *how* we study the past.

Assign students to bring an object (artifact) or photograph from home that tells something about their own or their family's past. If the object cannot be brought to class, a drawing or description will suffice.

Procedure

1. Share background information and vocabulary.
2. Working in groups of 3 to 4, students tell one other what the object conveys about their past.
3. In a class discussion, ask the following questions:
    - Is it important for you to know about your past? Why or why not?
    - Is it important to know about the human past? Why or why not?
    - Humans have lived in North Carolina for at least 12,000 years. Is it important to know about their lives? Why or why not?
4. What can we learn from the past? The students brainstorm ideas. Some examples: how humans lived in the past and how and why human cultures changed over time.

Closure

Emphasize that the students' past and their families' past is important; that their past helps define who they are. Ask each student to spend five minutes writing an explanation of the artifact he or she brought to share. The student should include in the narrative why the artifact is important to his or her family history and tell why it is important to know about the past.

Extension

Repeat this lesson again at the close of your study of archaeology to demonstrate that students have broadened their understanding of archaeology and the past.

Sources

Lipe, William D. 1984. "Value and Meaning in Cultural Resources." In *Approaches to the*

Archaeological Heritage: A Comparative Study of World Cultural Resource Management Systems, edited by Henry Cleere, pp. 1–11. Cambridge: Cambridge University Press.

Smith, Shelley J., Jeanne M. Moe, Kelly A. Letts, and Danielle M. Paterson. 1993. *Intrigue of the Past: A Teacher's Activity Guide for Fourth through Seventh Grades.* Washington, D.C.: Bureau of Land Management, U.S. Department of the Interior. [This lesson is adapted from "Why is the Past Important?" on pp. 9–10, courtesy of the Bureau of Land Management.]

Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this lesson's main heading is taken from Figure 3.8.]

Lesson 1.2

CULTURE EVERYWHERE

Ceramic pot from Cherokee County, North Carolina, ca. AD 1770.

Subjects: social studies, language arts.
Skills: knowledge, comprehension, analysis, evaluation.
Strategies: brainstorming, categorize, compare and contrast, discussion, reading.
Duration: 30 to 45 minutes.
Class Size: any.

Objectives

In their study of culture, students will use a chart to:

- show the different ways that cultures meet basic human needs; and
- recognize that archaeologists study how people from past cultures met basic needs by analyzing and interpreting the artifacts and sites that they left behind.

Materials

"Comparing Cultures" activity sheet for each student. "Glimpses of Indian Life" narrative.

Vocabulary

Anthropologist: a scholar who practices anthropology—the comparative study of human culture, behavior, and biology, and of how these change through time.

Anthropology: the comparative study of human culture, behavior, and biology, and of how these change through time. Archaeology is often considered a specialty within anthropology.

Archaeology: a method for studying past human cultures based on material evidence (artifacts and sites). Archaeology is often practiced as a subfield of anthropology.

Archaeologist: a scientist who seeks to understand past human cultures by careful study of the artifacts and other evidence from archaeological sites.

Cultural relativism: understanding other cultures in their own terms without making judgments about them.

Culture: the set of learned beliefs, values, styles, and behaviors generally shared by members of a society or group. "The way the members of a group of people think and believe and live, the tools they make, and the way they do things" (Braidwood 1967, p. 30).

Ethnocentrism: the attitude that one's own traditions, customs, language, and values are the only right and proper way, and that those of other cultures are inadequate or wrong.

Background

Anthropology is the comparative study of humans and their *cultures*. Cultural *anthropologists* usually conduct their studies by observing the members of a cultural group as they live their lives and interact with one another. *Archaeologists* are anthropologists who study cultures by analyzing material evidence (artifacts and sites). Most archaeologists study past cultures, but

some archaeologists use the same methods to study living cultures. Among the questions archaeologists seek answers to are: How are cultures different? How are they alike?

Anthropologists have learned that all people everywhere have basic needs that must be met. Some of these basic needs, like food and water, literally keep body chemistry going. Others kinds of basic needs transcend those required for physical well being, but are just as important to people's lives. Most anthropologists believe, for example, that sociability is a basic need because people tend to die in isolation. While not the food or water required to keep the human body functioning, sociability is an important part of survival.

A fundamental assumption of archaeological study is that people who lived in the past had the same basic needs for existence as do people living in the present. Using the broad (physical and social) category of basic needs, these needs may be outlined as follows:

- the need for food and water (subsistence);
- the need for protection from the elements (clothing and housing);
- the need to reproduce the culture (marriage, kinship, education);
- the need for explanation (religion, philosophy, science);
- the need to communicate (language, art, music).

What needs must be satisfied is universally human. *How* needs are satisfied is cultural. The many different ways that cultures have evolved to meet the basic human needs results in the world's rich cultural diversity.

When studying other cultures, there is a tendency to emphasize only the differences among people and to look at other cultures *ethnocentrically*. Cultures with less sophisticated forms of technology are frequently portrayed as simple-minded and naive. However, on the contrary, such people often have unequaled understanding, knowledge, and adaptability to the environments in which they live. It is important not to accentuate "them" and "us." When scientifically studying other cultures, it is necessary to suspend judgment. One culture is neither better nor worse than another; it is just different. This is the concept of *cultural relativism*.

Many people mistake *archaeology* for a swashbuckling "Indiana Jones" adventure, and archaeologists often are thought of as questing after rare and beautiful artifacts. Although it is true that at times archaeologists do find rare and beautiful things, they could more accurately be compared to Sherlock Holmes. They are detectives—detectives of the past, who gradually piece together the culture of a people to understand more about them. A lone artifact discloses very little about a culture. It is by studying many sites and artifacts and their relationship to each other and the environment that one discovers the way people lived. Archaeologists study a people's culture by studying the things they left behind.

Setting the Stage

1. List on the board students' responses to the following: What do you need to have in order to live?

2. After the students have brainstormed, help them categorize their list. They do not have to arrive at the five categories outlined above. Anthropologists themselves do not agree on how to categorize the needs. For example, the students may come up with eight needs: food, water, shelter, clothing, reproduction, transportation, education, and explanation.

Procedure

1. Distribute the "Comparing Cultures" activity sheet to the students. Write the categories of basic needs the students identified during their brainstorming (food, shelter, etc.) down the

vertical column on the chart's left side.

2. Read "Glimpses of Indian Life," based on John Lawson's journals of his survey trip through the Carolinas in 1701. This will familiarize the students with some aspects of Native American life in North Carolina when European colonists were living in towns along the coast. You can also choose a third culture to analyze and compare—for example, the culture of Mexico or an East African culture, or any culture with which your students are familiar.

3. The students construct the chart, filling in how the basic human needs are met in the different cultures.

4. In a class discussion, students compare and contrast the cultures. If the different cultures seem strange or inferior to the students, inform them that our culture can be baffling to people from another culture. For example, today's Hindus are horrified at the thought of eating meat; it is against their religion to do so. When European colonists arrived, many Indian tribes in North Carolina were egalitarian. They made decisions through consensus, or agreement, of a council. Native Americans were puzzled when Europeans wanted to deal with a single "leader" whose voice could dictate how things were done.

5. Explain that because archaeologists can neither ask the people who left the artifacts how they met their needs, nor observe them using the artifacts, past behavior must be inferred from the material remains of the culture. For example, if corn cobs are present, archaeologists could guess that the people were farmers.

Note: The students may not find the information they need from "Glimpses of Indian Life" to fill in *all* the blanks. Discuss why this may be so. For example, perhaps the author only chose to highlight certain things from Lawson's journal, or the Indian people Lawson visited and wrote about chose not to give him certain information about their beliefs, religion, or other aspects of their lives. Therefore, the author who condensed Lawson's account did not have access to that information either. Also, do not single out or make an example of students in your classroom who are from minority ethnic groups. The attention can be embarrassing and hurtful. However, welcome what these students might freely offer to the study of other cultures.

Closure

As you analyze the chart, what do you notice about the ways cultures meet their basic needs? How do archaeologists and/or historians discover how people met basic human needs in the past?

Evaluation

Students turn in their activity sheets for evaluation.

Links

Lesson 2.11: "Inference by Analogy."
Lesson 4.7: "North Carolina Place Names."

Sources

Braidwood, Robert J. 1967. *Prehistoric Men.* 7th ed. Glenview, Ill.: Scott Foresman.

Lawson, John. 1967 [orig. 1709]. *A New Voyage to Carolina*, edited by Hugh Talmage Lefler. Chapel Hill: University of North Carolina Press.

Smith, Shelley J., Jeanne M. Moe, Kelly A. Letts, and Danielle M. Paterson. 1993. *Intrigue of the Past: A Teacher's Activity Guide for Fourth through Seventh Grades.* Washington, D.C.: Bureau of Land Management, U.S. Department of the Interior. [This lesson is adapted from

"Culture Everywhere" on pp. 11–13, courtesy of the Bureau of Land Management.]

Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this lesson's main heading is taken from Figure 7.14.]

Comparing Cultures

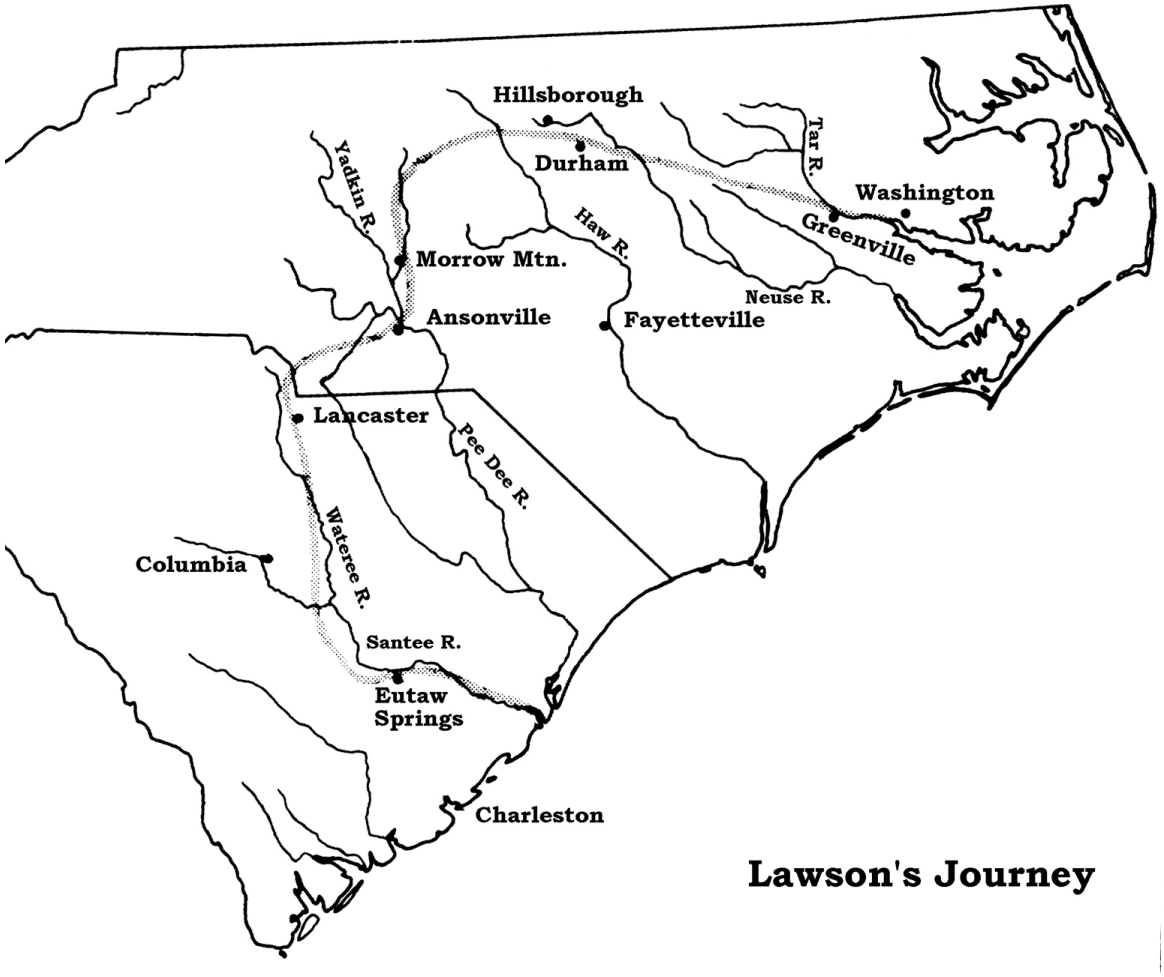
Name:

Basic Needs	**How Basic Needs Are Met in Current American Culture**	**How Basic Needs Are Met in 18th-century N.C. Indian Cultures**	**How Basic Needs Are Met in: _____**

Glimpses of Indian Life, AD 1700

Background

By the 1700s, English colonists had settled in places along the coasts of Virginia and the Carolinas. Their towns included Williamsburg, Virginia and Charleston, South Carolina. Colonial officials in Charleston wanted to know more about the land and the native peoples living in the interior. They asked an Englishman named John Lawson to survey and explore the area. Lawson agreed and left Charleston on December 28, 1700. He took with him five other Englishmen, three Indian men, and one Indian woman. Weaving through the heart of the Carolinas to finish near where Greenville, North Carolina is today, Lawson's journey lasted 59 days. As he traveled, Lawson wrote about the different Indian peoples he met. The following account is based on some of Lawson's observations as he went from village to village.



Lawson's Account

The Indians of North Carolina are of different heights and builds, as the Europeans are. They speak many different languages. Each day, they do the work they need to do to live. Wild plant foods like nuts and berries are gathered; gardens of corn and squash are planted, tended, and harvested; tools, clay pottery, and clothes are made; and animals, like deer and turkey, are hunted for meat. They find and process the plants they need to cure diseases and treat wounds. For example, some people use the oil of acorns to soothe burns.

The people live in villages scattered across the region. Some villages are large and some are small. Some have tall wood fences surrounding them, and others do not. Many villages are along streams and rivers. There is water to drink and water to travel on. The land in these places is easy to work with stone hoes or digging sticks, and the soft soils make fertile gardens for the corn and squash crops. In some places, pumpkins grow and peach trees offer shade as well as fruit. The villagers eat these foods from their gardens with the meats the hunters bring. Venison, which is deer meat, and wild turkey are the meats people eat the most. Many wild plant foods and herbs are gathered, too, which add to the food stores; hickory nuts and acorns; strawberries and blackberries; and grapes and wild onions, to name a few.

Foods like venison and turkey give the people more than meat. Women clean deer skins and use the hides to make clothes and blankets. They weave turkey feathers into soft capes people wear over their shoulders. Many of the animal bones are shaped into tools; turkey bones make good awls, which are tools used to punch holes into tough hides.

In the villages, many of the houses are round or oval. They are covered with cypress, cedar, or pine bark. When people build their houses, they make long poles of any wood that bends. The poles are actually small tree trunks only about three to six inches thick. After they cut the trees and take off the bark and limbs, the people heat the poles in a fire to strengthen them. Then they put the poles side by side in the ground to make the shape of the house they want. The tops of the poles are bent toward the center and tied together by cord made from elm bark or a tough moss that never rots. Finally, the poles of the roof and walls are covered with bark to make the houses warm and tight for the winter. In the summer, the people may leave the walls uncovered to let air come through and cool the house. A hole is left in the center of the roof so that smoke from the hearth inside the house can escape.

At times during the year, people leave their villages and gather together in one place to have feasts and to buy and sell items they want, such as deer skins for clothes or shell for jewelry. It is much like the European markets and fairs. Some people come from as far away as 60 miles. Besides getting the goods they need, the people play games. One game is a sort of arithmetic. Two players use a pack of 51 thin reeds that are about 7 inches long. When they play, one person takes the pack and tosses some of the reeds high into the air. Before the reeds come down, each player has to guess how many reeds are in the air and how many remain in the hand of the person who threw them.

The Indians have different kinds of dances and songs. Some are for war and some celebrate peace. Others honor respected elders. Others are done when people marry. Usually, these kinds of dances and songs are composed especially for the celebration and are not used again. At other celebrations, people use time-honored songs and dances whose words and music always stay the same. When the Harvest of Corn festival ends, for example, the people give thanks for their crops with a special song and dance to the Good Spirit.

Because there are different tribes, marriage customs differ among the Indian people. Lawson tells us about the custom in one tribe; he does not name the tribe. He writes that before people get

married, the man asks the woman's parents if he can marry her. The parents say they will think about it, and the man leaves. He knows, though, that the parents expect him to return. When he does, he brings his relatives along to talk with all the woman's relatives. At the meeting, everybody gives an opinion about whether the match is a good one. If the families agree it is, the marriage is arranged. The man must pay the woman's family for her. Often the payment is in deerskins. He pays because the woman is a good worker, and the family will miss her contribution. He also shows by giving deerskins that he is a good hunter and can provide meat for his family. The woman must agree to the arrangement; she cannot be married unless she wants to.

Death is a time of sadness and people bury their dead with ceremony. Just like at a European wake, some Indian peoples Lawson writes about keep vigil over the body for a time. Later they bury the person with some of the tools and possessions the person used in life. At a man's funeral, people in the village gather, grieve, and listen while a conjurer (who is a priest) tells about the things the man did and what he was like. Because the man was a skilled hunter and loved his village, the conjurer tells the people that he has gone into the Country of Souls. This is a place (like heaven) where a good person goes after death and all wants are satisfied. People who are lazy, bad hunters, or thieves go to a place where snakes crawl and the food is nasty.

Lesson 1.3

OBSERVATION AND INFERENCE

Stone gorget from Buncombe County, North Carolina, ca. AD 200.

Subjects: science, social studies, language arts.
Skills: knowledge, comprehension, application, analysis, evaluation.
Strategies: scientific inquiry, decision making, observation, problem solving, writing.
Duration: 45 to 60 minutes.
Class Size: any; groups of 2 to 4.

Objectives

In their study of observation and inference, students will use activity sheets and coins to:

- differentiate between observation and inference through a problem-solving approach;
- demonstrate their knowledge by analyzing an archaeological artifact and creating their own observation-inference statements.

Materials

"Algonkian Boat Building" activity sheet and master, and "A Colonial Coin" activity sheet for each student, and/or transparencies of each. A collection of foreign or U.S. coins (one for each student or team).

Vocabulary

Artifact: any object made, modified, or used by humans; usually this term refers to a portable item.
Data: information, especially information organized for analysis.
Hypothesis: a proposed explanation or interpretation that can be tested by further investigation.
Inference: a conclusion derived from observations.
Observation: the act of recognizing or noting a fact or occurrence; or the record obtained by such an act.
Site: a place where human activities occurred and material evidence of those activities was left.

Background

Science is based on *observation* and *inference*. Any phenomenon being studied must first be observed, whether it be from a satellite or through a microscope. An inference is a reason proposed to explain an observation. The *hypothesis* is a chosen inference that the scientist will attempt to confirm or disprove through testing.

Archaeologists use observation and inference to learn the story of past people. By making observations about objects (*artifacts* and *sites*) they infer the behavior of the people who used the objects. When archaeologists find the remains of a coastal Algonkian village (observation), they could infer that the people were farmers. To test that inference (hypothesis), they would look for evidence of farming, such as farming implements (like stone hoes) and food remains from crops

(like corn cobs and squash seeds). If they find these things, their hypothesis is verified. Archaeologists construct careful hypotheses when making inferences from archaeological *data*.

Setting the Stage

1. Present students with a possible observation-inference scenario from their lives. Example: All the students in the classroom came to school on Tuesday, but did not come on Monday (observation).

2. What many and varied reasons (proposed inferences) might there be for their absence on Monday? Examples: holiday, sleet storm, teacher workday, fire at school Sunday night.

3. In what ways might one or more of these inferences (hypotheses) be tested in order to come to a conclusion about the absence? Examples: Look at the calendar to see if there was a holiday on Monday; check the weather report; ask the teacher if Monday was a teacher workday; ask the local fire department if they responded to a fire at the school Sunday.

Procedure

1. For "Algonkian Boat Building":
   a. Project or distribute the master of the "Algonkian Boat Building." Project or distribute the "Algonkian Boat Building" activity sheet.
   b. Read each statement and ask students to decide if it is a statement of observation or of inference. Ask them to give reasons for their answers.
   c. How might one or more of the inferences (hypotheses) be tested?
   d. Assist students to create a definition for observation, inference, and hypothesis.
2. For "A Colonial Coin":
   a. Project or distribute the activity sheet "A Colonial Coin" and explain that the coin was found by an archaeologist at the North Carolina site of Brunswick Town, which was occupied during the 1700s.
   b. Which statements are observations and which are inferences? Which observation is each inference based on?
   c. Many different inferences are possible from one observation. What other inferences might be made from observing this coin?
   d. Choose one inference (hypothesis) and think of ways archaeologists might test it by looking at other evidence at the site (e.g., if people are peace loving, archaeologists would not expect to find a lot of weapons or protective gear).

Closure

Ask students to summarize what they learned about the importance of observation, inference, and hypothesis testing in archaeology.

Evaluation

Ask each student to be an archaeologist.

1. Give each student or team a foreign or U.S. coin and ask them to imagine they have found the coin at an archaeological site.
2. Ask them to create a list of observation statements and inference statements about the coin.
3. Have them choose one inference as their hypothesis and describe how they might test it.
4. Collect and correct their statements.

Links

Lesson 2.3: "Artifact Classification."

Sources

Hulton, Paul. 1984. *America 1585: The Complete Drawings of John White*. Chapel Hill: University of North Carolina Press.

Smith, Shelley J., Jeanne M. Moe, Kelly A. Letts, and Danielle M. Paterson. 1993. *Intrigue of the Past: A Teacher's Activity Guide for Fourth through Seventh Grades*. Washington, D.C.: Bureau of Land Management, U.S. Department of the Interior. [This lesson is adapted from "Observation and Inference" on pp. 14–18, courtesy of the Bureau of Land Management.]

Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this lesson's main heading is taken from Figure 5.7.]

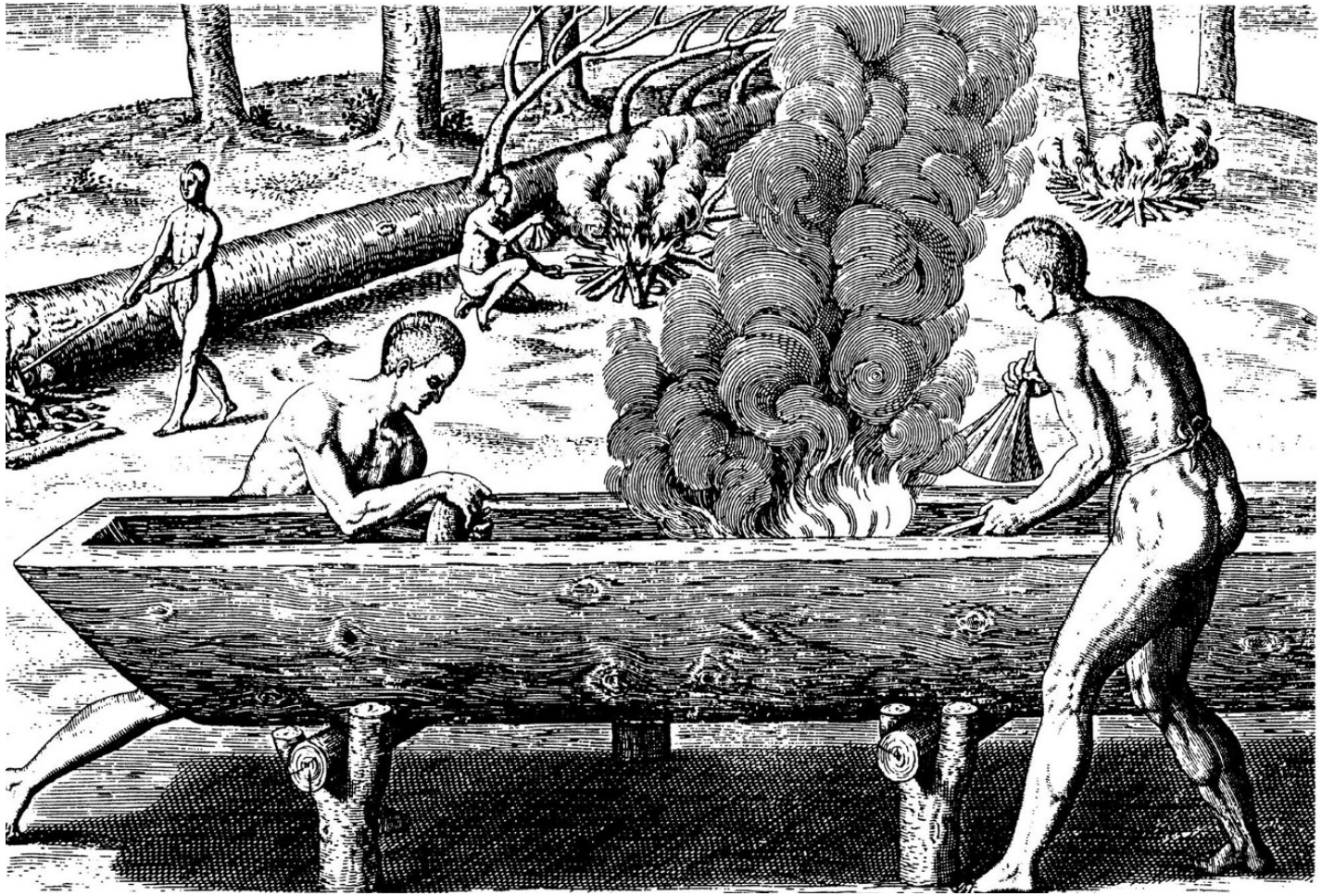
"Algonkian Boat Building" Activity Sheet Answers:

1, observation; 2, observation; 3, inference; 4, observation; 5, inference; 6, inference; 7, observation; 8, inference; 9, observation; 10, inference; 11, inference; 12, observation; 13, inference; 14, observation; 15, inference; 16, inference; 17, inference; 18, observation; 19, inference; 20, inference.

"A Colonial Coin" Activity Sheet Answers:

1, observation; 2, observation; 3, observation; 4, inference; 5, observation; 6, inference; 7, inference.

Algonkian Boat Building



Engraving originally published by Theodor De Bry in 1590, based on a painting by John White made in 1585.

Algonkian Boat Building

Name:

Place an "I" before the statements that are inferences and an "O" before the statements that are observations.

1. There are four men in the picture.

2. The two men near the fires are fanning the fires.

3. It is summer.

4. The tree on the ground has no leaves on it.

5. The tree on the ground is a hundred years old.

6. Squirrels lived in the tree on the ground.

7. There is a low fire at the base of a standing tree.

8. One of the men started the fire at the bottom of the tree.

9. That tree, like the one on the ground, is a tall, thick tree.

10. The men want tall, thick trees so they can build boats.

11. Two men are making a long cavity in a tree trunk by letting fire burn the wood away.

12. The hollowed tree is raised off the ground by forked tree posts.

13. The two men at the hollow tree trunk are friends.

14. The men's hair is short except for the longer strip in the middle.

15. The fires will burn the whole forest down.

16. Deer live nearby in the woods.

17. The men are tired.

18. The tree with the fire in the cavity has no bark.

19. Smoke is getting into the men's eyes.

20. The men are close to their village.

A Colonial Coin

Name:

Place an "I" before the statements that are inferences and an "O" before the statements that are observations.

1. There is a representation of a face on one side of the coin.

2. The words printed on both sides of the coin are Latin.

3. The Latin word "Dei" means "God."

4. The coin was made by deeply religious people.

5. The date 1722 is printed on one side of the coin.

6. The coin was made in 1722.

7. The face on the coin is a representation of the nation's president.

Lesson 1.4

ARCHAEOLOGICAL CONTEXT

Ceramic figurine from Haywood County, North Carolina, ca. AD 200.

Subjects: science, social studies, language arts.
Skills: knowledge, comprehension, application, synthesis, evaluation.
Strategies: game, discussion, problem solving, writing.
Duration: 30 to 60 minutes.
Class Size: any; groups of 5 to 6.

Objective

In their study of context, students will use a game and a discussion to demonstrate the importance of artifacts in context for learning about past people.

Materials

Index cards; "Context" activity sheet for each student or team.

Vocabulary

Artifact: any object made, modified, or used by humans; usually this term refers to a portable item.
Context: the relationship artifacts have to one another and the situation in which they are found.

Background

The things people own can tell something about them. The objects each person has chosen to have can indicate the person's age, gender, and interests. For example, a baseball bat and a football helmet in someone's bedroom suggests that the owner likes sports. Posters of pets and a collection of stuffed animals could mean that the person is an animal lover. The objects (artifacts) can only tell a complete story if they are found together, where their owners left them (in *context*).

Archaeologists rely on the objects that people made (artifacts) and where they left them (context) to learn the story of past people. Think of a 10,000-year-old stone spear point (which many people mistakenly call an arrowhead); its finely chipped surface is beautifully made. This spear point has a very different meaning if it is found incomplete at a stone quarry in Morrow Mountain State Park than if it is found broken near animal remains. Its meaning changes further if the point is found in a riverbed washed far away from where it was once used or is found in someone's living room. In these last two situations, the spear point has lost its original context and all connection with the people who made and used it. It has become only a thing, no longer a messenger from the past.

Archaeologists preserve the context of artifacts they recover from sites by recording the location of everything they find. The artifact and its context provide more information to the archaeologist than could the artifact alone. When context is lost, information is lost.

Setting the Stage

1. Ask the students: If I had never met you and walked into your bedroom, what would I know about you from the things you have there? Would I know if you were a boy or a girl? Would I know what your interests are? Would I know if you share your room?

2. Think of something in your bedroom that is very special to you. How does that object tell something about you, along with everything else in your room? Everything together tells about you because it is in context. You have selected certain things to have, and these things tell about you when they are all found together.

3. Now imagine that your special object has been taken from you and is found in the city park. How does this change what could be known about you? When it is removed from your room, the object alone tells nothing, and your room is now missing an important piece of information about you. Context has been disturbed, and information about you is now lost.

Procedure

The importance of context in archaeology can be demonstrated by *The Game of Context*:

1. Tell the students they are going to play a game requiring that they think like archaeologists. Divide the class into groups of 5 to 6 students, and assign each group a different number. Give each student an index card and a pencil. As a group, they are to choose a room or type of building, such as a hospital operating room, a kitchen, or a hardware store. They decide what objects (artifacts) in the room make it distinctive; then each student writes one clue on his or her card, for a total of 5 to 6 clues per group. Each card also has the group number written on its back.

2. The stack of cards from each group is passed to the next group, until every group has seen every stack and tried to infer the function of each place. Be sure the other groups do not hear the correct answers. Each time, before the cards are passed, have a student remove one card and place it off to the side so it does not get mixed up with the other sets of cards.

3. The teacher reviews each group's stack, asking how many groups correctly guessed the rooms' functions.

4. Ask: Is it possible to know the function of the room now? Is one object taken out of context (like a card removed at random) able to give as accurate a picture as are all of the objects in their place of origin? This demonstrates that removing artifacts from a site removes them from their context and makes it very difficult to get a complete understanding of past people.

Closure

Artifacts in context are the basis for all understanding about the people who were living in North Carolina before Europeans arrived; archaeology is a science of context. Imagine that an archaeologist finds your classroom thousands of years from now. Make a statement about how artifacts in the context of your classroom will enable the archaeologist to learn about your class.

Evaluation

Have the students complete the "Context" activity sheet.

Links

Lesson 2.1: "Gridding a Site."
Lesson 2.2: "Stratigraphy and Cross-Dating."

Sources

Smith, Shelley J., Jeanne M. Moe, Kelly A. Letts, and Danielle M. Paterson. 1993. *Intrigue of the Past: A Teacher's Activity Guide for Fourth through Seventh Grades*. Washington, D.C.: Bureau of Land Management, U.S. Department of the Interior. [This lesson is adapted from "Context" on pp. 19–21, courtesy of the Bureau of Land Management.]

Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this lesson's main heading is taken from Figure 5.7.]

"Context" Activity Sheet Answers:

1. The list could include items such as ruffled curtains, posters, collection of dolls or model cars, certain types of clothing, photographs, other art work, the colors of furnishings, number of beds and dressers, and souvenirs.

2. The listed items could indicate the student's gender, age, interests, places they have visited, their dreams and hopes, hobbies, amount of allowance, habits, and whether or not they share their room.

3. Because these things are out of context, they tell nothing about their owner. In fact, it cannot be established if the artifacts once belonged together, so the story of their owner cannot be learned.

4. Artifacts and their context provide the evidence archaeologists need to learn about the past. If clues are removed or moved, information about the past is lost forever.

Context

Name:

1. List ten things in your bedroom that would tell about you. Imagine the things on your list to be clues for an archaeologist.

2. Imagine an archaeologist finds your ten items. What might he/she know about you?

3. All of the things in your bedroom are in context. What could be learned about you if the things in your bedroom were scattered all over town?

4. Why is it important to leave artifacts in place at archaeological sites?

Lesson 1.5

CHRONOLOGY: THE TIME OF MY LIFE

Spear point from Montgomery County, North Carolina, 4000–3000 BC.

Subjects: science, social studies, language arts.
Skills: knowledge, comprehension, application, analysis, evaluation.
Strategies: discussion, problem solving, analogy, forecasting, sequence.
Duration: 45 to 60 minutes.
Class Size: any; groups of 2.

Objectives

In their study of chronology the students will use personal time lines and an activity sheet to:

- demonstrate the importance of intact information to achieve accuracy;
- compare and contrast their timelines with the chronological information contained in a stratified archaeological site.

Materials

Ten strips of colored paper, scissors, glue; "My Timeline," "Stratigraphic Section," and "The Time of My Life" activity sheets for each student.

Vocabulary

Chronology: an arrangement of events or periods in the order in which they occurred.
Data: information, especially information organized for analysis.
Stratigraphy: the layering of deposits in archaeological sites. Cultural evidence and natural sediments become buried over time. The layer on the bottom is the oldest; the layer on top is the youngest.
Timeline: a visual representation of events in chronological order.

Background

The proper sequence of events must be known when trying to understand the past. Chronological order means that events are arranged in the order of occurrence, establishing a *chronology*. One way to display events visually in chronological order is with a *timeline*. A timeline is divided into equal time segments (month, year, or century, for example), with one end representing the oldest events and the other end the most recent events.

Chronology is something we all use everyday. When somebody tells us a story or when we watch a news report, it only makes sense if we can understand the story as it happened. Archaeologists always try to establish the age of the sites, artifacts, or events they are studying so they can place them in chronological order. Each piece of information contributes some understanding to the overall story of the past, but only if the information can be placed in chronological order.

Archaeological *data* are often buried. Sites become buried by the deposition of soil through the action of wind, gravity, and water. When archaeologists dig a site, they record the location of what they find, so that chronological order can be established. If the site has not been disturbed by natural or human forces, objects discovered at the bottom of pits dug by archaeologists are the oldest, while those near the surface are the youngest.

When vandals and artifact-seekers dig a site or collect artifacts from the surface, they remove objects which could place the site in time, and therefore the archaeologist cannot learn the site's chronological placement. As they dig, vandals mix the *stratigraphic* layers together and archaeological events cannot be placed in order. The result is that a page of the past has been destroyed—torn up and thrown away. (While events in our lives typically have a short time duration, archaeologists use the term "events" to signify lifeways over a span of time.)

Everyone can help stop this problem by not digging in sites or collecting artifacts and by refusing to buy artifacts from people who dig and destroy sites.

Setting the Stage

Tell a familiar story, such as Goldilocks and the Three Bears, out of sequence, leaving some parts out. Ask students to describe the problems with the story. Why is it important to relate sequential information, including all the important details?

Procedure

1. Define chronology and state the necessity of establishing chronological order when studying the past.

2. Have the students list ten events in their lives, one on each of the ten strips of colored paper. (*Note:* It may be helpful to have the students do this as a homework assignment with parental assistance.) Next to each event, students draw an object that might symbolize that event. These events should not have obvious time links, such as "my eighth birthday party," or "I started 4th grade." The events could be things like "my sister was born (rattle)," "the family moved (moving van)," "we went to Yellowstone on vacation (tent)." Students should try to include events from their entire lives.

3. They then shuffle their strips and exchange them with another student, who tries to lay the strips out in correct chronological order with the most recent at the top.

4. The two students who have exchanged strips then tell each other their best guess of the proper chronological order. The strips are then returned to their owners. This is usually a humorous experience for students.

5. Discuss: Were you able to reconstruct the timeline correctly? Why or why not? It is difficult, sometimes impossible, to reconstruct a story if the order of events is not known.

6. Ask students to randomly remove four events from their personal timeline. Ask students if the chronological order would have been more difficult to construct and if the story of their classmate would have been as complete if there were even fewer strips. Connect this activity to archaeological sites by stressing how archaeological data is usually impossible to place in chronological order if artifact collectors have dug up a site (like mixing up the event strips) or if people have removed artifacts (equivalent to removing some of the event strips).

7. Distribute the "My Timeline" activity sheet (which forms the backing for the timeline). Students glue their own strips in chronological order beginning with the most recent event at the top. They can write the year of the event (or they can number the events one through ten) in the column to the left of their strips.

Closure

1. Distribute a copy of the "Stratigraphic Section" activity sheet to each student. Have the student lay his or her timeline next to it.

2. Using a drawing on the chalkboard, different colors of construction paper layered on top of each other, or any other visual model, demonstrate how stratigraphy is formed.

3. Using the background information and the "Stratigraphic Section" activity sheet, discuss the effects of illegal digging on archaeological data recovery efforts.

4. Use the sheet and their timelines to explore the following questions:

- In what ways is your chronology similar to an archaeological stratigraphic section? In what ways is it different?
- Imagine that you cannot remember significant events in your life. How would that change the history of your life?
- In what ways is a hole dug by vandals in an archaeological site similar to a loss of significant events in your life?
- In summary, what might you say to an artifact collector about the importance of leaving sites undisturbed, as it relates to the importance of stratigraphy?

Evaluation

Have the students complete the "The Time of My Life" activity sheet or use it for a discussion. Or ask the students to present an extemporaneous, persuasive speech that defines chronology as used by the archaeologist and explains the importance of intact sites.

Links

Lesson 2.2: "Stratigraphy and Cross-Dating."
Lesson 2.4: "Tree-Ring Dating."

Sources

Smith, Shelley J., Jeanne M. Moe, Kelly A. Letts, and Danielle M. Paterson. 1993. *Intrigue of the Past: A Teacher's Activity Guide for Fourth through Seventh Grades.* Washington, D.C.: Bureau of Land Management, U.S. Department of the Interior. [This lesson is adapted from "Chronology: The Time of My Life" on pp. 22–26, courtesy of the Bureau of Land Management.]

Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this lesson's main heading is taken from Figure 3.8.]

"The Time of My Life" Activity Sheet Answers:

1. Students should express regret or a feeling of being upset. For someone to wantonly destroy the only evidence of another's life indicates that they have little respect for the meaning of that person's life.

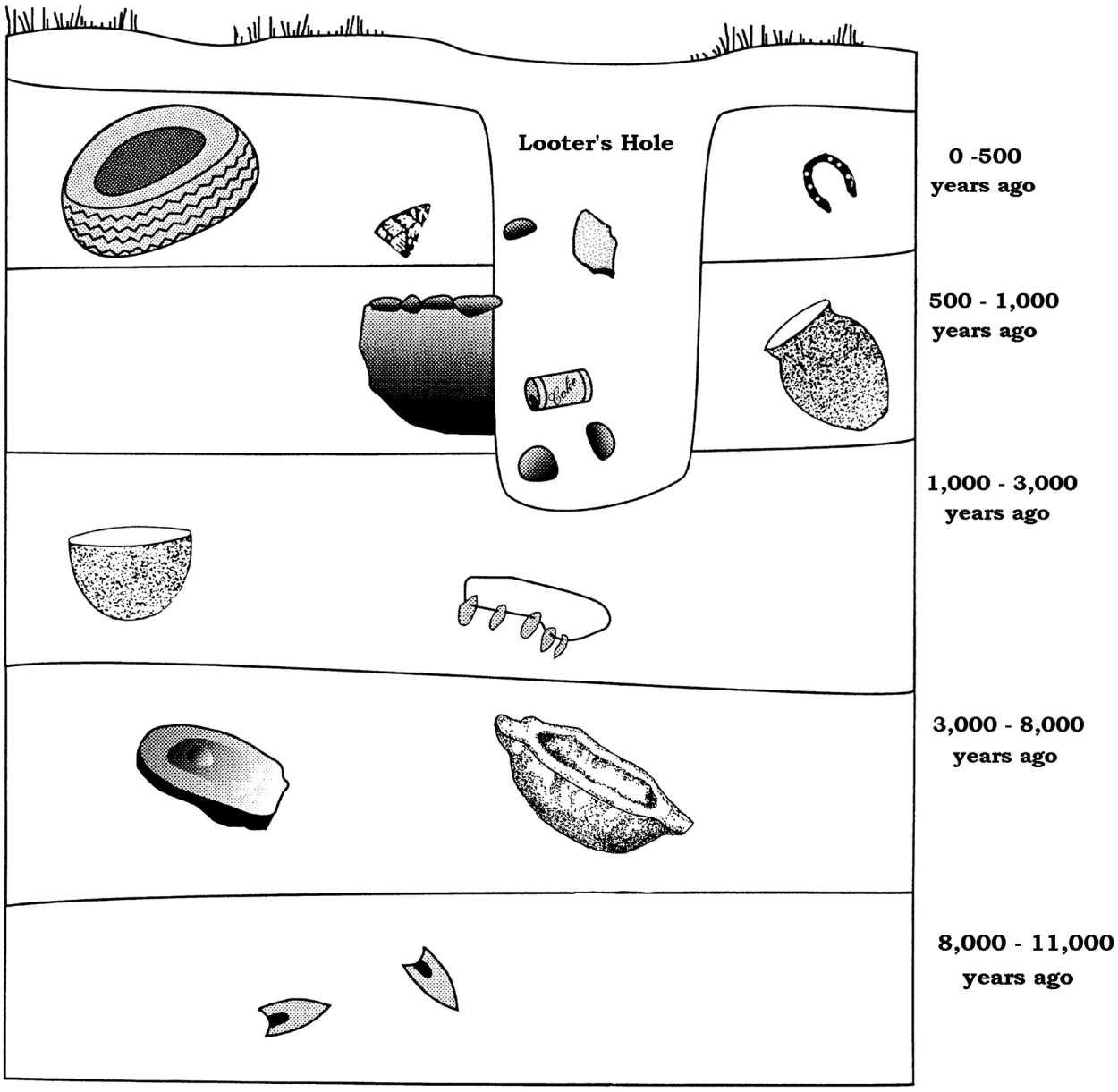
2. By extension of the previous question, students should link their feelings about destruction of their timeline to destruction of evidence of past peoples' lives.

My Timeline

Name:

Today	

Stratigraphic Section



The Time of My Life

Name:

1. Write a short paragraph about how you would feel if your timeline was all that would ever be known about you, and somebody tore it up.

2. How do you think an archaeologist feels when she or he visits a site that has been dug up by vandals? Give reasons for your answer.

Lesson 1.6

CLASSIFICATION AND ATTRIBUTES

Ceramic pot from Orange County, North Carolina, ca. AD 1700.

Subjects: science, language arts.
Skills: knowledge, comprehension, application, analysis, evaluation.
Strategies: observation, classification, compare and contrast, scientific inquiry, decision making, writing, research skills.
Duration: 30 to 45 minutes.
Class Size: any; groups of 3 to 4.

Objectives

In their study of classification and attributes, students will use "doohickey kits" to:

- classify objects based on their attributes;
- explain that scientists and specifically archaeologists use classification to help answer research questions.

Materials

"Doohickey kit" for each group, each kit containing about two dozen familiar objects, such as bolts, string, rocks, paper clips, and cloth (each kit must be identical); "Evidence from an 18th-Century Siouan Village" activity sheet for each team.

Vocabulary

Artifact: any object made, modified, or used by humans; usually this term refers to a portable item.
Attribute: a characteristic or property of an object, such as size, color, or shape.
Classification: a systematic arrangement in groups or categories according to established criteria.
Data: information, especially information organized for analysis.

Background

A basic element of thinking is *classification*. We place objects and situations into conceptual categories in order to make sense of the world so we don't have to respond to each new object or situation as a completely new experience. Classification also helps us to sort a multitude of sensory impressions quickly and enables us "to cope with complexity that might otherwise be overwhelming" (Hull 1970, p. 150).

We classify objects almost automatically. This is accomplished by choosing certain *attributes* to pay attention to while ignoring others. We cannot take all attributes into account at once; therefore, we select only a few as being relevant to the task at hand. For example, if we have a group of blocks alike in every way except for color, then color is going to be the attribute used for categorization. If size is variable, then it, too, could become important for categorizing the

objects.

Classification of *data* is an important part of any scientific study, including archaeology. Scientists must categorize data based on various attributes to reduce their complexity and to examine the relationships between types of data. For example, it is not possible to compare each individual house cat with every other member of the cat family. Instead, the category "house cat" includes creatures with certain shared attributes. All "house cats" are not identical, but all fall within a range of variation. The category "house cat" can then be compared with the category "tiger," "lion," or "lynx."

Objects (*artifacts*) left by past people form the archaeological data base. Like all other scientists, archaeologists classify data (in this case artifacts and sites) into categories based on their attributes. A site might contain hundreds of pottery sherds that vary in appearance. An archaeologist cannot compare every pottery sherd to every other pottery sherd. Instead, he or she classifies the pottery into categories and compares the categories, thereby greatly reducing the number of comparisons that have to be made. Two of the attributes archaeologists typically use to categorize pottery sherds are how thick they are and the kind of design etched or stamped on the surface.

Procedure

1. Divide students into groups of 4 or 5 and give each group a "doohickey kit." Have each group organize the objects into categories, using one or more classification schemes.
2. When everyone is finished, ask each group to explain its scheme. Which attributes did they use to place an object in a certain category (shape, color, function, type of material, other)? Compare and contrast how each group chose to classify the objects.
3. Explore with students the idea that one classification system is not intrinsically better than another. The utility of a given classification system depends on what the classifier wants to know. When archaeologists bring artifacts back to the laboratory, they decide what they want to know and use classification to organize the data accordingly.
4. Devise some simple questions that might be answered by classifying objects in the doohickey kits. For example: What colors are present? How many different shapes are there (name them)? How might these objects be used? The students will need to regroup the objects based on the question asked.

Closure

1. Distribute a copy of the "Evidence from an 18th-Century Siouan Village" activity sheet to each team of students.
2. Have students imagine they are archaeologists who found and excavated the Siouan village site near Hillsborough, North Carolina. Before they analyze the artifacts, have them pose questions they might ask about what happened in the past at the village.
3. Have students cut out the boxes on the activity sheet. How might they group these objects to answer their questions?
4. Summarize why classification is a useful tool for studying the past.

Links

Lesson 2.3: "Artifact Classification."

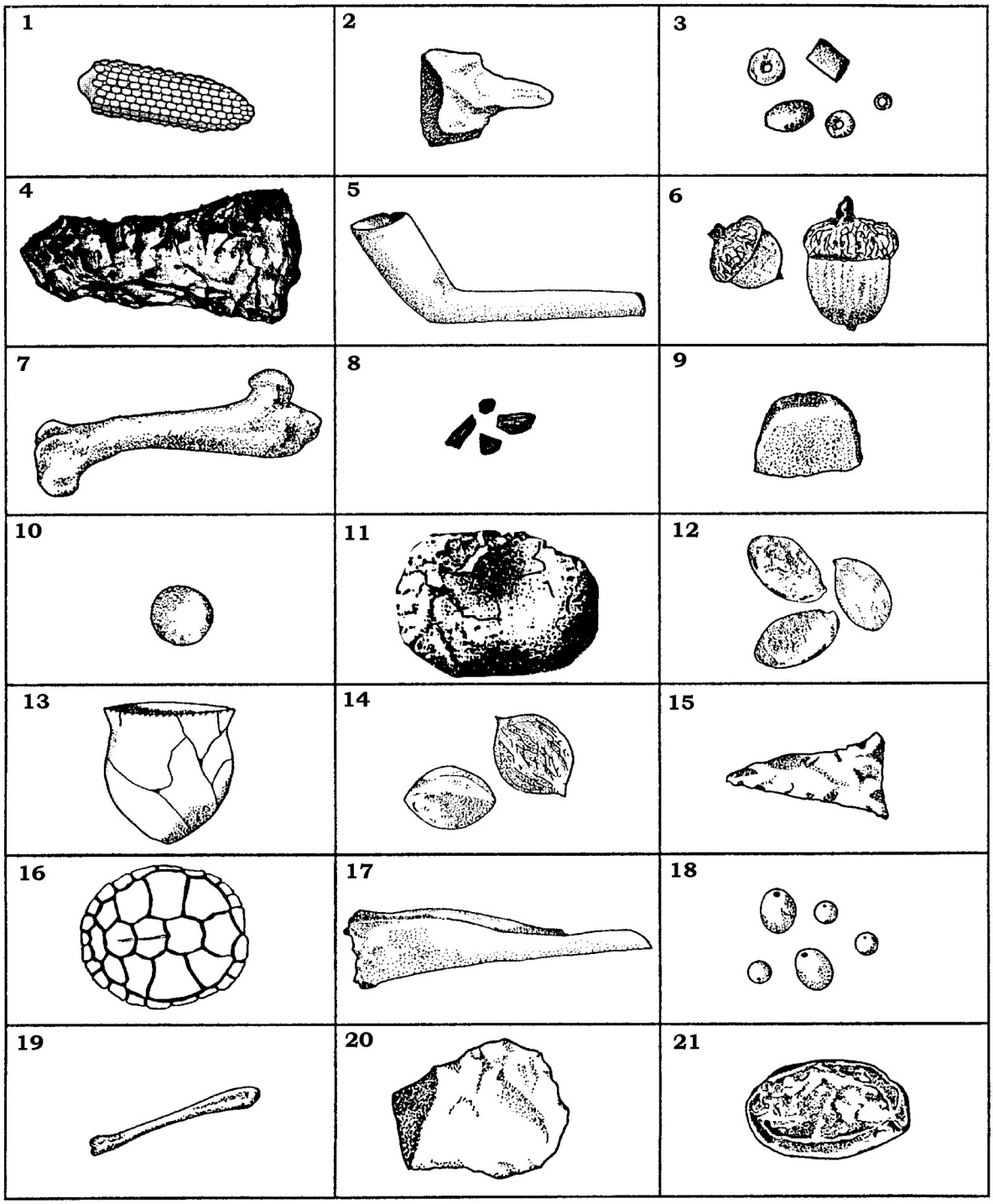
Sources

Hull, William P. 1970. "Attribute Games and Thinking Skills." In *The ESS Reader*, by Elementary Science Study. Newton, Mass: Education Development Center.

Smith, Shelley J., Jeanne M. Moe, Kelly A. Letts, and Danielle M. Paterson. 1993. *Intrigue of the Past: A Teacher's Activity Guide for Fourth through Seventh Grades.* Washington, D.C.: Bureau of Land Management, U.S. Department of the Interior. [This lesson is adapted from "Classification and Attributes" on pp. 27–29, courtesy of the Bureau of Land Management.]

Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this lesson's main heading is taken from Figure 7.9.]

Evidence from an 18th-Century Siouan Village near Hillsborough, North Carolina



Key: 1, corn cob; 2, chipped stone drill; 3, marine shell beads; 4, stone hoe; 5, pipe; 6, acorn shell; 7, deer bone; 8, charcoal; 9, gun flint; 10, lead shot; 11, grinding stone; 12, persimmon seed; 13, clay pot; 14, hickory nut shell; 15, small triangular projectile point; 16, turtle shell; 17, deer bone beamer for hide working; 18, small white glass beads; 19, turkey bone; 20, chipped stone scraper; 21, fresh water mussel shell.

Lesson 1.7

SCIENTIFIC INQUIRY

Subjects: science, social studies, language arts.
Skills: application, analysis, synthesis, evaluation.
Strategies: scientific inquiry, classification, research skills, writing.
Duration: 45 to 60 minutes.
Class Size: any; groups of 3 to 4.

Chipped-stone drill from Stanly County, North Carolina, 8000–6000 BC.

Objectives

In their study of scientific inquiry, students will use an activity sheet to:

- make inferences about what activities go on at different places in school (desk, locker, etc.) and form an hypothesis about how space is used;
- simulate how archaeologists learn about past people by designing and conducting a research project.

Materials

"Archaeological Inquiry" activity sheet for each student and group.

Vocabulary

Classification: a systematic arrangement in groups or categories according to established criteria.
Data: information, especially information organized for analysis.
Hypothesis: a proposed explanation or interpretation that can be tested by further investigation.
Inference: a conclusion derived from observations.

Background

The goal of archaeological research is to answer questions about people who lived in the past. *Hypothesis* formation and *classification* depend on the chosen question. For example, if we want to learn about a Colonial family's income, we could hypothesize that more nonessential items than essential items means they had a significant disposable income. We would classify the relevant artifacts into two classes: essential items and nonessential items. Based on the outcome of the classification, we would accept or reject our hypothesis.

Archaeology is an intrusive science. When archaeologists use its techniques to study contemporary cultures, they can reveal facets of those cultures that can touch a number of different emotions among the people studied. These can be a mix of embarrassment, enlightenment, denial, anger, appreciation, or curiosity. Sometimes descendants of the people studied feel the same way.

Archaeology is also an incremental science. A hypothesis supported by data from one site can be turned on its head when another site's evidence is analyzed. Archaeologists constantly subject the *inferences* they make about people to critical analysis. For example, after they use one set of *data* to accept the hypothesis about Colonial income, they ask themselves what else can they

include in the equation to support or refute it.

Setting the Stage

Have students classify the contents of their own desks, lockers, or backpacks in whatever manner they choose. Items could be categorized as follows:

- writing instruments (pencils, crayons, etc.);
- paper;
- books;
- miscellaneous (gum, money, toys, etc.).

Ask students how they would proceed if they wanted to know something specific about what the owner of a desk, locker, or backpack does at that particular site. This is how an archaeologist begins to study past cultures.

Procedure

1. Distribute a copy of the "Archaeological Inquiry" activity sheet, which the students will fill in as they are led through the following inquiry.

2. *Pose a question:* Archaeological inquiry always begins with a research question. Archaeologists want to answer questions about past human activities and behavior and must use material evidence to do so. Ask students to consider the following question: "Are the items in their desks or lockers used only for school work or do they reflect other activities the student engages in while at school?"

3. *Formulate an hypothesis:* If a student's desk or locker has items not required for school work, then he or she engages in other kinds of activities while at school.

4. *Classify the data:* For each location's artifacts, only two categories are essential: items required for school work and items not required for school work. Discuss with the students differing ideas about what constitutes "required items," because this determines how objects are categorized.

5. *Analyze the data:* To answer the research question, ask which category contains the largest number of objects. If there is a greater number of items that are not required, then we *accept the hypothesis*: i.e., the school is a place where people do things besides school work. The students have made an *inference* about the place called school and have tested their inference (hypothesis) using classified objects.

Closure

Divide the class into groups of 3 to 5 students and give each group another "Archaeological Inquiry" activity sheet. Have them design and conduct an archaeological research project using objects found in different locations in the school. Each project must answer a question about the people who own or use the objects; e.g., what subjects are being studied at this point in time in the classroom? Do the things students keep in their desks or lockers suggest something about social activities? What? Each group presents their results to the class.

Evaluation

Students turn in their "Archaeological Inquiry" activity sheets for evaluation.

Links

Lesson 2.1: "Gridding a Site."
Lesson 2.3: "Artifact Classification."
Lesson 2.7: "Experimental Archaeology: Making Cordage."

Sources

Smith, Shelley J., Jeanne M. Moe, Kelly A. Letts, and Danielle M. Paterson. 1993. *Intrigue of the Past: A Teacher's Activity Guide for Fourth through Seventh Grades.* Washington, D.C.: Bureau of Land Management, U.S. Department of the Interior. [This lesson is adapted from "Scientific Inquiry" on pp. 30–33, courtesy of the Bureau of Land Management.]

Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this lesson's main heading is taken from Figure 3.4.]

Archaeological Inquiry

Name:

Research Question	
Hypothesis	
Classification Categories	
Accept or Reject the Hypothesis	
Make a Behavioral Inference	

Archaeological Inquiry (Sample)

Name: Jane Doe

Research Question	Does the owner of the desk use more pencils or pens for school work?
Hypothesis	If there is a larger number of pens, then the owner uses more pens than pencils for school work.
Classification Categories	Items with graphite (lead) writing tips. Items with indelible ink writing tips.
Accept or Reject the Hypothesis	There is a greater quantity of items with indelible ink writing tips, so I accept the hypothesis the desk owner uses more pens than pencils for school work.
Make a Behavioral Inference	The owner of the desk prefers pens.

Lesson 1.8

IT'S IN THE GARBAGE

Subjects: science, social studies, language arts.
Skills: application, analysis, synthesis, evaluation.
Strategies: scientific inquiry, problem solving, discussion, forecasting, research skills, writing, classification, sequence.
Duration: 60 to 90 minutes.
Class Size: any; groups of 3 to 4.

Broken spear point from Stanly County, North Carolina, ca. 8000 BC.

Objectives

In studying archaeological concepts, students will analyze garbage from different places to:

- demonstrate competence in applying the concepts of culture, context, classification, observation and inference, chronology and scientific inquiry;
- explain how their study of garbage relates to the methods of archaeology.

Materials

Filled wastebaskets or small garbage bags from several places in the school, home, or elsewhere, selected to represent rooms of different function; disposable gloves; plastic tarps are useful when spreading out the garbage. (Undesirable and unsanitary items, such as used tissues or rotting food remains, should not be included in the trash to be analyzed.) "It's in the Garbage" activity sheet for each group; "Garbage Chart" activity sheet for each group (optional).

Vocabulary

Artifact: any object made, modified, or used by humans; usually this term refers to a portable item.
Chronology: an arrangement of events or periods in the order in which they occurred.
Classification: a systematic arrangement in groups or categories according to established criteria.
Context: the relationship artifacts have to one another and the situation in which they are found.
Culture: the set of learned beliefs, values, styles, and behaviors generally shared by members of a society or group.
Data: information, especially information organized for analysis.
Evidence: data that are used to support a conclusion.
Hypothesis: a proposed explanation or interpretation that can be tested by further investigation.
Inference: a conclusion derived from observations.
Midden: an area used for trash disposal; a deposit of refuse.
Observation: the act of recognizing or noting a fact or occurrence; or the record obtained by such an act.

Background

The unusable or unwanted remnants of everyday life end up in the garbage. By studying what

people have thrown away, archaeologists can learn a great deal about a culture. This is true not only of prehistoric peoples who left no written record about their lives, but also of people today. Archaeologist Bill Rathje studies the garbage of Americans. He has learned many things about the relationships of human behavior and trash disposal, information useful in studying people of the past and the present. Rathje has found that people will often tell an interviewer what they believe is appropriate behavior, but their garbage tells another story. For instance, people frequently say they eat lots of fruits and vegetables, yet their garbage shows they do not. Another example is that people say they recycle more than they actually do (Rathje 1984, p. 27).

Just as we do not throw our trash in any old place, neither did prehistoric people. Archaeologists call their garbage heaps *middens*, and middens are a rich source of archaeological information about ancient people's lifeways. Layers of trash also tell a story over time. Archaeologists excavate middens slowly and carefully, recording the location of *artifacts* and samples they recover. They analyze the tiny fragments of prehistoric meals (bone slivers, seed hulls, plant parts) and charcoal from cooking fires. The animals and plants from which the bits of evidence came can be identified, and archaeologists can learn very precise information about the economy of past people.

If a midden is disturbed and the layers mixed, chronology and context are lost; it then becomes impossible to interpret the lifeways of past people. Vandals looking for artifacts dig in middens, and they destroy irreplaceable information about the past. They tear pages from the history book of time. Everyone can help by not digging archaeological sites or collecting artifacts and by refusing to buy artifacts from people who do.

Setting the Stage

The famous anthropologist Franz Boas reportedly said, "Man never lies to his garbage heap." What do you think your family's garbage could tell about you? (Examples: family size, income, preferred foods, and activities).

Procedure

1. Review the concepts learned in Part 1: *culture*, *context*, *observation*, *inference*, *classification*, *chronology*, and *scientific inquiry*. Students will be applying these concepts to their study of garbage.

2. Explain to students that they are going to be archaeologists, analyzing garbage (middens) to learn about the people who threw it away. Demonstrate some of the information that can be learned from garbage by examining a small amount of trash from your classroom trash can:

- What *culture* is this garbage from? Could the garbage be mistaken for that of another culture? Is the garbage in your classroom trash the same or different from classroom garbage in China? Portugal? Your town 100 years ago? Are basic human needs represented in the trash?
- What can you *infer* about the people who threw these things away and the origin of the garbage based on your *observations*? Is cafeteria trash the same as that from the wood shop? the library? How is a single person's garbage different from that of a family with many children? Is a vegetarian's trash different from a meat-eater's?
- Arrange the trash in *chronological* order. On the bottom is the oldest trash, on the top is the most recent garbage. If you find dated items through the trash, such as newspapers or postmarked envelopes or product dates, you can establish a precise date for the trash.
- Sort the trash into piles based upon some type of similarity. This is a *classification*,

perhaps including categories like paper, food containers, and other office supplies.
- The trash is obviously from a classroom because you have preserved its *context*, the relationship artifacts have to each other and the situation in which they occur. If you went to your town's landfill, you might find some of the artifacts from your classroom trash. However, you could not interpret it as coming from your classroom because it has been all mixed up with trash from many other places. Its context has been lost.
- Construct a scientific inquiry. An example is: "Was the trash made by very young children?" The hypothesis could be: "If there are few papers with cursive writing in the trash, then the trash came from young children." Classify the trash into two categories: papers with and papers without cursive writing. Accept or reject your hypothesis.

3. Divide the class into groups of 4 to 6 students and give each group a bag of trash (and disposable gloves). The group analyzes its trash using the activity sheet "It's in the Garbage" (and optionally the "Garbage Chart").

4. Students visit each other's "middens," and a spokesperson from each group presents a summary of its findings.

Closure

Lead a discussion using the "Garbage Concepts" questions.

Evaluation

Collect the students' activity sheets and reports.

Links

Lesson 2.2: "Stratigraphy and Cross-Dating."
Lesson 2.3: "Artifact Classification."

Sources

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Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this lesson's main heading is taken from Figure 2.4.]

It's in the Garbage

Name:

Directions: Use this activity sheet to take notes during your excavation. When you have completed your excavation, use the information in your notes to write a report about your findings that addresses the questions below. You must give reasons for your answers based on the evidence, that is, based on the artifacts that support your answer.

1. Could you tell when your garbage was thrown away? If yes, how? If no, why not?

2. List two or more inferences you can make about the person(s) who threw the trash away.

3. From where did your garbage come?

4. Which basic human needs does your garbage show are being met?

5. Name two or more of the categories into which you classified your trash?

6. How do you know this garbage is from your own culture?

Garbage Chart

Name:

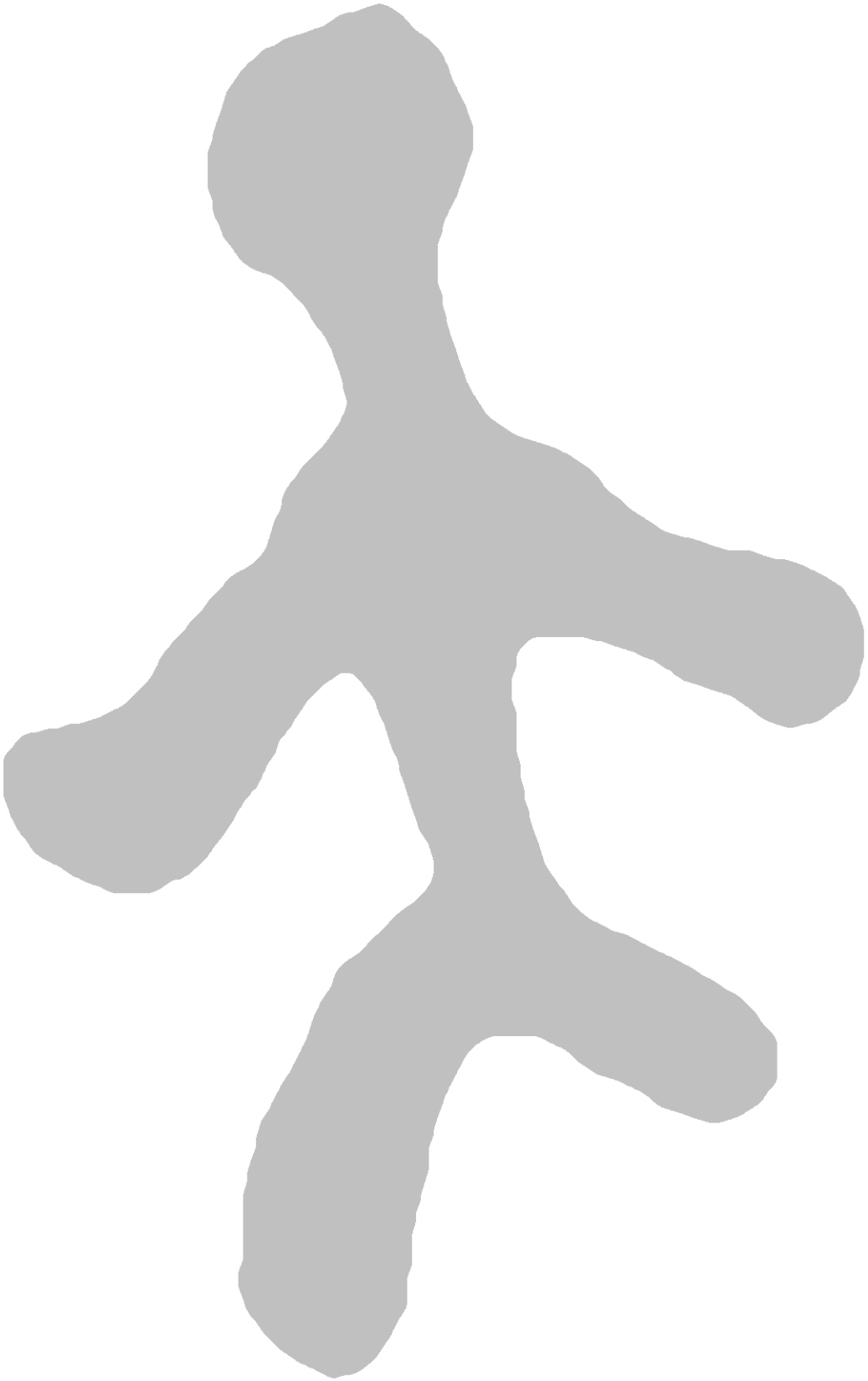
Sketch of item	Description of item (Observation)	Guess as to use or purpose (Inference)

Garbage Concepts

Question:	Concept:
When students propose an inference about the people who generated the garbage, ask them: What would the activity you are proposing (hypothesis) look like archaeologically? What artifacts would you expect to find if your hypothesis is correct?	When archaeologists suspect a certain behavior was occurring, they make an hypothesis about what the archaeological evidence would look like. For example, archaeologists could hypothesize that people butchered large game where it was killed and only took the most desirable parts back to their village. In excavating the village, archaeologists would prove or disapprove their hypothesis based upon the animal bones present.
Does your study of your garbage tell you everything about American society? Why or why not?	One sample is only a glimpse into a complex society. Just as you only see a small piece of our culture from one sample, archaeologists see only a sliver of the past from one site.
Do the contents in your garbage can change throughout the year? . . . as a result of special occasions like birthdays or company for dinner? What mistakes might an archaeologist make about your family if he/she studied only the garbage from those special events?	Just as someone who wants to completely understand your family would study your garbage over a long period of time, an archaeologist studies many sites because one site cannot reflect the range of activities people engaged in.
How would the results of your study be different if we had mixed your individual garbage bags all together into one heap?	Context would have been lost, and only very general statements about the culture that generated the garbage could then be made. This is what happens when vandals dig up sites and mistakenly say the artifacts are preserved and no information has been lost.

Part 2

THE PROCESS OF ARCHAEOLOGY



Part 2

INTRODUCTION

Ceramic bowl from Macon County, North Carolina, ca. AD 1500.

Archaeologists use several processes to address questions about the past. They may *gather new data* by conducting regional surveys to locate archaeological sites. Occasionally sites are partially or completely excavated to address specific research questions or to salvage information prior to disturbance by a development project. All data recovered are thoroughly analyzed following scientific inquiry procedures before conclusions are reached.

Archaeologists also *reexamine data*, such as artifact collections, site records, and published reports from previously completed projects. New techniques may allow them to learn from data and artifacts that have been curated for many years. Similarly, archaeologists often revisit old data armed with increased knowledge about the past and a new set of questions.

Archaeologists sometimes use *experimental methods* to help them understand how people may have performed tasks in the past. For example, some archaeologists recreate stone tools using manufacturing methods like those they think ancient peoples used. This experimental process gives archaeologists a better understanding of how stone tools were made and how evidence for different manufacturing stages might appear in a site.

Descriptions of North American cultures written by European colonists or explorers may give archaeologists insights into how Native Americans made tools, what they ate, what their villages and homes were like, along with other aspects of their life, such as rituals. However, archaeologists use these sources cautiously when interpreting evidence. While some early documents may contain accurate observations, the interpretations about the meaning of what was observed can be wrong. Early European cultures were different from those of Indian people, and the recorder may have misunderstood what he saw or heard.

The following overview describes how archaeologists find and excavate sites, analyze recovered data, and interpret the findings. You may use it strictly for your own background, or you may present it to students. The lessons in Part 2 illustrate many of the processes and concepts presented in the overview.

Finding Sites

Archaeologists look for and sometimes excavate sites for two main reasons. First, they may have a specific research question about the past that makes it necessary to search a certain area for certain types of sites or to excavate a site. Second, sites may be endangered by a development project or natural erosion, requiring archaeologists to salvage what information they can before the site is destroyed. In both cases, archaeologists structure the way they collect data so they can address a variety of research questions.

State and federal laws require that land use decisions take into account, among other things,

the effect of a project on archaeological and historical sites. These are commonly called *cultural resources*. The laws apply to all federal and state lands, including those administered by the National Park Service, U.S. Forest Service, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, and the military. They apply, too, to projects on private land that use federal or state funds or that involve issuing a permit of some kind. Any project that could disturb the land's surface requires consideration of cultural resources. Typically, the company or agency proposing the project pays for the archaeological work.

To date, only a small fraction of the country (probably less than 5%) has been systematically explored for cultural resources. Thus, the archaeologist's first step is to review existing records to see if the affected area has been examined already and if any sites are recorded for it. In North Carolina, the Office of State Archaeology in Raleigh maintains a central record for the state. The archaeologist may also check with colleagues based at universities and Indian tribes within the project area to see if they have concerns or know about areas of importance.

If an area has not been explored, the archaeologist conducts a *survey*. This is a systematic examination of the land looking for sites. Typically, archaeologists search for sites on foot, although aerial surveys are used to reveal sites that are invisible at close range and where the terrain makes walking difficult. How they conduct the pedestrian survey depends on the lay of the land. It may also depend on why the archaeologist is conducting a survey. If, for instance, a new power line is due to cut a 20 mile straight swath 60 feet wide, then archaeologists survey the straight line's area. A reservoir, whose boundaries snake within 400 square miles of several drowned rivers, needs a different approach. Because archaeologists often cannot walk every inch of land, they search where experience has taught them are likely places to find sites. Sometimes, they map out an area in sections and survey a sample of sections.

Archaeologists use several tools to do surveys. These include clipboards and paper to make notes; bags to label and contain samples of artifacts; geologic maps to learn about the lay of the land and to record site locations; a compass for orientation; and a camera to capture photographic records.

During a survey, archaeologists look for anything that is not natural to the area. They are alert to things like a row of rocks (possibly the remnant of a wall), depressions or mounds (buried structures), chips of stone (debris from stone tool manufacture), dark soil (possible middens or garbage areas, hearths, or burned structures), and pottery sherds. Because archaeologists want to know how people used resources in their environment, information about where sites aren't is also very important.

In the humid southeast, many sites are not visible on the ground's surface. Often the sites are buried, and archaeologists check eroded hills above stream banks and plowed fields for evidence. In densely vegetated areas, archaeologists will sometimes dig a small hole every 50 feet or so, sampling the area to see if evidence of buried sites shows up.

When they find a site, archaeologists make notes and record its location on maps. Back in the laboratories, they give each site an identification number and fill out a site form. Information about the vegetation, soil, elevation, and location is recorded on the form, as well as a description of the site and the artifacts present. Any photographs are attached, and a master map is made. The site is also evaluated for its information potential, and a determination is made about whether or not the site has buried deposits.

Excavating a Site

If the survey was performed because of a development project proposal, archaeologists will

recommend to the agency decision-maker what should be done about the cultural resources. For sites with limited information potential, little additional work is needed. On the other hand, archaeologists may recommend that sites containing important data or having other significance (such as spiritual importance to Native Americans) be left undisturbed or, in some cases, excavated. An effort is made to move a project to avoid disturbing an important site, but sometimes that is not feasible.

If a site is to be excavated, archaeologists prepare a research design. This outlines what questions the archaeologists will try to answer and the techniques they will use to excavate and analyze the data. The agency or landowner that manages the land, the state archaeologist, and archaeologists from either a university or a consulting firm will each review the research design to assure it meets professional standards. A permit is required to excavate on federal or state-owned lands.

Before the excavation begins, the directing archaeologist assembles a team of excavators. This group may include geologists, botanists, historians, students, and trained amateurs as well as archaeologists. The first step is to clear vegetation from the site and establish a grid on the surface (Lesson 2.1: "Gridding a Site").

Establishing the grid is a key step. The grid is the primary way to maintain *context*, which is the relationship artifacts and features have to each other. The process of excavation destroys a site, and once it is dug, you can't go back and do it differently. Researchers of the future can study a site they never saw if good notes and maps are made of the excavation. Recording context is the key to interpreting the site from records.

The grid is a Cartesian coordinate system. It is established and marked off in relation to a datum, which is a stable point of reference from which all measurements occur. Archaeologists set up the grid using a survey instrument (usually a transit), measuring tapes, wooden stakes, and strings. Squares are marked on the ground using stakes for each corner and string to connect them. Usually, squares are measured in meters, 1 or 2 meters on a side. Each square has a unique identifying number based on its grid coordinates. A map is made of the site on graph paper; the graph squares correspond to the squares on the ground. Any artifacts, samples, or features (such as a hearth) that are found in a square are labeled with its grid number and the depth below the ground surface at which they were discovered. Sometimes, when there are distinct layers in the stratigraphy, the layer in which an artifact is found is recorded also.

Using shovels, trowels, screens, and measuring tapes, archaeologists uncover a site square by square. They move dirt slowly because they don't know what they will be uncovering, and they don't want to destroy something by being in a hurry. The locations where artifacts are found are carefully recorded. The excavated dirt is put through mesh screens. Some are trays you shake back and forth so that the dirt falls through, and artifacts are left on the screen. Others use water to push the dirt through a series of screens with graduated mesh size.

During excavation, numerous maps, drawings, and photos are made. Each references the grid location. Artifacts and various kinds of samples (animal bone, plant remains, pollen, charcoal) are sent to specialists for analysis.

Once the excavation is completed, the site is usually back-filled with the excavated dirt. This excavation procedure is followed regardless of whether archaeologists are doing salvage work before a development project or doing basic research funded by universities or foundations. If a development project spurred the excavation, the project would now be authorized to proceed.

Using the Data

Months after the excavation is finished, results of the analyses will be ready. Most people do not realize that the time archaeologists actually spend excavating is the least time-consuming aspect of their research. Processing samples and interpreting the data take several times as long as excavation. Artifacts, records, and photos are turned over to a university, public museum, or to the Indian tribe with jurisdiction after the analysis is complete. Regardless of where they are stored, artifacts and information should be available to future researchers, as well as for use in displays.

Tackling analysis, archaeologists make extensive use of computers and statistical data analysis. Guided by their research questions, they compare new data with that derived from other studies. They may use ethnographic analogy—studying modern groups of people for clues about what archaeological patterns might mean or how artifacts might have been used (Lesson 2.11: "Inference by Analogy"). Sometimes they experiment with replications to learn what methods of manufacturing may have been used (Lesson 2.7: "Experimental Archaeology: Making Cordage").

A strong professional ethic dictates archaeologists publish excavation results so that the information is available to everyone. While publications have often been written in the idiom of professional archaeology, there is a growing commitment by archaeologists to also present information in ways the general public can read and learn from.

Dating Archaeological Samples

Archaeologists have two ways of placing events, sites, and artifacts in chronological order. *Relative dating* orders things in relation to each other, but they are not anchored to a calendar (Lesson 2.2: "Stratigraphy and Cross-Dating"). Think of a trash can; items on the bottom were placed there prior to the items on the top. Relative to each other, the items on the bottom represent older actions than those on the top, but we don't know what day or what year the trash can was filled.

Absolute dating establishes a calendar year for an artifact, site, or event. Prior to 1948, absolute dates were mostly obtained by noting the presence of objects in sites whose age was known from some other association. For instance, Greek pottery, whose age was known from historical records in Greece, served to assign dates to other Mediterranean sites having similar pottery but no other historical support. This kind of cross-dating worked, too, for Roman coins in England, Egyptian beads in Europe, or Colonial coins in Virginia. But this procedure is only as reliable as recorded history. Archaeologists had no way to tell how old sites from earlier times were. Or, for that matter, how old historical sites were with no links to documentation.

Since World War II, absolute dating techniques have been refined by the development of several methods. Among those archaeologists use are: tree-ring dating (explained in Lesson 2.4), radiocarbon dating, obsidian hydration dating, and archaeomagnetic dating.

Radiocarbon dating (also called carbon-14 or carbon dating) is a method based on the measurement of the radioactive carbon content of organic materials. Developed in 1948 by two physicists, W. F. Libby and J. R. Arnold, the method was a byproduct of atomic technology, and it had far-reaching consequences for archaeology.

The workings of the technique are simple. Archaeologist James Deetz explains the method this way (1967, pp. 35–36): The radioactive isotope of carbon (carbon-14) is produced in the atmosphere when nitrogen atoms are bombarded by cosmic rays. This production is constant, which means a constant ratio of carbon-14 to carbon-12 (the non-radioactive form of the element) exists in the earth's atmosphere. But carbon-14 is inherently unstable. In time, it reverts

to stable nitrogen-14 through the emission of a beta particle, and this is where the link to dating comes in.

Through respiration, living things (plant and animal) have a carbon-14 to carbon-12 ratio in their tissues identical to that found in the atmosphere. At death, however, the organism no longer gets carbon from the air, and the amount of carbon-14 in its tissues disintegrates due to beta particle radiation. This decay of carbon-14 occurs at a known rate. Specifically, scientists learned that after 5,568 years, only half the original amount of carbon-14 is left; after 11,136 years, only a quarter is left, and so on. Thus, the age of any organic material, such as charcoal, wood, shell, or bone, can be calculated by measuring the ratio of carbon-14 to carbon-12.

Sometimes archaeologists are reluctant to use radiocarbon dating. This is because the method destroys the sample and requires a fair amount of material. For instance, about a quarter-cup of charcoal is usually required for a carbon-14 date. If this is all the charcoal archaeologists obtain from a site, or if they don't find enough to do a standard carbon-14 date, they may hold onto the sample until more or additional evidence turns up. Fortunately, a newer method of radiocarbon dating requires very little organic material—an amount about the size of the head of a pin is enough. This method is done with an accelerator mass spectrometer, and is called an accelerator date. But the downside to this technique is that an *accelerator date* costs two to three times what a standard carbon-14 date costs.

Obsidian hydration dating is based on the principle that all glass absorbs small amounts of atmospheric moisture. Obsidian (volcanic glass) was frequently used by ancient people to make tools. When they shaped a tool from an obsidian nodule, they exposed a fresh surface as they chipped; this allowed the absorption of moisture to start on an unweathered face. With time, a hydration rind developed on the obsidian, and the rate of hydration can be determined. Therefore, by examining a thin slice of obsidian under a microscope and measuring the width of the rind, the tool's age can be calculated. Problems exist with this technique, and it is not widely used. However, research continues and may make obsidian hydration dating a more reliable method.

Archaeomagnetic dating is based on the fact that the earth's magnetic poles have changed location throughout time. The time and direction of the North Pole's wanderings is roughly known. In some instances, archaeologists can take advantage of this knowledge to date sites, particularly those with well-baked clay floors, ovens, or kilns. This is because some clays and clay soils contain tiny magnetic minerals that, when heated to a dull red heat, become loosened and align with the magnetic north (Fagan 1994, p. 122–124). When the soil cools, this alignment is fixed in place. Archaeologists collecting cubes of burned earth from sites may be able to correlate the magnetism of the sample with records of the earth's magnetic field.

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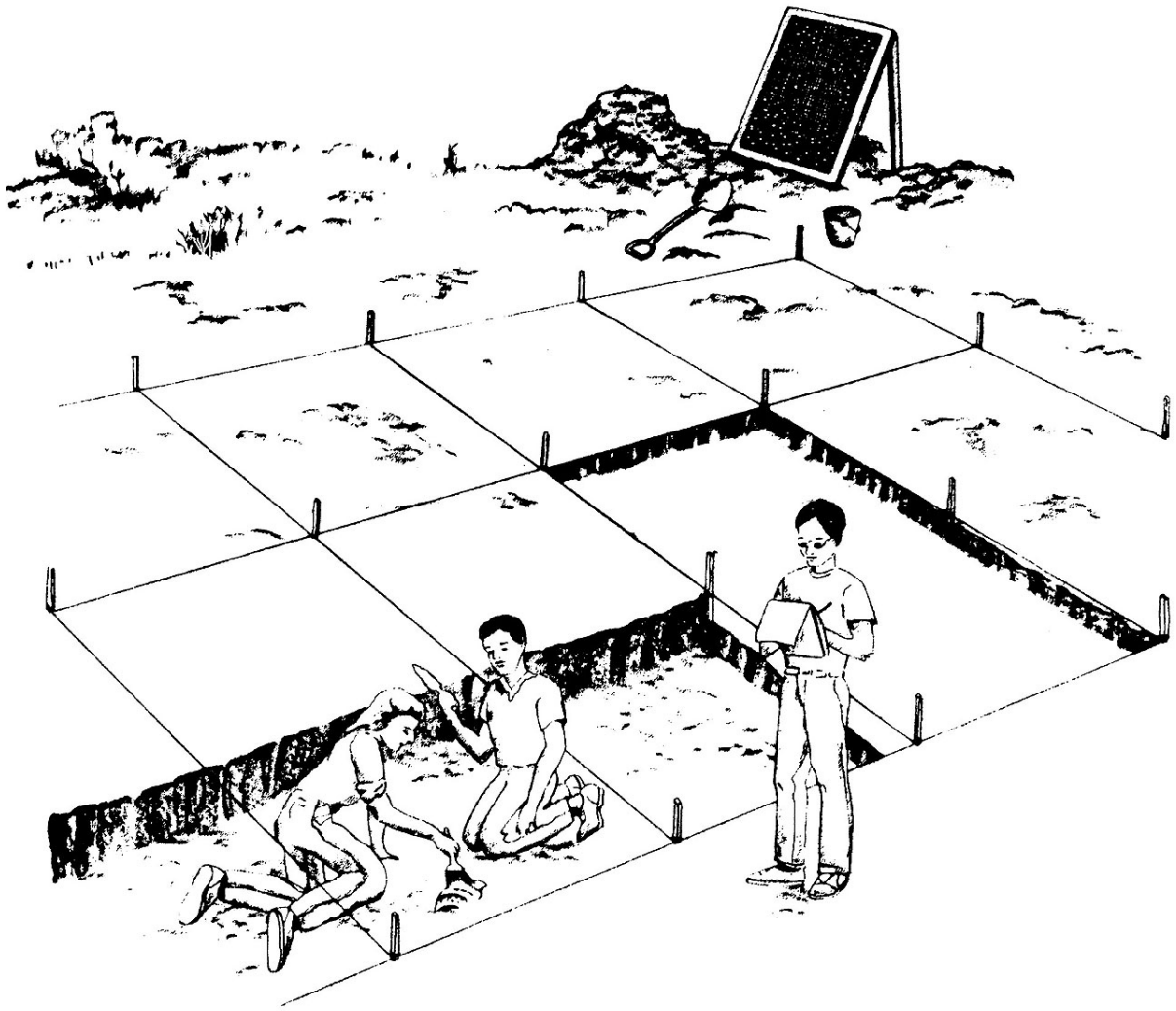
Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this chapter's main heading is taken from Figure 5.18.]

Excavating a Site



Lesson 2.1

GRIDDING A SITE

Fabric-impressed pottery fragment from Halifax County, North Carolina, 1000 BC–AD 500.

Subjects: science, mathematics, language arts.
Skills: knowledge, comprehension, application, analysis, evaluation.
Strategies: brainstorming, mapping, using scale, scientific inquiry.
Duration: 45 to 60 minutes.
Class Size: any; groups of 2 to 4.

Objectives

In their study of how to grid a site, students will use a map and the Cartesian coordinate system to:

- establish a grid system over an archaeological site, labeling each grid unit;
- determine the location of artifacts within each grid unit;
- construct a scientific inquiry concerning the location of artifacts on the site.

Materials

For the teacher, transparencies of "The Piedmont Site" map and "The Grid Sheet." For each team of students, "The Piedmont Site" map, "Artifact Location Record" activity sheet, and a ruler.

Vocabulary

Cartesian coordinate system: two- or three-dimensional grid based on intersecting, perpendicular incremented lines or planes.

Datum: something to use as a basis for measuring; a reference point for a grid or a map.

Flake: a thin piece of stone removed by striking a larger piece with a hammer (usually made of antler or stone). Flakes have sharp edges and were sometimes used as cutting implements. Flakes also were further shaped into tools or were left as waste by-products of flintknapping.

Grid unit: a specific square or rectangular area on the Cartesian coordinate system, designated by the coordinate in one corner (often the southwest corner).

Projectile point: a pointed implement (usually made from chipped stone) that was attached to the end of a spear or an arrow. This is a general term that includes both spear points and arrowheads.

Sherd: a broken piece of pottery; a shard.

Site datum: a stable or permanent feature established as an arbitrary reference point from which the entire site is measured and recorded.

Background

Once a site has been dug (or in the case of sites with no depth, the surface artifacts have been collected), it is gone forever and can never be replaced with another just like it. Because sites are destroyed during collection or excavation processes, archaeologists record them in detail to

preserve the context of all the artifacts and structures. Archaeologists in the future can study an excavated site only if good notes and maps are made.

One way archaeologists preserve context on paper is through the use of the rectangular grid, or *Cartesian coordinate system.* The first step in the excavation process is to establish a grid. A *site datum* is set at an arbitrarily chosen location and is designated as (0,0). Two perpendicular axes or lines intersecting at the site datum are then established and a rectangular grid is superimposed over the entire site. Each square on the ground is marked with numbered stakes in the corners, so that each square or *grid unit* has a unique "name" referred to by its coordinates. The coordinates indicate the distance of a given point north, south, east, or west from the site datum.

Once the grid is established, all artifacts and structures are measured and recorded using the system. Before excavation actually begins, all artifacts visible on the surface are collected and their locations on the grid are recorded. As the excavation proceeds, materials found under the surface are similarly recorded and collected. When the archaeologist returns to the laboratory, the maps and the data recorded in the field can be used to make inferences about past events and the lifeways of the site's inhabitants. If the exact location of each artifact transported back to the laboratory is known, then the object can be tied to its context within the site.

Setting the Stage

Have the students imagine they are a team of archaeologists who have found an archaeological site. Artifacts—including *projectile points*, pottery *sherds*, and stone *flakes*—are scattered on the surface of the ground. They want to make a map of the site. How might they accurately record the location of the artifacts? Have the students brainstorm ideas.

Procedure

1. Project the map of "The Piedmont Site" and explain this is a site they have found in central North Carolina. Overlay a transparency of "The Grid Sheet" and align it to the site by matching the site datum points. Explain that they, as archaeologists, will establish the grid over the site prior to excavating it. Share background information about the importance of gridding a site for current and future study.

2. Distribute "The Piedmont Site" map to each team. Point out the site datum in the lower left hand corner and explain that this is the point from which the grid is established. The name of the site datum is (0,0).

3. Using a ruler, each team will draw the grid system on "The Piedmont Site" handout using a scale of 1 inch equals 10 feet. Tell them to start from the tip of the datum point in the lower left-hand corner. (The squares in the other three corners of the site are there to help the student draw perpendicular lines. Remind students archaeologists don't have this convenience in the field. They rely on transits, tape measures, and strings.) It is helpful to model this procedure on the overhead projector.

4. Label each point on the grid. The southwest corner of each unit becomes the designation for that unit. Examples of such designations are: (1,2), (2,2), and (2,3). Each coordinate indicates the distance east and north of the site datum, respectively.

5. Distribute to each team the "Artifact Location Record." On it, students will record the grid unit designation and count and name the artifacts in each grid unit. If no artifacts are found in the unit, students should put "0." If an artifact is on a grid line, the student must choose which grid square to record it in. An artifact cannot be recorded in more than one square.

6. Following the procedure of scientific inquiry ask:

- What do you notice about the distribution of the pot sherds? (Note your observations.)
- Why is there a concentration of pot sherds in part of the site? (List some inferences.)
- Choose one inference and formulate an hypothesis from it. Describe how the hypothesis might be tested. Here is an example: There are a lot of pot sherds in one location. We might infer a pottery vessel broke here. If all of the sherds have similar attributes and fit together, then we could accept the hypothesis that a vessel broke in this location. What other reason could explain the concentration of sherds? The students will not be able to actually test the hypothesis without access to the artifacts. This exercise is designed to have them think like archaeologists.
- Conduct a similar inquiry using the stone flakes or other artifacts.

Note: A simplified alternative to the above procedure is to have students overlay "The Grid Sheet" to "The Piedmont Site" and hold them up to the light. "The Grid Sheet" already has named squares. After the students record the artifacts found in each one (Step 5), pick up with the above procedure at number 6.

Evaluation

Students turn in their completed "Artifact Location Record" for evaluation.

Closure

Summarize the importance of why archaeologists grid archaeological sites to assist with accurate recording and making inferences from data, now and in the future.

Extensions

1. With older students, precisely map artifacts within each grid unit. Measure the distance north and east of the grid unit's southwest corner to find the exact location of each artifact with respect to the site datum (0, 0). For example, an artifact might have coordinates like (2.1, 4.6) or (3.3, 8.8).

2. Create a site on the playground by depositing "artifacts," and then establish a grid on the playground. Map the "artifacts" using the grid.

Links

Lesson 1.4: "Archaeological Context."
Lesson 1.7: "Scientific Inquiry."

Sources

Smith, Shelley J., Jeanne M. Moe, Kelly A. Letts, and Danielle M. Paterson. 1993. *Intrigue of the Past: A Teacher's Activity Guide for Fourth through Seventh Grades.* Washington, D.C.: Bureau of Land Management, U.S. Department of the Interior. [This lesson is adapted from "Gridding a Site" on pp. 44–48, courtesy of the Bureau of Land Management.]

Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this lesson's main heading is taken from Figure 4.7.]

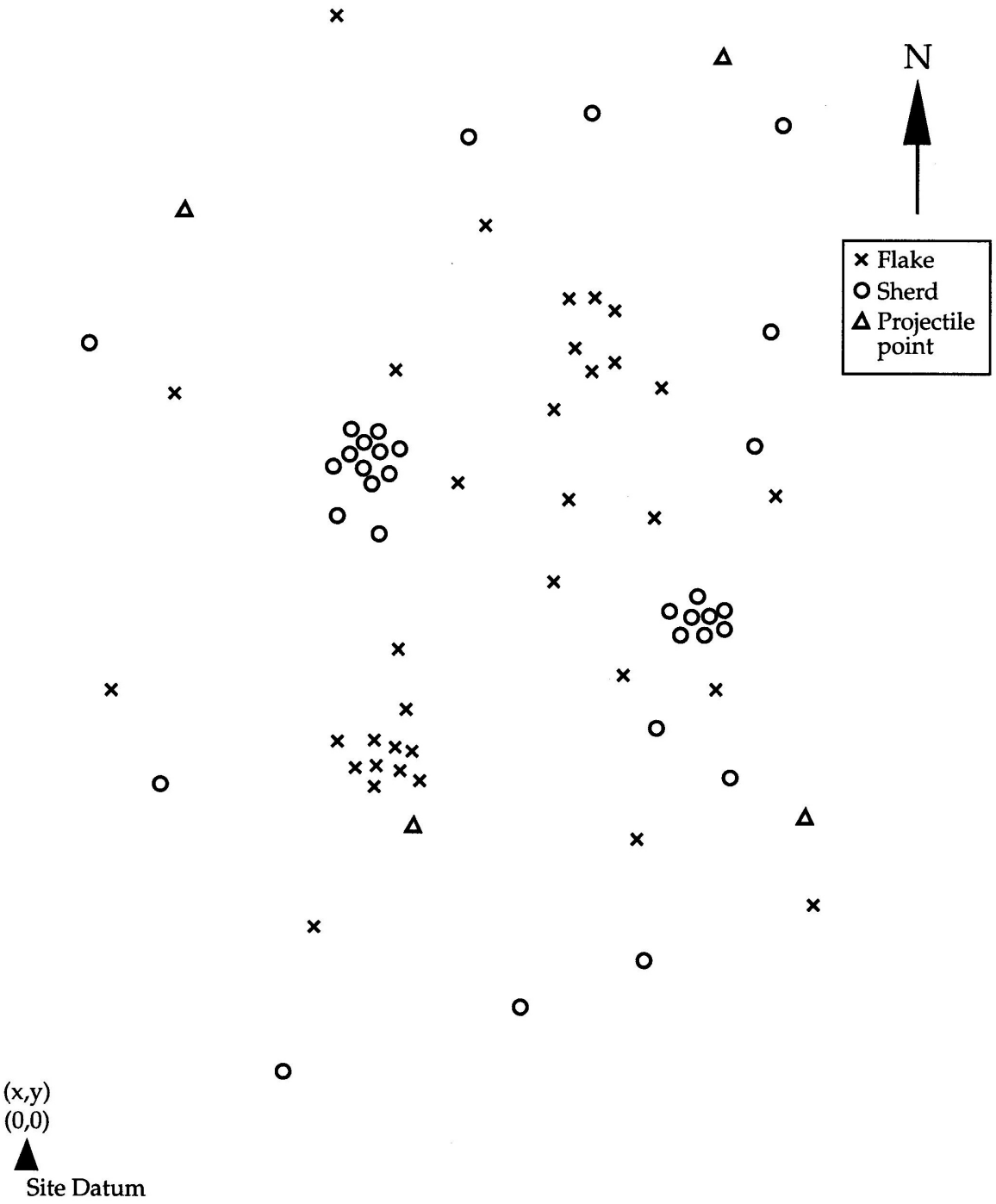
"Artifact Location Record" Activity Sheet Answers:

Note that the answers may vary depending on how the grid is placed and how assignment choices are made when artifacts fall on boundaries. The table below gives an example of how a typical "Artifact Location Record" might appear.

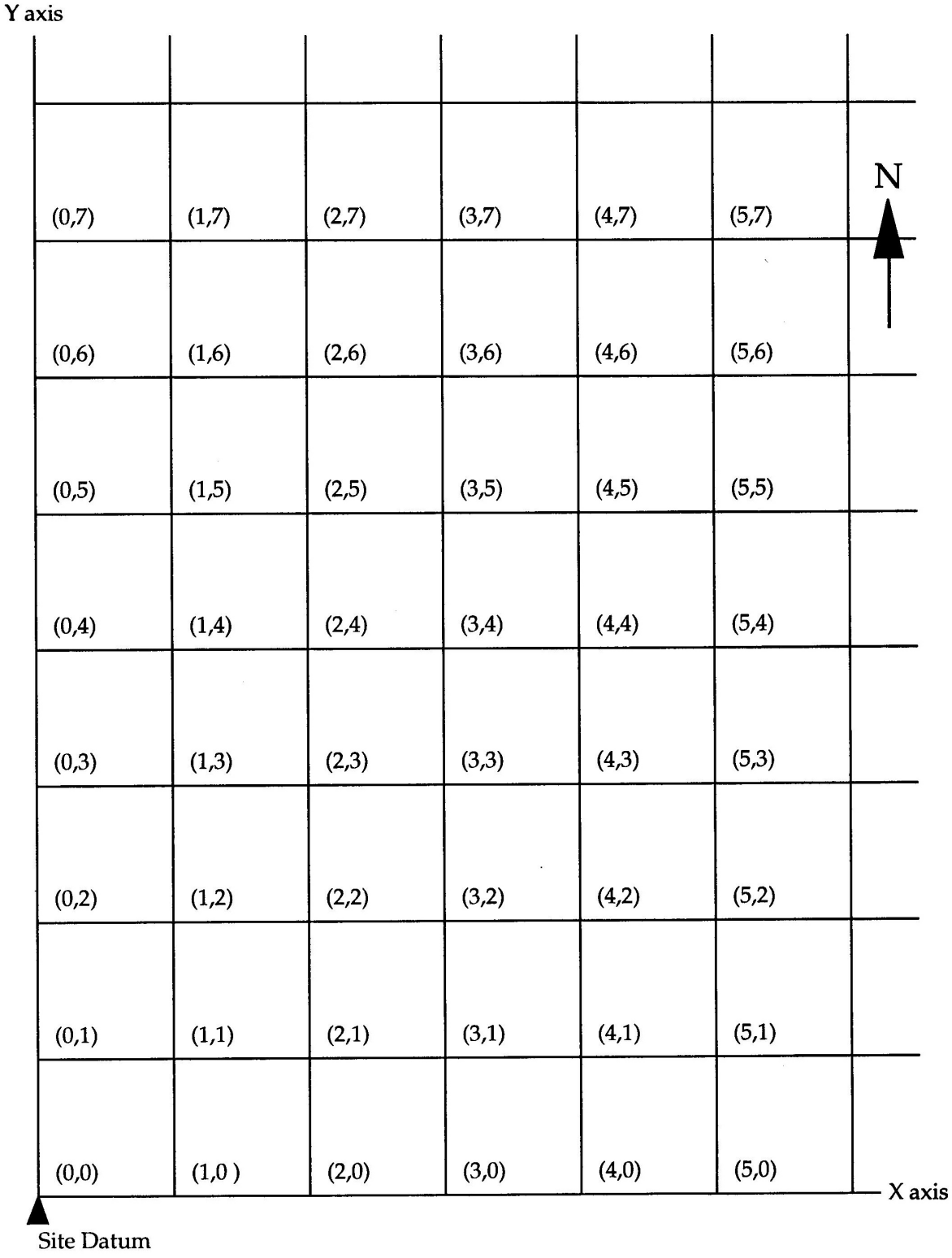
Grid Unit	Flakes	Sherds	Points
1,0	0	1	0
3,0	0	1	0
2,1	1	0	0
4,1	0	1	0
5,1	1	0	0
0,2	0	1	0
2,2	10	0	1
4,2	1	2	0
5,2	0	0	1
0,3	1	0	0
2,3	1	0	0
3,3	1	0	0
4,3	2	8	0
2,4	0	12	0
3,4	2	0	0
4,4	1	0	0
5,4	1	1	0
0,5	0	1	0
1,5	1	0	0
2,5	1	0	0
3,5	5	0	0
4,5	3	0	0
5,5	0	1	0
1,6	0	0	1
3,6	1	1	0
5,6	0	1	0
2,7	1	0	0
3,7	0	1	0
4,7	0	0	1

The Piedmont Site

Name:



The Grid Sheet



Artifact Location Record

Name:

Grid Unit	**Flakes** (count)	**Sherds** (count)	**Points** (count)

Lesson 2.2

STRATIGRAPHY AND CROSS-DATING

Clay pipe from Montgomery County, North Carolina, AD 1000–1600.

Subject: science.
Skills: knowledge, comprehension, application, analysis, evaluation.
Strategies: observation, discussion, sequence.
Duration: 15 to 30 minutes.
Class Size: any.

Objectives

In their study of stratigraphy, students will use an activity sheet to:

- interpret archaeological strata using the law of superposition;
- apply cross-dating to determine the age of other artifacts.

Materials

Five books of any size; "Site Near Roanoke Rapids" and "Cross-Dating" activity sheets for each student.

Vocabulary

Cross-dating: the principle that a diagnostic artifact dated at one archaeological site will be of the same approximate age when found elsewhere.

Diagnostic artifact: an item that is indicative of a particular time and/or cultural group; a computer would be a diagnostic artifact of our time and culture.

Spatial: concerned with space.

Strata: layers (the plural of stratum); in archaeology, this term usually refers to layers of earth.

Stratigraphy: the layering of deposits in an archaeological site. Cultural evidence and natural sediments become buried over time. The layer on the bottom is the oldest; the layer on top is the youngest.

Stratum: layer (the singular of strata); in archaeology, this term usually refers to a layer of earth or human-generated debris.

Temporal: concerned with time.

Background

Natural materials such as rocks, soil, and traces of plants and animals settle on the earth's surface and over time can accumulate in layers. Each layer, or *stratum*, may be distinguished by its physical characteristics: color, texture, and structure. Similarly, materials of human origin are also deposited onto the earth's surface. In archaeological sites, natural and human-generated materials occur together in layers. These layers, called *strata*, form a record of past events that archaeologists analyze and interpret.

The materials deposited first are the oldest and are always found at the bottom of a given *stratigraphic* section. The most recently deposited materials are the youngest and are always at the top. This concept is known as the *Law of Superposition*. It always applies except when some type of disturbance has occurred.

Strata in archaeological sites provide archaeologists with *temporal* and *spatial* information. All of the artifacts in a given stratum will be of approximately the same age, while those in strata above or below will be younger or older respectively.

Cross-dating can indirectly establish a date for artifacts and sites. Artifacts such as stone points and pottery were made in distinctive styles through time. A modern analogy is automobiles: one would not mistake the style of a car made in the 1920s with one made in 1990. If an arrow point was found in association with a hearth that was radiocarbon dated to be 500 years old, it is assumed that the arrow point is the same age. When that style of arrow point is found at another site, the archaeologist would assign the site and the arrow point an age of approximately 500 years. Often cross-dating is the only method archaeologists have to determine the age of sites.

Archaeological sites in North Carolina often contain evidence of repeated occupations. Usually these occupations occurred on exactly the same surface, which results in a mixing of artifacts from different periods. Yet archaeologists also find stratified sites, in which each occupation is associated with a distinct stratum. Stratified sites contain artifacts and other evidence that can show culture change over time and have the potential to give clues about the relationship one group of people had to those who came before or after them. In North Carolina, information from just four stratified sites—three in the Uwharrie Mountains and one near Roanoke Rapids—allowed archaeologist Joffre Coe to construct a chronology of different Native American cultures spanning the time from 10,000 years ago until Colonial times. Because of their great information potential, and their rarity, archaeologists regard stratified sites as particularly important.

When an archaeological site is vandalized or artifacts are removed, knowledge about past cultures is lost forever. Damage to stratigraphy by unauthorized digging destroys the information that could be obtained under controlled scientific excavation. The removal of *diagnostic artifacts* from a site by vandals often removes all possibility of determining the site's age.

Setting the Stage

Stack five books on a table. Tell the students that the books were placed in their positions one at a time. Ask them which book was placed in position first. Which one was placed last? This illustrates the Law of Superposition.

Now have the students imagine how thick the dust would be on a table if no one dusted it for 100 years. Each book represents a layer of sediment built up in a similar fashion for hundreds or even thousands of years.

Procedure

1. Using the "Site Near Roanoke Rapids" activity sheet as a guide, draw a layer near the bottom of the blackboard. Show how artifacts and other traces of past life are deposited as people live on top of the layer. Then a new layer of sediments is deposited on top of that, by natural processes or by another group of people leaving different types of evidence. This happens several times until the stratigraphy is built up to present-day levels.

2. Distribute the "Site Near Roanoke Rapids" activity sheets to the students. Have students

answer the questions using the information on the stratigraphy drawing.

3. The artifacts on the "Site Near Roanoke Rapids" activity sheet have been dated based on the age of the stratum in which they are found. If you found similar artifacts elsewhere, would you know approximately how old they are? Yes. This concept is known as *cross-dating*. An artifact type that has been dated in one place can be assumed to have the same date when found elsewhere.

4. Give the "Cross-Dating" activity sheet to the students. Ask the students to imagine that the site near Roanoke Rapids is ten miles away from their town. Tell them that the artifacts shown on the "Cross-Dating" activity sheet were found in a plowed field close to their town. Have the students determine the approximate age of the artifacts based on the information from the "Site Near Roanoke Rapids" activity sheet.

5. Ask the students if they would be able to study the stratigraphy of a site if the strata had already been mixed up by illegal digging. If someone took an arrow point, what kind of information would he or she have removed from the site?

Closure

Summarize how archaeologists use stratigraphy and cross-dating to study archaeological sites.

Evaluation

The students turn in their activity sheets for evaluation.

Extensions

Go on a field trip. Examine the stratigraphy of road cuts. Measure and draw the layers on graph paper. Describe the strata by comparing differences in color and texture and other observable characteristics.

Links

Lesson 1.5: "Chronology: The Time of My Life."

Sources

Smith, Shelley J., Jeanne M. Moe, Kelly A. Letts, and Danielle M. Paterson. 1993. *Intrigue of the Past: A Teacher's Activity Guide for Fourth through Seventh Grades.* Washington, D.C.: Bureau of Land Management, U.S. Department of the Interior. [This lesson is adapted from "Stratigraphy and Cross-Dating" on pp. 49–52, courtesy of the Bureau of Land Management.]

Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this lesson's main heading is taken from Figure 4.22.]

"Site Near Roanoke Rapids" Activity Sheet Answers:

1. People from the middle Archaic Period; 6000–3000 BC.
2. Modern Americans.
3. Younger.
4. Clay pottery, pipe, fish hook, corn cob, etc.; early farmers who hunted, fished and gathered wild plant foods to supplement their diet.
5. Artifacts include a wagon wheel, horseshoe, and metal two-person saw, as well as a clay pot and stone arrow

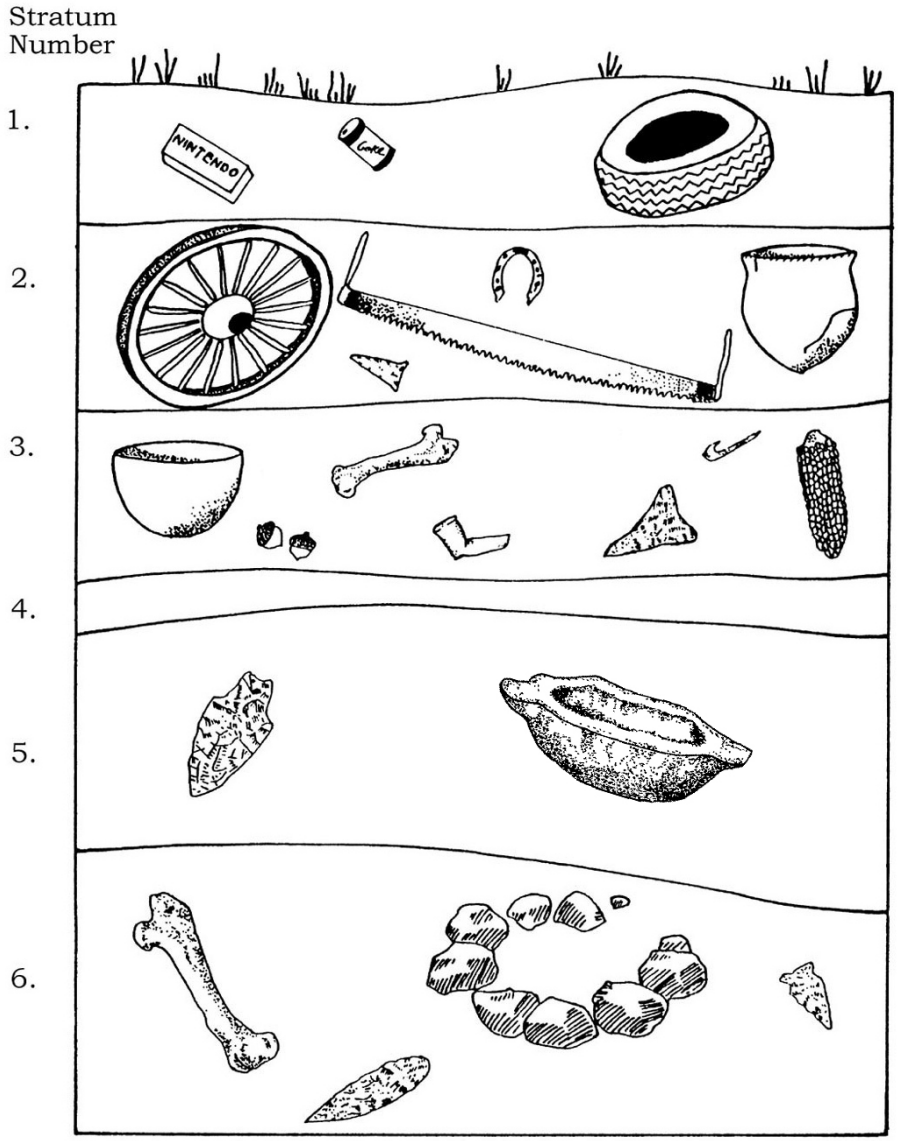
point; at least two cultures are represented: Colonial settlers and Native Americans.

"Cross-Dating" Activity Sheet Answers:

1, AD 1000–1650; 2, 3000–1000 BC; 3, after AD 1650; 4, after AD 1650; 5, AD 1000–1650.

Site Near Roanoke Rapids

Name:

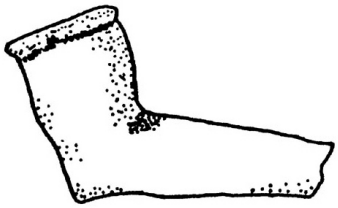


1. Which people lived at the site first?
2. Which people lived at the site last?
3. Are the artifacts above the layer of orange sand older or younger than the artifacts below it?
4. What kinds of artifacts and other remains are found in stratum 3? What inferences can you make about how the people who left them there lived?
5. What kinds of artifacts are found in stratum 2? Is more than one culture represented?

Cross-Dating

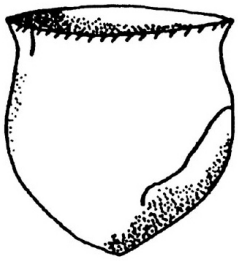
Name:

An archaeologist found these artifacts near your town. What is their approximate age?



1.

2.



3.

4.

5.

Lesson 2.3

ARTIFACT CLASSIFICATION

Ceramic urn from Richmond County, North Carolina, ca. AD 1400

Subjects: science, language arts.
Skills: application, analysis, evaluation.
Strategies: scientific inquiry, research skills, classification, role play.
Duration: 30 to 45 minutes.
Class Size: any; groups of 4 to 5.

Objectives

In their study of artifact classification, students will use pictures of artifacts or objects from a teaching kit to classify artifacts and answer questions about the lifeways of a group of historic Native Americans.

Materials

"Classification" and "Pee Dee Culture Artifacts" activity sheets for each group. Optional: an archaeology teaching kit, if available.

Vocabulary

Artifact: any object made, modified, or used by humans; usually this term refers to a portable item.
Awl: a sharp pointed tool used to punch holes in skins and other materials.
Lifeway: how a group of people live.
Pendant: an ornament hung on a cord around the neck and worn as a necklace.
Style: the combination of shape and decoration distinguishing a group of artifacts, such as pottery, found in specific geographic areas and dated to certain times; a particular way of doing something that is associated with a specific culture or cultural tradition.

Background

The purpose of archaeological research is to learn about the *lifeways* of past peoples. The research design developed for each archaeological project usually consists of a series of specific questions and a description of the methods by which the questions will be answered using the archaeological data.

The *artifacts* from the site form an important part of the data base. Artifacts are classified so that they can be used to form or test hypotheses that answer the research questions.

Procedure

1. Tell students to imagine they are a team of archaeologists. The team has completed excavations of village sites along the Little River in Montgomery County. A few hundred years before Europeans arrived, tribes influenced by an art style archaeologists call the Southeastern Ceremonial Complex lived in these villages. Prior research shows many of the artifacts these

people left are different from those of other tribes living in the area. Those influenced by the Southeastern Ceremonial Complex made, for example, conch shell *pendants* (called gorgets) carved with representations of crosses or serpent symbols. To keep the two kinds of cultures distinct, archaeologists named the one influenced by the Southeastern Ceremonial Complex "Pee Dee."

With the excavation finished, team members must now analyze the artifacts brought back to the laboratory to find out more about the lifeways of the people belonging to the Pee Dee culture. They will use a series of questions to structure their inquiry.

- What was the diet of the sites' Pee Dee culture residents?
- What did they use for personal adornment?
- Could any artifacts have been used for ceremonial or leisure purposes?
- How many different ways did Pee Dee culture people decorate their pottery?
- How many different kinds of raw materials did they use to make their tools?

2. Distribute the "Pee Dee Culture Artifacts" and "Classification" activity sheets. Working individually or in small groups, the students cut out the artifacts on the "Pee Dee Culture Artifacts" activity sheet. They group the artifacts so they can answer the questions on the "Classification" activity sheet. Have students answer the research questions and tell how they classified the artifacts to do that.

As the students work, they will find that objects move from one category to another depending on the question they ask. For example, the pieces of shell could be used to answer questions about both diet and adornment. Thus, shell could be classified as food remains and as jewelry.

3. Have students form one or more questions of their own. How might they classify their objects to answer their questions?

Closure

Summarize what students have learned about classification and answering archaeological research questions.

Evaluation

Students hand in the "Classification" activity sheet for evaluation.

Extension

Like ancient tools, pennies are artifacts. Have students graph pennies by year and frequency. What is the oldest and youngest penny in the collection? What year or years are the most common? Archaeologists make inferences about the artifacts they recover from a site. To help students understand this process, lead them to make the following inferences about the origin of their penny collection:

- We can be reasonably sure that no penny was deposited at the site prior to the year stamped on the coin.
- The frequency of dates is likely to be greater near the date the pennies were deposited.

Links

Lesson 1.6: "Classification and Attributes."
Lesson 1.7: "Scientific Inquiry."
Lesson 4.6: "Language Families."

Sources

Coe, Joffre Lanning. 1995. *Town Creek Indian Mound: A Native American Legacy.* Chapel Hill: University of North Carolina Press.

Smith, Shelley J., Jeanne M. Moe, Kelly A. Letts, and Danielle M. Paterson. 1993. *Intrigue of the Past: A Teacher's Activity Guide for Fourth through Seventh Grades.* Washington, D.C.: Bureau of Land Management, U.S. Department of the Interior. [This lesson is adapted from "Artifact Classification" on pp. 53–55, courtesy of the Bureau of Land Management.]

Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this lesson's main heading is taken from Figure 4.23.]

"Classification" Activity Sheet Answers:

1. Corn, beans, meat, fruit, acorn and hickory nuts, fish, and shellfish.
2. Shell pendant and shell earrings.
3. Pipe and gaming disc.
4. Curved and straight lines, dots, shapes, and plain.
5. Bone, stone, and clay.

Classification

Name:

1. What was the diet of the sites' Pee Dee culture residents?

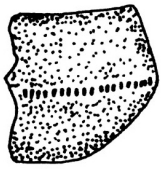
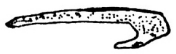
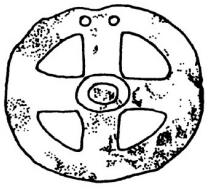
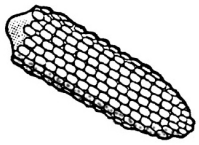
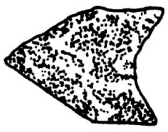
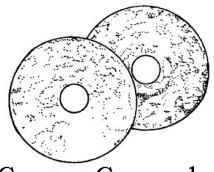
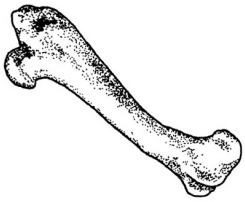
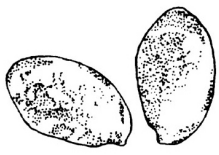
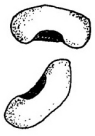
2. What did they use for personal adornment?

3. Could any artifacts have been used for ceremonial or leisure purposes?

4. How many different ways did the Pee Dee culture people decorate their pottery?

5. How many different kinds of raw materials did they use to make their tools?

Pee Dee Culture Artifacts

 Pottery	 Bone fish hooks	 Clay dipper	 Shell pendant
 Corn	 Bone awl	 Pottery	 Cane matting
 Acorns	 Pottery	 Pottery	 Stone projectile points
 Copper Covered wooden ear spools	 Mussel shells	 Stone hoe	 Clay pipe
 Clay game disc	 Hickory nut	 Deer bone	 Persimmon seed
 Grinding stone	 Beans	 Pottery	 Pottery

Lesson 2.4

TREE-RING DATING

Polished stone axe from Halifax County, North Carolina, ca. AD 1000.

Subjects: science, social studies, mathematics, language arts.
Skills: knowledge, comprehension, application, analysis, evaluation.
Strategies: computation, observation, forecasting, discussion, scientific inquiry.
Duration: 45 to 60 minutes.
Class Size: any.

Objectives

In their study of dendrochronology, students use activity sheets and a discussion to:

- apply principles of dendrochronology to determine a tree's age and to recognize climatic variation;
- analyze and experience how archaeologists can sometimes use tree rings to date archaeological evidence and study past climates.

Materials

For the teacher, transparencies of the "Master Sequence," "The Stump," and "Be a Dendrochronologist" activity sheets. For students, scissors, glue, or Scotch tape, and a copy of "Be a Dendrochronologist" activity sheet. Optionally, slices of tree stumps or limbs.

Vocabulary

Cambium: the thin layer of living, dividing cells just under the bark of trees; these cells give rise to the tree's secondary growth.

Dendrochronology: the study of the growth rings in trees to reconstruct climate variations and to determine the age of trees, beams, and other timbers.

Increment borer: a hollow instrument used to drill into the center of a tree to remove a long narrow cylinder of wood (called a core sample).

Tree rings: the concentric circles visible in cross sections of tree trunks and limbs; each pair of light and dark rings represents a year's growth.

Background

Dendrochronology (den-droh-cruh-NOL-uh-gee) means "the study of tree time." Usually called tree-ring dating, dendrochronology is a science based on the fact that every growth season a tree adds a new layer of wood to its trunk. Over time, these yearly growth layers form a series of light and dark concentric circles, or *tree rings*, that are visible on cross sections of felled trees. Archaeologists sometimes study the ring patterns in beams or other pieces of wood from archaeological sites to help date the sites; they may also study the ring patterns to infer the local climatic history.

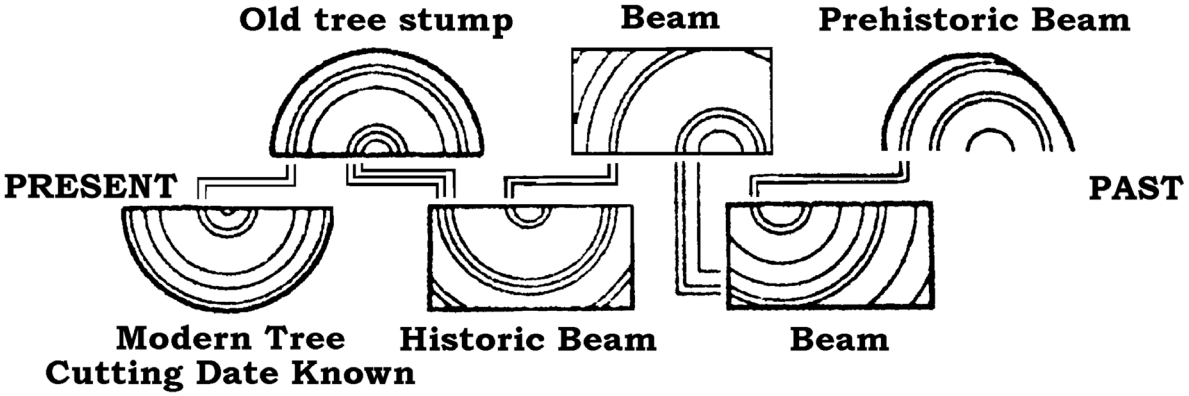
Tree-ring analysis requires observation and pattern recognition. Each year a tree's growth ring has two parts; one is wide and light colored, and the other is narrow and dark. The light part is

the early wood. This grows during the wet spring and early summer when the tree has a lot of sap, and the *cambium* cells giving rise to the trunk growth are large and thin walled. As the summer winds down and the transition to the cooler autumn occurs, the tree's growth rate slows. This results in the cambium cells becoming smaller and thicker-walled. By winter, when the sap finally stops flowing, a smooth dark ring marks the end of the tree's annual growth. By counting the dark ring segments, scientists can tell a tree's age if the cross section of the trunk is complete.

Because the width of tree rings varies with growing conditions, scientists also learn about local climate during the tree's lifetime by comparing the rings' different widths. Tree rings vary in thickness from year to year. For instance, higher rainfall and a longer growing season produces a wider ring than a year with low rainfall and prolonged cold. From recording tree-ring patterns in several geographic areas, scientists have found that all the region's trees have the same pattern.

An astronomer, Dr. Andrew E. Douglass, developed dendrochronology about 1913. Based at the University of Arizona in Tucson, Douglass wanted to know how sun spot activity affected climate, and his research soon led him to pioneering tree-ring analysis. Douglass was among the first to notice that trees in a geographic area develop the same growth-ring patterns because they experience the same climatic conditions. He reasoned if he could trace patterns far enough back in time, he could outline a history of regional climate and see if sun spots could be related.

Douglass used a bridging method to create his chronology. First he studied recently cut trees whose dates he knew. This initial step was critical because by knowing the cut date, Douglass knew when each tree added its last growth ring. This, in turn, let him determine the year each tree started growing. The calculation was straightforward: count the dark rings inward and subtract that number from the year the tree was cut. As Douglass matched and recorded ring patterns from trees of different ages, he confirmed that their patterns overlapped during the years the trees simultaneously lived.



Establishing a tree-ring sequence by means of the bridging method.

After establishing this basic sequence, Douglass next studied wood from trees whose dates he did not know. He observed that the year a tree was chopped down could be determined by matching its ring pattern with the pattern of a tree whose cut year he knew. For example, say Douglass observed on his preliminary sequence that a drought occurred in 1900, appearing on trees as a very narrow growth ring. Experience told him this narrow ring would be in all the region's trees, but at different positions on the stump because of their different ages. Faced with wood whose felling date he did not know, Douglass would search out the ring identifying the

drought year and match it to his sequence. At that point, determining the year the tree was chopped down was, again, straightforward. For instance, if two growth rings exist above the drought year, the tree was cut in 1902. Douglass extended this bridging exercise by studying ring patterns visible in old wooden beams, some preserved in the pueblos (houses) of early Native Americans living in his study area. Ultimately, he charted a tree ring sequence to about AD 500.

Dendrochronologists have since used Douglass's technique to make master sequences for several parts of the country. Most reflect regional growth patterns for distinct species. Much of this work focused on regions in the arid Southwest where ancient pinyon pines still live or exist as beams in old houses. In some places there, master sequences extend as far back as 8,700 years.

Recently, scientists have begun constructing sequences in the East. It is a more difficult and less precise task for two reasons. The relatively abundant rainfall and milder winters tend to blur trees' annual growth layers; most look so much alike that creating a bridge by matching rings is difficult. Also, the East's humid, temperate climate decays wood beams quickly, so a sequence is limited in how far back in time it reaches. Nonetheless, scientists find they can construct limited sequences for certain tree species in places where seasons are more pronounced or the rains less dependable. One kind of tree whose chronology can be charted is the oak in the higher reaches of the Appalachians. Another kind is the bald cypress, which grows well in wet areas like coastal swamps.

Dendrochronologists make master tree-ring sequences by drawing vertical lines on a piece of paper at the end of every tree ring. To the eye, the sequence looks like a series of parallel lines, with the width between each line the same as the width of each tree ring. Known dates are matched to the tree rings on the sequence. Each time the dendrochronologist gets a new piece of wood, he or she makes a graph of its ring patterns and then slides it along the master sequence until the patterns match. So framed, the scientist can compute the cutting date of the piece of wood.

Archaeologists in some parts of the country find dendrochronology useful for dating sites. This is particularly true in the Southwest. Many ancient ruins there still have wood preserved in their walls and roofs, and even charcoal from burned structures or cooking fires can sometimes show clear tree-ring patterns. Dendrochronology gives archaeologists other clues about past life, as well. By studying many pieces of wood from an early village, archaeologists learn about things such as how the village grew and how houses were remodeled or when the village was abandoned and re-occupied. For example, when people returned to an abandoned village after several years, they would repair, replace, and sometimes remodel the buildings using new wood. The year they returned can be read from this wood's tree rings.

As master sequences are done for the East, North Carolina archaeologists may also find dendrochronology helpful in dating sites, especially where old logs or beams from structures built after Europeans arrived still exist. They have already benefited from a sequence recently developed from bald cypress trees. This sequence has allowed archaeologists to date dugout canoes found on the bottom of Lake Phelps in northeastern North Carolina. These canoes, some of which are nearly 4,400 years old, were made from large cypress trunks by Indians living in the area. As archaeologists continue their research, they may learn more about what the climate was like. This information can give more complete answers to questions like how climate influenced where people lived, what kinds of foods they grew, and what wild plants and animals were available to them.

Archaeologists are careful when taking samples of wood from sites; they want to keep the material intact as much as possible. Therefore, rather than slice through or remove a beam from an old structure, scientists use an *increment borer.* When drilled into the wood sample, this

hollow instrument removes a long thin tube of wood, leaving a hole that is only about the size of a soda straw. This method of core removal is also used on living trees so that the tree does not have to be cut down.

Wooden beams, building materials, and charcoal provide a wealth of information about past cultures. However, people sometimes destroy this evidence. In the Southwest, visitors to ancient Indian ruins have pulled apart thousand-year-old houses and used the beams in campfires. In the Southeast, people have dug in sites without archaeological supervision and moved wooden beams and charcoal from their original location; then archaeologists cannot tell their context. It is very important to our knowledge about the past that we do not disturb or destroy sites.

Setting the Stage

1. Share background information. (Optional: project the "Master Sequence" transparency and explain how the sequence is created.)
2. Using "The Stump" activity sheet, show students how to count tree rings and discuss the basic knowledge that can be learned from the study of tree rings.
3. Answer questions on "The Stump" activity sheet.

Procedure

1. If possible, bring in an increment borer and a core sample. Foresters with state and federal agencies might lend these to you. Explain how the borer is used and how the sample can be read, as in "The Stump" activity.
2. Give each student a copy of the "Be a Dendrochronologist" activity sheet. It depicts cross sections of two beams from log cabins at different archaeological sites in the mountains of western North Carolina. Have students cut out the core samples. The innermost solid line represents the first year's growth. The students match their core samples to the master sequence depicted at the top of the activity sheet. They glue or tape the samples from each core onto the master sequence to see how the beams overlap. Ask students to make some calculations. How old was the tree each beam came from? What is the cut date for each tree? Which tree was younger? (You may want to demonstrate or work along on the overhead projector.)
3. After students have dated the beams and put them in chronological order, ask them to make some observations about the climate at these sites. What might have been the weather conditions at that time? How would the weather have affected Cherokee farmers living in the mountain valleys?
4. Share preservation information from the "Background."

Closure

Have students create a summary statement about the importance of tree-ring dating to archaeology. Have them also make a statement about the importance of preserving wood samples in archaeological sites.

Evaluation

Students complete "Be a Dendrochronologist" activity sheet and turn it in for evaluation.

Extensions

1. Instead of using "The Stump" activity sheet, teachers can use "tree cookies." These are

polished cross-sections of tree stumps and limbs. Tree Cookies may be available in your area from the U.S. Forest Service or environmental education organizations, such as Project Learning Tree.

2. Have students do Project Learning Tree's "Tree Cookies" activity (1993, pp. 289–292).

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Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this lesson's main heading is taken from Figure 3.10.]

"The Stump" Activity Sheet Answers:

1. The current year minus three.
2. 16 years old
3. The year it was cut minus 16.
4. In the sixth year.
5. In the eighth year.

"Be a Dendrochronologist" Activity Sheet Answers:

1. Climate and the years the site was occupied.

2. It could be skewed. However, if archaeologists find that some beams date well before the others at a site, they would suspect that the early beams had been re-used.

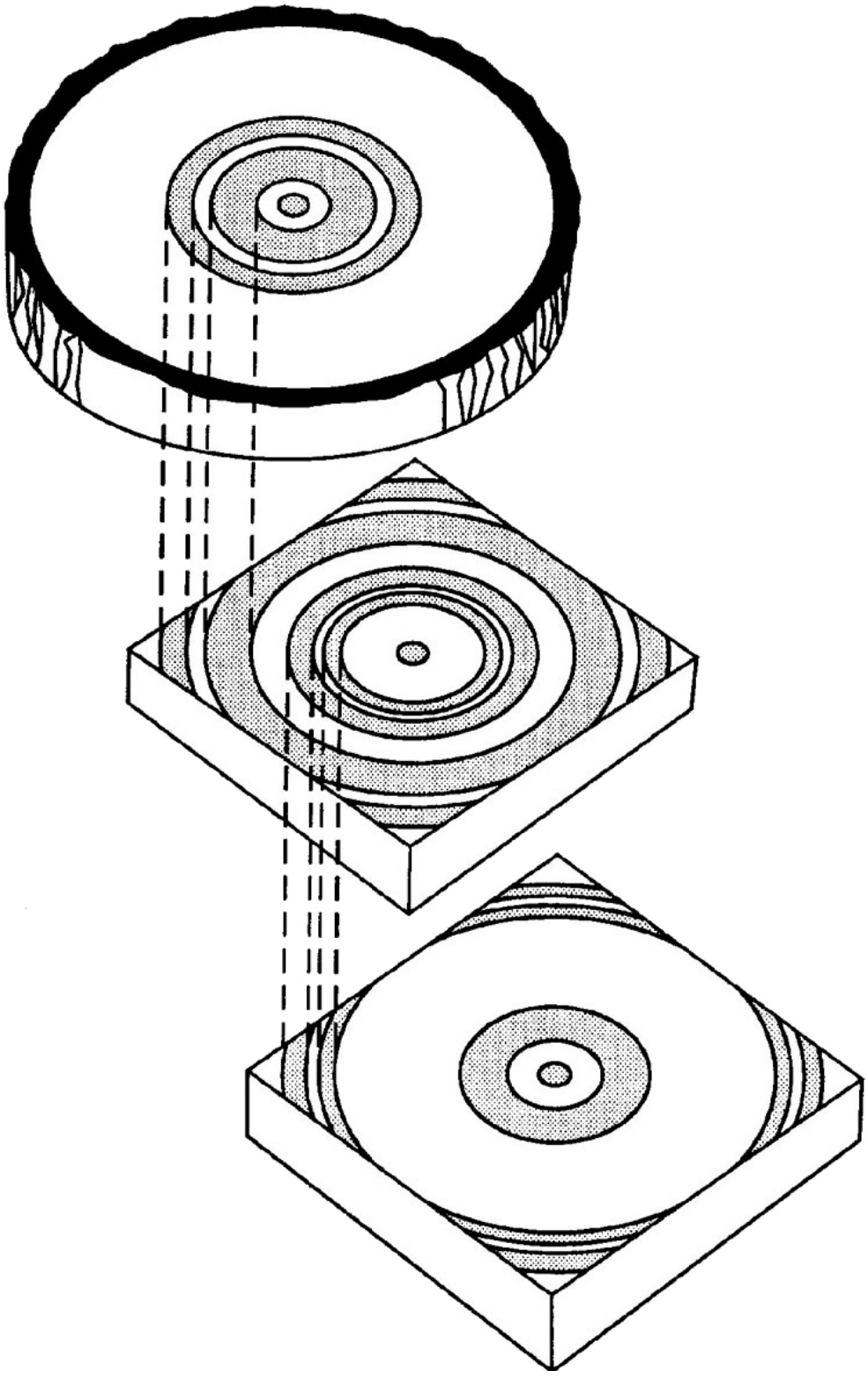
3. Removing beams removes information about the site's date and climate. Moving beams around confuses the record, and archaeologists cannot then tell to which room the dated beam belongs.

4. Beam B is the oldest. Tree A was 14 years old when it was cut. Tree B was 13 years old when it was cut. Tree A start growing 190 years ago. Tree B started growing 199 years ago. Tree A was cut 177 years ago. Tree B was cut 187 years ago.

5. Tree A: no dry cycles, two wet cycles. Tree B: two dry cycles, two wet cycles.

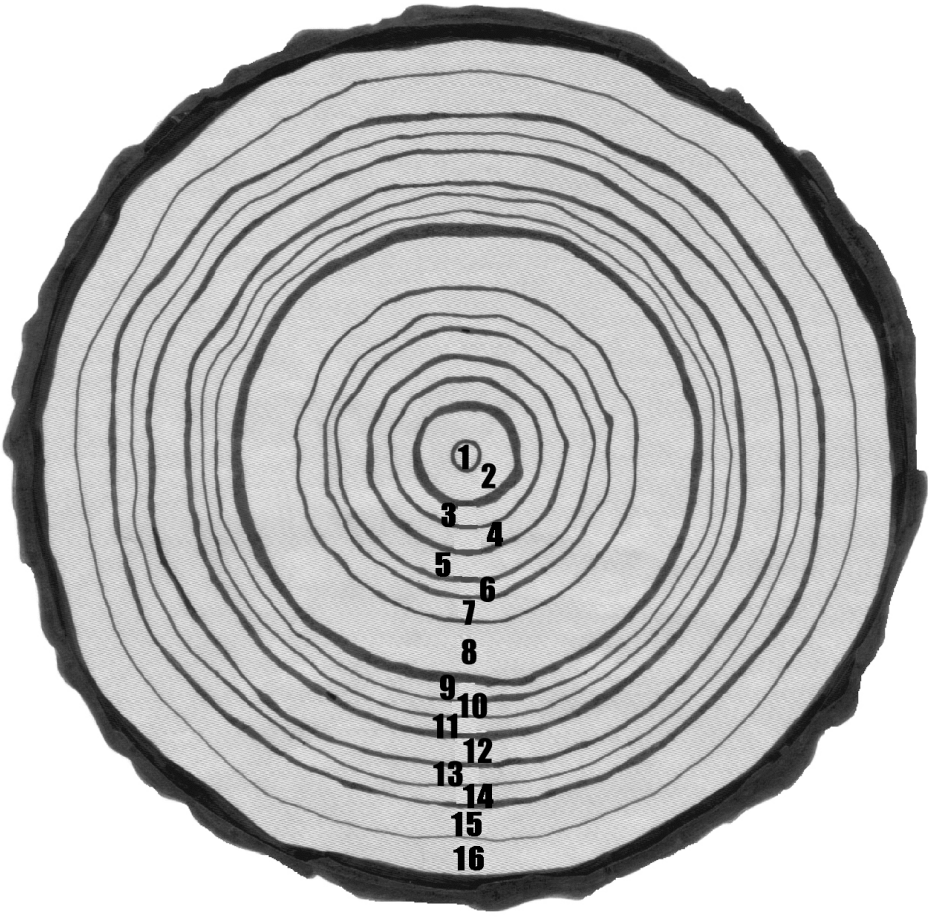
6. Examples: availability of food and water and other resources might change; survival might depend on adapting to these changes; human populations might change.

Master Sequence



The Stump

Name:



This tree was cut 3 years ago. Write that year:

How old was the tree?

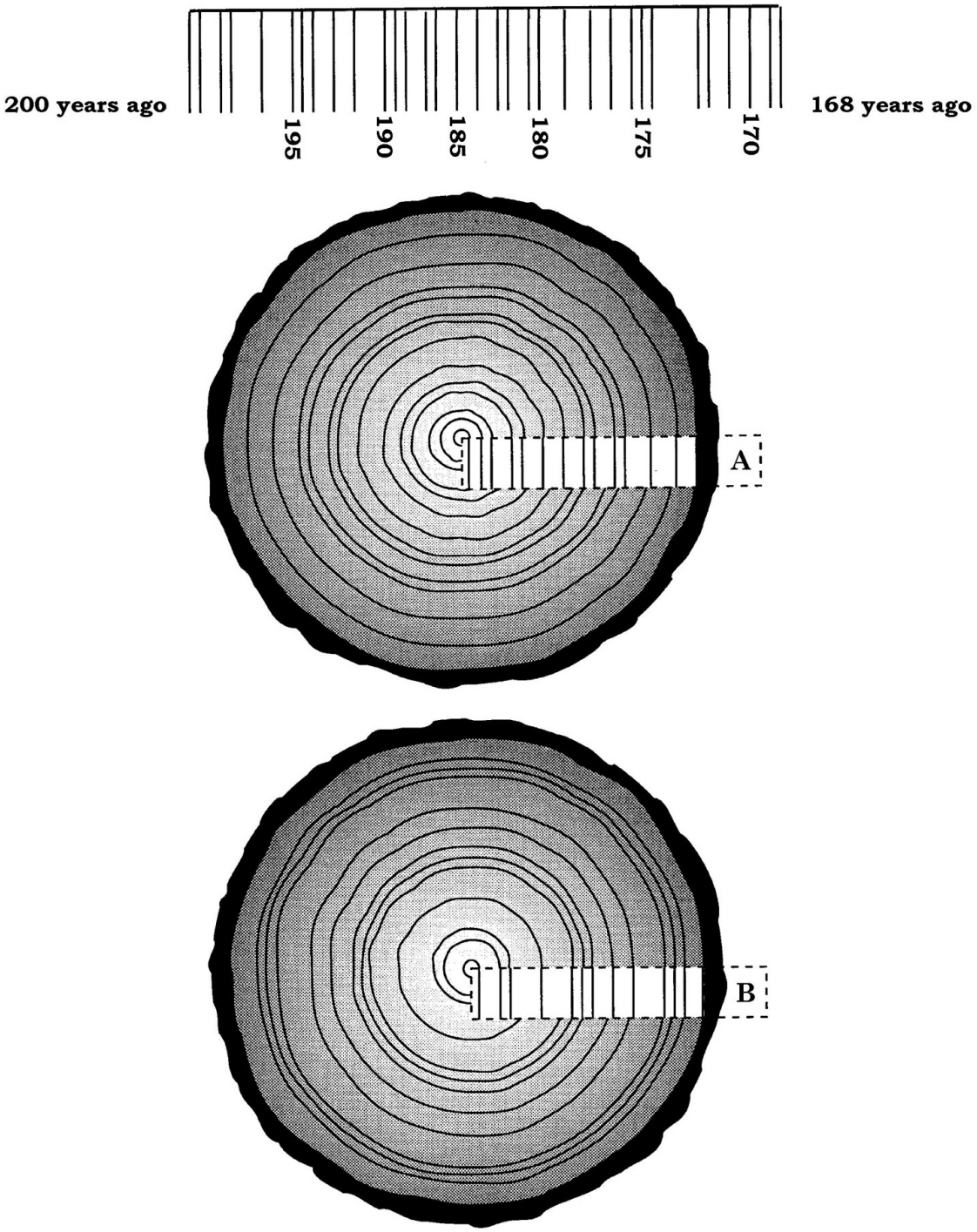
What year did the tree start growing?

Find the ring that grew the year you were born. Was it a wet or dry year?

In what year of growth was there the least rainfall?

In what year of growth was there the most rainfall?

Be a Dendrochronologist (page 1)



Adapted from Dendrochronology/Tree Rings worksheet © 1986, courtesy of Barbara Gronemann, Southwest Learning Systems. Dates changed to reflect North Carolina example.

Be a Dendrochronologist (page 2) **Name:**

1. What can a tree tell us? Name two things archaeologists can learn about a site from tree rings.

2. How is the tree-ring record affected if ancient people used wood beams from older sites when building new homes?

3. What happens to the archaeological record if someone removes a beam or even places it somewhere else on the site?

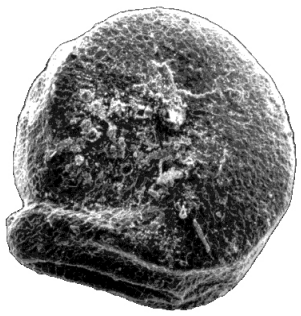
4. Refer to the diagram on page 1 of your activity sheet and answer the following questions:

- Which beam is the oldest?
- How old was Tree A when it was cut?
- How many years ago did Tree A start growing?
- How many years ago was Tree A cut?
- For Tree A, list the number of dry cycles (two or more dry years).
- For Tree A, list the number of wet cycles (two or more wet years).
- How old was Tree B when it was cut?
- How many years ago did Tree B start growing?
- How many years ago was Tree B cut?
- For Tree B, list the number of dry cycles (two or more dry years).
- For Tree B, list the number of wet cycles (two or more wet years).

5. How might climatic changes have affected the lifeways of ancient people?

Lesson 2.5

ARCHAEOBOTANY



Magnified goosefoot seed from an archaeological site, ca. AD 300.

Subjects: science, mathematics, language arts.
Skills: knowledge, comprehension, application, analysis, synthesis, evaluation.
Strategies: brainstorming, forecasting, discussion, problem solving, writing, graphing, classification, scientific inquiry.
Duration: 45 to 60 minutes.
Class Size: any.

Objectives

In their study of archaeobotany, students will use pictures of seeds, an activity sheet, and a graph to:

- identify seven seeds and the conditions in which they grow;
- infer ancient plant use by interpreting archaeobotanical samples;
- determine changing plant use by Native North Carolinians by interpreting a graph of seed frequency over time.

Materials

For the teacher, transparency of "Magnified Seeds" master. If possible, pictures or examples of plants and actual seeds of domesticated plants (e.g., squash, corn, or grape). For each student, "Two Seed Samples" and "Seed Change Over 3,500 Years at the Warren Wilson Site" activity sheets.

Vocabulary

Archaeobotanist: a specialist who studies seeds and other plant remains from archaeological sites in order to understand the relationships between plants and people in past cultures.
Carbonize: to turn a seed or other organic item into charcoal through burning.
Cultivate: to promote or improve the growth of a plant or crop by labor and attention.
Domesticate: to modify, by selective breeding, the characteristics of plants or animals for human use.
Flotation: a method used to recover seeds from archaeological sites. Soil is placed into a large container of water. The soil falls to the container's bottom, while the seeds remain floating on the water's surface.
Hypothesize: to propose a hypothesis, an explanation, or interpretation that can be tested by further investigation.
Maize: another name for corn.
Seed: a fertilized plant egg that has the capacity to produce a new plant.

Background

Seeds have several valuable features that make them useful for archaeologists to study. They

can be preserved over enormous time spans if they are *carbonized* and maintained in fairly constant environmental conditions. Carbonization occurs when a seed is burned and turned to charcoal, such as in a cooking fire. Other plant parts, such as leaves, flowers, or roots, are far less likely to be preserved.

Different types of plants produce different looking seeds. This distinctiveness allows researchers to identify seeds. Scientists called *archaeobotanists* study seeds and other plant evidence to analyze the relationships between plants and people.

Carbonized seeds become deposited in the ground through people's activities. Seeds show up in areas of the site where people prepared and used plants, such as in hearths and refuse pits. When archaeologists excavate a site, they regularly collect small bags of soil to examine for the presence of seeds. Seeds are recovered through a procedure called *flotation*, which involves placing the soil samples in a container of swirling water. The soil, which is heavy, drops to the bottom of the container, while the seeds float to the top, where they can be scooped off and set aside to dry. The seeds and fragments of seeds are examined closely under a microscope and compared with modern identified seeds and illustrations of seeds. Archaeobotanists use the size, shape, and surface texture of a seed to help identify it.

Archaeologists use seed analysis to understand plant use and past climates. They study seeds from archaeological sites to learn if people were growing their own food, relying upon wild plant foods or some combination of both. Through their studies, they have determined that the food resources of American Indian North Carolinians changed over time. During earlier times, people relied on gathering wild plants. They ate the leaves, fruits, or roots of many plants that are generally not thought of as food today, such as violets, acorns, ferns, and knotweed. While wild food continued to play an important part in their diet, Indians began to *cultivate* certain plants about 2000 BC. For example, goosefoot is a weedy plant which grows wild in open fields and along riverbanks. Archaeologists *hypothesize* that goosefoot, which produces large quantities of starchy seeds that Native Americans used as food, was being cultivated as early as 4,000 years ago. As it was cultivated over the course of many years, goosefoot seeds became larger and more numerous as American Indians harvested the seeds for eating and replanting.

Archaeological evidence suggests that by 1,000 years ago, *maize* was an important part of the diet of southeastern Indians. Native Mesoamericans were the first to *domesticate* maize, and by deliberately planting this grain along with other domesticates such as squash and pumpkin, they could rely less on gathering wild plant foods. The reliance on domesticated plants did not mean American Indians stopped eating wild foods, however. For example, in southeastern sites, archaeologists find carbonized seeds of maypop, which have a lemon-like fruit. They know from settlers' letters and diaries that Indians in North Carolina ate maypop fruit. Maypop grows wild in disturbed soils, like those around places where people live. The Indians then probably picked the fruit from wild maypop plants that grew around their villages instead of planting it in their gardens.

Because every plant species has specific requirements for temperature and moisture, it is possible to learn about past climates and environmental conditions. For example, if an archaeologist working along a coastal site dating to about 8,000 years ago finds mainly seeds from plants that grow in wooded areas, such as walnuts or hickory nuts, she would probably conclude that the area had once been forested. Using seed analysis, archaeologists can also infer what the climate had been in order to support the plants found through archaeology. Some plants grow better in cool, wet climates, while others like drier and warmer weather. For example, birch, spruce, and hemlock trees are found in moist, cool mountain areas, while oak and hickory grow better in warmer, drier climates.

Sites that have been dug up by looters looking for artifacts have lost their potential to tell us about past climates and past food use. Looters mix layers from earlier times with those from later times and expose previously sealed layers to contamination with modern seeds. They probably do not even realize they are destroying this fascinating evidence of the past. It is up to everyone to preserve our past.

Setting the Stage

Project the master of "Magnified Seeds," covering the title. Ask the students to guess what they are seeing.

Procedure

1. Using the projected master of "Magnified Seeds," review from which plant each seed comes. If possible, bring examples or pictures of the plants to the classroom. Try to bring in seeds from the domesticated plants (squash, corn, grape) if possible. List on the board what students know about the conditions where that plant typically grows.
    - Squash: this domesticated plant is primarily tropical and sub-tropical, and produces edible gourds. They are low-growing vines that need sunlight and warmth. Squash plants produce vegetables during the summer and early fall.
    - Maize: also known as corn, this is a domesticated plant that grows in cleared areas with full sunlight. Fresh corn is a summer crop, but dried corn can be stored for months.
    - Knotweed: this plant is almost always associated with disturbed habitats, including places of human activities, and along rivers and streams. It likes warmth, light, and moisture. Knotweed was cultivated by American Indians for its starchy seeds.
    - Goosefoot: goosefoot is found in weedy places, such as roadsides, disturbed fields, and well-drained floodplains. It ripens in late summer and early fall. American Indians domesticated goosefoot for its starchy seeds.
    - Maypop: this wild plant grows best in disturbed, sunny areas, such as cleared lots and edges of streams. Written accounts about American Indian gardens usually describe maypops growing around the gardens. Maypop fruits ripen in the fall.
    - Hickory: this tree grows in deciduous forests and produces nuts that ripen in the fall.
    - Grape: this plant is a vine whose fruit ripens in the summer.

2. Ask students to imagine uses for the listed plants. Supplement their list with the following information about how early Indians living in North Carolina used them, or research on how early people in your locality used these or other plants.
    - Squash: rind, flesh, and seeds used as food; dried rind used as containers.
    - Maize: fresh kernels used as food; dried kernels ground to make meal for bread; cobs used as fuel and for smoking hides.
    - Knotweed: greens and seeds used as food.
    - Goosefoot: greens and seeds used as food, possibly also used as medicine.
    - Maypop: fruit used as food.
    - Hickory: nut used as food; shells could be used as fuel.
    - Grape: fruit used as food.

3. Present background information about how seed analysis is done and how archaeologists use seed analysis to learn about plant use and early environments.

4. Distribute the "Two Seed Samples" activity sheet. This is a very simplified version of what actual seed analysis might look like. Explain that the activity sheet reports the results of two seed

sample analyses: one is a sample from a 500-year-old ditch where people discarded their household garbage, and the other sample is taken from a 500-year-old hearth from the same site. Tell the students that all of the seeds represented found their way into the ground through human activity at the Warren Wilson Site. This site, located in the western part of North Carolina, contains the remains of a stratified Indian village that was occupied over a span of 3,500 years, from 2000 BC to AD 1450. It is situated at the eastern edge of the Blue Ridge mountains, on the floodplain of the Swannanoa River. Edible foods from forests and more open areas in and near the river basins were used by the persons living at the Warren Wilson site. An archaeological study of the seeds recovered from the site showed that the diet of the people who lived there changed over time.

5. Matching seeds from the site to those on the "Magnified Seeds" handout, students identify the plants for each seed and write a paragraph interpreting the results from each sample. (For example: "Seeds from both samples were very similar, with each including grape and goosefoot. This could indicate that people were discarding ashes from the cooking fires in the ditch. Because the plants represented in both the ditch and hearth were plants that ripened in the summer and early fall, it is likely that the seeds were discarded during that time of year.")

6. Distribute the "Seed Change over 3,500 Years at the Warren Wilson Site" activity sheet. Be sure students understand that the page is divided horizontally into three sections, with each section indicating a time period. Archaeologists give different periods names, like Archaic, Woodland, and Mississippian; these names are listed on the chart. Ask students to identify the seeds and interpret the graph. Specifically, how did the diet of the people who lived at the Warren Wilson Site change over time? (For example: "Between 2000 and 500 BC, people at the Warren Wilson Site ate a lot of hickory nuts, which they were getting from the forests. They were also using the greens and seeds of goosefoot, which grew in open areas near the village and on the floodplain of the river. Goosefoot continued to play a meaningful role in the diet until the site was abandoned, but nuts became less important as people began to grow corn. Maypops grew wild around the gardens of corn, and people ate the lemon-like fruits of the maypop, as well. It appears the villagers' dependence on the forest's food resources declined over time as the people of Warren Wilson began to grow their own food.")

Closure

In summary, what two kinds of information can seeds from archaeological sites tell us? Why is it important for sites to be left undisturbed if archaeologists are to use seed analysis to learn about past climates and how people lived?

Evaluation

Evaluate students on their identification of the seeds and the application of their knowledge to interpreting the seed sample results.

Extension

People used plant material for purposes other than food. For example, some furniture is made from wood. Have students think about the types of plants that were available for American Indians in North Carolina to use. For example, Indians of the southeastern United States made a beverage from the leaves of yaupon holly and drank it in ceremonies. You may want to suggest some of the plants listed below. What are some ways these plants could have been used?

- Trees and saplings: used for fuel; used to make boats, baskets, and handles for hoes and

other tools; used as house or stockade posts. Bark used on roofs and sides of houses for weather protection; bark processed for making cordage.
- Dried grasses: used as thatch for roofs of houses.
- Gourds: dried and hollowed out, used for containers.
- Corncobs and nutshells: used as fuel.
- Herbaceous plants: used as medicine.

Links

Lesson 1.3: "Observation and Inference."

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Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press.

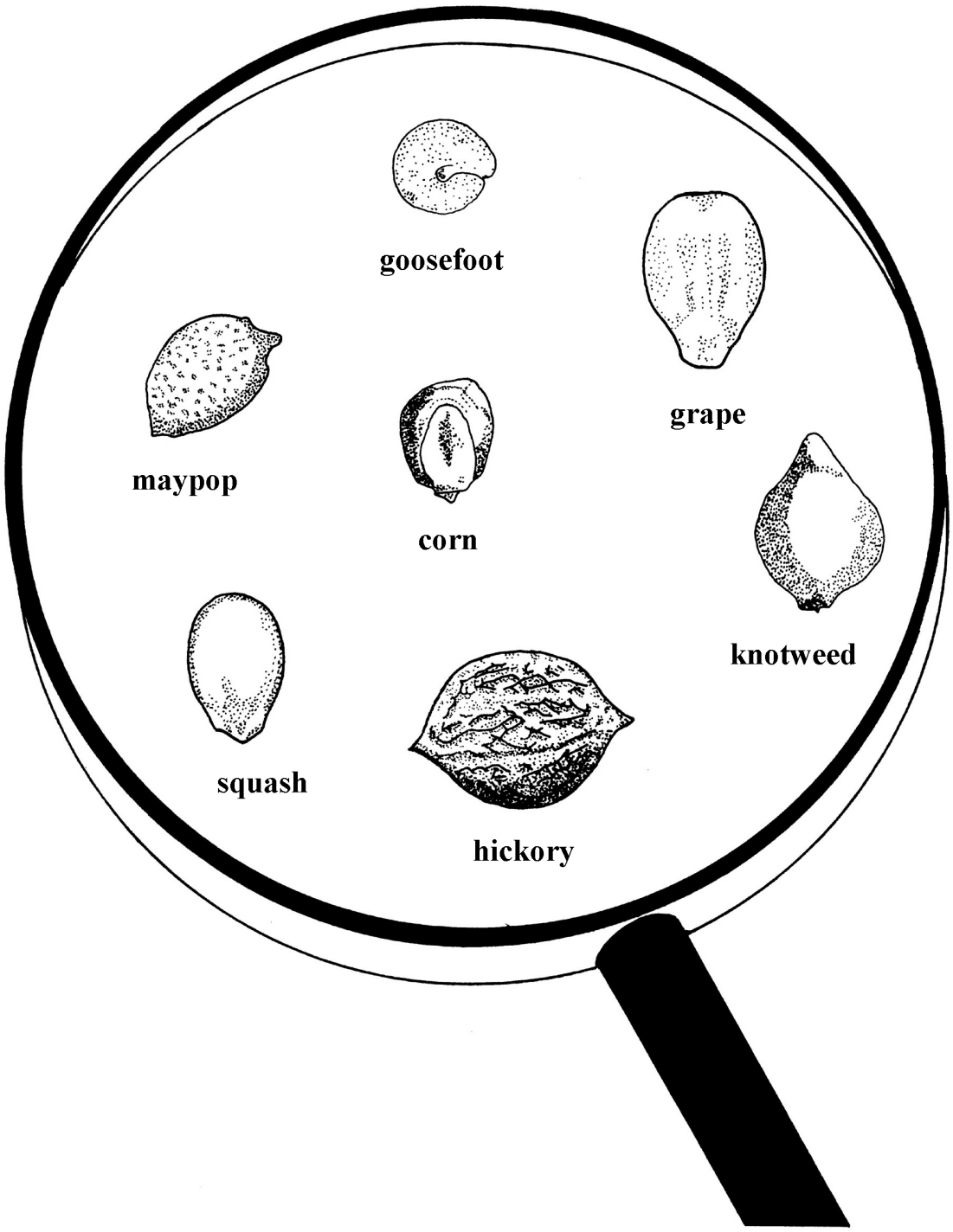
"Two Seed Samples" Activity Sheet Answers:

1, maypop; 2, grape; 3, goosefoot; 4, goosefoot; 5, corn; 6, grape.

"Seed Change Over 3,500 Years at the Warren Wilson Site" Activity Sheet Answers:

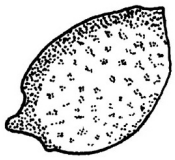
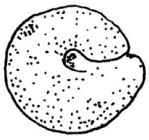
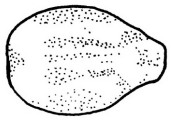
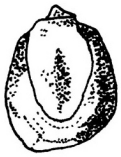
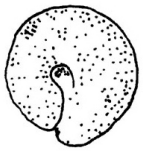
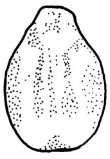
From left to right, the plants represented on the chart are hickory, goosefoot, corn, and maypop. The evidence summarized in the chart may be interpreted as follows: During the Late Archaic period, hickory and goosefoot were the principal plants used for food. In the Early Woodland period, the use of hickory declined. Finally, during the Mississippian period, the use of goosefoot increased, and both corn and maypop were added to the diet.

Magnified Seeds



Two Seed Samples

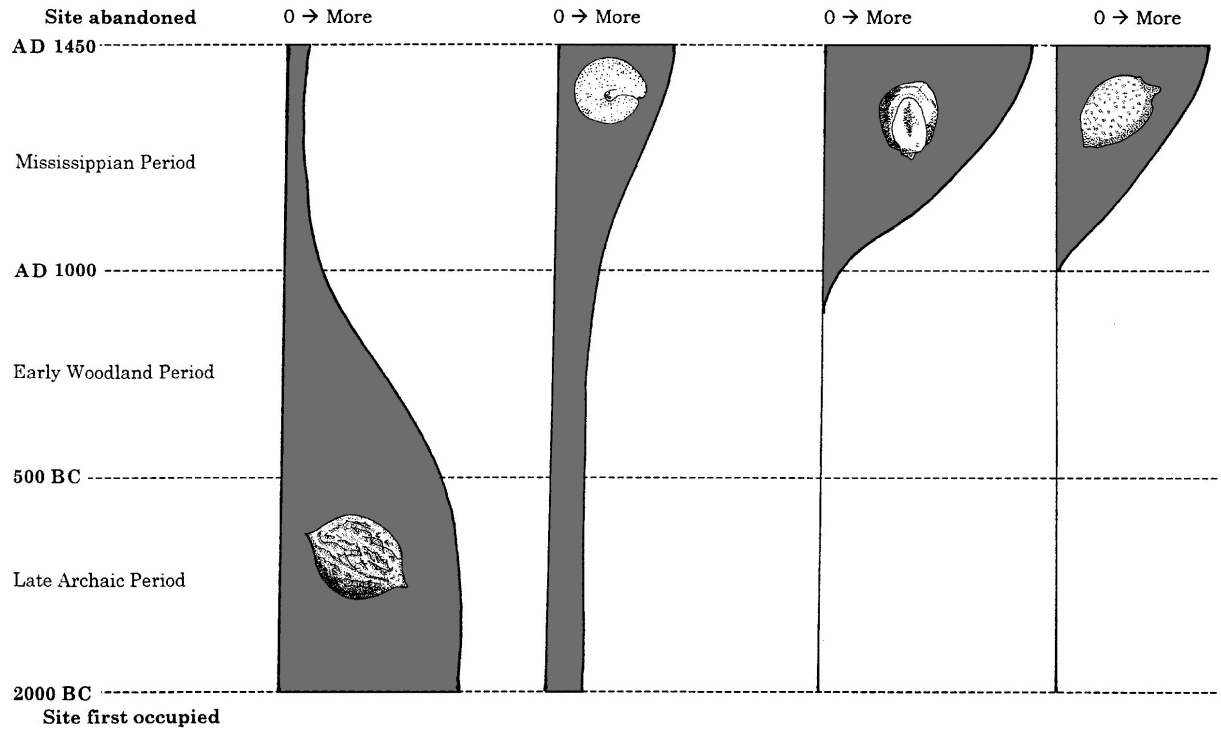
Name:

Sample from a 500-year-old ditch, used as a place to discard garbage	**Sample from a 500-year-old hearth, used for cooking food**
 1. Name of plant:	 4. Name of plant:
 2. Name of plant:	 5. Name of plant:
 3. Name of plant:	 6. Name of plant:

Seed Change over 3,500 Years at the Warren Wilson Site

Name:

In the chart below, the widths of the shaded areas indicate the relative abundances of different kinds of seeds found in the refuse from each period. Identify the plants represented, and write each plant's name directly above the corresponding column.



Write your interpretation of what this evidence shows. What were the changes in plant use through time?

Lesson 2.6

MEASURING POTS

Pottery vessel from Stanly County, North Carolina, 100 BC–AD 800.

Subjects: science, mathematics.
Skills: knowledge, comprehension, application, analysis, evaluation.
Strategies: brainstorming, analogy, discussion, computation, compare and contrast.
Duration: 45 to 60 minutes.
Class Size: any.

Objectives

In their study of measuring pots, students will use an activity sheet or modern pottery rim sherds to:

- compute circumference from a section of a circle;
- construct analogies based on their own experience about possible functions of ancient or historic ceramics.

Materials

For each student, "Broken Pots" activity sheet, or rim sherds from broken modern vessels. Metric ruler with centimeter (cm) or millimeter (mm) increments.

Vocabulary

Ceramic: an item or material made from soft, moist clay that is first shaped and then fired at high temperatures. Pottery is a ceramic material.
Pottery: a ceramic item or material made of fired clay, usually in the form of a vessel.
Rim sherd: a piece of the rim or border of a broken vessel.
Sherd: a broken piece of pottery; a shard.
Vessel: a hollow or concave utensil for holding something.

Background

Ceramic vessels are common artifacts found by North Carolina archaeologists on Native American sites occupied after 1000 BC. This date marks when most southeastern Indians began making clay *pottery*. It marks, too, the beginning of other broad cultural changes.

Population had grown enough that the territory each group used to get seasonally available foods got smaller. People started staying much of the year in villages, many of which were located near rivers or along major tributaries. To supplement the food they hunted and gathered, people began growing crops. Pottery became a key element in this village-based lifestyle. Once people became settled and less nomadic, pottery vessels became practical, everyday tools used for cooking and storage.

Pottery's relative abundance at archaeological sites is due to the fact that it is very durable. It can last for thousands of years, whether buried in the ground or lying on the surface. For today's

archaeologists, pottery holds clues to past life. Archaeologists and other historians have learned through their research that pottery styles are distinctive to particular groups of people, and the styles change over time. This knowledge, which is refined as more research is done, helps archaeologists determine how old a site is, which group of people lived there, and what interactions they might have had with people living in other far and near places. Archaeologists also study vessel shapes and sizes to infer whether the pots were used for cooking, serving, or food storage.

Indeed, archaeologists can understand much about how a group of people lived by studying vessel sizes and shapes. The storage capacity of vessels, for example, allows calculation of how much stored food people had, and, from that, estimates are possible of how many people lived at a site. Functions of different sizes of pottery can also be determined. A small-necked vessel probably stored liquids or very small seeds, rather than large seeds. Large open vessels, such as bowls, probably weren't used for storage, since they would be difficult to seal from moisture, rodents, and insects.

Because ancient pots are usually found broken into hundreds of pieces (*sherds*), archaeologists find it tedious and often impossible to glue them back together. One way they get an idea of how large a pot was is by calculating its original circumference. *Rim sherds* are used to do this because they often indicate how large the vessel opening was.

Setting the Stage

Spread the rims from some broken modern ceramics on a table. Have the students imagine the rims were found at an archaeological site near the North Carolina coast. Imagine the rims were from pots made by one of the Algonkian tribes just before Europeans arrived. What are some of the questions that they, as archaeologists, might ask about the sherds? Brainstorm ideas. One question archaeologists might ask is: "How big were the pots from which these sherds came?" How would they find out?

Here are some general tips for making this lesson plan work: Rims from broken flower pots or old dishes and bowls work well for this lesson. Use ceramics with rims of different circumferences. Make sure sherd edges are not sharp. Also, most sherds will yield decimal measurements. This is not bad, but if possible choose the first examples so that their measurements are as close to being integers as possible. Round decimals to the nearest tenth.

Procedure

1. Share the background information about when southeastern Indians started making pottery, why archaeologists study ceramics, and how they use the information to study the lifeways of past people. Include a short discussion on how differently sized and shaped vessels are used for different purposes.

2. Calculate the interior circumference of the pots represented by either actual rim sherds or those represented on the activity sheet drawings. If you are using real pottery pieces, lay each rim sherd's finished side down on a sheet of paper and trace around its inner edge. Note that the circumference of the rim must be flat against the paper. Using either the rim tracing or the first sherd on the activity sheet, measure a straight line between two points on the curve. Measure the length of that line (chord length), calculate its midpoint, and then measure the perpendicular distance from the midpoint to the inside of the curve (middle ordinate).

3. There are a couple of ways to calculate a pot's circumference. One way involves two steps. First, calculate the radius of a circle from a portion of it using the formula,

$$r = (L^2 / 8M) + (M / 2)$$

where r is the radius, L is t he chord length, and M is the middle ordinate. Then determine the pot's circumference (c) using the formula,

$$c = 2\pi r$$

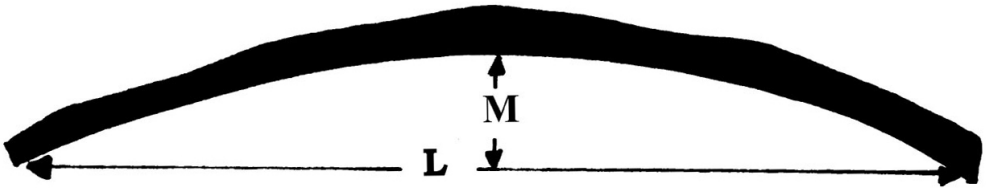
where π equals 3.14. For example, in the sketch below assume that L equals 7.8 cm and M equals 1 cm.

First calculate the radius (r) as:

$$r = (L^2 / 8M) + (M / 2)$$
$$r = [7.8^2 / (8 \times 1)] + (1 / 2)$$
$$r = (60.8 / 8) + (.5)$$
$$r = 8.1 \text{ cm}$$

Then, plug the radius figure into the circumference formula to get:

$$c = 2\pi r$$
$$c = 2\ (3.14)\ (8.1)$$
$$c = 50.9$$



Another way to calculate a pot's circumference is to use one formula. This way, substitute the expression $[(L^2 / 8M) + (M / 2)]$ for r in the preceding circumference formula. The revised equation reads:

$$c = 2\pi[(L^2 / 8M) + (M / 2)], \text{ which reduces to}$$
$$c = (\pi L^2 / 4M) + (\pi M)$$

For example, still assuming that L equals 7.8 cm and M equals 1 cm, the alternative equation calculates the circumference in this way:

$$c = (\pi L^2 / 4M) + (\pi M)$$
$$c = [(3.14 \times 7.8^2) / (4 \times 1)] + (3.14 \times 1)$$
$$c = 50.9$$

Note that, because pots are not always perfectly round, the relationship between chord length and radius is approximate. Archaeologists know that even though the mathematical calculation is precise, there is generally a small range of error. This means the calculated figure may not exactly match the pot's actual circumference.

4. Have students do homework using pottery items in their home kitchens. They should describe the different shapes and sizes of ceramic vessels they find there. Ask them to write descriptions or draw pictures of the vessels. You may also want them to measure the opening of the kitchen vessels to find size/use relationships. Regarding pottery from their homes, ask the students:

- Are vessels of different shapes used for different purposes or occasions? Give examples.
- Are vessels of different sizes used for different purposes or occasions? Give examples.
- How might archaeologists interpret the presence of vessels of variable sizes and shapes in an archaeological site?

Closure

Summarize the reasons why archaeologists compute the circumference of ancient pottery vessels.

Evaluation

Students calculate the circumference for each of the pots on the activity sheet, and turn in their work for evaluation.

Sources

Smith, Shelley J., Jeanne M. Moe, Kelly A. Letts, and Danielle M. Paterson. 1993. *Intrigue of the Past: A Teacher's Activity Guide for Fourth through Seventh Grades*. Washington, D.C.: Bureau of Land Management, U.S. Department of the Interior. [This lesson is adapted from "Measuring Pots" on pp. 70–72, courtesy of the Bureau of Land Management.]

Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this lesson's main heading is taken from Figure 4.4.]

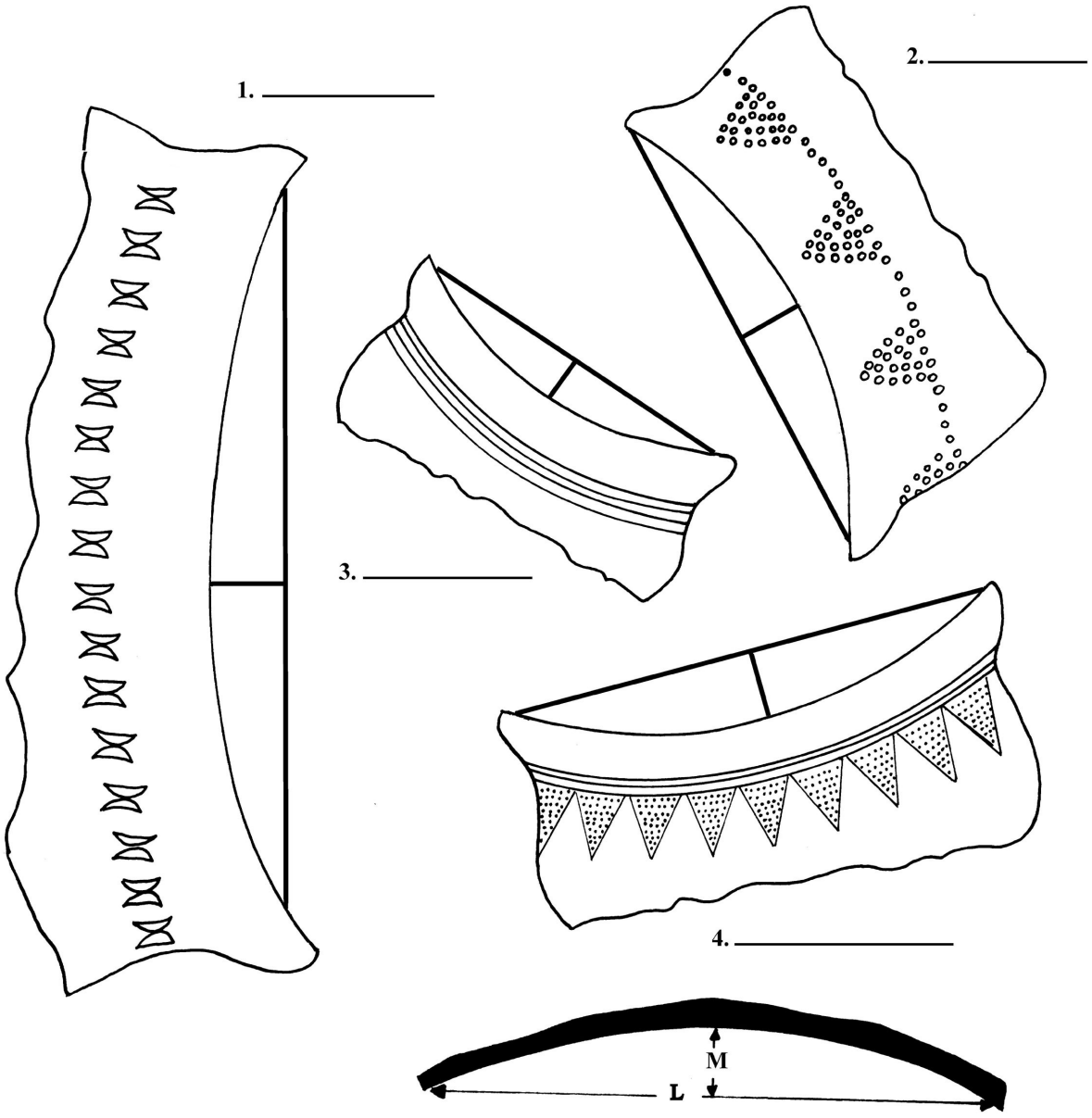
"Broken Pots" Activity Sheet Answers:

The following answers are approximate, in the sense that one should expect minor deviations due to slight differences in measurement or rounding: 1, 79.2 cm; 2, 38.4 cm; 3, 27.0 cm; 4, 40.5 cm.

Broken Pots

Name:

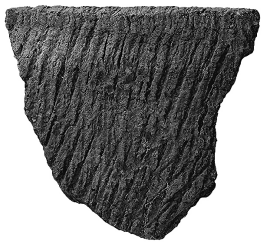
Find the circumference (c) of the pots represented by the sherds below.



$r = (L^2 / 8M) + (M / 2)$
$c = 2\pi r$, where $\pi = 3.14$

Lesson 2.7

EXPERIMENTAL ARCHAEOLOGY: MAKING CORDAGE



Pottery fragment from eastern North Carolina, decorated with impressions of cordage, ca. 100 BC–AD 800.

Subjects: science, social studies, mathematics, language arts, visual arts.
Skills: knowledge, comprehension, application, analysis, synthesis, evaluation.
Strategies: reading, discussion, computation, scientific inquiry, brainstorming, experiment, invention, writing.
Duration: one to two 45-minute class periods.
Class Size: any; groups of 4 to 5.

Objectives

In their study of experimental archaeology, students will make cordage and use an activity sheet to:

- experience a technique and skill that ancient Native Americans in North Carolina needed for everyday life;
- compute the amount of time and materials that might have been required to make cordage;
- construct a scientific inquiry to study the contents of an archaeological site.

Materials

For the teacher, one spool of hemp rope about a half inch in diameter; common dogbane (Indian Hemp), milkweed, or thin surface roots of pine; mulberry or poplar bark. If you cannot obtain native plant fibers, purchased string like cotton, raffia, or woolen yarn can be used. Transparency of the "Experimental Archaeology" activity sheet. For each student, a copy of "The Tuscarora Tied Their World Together" essay. For each student or team, a copy of the "Experimental Archaeology" activity sheet.

Vocabulary

Bast: fiber from the inner bark of trees.
Cordage: several strands of fiber twisted together; string or rope.
Experimental archaeology: a method of studying ancient artifacts that involves making and using replicas of those artifacts.
Fiber: a slender, threadlike strand.
Hemp: known as common dogbane, one of various plants that have a tough, strong fiber (called sisal) in the stem; the sisal is used to make rope.
Replication: the act or process of reproducing artifacts, structures, or use patterns.
Sinew: an animal tendon prepared for use as a cord or thread.
Technology: the technique or means for making or doing something, often associated with tool making.

Tuscarora: a North Carolina Indian tribe whose traditional territory extended from the western coastal plain to the eastern Piedmont. Their traditional language is Iroquoian. Most modern-day Tuscarora live in New York state. They migrated north after a war with European colonists and allied Indians in 1711–1713. They became the sixth member of the Iroquois Confederacy.

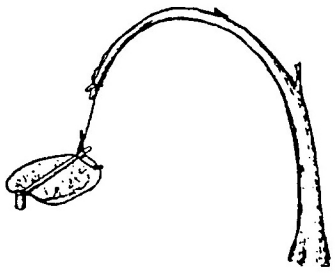
Background

Archaeologists can neither ask ancient peoples how they made their tools nor observe how they manufactured and used artifacts. Thus, archaeologists must find other ways to learn about past *technological* systems. Experimental *replication* of artifacts, buildings, and wear patterns is one method. Experiments provide possible interpretations and a basis for further study, but they do not directly prove how artifacts were used or made.

Experimental archaeologists replicate artifacts using techniques that may have been used by past people. These studies help archaeologists understand better the processes that produced the artifacts and buildings found in archaeological sites. They are particularly useful when ancient people left no written records or oral traditions of how things were made.

Replication studies include the reproduction of stone tools, basketry, ceramics, and cordage. By making these artifacts using (hypothesized) past techniques, archaeologists can address questions about how people once lived. Examples include: How long would it take to make a projectile point? Are some raw materials better for stone tool manufacture than others? What kind of clay is the best for pottery vessels and where can it be found? How long would it take to make a small snare or fishing net?

Experimental archaeologists also study how people used artifacts in the past. They do this by using them in ways that produce wear or damage patterns similar to those observed on artifacts. For example, archaeologists have used stone tools to butcher zoo elephants that have died in order to learn how Paleoindians may have butchered mammoths. They examine the wear patterns on stone tools as well as the cut marks on the bones of the butchered animal. The results of their studies are used to make inferences about how Paleoindians living 12,000 years ago may have performed similar tasks.



Animal snare.

In this lesson students will become experimental archaeologists and make *cordage* from native plant *fibers* or craft items. Cordage artifacts are seldom found in North Carolina sites because the region's wet, humid climate and acidic soils cause them to decay. However, cordage was an important part of earlier tribes' technology, and indirect evidence exists for how people used it. For example, some decorated clay pottery by stamping the surface with a small wooden paddle wrapped all over with a tightly spun cord. Others decorated pots by placing finely woven knotted nets over them and striking them with a paddle. Stone net sinkers suggest people used large and small fishing nets. Archaeologists infer cordage also tied together the support beams of houses. It undoubtedly was woven into animal snares, some kinds of bags and baskets, sandals and countless other crafted items. The importance of cordage to daily life is implied in a North Carolina tribal name. *Tuscarora* means "hemp gatherer," and Indian hemp (common dogbane) produces tough fibers used for making rope.

Besides using Indian *hemp*, local Native Americans made cordage from a variety of other materials. The vegetable fibers they used included stinging nettle, cattail, and milkweed. The

inner bark (*bast*) of mulberry, poplar, hickory, and red cedar trees was used, along with human hair, animal hair, and animal *sinew*. Also, the thin, flexible branches of willow trees, the surface roots of pines and vines like the trumpet vine were used to bind and tie things together. Even though these fibers were weaker or more brittle than spun cordage, they made a strong lashing when wrapped many times and then secured.

Archaeologists infer that finished cordage varied in size from 1 millimeter to several millimeters in diameter—that is, from fine twine to thick rope. The size and thickness may have been determined by the fibers selected and the intended purpose of the finished object. Experimental archaeologists produce cordage to learn how it was made, the characteristics of the finished pieces, and how much time was needed to make these important artifacts.

Setting the Stage

1. Distribute a piece of two-ply twine about 12 inches long to each student. Ask the students if they can determine how the twine was made.

2. The techniques that were used to make many ancient artifacts are not commonly used today. Thus, archaeologists are confronted with problems similar to what the students just experienced with the twine. To better understand how the artifacts were made and used, archaeologists must sometimes learn ancient manufacturing techniques. This often trial and error exercise is called *experimental archaeology*.

3. Share the Background information.

Procedure

1. The students read, "The Tuscarora Tied Their World Together." Briefly discuss the importance of natural resources to the Tuscarora and their ancestors.

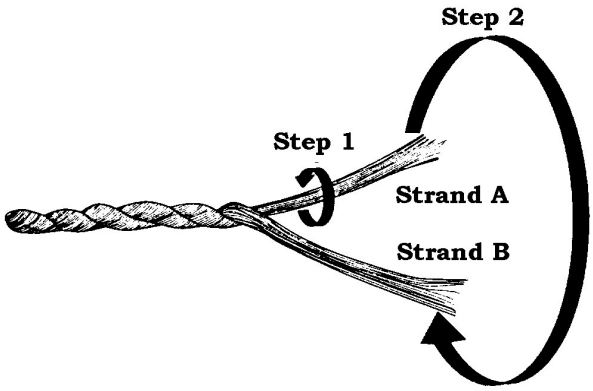
2. Demonstrate how to make cordage with the commercial hemp fibers (steps 4–8 below). Here are some additional tips on preparing the materials:

- To prepare the fibers, cut the purchased rope into 15-inch sections. Untwist the rope and pull the fibers straight. If using natural fibers, cut year-old (but no older) dead stalks of dogbane or milkweed. Gently pound the dried stalk. Tear it into strips; usually three work well. Beginning at the top, break the inner material by pressing the section between your fingers and strip the outer layer loose. Do this by working down the stalk, breaking and stripping about every inch. Gently roll the strip between your fingers or palms to remove the chaff.
- Obtain strips of mulberry or poplar bark from saplings by notching an incision near the base and pulling the tab up. (Primitive Skills educators who do this say the removal of small pieces will not kill the plants.) Soak the tree bark in water doused with dish detergent for at least a day. Then pull long fibers from the inner bark. If necessary, split the inner strips again into ribbons until they are thin and flexible. The splitting is best done by pulling and bending the thicker side toward you while holding the thinner side straight.
- Another way to obtain bast fibers is to use dead fall from poplar or mulberry. Cut the pieces in lengths and split. Soak the splits in a vat of water with dish detergent for at least a week. When the inner fibers can be stripped away easily, you've soaked enough. Beware, though. This is a smelly process. To retain the strips' flexibility, keep them in water until you are ready to use them. Use these natural fibers in the same way as the purchased rope.

3. Divide the class into groups of 4 to 5 students. Give each student about 15 inches of fibers. Assist each group in how to make cordage, asking students who readily learn the procedure to help other students.

4. To make cordage, first rub the hemp or natural fibers between both palms to remove debris. Separate two long strands of several fibers each from the 15-inch rope or plant section, starting from one end.

5. Hold one end of Strand A and one end of Strand B together, side by side, in your left hand between your forefinger and thumb. (This instruction is for right-handed people; do the opposite if you are left handed.) Pick up Strand A between your right forefinger and thumb, and twirl the strand *away* from your body (clockwise). This is shown as Step 1 in the illustration below.



6. Take the twisted Strand A and bring it *toward* your body, over and then under Strand B, as shown in Step 2 of the illustration.

7. Hold strands A and B between your left forefinger and thumb about where you crossed A over B. Repeat the twirling and crossing sequence: pick up Strand B, twirl it away from your body, and cross it over and under Strand A.

8. Continue these steps. The twirling in one direction and crossing in another direction forms an interlocking pattern like that of machine-made rope. If the cordage looks all twisted in the same direction, then the locking twist is not taking place, and usually the strands are being twirled in the wrong direction. (The process of making cordage is difficult to describe, and it sounds more complicated than it really is. Try it; it's surprisingly easy.)

9. Distribute copies of the "Experimental Archaeology" activity sheet to each student or team. Project the "Experimental Archaeology" activity sheet. As a class, work through the first problem. Students complete the remaining problems working individually or in teams.

Closure

1. Based on their experience with making cordage and the information in the reading, have students share their impressions of what daily life for Indian people living in North Carolina before Europeans arrived might have been like. In what ways might it have been similar to their own daily lives? In what ways different?

2. Tell students that archaeologists have excavated a dry cave site in the Mountains and more than 60 pieces of cordage were found in it. The cordage artifacts were classified and described as follows (write the information on the board):

Category 1
Material type: hemp (or dogbane)
Average thickness: 3 millimeters in diameter
Average length: 105 centimeters
Number of pieces: 38
Category 2
Material type: poplar bark (or mulberry bark)
Average thickness: 6 millimeters
Average length: 32 centimeters
Number of pieces: 22

Use scientific inquiry to study these two types of cordage.

- Research begins with a *question*. Ask the question: Why is the poplar bark cordage thicker than the hemp cordage? Brainstorm reasons such as: poplar bark is harder to work with, the hemp fibers are thinner.
- Select one *hypothesis*. For example, hemp fiber is stronger than poplar bark fiber, so it doesn't need to be as thick as poplar bark cordage to be as strong.
- *Test* this hypothesis by setting up an experiment to determine the relative strengths of cordage made from the two fibers. If you did not use the natural fibers to make cordage in the classroom, you can use different types of commercial string or yarn to design an experiment. For example, test the difference between cotton string and jute string.
- Unless the hemp cordage is poorly made it should be stronger than the poplar cordage. If the experiment determines that hemp is stronger than poplar, ask the following question: Why is there more hemp cordage than poplar cordage in the archaeological site? (Hemp may have been chosen because of its strength. Availability of the two fibers and the purpose of the artifacts may also have been determining factors.)

Evaluation

1. Evaluate students' efforts to make cordage.
2. Have students write a creative story or a report, make a chart, or construct a diorama about living on the western part of the Coastal Plain without modern technology. They need to include five things they would have to know how to do in order to live.
3. Evaluate the students' "Experimental Archaeology" activity sheets.

Extensions

1. Discuss how technology changes culture. For example, how would the acquisition through trade of metal tools, such as hoes, pans, and scissors have changed Indian cultures.
2. Demonstrate or display cordage in an Archaeology or Culture Fair.
3. Invent a modern use for cordage made from native plant fibers.

Links

Lesson 1.6: "Classification and Attributes."
Lesson 1.7: "Scientific Inquiry."

Sources

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Smith, Shelley J., Jeanne M. Moe, Kelly A. Letts, and Danielle M. Paterson. 1993. *Intrigue of the Past: A Teacher's Activity Guide for Fourth through Seventh Grades*. Washington, D.C.: Bureau of Land Management, U.S. Department of the Interior. [This lesson is adapted from "Experimental Archaeology: Making Cordage" on pp. 81–86, courtesy of the Bureau of Land Management.]

Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this lesson's main heading is taken from Figure 6.5.]

"Experimental Archaeology" Activity Sheet Answers:

1. To answer the question for 10 meters of cordage, follow this general procedure:
   - Convert to centimeters: (100 centimeters per meter) (10 meters) = 1,000 centimeters.
   - Set up the ratio: (10 minutes) / (25 centimeters) = (x minutes) / (1,000 centimeters).
   - Solve for x: $25x = 10{,}000$; therefore x = (10,000 / 25) or 400 minutes.
   - Convert to hours and minutes: (400 minutes) / (60 minutes per hour) = 6.67 hours or 6 hours and 40 minutes.

Follow the same procedure to compute the time for 100 meters of cordage, or simply multiply the first solution by ten (since 100 meters is ten times more rope than 10 meters). The answer is 66.67 hours, or 66 hours and 40 minutes.

2. Use the same general procedure as in question 1, substituting 7 minutes for 10 minutes in the ratio. Alternatively, one may simply multiply the answers to question 1 by 0.7, as 7 minutes is 70% of 10 minutes, and thus the total times for making 10 and 100 meters would be reduced by the same factor. The correct answer for 10 meters of cordage is 4.67 hours or 4 hours and 40 minutes. The correct answer for 100 meters of cordage is 46.67 hours or 46 hours and 40 minutes.

3. The question may be answered by the following procedure:
   - Set up the ratio: (1 stalk) / (2 meters) = (x stalks) / (50 meters).
   - Solve for x: $2x = 50$; therefore x = 25 stalks.

4. As in the first problem, one can proceed by converting length to centimeters then using ratios to obtain the answer:
   - Convert to centimeters: (100 centimeters per meter) (2 meters) = 200 centimeters.
   - Set up the ratio: (10 minutes) / (25 centimeters) = (x minutes) / (200 centimeters).
   - Solve for x: $25x = 2{,}000$; therefore x = (2,000 / 25) or 80 minutes.
   - Convert to hours and minutes: (80 minutes) / (60 minutes per hour) = 1.33 hours or 1 hour and 20 minutes.

5. First compute the area (A) of the net by multiplying the length by the width. (Length and width must be expressed in the same units in order for the calculation to be valid.) Then measure the approximate length of cordage in each square meter of net, and multiply that amount by net's area in square meters. This calculation yields the total length of cordage in the net. From this number one can calculate the total time required to make the cordage, as in problem 1. Assuming that there are 3 meters of cordage in each square meter of net, and that it takes 10 minutes to make 25 centimeters of cordage, the calculation would proceed as follows:

- Convert width to meters: (120 centimeters) / (100 centimeters per meter) = 1.2 meters.
- Calculate the net's area: (42 meters) (1.2 meters) = 50.4 square meters.
- Calculate the total cordage length: (50.4 square meters) (3 meters per square meter) = 151.2 meters.
- Convert to centimeters: (100 centimeters per meter) (151.2 meters) = 15,120 centimeters.
- Set up the ratio: (10 minutes) / (25 centimeters) = (x minutes) / (15,120 centimeters).
- Solve for x: $25x = 151{,}200$; therefore x = (151,200 / 25) or 6,048 minutes.
- Convert to hours and minutes: (6,048 minutes) / (60 minutes per hour) = 100.8 hours or 100 hours and 48 minutes.

Alternatively, after computing the total length of cordage required in meters, one can set up a simple ratio using the answer to problem 1:

- Set up the ratio: (66.67 hours) / (100 meters) = (x hours) / (151.2 meters).
- Solve for x: $100x = 10{,}080$; therefore x = (10,080 / 100) or 100.8 hours.

Note that this answer represents a *minimum* figure for the total time spent in manufacturing the net, as it reflects only the time spent in making cordage and not the time spent in knotting the finished cordage into a net.

Experimental Archaeology

Name:

1. If it takes 10 minutes to make 25 centimeters of cordage, how long would it take to make 10 meters of cordage? 100 meters?

2. If you increased your speed from 10 minutes per 25 centimeters to 7 minutes per 25 centimeters, how long would it take to make 10 meters of cordage? 100 meters?

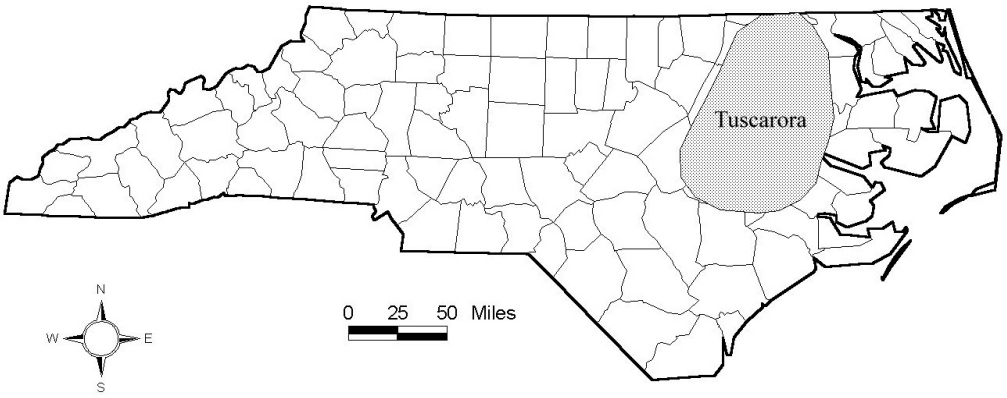
3. If it takes one dogbane stalk to make 2 meters of cordage, how many stalks would it take to make 50 meters?

4. It takes approximately 2 meters of cordage to make a snare to catch a small animal. How long would it take to make the cordage for the snare if you can make 25 centimeters in 10 minutes?

5. A cordage net measuring 42 meters by 120 centimeters was found an archaeological site. How long do you think it took to make the net? How would you find out? (Outline the process.)

The Tuscarora Tied Their World Together

The Tuscarora were once one of North Carolina's largest and most powerful tribes. Tuscarora legend says they used to occupy the country between the sea shore and the mountains. By the time Europeans arrived in the late 1500s, however, the Tuscarora lived in a smaller territory. It covered the western half of the Coastal Plain and the eastern edge of the Piedmont. Most Tuscarora villages were located on the terraces of the Roanoke, Neuse, Tar, and Pamlico Rivers. Their towns had names like *Haweta*, *Waqui*, *Chumanetts*, and *Kenta*. The contemporary towns of Raleigh, Smithfield, Goldsboro, Wilson, Rocky Mount, Tarboro, Greenville, and Kinston are in former Tuscarora lands.



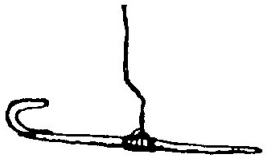
The approximate territory of the Tuscarora in the 1600s.

The Tuscarora are Iroquoian and speak an Iroquoian language. Their ancestors moved to Carolina sometime in the distant past. By the time Europeans arrived, several smaller tribes living on the Coastal Plain north and south of the Tuscarora were also Iroquoian. These were the Coree, Neusiok, Nottoway, and Meherrin. (The Cherokee are Iroquoian, as well.) Today, few Tuscarora live in North Carolina. Most modern-day Tuscarora live in New York state. Their ancestors left North Carolina and moved north after defeat in a war with colonists and allied Indians in 1711–1713. They went to live with the Iroquois and became the sixth nation in the Iroquoian Confederacy.

Before Europeans came, the Tuscarora lived much like most other North Carolina Indian tribes. They were agriculturalists who grew corn, squash, and several kinds of beans. Corn was their most important crop. It was parched and ground into meal, and people used it in soups and to make bread.

Even though they cultivated food, the Tuscarora relied heavily on wild foods. They fished and caught crayfish. They snared and hunted game animals, such as bear, beaver, racoon, rabbit, squirrel, and turkey. Deer was the most important source of meat. Hickory nuts, wild parsnips, wild turnips, Allegheny chinquapin nuts, and berries were among the wild plants the Tuscarora ate. Both men and women gathered food. Men hunted, and they also prepared the land for gardens.

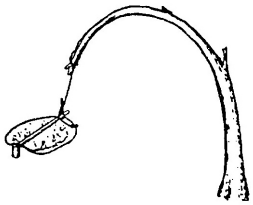
The Tuscarora knew their environment well. To use what it offered, groups moved their entire villages twice each year. In the spring and summer, they stayed near the rivers. People farmed the



Fish hook.

soft, fertile soils and fished. In the fall, they moved away from the rivers to hunting quarters deeper in the Coastal Plains and stayed there all winter. Interestingly, the Tuscarora villages looked different in each place. Summer villages had houses set far apart. Fields were between them. The houses were round or oval. The walls were made from saplings that were pulled together at the top to form a roof. Fall and winter hunting villages had rectangular houses with ridge-like roofs. People built them close together, forming narrow streets. The house sides were covered with bark to keep cold and wet weather out.

As they went about daily life, the Tuscarora needed many kinds of things. Some were for pleasure and some for work or ritual. They made necklaces and earrings by shaping a kind of sea shell called Marginella. This shell was obtained by trading with coastal Algonkian Indians. Copper ornaments were popular among the Tuscarora, and they got copper by trading with people in the west. Some work-related tools the Tuscarora needed were bows and arrows made from wood. The arrow tips, knives, and scrapers were chipped from stone. They also made stone drills, milling stones, and hoes. Animal bone was used, too. People carved it into items like fish hooks and pins to hold garments together.

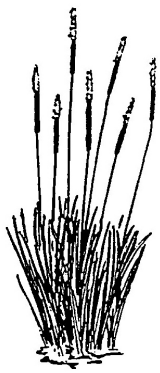


Animal snare.

Hemp.

Clay pottery was very useful. The Tuscarora used different sizes and shapes of clay pots to cook and store food in. Archaeologists call the Tuscarora pots *Cashie ware* (pronounced ca-SHY). They are distinctive from those their neighbors, like the Algonkians, made. Some Tuscarora pots were decorated by placing a piece of loosely woven fabric on the surface of the wet clay. People then used a wooden paddle to lightly smack the fabric while turning the pot over in their hands. When the fabric was lifted off after paddling it, the pot's surface had the fabric's imprint on it. People also decorated pottery by cutting lines or using a hollow reed to punch holes near the vessel's rim.

Cordage was an especially important part of Tuscarora life. In the Tuscarora language, Tuscarora means "Hemp Gatherers." Indian hemp is a wild plant known today as common dogbane. Its dried stalks can be processed and made into strong cordage. The Tuscarora used other kinds of fibers besides Indian hemp. Each was suited to a specific purpose because of its special properties. Willow branches and surface pine roots were used for tying. Strong strings were made of sinew and human hair. Like Indian hemp, silk grass, rushes, and cattails made strong cordage. The Tuscarora needed to know where and when to find each kind of fiber, how to prepare the fibers, and how to make useful objects from them.

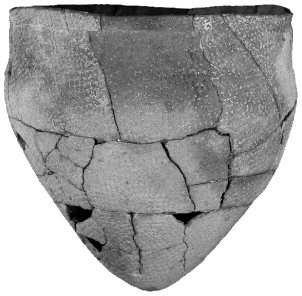


Cattail.

Lacking nails, bolts, wire, and screws, the Tuscarora tied their world together. They used cordage to tie wood into bundles to carry back to the village for fires. They lashed the poles of their houses together and tied them securely at the top. They tied small game onto their waist bands. They tied arrow tips to arrows and stone hoes to long sticks. Cords were used to make animal snares and fish nets. It was used to hang meat to dry from drying racks.

Lesson 2.8

MENDING POTTERY



Mended pot from Orange County, North Carolina, ca. AD 1000–1200.

Subjects: science, social studies, visual arts.
Skills: analysis, evaluation.
Strategies: observation, visualization, compare and contrast.
Duration: 45 to 60 minutes.
Class Size: any.

Objectives

In this exercise, students will mend broken pottery to learn what archaeologists learn by mending pottery.

Materials

For the teacher, a transparency of "Pottery Mending Tips." For each student, a pottery vessel which has been broken. For each table, rolls of masking tape, tubes of household cement such as Duco, shallow boxes or shoe boxes of sand, or cat litter, bottles of fingernail polish remover, cotton swabs or tissues.

Vocabulary

Crossmend: to fit together fragments of a single artifact that have been found in different soil layers or features; crossmending provides clues that allow one to infer relationships among various parts of a site.

Feature: a human-made disturbance in the ground, such as a pit or basin; it is often marked by a distinctive stain in the soil.

Mend: to fit together broken fragments of an artifact, such as a pottery vessel.

Sherd: a broken piece of pottery; a shard.

Surface treatment: the way the outside surface of a pottery vessel has been finished by the potter. On ancient Native American pottery from North Carolina, surface treatments typically consisted of stamped or impressed designs made by cordage, nets, fabric, or carved wooden paddles pressed into a vessel's surface while the clay was still wet.

Temper: material, such as sand or crushed shell, mixed with clay to make pottery stronger and to reduce the risk of it breaking.

Vessel: a hollow or concave utensil for holding something.

Background

Pottery began to appear commonly in North Carolina around 1000 BC. Native Americans used pottery for storing and serving food and liquids, for cooking, and, in some instances, as burial urns. Archaeologists have learned a great deal about the life of North Carolina's early peoples by studying the pottery they left behind.

Pottery objects are often found broken into many pieces which archaeologists call *sherds*.

While the fired clay from which pottery is made is very durable and survives many years buried in the ground, complete pottery vessels, such as pots or bowls, are not usually found by archaeologists. There are probably a number of reasons why a *vessel* was broken in ancient times. A person may have dropped it, or it may have broken during its original firing. Perhaps it broke after being put on a cooking fire. It may have broken during cold weather, when liquids held in the pot expanded when frozen. It may have been forgotten when people moved away and later cracked and broke.

Whatever caused the pottery to break, archaeologists can discover a lot of information by gluing or *mending* the broken pieces back together. By gluing small fragments into complete or partially complete pots, archaeologists determine the size and shape of pottery vessels. These features are important clues in determining the function of the vessel—whether it was used for cooking, storage, or eating.

Crossmending means that archaeologists try to mend pottery fragments found in different soil layers and *features*. If an archaeologist finds a crossmend between a cooking hearth and a trash pit, it suggests that these two features were being used at roughly the same time. The process of crossmending pottery is very important for establishing relationships between various parts of the site.

Mending pottery is a lot like putting together a jigsaw puzzle. First, archaeologists sort the pottery from a soil layer or a *feature*. They group the pottery based on *surface treatment*, decoration, vessel size and shape, rim diameter, and what type of *temper* has been added to the clay. By sorting the pottery fragments this way, archaeologists increase their chances of quickly finding pieces that mend. For example, if an archaeologist has two sherds whose surfaces had been cord marked, he might try to fit the broken edges together. But, if one of the cord marked sherds was tempered with fired clay, and the other with coarse sand, the archaeologist would know the two sherds could not be from the same vessel.

After sorting the pottery into piles of sherds that might be from the same vessel, archaeologists try to find pieces that glue back together. Before beginning to glue the pottery, they try to find as many mends as possible and use masking tape to hold the fragments together until they can be glued. In this way, they avoid having to take the mended pottery apart if they later find a piece they had missed. Sometimes it is difficult to make sure you have all the mends before you start gluing, so archaeologists use a special glue that can be dissolved if any mistakes are made.

Archaeologists do not always find all of the pieces of each pottery vessel. For example, if someone dropped a pot, pieces from it may have scattered across the ground. When cleaning up the broken pieces, some of the fragments may have been missed and not discarded with the rest of the broken pot. People may have also recycled some of the fragments of pottery for other purposes. For example, some Native North Carolinians ground broken pottery fragments into very small pieces to mix with clay for making new pottery. Archaeologists know from studying modern pottery-making cultures that people use broken pottery in a number of different ways: as scoops or ladles, as tools in manufacturing pottery, as animal feeders, and as children's toys, among other things. These pieces would be discarded at a later date and probably in a different place than the originally broken pot and, thus, may not be found by archaeologists. While archaeologists like finding all the pieces of a broken pot, it is not usually necessary to find every fragment in order to learn a pot's age, its use, and something about the people who made it.

Setting the Stage

Go over the background information with students. Spread the pottery sherds on a table. Have

students imagine that the sherds were found at an archaeological site. What might archaeologists learn about past cultures by studying pottery? What are some questions that archaeologists might ask about the sherds?

Procedure

1. Several days prior to the classroom exercise, purchase one piece of pottery for each student at a thrift store or yard sale, or have each student bring a piece that can be broken from home. Break each vessel (large pieces are probably best for exercise time considerations) and set aside one fragment. Mix remaining fragments.

2. On the day of the exercise, place the mixed fragments on a table. Give each student one of the set-aside sherds and tell them that this sherd is from the vessel they will be mending. (It may be easier to separate students into groups of eight or ten and use separate tables for each group, so there will be less of a scramble at the table for sherds.)

3. Project the transparency "Pottery Mending Tips" and go over strategies for effective mending with students. Caution students that some of the broken sherds may be sharp and to use care when handling them.

4. Have the students sort through sherds on the table based on color, thickness, vessel shape, decoration, etc. and collect the sherds they feel are from their vessel. Use glue or masking tape to mend the sherds. Masking tape can be used to hold sherds together until the glue dries, or while students fit sherds together.

5. Allow students time to mend their vessels. If there is not enough time to finish the mending process, allow the students to take the pottery home to finish mending it there, if they wish.

6. Students may clean the household cement from their fingers and hands using a small amount of fingernail polish remover on a cotton swab or tissue.

Note: Both household cement and fingernail-polish remover are hazardous substances. The students must be informed of the cautions concerning their use and should be instructed to use them sparingly.

Closure

Summarize the reasons why archaeologists mend and crossmend ancient pottery vessels.

Evaluation

Have students turn in their mended vessel for evaluation.

Extensions

1. In order to have this exercise also demonstrate the importance of crossmending, set part of the sherds from each broken vessel on two or three different tables. Divide the students so that equal numbers of students are assigned to each table. Tell them that each table represents a different archaeological feature (for example, one table could represent the sherds from a hearth, another table from a trash pit, and a third from the living surface inside a house). Students sort and tape together sherds from only one table first. What can they tell about their vessel after fitting together the sherds from only one table. Can they tell what their vessel was used for? Next, have them move onto the second and then the third table, sorting, taping, and finally gluing their vessels. Ask the students what types of information they determined about their pottery and the relationship of the various features through crossmending.

2. Before the mending process begins, set aside one or two additional sherds from each vessel

to illustrate that archaeologists rarely find all fragments of a vessel.

3. After the students have finished mending their vessels, have them sketch their pottery and describe it, based on vessel shape, size, decoration, etc. Ask how they think it was used. Ask them to try to suspend their knowledge of their own culture's pottery as much as possible and pretend that they are looking at the pottery shape for the first time. Have them look at the characteristics of the pottery: Is it thin or thick? Highly or minimally decorated? Glazed or unglazed? Shallow or deep? What can they tell about the object from looking at it?

Links

Lesson 1.3: "Observation and Inference."
Lesson 1.6: "Classification and Attributes."
Lesson 2.6: "Measuring Pots."

Sources

Joukowsky, Martha. 1980. *A Complete Manual of Field Archaeology: Tools and Techniques of Field Work for Archaeologists*. Englewood Cliffs, N.J.: Prentice Hall.

Rice, Prudence M. 1987. *Pottery Analysis: A Sourcebook*. Chicago: University of Chicago Press.

Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this lesson's main heading is taken from Figure 4.11.]

Pottery Mending Tips

- Try to glue fragments from the base of the piece of pottery (the part that rests on the table surface when the vessel is complete) first. Finish by gluing fragments at the top or rim.

- When you have found a mend, spread glue in a thin coat along the broken edge of *one* fragment.

- Fit pieces together; wiggle slightly back and forth until they lock into place.

- Hold glued pieces together with masking tape and embed them upright in sand or cat litter with the two glued edges pressing against one another. Place the larger of the two sherds on the bottom. Let dry about ten minutes.

- In order to tell if you have made a good mend, you should be able to lightly draw a fingernail over the mend and not have it catch or snag. Another way to check is to hold the mended pottery up to the light. If no light shows through the mended crack, then you have made a good mend.

Lesson 2.9

LOOKING AT AN OBJECT

Clay pipe from Cherokee County, North Carolina, ca. AD 1500.

Subjects: science, social studies.
Skills: analysis, evaluation.
Strategies: observation, classification, writing.
Duration: 45 to 60 minutes.
Class Size: any.

Objectives

In this exercise, students will analyze unfamiliar objects in order to:

- observe the attributes of an object;
- infer the uses of objects;
- discover how archaeologists use objects to learn about the past.

Materials

For the teacher, an unfamiliar object to be shown to the class and a "Looking at an Object" activity sheet for projection. For each student, "Looking at an Object" activity sheets and a plastic or paper bag containing (*a*) an object brought from home and (*b*) a sealed envelope containing an explanation of what the object is.

Vocabulary

Hypothesis: a proposed explanation or interpretation that can be tested by further investigation.
Inference: a conclusion derived from observations.
Observation: the act of recognizing or noting a fact or occurrence; or the record obtained by such an act.

Background

Sometimes archaeologists find objects whose use or meaning is not obvious. For example, archaeologists working in the American Southeast were not always sure how different types of pottery were being used by Native Americans. Through studying the shapes and sizes of pots and the use and wear marks on them, however, archaeologists have been able to determine the ways many were used. A pot that had been used for cooking usually showed soot on the outside where it had been set in the fire, and often it showed scrape marks inside where food had been stirred. Vessels used for storing solid and liquid foods were typically large with wide mouth openings, so that contents could be easily scooped out. Some vessels were even made especially to hold and carry fire when people went on hunting trips or moved around to different villages.

Unfamiliar objects make us curious to know what they are. To make a proposed explanation —a *hypothesis*—about something unfamiliar, archaeologists use the skills of *observation* and *inference*. When analyzing an artifact, for instance, the archaeologist first handles and explores the object. Then he or she attempts to identify and investigate its function using physical

properties, construction techniques, design, and other characteristics. Questions that guide the archaeologist include, "What is it made of?" "Is this object worn, and if so, how?" and "Was this object made by hand or machine manufactured?" The material an object is made from can reveal clues about its use. For example, gold is a costly and precious metal, and it is typically used for jewelry and other expensive items. Gold would not be used to make a vacuum cleaner nozzle or food processor blade because it would be too expensive and the metal too soft.

Setting the Stage

On the day prior to the exercise, instruct students to bring into class the next day a small object from their home. This object should be an item whose function or identification is not immediately apparent, such as a strange kitchen implement or some other tool, part of a toy or game, or a container. Suggest that searching through junk drawers or toy chests in their homes might yield items that are perfect for this exercise. Stress that it is okay if the item has been broken off of some larger object, as long as sharp edges do not present a safety hazard. The student is to place this item in a bag along with a separate sheet of paper containing an explanation of what the object actually represents. This explanation is to be taped or stapled closed or placed in a sealed envelope. It may be a good idea for the teacher to create and have on hand several "artifacts" in case some students neglect to bring one.

On the day of the exercise, collect the "artifacts" from the students. Begin by showing the class the item you brought from home. Project the "Looking at an Object" activity sheets and go through the questions with the students to help them arrive at a use or identification of the unfamiliar item.

Procedure

1. Redistribute the "artifacts" among the students, making sure no one receives the artifact he or she brought. Distribute the "Looking at an Object" activity sheets to the students. The students will fill in these sheets as they observe their artifact.

2. Allow the students 10 or 15 minutes to visually and physically examine the object in order to answer the questions on their activity sheets. After answering the applicable questions about physical features, construction, and design, they should make an inference about the function of their object. Ask them to write down reasons supporting their conclusions.

3. At the end of the allotted time, have the students open the sealed envelopes or taped answer sheets and compare their hypothesized function against the written explanation. Ask for several volunteers to display their objects and explain how they came up with their conclusions.

4. After the completion of the exercise, return items to their owners.

Closure

Have students write a paragraph on some of the ways archaeologists can use objects to help them learn about the past.

Links

Lesson 1.3: "Observation and Inference."
Lesson 2.3: "Artifact Classification."
Lesson 2.7: "Experimental Archaeology: Making Cordage."

Sources

Durbin, Gail, Susan Morris, Sue Wilkinson, and Mike Corbishley. 1990. *A Teacher's Guide to Learning from Objects*. London: English Heritage. [The "Looking at an Object" activity sheet is adapted from this book.]

Hally, David J. 1986. The Identification of Vessel Function: A Case Study from Northwest Georgia. *American Antiquity* 51(2), pp.267–295.

Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this lesson's main heading is taken from Figure 5.15.]

Looking at an Object (page 1)

Name:

QUESTIONS	THINGS FOUND OUT BY LOOKING
Physical Features What does it look like?	
What color is it?	
What is it made of?	
Is it a natural or manufactured substance?	
What do the materials suggest about its purpose?	
Is the object complete or broken?	
Is it worn, and if so, how?	
Has it been altered or mended?	
Do the wear patterns or mends reveal anything about the object's use?	

Looking at an Object (Page 2)

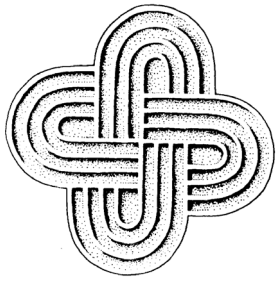
Name:

QUESTIONS	THINGS FOUND OUT BY LOOKING
Construction How was it made?	
Is it machine-made or handmade?	
Was it made in a mold or in pieces?	
Design Is it decorated? If so, describe.	
How was the design made?	
Is there writing on the object?	
Does the writing or decoration suggest anything about the object's use?	
Function How might this object have been used?	
How sure are you about your inference?	

Lesson 2.10

ARCHAEOLOGICAL SOILS

Subjects: science, mathematics.
Skills: analysis, evaluation, knowledge.
Strategies: computation, observation, scientific inquiry, classification.
Duration: 30 minutes one day, 30 minutes on the following day.
Class Size: any.



Stamped decorative motif on pottery vessel from Montgomery County, North Carolina, AD 1200–1400.

Objectives

In this lesson about archaeological soils, students will:

- determine components of a soil sample;
- evaluate how archaeologists use soils to interpret sites.

Materials

For the teacher, a large box of crayons and a sheet of paper divided into four blocks. For each student, copies of "What is My Soil?" instruction and activity sheets, and an "Archaeological Soils Triangle" activity sheet; a baby food jar, a colored pencil or marker, and a soil sample in a plastic bag. For each four or five students, a pitcher of water, a magic marker, and a ruler.

Vocabulary

Clay: a type of soil whose particles are too small to be seen or felt. When wet, clay is sticky and plastic.

Geomorphologist: a scientist who studies the characteristics, origins, and development of landforms, including soil.

Loam: a rich soil containing a relatively equal mixture of sand and silt, and a smaller proportion of clay.

Munsell Color Chart: a book whose pages contain color chips that are used to determine soil color.

Proportion: the amount of a portion or a constituent in relation to the whole.

Sand: a type of soil whose particles are large enough to be easily seen and felt. Sand particles do not adhere or stick to one another, and grate against each other when rubbed together.

Silt: a type of soil whose particles are too small to be easily seen with the naked eye. Particles of silt are intermediate in size between those of clay and sand.

Soil triangle: a chart used by archaeologists and geomorphologists to determine soil texture.

Suspension: a state or condition where particles of a substance are mixed with a fluid, but are not dissolved.

Background

When archaeologists excavate, they dig through soil layers formed by people's activities. The artifacts that archaeologists recover from the soil layers provide clues about what happened at

that site, but the soil itself is also an important source of information for archaeologists. Through soil analysis, archaeologists can help date sites, learn about the environment at the time the soil layers were formed, and discern how soil layers were formed. Studies of soil fertility, for example, help archaeologists understand how efficient ancient agricultural systems were.

Accurate descriptions of soils help archaeologists understand what happened in the past at their site. Archaeologists use a special book called a *Munsell Color Chart* to help them describe the colors of the soil layers they are excavating. This book has pages filled with color squares, like the paint chips or samples you may have seen at a hardware store. By comparing the color of the archaeological site's soil with the color chips, archaeologists can determine soil color and name it in a standardized way. This is important because what one person calls brown, another person might see as gray. Calling the same soil layer two different colors could cause confusion later when archaeologists try to understand the site and write a report about their findings.

In addition to describing the color of the soil, archaeologists also need to characterize the texture of the soil layers on their sites. Soil is made up of three components: sand, silt, and clay. Particles of each component are different sizes, with sand the largest and clay the smallest. It is unusual to find a soil composed entirely of *sand*, *silt*, or *clay*. Generally, a combination of these three types of particles is found in most soils. The percentages or relative *proportions* of each particle type in a particular soil determine what type of soil it is. For example, a sandy *loam* contains approximately 50% sand, 30% silt, and 20% clay.

Geomorphologists and archaeologists who study soil use a *soil triangle* to help them determine what type of soil they are examining. Just as using a Munsell Color Chart ensures that everyone describes soil color in the same way, using a soil triangle guarantees that people describe soil texture consistently. To use a soil triangle, archaeologists first determine the percentages of sand, silt, and clay in each soil sample. They do this by thoroughly mixing the soil sample with water in a glass container and letting the different soil types settle out. The heaviest particles, those of sand, will sink to the bottom of the container first and form a layer. All of the silt particles will settle on top of the sand, forming a second layer. Particles of clay, which are the lightest component of soil, will be the last to settle and will rest on top of the silt.

By looking at the thickness of each layer, the archaeologist can determine the proportions of sand, silt, and clay in each soil sample. After deciding on the proportions, the archaeologist uses the soil triangle to determine soil texture. Each side of the soil triangle is marked with a different soil texture. For example, if the soil sample has 30% sand, 60% silt, and 10% clay, he would locate each of these numbers along the sand, silt, and clay sides of the triangle. Following the lines from each number to the point where they all meet or intersect shows that the soil in the sample is a silty loam.

Here's how you read the soils triangle: Each vertex of the triangle represents 100% of a particular constituent—sand, silt, or clay. As you move away from a vertex toward the opposite side of the triangle, the percentage of that constituent decreases to zero. Thus, each combination of three percentages (which must add up to 100%) uniquely defines a single point within the triangle where those percentages converge.

Setting the Stage

Prior to beginning the lesson, select four crayons representing different shades of blue. On a sheet of paper divided into four sections, color each block with a different shade. Number the blocks. Show the colored sheet to students and ask them to assign a color name to each block. (Be sure to keep the shades' "official" color names secret.) Have students share the color names

they chose. How many of them picked names for each square that matched the color name written on the crayon wrapper? How many different names of blue surfaced? If an archaeologist called an ancient bead turquoise blue, would everyone know what color he or she means?

Procedure

1. Several days before the exercise, ask each student to bring a small plastic bag of soil obtained from or near home. Encourage them to be creative when deciding where to gather the soil. One person may want to sample the soil from a flower bed; another the bottom of a creek. Other possible places include the eroded side of a road bank, a child's sandbox, etc. Students should describe where they gathered the soil by writing the location on the outside of the bag with a magic marker or placing a label inside the bag.

2. On the day of the exercise, distribute to each student an empty baby food jar, a ruler, a copy of the "Archaeological Soils Triangle" activity sheet, and the "What Is My Soil?" instruction and activity sheets. Be sure to tell students to have adult supervision when collecting their soil samples so they do not dig in inappropriate or dangerous places.

3. Go over the "What Is My Soil?" activity sheet and have students follow instruction numbers 1 and 2. After marking a horizontal line one inch from the bottom of the jar, the students should pour in soil up to the mark. Ask them to write the soil source on the jar lid with a magic marker or tape the label to the jar lid. The jar should then be filled halfway with water and the jar lid tightly closed.

4. While holding the jar securely, the student should shake the jar up and down to completely mix the soil and water. Then, the soil jar should be placed on a level surface in a location where it will not be disturbed over the next day.

5. Instruct students to fill in questions 1 and 2. After about 10 minutes, have them observe the soil in the jar without touching or disturbing the jar. Have different soil layers formed? How many? Is there a layer of clay visible on top of the silt layer yet? (It usually takes 12 or more hours for the clay to completely settle out of *suspension*, since the particles are so small and light.)

6. On the following day, project the "Archaeological Soils Triangle" transparency and, using the example provided on the "What Is My Soil?" instruction sheet, show students how to determine soil texture. Instruct them to get out all three activity sheets from the previous day. Distribute a colored pencil or marker to each student.

7. Instruct students to, again without touching or disturbing the jars, observe the soil in the bottom of their jar. How many different soil layers have formed? Have them use a ruler to measure the soil in the bottom of the jars. What percentage of their sample is made up of sand? Of silt? Using proportions of sand to silt to clay for their individual soil samples, have the students determine the soil texture of their soil sample. Using a colored pencil or marker to highlight each of the three lines will help the students see where the lines intersect.

8. Instruct the students to answer questions 3 and 4 on their "What Is My Soil?" activity sheet.

Closure

Ask students to think about whether they see any patterns in the class's soil samples. For example, were soil samples collected from gardens more often in the loamy sand or sandy loam category than soil samples collected from stream beds or road cuts? What might it mean for archaeologists to find patterning in soil textures? You may want to guide students into thinking about soil fertility, plant growth, and where ancient peoples might have chosen to settle.

Evaluation

Have students turn in their activity sheets for evaluation.

Links

Lesson 1.3: "Observation and Inference."
Lesson 2.2: "Stratigraphy and Cross-Dating."

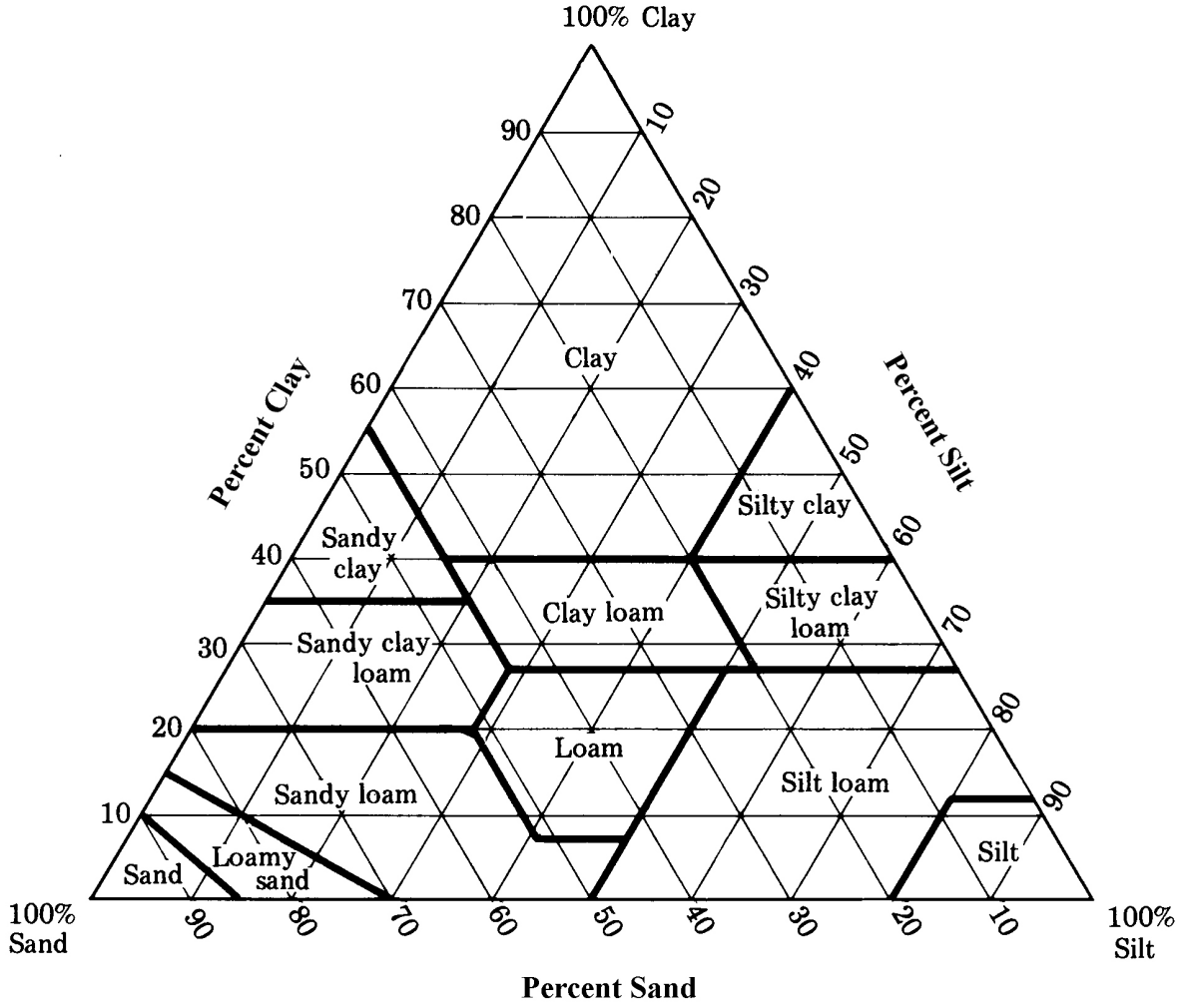
Sources

Birkeland, Peter W. 1974. *Pedology, Weathering, and Geomorphological Research*. New York: Oxford University Press.

Limbrey, Susan. 1975. *Soil Science and Archaeology*. London and New York: Academic Press.

Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this lesson's main heading is taken from Figure 4.24.]

Archaeological Soils Triangle



Sand has particles that are easily seen and felt. They grate against one another when rubbed together.

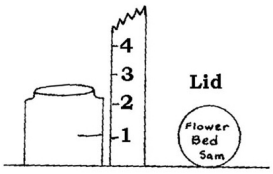
Clay particles are too small to be seen or felt, but when moist, clay looks and feels a lot like modeling clay. When you rub clay between your fingers, it usually leaves a smear on the ends of your fingers.

Silt particles are too small to be seen with the naked eye and have a smooth feel.

What is My Soil?
Instruction Sheet

In this exercise, you will be testing a soil sample to determine its texture. Follow the steps below.

1. Place your jar on the table and, standing your ruler against the side of the jar, draw a horizontal line on the jar one inch up from the bottom. Pour soil from your sample up to the line. Write the location from which you obtained the sample on the jar lid.



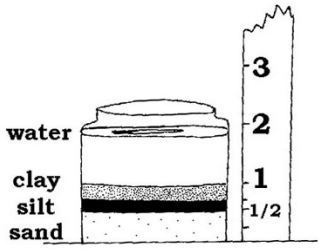
2. Fill the jar halfway with water and screw the lid on tightly. Holding the jar securely, shake the jar up and down to completely mix the soil and water. Then, place the jar on a level surface where it will not be disturbed for the next day.

3. Answer questions 1 and 2 on the "What is My Soil?" activity sheet. Go over the soil triangle with your teacher and learn how to use it.

4. After 10 minutes, observe the soil in the jar without touching or disturbing the jar. Have different soil layers formed? How many?

5. On the next day, use a ruler to measure the thickness of each soil layer. What percentage of the sample is made up of sand? What percentage is made up of silt? Is there a layer of clay visible on top of the silt layer? Using the soil triangle, plot the percentages of sand, silt, and clay to determine the texture of your sample. (See the sample exercise below for an example of how to proceed.) Then answer questions 3 and 4 on the activity sheet.

Sample Exercise



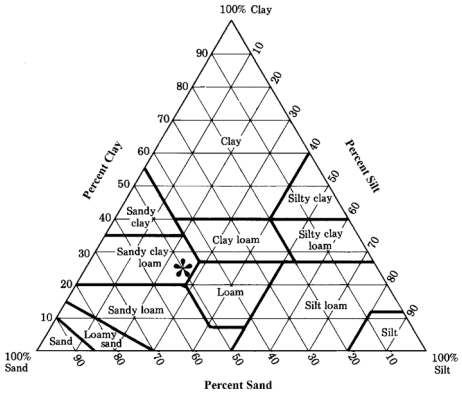
In the soil sample at left:

- the sand layer is ½ inch thick,
- the silt layer is ¼ inch thick, and
- the clay layer is ¼ inch thick.

Therefore, within this sample:

- sand makes up 50%,
- silt makes up 25%, and
- clay makes up 25%.

The asterisk marks the point where these percentages converge on the soils triangle at right. The soil is a sandy clay loam.



What Is My Soil?
Activity Sheet

Name:

Follow steps 1 and 2 on "What Is My Soil?" instruction sheet and then answer the following questions.

1. Where was your soil sample taken?

2. Rub the soil sample between your fingers. Based on the feel and look of the sample, make a preliminary guess (hypothesis) about whether sand, silt, or clay is the major (most abundant) component of your soil sample.

- What is the major component of your soil?
- Why do you think so?

Answer the following questions the day after you begin the exercise.

3. What are the percentages of sand, silt, and clay in your soil sample?

4. What is your soil texture?

Did you guess correctly yesterday the major component of your soil?

Use the space below to calculate the percentages of sand, silt, and clay for your soil sample.

Lesson 2.11

INFERENCE BY ANALOGY

Pottery vessel from Carteret County, North Carolina, AD 800–1600.

Subjects: science, social studies, language arts.
Skills: analysis, synthesis, evaluation, knowledge.
Strategies: role play, reading, mapping, analogy, scientific inquiry, research skills.
Duration: 45 to 60 minutes.
Class Size: groups of 2.

Objectives

In their study of inference by analogy, students will use historical sources and an archaeological site map to:

- infer the use or meaning of items recovered from a North Carolina Native American site based on 17th-century European settlers' accounts and illustrations;
- describe prehistoric lifeways based on archaeological and ethnohistoric information;
- explain why archaeologists use ethnohistoric analogy.

Materials

For the teacher, a transparency of John White's watercolor "Cooking in a Pot" for projection. For each student or team, "Broad Reach Site Plan," "European Accounts of Coastal Villages," "Pomeioc Village," and "Broad Reach Site" activity sheets; pens or pencils.

Vocabulary

Culture: the set of learned beliefs, values, styles, and behaviors generally shared by members of a society or group.

Ethnographic analogy: a method for inferring the use or meaning of an ancient site or artifact based on observations and accounts of its use by living people.

Ethnography: the study or description of cultures based on observation of and interaction with living people.

Ethnohistoric analogy: a method for inferring the use or meaning of an ancient site or artifact based on information from ethnohistoric sources.

Ethnohistory: the study of past cultures using oral traditions and written documents, particularly documents written by outside observers (e.g., European descriptions of 18th-century Indian tribes).

Kinship: the way in which a society defines how people are related to each other and which people make up a family. Kinship systems vary greatly from one society to another.

Naturalist: a person who studies plants or animals.

Palisade: a walled enclosure built around a village or town; a stockade.

Posthole: a circular soil discoloration caused by decay of a wooden post where it had been buried upright in the ground.

Subsistence: the means of supporting life, usually referring to food and other basic commodities.

Background

Archaeologists sometimes use information from a variety of sources to help them interpret life in the past. When they combine sources from history, archaeology, oral traditions, and *ethnography* in their search for answers about past peoples, they are using a method called *ethnohistory*. While ethnohistoric information does not provide direct proof of the function of archaeological materials, it offers invaluable assistance in determining how certain artifacts and structures may have been used by their makers. When researchers infer the use or meaning of an ancient site or artifact based on information from ethnohistoric sources, they are making an *ethnohistoric analogy*. If they use only information gained by studying living peoples to interpret items from an ancient site, they are making an ethnographic analogy.

Archaeologists use historic drawings and other illustrations to find clues about the uses of artifacts and features. The watercolors John White made in the 1580s of the Native peoples of North Carolina and Virginia help us understand what life was like then. White painted many things he saw, from how *palisaded* villages looked down to individual people and the clothes they wore. Some of his watercolors are especially helpful to archaeologists. These show how the Native North Carolinians he met caught fish, prepared food, and conducted other aspects of daily life. While scholars agree that such drawings are good sources of information, they keep in mind that White was an Englishman. Subconsciously, he may have made the Native people he portrayed look more like Europeans than they actually did.

Other sources archaeologists use to help them determine what Native American life was like are unwritten traditions and legends. Anthropologist James Mooney, for example, collected Cherokee stories explaining the origins of many things in Cherokee life, including how the world was made, the first fire, and the appearance of corn. Such accounts help archaeologists and others interested in the Cherokee people understand their beliefs and *culture*.

Ethnographies, or descriptions of living groups of people, written by cultural anthropologists are also key sources. An ethnography usually includes information about kinship, *subsistence*, religion, and other aspects of a culture. Sometimes ethnographies tell how people use certain artifacts or buildings. Such detail can help archaeologists interpret how artifacts and sites may have been used by ancient people. For example, when archaeologists find an object similar in appearance to something described or pictured in ethnographic accounts, they can make inferences about its use or meaning.

The accounts archaeologists use as interpretive aids are not limited to those written by modern-day anthropologists. The journals and letters written by early European settlers and explorers about the Native peoples they encountered can be thought of as ethnographies. For example, *naturalist* John Lawson traveled throughout North Carolina in 1701. Although he was primarily interested in studying the plant and animal life of this area, he took time to write down his impressions of the Native Americans he met along the way. Today, almost 300 years later, his observations are important clues for archaeologists, historians, and contemporary American Indians interested in learning about how people lived then.

Setting the Stage

Share the background information with students. Project the transparency of John White's watercolor "Cooking in a Pot" and discuss with students the types of information archaeologists could gain from this illustration.

Procedure

1. Have students form teams of two. Distribute copies of the activity sheets to each team. Tell them to imagine they are archaeologists studying the site represented by the map on the "Broad Reach Site Plan." The Broad Reach excavation uncovered the remains of only a part of a coastal village. Tell them that the small dots on the Broad Reach map represent places where wooden posts were placed upright in the ground. Using pencils or pens, they can connect the closely spaced *postholes* to see the shapes of structures.

2. Have students read the ethnohistoric information provided on the "European Accounts of Coastal Villages" and "Pomeioc Village" activity sheets. (Note that each passage has been revised for modern English spelling and phrasing.)

Instruct students to fill in the "Broad Reach Site" activity sheet using this ethnohistoric information. For example, to identify what activities went on in the structures at Broad Reach, students should compare the site plan with the structures on the "Pomeioc Village" activity sheet and the descriptions of Native American houses.

3. Ask students: What were you able to infer about the archaeological site using the ethnohistoric information? Were you able to find out how the Native American inhabitants must have built their homes?

4. How might you check the validity of your interpretations? Additional archaeological information might strengthen conclusions based on ethnohistoric information. For example, if you find shallow pits filled with animal bones, charcoal, and ash, you might conclude that they were pits for roasting deer, as described by Reverend John Clayton in 1687. To test this conclusion, you can examine the animal bones recovered from the pits to see if they are deer bone. Such evidence may indicate that people used the pit to roast deer.

5. Sometimes ethnohistoric information can lead archaeologists down incorrect paths, so they need to be cautious when making interpretations. For example, in England a man named Theodore De Bry made engraved copies of John White's watercolors of Virginia and North Carolina Native peoples. Instead of copying White's work exactly, he changed some details. In one engraving, he drew pointed-toed shoes on a Native American man whom White had depicted as barefoot. If an archaeologist was not careful to look at the original watercolors of John White, he might have concluded that Native Americans wore such shoes.

Closure

Give reasons why ethnohistoric information is useful in interpreting archaeological sites.

Evaluation

Students turn in their activity sheets for evaluation.

Extensions

Have students examine the John White illustration of Pomeioc. Ask them which activities or physical objects in the illustration would be present in an undisturbed archaeological site. Which of these traces might be destroyed when farmers plow undisturbed soil layers to a depth of 12 inches? What types of material objects are present in the illustration? Which of these would survive to be found as archaeological artifacts or features?

Links

Lesson 1.7: "Scientific Inquiry."
Lesson 4.5: "A Siouan Village."

Sources

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Smith, Shelley J., Jeanne M. Moe, Kelly A. Letts, and Danielle M. Paterson. 1993. *Intrigue of the Past: A Teacher's Activity Guide for Fourth through Seventh Grades*. Washington, D.C.: Bureau of Land Management, U.S. Department of the Interior. [This lesson is adapted from "Archaeology and Ethnographic Analogy: The Anasazi and the Hopi" on pp. 73–80, courtesy of the Bureau of Land Management.]

Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this lesson's main heading is taken from Figure 6.2.]

"Broad Reach Site" Activity Sheet Answers:

1. Structure 5 is similar to the longhouse shown on the left side of the village. Structure 4 is most like the smaller buildings shown in the village.

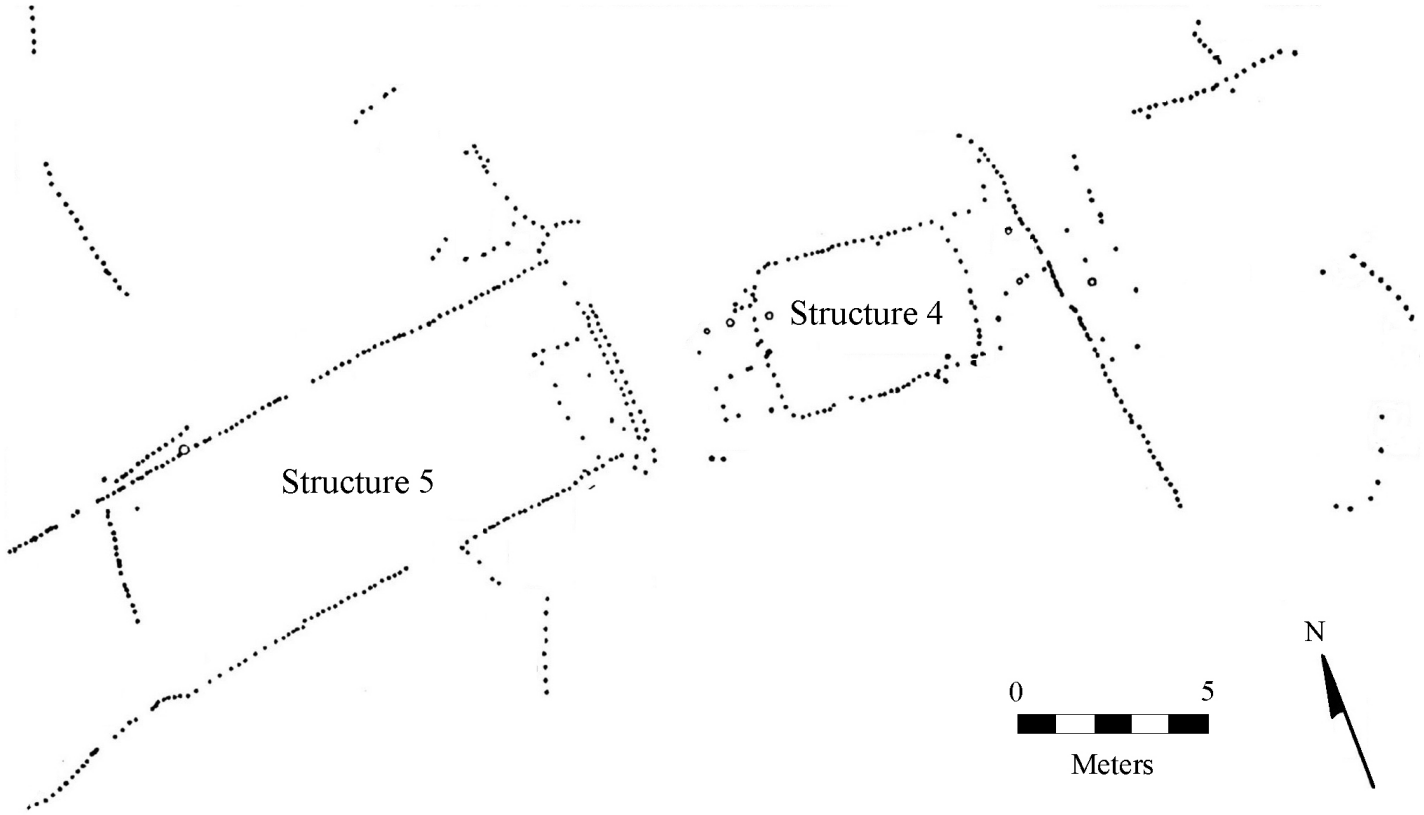
2. There is no evidence of a palisade around Broad Reach, but there is a line of posts which may represent the location of a windscreen to the right of Structure 4.

3. The houses were constructed of poles stuck upright into the ground in an oval or rectangular shape. These poles were tied together at the top, and covered with bark or woven mats.

4. Because the villages were surrounded by walls made of poles, perhaps the people who lived there were trying to keep enemies or wild animals out of the village. Or perhaps the wall may have kept children or animals inside the village. There were 18 buildings in Pomeioc, and the villagers probably lived in the 17 houses. The building with the pointed roof was a temple. The painting shows furniture, perhaps used as seats or beds, inside the houses, which had mat walls that could be rolled up or down. Structure 5 at Broad Reach has a line of small posts at the eastern end which may have been posts for supporting a bench similar to those shown in the Pomeioc Village illustration.

Cooking in a Pot

Detail from an engraving originally published by Theodor De Bry in 1590, based a painting by John White made in 1585. The caption on the original painting reads: “The seething of their meat in pots of earth.” (The name “G Veen” at the bottom of the picture is that of the engraver.)



Map of postholes at the Broad Reach site, showing the outlines of Structures 4 and 5. Each black dot represents the former location of a wooden post. (Courtesy of Mark A. Mathis, North Carolina Office of State Archaeology.)

European Accounts of Coastal Indian Villages

Barlowe's Description of a Palisaded Village on Roanoke Island, 1584

The village contained nine houses constructed of cedar and was "fortified round about with sharp trees, to keep out their enemies, and the entrance into it made like a turnpike very artificially [artfully]" (Quinn 1991, pp. 106–108).

Caption of Theodor De Bry's Engraving of Pomeioc Village

"The towns of this country are not unlike those in Florida, but they are neither so well built nor so carefully looked after. They are surrounded with poles stuck into the ground and have only a narrow entrance. Only the chief and his principal men live in houses. On the right in the picture is the temple . . . On the opposite side is the King's house. These dwellings are made with posts joined to each other and covered with matting, which can be rolled up to let in light and air" (Hulton 1984, p. 125).

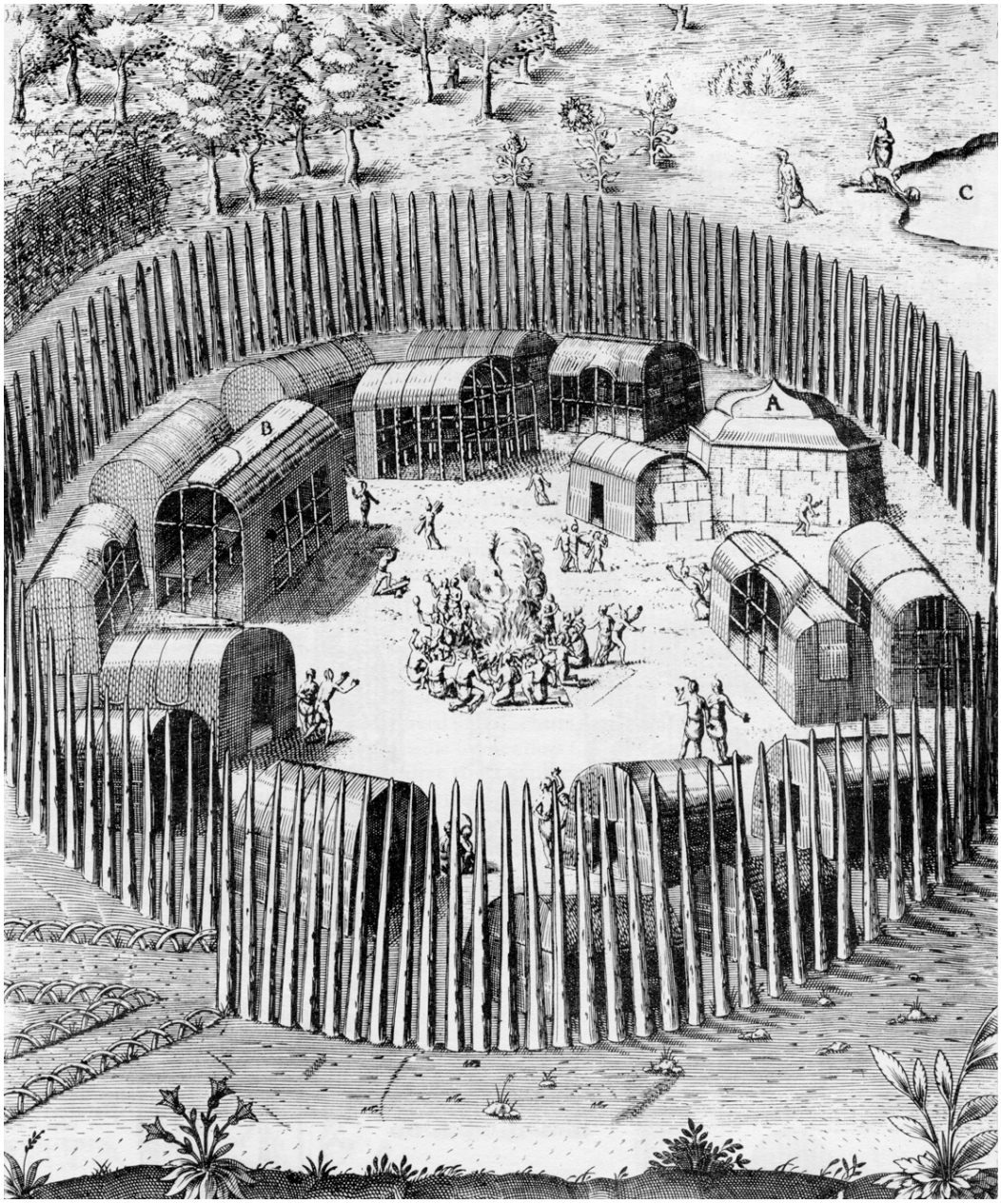
Thomas Hariot's Description of North Carolina Villages, circa 1585

"Their towns are small . . . where a village may contain but ten or twelve houses—some perhaps as many as twenty. The largest town we saw had thirty houses. In many cases the villages are walled with stakes covered with the bark of trees or with poles set close together. The houses are built of small poles attached at the top . . . The poles are covered from top to bottom either with bark or with mats woven of long rushes. The dwellings are usually twice as long as they are wide" (Quinn 1991, pp. 369–370).

John Lawson's Description of Native American Houses in North Carolina, 1701

"They get very long poles, of pine, cedar, hickory, or any wood that will bend; these are the thickness of the small of a man's leg . . . which they generally strip of the bark, and warm them well in the fire, which makes them tough and fit to bend; afterwards they stick the thickest ends of them in the ground, about two yards asunder, in a circular form, the distance they design the cabin to be, (which is not always round, but sometimes oval) then they bend the tops and bring them together, and bind their ends with bark of trees . . . then they brace them with other poles, to make them strong; afterwards, cover them all over with bark, so that they are very warm and tight, and will keep firm against all the weathers that blow" (Lawson 1967, pp. 180, 182).

Pomeioc Village



Engraving originally published by Theodor De Bry in 1590, based a painting by John White made in 1585. The caption on the original painting reads: “The town of Pomeioc and true form of their houses, covered and enclosed some with mats, and some with barks of trees. All compassed about with small poles stuck thick together instead of a wall.”

Broad Reach Site

Name:

1. Which of the structures on the Broad Reach Site Plan are similar to those shown on the illustration of Pomeioc Village?

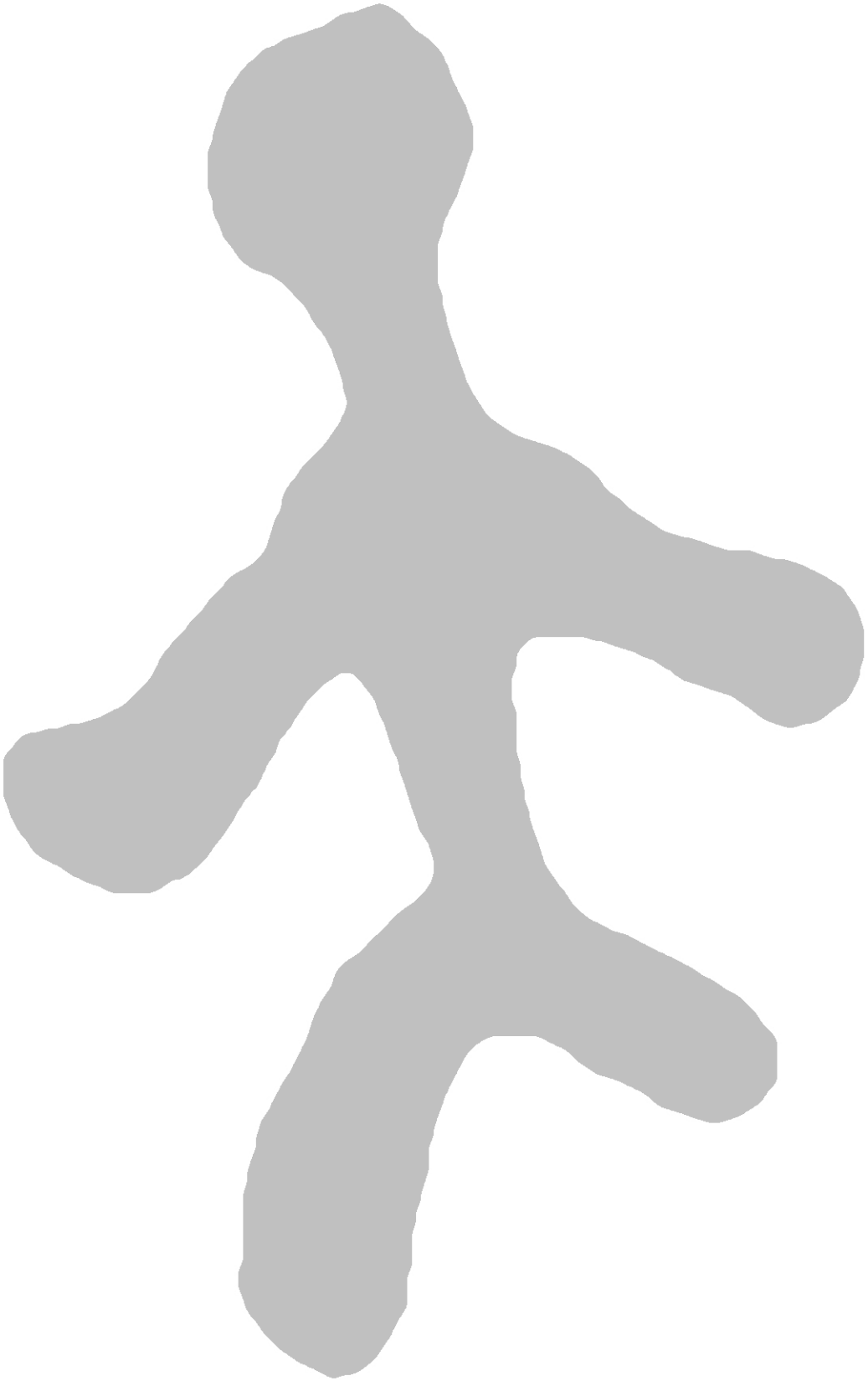
2. What differences can you see between the Pomeioc Village illustration and the Broad Reach Site Plan?

3. By reading the European settlers' accounts, what can you determine about how some of the structures in the Pomeioc Village and at Broad Reach may have been built?

4. Based on the archaeological and ethnohistoric evidence, describe how coastal peoples lived at this site.

Part 3

NORTH CAROLINA'S FIRST PEOPLES



Part 3

INTRODUCTION

Soapstone bowl from Mecklenburg County, North Carolina, 3000–1000 BC.

Artifacts can be thought of as shadows of people projected into the earth. They are more than just things; they create a path to a people's legacy.

—Janet Spector, *What this Awl Means*

The following four chapters present tidbits of North Carolina's Native American history from the time ancient people migrated across the now submerged land bridge connecting Siberia to Alaska during the last Ice Age until European contact. This spans at least 12,000 years, which we break down into four periods called (from oldest to most recent) *Paleoindian*, *Archaic*, *Woodland*, and *Mississippian*.

Each chapter features one of these periods. The main text highlights some of what archaeologists have learned about Indian history during each time. As much as possible, it is written in layman's language for the adult reader, yet some of the techno-speak archaeologists use creeps in. Where it does, there is explanation.

Reading the text will help you in several ways. You will gain information and context that complements many of the lesson backgrounds in Parts 1 and 2. Especially, you will be better prepared to teach Part 4; these advanced lessons relate to information presented in this part. You will gain a greater understanding of what archaeology can and can't say about the past, both in terms of the kinds of evidence that survives and the limits of interpretation. You will see how archaeologists build knowledge about the past.

While each chapter's main text is geared to you, your time and your students are not forgotten. In the ideal world, you have time to read and digest the text before you begin the lessons, flagging parts that you know will add to whatever background you want to present. In the real world, you may need a quicker fix or a ready-built way to remember key points the chapter presents. With this in mind, each chapter ends with a *Quick Study* where the key characteristics of the cultural period are highlighted in bullet form.

Backgrounds to lessons in *Intrigue of the Past* are enhanced by information contained within this part. However, to give a sneak preview, lessons in Part 4 are specifically designed to teach some aspect about past North Carolina Indian life that developed during one of the major periods. *But note: the lessons build on concepts presented in Parts 1 and 2, and students should be familiar with these concepts before attempting Part 4's activities.* Thus, it is important to sequence Part 4's lessons after students have worked through those presented in prior parts.

The exception to this sequence is Lesson 4.1: "Shadows of North Carolina's Past." This hands-on activity introduces students to the four cultural periods and the characteristics

archaeologists use to distinguish them. You can use Lesson 4.1 in two ways. Complemented by the Quick Studies, use it to summarize Part 3 and launch into Part 4. It grounds students so they can better understand the context of the history they will learn in Part 4's lessons. Another way to use Lesson 4.1 is to do so before beginning lessons in Part 1. With this approach, "Shadows of North Carolina's Past" acts as a springboard from which students can dive into archaeology's fundamental scientific quest: How do we know what we know about the past?

Sources

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Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this chapter's main heading is taken from Figure 3.11.]

Lesson 3.1

THE PATHFINDERS

The Paleoindian Period, before 8000 BC

Hardaway spear point from Stanly County, North Carolina, ca. 8500 BC.

In the early evening twilight, Otterwallow stood on a windy ridge and drank in the view. The cold wind stung her face. Unlike the low, rugged mountains she and her family had just crossed, the land stretching before her rolled gently. Stands of tall, nut-bearing trees covered the hills. The bristling air sent showers of their hard, brown fruits clattering to the ground. In places, glades interrupted the trees' black shadows and glimmered in the fading light.

The glades' waving grasses reminded Otterwallow of the country northwest of them where her and her husband's grandparents had lived. As her eyes drifted back to the area just below the ridge, Otterwallow saw caribou and deer eat and drink on the floodplains of a broad, swift river. Here, she decided, was a good place for her family to make camp; food and water were plentiful.

Backing away from the ridge's edge to a place protected from the coldest winds, Otterwallow waited for her family to come. They did not take long. Otterwallow had just slipped off her forehead the wide leather band balancing the carry basket on her back when she recognized their footfalls. Though the wind made the trees' red and gold leaves rustle loudly, she could hear them clambering up the steep, forested slope along the animal path.

Otterwallow had just lowered her basket filled with food and hides when her children pushed aside branches and burst into the opening. First Light, a girl born when the buffalo calved six seasons ago, and Bear's Eyes, a boy born the season before, ran toward her. They hugged her quickly and then started poking through the basket for strips of dried meat to eat. Otterwallow's husband, Lame Wolf, was not far behind. He pushed into the opening and then stopped at the forest edge. Catching Otterwallow's eye, he smiled and waved. Then he set his long wooden spear shaft on end, leaned on it and turned to look back down the trail.

"You are slow like the snake who wakes in winter," he shouted down the path. Voices called back. Otterwallow could not hear what they said, but they rang with laughter. The joking was a game between Lame Wolf and his younger brother, Eagle. Eagle always lagged behind when the families traveled. Even when Lame Wolf got his new name after the buffalo crushed his foot, he could outpace his brother. To Lame Wolf's amusement, Eagle got slower after he married Red Blossom. So much so that Lame Wolf teased during evening camps it was time to change his brother's name to Turtle. Eagle ignored the chiding, especially now that Red Blossom had a baby strapped to her back.

Otterwallow sat and rested while she watched her husband. One ear was cocked toward her children's voices as they explored the ridge. Soon, Eagle and his family broke into the clearing. When they met, the men grasped each others arms, laughing, while Red Blossom passed and led the way toward Otterwallow. After she dropped her pack, Red Blossom walked with Otterwallow to the overlook.

"Yes," she agreed. "This is a good place. Let's stay a while."

Later, as Otterwallow's children collected firewood, she and the others sat by the hearth Red Blossom had built from rocks and planned the next day's hunt. Everybody decided they would stay in this camp just long enough to get meat they needed and rest. They'd also use the time to make new tools from some gray, fine-grained rock they found on a mountain side they crossed the day before. Otterwallow and Red Blossom needed stone scrapers to clean animal hides with. Their old ones were badly chipped. Most of the men's spear points had gotten broken or lost during their hunts.

When that work was done, everyone decided, they would leave the ridge and go toward the rising sun. Otterwallow did not know that land. Elders at the yearly gathering of families told no stories about it except to say that it lay beyond their travels. She'd lead her family on because they, like their ancestors, followed the animals and maybe their curiosity into the corners of a vast, unpopulated country.

Families like Otterwallow's were the pathfinders into North Carolina. Nobody knows exactly when they came, but they were living across the state by 9000 BC. Nobody knows either what they called themselves or even how many of them there were. Archaeologists call these people, and all the other people living in North America then, Paleoindians. Archaeologists chose this word because *Paleo* is a Greek word meaning ancient, and the Paleoindians were our country's—and our state's—most ancient human inhabitants. Like Otterwallow's mythical family, the Paleoindians were skilled explorers. They knew how to learn about the land they moved in to find food and shelter.

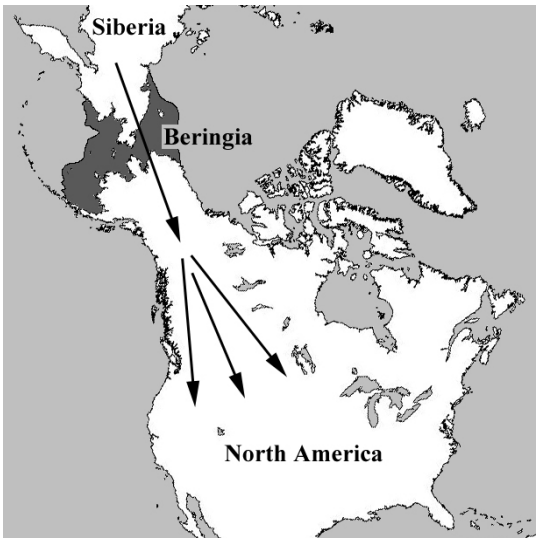
But where did the Paleoindians come from? Why did they leave their native lands on a wandering that eventually led them to every part of North and South America? How can we, across so many thousands of years, know anything about them? Archaeologists address these questions by first journeying, themselves, to a very different time and place.

Beringia: The Journey Begins

Thousands of years ago, Canada's ancient landscape was stark and forbidding. Much of it was buried beneath sheets of ice taller than the tallest city skyscraper. The air was frigid. Snow and sleet pelted the ground in storm after storm. Even when the sun was shining, Canada, like all northern countries, got little warmth from the sun's rays. The cold's grip was too strong, and ice sheets, called glaciers, got thicker with each storm. In the places where no glaciers existed (along the coasts and in the center of the country) wiry grasslands waved in the steady winds. Herds of shaggy, heavy-coated animals grazed. This was the time when the last Great Ice Age, known as the Pleistocene, hung over North America.

The Pleistocene epoch lasted from 2 million years ago to 8000 BC. During the Pleistocene, so much of the earth's water was frozen in glaciers that the sea levels dropped. The glaciers formed because the climate stayed too cold for the snow and ice to melt. Most of the water the atmosphere could find to take up to make the snow and ice came from the oceans. Very

gradually, after giving up its moisture for so long and having no melt water to replace it, sea levels fell. As the oceans got smaller, they shrunk away from the coastlines, and newly exposed land felt the touch of air. Tough grass seeds lodged and grew; mosses crept over the bare spots; small lakes formed, and animal herds found new homes.



Beringia.

Beringia was one of these places. When the sea levels dropped, a wide strip of land was exposed between Alaska and Siberia, where the Bering Sea is today. Beringia was exposed twice during the Pleistocene. The land bridge existed once between 50,000 and 40,000 years ago and again between 28,000 and 10,000 years ago. Each time the seas fell away from Beringia, North America and Asia were joined by a vast, tundra-like land. Herds of animals found homes there. Many of the herds were of very large animals called megafauna. They included the mammoth, an enormous animal related to the elephant, and a species of bison called *Bison antiquus*.

The Paleoindians living in North Carolina by 9000 BC were descendants of Asians who followed and hunted the animal herds across Beringia. Archaeologists disagree about when people first crossed Beringia, but most think they did so when the land bridge formed the second time. Unknowingly, the Paleoindians came into a land no humans had ever lived in before. Shadowing the herds, the people went south through the middle of Canada. There, a wide tundra-like path cut between two huge glaciers that covered the rest of the country. Even though this path from Beringia through Canada was ice-free, its nearness to the blue-tinged glaciers probably made the passage cold and difficult. Perhaps some people wondered if they should go on; some may have turned back. However, for those who continued, they saw changes in the landscape when they got to where the United States border is now.

Canada's tremendous glaciers did not dip far below this line. Because they were so tall and covered most of Canada, the glaciers acted like walls that kept the coldest northern winds behind them. As the people left the corridor and got farther away from the glaciated area, they found a more hospitable climate. It was still quite cold compared to today, but it was warmer and had more rains than the lands the people had passed through. Vast grasslands, dotted with large and small lakes, seemed to stretch forever. Animals were plentiful. Into this inviting land, the people spread out to hunt and live. Eventually, they reached every corner of it.

Nobody knows how long the journey took before the first Paleoindians reached North Carolina. Nobody knows, either, the hardships or joys they faced. Because Paleoindians lived so long ago, there is little left to tell us the story of their lives. Only traces of them remain: a stone spear point here, a stone scraper there. But these artifacts, or things made by people, are like the Paleoindians' shadows projected into the earth; they create an image of their past.

Shadows in the Ground

Archaeologists learn about Paleoindians mainly from three kinds of physical evidence: the distinctive stone spear points and stone tools the people made; the bones of the animals that these people hunted and ate; and traces of the camp sites that they once inhabited.

The first scientific evidence archaeologists found about Paleoindians was not from North Carolina; it came from 12,000-year-old sites out West, in places like Colorado and New Mexico. In the early 1930s, at the Dent site in Colorado, a railroad foreman and a Catholic priest were walking along a small gulley when they noticed animal bones and stone spear points falling out of a bank. As the men examined the bones, they realized the bones belonged to no animal they recognized, so they asked archaeologists to come take a look. It didn't take long for the investigating archaeologists to become excited. The bones once formed the skeleton of a type of elephant called a mammoth that lived during the Pleistocene. Was it possible, the archaeologists wondered, that ancient people used the spear points to kill this immense 7-ton creature?

Blackwater Draw—a windswept, arid basin located between the small towns of Clovis and Portales in New Mexico—helped archaeologists answer this question. The site was stratified, meaning it contained several different layers of soil deposited over a long period of time. As archaeologists excavated each layer, they analyzed what they found. On the bottom and oldest level, stone spear points were lying next to megafauna bones. The association was unmistakable, and it showed people used the spear points to kill mammoths, along with other large animals, such as *Bison antiquus*. Because archaeologists knew megafauna were extinct by the end of the Pleistocene, they could infer people hunted at Blackwater Draw about 12,000 years ago.

Other kinds of physical evidence helped archaeologists understand that Blackwater Draw was no hot desert when the Paleoindians visited there. By studying soils and plant pollens from the site, archaeologists learned that Blackwater Draw was once a small Ice Age pond surrounded by a lush grassland. The abundant grass and water attracted herds of animals—and people, too. Perhaps, archaeologists hypothesized, Paleoindians speared the mammoths and bison that got stuck in the pond's mud when drinking. Then the people butchered the large animals where they fell and died. Besides the spear points, archaeologists found other tools suggesting this happened. Long, thin flint knives and stone hide scrapers littered the area. Some archaeologists think there is even evidence for a camp site with a hearth.

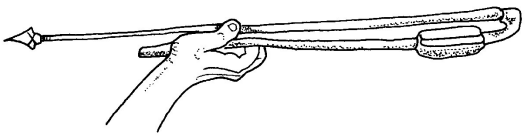
The spear points archaeologists found with the mammoth bones at Blackwater Draw are very distinctive. Archaeologists called these artifacts *Clovis points*, naming them after one of the nearby towns. For convenience, archaeologists also call the lifeway of the Paleoindians who made the points the *Clovis culture.*

Clovis points are shaped like long, thin blades with a shallow channel, or flute, on each side. The edges on both sides near the point's base were dulled, probably to keep them from cutting through the bindings with which the point was attached to the spear shaft. Archaeologists are not sure about the flute's purpose. Maybe it made it easier to attach the point to the spear. Then again, maybe the flute was just a matter of style. Whatever the case, the spear itself was most likely propelled using a spear thrower, or *atlatl*—a wooden stick with a handle at one end and a hook at the other. The atlatl acts as a lever that, in effect, extends the arm of the person throwing the spear. The hook engages the back end of the spear as it is propelled forward with an overhand motion, like that of a baseball pitcher. The atlatl, properly used, greatly increases the accuracy and force with which a spear can be thrown.

Clovis point.

Archaeologists can never know for sure why the Paleoindians who made Clovis points shaped them the way they did. The voices, minds, and reasons of people don't exist in the ground. Only their physical traces—their artifacts—do. One thing archaeologists are sure of,

however, is this: Clovis points are the earliest, indisputable evidence of people in North and South America.



An atlatl, or spear thrower.

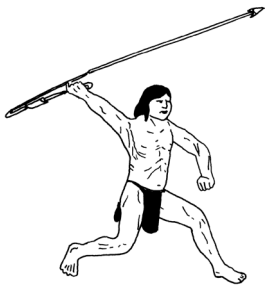
North Carolina's First Peoples

North Carolina is a long way from New Mexico and other places with sites having Clovis spear points associated with megafauna bones. Yet what archaeologists learn from these far away places helps them infer when people first lived in North Carolina and what their lives may have been like.

Clovis points—those earliest traces of people—were actually not *discovered* at Dent and Blackwater Draw. For years before shovels sunk there, archaeologists all over the country had collected them during surveys. But they were always on the ground's surface. Clovis points turned up in North Carolina, too. Farmers' plows churned them up. They tumbled out of stream banks. However, such Clovis points weren't found in context with other evidence. So archaeologists could not answer questions like: When were the points made? Whose hands made them? What were they used for?

The Blackwater Draw excavations allowed archaeologists to place Clovis points found everywhere else in North America in time. To do this, they used a technique called cross-dating. Cross-dating means that if a style of point dated in one place is found someplace else, then the point was probably made about the same time by people of the same culture. This technique lets archaeologists infer that Clovis points found in North Carolina are as old as those excavated from western sites. Dates from Blackwater Draw put Paleoindians making Clovis points about 9500 BC. This leads archaeologists to think Clovis culture Paleoindians began arriving in North Carolina—as they did in many other parts of the country—about that time. Losing some tools along the way, they crossed the Appalachians and flowed onto the gently rolling Piedmont to begin human history in North Carolina.

These pathfinders walked into a land transforming itself. The Ice Age was ending, and the transition to the Holocene, or modern, epoch was underway. Between 10,000 and 7000 BC, the glaciers gradually melted and retreated to the Arctic. In North Carolina, the warming air affected the plants and animals. Forests and other habitats changed as the climate slowly became like it is today. Those early settlers confronted, thus, an environment where megafauna were hard to find. Different kinds of animals faced the hunters' spears, and different plants were available to those who gathered them for food and medicine. Even the coastline was altering because water from melting glaciers was raising sea levels. Of course, the changes were not so quick the Paleoindians could see them happening. The climatic shift was probably like trying to watch a flower bud bloom.



Hunter using an atlatl.

Before people came, North Carolina's Ice-Age landscape had forests of cold-weather adapted trees, such as jack pine and spruce. Called *boreal*, this kind of forest is in Canada today. When boreal forests existed in North Carolina, parklands scattered through them. Caribou and megafauna, such as mammoths, camels, and horses, grazed on the grasses. Another elephant-like animal called the mastodon lived in the forests. Eastern megafauna herds were probably not large like those in the West. Archaeologists think the grasslands were too small here to support many of the large grazers. By the time Paleoindians arrived, winters were more harsh and summers cooler and wetter than today, but the air was distinctly milder compared to earlier Pleistocene times. This allowed hardwood seeds to sprout, and stands of hickory, oak, birch, and elm had begun replacing the conifers. As these forests grew, they spread into the grasslands. This resulted in the caribou and megafauna having less to eat, and their numbers declined. Other kinds of animals, however, thrived in the deciduous forests. There were deer and bear; squirrels and rabbits; raccoons and beavers.

The first Paleoindians exploring North Carolina faced these changing ecological conditions. They adapted and stayed. Some archaeologists think the earliest Paleoindians lived mostly on the Piedmont. More Clovis points turn up there than elsewhere in the state. In part, this pattern may hold because the Piedmont was an easier place to live than the colder Mountains. But it may also have to do with preservation, in that Paleoindian sites on the low-lying Coastal Plain may now be archaeologically invisible—having been inundated by rising sea levels or deeply buried in floodplain soils.

Archaeologists debate whether Paleoindians in North Carolina hunted megafauna. So far no definitive evidence—a Paleoindian site with stone tools and animal bones—has been found in this state. The humid air and the acid soils cause organic remains to decay quickly. Even without this kind of evidence, however, archaeologists can form hypotheses about Paleoindian lifeways by relying on other clues. As part of their research grab-bag, North Carolina archaeologists study ancient pollen and soil samples. This helps them understand what North Carolina's environment was like and how it changed. Based on what they learn, archaeologists can infer what sorts of plants and animals could live here and thus would be available for people to eat.

In the West, Clovis culture Paleoindians may have depended mostly on megafauna for meat. But when they pushed east of the Mississippi River and into North Carolina, it is unlikely they did. The forested environments of the East seem to have fostered a more diverse diet, in which megafauna were taken less frequently, if at all. And as the Ice Age died, so did the megafauna. By 8500 BC all the Ice Age mammals were extinct. So thereafter the Paleoindians hunted only small and medium-sized game. They stalked the caribou until the herds wandered north. They also learned the ways of the deer and the bear.

The Paleoindians ate more than meat, of course. North Carolina's forested land filled with nut trees, berry vines, seed-bearing plants, and many kinds of birds was like their grocery store. As the Paleoindians explored along the state's stream and river beds and went across the Piedmont toward the coast, they learned where to find plant foods in different seasons. Chunks of the landscape were like supermarket aisles: hickory nuts in one place, ripe berries in another. Archaeologists call this way of life *generalized foraging*.

In most other ways, North Carolina's Paleoindians were like those in other parts of North America. All were hunters and gatherers, even though the foods available to them were different.

Because physical evidence is limited, archaeologists study groups of modern hunters and gatherers to get ideas about how Paleoindians may have lived. From their studies and a general knowledge about the lives of foraging peoples, archaeologists think Paleoindians joined together in small family groups called *bands*. Each band went from place to place according to the

seasons and the foods they could gather and hunt. Their territories, or the geographic areas they used, were large. In North Carolina, a band's territory probably covered much of the Piedmont, extending north into Virginia and south into South Carolina.

Short-term camp.

Most of the time, a band moved about its territory alone, living in short-term camps. Sometimes during the year, however, different bands came together to camp in one place for a while. Maybe they did this for social and ceremonial reasons. They may have also done this for economic reasons, such as staying at the camp while they collected local resources. The Paleoindians built no permanent homes. When they needed shelter, they presumably put animal skins or brush over bent poles made from cut saplings they stuck into the ground. Camp fires kindled in the middle of rock hearths kept them warm and let them cook. They made clothes from animal skins. Tools were shaped from stone and bone. Paleoindians had few other possessions. They kept only what they could easily carry.

The Paleoindian period in North Carolina lasted from 10,000 to 8000 BC. Even though the Paleoindians' hunting and gathering lifeway stayed much the same throughout the 2,000 years, it was not locked into sameness. Slow changes did occur, and a notable one was technological. Just like we do today, earlier peoples modified their tools to suit their needs. One tool Paleoindians modified was their main hunting weapon—the spear point.

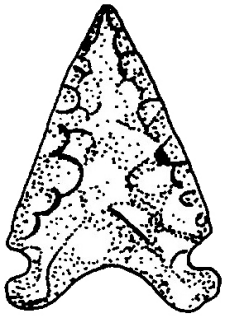
The way people styled points depended on when they lived, where they lived, and what conditions they faced. Some Paleoindians settling in North Carolina's frontiers started making a different kind of spear point around 8500 BC. Rather than make the slender, fluted Clovis point, they started chipping large stone flakes into a different, leaf-shaped form archaeologists call *Hardaway*. The waist-like narrowing of Hardaway's base, which is the part attached to the spear shaft, makes the point look like it has ears.

Just like Clovis points were named after a town, Hardaway points got their name from a place, too. Nested in the Uwharrie Mountains, a saddle-shaped ridge stands high above the Yadkin River near the small town of Badin in Stanly County. Its steep side falls toward the river and forms the west side of the Narrows gorge, which is where the Yadkin cuts through the mountains. About the same time important western sites like Blackwater Draw were being excavated, North Carolina archaeologists found on this ridge another link to the ancient past.

It happened, like many discoveries in archaeology, by chance. In 1916, a dam was built at the Narrows to provide hydroelectric power. This dam led to the establishment nearby of a smelting plant, which used the energy created by the dam's spill waters to produce aluminum from bauxite ore shipped in by train. In the 1930s, one of the aluminum company's electrical engineers, Herbert Doerschuk, enjoyed archaeology and spent his time off roaming the Uwharrie Mountains looking for clues of past cultures. Eventually his search led him to the ridge top near Badin in Stanly County. As Mr. Doerschuk walked across it, he spied lots of broken and whole stone tools poking up through the grass. Just like the Catholic priest and the railroad foreman did when they found the Dent site, Doerschuk contacted an archaeologist. Just as Dent gave evidence for the earliest Paleoindian culture in North America, the site Mr. Doerschuk found gave archaeologists their first evidence about the lives of North Carolina's earliest peoples.

Archaeologists called the site Hardaway, naming it after a construction company which had worked on the dam and whose camp had formerly been located there. The Hardaway site is

tremendously important. It is one of the few stratified sites—for *any* period—in North Carolina. As archaeologists collected artifacts on the ground's surface and dug down through the dirt layers of history, they wove the evidence into a story of different peoples coming and going over thousands of years. Each level was like a chapter, and the story—which archaeologists are still learning—started on the bottom level. Scraping the dirt aside, archaeologists found the leaf-shaped, eared spear points people made about 8500 BC. Other stone tools, such as scrapers and drills, turned up in this oldest level, too. The spear points, found for the first time in context in a stratified site, were the Hardaways, named (not surprisingly) after the site. All the tools associated with the points were called the *Hardaway complex.*



Hardaway point.

Some archaeologists think the Hardaway and the Clovis spear points were made at the same time, but by different groups of Paleoindians. For reasons we can never really know, they think some Paleoindians experimented and started making Hardaways while some bands kept chipping out Clovis points. Other archaeologists think people made Hardaway points later, after people gave up using Clovis ones. This debate will go on until more research settles it.

But there is no debating this: Paleoindians were living in North Carolina by 9500 BC. They were hunters and gatherers, carrying their possessions on their backs as they wandered through the Mountains, the Piedmont and the Coastal Plain. As little as archaeologists know about them, they do know that these First Peoples entered a changing land, and that they adapted skillfully.

Links

Lesson 4.1: "Shadows of North Carolina's Past."
Lesson 4.2: "Shifting Coastlines."

Sources

Goodyear, Albert C., III, James L. Michie, and Tommy Charles. 1990. *The Earliest South Carolinians: The Paleoindian Occupation of South Carolina.* Occasional Papers 2. Columbia: Archaeological Society of South Carolina.

Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this chapter's main heading is taken from Figure 2.4.]

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Quick Study

Paleoindian Period (before 8000 BC)

Paleoindians belong to the oldest known cultural period in North America. Archaeologists think they arrived in North America during the last Ice Age by crossing a land bridge connecting Siberia and Alaska. Called Beringia, this bridge was sometimes exposed when enough of the oceans' waters were locked into glaciers to drop sea levels.

Archaeologists aren't sure when Paleoindians first arrived from Siberia. But by 10,000 BC, they were living throughout North America. Some had made it to the southern margin of South America.

Within the Paleoindian period, North Carolina archaeologists recognize two main cultures: Clovis culture (9500 to 8500 BC) and Hardaway-Dalton culture (8500 to 8000 BC).

Paleoindians were nomadic hunters and gatherers who moved regularly through vast territories. In western North America, Paleoindians survived, at least in part, by hunting large, now-extinct animals called megafauna. They used spears to kill the mammoth and extinct forms of bison. They probably also ate a wide variety of other foods, but little evidence remains to say just what these foods were.

Archaeologists think Paleoindians in North Carolina and in other places east of the Mississippi River probably did not eat much "big game." Although the occasional mastodon or bison may have been hunted, by 8500 BC most megafauna species were extinct or quickly dying out. The Ice Age was ending and the eastern ecosystem was changing. Deciduous nuts trees were replacing straggly stands of cold-loving boreal forests, and modern animals like deer were becoming abundant. So eastern Paleoindians apparently ate a variety of nuts, wild fruits, and smaller, modern game.

Even though the Paleoindian period ended about 8000 BC, it laid the groundwork for subsequent cultural developments.

Key Characteristics

- The Ice Age (or Pleistocene) is in its last centuries. In North Carolina, the weather is wetter and cooler than today. But it is warming enough that deciduous, nut-bearing trees are replacing most remaining stands of cold-loving boreal forests.
- People migrate to North Carolina for the first time. Their ancestors came from Siberia, having crossed the now submerged Bering land bridge (called Beringia) into Alaska.
- People live in small family groups archaeologists call bands; they are nomadic.
- Subsistence comes from hunting and gathering wild foods.
- Local people do *not* depend on big game like mammoths for meat; by the time people arrive in the East, megafauna herds are small and quickly becoming extinct. Instead, people rely on deer and other small animals living in the deciduous forests.

- Spears tipped with stone points are the main hunting tool. In North Carolina, archaeologists find ancient people made two styles of spear point. One style dates to between 9500 and 8500 BC, and archaeologists call it Clovis. Slender, with a long channel (flute) chipped from the base for attaching a spear shaft, the Clovis point is what people living across North America then used to hunt. Presumably, the first people arriving east brought this style with them. But by 8500 BC, those who settled in North Carolina start making a differently styled spear point. This regional variety has no flutes, but has shallow indentations on each side of the blade near the base. Archaeologists call this point Hardaway-Dalton; people made Hardaway-Daltons until about 8000 BC.

- Baskets as well as leather and bark containers are used; there is no pottery. Possessions are lightweight and few, suited to a life on the move.

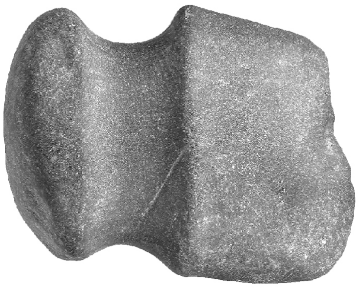
- Shelters are temporary, perhaps tents covered with hides or lean-tos made of brush.

- Archaeologists call these first people Paleoindians. They are the founding population for all later Indian groups.

Lesson 3.2

THE FOREST PEOPLE

The Archaic Period, 8000 BC to 1000 BC



Polished stone axe from Nash County, North Carolina, 3000–1000 BC

Paleoindian culture died out across North America by 8000 BC. Archaeologists say this was bound to happen. The Ice Age had ended, the megafauna were extinct, and the boreal forests faded as deciduous ones spread across the East in the warmer climate. Faced with significant environmental changes, the Native Americans adapted. Archaeologists call their way of life and the time in which they lived *Archaic*.

Change in the Air

Archaeologists excavating a site in New York state in the 1930s first coined the term Archaic. They used Archaic, which in everyday language means ancient, to designate a nonagricultural, pre-pottery culture they unearthed that was a bit unlike anything they had found before. While clearly old and similar to Paleoindian culture, it had notable differences.

Like Paleoindians, these ancient people did not grow food or make pottery. They, too, were hunters and gatherers with no year-round villages. However, some of their tools, like spear points, had shapes quite different from those Paleoindians made. Pondering the finds, excavators wondered: Did the different technology mean changes in the kinds of animals those early New Yorkers hunted? What about *how* they hunted? Was their culture actually a local expression of the Paleoindian one? Or was it chronologically later, representing another lifeway emerging as the Ice Age slipped away? While archaeologists knew answers would take more digging and analysis, they did settle one issue. To distinguish between the ancient Paleoindian culture they knew about from the ancient one they wondered about, they decided to call the latter *Archaic*.

Soon it turned out the Archaic wasn't just in New York. In the 1930s, professional archaeology was getting started in many parts of the country. As excavations expanded, archaeologists found similar Archaic materials all over North America, including North Carolina. In the late 1940s, researchers began radiocarbon dating charcoal and animal bones associated with the stone implements. Such finds let archaeologists pinpoint when Archaic people lived, putting the start of their era coincident with that of the current geologic age, called the Holocene, which began around 8000 BC.

In North Carolina, the Archaic rolled forward 7,000 years and ended about 1000 BC. Archaeologists think Archaic Indians descended directly from Paleoindian ancestors. No evidence exists that waves of new people replaced those who lived here before.

Across the continent, the transition from Paleoindian to Archaic culture presumably happened because environmental changes at the end of the Ice Age forced people to adopt different lifeways. By the start of the Holocene around 8000 BC, North America boasted an immense

array of ecosystems, and people adjusted accordingly. For instance, while Paleoindians in much of the West lived in a rather homogenous Ice Age environment and focused on a few select species for food, their Archaic descendants had to adjust to varied menus served up by the Holocene. This led to a series of regional adaptations. A desert tradition based on the seasonal harvest of wild plants sprang up in the Southwest. The Northwest Coast saw the rise of whalers and hunters of seals. Bison hunters fanned across the northern plains.

In North Carolina, as in most parts of the East, the Paleoindian-to-Archaic transition was less dramatic. It was, actually, marked more by continuity than disruption. Unlike their western counterparts, eastern Paleoindians' lives were not turned upside down when one or two key resources, like mastodon, disappeared at the end of the Ice Age.

By the time Paleoindians migrated to North Carolina, climatic change had already fostered pockets of deciduous forests, along with the extinction or drastic decline of megafauna and other large game. As skillful adapters, the Paleoindians foraged efficiently, learning to take advantage of the broader variety of food. They found nuts laying on the ground, a variety of wild greens and fruits, deer exploring forest edges, and sometimes even bigger game. They developed a broad-based subsistence that laid the foundation for the subsequent Archaic people's versatile hunting and plant-collecting economy.

Because of similarities between Paleoindian and early Archaic hunting and gathering lifeways in the East, archaeologists draw the line between them by making a simple, but key distinction. Whereas Paleoindians lived during the Ice Age and sometimes bagged now-extinct Ice-Age animals (such as mastodons), Archaic people hunted *modern* animals and collected *modern* wild plant foods in the *modern* geologic age: the Holocene.

With this said, archaeologists caution that "modern" can be a misleading term when applied to the Holocene. The climate took a while to stabilize, and the Holocene threw Archaic people zingers like periods of unstable coastlines and climatic flux. Nonetheless, Holocene ecosystems were relatively uniform and cooperative, allowing North Carolina's Archaic Indians to live in all corners of the state. They thrived. By the middle of the Archaic's 7,000-year span, some groups became experts at fishing or shell fishing. They developed various other technological innovations: grinding implements to process nuts; a variety of differently shaped spear points; and polished stone axes. By the Archaic's end, people were carving bowls from a type of rock called steatite or soapstone. A few on the coast made the first wide-mouthed clay vessels. Artistry surfaced in intricately carved shell ornaments. A bone tool industry was in full swing. Trade was far-flung. Even horticulture, born from Archaic people's plant-collecting habits, had raised its head in the guise of locally cultivated seed plants, squash, and gourds.

North Carolina's Archaic was a time of great cultural growth and change. Yet throughout this long era, there was one continuous thread. Archaic folk remained true Forest People, dependent on the Eastern Woodlands' wild foods.

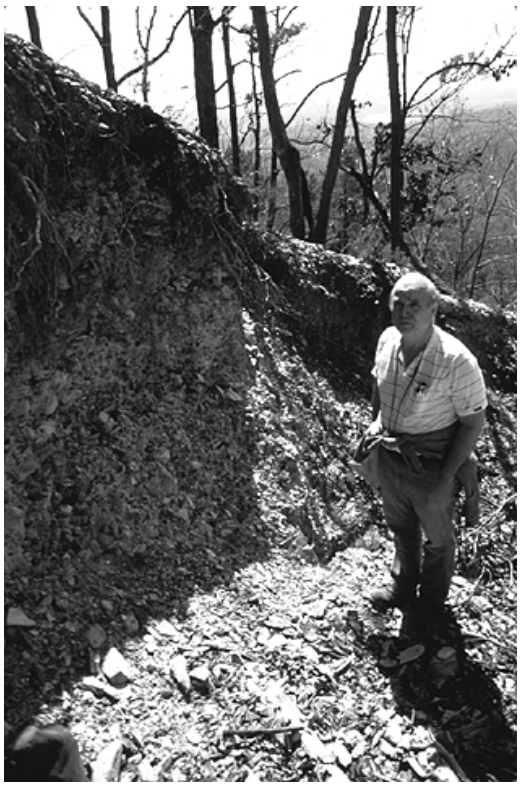
The Mountain and the Ridge

A huge quarry lies tucked in the Uwharries near Albemarle, North Carolina. From early Archaic times on, people across the Piedmont went to Morrow Mountain for a fine-grained rock called rhyolite they liked for making tools. Eventually, they pecked apart every rhyolite boulder in sight. Today the mountain face is smothered with heaps of rock debris. It hides under leaf litter or peeks out in erosional gulleys. It tumbles down slopes as scree.

Archaeologist I. Randolph "Randy" Daniel and geologist Robert Butler investigated Morrow Mountain while looking for rhyolite outcrops in the Piedmont. Daniel, now a faculty member at

East Carolina University but then a doctoral student at the University of North Carolina at Chapel Hill, had been studying Archaic stone tools for years. How, he wondered, could they speak about life then?

Daniel had the notion that if he could identify rock sources where bands of early Archaic people got stone for their tools, he could figure the size and shapes of their territories. He might also get a glimmer into why people put their scattered long-term camps in some places and not others. Also, if it turned out that Archaic bands from different territories used stone from the same quarries, Daniel could make some inferences about trade and interaction among these bands.



Geologist Robert Butler investigating an ancient stone quarry.

Butler, a faculty member in geology at UNC–Chapel Hill, joined Daniel's doctoral advisory team. As a self-dubbed old-time field worker, Butler wasn't content to limit himself to scholarly advice. While Daniel sorted dusty boxes of Archaic artifacts excavated as early as the 1930s from Piedmont sites and did a preliminary analysis of the kind of rock the tools were made from, Butler peeled thin slices from broken tools to peer at under a microscope. He verified the rock types and probed his recall about where outcrops of such rock existed. Whenever they could, Daniel and Butler tucked geologic survey maps into backpacks loaded with lunch and went in search of the outcrops. Some they verified locations for; some they mapped for the first time. Back in his lab, Daniel mapped paths between outcrops and Archaic sites with tools linked to those places.

The work seemed straightforward. But a glitch popped up. Rhyolite comes in a variety of flavors. Some have thin flow bands; some have small globs of crystalline impurities, called phenocrysts. Even rhyolite colors vary from dark to light gray. Each sub-variety sits in particular places. While most crop out of the Carolina Slate Belt running through the Piedmont in the Uwharrie Mountain region, Daniel and Butler found themselves bedeviled by a problem. Many early Archaic tools were made from a rhyolite for which they couldn't find a primary source. Obviously, ancient people plied somewhere for it. Yet in their treks through the Piedmont, Daniel and Butler found just piddling patches that could not possibly account for the quantities of tools Archaic people made from it.

Butler's instinct told him the rhyolite had to be around Morrow Mountain, and Daniel agreed. At first the search was frustrating. They clambered up and down Morrow Mountain's slopes, but nothing close to the rhyolite they looked for stuck out. Then one day as they walked long a ravine, Butler stopped abruptly. He ran his fingers over a rock lining the ravine's side. He took his geologic hammer, knocked off a chunk and squinted at it through a hand-held lens. The stuff was, no doubt, what they were looking for. But where was the outcrop? Did it extend back into the ravine or angle down along the floor?

With their hands, Butler and Daniel traced the rock's lines; it sloped groundward. As they scraped leaf litter away, they found scads of rhyolite chunks fanning out under their feet. Suddenly, they realized they had solved the missing outcrop puzzle. Quite simply, the outcrops

were gone. Ancient people had pecked the choice rhyolite boulders apart and worked the seams. Day after day, Butler and Daniel had been walking all over their chewed-up remains.

As happens in archaeology, one solved mystery cracked open doors to others. Daniel still had his questions to deal with—plus a few. His mapping indicated that archaeological sites containing tools made from the Morrow Mountain rhyolite were spread over an area of 30,000 square miles. This area of distribution cut north–south through the Piedmont and reached east-northeast across to the upper portions of the Cape Fear and the Wateree Rivers where those rivers spill into the Coastal Plain. Daniel speculated that during the Archaic's first stretch, *bands* (family groups) sorted themselves out in a quilt-like pattern across this region, each having a territory covering over 100 square miles.

But did all the early Archaic bands actually *go* to Morrow Mountain, or did those living farthest away get rhyolite through trade? For those who made the trip, how often did they go? How long did they stay? Where did they stay? Did the visits serve other purposes, like casting eyes on marriage prospects? What, exactly, was rhyolite's role in Archaic people's overall ecological strategy? If, for instance, people preferred using this rock to make their tools and weapons, did Morrow Mountain act like a tether for their movements?

Archaeologists are still grappling with these questions. But, however Morrow Mountain figured in Archaic Indians' lives, it's certain they didn't stay there. Usually people struck camps in places where they could satisfy basic human needs—accessible food, firewood, water, and level ground for shelters. Morrow Mountain is not ideal in this regard. In all the archaeological investigations there, no ancient camp sites were found. Just pocked areas where tons of chipped stone litter lay about.

Morrow Mountain did shed light, however, on a camp site 4 miles north of the quarry. Called Hardaway after a construction company, archaeologists had discovered the site decades earlier during the 1930s. Near the small community of Badin, Hardaway sprawls over several acres in the saddle of a high ridge overlooking the Yadkin River. Some archaeologists believe a spring once watered the ridge. The commanding view took in game coming to drink and, quite probably, human traffic as well.

Ironically, Hardaway had helped spur Daniel's rock hunting quest that eventually led him to Morrow Mountain. Many of the Archaic era tools he searched rock sources for came from Hardaway. Other UNC archaeologists had excavated the site off-and-on between 1950 and the mid 1970s. Over the years and from soil layers 2 feet deep, they recovered more than 11 tons of human-worked stone. Whole, broken, and half-formed tools like spear points, drills, wood gravers, and hide scrapers mingled with masses of manufacturing flakes and the rock cores the tools were shaped from. Hardaway had so much worked stone, some archaeologists quipped its weight was what formed the ridge's saddle. Clearly, the place had been used—and used extensively—by countless generations of ancient Indian people. But until Daniel linked the rock chips to the quarry, nobody knew just where folks got the resource. Nor did archaeologists have even one good reason why people choose the spot to camp, time after time.

Daniel's work was, however, a capstone; Hardaway already had archaeological fame. In the 1950s, Joffre L. Coe, a professor at UNC–Chapel Hill, supervised excavations there and used what he found to help build the first chronology of North Carolina's ancient cultures.

Coe, like other Southeastern archaeologists working at that time, was confused by the hodgepodge of points and other tools they were finding. Making sense of them was like trying to piece together a million jigsaw pieces dumped on a table with no guiding picture. The root of the muddle was this: at the time, all the artifacts had been plucked from surface finds or dug with little or no scientific guidance. Coe had an inkling from excavations in other parts of the country

that some of the tools were thousands of years old. But did the dates hold for similar kinds found in North Carolina? What about all the differently shaped tools? Where they used at the same time? Everywhere in the state? If not, how did their styles evolve? In what sequence? These basic questions filled everybody's mind as they stood knee-deep in what archaeologist and author Brian Fagan once described as "classificatory confusion."

Excavations at the Hardaway site.

In the 1930s, when Coe began working at Chapel Hill, professional archaeology was in its infancy. Coe, in fact, was the state's first professional archaeologist. As he settled into campus life and faced the hodgepodge, he knew the confusion could only be dispelled with information from *stratified*, not surface, sites. Only these sites had identifiable layers of earth laid down over time, each distinct enough to be associated with a discrete period of human settlement. Coe figured that by seeing what turned up in each layer, he could learn what artifacts went together, which groups came first, second, and so on, and how they related to one another through time. The trick, of course, was finding stratified sites. Relying on contacts and his own surveys, Coe found four promising ones scattered through the Piedmont, set along river floodplains and on ridge tops with riverine views. The sites were named Lowder's Ferry, Doerschuk, Gaston, and Hardaway.

Coe and his staff and students spent summers digging. Each field season, they hacked back vegetation. They sidestepped rattlesnakes and swatted biting insects. The hard, red Carolina clay mucked their clothes, stained their skin and resisted pushes through the processing screens. Coe and his crews charted the excavations, meticulously keeping records of where every shovel full came from and what was found. They made sketches and shot photographs. When the work was done, Coe carted away the notes and more than 66,000 stone fragments.

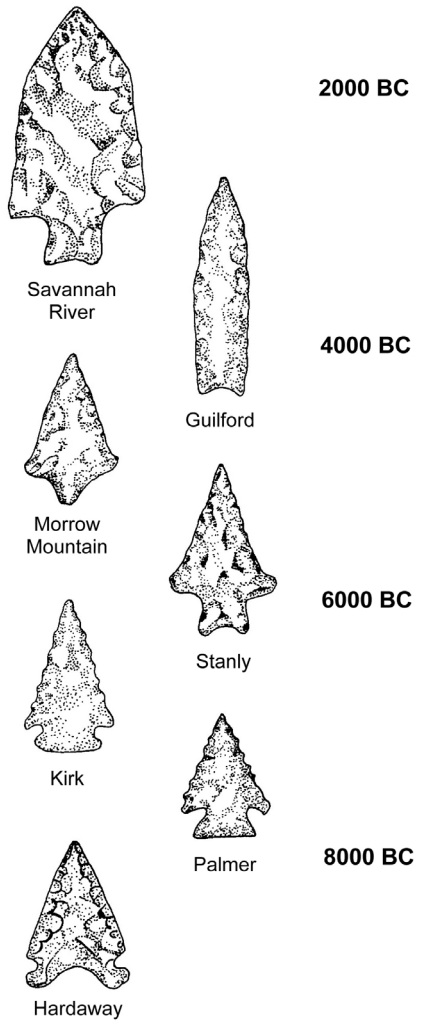
Back at his laboratory, Coe spent a decade hunched over tables sifting through the artifacts and records. He didn't take long to see that spear points in each layer of a site were slightly different from those in the site's other layers, even though many other tools, like scrapers, looked the same. To him, it seemed logical to make the spear points the heart of a classification scheme. But little in archaeology is so tidy. The trouble was the other tools *did* change. Also, changes in spear points could be so slight that assigning them to categories got tough. Using trial and error, Coe made up criteria to classify the artifacts, only to revise them and start over when they proved inadequate.

When Coe finally finished his study, he had ordered the hodgepodge, and his work was applauded. Not only did he and his crews excavate the first undisturbed stratified sites in North Carolina, he was the first to show that the many differently-shaped spear points mixed together in the open sites, caves, and rockshelters across the whole Southeast were not all made at once. Each style, along with other distinctive tools, was popular at a certain time. From oldest to youngest, Coe named the tool groups Hardaway, Palmer, Kirk, Stanly, Morrow Mountain, Guilford, Halifax, and Savannah River.

Initially, Coe didn't have dates for when people made these different tool groups. The sequence was *relative*, meaning he just knew one kind was older or younger than another based

on the soil layer it was found in. Nonetheless, archaeologists could know from Coe's work that Indian people made smaller triangular points with corner notches (Palmers) long before their descendants made large, square-stemmed blades (Savannah Rivers). Archaeologists were soon scouring for more stratified sites to dig. Ultimately, datable and associated evidence like charcoal turned up in levels with the points. Bracketed by absolute dates, Coe's revised sequence let archaeologists know not just that people made Palmer points before Savannah Rivers, but they made them about 5,000 years earlier.

First things first, archaeologists like Coe built the chronology that ordered the jumble of artifacts. This let archaeologists like Daniel not have to wonder what tool came first or how old it is or what kinds of things went together or how the physical changes in tools evolved over time. They could turn, instead, to filling in the picture and pondering other sorts of questions: Why did people change tool styles? How exactly did people live? Why did they choose to live where they did? What was life like? What effect did the changing environment have on people?



Changes in spear-point styles during the Archaic period in the North Carolina.

Concerning Hardaway, Coe grasped, like anybody else studying the site, that making tools obviously took up a sizeable chunk of camp life. The manufacturing litter was hefty. Clearly, countless groups of ancients plopped hearths in a willy-nilly fashion, settled in for a stay, and made tools from a particular kind of stone. But until Daniel's work, nobody knew exactly where that stone came from. When Daniel and Butler identified the Morrow Mountain quarry, archaeologists put a steadier finger on reasons for Hardaway's popularity. Not only was the place safe, watered, and near food, but also it was close to the best source in the Carolinas where Archaic people could get their preferred rock for making tools: rhyolite.

Stories in Stone

Three piles of artifacts are stacked on a gray metal table covered with brown paper taped to the sides. All date to the Archaic. The piles, left to right, go from oldest to youngest, breaking into discrete chunks the 7,000-year era. In each group, similar kinds of tools can be picked out. Each pile has its array of spear points, drill bits, mortars (to process nuts and other plant foods), hide scrapers, chisels, and cutting and slicing knives.

But on close inspection, a couple of things are obvious. First, while the job a tool did may have stayed the same (like tip a hunting spear or clean a hide), the tool's look could change among and even within the piles. The styles of spear points, particularly, don't hold steady. In the middle pile alone, three kinds vary in size and shape. The drill bits, on the other hand, look pretty

much alike in all the stacks.

Compare the piles, and something else pops up. One has items another doesn't. A roughly chipped stone ax and net sinkers are in the middle one while the left, or most ancient, one doesn't have them. Nor does the pile with the oldest artifacts have any of the smoothed and wing-shaped stones with holes drilled in their middles that sit in the other two. Probably, these *bannerstones* were weights placed on *atlatls*, which were arm-length sticks used to launch spears fast and forcefully. As the piles mark time, the most recent one has other distinctive things. There is a bowl carved from a soft, soapy-feeling stone called steatite; pieces of shell carved and made into beads; exquisitely crafted stone axes, finely chipped and ground smooth to a glistening polish.

Why are there three piles, alike yet different? It boils down to a fundamental constant: culture changes over time. Archaic life was dynamic during the 7,000 years people responded to the earth's changing heartbeat. Faced with shifts in climate, geography, animals, plants, and even their own increasing population, the people coped and adapted. Undoubtedly, Archaic people had likes and dislikes that affected their choices. But as conditions changed throughout their epoch, Archaic people tinkered with technology—changing the styles of their spear points, chipping and grinding better tools to process nuts and seeds, creating nets to catch fish, and sculpting containers to cook in. As people tinkered, some innovations caught on, others faded, and some things stayed the same.

Like words, the artifacts in the three piles chronicle the Archaic tale. Each pile is a chapter about change, sometimes subtle and sometimes not.

Early Archaic Collectors

Between 8000 and 6000 BC, the Archaic era gets a handhold in the transition from the waning Ice Age to the Holocene, or new geologic age.

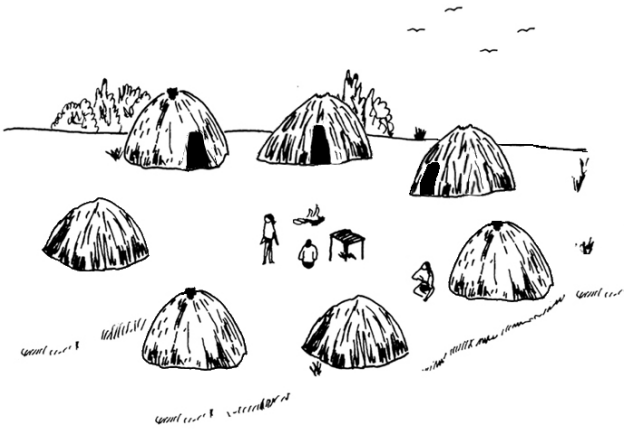
In this early stretch, Archaic people lived much like their Paleoindian ancestors, the pathfinders who arrived in North Carolina at least 2,000 years earlier. Like them, they endured a fickle climate and adjusted to its impacts. They lived in small family groups called bands and ranged through the land to hunt, fish, and gather plant foods. What they owned, they carried on their backs.

The Paleoindians, so few in number, were nomadic hunter-gatherers. When they first crossed the Appalachians into Carolina, Paleoindians flowed like a slow wave through an uninhabited land. As they moved, they learned the land's potential: the locations of seasonal wild fruits and vegetables, the habits of the different animals they encountered, and the dependable nutrition of nuts. Eventually, their movements probably stabilized into an annual pattern, a walk-about cycle through a huge Piedmont swath of what is now Virginia and the Carolinas, with individual movements timed to exploit the availability of foods in particular locales.

Paleoindian settlers were so successful in learning the land and feeding themselves, their Archaic descendants were the first to face the consequences of something that would never go away—population growth. Archaeologists infer population grew because they find many more sites dating to Archaic times than to the Paleoindian. More, they think, than survive merely because preservation is better or because the Archaic lasted longer.

Today, much of what archaeologists know about how early Archaic people lived in North Carolina during the young Holocene comes from sites like Morrow Mountain and Hardaway. Between 8000 and 6000 BC, the Piedmont's Uwharries held the equivalent of a hardware superstore and Motel 6. The only decent store around, Morrow Mountain lured people to come and stay a bit. They pried apart its rhyolite boulders and reduced the chunks to handy-sized

pieces archaeologists call *cores*. Back at the Hardaway camp, they used some cores immediately and chipped out tools. Others they stashed into packs to carry away, acting as spares until they returned.



Base camp.

Archaeologists believe the quarry visits and stays at Hardaway during the early Archaic may have been part of a distinctive food-gathering strategy that, in archaeological shorthand, is called *collecting*. This strategy involves using relatively stable *base camps* as staging areas for gathering resources over a large area. The base camps themselves may be relocated several times over the course of a year. For a variety of reasons, people who use this strategy often employ specialized, well-crafted tools (as opposed to generalized, disposable tools) in carrying out their daily activities.

Certainly, the collector notion meshes with what archaeologists know about early Archaic tool kits. While people then had their share of disposable tools, like knives that are nothing more than sharp stone flakes, they also had exquisitely crafted tools. Some, like the triangular scraper (used for working hides), carried over from Paleoindian times. Delicate, with a wide, blunt working end created by artful flaking, this scraper was one people undoubtedly carried in their tool kits. People also tucked in their portable kits items like adzes and stone drills.

Archaeologists define base camps in a couple of ways, but both refer to a gathering place. One kind may have served as the staging area for food collection. Often located near or along a river or tributary, it was within the band's territorial boundaries. While living there, people presumably divided up into task-oriented groups. They left camp, got what they needed and then returned to distribute it. Sometimes groups might stay away from the base camp several days, leaving a series of temporary camps where they worked or rested. The surface litter people left behind at these places hint at what happened in them; scatters of stone points and hide scrapers suggest they killed and butchered an animal; grinding slabs and stones suggest the place they collected and processed nuts.

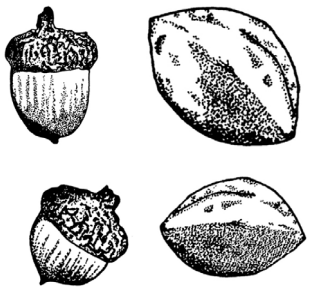
Sites like Hardaway make archaeologists think early Archaic people used a second kind of base camp. Rather than serve just the people in whose territory it lay, this place drew people from adjacent territories as well. It was a sort of neutral zone. Based on research like Daniel's, some archaeologists think rock collection was a vital part of Archaic people's overall ecological adaptation. The reasoning goes that rock, like food, was indispensable; people's technology and economics depended on it. With ample food at every turn, early Archaic bands could, in effect, shrug off the notion of territoriality when it came to shopping for the best rock.

Apparently, although bands during the early Archaic claimed distinct territories, they didn't have rigid boundaries. People could journey to places like Hardaway for things they didn't have at home. However, work probably wasn't the only draw to these *trans-territorial* base camps. Most achaeologists believe bands in adjacent territories periodically came together to satisfy basic needs beyond food, water, raw materials, and shelter. All people, anytime and anywhere, need to socialize. Religion and ritual also are part of the fabric of life. While nothing survives from the Hardaway camp to document these aspects, archaeologists believe bands timed their visits not just to get rock, but to visit, find marriage partners outside the family group and participate in ceremonies.

What other peeks into early Archaic life come from research? Judging from the lack of evidence for relatively permanent, wooden houses, people must have slept in lightly-constructed shelters. Quick to construct and dismantle, such dwellings were made of poles tied with cordage and then covered with animal skins or overlapped pieces of bark for waterproofing.

Besides being hunters, Archaic people got plenty of nutrition from nuts. They developed tools to process them. *Nutting stones* are slabs of flat rock with surface depressions. People set nuts in the depressions and then bashed them using a fist-sized rock called a *hammerstone*. Sometimes archaeologists find nutting stones where Archaic people camped at harvest time. Probably, people left the heavy, bulky tools tucked away in these places for future harvests rather than carrying them around.

From the earliest years of the Archaic, people ate both acorns and hickory nuts. Acorns are rich in starches, and hickory nuts are rich in fats. Together, they form a very balanced source of nutrition.



Acorns and hickory nuts.

The two kinds of nuts differed also in their ease of processing. Acorns, though nutritious, are labor intensive because the bitter tannin they contain has to be removed. To prepare acorns, people shelled them, then pounded or ground the meats into a flour-like meal. After sifting the meal, people poured water through it to leach out the tannin. Then they mixed the prepared meal with water in a cooking basket, boiled the mixture, and stirred it into a mash for eating.

Hickory nuts were decidely easier to use. People could smash them with rocks on nutting stones and put the mass of shells and nut meats into a water-filled cooking basket. Rocks heated in fires were added to the container until the water boiled. Indeed, archaeologists frequently find fire-cracked rocks—which may have fractured when the hot rock contacted cool water—at Archaic sites. As the water heated and the mixture cooked, the hickory shells sank to the bottom while the nutmeat rose to the top. People easily skimmed the meat off and used it in stews, breads, and other foods.

So much else of what archaeologists think Archaic life was like are educated guesses blended with admittedly skimpy or limited evidence from sites. Archaeologists frequently study historic hunter-gatherers to get ideas about what life during the early Archaic may have been like. Some archaeologists are uncomfortable doing this, worrying the sketch they draw is wrong and has no concrete evidence to support it. Certainly, the risks and the blind spots are real. But, used with doses of caution, *ethnographic analogy* is sometimes the only interpretive tool available to archaeologists.

Notions that Archaic life revolved around the extended family unit, or band, for instance, derive from how groups like the modern-day Kung! in Africa live. Archaeologists have different opinions on how big Archaic bands traveling and living together were. Some think a band consisted of 15 to 30 members, while others believe a band could be as large as 75 to 100 individuals.

Based on ethnographic analogy, some archaeologists suggest that survival in Archaic times depended on a division of labor by gender. They think Archaic men, like their Paleoindian forebears, were the primary hunters. Deer was the main target, although animals like bear, rabbit, turtle, and turkey also were taken. Women were the botanists, knowing what grew where and when to harvest plants for food, herbal drinks, or remedies. Equally important providers, they knew, too, what plants to extract soap-like substances from; what plant materials, like the long, thin surface roots of trees, they could use to process and weave into rope and string; what grasses and reeds made the best mats and carrying and cooking baskets.

Whether or not these ideas eventually prove correct, there's little dispute that early Archaic people were successful dwellers of the young Holocene forests. All the evidence to date points to this interpretation about them: They were nomadic, moving through forested territories in family bands. Much of their food came from the white-tailed deer, hickory nuts, and acorns. Seasonally roaming their territory, band members chose places near food and water to camp at regular times of the year. They used some of these base camps as staging areas from which to collect and hunt local foods. Others were situated near key economic resources, like rock, and were used by more than one group. In these trans-territorial camps, early Archaic people not only worked, but probably socialized and held ceremonies as well.

Middle Archaic Foragers

By 6000 BC, a kink was put in the early Archaic lifeway by something geologists call the Altithermal. The Altithermal was yet another climatic fluctuation. Characterized by warm, dry air that wove drought into periods of wet weather, it lasted 3,000 years. The erratic weather changed the forest composition in the Coastal Plain and Mountain regions. Long-needled pines and soft woods, like gums, moved in and pushed out the Coastal Plain's stands of nut-bearing trees. A similar shift happened in the Mountains, with conifers choking out hardwoods. The Piedmont kept its hardwoods, but yields were not dependable anymore.

To make matters more unsettled, the physical geography was still ironing itself out. Sea levels by 6000 BC were only about 30 feet lower than today, and the Altithermal oversaw the final sculpting of the modern coast.

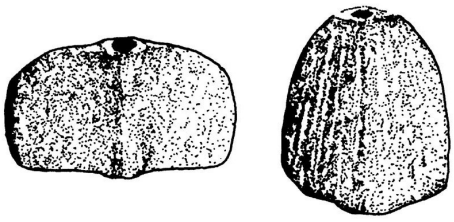
Archaic people certainly felt these effects. Food sources became impoverished in some places as landscapes readjusted. Yet middle Archaic people made remarkably skilled adaptations. So much so, their population grew. The evidence for their success comes in several guises. Archaeologists find more sites dating to the middle Archaic than for the early Archaic—too many more (to echo an earlier phrase) to be merely the result of better preservation. Site density, then, is one measure archaeologists use to infer how well people adapted. Other indicators include the new tool technologies middle Archaic people developed and how they organized themselves to get resources.

Middle Archaic people abandoned the collecting life; they were forced to. The days of scheduled wanders through large territories packed with deer and abundant nut trees were gone. Because of ecological change during the Altithermal, some bands found themselves with territories having too little of these foods to survive. Quite probably, the situation worsened because population growth meant each band's territory grew smaller as more people divided up the space.

UNC–Chapel Hill archaeologists Trawick Ward and Stephen Davis think middle Archaic people coped by becoming *foragers*. The band was still the basic social unit. But families abandoned the practice of using base camps to stage collections of seasonal foods and dispersed across their territories. As foragers, they moved more frequently, living in short-term camps and combing their territory for what they could find. They tapped food sources they previously ignored, like fish and shellfish.

With analytic eyes on how tools are made and used, Ward and Davis note telling similarities between those used by middle Archaic and historic foragers. Regardless of era, foragers use more throw-away implements, or *expedient tools*. Slivers of sharp stone flakes act as knives; scrapers are nothing more than large flakes hastily, but efficiently, chipped along the business end. Middle Archaic sites are loaded with these discards, while crafted tools, like the triangular scraper, are

absent. Archaeologists think this means people no longer made and carried such items around. More mobile, more immediately attuned to what they needed at the moment, people during the middle Archaic made work-a-day items when they were called for and then tossed them aside.



Bannerstones.

Of course, not all middle Archaic tools fell in the expedient category. Besides experimenting with spear point styles, people developed a *polished stone* industry, where the chipping scars were smoothed out by grinding and polishing. This smoothing technique was used for making bannerstones, which were used as atlatl weights.

The Altithermal's effects moderated around 3000 BC. As it slid away, the weather assumed its modern-day character. Throughout the middle Archaic, the forest dwellers also became, to a degree, riverine dwellers. Fishing supplemented forest foods like deer and nuts. How much people turned to fishing depended on what the land offered under the Altithermal's impact. Certainly, people foraged every livable niche and used the rivers effectively. Fruits, turtles, small game, and seed plants growing along riversides undoubtedly fell into their foraging bags. In spite of the Altithermal, people adjusted well enough that population kept growing, contributing to that host of very modern problems. Namely, more people in the same space meant less room; territories shrunk and became more bounded.

Late Archaic Horticulturalists

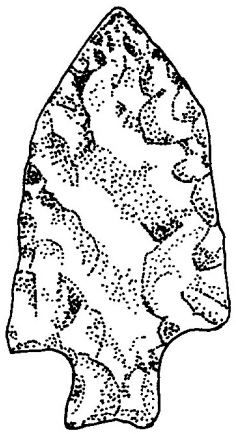
After 3000 BC, people once again used base camps. With the ecology settling down, they could predict once more where reliable food sources were. As people did in the early Archaic, bands gathered regularly near prime sources of water, food, and the rocks they used for tool making. Evidence from sites archaeologists find suggest late Archaic people preferred camping on the Piedmont's river floodplains and along the low ridges and hollows of its western boundary. Bands also liked rivers on the Coastal Plain. In the lower reaches of the Mountains, late Archaic people tended to camp on or near river floodplains. The higher elevations were no draw for base camps, but temporary hunting or gathering camps scatter about.

By putting base camps along rivers or trunk streams, people in the late Archaic not only had transportation routes, but access to fish, freshwater shellfish, mussels, and wild seed plants growing in the silty soils set down by periodic floods. Some people may have lived in their base camps all year. Presumably, though, most left periodically for seasonal hunts and food-collecting forays. While this come-and-go routine is no different from early Archaic practices, the time and distance people stayed away apparently diminished. Population growth had reduced each band's territory size and tightened its boundaries.

Several things late Archaic people made hint at longer, more settled stints at base camps. People started carving wide-mouthed bowls from a soft, soapy-feeling rock called steatite. Making the bowls not only required time and space to do the job, but a settled enough existence in which to use the heavy stone bowls. Certainly, people seemed to value them; they'd repair cracks rather than discard the bowls. By 2000 BC, a few people in the southern part of the Coastal Plain were making thick clay vessels archaeologists call *Stallings ware*. This is the earliest clay pottery archaeologists find in North Carolina.

Archaeologists think it's quite likely late Archaic people divided up into different social, political, and linguistic groups. Yet they all made a series of similar things. The atlatl was still

the hunting tool of choice. Points for the spears attached to the launcher were large, stemmed blades archaeologists call Savannah River. Some people made exquisitely crafted atlatl weights from steatite or other kinds of polished stone. They also crafted ground and polished stone into pendants or made implements like axes. Some axes were so well made many archaeologists think they were used for ritual or other special purposes; other archaeologists shrug at that interpretation and suggest the axes were merely new. Less disputable items include awls, fish hooks, and jewelry made from bone.



Savannah River point.

Another common denominator for late Archaic people is their use of imported materials. Unquestionably long-distance trade thrived, particularly for materials such as shell from the Gulf Coast and copper from the Great Lakes; items made from these materials are found at archaeological sites throughout the Southeast and Midwest, hundreds of miles from their original sources. One bargaining chip local people may have used to get such things was steatite, which could be mined in the Piedmont and was also widely traded.

Archaeological evidence suggests that Archaic people started cultivating wild seed plants that grew near river floodplains. This marked the beginning of *horticulture*, or small-scale gardening.

How did this practice begin? The process may have been partly inadvertent. Human beings disturb the natural areas they live in. Felling trees, building houses, digging cooking and garbage pits, digging graves, playing games, walking about—all are things people do that churn up the ground and disturb their immediate environment. As it happened, the seed-laden annuals that Archaic people collected for food thrived in disturbed habitats. While the plants' natural place was along floodplains where soils were often scoured and churned by flooding, they found an accidental niche in the base camps' disturbed soils. After harvested seeds were carried home, any that happened to fall to the ground found easy growing. The only thing Archaic people had to do to keep plants around was to let them grow in casual stands by their homes.

Somewhere along the line, people must have categorized some plants as useful and others as weeds (although not necessarily drawing the distinction in exactly the same way we do today). They encouraged the spread of economically useful plants by cultivating them in gardens. As Archaic people collected seeds from these gardens, they chose only the best plants and best seeds. Most seeds they ate, but some they kept to broadcast the next growing season.

Archaeologist Brian Fagan says the intentional act of seed dispersal marks the first step toward farming. This, along with other Archaic habits, like longer stints in base camps and making more non-portable and artistic possessions, poised people for transition to an era of pottery-making horticulturalists archaeologists call *Woodland*.

Links

Lesson 2.5: "Archaeobotany."
Lesson 4.1: "Shadows of North Carolina's Past."
Lesson 4.3: "Name That Point!"

Sources

Daniel, I. Randolph. 1998. *Hardaway Revisited: Early Archaic Settlement in the Southeast.* Tuscaloosa: University of Alabama Press.

Fagan, Brian M. 1991. *Ancient North America: The Archaeology of a Continent.* London: Thames and Hudson.

Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this chapter's main heading is taken from Figure 3.10.]

Quick Study

Archaic Period (8000 BC to 1000 BC)

The second oldest known cultural period in North America is the Archaic. The term, loosely defined, means Ancient Ones. Archaic Indians are direct descendants of Paleoindians. Like Paleoindians, they lived in all parts of North America. They, too, were nomadic hunters and gatherers who generally had no pottery and no permanent villages.

Archaic Indians lived so much like Paleoindians that archaeologists find it difficult to make distinctions between them. But there is a fundamental difference that archaeologists use to draw what they admit is an arbitrary cultural line. It is this: Paleoindians arrived in and lived throughout the Americas during the late Pleistocene (Ice Age) while Archaic Indians lived during the subsequent (and modern) Holocene epoch. In chronological terms, this puts the Archaic period's start at about 8000 BC, and in North Carolina it lasts until 1000 BC.

Like the Paleoindians, eastern Archaic Indians had a broad-based hunting and gathering subsistence. No single resource sustained them. They supplemented abundant deer and nuts, such as acorn and hickory, with bear, rabbit, turtle, and turkey. Assorted berries and nutritious seeds from riverine plants like goosefoot and sunflower contributed to their diets. Fish and shellfish were also important to some groups.

Animals furnished much more besides meat. Archaic people crafted skins into clothing or covers for shelters; they shaped bones into tools, such as hooks to catch fish or awls and needles to sew hides. Sinew became sturdy string; stomachs became pouches. Over time and as work demanded, people developed new tools: ground-stone axes, grinding slabs for nuts, and a variety of spear-point styles.

Even though the Holocene went through growing pains of unsettled climates and ecologies before settling into today's environment, Archaic people thrived. Skilled adapters, their population grew. One effect of growing numbers was their territories became smaller than the Paleoindians' and had loose, but identifiable, borders. Yet each territory was still large enough to boast a diverse ecosystem that provided an array of seasonal foods. To collect them efficiently, an Archaic family group (band) of 25 to 100 people systematically traveled through its territory. Archaeologists today find countless traces of their short-term hunting and gathering camps. Periodically, Archaic bands from different areas congregated for a while in centrally-located base camps near food, water, and stone used for tools.

Key Characterisitics

- The climate is warming and becoming like today's.
- Territories are smaller than in Paleoindian times; in North Carolina, archaeologists think family groups (called bands) of 25 to 100 people lived in discrete territories. Population is slowly increasing.
- Bands are nomadic. Seasonally on the move, they briefly camp in spots to hunt and gather. But they congregate periodically in base camps near food, water and resources like rock for tools. Most are on or near river floodplains.

- Little is known of Archaic dwellings, but they may be more substantial than in Paleoindian times. They were almost certainly built of wooden poles covered with bark, hides, mats, or thatch.

- Deer, small game, and aquatic animals like turtles and shellfish are important sources of meat. The atlatl, or spear thrower, is used to hunt. This tool launches spears forcefully and far.

- Many wild plants are collected for food, as well as for medicines and drinks. Nuts (hickory, acorns, chestnuts) are very important. So are seed-bearing plants growing wild in floodplain soils near base camps; these include goosefoot, marsh elder, and sunflower.

- Plant domestication takes its first step during the late Archaic. People help nature along by selecting and saving seeds from wild seed plants to throw in faded, natural stands to boost next year's production.

- Stone tools are not just chipped, but some are ground smooth and polished. Among the polished stone tools are grooved axes and balancing weights for atlatls called bannerstones. Bone is carved for some tools, like fish hooks and awls; bone and shell are also made into jewelry, such as decorative pins and necklaces.

- Long-distance trade exists; for example, people living far from the coast obtain marine shell they use to carve into jewelry.

- People weave baskets. Late in the Archaic, people begin creating other containers. They carve steatite bowls; steatite is a soft, soapy-feeling rock also called soapstone. A few people around the Cape Fear and Neuse Rivers also make a thick, clay vessel.

Lesson 3.3

THE POTTERY MAKERS

The Woodland Period, 1000 BC to AD 1000

Pottery vessel from Haywood County, North Carolina, ca. AD 300.

Archaeologist Joffre Coe said North Carolina Indian history is like a motion picture whose reel burned. Flames broke story frames apart, sending snippets into the air that later settled on the ground. Most were black cinders and indecipherable. Some still had clear images. Of these, a few could be ordered correctly. But how others sequenced on the original film was questionable, particularly if somebody had trampled or dislodged them. What's more, even if the archaeologists' skill (and sometimes luck) put the remnants of plot and dialog in proper order, the story line could be wrong or skewed because motives were lost.

This may be why archaeologists do a bit of shrugging when asked about the Woodland—that time and lifeway tucked between 1000 BC and AD 1000. Some things they readily understand, but others leave them wondering. They know, for instance, that Indian people then commonly made clay pottery and settled much of the year in small villages near rivers, tributaries, and inlets. But they are still puzzling out how big those small villages were; how many people lived in them; how long they stayed; how houses were shaped and built; how village life differed from Mountains to Piedmont to Coastal Plain.

Archaeologists think it's a good bet that most Woodland villagers had gardens. Even though botanical evidence is skimpy in North Carolina, it's indisputable. But though they gardened, Woodland people didn't depend on cultivated foods. White-tailed deer, nuts, and fruits fed them to a large degree.

Other evidence shows Woodland people buried their dead with ceremony, using customs that varied according to time and place. They made craft items, such as stone pipes, with stunning artistry. They dropped the use of spears for hunting and adopted the bow and arrow. They engaged in trade—both of things *and* ideas, both far-flung and local. Some even saw glimmers of more complex instead of strictly egalitarian societies, as individuals or families gained control over trade, specialized in ritual or became artisans.

Such images are fairly clear; they recreate, in varying degrees, general scenes of Woodland life. What gets archaeologically tricky—and intriguing—is the scenes don't play out neatly and identically from place to place. Indeed, the first hints Native people in North Carolina had cultural differences show up during the Woodland. Right now, the big archaeological questions are to what extent, why, and how?

Clues in Clay

Archaeologists piece together answers step by step. They have ideas (hypotheses) about what life in different regions was like, and they find facts (such as, artifacts) to support or refute their

notions. For North Carolina's Woodland period, no fact is more observable than clay pottery. Regardless of what other evidence—plant, animal, or architectural—is decayed and gone from sites, archaeologists can count on finding abundant fragments (called *sherds*) of this virtually indestructible material.

It's amazing what the broken fragments can say after so many years. They tell of people's roots to a place by how resilient manufacturing styles or surface designs are; they point to contacts with other people or ideas by abrupt or marked differences; they chart the geographic range of their makers by the boundaries where one style ends and another picks up. Such information is particularly vital because many other things geographically scattered and culturally different people used, like bone tools, looked much the same.

Pottery is so important to archaeologists they can be *very* single-minded about it. Research reports are packed with details about vessel thickness, clay additives, surface design, and interior finish. Numerous Woodland pottery types have been identified based on differences in these characteristics. Each type is, in archaeologists' vernacular, *diagnostic* of a culture and time.

Fortunately, pottery types tend to be pretty much the same in undisturbed soil levels at sites. Once archaeologists sort out the traits each kind has, they tag it with a name. They also determine its age by means of radiocarbon dating or other kinds of testing.

So far, archaeologists have used pottery to build chronological sequences of Woodland cultures in North Carolina. Site by site, they have constructed chronologies for the Mountains, Piedmont, and Coastal Plain by continually asking questions about pottery. How were the vessels made? When were they made? What style did they represent? In what ways did styles change over time? How were the styles similar or different from what people in neighboring hamlets, regions, or states turned out? Never scientifically content, archaeologists let answers to these questions spark others: Where did lines of influence come from? Who interacted with whom? When? Who lived in relative isolation? And why?

Pottery, thus, is a sensitive marker. In essential ways, it is one of the main texts that archaeologists read to interpret Woodland-period cultures. It is also the yardstick used to arrange those cultures in time.

The Piedmont

Humans settled the Piedmont's edges early in Woodland times, but left the region's center relatively empty. Archaeologists don't know why. Nor do they know why people started using the interior later in the Woodland and the degree they used it. But where archaeologists find traces of Woodland hamlets near the Piedmont's rivers and major tributaries, they discover a strikingly similar theme for life between 1000 BC and AD 1000: continuity.

The Doerschuk Site

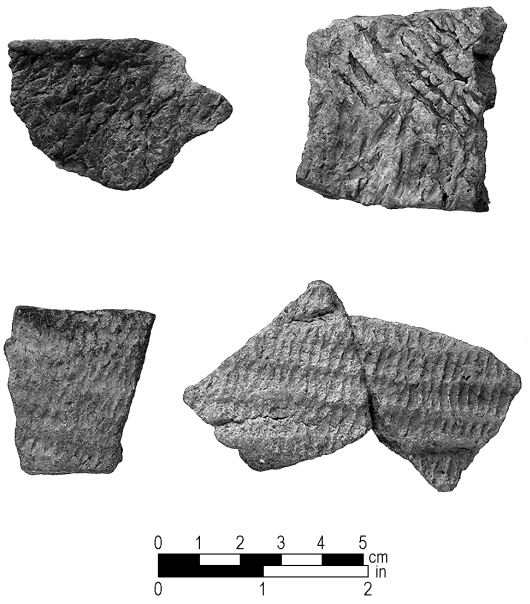
The Doerschuk site sits near Badin, North Carolina and the lake of the same name created by the Narrows Dam on the Yadkin River. Excavating there, archaeologists recovered clay pottery that is the earliest found so far in North Carolina's heartland. Apparently made in the first millennium BC, the pottery was in a soil level above one having no hints of occupation, neatly separated from a deeper zone when earlier Archaic people lived there. Because Badin is a locally prominent name, archaeologists chose it for the pottery.

What struck archaeologists about Badin pottery is how well made it is. In fact, Badin vessels are so well made archaeologists think people must have been making an ancestral pot they haven't found yet. The vessels are simple, straight-sided jars with sturdy thin walls and cone-

shaped bases. Their sooted surfaces suggest that the vessels were propped directly on the fire and used for cooking.

Some archaeologists think because stylistically similar pottery turns up in eastern Tennessee, northern Georgia, and South Carolina, the people making it migrated to the Piedmont from one or the other of those places. Other archaeologists discount the migration idea. They think ideas, not people, did the traveling.

Nobody debates, though, that the Woodland people at Doerschuk who made Badin ware used manufacturing techniques similar to those in neighboring regions. They strengthened vessels for firing by adding sand and sometimes pebbles to the wet clay. Also, like people throughout the ancient Southeast, they used the method called *coiling* to make their pots.



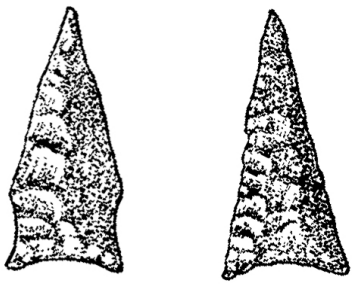
Badin pottery fragments.

Basically, coiling involves making long ropes or "coils" of clay. Starting at the base, potters build the vessel's walls by placing coils on top of each other. They then blend the coils together and thin the walls by hitting the sides with a wooden paddle. After the walls are built and paddled, the pot is then fired to harden the clay.

Often people wrapped the paddle with string, or covered it with fabric, or carved it with a design. Every time the paddle hit the pot (while the clay was still wet, of course), it left a reverse impression of the string or design on the pot's surface. Archaeologists call this technique *paddle stamping*. Fortunately for archaeologists, the kinds of paddles used by potters varied from time to time and from place to place. Thus, the designs left by these paddles are distinctive of particular cultures, and such distinctions enable archaeologists to create chronologies based on pottery style. At Doerschuk, folks making Badin pottery covered wooden paddles with cord or fabric. Somewhat later in time, they began making another kind of pottery called Yadkin, which was sometimes decorated with a carved paddle that left a waffle-like, checked pattern on the vessel's surface. The temper, or strengthening agent, used in the two kinds of pottery was also different. In Badin ware the tempering material was sand, while in Yadkin ware it was crushed quartz.

Pottery isn't the only novelty of early Woodland life revealed at Doerschuk. Associated with the pottery, the chipped stone points archaeologists recovered were markedly different from the long, square-stemmed spear points earlier Archaic inhabitants had used. Triangular in shape and about an inch wide from shoulder to shoulder, the points from the Woodland level are of a style well suited for tipping arrows. They are staunch clues that hunting technology had shifted from spear to bow and arrow.

The view provided by the Doerschuk site into early Woodland life is intriguing but sketchy. No house patterns or food remains survived, and therefore no direct evidence exists of how many people lived at Doerschuk or what they ate.



Arrow points.

The Thelma Site

A Woodland site called Thelma helps fill in some blanks. Thelma is located in Halifax County along the Roanoke River. Based on the food remains excavated there, we know that people ate deer, muskrat, raccoon, rabbit, squirrel, opossum, woodchuck, fox, turkey, and turtle. We also know that they ate quantities of hickory nuts. Although archaeologists didn't find any seeds from domesticated plants, their hunch (based on evidence from contemporary sites elsewhere) is people at Thelma probably grew small grains (such as goosefoot and marsh elder) in gardens. They ate freshwater mussels and deposited the shells in refuse heaps. The presence of fired daub—mud used as plaster—suggests that people lived in wooden-pole houses, but the shape and number of these houses is unknown.

Burial practices survived better and document that Thelma's people placed their dead in individual graves. Besides the custom of placing their dead in single graves, Thelma's people used, at least once, an ossuary, or communal grave, which contained four people. Archaeologists don't think these people died all at once. Rather, they believe the people died at different times and may have been family members. Ethnohistoric accounts describe people who use ossuaries prepare and protect the bodies in charnel houses until group burial can take place. Perhaps this was the case at Thelma.

The Mountains

Archaeologists know more about Woodland life in parts of the Mountains than they do for the Piedmont or Coastal Plain. Funds for a long-term Cherokee Project undertaken by the University of North Carolina at Chapel Hill financed a keen historical probe into the Cherokee homeland in the late 1960s. So much data was recovered during the project, archaeologists are still analyzing it.

Boiled down, excavated data have allowed archaeologists to chart three cultures through time that may be related to modern-day Cherokee. Pottery, again, is the key to distinguishing them. Archaeologists use it to trace stylistic changes that mark cultural breaks in the local chronological sequence and to discern the who and what of other regional influences that bucked against the strength of tradition. Other images of Woodland life tag alongside.

Swannanoa

In Buncombe County between 1000 and 300 BC, people lived in a village beside the Swannanoa River. The village was set in one of those "old" places; Archaic people had picked the spot centuries before. It was well situated and well watered, with rich, friable earth hosting a variety of edible seed plants. Geographically, the village was in a transition zone that quickly stepped up from the valley to Appalachian ridges where nut trees and game were plentiful. Today, the campus of Warren Wilson College in Swannanoa, North Carolina surrounds this ancient village spot. Excavations still go on there, and archaeologists call the site (not surprisingly) Warren Wilson.

When archaeologists discovered Warren Wilson, they knew they had a bonanza. It is stratified, and its distinct levels contain evidence that document peoples lives at that site over thousands of years. Within the soil layer dated to the early Woodland, archaeologists found pottery that looked a lot like what they were finding in contemporarily dated Piedmont sites. Specifically, early Woodland potters at Warren Wilson, like those in the Piedmont, made vessels they tended to decorate by stamping them with paddles covered with cord or fabric. Over time, Warren Wilson's potters used other decorations. By the late Woodland, for instance, some smoothed the

outside walls of vessels; others carved checks or parallel lines on paddles they used to stamp on the surface of wet clay.

In the sometimes confusing way that archaeologists name things, they call Warren Wilson's early Woodland pottery Swannanoa ware. Swannanoa is also the name archaeologists use to designate Warren Wilson's early Woodland culture and the people who made the ware.

Swannanoa pottery was not just similar to the contemporary Piedmont versions, it had the same stylistic cousins in northern Georgia and eastern Tennessee. Archaeologists think its broad reach means pottery making did not begin in isolated spots. Rather, it was part of a technological revolution of regional scope that was taking place during this time.

Partially reconstructed Swannanoa pot.

Archaeologists don't know if people lived at Warren Wilson year-round. Yet they stayed in sufficient numbers for enough time to leave debris that created well-defined deposits archaeologists can investigate. Like those in the Piedmont, Swannanoa house shapes are a mystery. While some soil stains are visible from decayed house-posts, none of the postholes form patterns. Archaeologists do find hearths at Warren Wilson, which they identify by clusters of rocks cracked and broken from the fire's heat. Compared to the small, round hearths Warren Wilson's prior Archaic residents had, those of the Woodland residents are big. Some are more than 5 feet across and have several layers of tightly packed rocks that scatter around the hearth's center.

Warren Wilson's size suggests that Swannanoa people had bigger and more stable communities than their Archaic predecessors; if so, they must have had an economy capable of supporting such communities. From carbonized plant remains, archaeologists know the Swannanoa ate hickory, walnut, and acorns. So far, they haven't found evidence for cultivated plants. But most think the Swannanoa folk had an economy based on intensive seed-collecting and gardening. Evidence from over the hills in eastern Tennessee confirms that contemporary early Woodland people living there in the same kinds of places cultivated small gardens.

White-tailed deer.

The white-tailed deer was the primary source of meat. Besides hunting near their main village, the Swannanoa people had small seasonal hunting camps along ridge tops and within upland valleys. They probably used the seasonal camps, too, as bases from which they harvested wild plant foods like nuts. In some of those camp sites, they left the mortars they used to grind foods.

Hunting tools included various cutting and scraping implements, along with two kinds of chipped points whose styles are like those archaeologists find on the Piedmont. One is a point with a stem on its base, presumably hafted on spears. At Warren Wilson, it's found together with a large, triangular point archaeologists think people used to tip arrows. Presumably, the mixing of these two point types in the same soil level means that sometime between 1000 and 300 BC, the Swannanoa adopted the bow, and the atlatl (like on the Piedmont) was on the way out as the hunting tool of

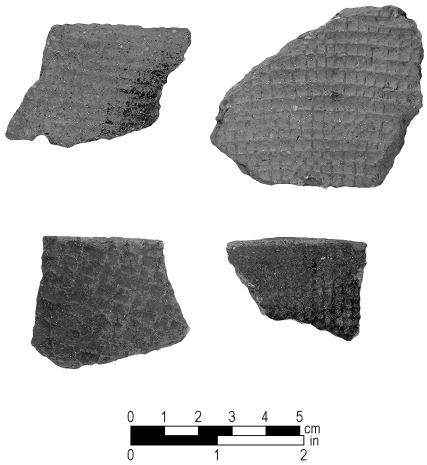
choice. In levels dating to the later Woodland, all points archaeologists recover are triangular, hinting the switch in hunting technology was complete.

Besides Warren Wilson, archaeologists find other Swannanoa villages scattered about. A couple sit along the Tuckasegee River and the Garden Creek floodplains. In these places, early Woodland life carried on to the same beat as Warren Wilson's.

Pigeon

Change took place about 300 BC that began a different, 500-year-long cultural phase that archaeologists call *Pigeon*. This cultural phase is still murky. Archaeologists haven't found a pure Pigeon level on a site yet. So far, they only find distinctive pottery they call Pigeon, along with other artifacts associated with it all mixed together with stuff from later times in layers at sites like Warren Wilson, Garden Creek, and Tuckasegee. Rough dates put the Pigeon culture between 300 BC and AD 200.

Pigeon pottery is easy to spot. It shows a dramatic break with the cord-marked and fabric-impressed vessels made by the Swannanoa and other earlier Woodland people who lived in the Mountains and Piedmont. For example, where the Swannanoa potters used sand as temper, Pigeon potters used crushed quartz to strengthen the clay so the pot wouldn't crack during firing. Pigeon potters also decorated vessel surfaces by stamping them with paddles carved in checked designs. Another distinctive characteristic of Pigeon pottery is the iridescent sheen on the pots' insides. Some vessels even had clay supports, or "feet," on their base. These pots are striking amid the Pigeon's usual bowls or jars with tapered bases and constricted necks.



Pigeon pottery fragments.

Pigeon potters adopted a widespread style also found in Georgia, South Carolina, and eastern Tennessee. At this time, Woodland people throughout these areas became part of a regional community of shared ideas, trade, and economies.

Even so, the Pigeon people had their cultural feet locally planted. While they apparently adopted new styles of decorating clay vessels, many of their other tools and ornaments were like those of their Mountain predecessors. Pigeon people used the same kinds of chipped stone scrapers for processing hides; they used small triangular arrow points to hunt. They also made implements of polished stone. Pecking away and grinding smooth flake scars left by chipping, they turned out handsome axes and other tools for woodworking. They also made polished-stone ornaments, called gorgets, they wore about their necks. All this is strong evidence for local cultural continuity.

Like their predecessors, the Pigeon folk took full advantage of the Mountains' various ecological zones. Their traces show up on floodplains, upland valleys, coves, and ridge tops. They, too, probably used most of the sites located away from floodplains as hunting camps or as bases for collecting plant foods. Some archaeologists think that during Pigeon's 500-year span, people gradually settled more in the floodplains. Nothing definite proves this, but the archaeological hunch is the Pigeon, like people elsewhere in the South between 300 BC and AD 200, were becoming increasingly reliant on horticulture.

Connestee

Another cultural transition took place in the Swannanoa-Pigeon region about AD 200. The Connestee phase emerged, marked archaeologically, of course, by its distinctive pottery.

Archaeologists think a clear relationship exists between Pigeon and Connestee ceramics. After AD 200, vessels had thin walls, and sand (instead of the crushed quartz) was once more used as temper. While a few were cord marked, most Connestee surfaces were plain, brushed, or decorated with a series of parallel lines impressed with a carved paddle. The usual vessel shapes were simple bowls and cooking jars.

The Garden Creek site in Haywood County has provided much of our evidence for the Connestee phase as archaeologists now know it. During their occupation at Garden Creek, the Connestee people built an earthen mound, which was constructed in two distinct stages. Presumably, people used this structure as a platform for ceremonies. When archeologists first started digging Garden Creek Mound, they peeled away the topmost layer of fill and found an earlier mound below it. This one measured about 40 by 60 feet wide and was about 2 feet high. Continuing the excavation, archaeologists found it sat on top of the decayed posts of a 20-foot-square building, which was the first structure built there. Traces of charcoal and burned daub suggest that fire had destroyed this building.

Connestee pottery fragments.

Besides evidence for buildings, archaeologists found rock-filled hearths dug into the mound's floors. The hearths had ash, charcoal from burned wood, burned animal bones, broken pottery, and other trash still in them. Exactly how people used these hearths will probably stay a mystery. But archaeologists suspect that community feasts may have regularly taken place on or near the mound, indicating that it was a public gathering place.

As intrigued as they are by Garden Creek, archaeologists have learned that most Connestee sites do not have mounds. This pattern of occasional mound sites is typical of other Woodland people living across the Southeast. In some places, they used them to elevate public buildings. In other places, people buried community members in them. But, for the most part, Woodland communities lacked mounds.

Overall, everyday Connestee life was a replay of what was going on in the Piedmont during the Woodland. Connestee villages had become larger and more settled. Some covered several acres. Usually, the Connestee people put their main villages in the floodplains of major streams and tucked their small, seasonal camps in surrounding ecological zones. Hunting, gathering, and fishing filled their bellies to a large degree. However, archaeological evidence also indicates that horticulure was becoming increasingly important. Archaeologists have recovered seed remains that show the Connestee folk were cultivating gardens of native plants like goosefoot, maygrass, and knotweed, all of which produced edible seeds.

Based on patterns left by decayed posts at a village site called Ela on the Tuckasegee River in Swain County, we know that Connestee houses were circular. Most Connestee homes at Ela had no inside hearths. Apparently, people cooked in large, rock-lined fire pits scattered through the village. Ela's public buildings were also circular, but bigger than the houses.

Evidence at Connestee sites shows both the continuity of old ways and the adoption of new

ones derived from interaction with neighboring cultures. In particular, the Connestee people participated in a large-scale trade network called the Hopewell Interaction Sphere. This network cut a wide swath across the Southeast and the Midwest, affecting people of various cultures and languages. Archaeologists think Hopewell influences filtered into Connestee life for a couple of reasons. First, the path was easy, as the area was interlaced with many ancient trade routes. Second, and perhaps more important for the development of contacts, the Connestee people had something other traders wanted: mica. Archaeologists think mica helped boost the Connestee villagers' position as partners in the trade network that stretched from the upper Midwest to the Gulf Coast.

A typical Woodland-period house, built of wooden poles and bark.

Mica—a shining mineral in thin, layer-cake form—was deposited in pockets in the southern Appalachians. The Connestee people had access to it and others valued it. Artisans in places as far away as Ohio and Illinois shaped its sheets into forms ranging from birds to human hands and heads. Microwear analysis on a stone blade found at Garden Creek shows the tool was used to cut this soft mineral.

In the exchange, the Connestee people picked up their share of exotic goods and ideas from other participants in the Hopewell trade network. Among these were prismatic blades chipped from imported stone like chalcedony and chert; copper beads, pins, and sheets; clay figures in human and animal shapes; and Hopewell-style pottery.

Archaeologists think the Connestee peoples' trade position and power sparked the first inklings of social ranking in Mountain communities. Until then, Native life was presumably egalitarian—everybody on the same sociopolitical footing. But Connestee individuals or families who controlled mica trade and who acted as brokers for other valued items (like marine shell) may have slowly gained prestige and position that may even have been handed down in hereditary fashion.

The Coastal Plain

Archaeologists spend lifetimes studying the array and sequencing of pottery styles for the regions in which they specialize. Those studying the Coastal Plain's history are no exception. They've identified pottery types and ordered them on timelines; they've studied how decorative and manufacturing styles fan geographically and where their points of origin might be.

These studies have led to a theory: early Woodland people living on the Coastal Plain sat at a cultural frontier where traditions from the north and the south met. The effect of these influences divided North Carolina's Coastal Plain in half during the Woodland, about at the Neuse River line.

North of the Neuse, people decorated pottery with cord impressions and tempered clay with sand, both of these traits having been derived from a Middle Atlantic tradition that filtered down through southeastern Virginia. The earliest pottery of this kind in North Carolina dates to about 1000 BC. It turns up at a site called Parker, which sits along the Deep Creek tributary of the Tar River. Later, people in the state's northern Coastal Plain picked up other decorative ideas. Pottery surfaces decorated with fabric impressions and net impressions gained popularity by 800 BC.

About that time, a decoration stamped with a carved (not cord-wrapped) paddle also got a foothold. Called simple stamping, this technique rendered bold, parallel lines across vessel surfaces. Plain ware with incised decorations found a niche then, too. Throughout the north Coastal Plain, temper across the styles ranged from sand to grit to shell.

Meanwhile, North Carolina's southern Coastal-Plain groups picked up notions of their own. Beginning in the late Archaic as early as 2000 BC, people adopted a practice introduced from the South Carolina and Georgia coasts of making a smooth, thick clay vessel, which archaeologists call Stallings ware. The temper they used was natural plant fiber, like moss or grass. Resembling wide-mouthed flower pots, the vessels were made by people who lived mostly south of the Neuse River.

Similar to what happened in the northern Coastal region, other pottery styles eventually filtered into southern Coastal life. By 1300 BC, people decorated some vessels with dots or lines, which were inscribed with a stick before the pot was fired. Later, after 500 BC, simple stamping with bold lines and checked designs became popular. Among the southern Coastal styles, temper switched from the fiber in Stallings pottery to sand, grit, and sometimes shell.

Horizontally divided north–south in terms of pottery preferences, the Coast is also split vertically into two geological mini-regions. The Tidewater is the eastern half, indented with estuaries and sounds; and the Interior Coastal Plain is the western portion between the Tidewater and the Piedmont.

Early in the Woodland period, it seems people lived mostly on the Interior Coastal Plain along the same small streams that their Archaic predecessors preferred. Their encampments were small, stable bases like those most contemporary Piedmont and Mountain groups had. Similarly, their main source of meat was the white-tailed deer along with other smaller animals, birds, and turtles. Yet, unlike their inland neighbors, Coastal people developed a greater reliance on shellfish, fish, and other estuarine foods.

Groups began a slow drift toward the Tidewater during the early Woodland. By 500 BC, some were making seasonal camps along the rivers, estuaries, and sounds flanking the ocean. In places like Colington and Roanoke Islands, archaeologists think several extended families spent springs and summers gathering shellfish. They left large piles of shells with other refuse, such as animal bone, bits of broken clay pots, and sometimes even human bone, mixed in. In the fall and winter, they left the blustery coastal camps and retreated to the Tidewater's more protected side to occupy villages accessible to riversides, game, and good soils.

Archaeologists think most early Woodland groups on the Coastal Plain switched camps at least twice a year. People on the Tidewater seemed to divide the year equally between camps, while those based farther inland stayed put much of the year in their riverside camps to take advantage of immediate stocks of freshwater mollusks and fish. But they, too, left evidence of hunting and butchering tools scattered at sites throughout the Coastal Plain, which suggests they left their main village for regular hunting forays. Regardless of the variability in length of stay, archaeologists think people living in both the Tidewater and Interior Coastal Plain 2,000 years ago were occupying key places long enough to have, in effect, semi-permanent villages.

All this links indirectly to pottery making and how it may have edged its way into life. Many archaeologists tend to think pottery-making goes hand in hand with settled village life. Fragile and relatively heavy clay pots tend to be impractical for people who move their settlements frequently. If contemporary hunting and gathering people are any guide, highly nomadic bands don't carry around such heavy, breakable items. So pottery making suggests they stayed settled long enough in places to warrant the work. At minimum, they counted on regular returns to main settlements so they could leave such items there, awaiting them.

As archaeologist Bruce Smith puts it, pottery making may have been part of a container revolution that included, too, the widespread use of gourds growing in people's gardens. Clay pots and gourds held water and foods, both wild ones like nuts and cultivated ones like seeds. Pots allowed greater ease and efficiency in cooking and processing foods. They replaced the water-filled skin or bark sacks earlier people put fire-heated rocks in to boil liquid for cooking. In short, Smith thinks a greater demand for waterproof containers may have kept pace with the seed collection systems people were developing.

By AD 800, coastal people had abandoned most settlements along tributary streams and relocated along major trunk streams and estuaries. So far, it's unclear how big their villages were, how they were laid out, how the houses were shaped, or how many people each contained. Now that archaeologists are fairly comfortable with the pottery sequences they've developed, they are turning to research to fill in these blanks. A key problem, however, is modern development has rolled over much of the Coast, destroying sites already threatened by erosion.

Even so, the artifacts archaeologists find at Coastal sites fill in some images of village life. Large, triangular arrow points they call Roanoke; stone blades of various sizes; stone net sinkers; sandstone abraders; shell pendants; polished-stone ornaments; polished-stone woodworking tools; mats woven from Juncus grass. Like everybody else in North Carolina, Coastal people shifted hunting technology to bows. They worked wood, using the sharp edges of tear-drop shaped celts. They were artists, designing and smoothing jewelry. They had a weaving industry. They made cordage, knotting some, at least, into fishing nets weighted with sinkers.

During this period, people were usually buried in graves. Mourners seldom placed objects in the graves. But when they did, they tended to put items like small arrow points. Cremation was another custom practiced in some places at this time. A distinctive practice associated with cremation presumably channeled up from the South. Along North Carolina's southern coast, a culture archaeologists call Cape Fear used low, sand burial mounds. Dated to about AD 950, the round mounds are mostly south of the Neuse River. Most (but not all) contained cremated remains accompanied by grave offerings like pipes, polished stone gorgets, and conch-shell cups.

Seeds of Change

Planters of small gardens, Woodland people across the Southeast breathed life into what would eventually become intensive agriculture and a significant shift in Native American lifeways.

By the early Woodland, seed selection begun by Archaic forebears had activated genetic pressures in some seeds so they germinated more quickly than they would if untended in the wild. By the middle of the Woodland, several native wild plants—sunflower, marsh elder, and goosefoot—had become domesticated. The clues are in the seeds' larger-than-wild shapes and uniform sizes. Also, some plants people used, like the large-seeded marsh elder, are now extinct, strongly suggesting the plants had become dependent on people to propagate and grow.

Marsh elder.

The collection of locally domesticated seed plants make up what archaeologists call the *Eastern Agricultural Complex*. Like other issues archaeologists try to settle from the past's faint traces, it fuels a debate. This one whirls around whether plant cultivation originated independently in the eastern United States. If the practice

did (as more and more archaeologists are beginning to believe), then it's significant for a couple of reasons. It turns upside-down any notion that ancient people in the East learned about cultivating plants from ideas spreading along trade routes from the Southwest or Mexico. It also means early agriculture evolved in at least two parts of North America: Mexico and the East.

Goosefoot.

However botanical evidence finally writes the story, other things are indisputable. By the Woodland, people were inextricably tangled in the life cycles of seed plants. As vigorous new beds of locally domesticated and wild seed plants sprang up, they attracted additional human attention. While few late Archaic people cultivated small plots, Woodland Indians made it common pratice. Experimental archaeologists have learned that even with small plots and minimal effort, large quantities of seeds can be easily produced.

North Carolina archaeologists are cautious when talking about plant domestication and gardening. This is because they haven't found sites yet having the kind of botanical evidence they need to say, without any doubt, that all North Carolina Woodland Indians planted gardens. Just smatters of seed residue show up in some Mountain sites; a few Coastal sites have it; the Piedmont is iffy. Nonetheless, archaeologists don't doubt gardening was part of local Woodland life. Reliable evidence for cultivated plants is found just over border in eastern Tennessee. Places like these make indirect evidence for horticulture in North Carolina compelling. Archaeologists only have to look at local peoples' cultural links with known horticulturalists, along with similarities in pottery styles and other artifacts, and village sizes and locations along fertile floodplains to deduce horticulture was part of their Woodland life.

Archaeologists caution, however, there is no reason to think horticulture was particularly important in how Woodland people fed themselves. Weighing seed crops' importance against other foods recovered from sites, archaeologists find that most food came from the age-old practices of hunting, gathering, and fishing. Clearly, no agricultural revolution happened in eastern North America. As archaeologist David Hurst Thomas observed, there was no food rebellion where people took control over nature, domesticating plants and animals to provide a secure food base. Late Archaic and early Woodland plant domestication was a very casual process, with no radical change in human diets or habits.

Eventually, however, the skills and knowledge leading to domesticating plants allowed Woodland people to accept new, more productive crops not native to eastern North America. So it was that corn and beans made their way across trade routes from the Southwest and Mexico to local gardens. These exotic plants would eventually support the rise of the East's—and North Carolina's—Mississippian-period agricultural societies.

Links

Lesson 2.5: "Archaeobotany."
Lesson 2.6: "Measuring Pots."
Lesson 2.8: "Mending Pottery."
Lesson 4.1: "Shadows of North Carolina's Past."
Lesson 4.4: "Pottery Traditions."

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Quick Study

Woodland Period (1000 BC to AD 1000)

Woodland can be a confusing term. Some archaeologists avoid it because people unfamiliar with the peculiar usages of archaeology think it refers to the "Eastern Woodlands," which denotes those billions of acres of river-laced forests in the eastern half of North America.

So a clarification is in order. Like with the terms Paleoindian and Archaic, most archaeologists use Woodland in a specific way. They use it to refer to characteristics of a cultural tradition and the period in which that tradition was dominant.

In North Carolina and much of the East, the Woodland period is marked by the presence of three key traits:

- manufacture of clay pottery;
- semi-permanent villages, or settlements occupied by people for several months each year, but not year round;
- horticulture, or the planting of gardens to supplement foods hunted and gathered.

These traits began during the late Archaic, but were not widespread in the Southeast until later. While the Woodland's time frame varies considerably throughout eastern North America, it follows on the heels of the Archaic.

In North Carolina, Woodland characteristics appear by 1000 BC. Archaeologists disagree about when it ended. Some, emphasizing continuity, prefer to see it last until the arrival of the Europeans around AD 1600. But other archaeologists see enough social and political changes occurring to end the period at AD 1000. The latter approach is the one adopted here.

Another caution is in order about archaeological terminology. Just because tribes followed a Woodland lifeway, this doesn't mean they were identical. Individual tribal customs and beliefs varied greatly. Also, tribes differed ethnically and linguistically. What tied everybody together were the general cultural traits defining how they lived.

Key Characteristics

- Group territories become smaller and more well-defined. Populations increase.

- Horticulture begins. The plants in the earlier Archaic "natural stands" are purposefully cultivated. Using digging sticks or stone (and sometimes shell) hoes, people plant and harvest marsh elder, squash, bottle gourds, sunflower, maygrass, and goosefoot from small gardens. The Eastern Agricultural Complex is what archaeologists label this group of wild, local seed plants the Southeastern people have domesticated. These native plants give strong evidence that agriculture evolves independently in the Southeast.

- Acquired by trade, corn shows up in the Southeast for the first time about AD 200. But people don't use it much.

- Hunting and gathering wild food remains very important, even though people have gardens. Most food comes from acorns, hickory nuts and a variety of other nuts, fruits, and wild vegetables. White-tailed deer is the primary source of meat. But bear, turkey,

raccoon, fish, and waterfowl are also important.

- Estuarine resources like fish and shellfish are very important foods for people on the Coastal Plain. They may provide quantities of reliable foods equal to that obtained by hunting, gathering, and gardening combined.

- People live in small, semi-permanent villages. These are stable settlements occupied by people for several months each year, but not year round. Over time, villages are drawn closer and closer to the floodplains of rivers or major stream tributaries, where fertile, soft soils are easily hoed for gardens. Groups also spend parts of the year in seasonal camps where they hunt, fish, or gather wild foods.

- House shapes may vary from region to region. Patterns left by stains of decayed house posts (which archaeologists call postholes) suggest some people built rectangular homes, while others lived in round houses.

- People build houses by putting saplings side by side and upright in the ground. Sticks are woven between them and covered with bark, thatch, or mud. Roofs can be made in one of two ways. The saplings forming the wall are pulled together at the top and tied, or other saplings are placed horizontally over the outside walls and supported on posts placed in the center of the house. A clay-lined hole, which hardens from heat, is left in the roof for smoke from a centrally placed fire to escape.

- Pottery becomes widespread. Pottery making actually begins late in the Archaic Period, when some Coastal-Plain peoples make a rough, easily breakable vessel. But during Woodland times, clay pots start being made everywhere in the Southeast.

- Several pottery styles occur in North Carolina during the early Woodland. Potters use crushed steatite, quartz, or sand for temper; temper is anything potters add to wet clay to help keep the vessel from breaking during firing. Most pots have tapered bottoms, which lets the vessel sit upright in the deep ash of cooking hearths. People decorate their pottery by stamping the surfaces with either cord or textile-wrapped or carved wooden paddles before firing. Some North Carolina styles and surface decorations are influenced by contacts with people in other regions, like Georgia, Tennessee, and Ohio.

- Most archaeologists think pottery making goes hand in hand with people's increasing reliance on wild and domesticated seed crops and more permanent settlement.

- The bow and arrow comes into use, apparently replacing the spear and atlatl. Archaeologists think the transition happens in the middle of the Woodland period because the stone projectile points change shape and size about that time.

- Typically, Woodland people place few offerings in graves. When they do, the objects seem to be useful or personal items, such as stone arrow tips, chisels, smoking pipes, clay pots, or jewelry.

- Trade and the interactions resulting from it influence Woodland cultures. A dramatic

example occurs in the Appalachians. There, the influences are not from a particular culture or political power, but from what is essentially a widespread religion archaeologists call Hopewell. By its set of unifying beliefs and symbols, it draws together people who share neither language nor culture; its network of contacts span from Mississippi to Minnesota, from Nebraska to Virginia.

- North Carolina's Appalachian people apparently get drawn into the Hopewell network because they control access and distribution for mica—a shining, workable mineral that Hopewell-affiliated peoples valued. Through trade contacts, the Appalachian people adopt some Hopewell habits. They shape clay into figurines of animals or people; they develop a more complex social structure, as certain people gain status because of trade or religious influence; they construct earthen mounds in key villages to serve as platforms for structures. Generally, however, most of North Carolina's Woodland people have an egalitarian social structure.

Lesson 3.4

THE VILLAGE FARMERS

The Mississippian Period, AD 1000 to 1650

Pottery vessel from Rockingham County, North Carolina ca. AD 1200.

Long ago, when the world was new, an old woman lived with her grandson in the shadow of the big mountain. They lived happily together until the boy was seven years old. Then his Grandmother gave him his first bow and arrow. He went out to hunt for game and brought back a small bird.

"Ah," said the Grandmother, "You are going to be a great hunter. We must have a feast." She went out to the small storehouse behind their cabin. She came back with dried corn in her basket and made a fine-tasting soup with the small bird and the corn.

From that point on the boy hunted. Each day he brought back something and each day the Grandmother took some corn from the storage house to make soup. One day, though, the boy peeked into the storehouse. It was empty! But that evening, when he returned with game to cook, she went out again and brought back a basket filled with dry corn.

"This is strange," the boy said to himself. "I must find out what is happening."

The next day, when he brought back his game, he waited until his Grandmother had gone out for her basket of corn and followed her. He watched her go into the storehouse with the empty basket. He looked through a crack between the logs and saw a very strange thing. The storehouse was empty, but his grandmother was leaning over the basket. She rubbed her hand along the side of her body, and dried corn poured out to fill the basket. Now the boy grew afraid. Perhaps she was a witch! He crept back to the house to wait. When his Grandmother returned, though, she saw the look on his face.

"Grandson," she said, "you followed me to the shed and saw what I did there."

"Yes, Grandmother," the boy answered.

The old woman shook her head sadly. "Grandson," she said, "then I must get ready to leave you. Now that you know my secret I can no longer live with you as I did before. Before the sun rises tomorrow I shall be dead. You must do as I tell you, and you will be able to feed yourself and the people when I have gone."

The old woman looked very weary and the boy started to move toward her, but she motioned him away. "You cannot help now, Grandson. Simply do as I tell you. When I have died, clear away a patch of ground on the south side of our lodge, that place where the sun shines longest and brightest. The earth there must be made completely bare. Drag my body over that ground seven times and then bury me in that earth. Keep the ground clear. If you do as I say, you shall see me again and you will be able to feed the people." Then the old woman grew silent and closed her eyes. Before the morning came, she was dead.

Her grandson did as he was told. He cleared away the space at the south side of the

> *cabin. It was hard work, for there were trees and tangled vines, but at last the earth was bare. He dragged his Grandmother's body, and wherever a drop of her blood fell a small plant grew up. He kept the ground clear around the small plants, and as they grew taller it seemed he could hear his Grandmother's voice whispering in the leaves. Time passed and the plants grew very tall, as tall as a person, and the long tassels at the top of each plant reminded the boy of his grandmother's long hair. At last, ears of corn formed on each plant and his Grandmother's promise had come true. Now, though she had gone from the Earth as she had once been, she would be with the people forever as the corn plant, to feed them.*
>
> — "The Coming of Corn," a Cherokee story as told by Joseph Bruchac

North Carolina sat on a crossroads by AD 1000. Cultural ideas from other places breezed through it and around it. How to decorate pottery; how to orient political and social life; how to honor the dead; how to structure towns. Each time some wind of change blew, it bumped into barriers created by local people's habits. Sometimes, it slowly broke down the barriers and prevailed. Sometimes, it hit them with the force of sudden storms and slipped through cracks. Other times, it just spent itself out.

The result is no tidy historical picture of North Carolina between AD 1000 and 1650. Archaeologists debate what to call the cultural tradition and period spanning this time. Ideally, cultural traditions and periods are based on strong similarities in how people live.

But as archaeologists reconstruct the cultures of people living across the state at that time, they find enough diversity that a naming dilemma plagues them. Studies in one place might show people carried on an egalitarian social and political life, hoeing gardens and making their pottery between bouts of seasonal hunting and gathering. Someplace else, fields and towns got bigger, with some towns having a privileged class of people and central plazas dominated by earthen mounds topped with civic or ceremonial buildings.

In essence, North Carolina during this period straddled the boundary between two major, and very different, cultural traditions. The Coastal Plain and northern Piedmont were inhabited by people who carried on a Woodland way of life; their cultural tradition is often called Late Woodland by archaeologists. These people were farmers who grew corn, lived in permanent villages, and had a relatively egalitarian political structure. The Mountains and southern Piedmont, on the other hand, were marked by the appearance of a new cultural tradition called Mississippian. Like their neighbors, people of this new cultural tradition lived in permanent villages and depended on corn agriculture. But they also had stratified social organizations embodying permanent—and probably hereditary—power. In the larger towns where the elite lived, they built flat-topped earthen mounds, usually situated near a town plaza; and they engaged in extensive long-distance exchange for items like shell beads, copper, and other exotic minerals—some of which were transformed into stunning works of art.

The key feature that these two traditions had in common, and that distinguished them from earlier cultures, was a heavy reliance on crops for food—particularly on corn, beans, and squash. This agricultural lifeway coincided with an increasing population. It also brought about the appearance of permanently settled villages, often fortified with defensive stockades. Whatever quibble archaeologists have about life in this period, the cultural punch of agriculture can't be disputed. An era of village farmers had begun, the period we call *Mississippian*.

The Piedmont Village Tradition

In the years between AD 1000 and 1200, Native life in the north and central Piedmont hadn't changed much from prior Woodland times. People still made a style of pottery decorated with net impressions. People still lived in small hamlets whose houses strung out along river and stream banks. At times, the hamlets sat empty when people left to hunt and gather wild foods.

Yet seeds of change were being sown. Archaeologist Trawick Ward quips the seeds were literal. Around AD 900, intense maize agriculture begins, and the practice has repercussions. Population grows; people start gathering in larger villages of clustered houses; conflict erupts for reasons archaeologists can only speculate about.

Two settlements archaeologists call Hogue and Wall document the switch Piedmont people made from their tendency to live in small hamlets to living in larger, compact villages. Separated by some 400 years, Hogue is the earlier of the two. Both sat on a bend of the Eno River near Hillsborough, North Carolina.

Hogue was a small hamlet occupied between AD 1000 and 1200. Today, the site sits on either side of a large, wooded ditch that was probably the bed of a road used in the 18th century. Cutting Hogue in two, the road destroyed a chunk of the old settlement. From what's left, it seems Hogue had only a few houses. Archaeologists aren't sure how people built them. Dark stains (called postmolds or postholes) show where some of the structures' wooden support posts decayed. But the traces don't make clear house patterns. The best guess is the Hogue homes were round.

Throughout the hamlet, people dug round pits, each about 2 feet deep. Freshly made, each pit was apparently used first as an underground food cupboard. It was safe and hidden, not just from animals, but from any non-Hogue humans who might poke about the hamlet when everyone was off on hunts and collecting trips.

However, as happens, the pit eventually fell out of use. People then filled it by using it as a receptacle for trash. They swept in litter from cooking hearths and sweepings from village and house floors. Archaeologists find pieces of broken pottery, animal bones, nut hulls, broken stone tools, charcoal from fires, and any odd stone caught up in the sweepings.

Enough maize kernels and sunflower seeds turn up in the trash that archaeologists think Hogue's people were farmers. Probably, their fields weren't big. The quantities of charred acorns and hickory nuts, along with deer, squirrel, and rabbits that archaeologists found in the pits suggest people relied heavily on wild foods. Archaeologists call this blend of grown and wild foods for subsistence a *mixed economy*.

Hogue gives archaeologists a glimpse at how Piedmont people living then dealt with death. Hogue's cemetery was small. Eight people lay buried there in round or oval graves. Hogue villagers arranged each body for burial by drawing the person's knees up to the chest. They put no offerings in the graves. But in some, large rocks were placed at the feet of the deceased. Why? Archaeologists don't know.

An ancient storage pit being excavated by archaeologists. The tray in the background contains deer bones, broken pottery, and other village "sweepings" found in the pit.

Small hamlets like Hogue were sprinkled through the north-central Piedmont between

AD 1000 and 1200. Most sat along ridges and knolls bordering the narrow floodplains of secondary streams. But a few exceptions, like Hogue, sat along primary streams and rivers. Because all these hamlets have only scant traces of houses, artifacts, or other hints of daily life (like pits to store food), archaeologists think few people lived in them. What's more, people seemed to change village locations every few years in a settlement-abandonment cycle. While they stayed put in each place, they blended agriculture with hunting and gathering. They looked to tradition to make pottery. They dealt with death according to custom.

Four hundred years after people left Hogue for the last time, another group settled in the same bend of the Eno River. Archaeologists call their village the Wall site. Unlike the sparsely populated, Hogue-like hamlets, the Wall site was a densely-settled village with a larger population. This kind of village had houses placed close together, arranged to form a tight circle around an open area used by community members.

Definitely, Wall was a bigger village than Hogue. It spread over more than an acre. So far, archaeologists have excavated about one-fourth of it. And, so far, they have traced seven round houses, each having a diameter of about 25 feet. Archaeologists found, too, outlines for a couple of smaller buildings, which may have been cribs or sheds for above-ground food storage. Wide, shallow cooking pits are sprinkled among the houses and cribs. From the charcoal and ash, along with their design and the plant and animal food remains found in them, these hearths were probably used to prepare feasts for community ceremonies. And surrounding the entire village was a stockade, a wall made of upright posts. Whether people constructed it for protection from enemies or to keep animals from pilfering food stocks is unknown.

Archaeological traces of a round house at the Wall site. Small stakes mark locations where posts once stood.

Archaeologists' best guess is about 100 to 150 people lived at Wall. Their stay was short-lived. Archaeologists think less than 20 years passed between the time people drove in house poles and then left for somewhere else. While they were there, they planted fields of corn, beans, and probably squash in the Eno River's rich bottomlands. They gathered the wild fruits and berries that rooted and grew in the areas they churned up around the plots. Seasonal supplies of acorns, hickory nuts, and walnuts came from nearby forests. So, too, did their main source of meat, the white-tailed deer. Other small mammals, turtles, fish, wild turkeys, and passenger pigeons added variety. This evidence all tumbles out of their refuse deposits.

Comparing the two Eno River bend settlements, archaeologists note key differences between Hogue and Wall. In a few centuries, the kind of settlement went from a sparsely populated, scattered hamlet to a compact village, larger in size and population; from underground food storage to above-ground food storage; from open to stockaded village.

Burial customs were different, as well. Instead of using a cemetery like that at Hogue, people living at Wall buried their dead in graves located within or just outside their houses. They sealed the graves with timbers or large stones. Funeral offerings, not found among the Hogue villagers, were common. Wall's people used shell beads to decorate burial garments. Sometimes, they strung the beads and put them on the deceased as jewelry. They also put small clay pots of food in graves, perhaps to sustain the person's journey to the other world. And because food remains

are found in the fill of some graves, archaeologists think feasting might have been part of their burial ceremony.

Such differences—and similarities, such as the mixed subsistence economy—are the stuff of archaeologists' questions. Were the people at Wall cultural descendants of those at Hogue? If so, does Wall give us a look at how life in the north-central Piedmont typically evolved during the Mississippian period?

Most archaeologists would answer these questions "no" and "yes." Current thinking is people who lived at Wall moved into the Eno River valley from somewhere else. Just from where is still up in the air. It turns out that not only was the Wall village layout different from that of most nearby and contemporary villages, but the pottery people living in Wall made was distinct.

Wall villagers decorated vessels with a design archaeologists call *simple stamped*. This design consists of a series of parallel lines running in one direction that people etched on a wooden paddle; the design was transferred on the wet clay by striking the paddle against it. The resulting vessels look very different from the net-impressed pottery found on earlier sites such as Hogue.

As for village layout, Wall's compact, fortified settlement wasn't standard in the central Piedmont either. Other contemporary people tended to live like those in the earlier Hogue—in sparsely populated hamlets.

Elsewhere in the Piedmont, archaeologists find that about the same time hamlets like Hogue were cropping up along the Eno and Haw river drainages, people were settling along the upper Dan River drainage of the northern Piedmont.

For reasons archaeologists aren't sure of, more people lived in the Dan River valley around AD 1000 than in other Piedmont parts. The extensive bottomlands along the Dan and its tributaries might have drawn them due to greater amounts of and more easily reached agricultural soils. For the most part, everyday life there mirrored the Eno River's Hogue settlement.

A site called Power Plant in Rockingham County, for instance, traces a community whose houses string out along the Dan River's banks. Like Hogue, Power Plant was a hamlet. Residents dug pits they used first to store food and then to stash garbage. Recovered food remains suggest agriculture was part of life along the upper Dan River by AD 1000. But, like people living along the Eno did, folks at Power Plant balanced cultivated food with wild foods in their subsistence equation. They ate the white tailed deer, assorted smaller animals, and wild plant foods along with the corn, beans, and sunflower seeds.

As far as archaeologists can tell, people at Power Plant and elsewhere along the Dan River had the same burial ritual as their contemporaries along the Haw and Eno rivers. They, too, made pottery having clear style links to their local past. Most pots were big storage and cooking vessels, decorated with net impressions stamped on the surfaces. Sometimes, however, Dan River people added extra decorative touches. Their version could have brushed or etched lines around the pot's neck. Occasionally, fingers and fingernails punched and pinched depressions along it.

But a fundamental change stalked the Dan River. Where central Piedmont people tended to keep living in hamlets, their northerly Dan River neighbors switched to Wall-like compact villages. Already boasting more people at the period's start, the Dan River area saw a dramatic increase in population around AD 1250.

Presumably, this growing population relied more and more on corn agriculture, and archaeologists think this reliance affected the size and kind of villages people lived in. Some villages covered more than 2 acres and likely contained 15 to 20 round houses ringing a central plaza. Such villages were protected by stockades and had storage pits, cooking hearths, and graves scattered throughout.

Residents of these Dan River villages made a variety of striking ornaments and tools from animal bone, shell, and clay. Awls, pins, needles, fish hooks, and hide scraping tools archaeologists call beamers were crafted from bone. Bones from small mammals, like rabbits, were drilled and threaded into necklaces. Turtle shells became bowls and cups. People found beauty and usefulness in a variety of things. The serrated edges of freshwater mussel shells became scrapers. Marine whelk obtained through trade got carved into long or short beads and flat pendants. Clay, besides being coiled into pots, was molded into cups, spoons, dippers, beads, and smoking pipes.

When people died, relatives often put these bone, shell, and clay items in the graves. Some items may have been ones the deceased used during life; others may have been fashioned at the time of death, such as the burial garment decorated with shell beads.

By AD 1400, most northern Piedmont villages had made the transition from hamlet to compact village. Archaeologists generally agree the shift was one of necessary convenience. Yet they toss out two ideas about just what sparked it.

One is based on the notion of fragmentation. According to this idea, hamlet-living folks find themselves confronted with having to travel farther and farther to get to their fields. Eventually, family groups responsible for various fields get tired of the daily commute. So they settle next to the fields, clustering their homes nearby. Over time, they end up establishing a separate, independent village whose population then grows and stabilizes.

The other explanation flips the scenic coin. Instead of original villages splitting apart to create new ones, they come together. The reasoning goes that as agriculture becomes more important, people in small, dispersed hamlets start grouping. This way, they can work fields more efficiently, as well as find safety in numbers. Over time, their groupings create clustered villages that stabilize and grow.

Probably, both of these processes were responsible to some degree for the change.

Why Piedmont people put stockades around many of their villages is a question that musters other theories. One idea revolves around conflict. People may have begun fortifying their communities because raids from outsiders picked up. Other ideas about why village walls existed include the practical need to keep animals fenced from food stocks.

All in all, village life across most of the Piedmont was similar during the Mississippian period. Corn agriculture was important. Society seemed to be egalitarian. Whether in compact village or hamlet, no grand burials or other hints of people having special possessions and status have been uncovered. Houses were all about the same size. For the most part, customs emerged from deeply rooted local traditions. Archaeologists tell the same story again and again, embellishing it, of course, as they make more discoveries.

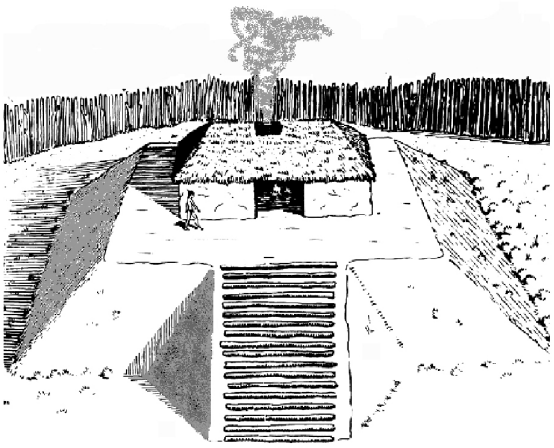
But in one southern Piedmont corner, a flash of something else shows up. It's called the Pee Dee culture.

The Pee Dee Culture

Town Creek Indian Mound near Mt. Gilead in Montgomery County is North Carolina's most visible, and most visited, archaeological site. Framed by a backdrop of tall pines, a reconstructed stockade daubed with red clay surrounds grounds dominated by a flat-topped earthen mound—what archaeologists call a platform mound. A square, thatched building whose sides also glint with red clay sits on top of it. Steps carved in the mound's eastern side lead to the building. Where they begin, a rectangular area once flanked by open-sided, covered buildings spreads out from the mound's base. A tall pole is planted on one end, with a bear skull resting on top. Nearby

sit two other clay-sided and thatched buildings.

Town Creek is reconstructed from archaeological evidence. It sits on the west bank of the Little River, upstream from the confluence with Town Creek. A few miles downstream, the Little River flows into the Pee Dee, which itself becomes the Great Pee Dee River cutting south to empty into the Atlantic. With these river names, it's no surprise archaeologists called the culture of the people who lived in that Montgomery County spot from AD 950 to 1500 the *Pee Dee*, and the site at which they gathered *Town Creek*.



Platform mound.

The name Pee Dee sometimes causes confusion. The archaeological Pee Dee culture was arbitrarily named after the major river along which its sites are found. That river, in turn, was named after an Indian tribe that lived there in the Colonial period (and still lives in South Carolina today). Despite having the same name, the archaeological culture and the modern-day tribe are distinct entities. The latter may or may not have descended from the former.

Exactly who built Town Creek is something archaeologists have been trying to sort out since the mound was saved from plowing by archaeologist Joffre Coe in the 1930s. It's an unsettled and sometimes controversial topic. Was it people or ideas moving in that sparked the Pee Dee culture? Some combination of the two? However the evidence finally answers the questions, archaeologists do not disagree about one thing. Whoever comprised the Pee Dee culture practiced a local version of the pan-Southeastern Mississippian tradition, which shows up from Georgia to eastern Oklahoma.

Such traits included temples and civic buildings set atop earthen platform mounds; social and political hierarchies, with priests and chiefs; religious symbolism artistically represented in jewelry and ritual items; corn agriculture bound up with a host of ceremonies surrounding redistribution. Where they held sway, these kinds of binding habits tended to focus towns on centralized ceremonial and political centers.

Town Creek was one such center. Apparently, Town Creek was the hub for a number of Pee Dee villages peppering the southern Piedmont. They radiate away from the complex. Some are distant. Many are accessible by water. One village, called the Payne site, is about 30 miles northeast of Town Creek. Others, which archaeologists call Leak and Teal, are in Richmond and Anson counties. From what they've learned through excavating the villages, some archaeologists think Pee Dee culture people built Town Creek after some of the towns had been established.

Right now, the best guess is the Pee Dee culture surfaced in North Carolina around AD 950. Early adherents started making distinctive pottery, decorating vessels with a distinct group of geometric stamped designs. Some were large urns, reflecting not just a style, but a different kind of burial practice the people adopted. People of the Pee Dee culture cremated some adults and infants and put their ashes in the large clay urns.

Distinctive architecture and intensive agriculture were other notable characteristics of the Pee Dee culture. Houses and public structures were rectangular, a shape that sets them apart from the round buildings used by other, contemporary Piedmont peoples. And, although they hunted, fished, and collected wild foods like everybody else, Pee Dee culture villagers were mainly farmers of corn.

Presumably, the Town Creek ceremonial center was built only after a large enough population had accepted and settled into Pee Dee culture life. Regularly, people from surrounding villages congregated there for ceremonies.

On a lighter note, members from different towns and clans may have played competitive games on the field near the mound's base. Each summer, people celebrated the harvest of early corn. Called the Busk, the ceremony signaled hope for a winter of filled granaries; it was also a time of renewal when people swept out homes to discard old clothes, pots, and foods.

By AD 1400, Town Creek's importance as a ritual and ceremonial center for the Pee Dee culture was fading. By 1600, Town Creek was a memory. During that 200 years, some habits held. Cremations and urn burials were still done. The large, fertile bottoms surrounding the old Pee Dee culture villages were still planted in corn, beans, and squash. The Pee Dee River gave up its harvest of fish and mussels and the forests its fruits, deer, and other game. But people stopped making rectangular houses, constructing instead oval-shaped buildings. And they quit building mounds.

Mountain Cultures

In North Carolina's Mountains, there were other earthen mounds contemporary to the one at Town Creek. After Europeans noticed them in the late 1800s, the mounds helped fuel a myth. They, along with others in the South and Midwest could not have been built, so the myth went, by Indians. They were too spectacular; the things found in them too sophisticated and rich. Ancient Hebrews or Celtic peoples must have landed, journeyed here and there, and constructed the monuments.

Research has debunked this myth. Indian people clearly built the mounds. While many mounds have been destroyed over the years (by relic hunters, construction, or erosion), some still hold enough evidence to chart some history.

North Carolina's Mountain region felt bursts of influence well before Mississippian times. Trade routes traversed the Mountains 1,000 years ago, stretching northwestward to the Ohio Valley and the Great Lakes regions and south toward the Gulf of Mexico and the Georgia coast. Some cut west to Tennessee and then down to Alabama and Mississippi. Traders transported and bartered along it merchandise as diverse as sea shells, steatite, copper, chert, and mica. Skilled artisans sculpted these goods into dazzling ornaments: realistic copper fish and birds, stone pipes with bowls shaped like beavers; conch-shell ornaments whose etched designs varied from serpents to people with forked eyes. All linked to symbols unifying vastly different Woodland groups under a geographically wide religious umbrella called Hopewell.

During the Woodland in western North Carolina, people belonging to the Connestee culture had their hands in Hopewell-related trade. Their involvement opened the door to change-inducing social and religious ideas. Status differences, maybe resulting from control of precious materials, were overturning some once strongly egalitarian Mountain societies. Some communities basked in brighter economic good fortune, serving as political and religious centers.

This was the Mountains' cultural stage before Mississippian times rolled in. But given the strong egalitarian bent of prior Woodland generations—and, indeed, of most Woodland people across North Carolina—social stratification probably needed additional footing to keep hold where it popped up. Thus, some archaeologists point, as well, to the role agriculture played.

Until AD 1000, corn agriculture wasn't something Southeastern people engaged in much. But about that time it became a major player in local lifeways. The increased productivity of corn agriculture could support larger, denser populations. It also provided greater opportunities for

accumulating wealth that could be used for political purposes: encouraging alliances, building loyalties, and inflicting social debts. Whatever the reasons, within a few generations of when corn agriculture intensified, social ranking and political centralization increased. These changes coincided with the emergence of the Mississippian cultural tradition, not only in the Mountains of North Carolina, but also across much of the Southeast.

Thus, while influences from the Pee Dee culture slipped into the southern Piedmont, while other Piedmont and Coastal Plain groups continued the Woodland cultural tradition, the Mountain region was creating its own identity. And it was this identity that archaeologists ultimately tied to the modern-day Cherokee.

Pisgah

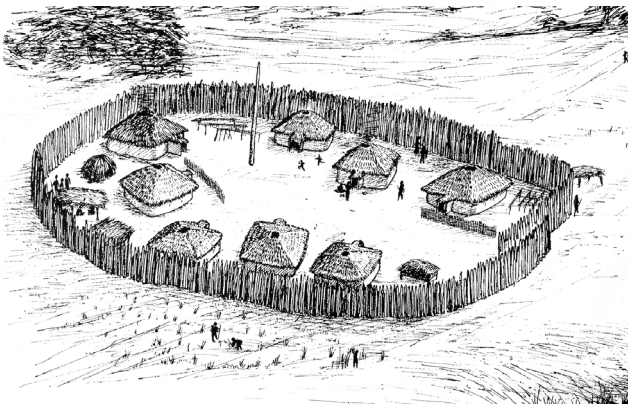
Pisgah and Qualla are the names archaeologists give Mississippian cultures that were Cherokee ancestors. Like other names archaeologists use, Pisgah and Qualla are based on collections of artifacts from key sites that can be dated and linked to each other. But conceptually they refer to the specific cultures represented by these artifacts and the peoples who lived at these sites.

The Pisgah folk lived between AD 1000 and 1450. A stratified site called Warren Wilson, located on the grounds of Warren Wilson College near Swannanoa, helps bring the Pisgah to life. Like Hogue on the Eno, this Pisgah village was located on a river. The Swannanoa flowed by, and its spot on the north bank had been used before by both Archaic and Woodland groups. After AD 1000, the fertile bottomland was hosting a sizable Pisgah village.

Garden Creek near Canton, North Carolina is another Pisgah site. It, too, was a village, but had, in addition to the usual fare of discoveries, three earthen mounds tucked within its borders. Earlier Woodland people had built the two smaller mounds. But it was the Pisgah people who constructed the largest mound, building a village around it that spread over 5 acres.

Excavations at Warren Wilson and Garden Creek show that the Pisgah people had a variety of settlement types. They ran the gamut from small, spread out farmsteads to large villages of clustered houses. Some of the bigger villages had *platform mounds*. This term refers to how the mounds were used. Typically, a wooden building that may have been used for ceremonies or burials first occupied the locality. It was placed at ground level, like all the others. But at some point, the building was dismantled or destroyed, and, on the same spot, people constructed a flat-topped mound of earth with another wooden building on its summit. The eventual size of the mound depended on how many times it went through this cycle.

Not all Pisgah villages had mounds. Only a few larger villages did. Archaeologists think the mound-containing villages were political and religious focal points, with smaller villages spaced out around them. Regardless of size, most Pisgah settlements sat in floodplain environments. The exceptions were the short-term camps people made when hunting and gathering wild foods. Geographically, almost all Pisgah settlements were concentrated in the eastern and central parts of the Appalachian Summit region.



The Pisgah village at Warren Wilson.

At Warren Wilson, the Pisgah village covered about 3 acres. Compared to others

archaeologists find, it was mid-sized. Houses were close together, forming a circle around an open, central plaza. Like those houses people of the Piedmont's Pee Dee culture built, Pisgah houses were rectangular. They measured about 20 feet on a side. To build them, people set side-by-side posts in holes and then wove branches between them. Wet clay, sometimes with grasses mixed in, was smeared over the interweave, which dried to create a tight, secure dwelling. Some Pisgah houses had partitions for rooms, while others had large, open interiors. All had thick, inside support posts holding the roof, which probably was bark or thatch. And most dwellings had hearths lined with hardened clay collars sitting in middle of the building.

Besides houses, the Pisgah constructed several smaller structures at Warren Wilson. Some may have been granaries or sweat lodges. The small hearths in them had layers of packed fire-cracked cobbles, along with charcoal and bits of burned wood. No food remains littered these hearths, so heat seemed to be the main function. Cooking food probably took place in individual homes. But at times, people may have joined together to prepare feasts for community-wide celebrations. Telltale evidence for this may be in the shallow roasting pits, some as large as 10 by 5 feet, that lay along the village edge. Archaeologists found them filled with food remains.

The Pisgah surrounded their Warren Wilson village with a stockade. Archaeologists mapped several different wall lines when they excavated. Some seem to reflect village expansion, with people moving the walls out to accommodate additional houses. At one point, it seems there was a double-walled stockade. But one pattern of post lines puzzles archaeologists; it encircles the central plaza instead of the town's edge. Archaeologist Trawick Ward thinks this particular wall separated the central plaza from surrounding houses. Comparing it to the square grounds of historic Cherokee villages, he believes the plaza may have been set apart and reserved for ceremonies and political activities.

In ways, Pisgah everyday life by AD 1300 seems similar to what is going on in much of the Piedmont. They had compact, stockaded villages. They had corn agriculture; probably half their food came from fields of maize, beans, squash, and marsh elder. The rest came from wild foods. Deer and bear provided meat, as well as skins for clothes and containers; the bones were shaped into tools. Smaller animals, along with fish and turtles from rivers and streams added variety. Each fall, people collected acorns, hickory nuts, walnuts, and butternuts. When the season was right, they added fleshy fruits and berries.

Maize plants.

But what archeologists don't find or find infrequently at sites like Warren Wilson may point up some differences. For instance, archaeologists find few underground food storage pits in the Pisgah's villages. Presumably, the Pisgah used corn cribs and granaries. This above-ground food storage stands in sharp contrast to Piedmont practices of hiding stores underground.

There are also hints, particularly in burial customs, that Pisgah life was not egalitarian. For the most part, the Pisgah buried their dead in graves either inside or next to their homes. Many graves had offerings. But other burials around some houses did not. Archaeologists think the different practices suggest some households had family members who ranked above others. Some of the people could have been political leaders. Others may have been religious leaders; priests or shamans, for instance, may have been buried with the objects they used or wore.

Evidence for ceremonies is usually scant or tough to interpret so far in the past. Yet the discovery of almost 14,000 toad bones in one pit at Warren Wilson suggests that villagers may have used these amphibians for medicine or for a feast.

The image of Pisgah life is more complete when evidence from Garden Creek comes into the picture. While a village, too, Garden Creek is also a place where the Pisgah's ceremonial side is much more evident.

The Pisgah mound at Garden Creek sat in the midst of a village. At the time archaeologists found it, the mound's rectangular shape was still evident. It stood about 7 feet high, and measured about 150 feet by 130 feet at the base. A ramp leading to the top was on the east side. From the dark stains of postmolds, two buildings had sat on the west side of the summit, and a stockade looped around them. On the east (and open) side, about 24 people were buried. About half of them had grave offerings, most of which were made from shell. Jewelry included strings of shell beads, gorgets, and ear pins.

While the Pisgah people put these same kinds of offerings with some of the deceased at Warren Wilson, they did so for proportionally more graves at Garden Greek Mound. Archaeologists wonder what the disparity means, especially as they deal with how to interpret things like social ranking. Except for grave offerings, no other evidence suggests people buried in the mound had achieved a higher status. But maybe, archaeologists think, the mere fact they were buried in a mound points to it.

Presumably, Garden Creek was a Pisgah *big town*, meaning it was one of those with enough social punch to have mounds, around which other villages like Warren Wilson sat like stationary satellites.

Importantly, Garden Creek links the Pisgah with a filtered-in set of cultural practices prevalent in other parts of the Southeast, like platform mounds with buildings on top and ranked social orders. This same set of adopted traits, it seems, put the Piedmont's Pee Dee culture in motion. Archaeologists classify these traits in a tradition they call *South Appalachian Mississippian.*

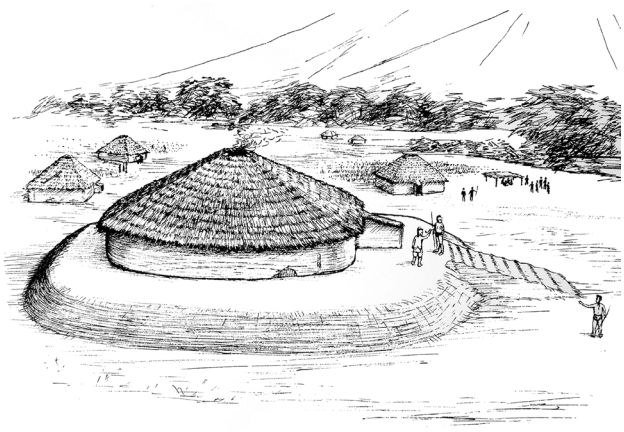
At this point, it's unknown if the Pisgah or the Pee Dee people had regular contacts with each other. Certainly they mirrored each other in how they built mounds and developed ceremonial complexes. Early in their histories, each group put square to rectangular public buildings on the ground's surface. Sometimes referred to by archaeologists as earth lodges because dirt was packed up around their sides, the buildings often had stockade walls around them. When they eventually deteriorated and collapsed, people filled in sags with more dirt to smooth out a new building surface and constructed another in the same spot. Continuing this process over time resulted in mounds.

Archaeologists think the mound-building sequence in some places went hand in hand with changing social and political life. One idea is that the earliest earth lodges served as council houses for egalitarian societies. Representatives met in them to make decisions based on consensus. But the subsequent building of mounds coincided, at least in the Mountains, with transitions to more centralized societies. There, the flat platforms served to elevate the homes of chiefs or priests. Inheriting both rights and power, the chiefs and their families were buried in the mounds. Most archaeologists think the mounds were very visible expressions of a stratified or ranked political system ruled by a hereditary aristocracy.

Qualla

Around AD 1400, people in North Carolina's southern Appalachians (and most of the western third of the state) started making different kinds of pottery. Pots lost the distinctive Pisgah look. So, in the way of archaeologically defined cultures, the Qualla culture "emerged" when the new designs became common. Potters continued experimenting with shapes and decorations. Soon they were turning out bowls with forms no Pisgah potter had ever made.

The Qualla people also had their own versions of public architecture, in that they stopped using platform mounds for chiefly houses. Rather, they placed townhouses on mound summits. Large and rotunda-like, the townhouses could host several hundred people. The townhouse was the focal point of the community, and it was in this building that community decisions were made. Given that much of the community could participate in this process, Qualla communities may have been politically more egalitarian than their Pisgah predecessors.



The townhouse at Coweeta Creek.

The Coweeta Creek site in Macon County, North Carolina, is a Qualla townhouse mound site. It was also a village. In ways, the village was very Pisgah-like. The Qualla styled their houses identically. They were rectangular, averaging about 20 feet on one side; they had vestibule entrances and interior supports surrounding a central, clay hearth. No dramatic differences existed either in how the Qualla laid out their villages, where they chose to put them and how they got food by combining farming with hunting and gathering. Houses clustered around a plaza and mound; a stockade probably encircled the buildings; the setting was in fertile soils by a water source; corn, beans, squash, pumpkin, and gourds mixed in pots with deer, black bear, and other seasonal nuts and fruits.

The Qualla people often placed burials in house floors, beneath or near the hearths. They put offerings in some graves; shell beads, ear and hair pins; engraved gorgets; masks made from conch shells. A few people were buried near the townhouse entrances. Presumably, these were important members of the community.

The Qualla lifeway endured into the time of European contact.

The Coastal Villagers

When Europeans arrived in the late 1500s, North Carolina's northern Coastal Plain was home to two different cultures. Algonkians lived closest to the Atlantic edge, in what's generally called the Tidewater. The term Algonkian isn't a tribal name; it refers, rather, to the language family coastal tribes shared who lived in the broad stretch from Canada to Carolina. Iroquoian speakers—the Tuscarora, Meherrin, and Nottaway tribes—lived more inland, on the Interior Coastal Plain. Generally, the Tuscarora's boundaries began just south of the Neuse River and extended north to where the Virginia border is today. The Meherrin and Nottoway stayed between the Roanoke and Chowan Rivers.

Through research so far, archaeologists have sorted out the political and social boundaries of the various groups who lived in the north Coastal region. Hints of their lives prior to European contact survive in their old villages and camps. Based on the distinctive items each group left, archaeologists call the Algonkian speakers *Colington* and the Iroquoian speakers *Cashie* (pronounced "ca-SHY," accenting the last syllable).

Colington

By now, the fact archaeologists categorize pottery-making Indian cultures by how they made and decorated pottery is old hat. By AD 800, North Carolina's coastal Algonkians were making

pots tempered with crushed shells and decorated with fabric impressions. Some flair was added to vessel rims by carved lines and geometric patterns. The pots themselves shaped up in several fashions: small, simple bowls; large, hemispherical bowls, looking much like today's wide-mouthed mixing bowls; and medium-sized, cone-shaped bowls, whose bottoms stuck securely in hearth ash or sand.

Colington cooking pot.

The Colington Algonkians regularly traded with the nearby Tuscarora. Archaeologists find a lot of Tuscarora pottery in Algonkian sites. The Tuscarora made vessels much like Algonkians'. But, perhaps being farther from sources of shell, they used sand or small pebbles for temper. Not surprisingly, the Algonkians living closest to Tuscarora territory had more Tuscarora vessels than those living along the ocean's edge.

The other Colington artifacts aren't much different than those used by other contemporary groups in the state. Besides making vessels, the Colington molded clay into pipes. They fashioned stone into triangular arrow points, blades of various shapes, celts for woodworking, sandstone abraders, and milling stones. They turned bone and shell into work-a-day tools, such as hoes, picks, ladles, fish hooks, sewing awls, and punches. They also carved bone and shell into jewelry, such as tubular beads and gorgets. Sometimes, people used altogether different materials, such as freshwater pearls and copper, for adornment. A panther mask archaeologists found may have been used for ceremony.

By tracing locations of Colington sites, archaeologists found that the people Europeans first met and wrote about had lived in the same general territory since AD 800. It spanned the Tidewater from southeastern Virginia from Hampton Roads and the James River south and into the northern half of North Carolina. This puts the Colington's southern boundary around present-day Onslow County.

Colington society—like that of most eastern Algonkians—revolved around chiefdoms, formal religion, and a priesthood. Chiefdoms claimed distinct chunks of the Tidewater, and their various territories scattered across the region. Politically similar to the Appalachians' Qualla people, Colington chiefs apparently ruled democratically rather than autocratically. While their power was nothing to trifle with and they could sway decisions with persuasion, they generally governed by consensus. That is, they listened to and did what a council of representatives from the chiefdom's villages decided was best. The chief's village, which archeologists call the capital village, was usually bigger than others in the chiefdom, and it tended to be centrally located within the claimed area.

The Colington Algonkians used several types of settlements, ranging from capital villages, common villages, seasonal villages and camps for specialized activities. How the settlements were structured, what went on in them, and how long people stayed in each place varied.

Capital villages were centers of political and religious activities. Smaller than capital villages, common villages were those bound to and loyal to the chief. Apparently, most were seats of farming with at least some people always there. Some were stockaded, but others were not. The seasonal village, as its name implies, was occupied at certain seasons.

On Colington Island, for example, archaeologists found a place where people spent summers fishing and collecting shellfish. They returned to their main villages each fall and winter, and from there they periodically struck out for hunting camps. Farmsteads, presumably worked by members of an extended family, were also part of the pattern of settlement.

Archaeologists believe each Colington chiefdom stretched over a territory that could handle the several subsistence strategies—agriculture, hunting, gathering, and fishing—needed to support a large population. Most capital and common villages sat along sounds and estuaries, or on high banks and ridges next to major rivers and their tributaries where sandy loam good for agriculture existed. The water bodies, depending on what they were, also provided shellfish, turtles and even alligators. The upland oak and hickory forests were sources of nuts, game, and other resources.

One example of how the Colington made their system work is at a summer village visited by English explorer Arthur Barlowe on Roanoke Island. There, Colington people fished and planted gardens while their corn crops matured at their mainland capital village across Croatan Sound. So far, only one chiefdom has been documented away from the mainland. It sat on the Outer Banks of Hatteras Island, but in a place with enough area at its south end to host the people's food needs.

Colington life was, in many ways, similar to other Indian groups across living across North Carolina after AD 1000. They had permanent, sometimes stockaded villages; they had agriculture, but never stopped relying on wild foods. They fashioned distinctive pottery. They traded and formed alliances. While their chiefdoms and priesthoods had the ring of ranking, the Colington political and religious system was based more on consensus than decree. In that sense, it was notably distinct from the hereditary and autocratic ruling elite that characterized Mississippian societies elsewhere.

The Colington people did, however, have a form of burial quite different from most other North Carolina people living then. They, along with their Iroquoian neighbors, used ossuaries, or communal burials, where the bones of many were placed in a large grave at one time. Some ossuaries, such as ones along the Chowan River in Currituck County or at Gloucester in Carteret County, had as many as 58 persons buried together—old and young, male and female.

Apparently, the tradition of mass burials was part of a strong northern tradition that made its way south to the Carolina Coast. It brought with it not just a way to bury the dead, but ways to prepare the dead for burial.

Colington communities had mortuary temples tended by priests. In the temples, deceased people were kept until it was time for burial. It's still unclear how often ceremonies for mass burials occurred. It's also unclear whether there were different temples for political and religious leaders and for common people. And it's not clear where the ossuaries were in relation to the villages. It seems, but archeologists aren't sure yet, that the ossuaries were placed in cemetery areas on a village's northern edge. Sometimes offerings, such as shell beads or bone pins, accompanied the burials.

By AD 1650, Colington life was brought to an end by European expansion. Facing the brunt of colonization, many Algonkians died from European diseases to which they had no immunity. Remaining members of the once powerful Algonkian tribe, the Chowanoke, were put on a Gates County reservation in 1675. Mention of these people in colonial records stops by the mid-18th century.

Cashie

Iroquoian-speaking Tuscarora, Meherrin, and Nottoway tribes were the Colington Algonkians' neighbors after AD 800. The Tuscarora lived in the Interior Coastal Plain, forming a confederation of three tribes. Together the Tuscarora tribes claimed the area from the Roanoke to the Neuse rivers and the western estuarine border (or where the tide meets river currents) to the

fall line. The Meherrin and Nottoway lived farther north, occupying the Meherrin and Nottoway river drainages.

Archaeologists label the pottery these Iroquoians made as Cashie, and, hence, give an umbrella name for their culture and lifeway between AD 800 and 1750.

Archaeologists find many similarities in how the Colington and Cashie people lived. Certainly, the Cashie used the same kinds of tools and jewelry as the Colington. They put their villages, farmsteads, and hunting or collecting camps in places to take best advantage of what the territory offered. Some villages had stockades. Some were open. The Cashie traded with the Colington for pottery, conch shells, and shell-bead jewelry.

What's left of one Cashie village sits along the margin of the Roanoke River at a site called Jordan's Landing. The village is small, sitting on the confluence of a small stream and the Roanoke. Long ridges of fertile sandy loam sit behind it. A lush oak-hickory forest covers the bank's ridge. Clearly, people picked the village site with an eye to the nearby variety of wild foods and arable land for agriculture. Food remains recovered at Jordan's Landing show the Cashie grew corn and beans. They ate hickory nuts and several kinds of animals: deer, bear, raccoon, possum, and rabbit. Fish, turtle and terrapin, mussel, and turkey were also eaten.

Cashie agriculture was not tied to floodplains, as it was in the Piedmont, Mountains, or Tidewater. The Interior Coastal Plain still contains the most productive agricultural soils in North Carolina, located in the loamy uplands along streams. The Iroquoians certainly observed this. They settled their villages on or near those uplands, regardless of how close or how big nearby floodplains were. The early European explorer John Lawson wrote descriptions of young men working hard in fields of corn as well as hunting to provide food for their families. This practice of men working fields was not just true of Iroquoian tribes, but of Tidewater and Piedmont groups Lawson observed.

Although the Cashie village at Jordan's Landing has not been completely excavated, archaeologists can tell that it was stockaded, and its shape was oval. A ditch bounded the village on its north and west sides, which people gradually filled in with trash. Whether the ditch was formed by natural erosion or whether it resulted from people using its soil to bank the base of the stockade is not clear. Nor can archaeologists make out from the pattern of the few postmolds they found anything about the size and shapes of the village houses. The people's cooking hearths are still visible, and so are some pits they may have used for storage.

Excavations also showed the Cashie at Jordan's Landing buried their dead on the village's southeastern side. Like the Colington Algonkians, the Cashie Iroquoians typically buried people in ossuaries.

But the Cashie practice had some differences. Apparently, Cashie ossuaries were family rather than community burials. Most have only two to five people placed in them. Also, where Algonkian ossuaries tend to have few if any grave offerings, the Cashie generally put tools like bone awls and jewelry like shell beads in the graves. Some had so many offerings, archaeologists wonder if they suggest social status or rank for the family buried there.

Besides this ceremonial difference, the Cashie organized their political life differently than the Colington. Unlike the Algonkian's Tidewater chiefdoms with its capital villages and allegiances, each Iroquoian village was autonomous. European accounts tell of a Tuscarora Confederacy composed of three tribes, but each seemed to retain political independence.

Oak Island

While the Algonkians and Iroquoians dominated most of North Carolina's Coast, small tribes

of Siouan-speaking people wedged in the southern corner below the Cape Fear River. Two of them were the Waccamaw and Cape Fear tribes. Archaeologists draw them under the cultural label Oak Island.

Oak Island—as a culture and way of life—is still a puzzle because little archaeological work has been written up or done. Presumably, Oak Island Siouans were more affected by goings-on in South Carolina than in North Carolina. Archaeologists think this because the temper they used for pottery and how they decorated vessels had stylistic predecessors to the south, not north.

Yet, Oak Island people, too, sometimes used ossuaries, especially in areas closest to the borders with their Iroquoian and Algonkian neighbors. Presumably, they had the same subsistence practices, lived in the same kinds and sizes of villages, and used the same kinds of everyday tools and jewelry other Coastal groups did.

The Mississippian period is the bridge to Colonial-era cultures. The Tuscarora on the Interior Coastal Plain, the Algonkians of the Tidewater, the Siouans of the Piedmont, and the Mountain Cherokee are a few whose unwritten histories try to speak from the ground.

Archaeologists caution that any connection between archaeological findings and specific historic tribes is tenuous. Even with year-round, permanent villages, people tended to move about and shift locations every few years. Because archaeological trails are rough and incomplete marked, they can turn out to be false. Nonetheless, the markers do document aspects of the way life was and how this affected the diverse cultural shapes of historic groups.

Links

Lesson 4.1: "Shadows of North Carolina's Past."
Lesson 4.5: "A Siouan Village."
Lesson 4.6: "Language Families."

Sources

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Quick Study

Mississippian Period (AD 1000 to AD 1650)

Archaeologist David Hurst Thomas says one of the neat things about being an archaeologist is you get to name things. Find a new kind of pottery, you name it; find a new archaeological site, you name it. Find a bunch of similar-styled artifacts geographically spread in similarly dated soil levels, you name it. And this is big-time naming because what you call it becomes the umbrella for a cultural period.

Archaeologists don't quibble much about what to call periods from Paleoindian through Woodland times. But faced with what was going on in North Carolina and the Southeast after AD 1000, they get stuck. North Carolina then was in a crossroads. Influences traveled to it from places like Virginia, Georgia, and Tennessee.

These influences affected North Carolina people variably. Where they filtered in, they helped mold life. How to shape and decorate pottery; how to organize politically and socially; how to bury and honor the dead; how to feed, clothe, house, and protect.

What gets sticky is that in some North Carolina places, like the Coastal Plain and the northern Piedmont, changes from previous ways of life were gradual; in these places, drawing a line separating the Woodland period from anything after AD 1000 seems like an arbitrary exercise. In other places, like the Mountains and southern Piedmont, the changes were more dramatic, as new customs associated with the Mississippian tradition were adopted; here, AD 1000 coincides with a major cultural transition.

So the sometimes testily debated issue is: What to call the period in North Carolina after AD 1000 and before European contact? Archaeologists use various names, depending on where they work in the state and the cultures that they find. Some archaeologists prefer the term Late Woodland, thereby emphasizing continuity with the preceding Woodland cultures. Others use Mississippian—the name given a cultural tradition found across most of the South and noted for its social structure, architecture, and art. Here we have decided to follow the broader regional trend and to use the name *Mississippian period* for the span between AD 1000 and 1650. This term recognizes the presence of the Mississippian cultural tradition (in the Mountains and southern Piedmont), but it should not be taken to mean that all cultures in North Carolina belonged to this tradition.

Key Characteristics

- Corn agriculture, along with beans and squash, provides the bulk of food. Hunting and gathering now supplement food from crops. The white-tailed deer is still the most important source of meat. Some archaeologists call AD 1000 "The Great Divide" between horticulture and intensive agriculture.

- Population increases.

- Permanent villages exist. They tend to be larger than Woodland villages. Some are hamlets, with houses strung out along river banks. Others are what archaeologists call compact, nucleated villages, where houses cluster together and surround a central, open

area. Some compact villages have wooden stockades surrounding them, while others don't.

- House shapes vary across the regions. In the Mountain and Coastal regions, people usually build square or rectangular houses. Piedmont dwellings tend to be round or oval.

- Also, distinctively made structures besides houses exist in villages, such as large council houses and sweat lodges. Many people also construct corn cribs.

- Platform mounds are built in the southern Piedmont, the Mountains, and adjacent portions of the western Piedmont; these are earthen mounds sometimes constructed on top of the burned or destroyed remains of a ceremonial earth lodge. A new structure is placed on top of the earthen mound, which people use for religious or political purposes.

- Conflict is documented; some burials show people died from arrow or trauma wounds. Archaeologists think population growth and the need for good agricultural land increased intertribal friction.

- Pottery styles become more complex and varied. People decorate pots with elaborate stamped and incised designs. Besides using vessels for cooking, people apparently use the clay pots to store large amounts of food. Some groups use large, capped pots as burial urns for infants or to hold the cremated remains of adults.

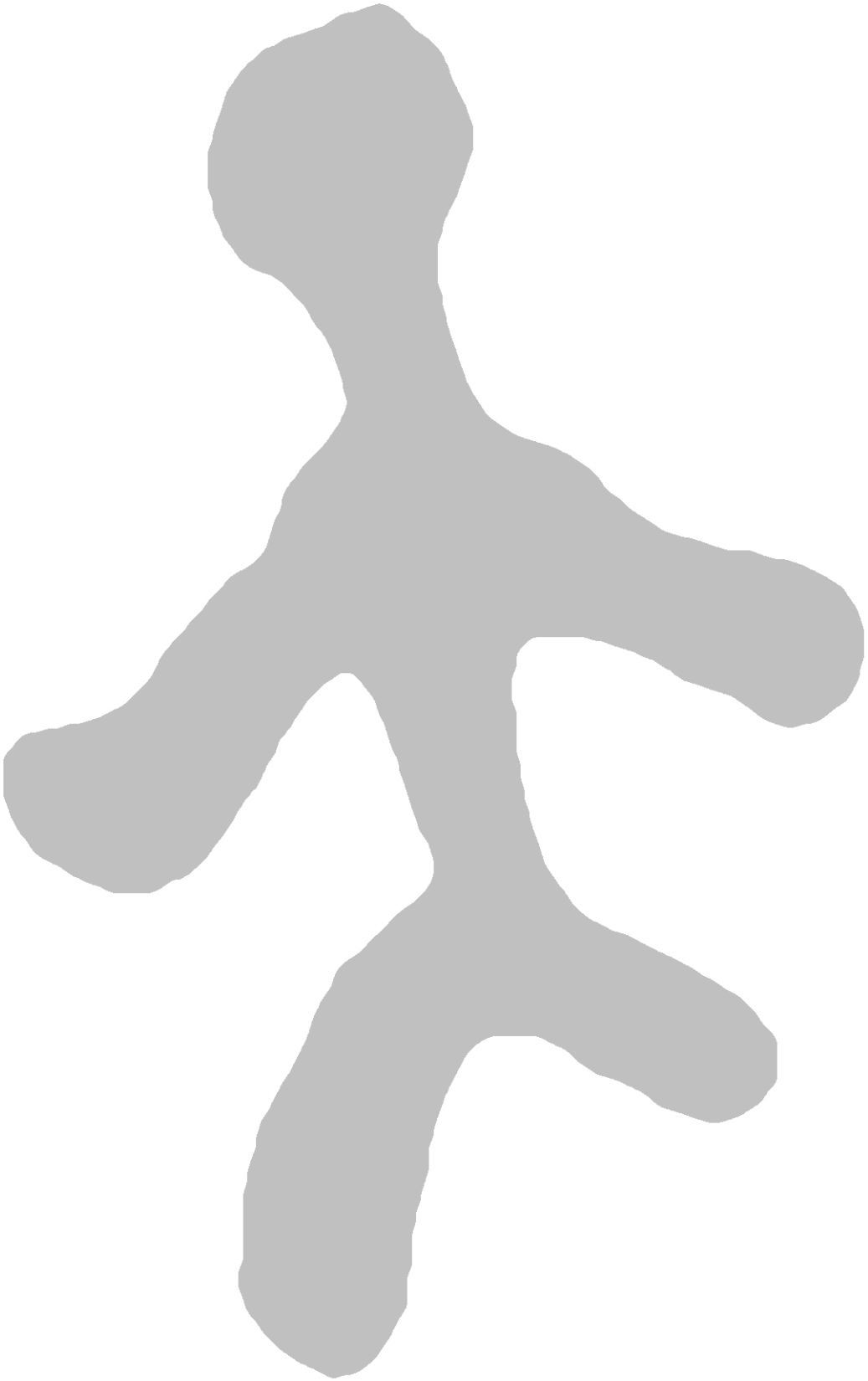
- Some tribes develop social and political hierarchies, particularly in the southern Piedmont and the Mountains. Other groups remain egalitarian.

- A distinctive cultural tradition called Mississippian cuts swaths of influence through western and southern North Carolina. Evidence includes ceremonial complexes with temple mounds, designs, and symbols—like a cross in a circle—carved into shell gorgets (pendants), and ways to make and decorate pottery.

- Burial practices continue to evolve among certain groups; ossuaries are used more along the Coast. Temple-capped earthen mounds in the Mountains have some people buried in them. Graves offerings are common.

Part 4

SHADOWS OF PEOPLE



Part 4

INTRODUCTION

Stone pipe from Cumberland County, North Carolina, ca. AD 1000.

In 1492 Christopher Columbus set sail from Spain in hopes of finding the Orient. He did not know two large continents would block his way. When he set foot on land, he thought he was in India and called the people he met "Indios." This word translates from Spanish to English as "Indians." Later historians credited Columbus and other early European explorers like Leif Ericson or Amerigo Vespucci with discovering the "New World."

But what about this New World and the Indians living there? Certainly the "New World" was not new to them. Their ancestors had discovered and explored this land thousands of years before the first ships sailed from Spain, Portugal, Italy, or Scandinavia. They had followed the animal herds that sustained them across a now submerged land bridge between Siberia and Alaska during the last Ice Age. Certainly, too, the "Indians" encountered by Europeans were not homogenous like the generalized label implies. Across time and the continents, these earliest explorers and settlers evolved different cultures, spoke hundreds of different languages, looked different physically, and had different social structures.

Among them were the first North Carolinians.

Like people living anywhere thousands of years ago, North Carolina's first peoples had no written language. The records they left are the traces and discards of life, such as food remains in fire pits, soil stains caused by decayed structures, or other objects (called artifacts) they made and used. Archaeologists study this sort of material evidence to reconstruct the lifeways and learn about the cultures of these people.

Archaeologists' methods match those of any problem-solving scientist. Archaeologists start with a question, and they answer it through logical reasoning based on the systematic recovery and analysis of data. For archaeologists, this method involves collecting items like trash and tools, along with recording detailed excavation notes. Importantly, archaeologists try to link the data to how people behaved. For example, they might hypothesize about how the first Carolinians adapted to climatic changes at the end of the Ice Age and what their social structure was. Computers, laboratory studies, and theories about culture all interplay in archaeologists' interpretations about past life.

In their quest to understand the past, archaeologists are generally guided in their research by three goals. One is *to obtain a chronology of the past.* This is a sequence of events and dates that, in effect, serves as a baseline for the history they reconstruct. For instance, an archaeologist may want to know when people in the Southeast began cultivating plants or when they started using the bow to hunt—and which activity came first. This kind of information lets archaeologists chart and date sequences of culture change and then compare histories in different parts of the country or world.

Another goal archaeologists have is *to reconstruct ways of life that no longer exist.* For

example, recent excavations of Pee Dee Culture Indian village sites in Montgomery County, North Carolina provide clues to the everyday life of the people who built Town Creek Indian Mound near Mt. Gilead. Before this research, archaeologists knew mostly about aspects of Pee Dee Culture ceremonial life occurring at the Mound. Now they can expand knowledge, such where the people's villages were located in relationship to the Mound, how many villages they had, and what their everyday life was like.

Finally, archaeologists want to understand *why human cultures change over time.* They may look, for instance, at the interplay of environment and human culture. A question could be: did small changes in gathering methods or modifications in shapes of hunting tools happen because of climatic shifts? Archaeologists look, too, at the interplay of different cultures, such as the extent to which a stratified agricultural society in the upper Midwest affected southeastern groups after AD 1000 or how small North Carolina tribes regrouped after European diseases decimated many of them after AD 1650.

What does all this mean for understanding North Carolina Indian history?

Here and across the state, archaeologists have unearthed hundreds of sites and studied thousands of artifacts. Each place and item becomes a thread woven into a multi-paneled historic tapestry depicting how Native Americans lived here during particular periods of time. Each scene on the tapestry represents a time and place. In technical terms, archaeologists call each scene a cultural period, which represents a span of time when large numbers of Indians shared a certain way of life. For example, in one period people hunted with an atlatl, and in another they used the bow and arrow.

For North Carolina, archaeologists distinguish at least five Native American cultural periods: Paleoindian, Archaic, Woodland, Mississippian, and Contact. The chapters in Part 3 present some of what archaeologists have learned about the first four of these periods, the ones that predate European contact. The Contact era is one that, for the moment, is left to written histories.

Lessons in this part stand alone, yet link to and expand on some tidbit in Part 3. For example, before doing Lesson 4.4, "Pottery Traditions," present and discuss information in Lesson 3.3's Woodland "Quick Study." Point out when eastern Indians started regularly making clay pottery. Point out the styles of their vessels changed over time and geographic space, giving some specific examples from Lesson 3.3.

Minimally, we hope you finish Parts 3 and 4 with two clear notions. First, the sequential, knowledge-building way archaeologists go about their work means they still have much to research, learn, and share. Second, and vitally, the "Indians" Columbus met were not frozen in time as many people even today believe. Rather, they were living very differently from those who crossed the northern land bridge thousands of years before. Their history is one of time passage, of journeys, of adaptations, of settling, of interactions, of conflict—everything that is the fabric of life.

Sources

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Lesson 4.1

SHADOWS OF NORTH CAROLINA'S PAST

Small stone head from Montgomery County, North Carolina, ca. AD 1200–1400.

Subjects: science, language arts, social studies.
Skills: knowledge, comprehension, application, analysis, evaluation.
Strategies: observation, classification, compare and contrast, scientific inquiry, sequence.
Duration: 45 to 60 minutes.
Class Size: any; groups of 3 to 4.

Objectives

In their study of archaeological evidence cards, students will:

- infer past Native American lifeways based on observation.
- construct a timeline of four major culture periods in Native American history.
- compare these lifeways and discuss how they are different and alike.

Materials

For the teacher, "Evidence Cards." For each student, an "Inquiries into the Past" activity sheet.

Vocabulary

Agriculture: the cultivation of domesticated plants, such as corn, beans, and squash, as primary sources of food.

Anthropology: the comparative study of human culture, behavior, and biology, and of how these change through time. Archaeology is often considered a specialty within anthropology.

Archaeology: a method for studying past human cultures based on material evidence (artifacts and sites). Archaeology is often practiced as a subfield of anthropology.

Artifact: any object made, modified, or used by humans; usually this term refers to a portable item.

Base camp. A relatively larger, more stable camp site that serves as a base for a wide range of activities within a group's territory. It may serve as a staging area for far-flung food-collecting, hunting, or quarrying expeditions.

Chronology: an arrangement of events or periods in the order in which they occurred.

Culture: the set of learned beliefs, values, styles, and behaviors generally shared by members of a society or group.

History: the study of past events and cultures using written records, oral traditions, and archaeological evidence as sources of information.

Horticulture: the cultivation of gardens whose foods supplement those obtained from some other primary source, such as hunting, gathering, fishing, or shell fishing.

Permanent village. A settlement that is continuously occupied by people throughout the year.

Semi-permanent village: a settlement occupied by people for several months each year, but not year round.
Short-term camp. A camp occupied for a relatively brief period of time.
Site: a place where human activities occurred and material evidence of these activities was left.
Subsistence: the means of supporting life, usually referring to food and other basic commodities.

Background

Change through time, according to archaeologist Joffre Coe, is one of the few constants in life. Everywhere and anytime, people change aspects of how they live—their tools, their foods, their houses, their art, their social structure, their world view and religion. Sometimes change is abrupt. Other times, it happens so slowly it seems imperceptible, visible only through the wide window of time.

Various factors affect change and the rate it occurs in people's lives. The environment, for example, can have tremendous effects. The slow climatic shift from Ice Age to modern weather that happened between 14,000 and 10,000 years ago overturned local ecology. In North Carolina, cold-loving boreal forests of jack pine and spruce became groves of deciduous nut trees and long-needle pine. Large Ice-Age mammals, such as the mastodon, died out. In their place, deer, bear, and other modern animals thrived.

People adjusted by changing not just what they hunted and gathered for food, but the tools they used. For example, as people came to use more and different plants for food, they created additional tools, like grinding slabs to process nuts and seeds.

Based on change over time, archaeologists identify four broad cultural periods in North Carolina before Europeans arrived. These periods are called Paleoindian, Archaic, Woodland, and Mississippian. Archaeologists constructed the story of each period by observing datable *artifacts* and other traces people left and then making inferences about how they lived. Generally, the transition from one period to another is marked by fundamental changes in things like technology (tools, containers, etc.), economy (*subsistence* patterns, etc.), or settlements.

The *Paleoindian period* is the oldest known cultural period in North Carolina. In fact, it is the oldest tradition for all of North and South America. The first Paleoindians crossed a now-submerged land bridge between Alaska and Siberia during the last Ice Age. Archaeologists find evidence Paleoindians were living in North Carolina between 10,000 and 8000 BC. They were nomadic hunters and gatherers who, in the last centuries of the Ice Age, presumably used thrusting spears tipped with chipped stone points to kill prey. Other tools included portable, but useful items like stone hide scrapers, drills, and knives. Paleoindians in the eastern U.S. occasionally hunted big game, such as now-extinct mastodons and bison. But increasingly evidence suggests most Paleoindians, including those in North Carolina, ate a wide variety of smaller animals and used many plants for food and medicines.

The *Archaic period* is the second oldest known lifeway across the continent. In North Carolina this tradition dates from 8000 to 1000 BC. Archaic Indians were direct descendants of Paleoindians. They, too, were wandering hunters and gatherers who had no year-round villages. Instead, they lived in camps; some of these settlements, called base camps, were relatively large and served as a "home base" for food-getting activities over a large area. Their shelters were probably tents made of wooden poles covered with hides that could be quickly built and dismantled. Possessions were few and portable.

Archaic Indians lived in a climate much like that of today, and were surrounded by the same species of plants and animals that exist today (in other words, the Ice-Age flora and fauna were

gone). To hunt, Archaic people used a spear-throwing device called an atlatl, which enabled them to propel spears farther and with more force. (Most archaeologists believe Paleoindians used the atlatl as well, but they have not found evidence yet to support this idea.) The white-tailed deer was the main source of meat for Archaic people. They also ate a variety of wild vegetables and fruits, and harvested wild seeds from a variety of plants that grew near riverside camps they regularly visited as they moved from place to place.

Over time, Archaic people adopted or developed new tools. They shaped grinding implements to process nuts from the spreading forests of deciduous trees and developed a technique to smooth and polish stone tools like axes. They carved bowls from steatite, a soft, soapy-feeling stone (also called soapstone). By the end of their 7,000-year-period in North Carolina, some Archaic Indians were making crude, fire-hardened clay vessels. A few were also digging small gardens, throwing in saved seeds from local seed-plants that grew around their camps.

The *Woodland period* follows the Archaic in North Carolina, beginning about 1000 BC and ending by AD 1000. The Woodland was a time of pottery-making, *semi-permanent villages*, and *horticulture*. These practices first showed up in the late Archaic among some people, but by the Woodland, they were widespread and common.

As horticulturalists, Woodland people gardened. They cultivated a variety of foods to supplement what they obtained from hunting and gathering. In their gardens, they grew many of the native seed plants their Archaic ancestors ate. Evidence suggests several of the local seed plants had been domesticated by Woodland times; specifically, some seeds' shapes had become larger and uniformly sized, indicating the plants required human help to reproduce and grow.

The Eastern Agricultural Complex is what archaeologists call the group of native plants that people cultivated in gardens. These include marsh elder, knotweed, sunflower, maygrass, and goosefoot. Many archaeologists think these crops give strong evidence that the practice of *agriculture* evolved independently in the Southeast.

Pottery-making became widespread and common at the start of the Woodland period. Some archaeologists think it may have gone hand in hand with gardening and a more settled life. The thinking goes that people needed clay vessels to cook and store food. The more they gardened and the more bulky items they possessed, the more they stayed put. As time went by, Woodland groups developed pottery with distinctive decorative and manufacturing styles.

Yet while gardens were important, Woodland people apparently did not rely solely on cultivated plants for food, and they did not stay in one place all year. Hunting and gathering still provided most of what people ate. Fishing and shellfishing were becoming important for some, especially coastal people. Even though Woodland Indians established small villages of round houses on or near fertile floodplains ideal for gardens, they periodically abandoned them. They spent weeks or months each year in seasonal camps, strategically situated within their territories to harvest or collect the wild foods key to survival. People timed the return to their semi-permanent village to the harvest of gardens.

As it did for people in earlier times, Woodland Indians' technology reflected their lifeway. Chipped stone or conch shell hoes for gardening appear in the *sites* archaeologists study. So do net sinkers and the first evidence of the bow and arrow. Archaeologists find triangular shaped points suited to tip arrows (not spears), literally pointing to a shift in hunting technology. Other evidence hints at how people organized themselves socially and politically. Some groups buried a few of their dead in earthen mounds and placed beautiful, elaborate items like pipes shaped as animals with them. Archaeologists think this special treatment hints at privileged people. Most other Woodland groups across North Carolina, however, buried their dead with few or no grave offerings, and may have been more egalitarian.

The Mississippian period covers the span from AD 1000 until Europeans arrived and colonized about AD 1650. Great cultural diversity existed among North Carolina's Indian people at this time. And this can be documented not just from archaeological evidence. Direct contacts, along with written accounts by early European explorers, chart three major linguistic and ethnic Native American groups. Algonkian speakers lived in the Coastal Plain's tidewater region. Tribes speaking Iroquoian languages lived on the inner Coastal Plain and in the Mountains. Siouan-speaking tribes occupied the Piedmont. Today, many of their tribal names are familiar. The Tuscarora, Nottoway, Meherrin, and Cherokee are Iroquoian; the Occaneechi and the Saponi are Siouan; the Lumbee emerged from various tribes finding strength when they banded together.

Despite the diversity, North Carolina's Native peoples between AD 1000 and 1650 shared several characteristics. Chief among them was corn agriculture. As early as AD 200, a variety of corn had made its way across trade routes from the Southwest to the Southeast. At first, Indian people grew it in their small gardens, along with squash and gourd, using it as they did the other crops to supplement diets. But by AD 1000, full-blown corn agriculture had taken hold. Small Woodland gardens gave way to larger fields and more intensive food production. By AD 1200, people were also planting beans, which came along trade routes to North Carolina about then. When added to hills of squash and corn, beans formed the final member of what is sometimes called The Three Sisters. Together, these crops provided a stable food base.

As farmers, tribes of this era flipped the subsistence equation. That is, where Woodland people used gardens to supplement what they hunted, gathered, or fished, Mississippian people used wild foods to supplement what they grew. Agriculture, thus, was dominant.

Not surprisingly, Mississippian populations increased, and people settled into permanent villages. Typically larger than Woodland villages, most had either above or below ground food storage facilities. House shapes varied according to region. Coastal Plain and Mountain people built square or rectangular homes, while those in the Piedmont constructed round houses. Some villages were strung-out hamlets while others had houses clustered together. Some of these clustered villages had protective stockades surrounding them. Constructed by putting posts side by side in a trench, the stockades may have been for protection. Evidence of conflict exists, perhaps caused by pressures for good agricultural soils.

Social structure was more varied and complex during the Mississippian period than it presumably was in earlier times. Chiefdoms, hereditary rule, priesthoods, and rule by consensus all existed in different places across North Carolina after AD 1000. Ritual (or ceremony) also varied; its hints are left in traces of art and architecture. People made jewelry carved and etched from imported marine shell or bone, soft capes of turkey feathers, clay pottery decorated with geometric swirls of lines. These were just a few of the distinctive things people made besides their everyday tools like bone fish hooks and sewing awls, stone arrow points, hoes, wood gravers, and hide scrapers.

In the Mountains and southern Piedmont, people built ceremonial centers whose monuments were large earthen mounds topped with wooden buildings. In some, a few people were buried. In other places, the ceremony associated with death was very different. Ossuaries, or mass graves, were common along the coast. Some Algonkian groups periodically buried community members in one grave, tending the bodies in charnel houses supervised by priests until mass burial occurred. Other groups, like some Iroquoian tribes living on the inner Coastal Plain, also had ossuaries at the edges of their villages. But they only placed family members in the grave. Piedmont tribes, on the other hand, preferred burying their dead singly in graves and often placed offerings with them.

While the Mississippian period ends at AD 1650, Native American society certainly didn't. It

went through upheaval in tragic proportions as disease, warfare, and removal challenged Indian life. Many tribes died out, their names left only in the names of modern towns or rivers. Many other small ones lost their particular languages and habits as they joined together in federations like the Catawba or Lumbee to preserve what was left of their culture. But Native society is hardy. Today, more than 80,000 Indian people live in North Carolina. They share this state and enrich its society by the contributions their ancestral and current cultures make in terms as varied as the foods we eat, the medicines we take, and the placement of towns.

Setting the Stage

Talk about or read a short story about life in Colonial times. Ask students to talk about how life then was different. Focus on aspects like technology: the tools and raw materials people used, houses, furnishings, foods, etc. Have students imagine what their life would be like now if nothing had changed. Ask, too, what kinds of things may have stayed the same.

Point out that culture is always changing, yet grounded in past ways. Like the general American culture has changed over time, so did that for Native Americans. Archaeologists chart their lifeway shifts by studying the artifacts and other evidence they left behind.

Share background information with students. Introduce the four periods (Paleoindian, Archaic, Woodland, and Mississippian) and discuss how Indian life changed over thousands of years.

Procedure

1. Review key vocabulary to be sure all students start the exercise with the same grounding. Key words include: *archaeology*, *anthropology*, *artifact*, *chronology*, *subsistence*.

2. Place the "Evidence Cards" on tables in different piles, grouped by letter (or distribute them as handouts). Tell students each group represents clues about Indian life during one of four periods identified by archaeologists. Tell them that the oldest tradition, the Paleoindian, was in place in North Carolina by 10,000 BC. The most recent period, called the Mississippian, began about AD 1000 and lasted until Europeans arrived and settled. Two others, called the Archaic and the Woodland, are tucked in between. Based on observation and inference, students must decide which materials go with which lifeway.

3. Give each student an "Inquiries into the Past" activity sheet. Divide students into groups and have them rotate through each card stack. Each student should fill in the activity sheet blanks, although encourage students to discuss with their teammates what they observe about the clues. For example, what materials are the tools made from? What are the shapes of the tools? How might they have been used? What did people eat? Where did they live?

4. When student groups have finished analyzing the artifact cards, have them arrange a chronology and present their findings to the class. Students should explain the reasons for the chronological order they choose. Ask what changes they observed from one period to another; ask, too, what things stayed the same.

5. When everyone has settled on an order for the periods, see if their observations match what archaeologists have observed.

Note: Remind students that Native American *history* in North Carolina did not stop after AD 1650; Native cultures in the state are strong and vibrant today. The objective of this exercise is to focus only on what archaeologists have interpreted about Indian history before European colonization.

Closure

Summarize the major points of each of North Carolina's four cultural periods. Particularly, discuss changes that occurred in terms of settlements, the tools used, the foods eaten, and how these foods were obtained. If this activity follows work in Parts 1 and 2, ask students to review and link concepts (such as stratigraphy, classification, observation and inference, hypothesis testing) that archaeologists rely on to interpret the past.

Evaluation

Students turn in their "Inquiries into the Past" activity sheet for evaluation.

Extensions

Visit an archaeological site (see Appendix 3 for suggestions and contact information).

Links

Lesson 1.3: "Observation and Inference."

Sources

Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this lesson's main heading is taken from Figure 4.22.]

"Inquiries into the Past" Activity Sheet Answers:

Although the main point of this exercise is to get students thinking comparatively about how cultures change through time, the "correct" order of the card sets in terms of North Carolina's cultural history is, from earliest to latest, as follows: C, A, D, B.

Card set C represents the Paleoindian period (10,000 to 8000 BC). People were nomadic hunters and gatherers who lived in an Ice-Age environment and occasionally may have hunted large animals (megafauna) like the mastodon, which is now extinct. Because they were nomadic, people lived mostly in short-term camps and did not use heavy containers such as pottery vessels. Instead, they probably used baskets and containers made of wood and hide, but these materials do not survive in the soil and therefore are not found at archaeological sites.

- *Foods:* white-tailed deer bones (hunted); mastodon bones (Ice-Age species, possibly hunted); wild fruit seeds (gathered).
- *Tools and containers:* chipped-stone drill (for drilling holes in wood and bone); chipped-stone scraper (for scraping hides and other materials); chipped-stone spear point (for hunting, evidence for the use of a spear thrower or atlatl); chipped-stone adze (for woodworking).
- *Settlements:* short-term camps (where people camped for shorter periods of time); stone quarry (where people went to obtain stone used to make tools).

Card set A represents the Archaic period (8000 to 1000 BC). People were nomadic hunters and gatherers who lived in a modern environment, with a climate like today's. The animals they hunted and plants they gathered are all species that exist today. People were nomadic, but they did not move as frequently as in the preceding Paleoindian period. Although short-term camps continued to be used, for parts of the year people lived in more stable settlements called base camps. Although pottery was not in general use, people occasionally made stone vessels, carved from a rock called steatite (or soapstone). Baskets would also have been used, but because of poor preservation evidence for their use is generally absent.

- *Foods:* wild small-grains (grown as crops); nuts (gathered); wild fruits (gathered); white-tailed deer (hunted).

- *Tools and containers:* stone vessel (for cooking); chipped-stone scraper (for scraping hides and other materials); chipped-stone spear point (for hunting, evidence for the use of a spear thrower or atlatl); grinding stone (for grinding seeds, and for pounding nuts); bone fish hook (evidence of fishing); polished-stone axe (for woodworking).
- *Settlements:* base camps (where people camped for longer periods of time); short-term camps (where people camped for shorter periods of time).

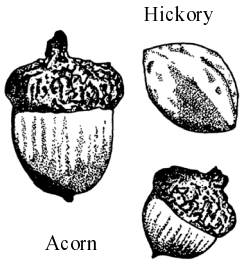
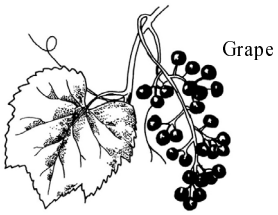
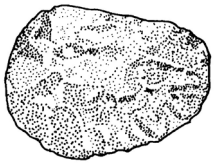
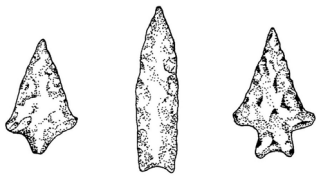
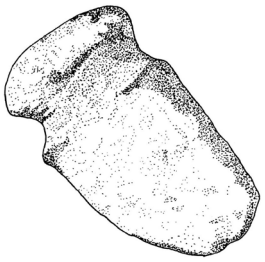
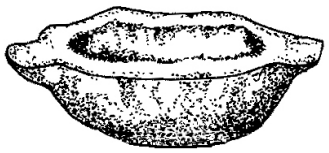
Card set D represents the Woodland period (1000 BC to AD 1000). People continued to hunt, fish, and gather wild foods. But these food sources were now supplemented by horticulture—small grains (such as goosefoot) raised in gardens. People became more settled (i.e., they were less nomadic) and lived in semi-permanent villages. Occasionally people built dome-shaped earthen mounds as ceremonial places for burial of the dead. Technological innovations included pottery vessels (which replaced stone vessels) and the bow and arrow (which replaced the spear thrower or atlatl).

- *Foods:* cultivated small-grains (grown as crops); nuts (gathered); white-tailed deer (hunted); wild fruit seeds (gathered).
- *Tools and containers:* pottery vessel (for cooking); stone pipe (for smoking tobacco); chipped-stone arrow point (used for hunting, also evidence for use of the bow); grinding stone (for grinding seeds and corn, and for pounding nuts); bone fish hook (evidence of fishing); polished-stone axe (for woodworking);
- *Settlements:* semi-permanent village (where people lived for part of the year); burial mound (ceremonial place where honored dead were buried).

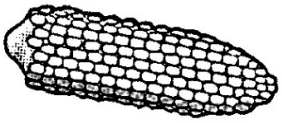
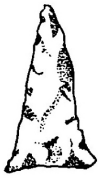
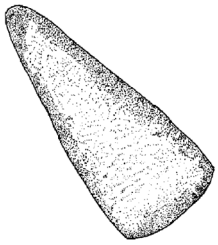
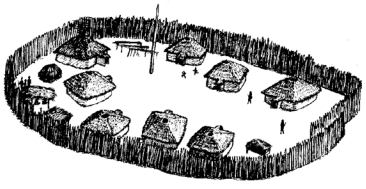
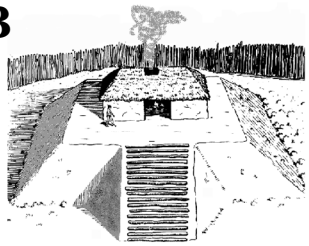
Card Set B represents the Mississippian period (AD 1000 to 1650). This was a time of full-blown agriculture, with the principal crop being corn. This staple was supplemented by the cultivation of small grains as well as hunting, fishing, and gathering of wild foods. People lived year-round in permanent villages, which were sometimes fortified with a stockade. Some villages had earthen structures called platform mounds, which supported important community buildings such as council houses, temples, or the residences of chiefs. Pottery and the bow continue to be used.

- *Foods:* cultivated corn (grown as a crop); cultivated small-grains (grown as crops); nuts (gathered); white-tailed deer (hunted).
- *Tools and containers:* pottery vessel (for cooking); stone pipe (for smoking tobacco); chipped-stone arrow point (used for hunting, also evidence for use of the bow); grinding stone (for grinding seeds and corn, and for pounding nuts); bone fish hook (evidence of fishing); polished-stone axe (for woodworking).
- *Settlements:* permanent village (where people lived year-round); platform mound with building on top (ceremonial structure which served as a council house, a temple, or the residence of a chief).

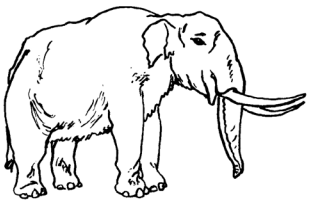
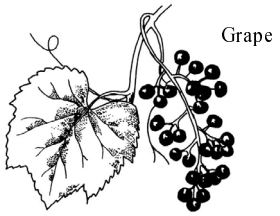
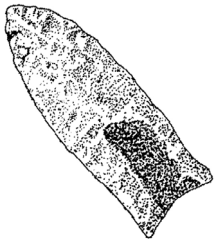
Evidence Cards (Card Set A)

A  Wild small-grain seeds (food remains)	**A**  Nut shells (food remains)	**A**  White-tailed deer bones (food remains)
A  Wild fruit seeds (food remains)	**A**  Chipped-stone scraper	**A**  Chipped-stone spear points
A  Grinding stone	**A**  Bone fish hook	**A**  Polished-stone axe
A  Stone vessel	**A**  Base camp	**A**  Short-term camp

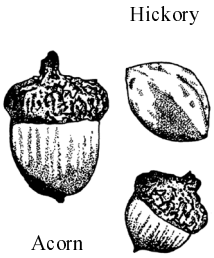
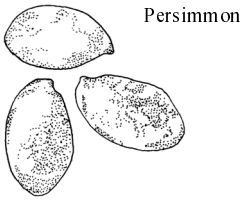
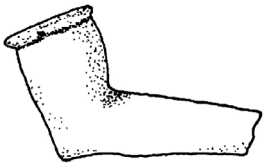
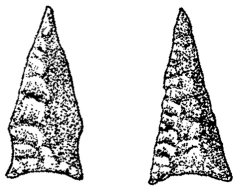
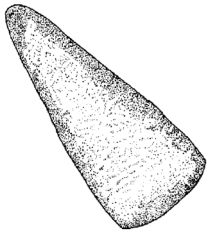
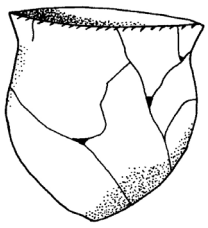
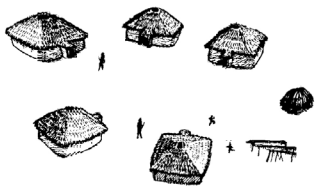
Evidence Cards (Card Set B)

B  Cultivated small grain seeds (food remains)	**B**  Nut shells (food remains).	**B**  White-tailed deer bones (food remains).
B  Cultivated corn kernels and cobs (food remains)	**B**  Stone pipe	**B**  Chipped-stone arrow point
B  Grinding stone	**B**  Bone fish hook	**B**  Polished-stone axe
B  Pottery vessel	**B**  Permanent village	**B**  Platform mound with building on top

Evidence Cards (Card Set C)

C  White-tailed deer bones (food remains)	**C**  Mastodon bones (food remains?)	**C**  Wild-fruit seeds (food remains)
C  Chipped-stone drill	**C**  Chipped-stone scraper	**C**  Chipped-stone spear point
C  Chipped-stone adze	**C**  Short-term camp	**C**  Stone quarry

Evidence Cards (Card Set D)

D  Cultivated small-grain seeds (food remains)	**D**  Nut shells (food remains)	**D**  White-tailed deer bones (food remains)
D  Wild fruit seeds (food remains)	**D**  Stone pipe	**D**  Chipped-stone arrow points
D  Grinding stone	**D**  Bone fish hook	**D**  Polished-stone ax
D  Pottery vessel	**D**  Semi-permanent village	**D**  Burial mound

Inquiries into the Past

Name:

	Food Remains	**Tools and Containers**	**Settlements**
Set A			
Set B			
Set C			
Set D			

Lesson 4.2

SHIFTING COASTLINES

Clovis spear point from North Carolina, ca. 10,000–9000 BC.

Subjects: science, mathematics.
Skills: application, analysis, evaluation, knowledge.
Strategies: problem solving, mapping, scientific inquiry, computation, graphing, using scale.
Duration: 45 to 60 minutes.
Class Size: any.

Objectives

In their study of North Carolina's changing coastline during the Paleoindian and Archaic periods, students will:

- determine the positions of the coastline at different times;
- decide what types of archaeological information has been lost due to rising sea levels.

Materials

For the teacher, transparencies of "North Carolina's Continental Shelf" and "Shifting Coastlines" activity sheet for projection. For each student, a copy of the "Shifting Coastlines" activity sheet; assorted color pencils or markers.

Vocabulary

Barrier islands: a line of islands that run parallel to the mainland coast and are separated from the mainland by a body of water known as a sound.

Beringia: the name of the land bridge that connected Asia and North America during the last Ice Age.

Climate: the general weather conditions of an area.

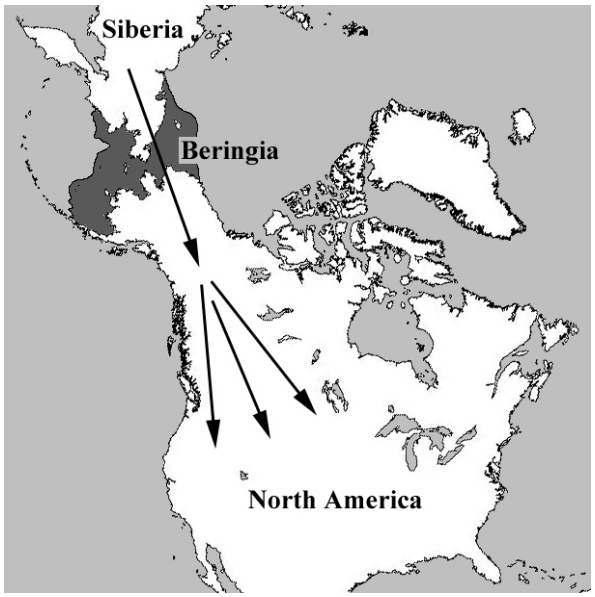
Continental Shelf: the part of the continent beyond the current shoreline that is submerged in relatively shallow seas.

Nomadic: a way of life in which a group of people have no permanent residence, but move from place to place.

Sea level: the water level of the sea at a point midway between low and high tide.

Background

The earliest peoples living in North Carolina, known as the Paleoindians, arrived here by 11,500 years ago. Their ancestors had traveled from what is now the continent of Asia across a land bridge that connected Alaska and Siberia. This land bridge, called *Beringia*, was exposed during the last Great Ice Age, which lasted from 2 million to 10,000 years ago. Because so much ocean water was frozen into glaciers during that period, sea levels were much lower than they are today. Land that is now underwater was dry ground, and, thus, the continents were shaped very differently than they are now. For example, the continents of Asia and North America were



Beringia.

connected by the Beringia land bridge. Before people crossed over the land bridge from Asia, there had been no people living in what is now North and South America. It took many years for the descendants of the first North American Paleoindians to travel across the continent and reach what is now North Carolina.

The earliest residents of North America were hunters and gatherers and moved around to be near herds of game animals and seasonal plant foods. In fact, many archaeologists believe that early North Americans crossed the land bridge as they followed herds of large grazing animals, such as mammoth and bison. When Paleoindians lived in North Carolina, the *climate* was different than it is now. The weather was cooler and wetter, with harsher winters than we experience today. As the weather grew warmer over time, larger grazing animals, such as mammoths and caribou began to be replaced by smaller animals. These animals included deer, rabbits, squirrel, and raccoons, which were abundant in the forests of hickory, elm, and oak that replaced the cold-loving boreal forests at the end of the Ice Age.

The land itself was also very different during the Paleoindian period. Today the Atlantic Ocean meets the shore of North Carolina at the Outer Banks, a line of *barrier islands* that runs parallel to the mainland. During the Paleoindian period, however, the *sea level* was lower because so much evaporated seawater fell to freeze into glaciers that reached from the North Pole down through Canada. Scientists estimate water levels were 125 feet below the present water surface around 14,000 years ago. Most of the now-underwater *Continental Shelf* was exposed land. This meant that, in some places, the ancient coastline was more than 50 miles east of the modern shore!

As thousands of years passed (between 12,000 and 9,000 years ago); the climate slowly warmed and the ice caps began to melt, causing the sea level to rise. By 10,000 years ago, at the end of the Paleoindian period, the water levels were about 92 feet below current levels. Water levels continued to rise slowly throughout the next few thousand years, and by 7,000 years ago, sea level was about 46 feet below its current level.

Archaeologists know very little about the daily life of Paleoindians because they probably lived in small *nomadic* groups. Because they moved around frequently, they did not leave behind traces of villages like Native Americans from later times. Some Paleoindians may have lived along the coast, but where they camped and any evidence they left documenting their stay would now be under at least 100 feet of water. Consequently, archaeologists know little about the places coastal Paleoindians lived, what types of food they ate, and how big the groups were in which they traveled and lived.

Setting the Stage

The Cape Hatteras lighthouse was in danger of being swallowed by the sea. To prevent its destruction, the lighthouse has been moved inland. Ask students this question: If the lighthouse

had stayed in its old location and the sea had destroyed it, would anybody living five hundred years from now know about it if no records existed? Why would this knowledge be important? Discuss the role lighthouses play in maritime history.

Procedure

1. Go over the background material with students.
2. Project the transparency "North Carolina's Continental Shelf" and point out features of the coast, such as the barrier islands known as the Outer Banks. Indicate on the map the edge of the Continental Shelf, showing students the extent of land around 14,000 years ago. Ask them: If people lived on the coast 14,000 years ago, where would their sites be? How would this location affect what archaeologists can learn?
3. Distribute the "Shifting Coastlines" activity sheet to each student. Project a transparency of the activity sheet, drawing attention to the cross-section diagram of the North Carolina coast. Point out the current sea level, as shown by the horizontal line drawn across the top of the cross section. Direct the students to use the vertical scale that appears along the left-hand side of the cross section to determine sea levels for the periods listed in Question 1. You may want to go through an example with the students.
4. Direct them to use rulers and colored markers to draw lines for the sea levels in Question 1. Use a different color marker for each level, and label each with the time period represented.
5. Direct students to answer the remaining question on the activity sheet.

Closure

Explain to students that climatic and other environmental changes are occurring constantly. Shoreline activities will continue to erode the coast in some places and build it up in others, while storms like hurricanes can create or destroy coastal lands and barrier islands. You may wish to use the example of Topsail Island. Before Hurricane Fran in September of 1996, Topsail Island was one body of land. The winds and waves of the hurricane created a new channel of water through the land, cutting the island in half.

Evaluation

Have students turn in their activity sheets for evaluation.

Links

Lesson 3.1: "The Pathfinders."
Lesson 1.3: "Observation and Inference."

Sources

Blackwelder, Blake W., Orrin H. Pilkey, and James D. Howard. 1979. "Late Wisconsin Sea Levels on the Southeast United States Atlantic Shelf Placed on In-Place Shoreline Indicators." *Science* 204, pp. 618–620.

DePratter, Chester, and James D. Howard. 1981. "Evidence for a Sea Level Lowstand between 4,500 and 2,400 Years Before Present on the Southeast Coast of the United States." *Journal of Sedimentary Petrology* 51(4), pp. 1287–1295.

Hargrove, Thomas H., Dennis Lewarch, Scott Madry, Ian Von Essen and Charlotte Brown.1984. *A Cultural Resource Survey at U.S. Marine Corps Air Station, Cherry Point, North Carolina.*

Report submitted to the Archaeological Services Branch, National Park Service, Atlanta. Chapel Hill, N.C.: Archaeological Resource Consultants. [The illustration on the "Shifting Coastlines" activity sheet is adapted from Figure 2.1, courtesy of Thomas Hargrove.]

Newton, John G., Orrin H. Pilkey, and Jackson O. Blanton. 1971. *An Oceanographic Atlas of the Carolina Coastal Margin.* Raleigh: North Carolina Department of Conservation and Development.

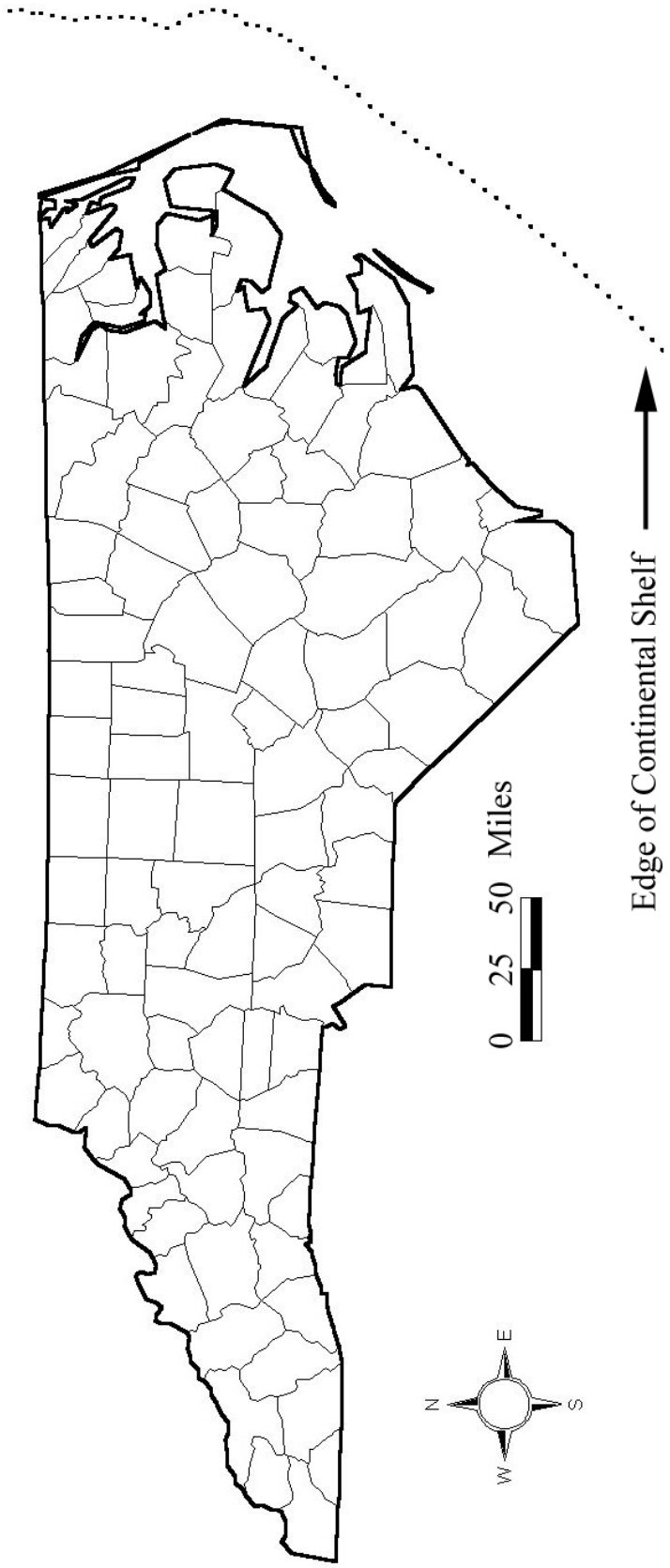
Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this lesson's main heading is taken from Figure 2.1.]

"Shifting Coastlines" Activity Sheet Answers:

1. The approximate distances from the current shore of ancient coastlines are as follows: 14,000 years ago, 50 miles; 10,000 years ago, 32 miles; 7,000 years ago, 3 miles; and 5,000 years ago, less than 1 mile.

2. Examples of the kinds of information lost as a result of rising sea levels are where coastal Paleoindians lived, what sorts of shelters they built, what foods they ate, what tools they used, and how they buried their dead.

North Carolina's Continental Shelf

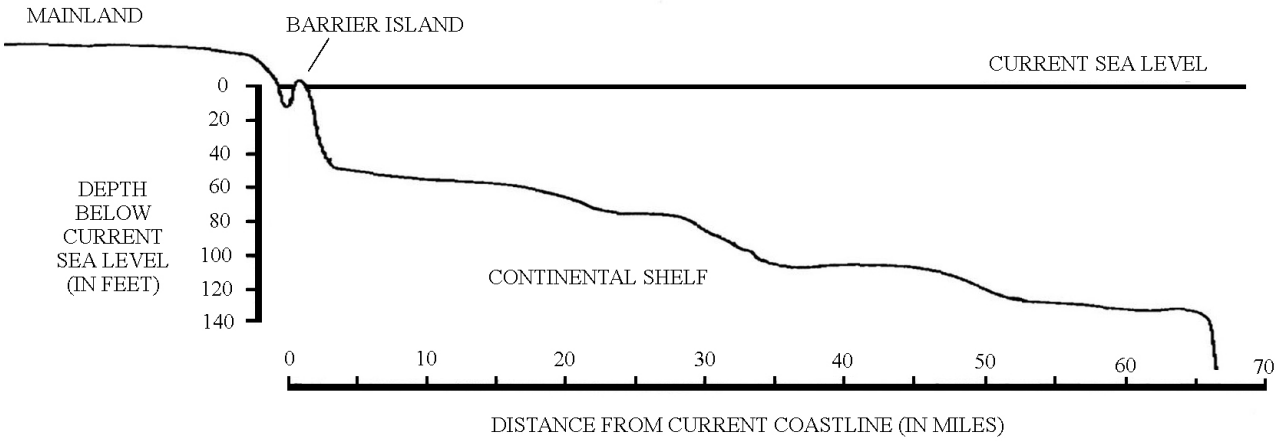


Shifting Coastlines

Name:

1. The diagram below shows a cross section of the North Carolina coast. This diagram can be used to reconstruct where the coastline was during Paleoindian and Archaic times, when the sea level was lower than it is today. Shown below are the sea levels at various times in the past. (Remember: current sea level is 0 feet and is shown as a horizontal line near the top of the diagram.) Use colored markers to draw a line on the diagram showing the sea level for each date. Mark the date beside or on top of the line. How far from the current coastline was the coastline at each date in the past?

- 14,000 years ago, the sea level was 125 feet below current sea level.
- 10,000 years ago, the sea level was 92 feet below current sea level.
- 7,000 years ago, the sea level was 46 feet below current sea level.
- 5,000 years ago, the sea level was 5 feet below current sea level.



2. Sites where Paleoindians lived along the coast are now covered by the sea. What types of information about how these early peoples lived has been lost forever by the rising sea levels?

Lesson 4.3

NAME THAT POINT!

Spear point from Stanly County, North Carolina, 7000–6000 BC.

Subjects: science, mathematics, language arts.
Skills: application, analysis, evaluation, knowledge.
Strategies: scientific inquiry, research skills, classification, role play.
Duration: 45 to 60 minutes.
Class Size: any; groups of 4 to 5.

Objectives

In their study of projectile points (i.e., spear points or "arrowheads") dating to the Archaic period in North Carolina, students use activity sheets to:

- compare projectile point *attributes*;
- identify and classify points based on clearly defined variables;
- match projectile points to a chronology and determine when the points were made and why the information is important to archaeologists.

Materials

For the teacher, transparencies of "Big Oak Site Profile Answer Sheet," "Big Oak Site Profile," and "Chronology of Archaic Projectile Points" activity sheets for projection. For each student, copies of "Chronology of Archaic Projectile Points," and "Identifying Projectile Points" activity sheets. For each group of 4 to 5 students, a copy of the "Big Oak Site Profile" and "Big Oak Site Artifact Bags" activity sheets, pencil, and paper.

Vocabulary

Archaic period: the period in North Carolina between 8000 BC and 1000 BC. During this period, Native Americans lived in small nomadic bands and made their living principally by hunting, fishing, and gathering wild foods.

Artifact: any object made, modified, or used by humans; usually this term refers to a portable item.

Atlatl: a tool used to throw spears faster and with more accuracy; also called a spearthrower. It consists of a short pole with a handle at one end and a hook (for engaging the spear) at the other.

Attribute: a characteristic or property of an object, such as size, color, or shape.

Chronology: an arrangement of events or periods in the order in which they occurred.

Cross-dating: the principle that a diagnostic artifact dated at one archaeological site will be of the same approximate age when found elsewhere.

Classification: a systematic arrangement in groups or categories according to established criteria.

Context: the relationship artifacts have to one another and the situation in which they are found.

Haft: a handle, especially of an edged tool.

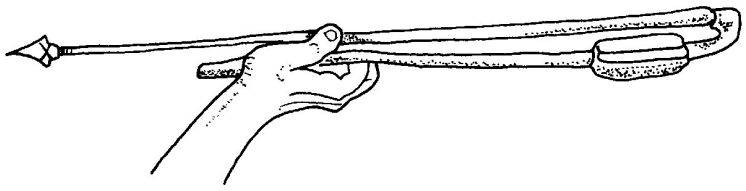
Projectile point: a pointed implement (usually made from chipped stone) that was attached to the

end of a spear or an arrow. This is a general term that includes both spear points and arrowheads.

Background

Archaeologists identify the *Archaic period* in North Carolina as the time between 8000 BC and 1000 BC. The Ice Age had ended and the modern climatic era had settled in. Native Americans lived all over North Carolina by then. They were nonagricultural people who traveled through large territories to hunt, fish, and gather wild plant foods. They did not live in permanent villages or make pottery.

The *projectile point* was a major hunting tool for Archaic people. Made by chipping off pieces of rock to the desired shape, the stone points were attached to wood or bone shafts that were set in the hollowed-out ends of spears. People could hurl spears forcefully over great distances by putting them on throwing sticks, called *atlatls*. An atlatl consisted of a stick measuring about 2 feet long, with a handle on one end and a groove or hook at the opposite end. The hunter fit the spear shaft into the groove and then, while holding onto both pieces, would thrust the atlatl and spear forward. The hunter would release his hold on the spear, but remain holding the atlatl.



Atlatl (throwing stick) and spear in use.

Native Americans used many different types of rocks to make projectile points, although some types of stone were preferred. Stones that easily flaked into tools and that held sharp edges were valued and often traded over long distances. Archaeologists can determine ancient trade routes by looking at the variety of stones recovered from sites. Native Americans used different tools to make stone projectile points, including deer antlers, wooden sticks, and fist-sized rocks called hammerstones.

Just as modern people change the styles of things they use today, people living during the 7,000-year-long Archaic period changed how their projectile points looked. Throughout the Southeast, dozens of different projectile-point shapes, or types, exist. In North Carolina alone, archaeologists have identified at least 11 distinct point types that date to Archaic times. The names they gave these types often indicate the name of the place at which they were first found or identified. For example, the Hardaway point was named for a site in Stanly County where many of these points were excavated. Projectile points are usually given their names by archaeologists or collectors, and not by the Native American people who used them. The names given to them by the people who made them are forever lost.

Why people changed projectile point shapes is something archaeologists can only make hypotheses about. Perhaps ancient people noticed that spears flew straighter if the point's shape was altered. Or, maybe a point could be secured more tightly on the spear by modifying its *hafting* end. Then again, maybe it was simply a matter of changing styles.

Archaeologists divide the Archaic period into three parts: Early, Middle, and Late Archaic.

During the first part of the Early Archaic, which lasted from 8000 BC to 6000 BC, big Ice Age animals, such as the mastodon, had already died out as the climate grew warmer. Native North Carolinians were hunting deer and other small animals with small-to-medium-sized stone projectile points. Hardaway, Kirk, and Palmer points date to the Early Archaic.

The years between 6000 and 3000 BC are called the Middle Archaic. The climate was drier than it had been in the Early Archaic, and because of this change, there was more grassland than before. Bison and other grassland animals became more common than deer during this time, and people hunted them for food and skins. Native American groups began to become more territorial in the Middle Archaic, and archaeologists find a growing variety of projectile point types. Some of the point types from the Middle Archaic are called Morrow Mountain, Stanly, and Guilford.

In the Late Archaic (3000–1000 BC), the climate changed to cooler, wetter weather, and forests and swamps became more numerous. Forest animals such as deer, rabbits, and raccoons again became important in the diet. Some of the projectile points Late Archaic people made and used during this time included Savannah River and Halifax.

Even though archaeologists can never really know the reasons people changed projectile point shapes, they have chronicled the varying styles so that approximate dates are known for them. This work began in the 1950s. Before then, no stratified (layered) sites had been excavated in North Carolina. Archaeologists can date projectile points when they are found in *context*, or association, with other artifacts which can be given a date. Archaeologists have used this method to construct a *chronology*, or timeline for North Carolina projectile point styles.

Setting the Stage

To help them think about how the styles of objects change over time, direct the students to think of examples of products or objects that have changed. You might suggest they think of ways that computers have changed over the last few years (gotten smaller, more memory, greater speed, color screens, development of the internet, etc.). Why have these changes occurred? Which changes are related to technological advances and making the product more efficient at its job? Which changes are related to fashion or with the desire of the manufacturer to sell more objects? Which of these ways of thinking about change do students consider to be relevant when thinking about why projectile point styles changed?

Procedure

1. Share background information with the students.

2. Distribute the "Chronology of Archaic Projectile Points" activity sheet to each student, and project this transparency. Go over types of projectile points found in North Carolina dating to the Archaic period and discuss the differences in point shapes and sizes. Instruct students to focus on differences in various attributes. For example, direct them to determine if the points' bases are flat or concave, or if the blade edges are serrated (i.e., have a saw-tooth pattern) or not.

3. Distribute the "Identifying Projectile Points" activity sheets to students. Direct them to use the "Chronology of Archaic Projectile Points" sheet to identify each point based on artifact size and shape.

4. Divide students into groups of 4 or 5. Distribute to each group one "Big Oak Site Profile" and one "Big Oak Site Artifact Bags" activity sheet. Tell them that they are students in an archaeological field school and are being tested on their knowledge of Archaic period projectile points and site stratigraphy. Explain that the "Big Oak Site Profile" activity sheet represents a profile map of a stratified Archaic site. Review the concepts of stratigraphy and chronology

learned in the earlier lessons (see Links, below). Remind the students that archaeological soils build up through time, with each layer representing a distinct time period on the site. The latest, or most recently deposited soil layer is the first that the archaeologist removes, and the layer deposited earliest is the last removed.

5. Project the transparency of "Big Oak Site Profile" and go over it with the students. Help them decide in what order an archaeologist would excavate the layers. (Answer: the top layer with the grass would be the first excavated, working down consecutively until the lowest layer is reached.) Discuss with the students the order in which the soil layers were deposited on the site. (Answer: the lowest layer was the first deposited, and the uppermost layer was the last deposited.)

6. Explain the instructions for the activity. The "Big Oak Site Artifact Bags" activity sheet lists artifacts archaeologists recovered from each soil layer on the site, as well as each layer's soil color and type. Students use illustrations of the projectile points from each bag and the "Chronology of Archaic Projectile Points" activity sheet to complete the profile map by filling in the blanks for soils, points, and dates. First, they should determine the dates of the projectile points. This tells them when the soil layers formed. Then, using their knowledge of the rules of stratigraphy, they label the position of each soil layer on the profile map based on the projectile points' dates. Remind them that the oldest points are found on the lowest level. They may find it helpful to take notes as they work.

7. After students have completed the exercise, project the "Big Oak Site Profile Answer Sheet" transparency. Have them go over their own sheets and tell how they arrived at their answers.

Closure

Discuss why is it important that archaeologists use changing artifact styles and stratigraphy to help them understand archaeological sites. Stress the importance of *cross-dating*; the principle that a diagnostic artifact dated at one archaeological site will be of the same approximate age when found elsewhere. For example, if Savannah River points were found in the second level of a camp site located 50 miles away, when was that layer deposited?

Evaluation

Have students turn in their activity sheets for evaluation.

Links

Lesson 1.5: "Chronology: The Time of My Life."
Lesson 2.2: "Stratigraphy and Cross-Dating."

Sources

Coe, Joffre L. 1964. *The Formative Cultures of the Carolina Piedmont.* Transactions 54(5). Philadelphia: American Philosophical Society.

Culberson, Linda Crawford. 1993. *Arrowheads and Spear Points in the Prehistoric Southeast.* Jackson: University Press of Mississippi.

Henry, Vernon G. 1991. "Key to the Projectile Points of the Appalachian Mountains of North Carolina." *Southern Indian Studies* 40, pp. 31-63.

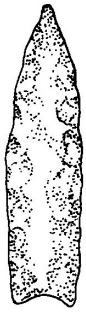
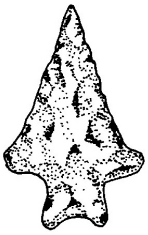
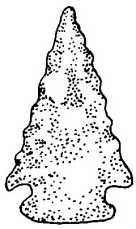
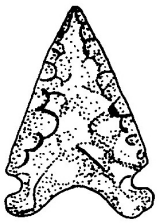
Justice, Noel D. 1987. *Stone Age Spear and Arrow Points of the Midcontinental and Eastern United States*. Bloomington and Indianapolis: Indiana University Press.

Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this lesson's main heading is taken from Figure 3.4.]

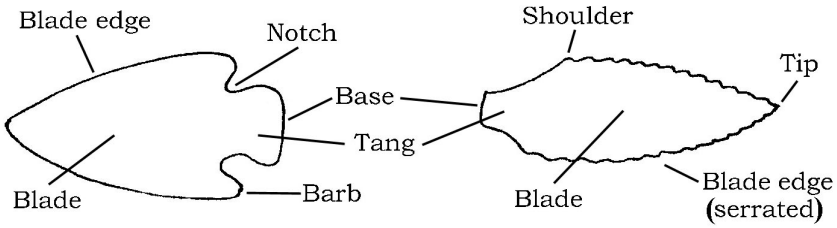
"Identifying Projectile Points" Activity Sheet Answers:

A, Savannah River; Late Archaic period (3000–1000 BC); B, Palmer, Early Archaic period (8000–6000 BC); C, Morrow Mountain, Middle Archaic period (6000–3000 BC); D, Stanly, Middle Archaic period (6000–3000 BC); E, Hardaway, Early Archaic period (8000–6000 BC); F, Guilford, Middle Archaic period (6000–3000 BC).

Chronology of Archaic Projectile Points

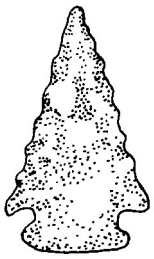
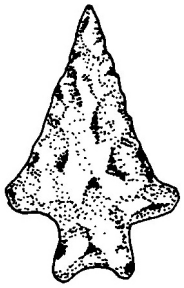
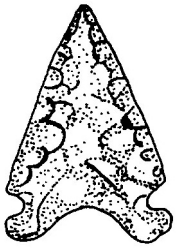
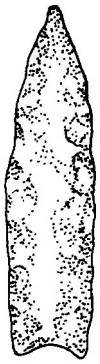
Late Archaic Period (3000–1000 BC)	 Savannah River  Halifax
Middle Archaic Period (6000–3000 BC)	 Morrow Mountain  Guilford  Stanly
Early Archaic Period (8000–6000 BC)	 Kirk Corner Notched  Hardaway  Palmer

Key Terms:



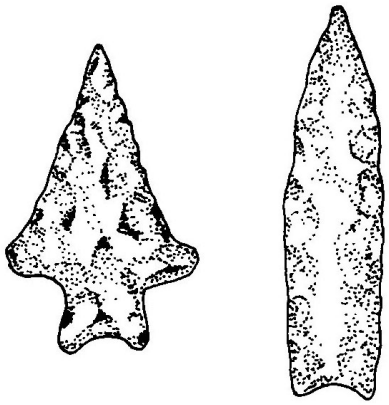
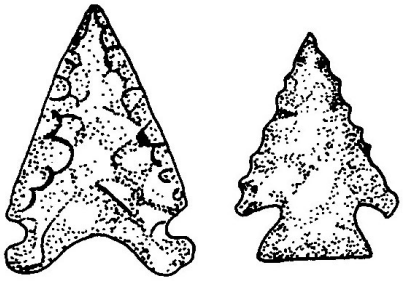
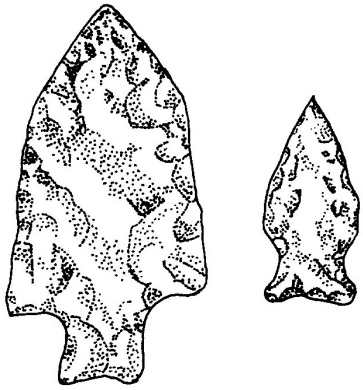
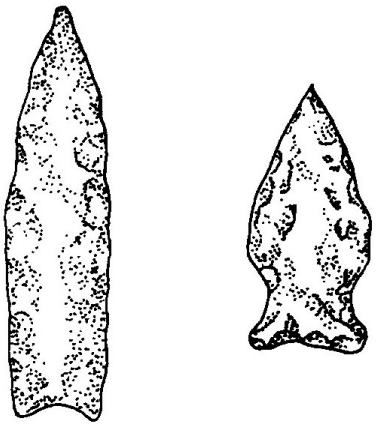
Identifying Projectile Points

Name:

A.  **Point Type:** **Period/Date:**	**B.**  **Point Type:** **Period/Date:**
C.  **Point Type:** **Period/Date:**	**D.**  **Point Type:** **Period/Date:**
E.  **Point Type:** **Period/Date:**	**F.**  **Point Type:** **Period/Date:**

Big Oak Site Artifact Bags

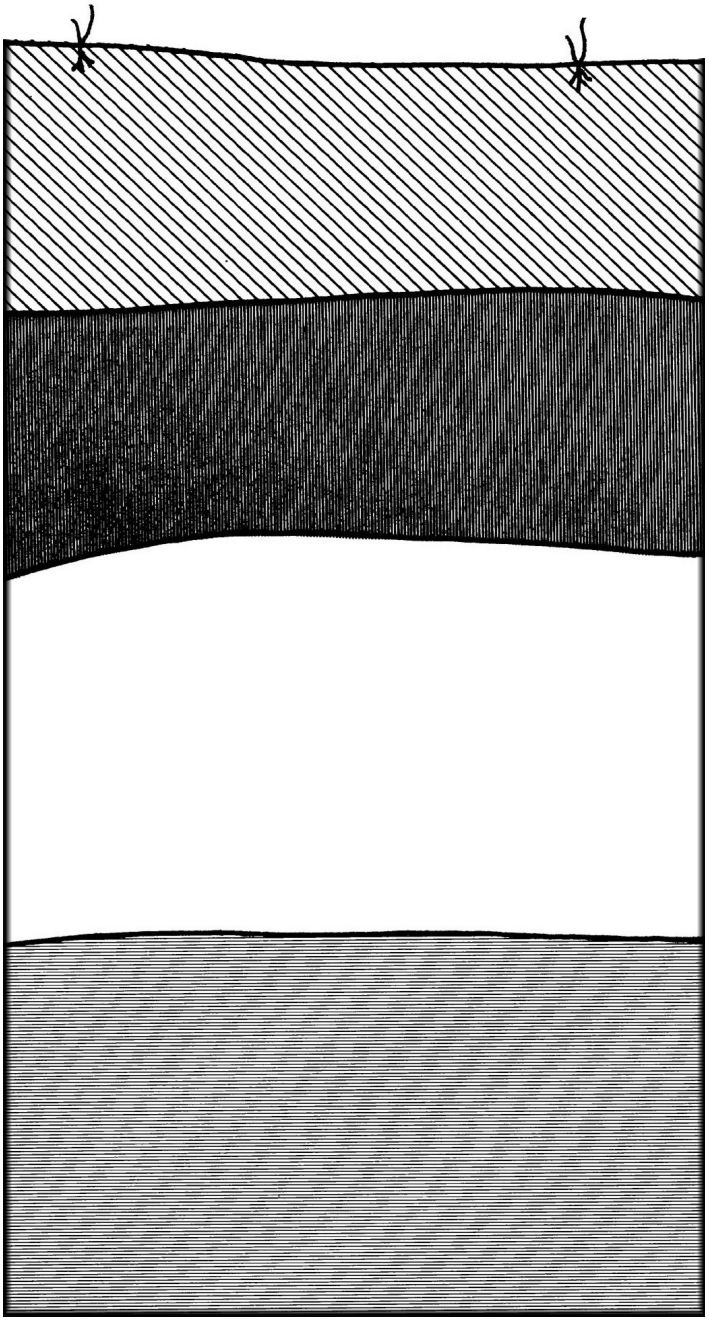
Each of the squares below represents the contents of an artifact bag from a distinct soil layer at the Big Oak site. Use this activity sheet along with the "Chronology of Archaic Projectile Points" activity sheet to complete the "Big Oak Site Profile" activity sheet.

Soil: Dark Brown Sandy Loam  Also includes chipped stone tools and deer bone.	**Soil: Light Brown Sand**  Also includes deer and turtle bone, chipped stone flakes, and a hammerstone.
Soil: Black Loam  Also includes chipped stone flakes, stone beads, a stone axe, deer and rabbit bone.	**Soil: Reddish Brown Sandy Loam**  Also includes deer bone and chipped stone flakes.

Big Oak Site Profile

Name:

Using the "Chronology of Archaic Projectile Points" and the "Big Oak Site Artifact Bags" activity sheets, fill in the projectile point types and dates for each soil layer. Note that some soil layers may span more than one period; in such cases write both periods in the space provided.



Soil: black loam

Points:

Dates:

Soil: reddish brown sandy loam

Points:

Dates:

Soil: dark brown sandy loam

Points:

Dates:

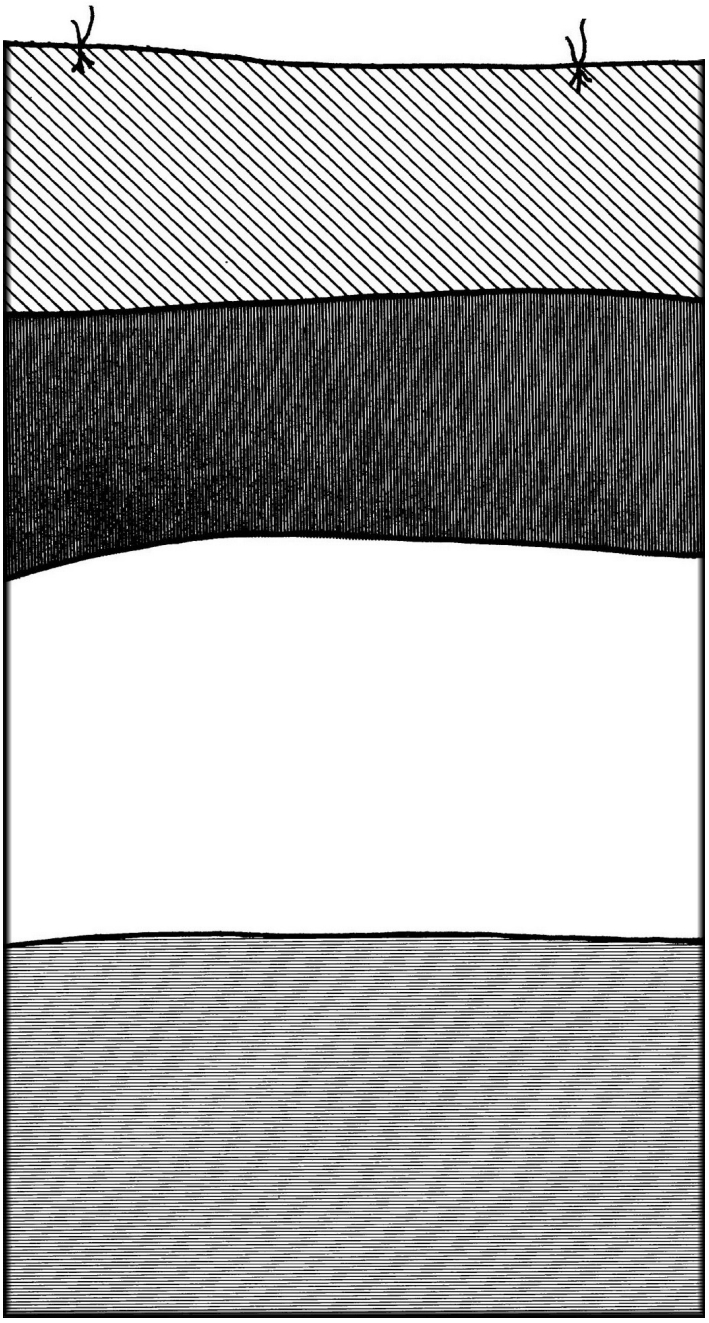
Soil: light brown sand

Points:

Dates:

Big Oak Site Profile Answer Sheet

Using the "Chronology of Archaic Projectile Points" and the "Big Oak Site Artifact Bags" activity sheets, fill in the projectile point types and dates for each soil layer. Note that some soil layers may span more than one period; in such cases write both periods in the space provided.



Soil: black loam

Points: Savannah River, Halifax

Dates: Late Archaic

Soil: reddish brown sandy loam

Points: Guilford, Halifax

Dates: Middle to Late Archaic

Soil: dark brown sandy loam

Points: Stanly, Guilford

Dates: Middle Archaic

Soil: light brown sand

Points: Palmer, Hardaway

Dates: Early Archaic

Lesson 4.4

POTTERY TRADITIONS

Pottery fragments from Stanly County, North Carolina, 1000–500 BC.

Subjects: science, social studies, language arts, visual arts.
Skills: comprehension, synthesis, knowledge.
Strategies: discussion, analogy, writing, observation, compare and contrast, classification, invention.
Duration: 60 minutes.
Class Size: any.

Objectives

In this exercise, students will:

- learn how Indian people of North Carolina made and used coiled pottery;
- summarize why archaeologists study pottery;
- make and decorate a replica of a North Carolina coiled pot.

Materials

For the teacher, transparencies of "North Carolina Pottery," "Pottery Making Tips," and "Pottery Surface Treatments" for projection. For each student, clay. Try to find clay that will harden without firing unless your school has a kiln. An assortment of pencils or popsicle sticks wrapped in string, plastic drinking straws, scraps of fabric with large weave patterns, such as burlap, plastic onion bags, dried corncobs, small smooth stones, toothpicks, or paper clips.

Vocabulary

Chronological: pertaining to chronology, which is an arrangement of events or periods in the order in which they occurred.
Potter: someone who makes pottery.
Pottery: a ceramic item or material made of fired clay, usually in the form of a vessel.
Sherd: a broken piece of pottery; a shard.
Surface treatment: the way the outside surface of a pottery vessel has been finished by the potter. On ancient Native American pottery from North Carolina, surface treatments typically consisted of stamped or impressed designs made by cordage, nets, fabric, or carved wooden paddles pressed into a vessel's surface while the clay was still wet.
Temper: material, such as sand or crushed shell, mixed with clay to make pottery stronger and to reduce the risk of it breaking.
Vessel: a hollow or concave utensil for holding something.

Background

Pottery is common in North Carolina archaeological sites dating after 1000 BC. Its rather abrupt appearance about then signals the start of the Woodland Period, the era when people began living in semi-permanent villages and cultivating gardens of seed plants to supplement

food obtained by hunting and gathering. During the Woodland, which lasted until AD 1000, people used pottery for storing food and water, and for cooking.

Today, archaeologists can learn a great deal about the life of North Carolina's Woodland people by studying the pottery they left behind. For instance, archaeologists use pottery styles as a tool to study relationships among the different groups of Indian people living in North Carolina then. Archaeologists also study how pottery styles changed to learn about such things as diet and cooking techniques of earlier peoples.

To archaeologists, pottery is an important artifact because it can often indicate how old a site is. When fired, clay is very durable and is preserved long after organic materials decay. Because of its durability, pottery pieces (*sherds*), along with stone tools, make up much of what archaeologists recover from Woodland period sites. Because Woodland groups changed pottery styles and production techniques over time, pottery is a useful *chronological* marker. Also, because pottery styles are distinctive to particular groups of people, they can serve as cultural markers. Native cultures living in the three regions of North Carolina—the Coastal Plain, the Piedmont, and the Mountains—during the Woodland were not the same. Their pottery styles and pottery making traditions varied.

Pottery is made from clay that is dug from the ground. Clay that was good for making pottery can be found in almost every part of North Carolina. To make pottery, Native Americans first had to dig the clay and then pound it to make sure there were not any big lumps in it. They mixed the clay with water to make it a putty with play-dough like consistency so they could shape it into bowls and other pottery *vessels*. To make a piece of pottery, the *potter* would first shape the bottom of the vessel from long coils or ropes of clay, and then add other coils to build the sides of the pot.

After the pottery vessel was shaped, the potter would smooth the inside and outside surfaces with his or her fingers, or a piece of shell or stone. Smoothing the pottery helped hold the coils together. Usually, the potter would then add patterns or designs to the outside of the pot. Archaeologists call this *surface treatment.* The pot was set out to dry. The next step was placing it in a fire. Burnable materials, such as bark or wood, were placed around the pot, which was left in the hot fire until the clay became hard.

Most vessels North Carolina Indians crafted were used for cooking. Typically, foods were boiled by placing the pot directly over a fire. Thus, cooking pots were usually deep bowls or jars. The latter had pointed bases which could be placed upright in deep ash. Shallower bowls were also sometimes made; these were used for serving food. The specific shapes changed from one period to another. Hence, archaeologists can use vessel shapes to help date the pottery they find.

Surface treatment is also an important element used by archaeologists for dating pottery. In the coastal areas of North Carolina, early Woodland people sometimes wrapped a paddle with cord and pressed the paddle against the unfired clay pot. Pots decorated in this way are called cord-marked. Fishing nets were also pressed against the surface of pots to create a criss-crossed pattern. In later times, people cut or incised lines into the pottery, or stamped it with carved wooden paddles. Sometimes dried corncobs and fabric were used to impress designs on pottery. Late Woodland coastal peoples often polished the outside of the pot with a smooth stone, and this is called a burnished finish. Pottery from other parts of the state have different types of decoration.

In addition to variation in shape and surface treatment, pottery vessels often differ in *temper*. Temper is material that was mixed with clay to make the finished pottery stronger and less likely to crack during firing. Sand, crushed shell, bits of fired clay, and small pebbles have all been used as tempering materials in North Carolina pottery. Archaeologists have found that looking at

temper type is another good way to date pottery.

Setting the Stage

Project the transparency "North Carolina Pottery," which shows three kinds of pottery North Carolina Indians made during Woodland times. Ask the students what they observe about differences in vessel shapes and surface decoration.

Procedure

1. Share the background information with the students.
2. Distribute a piece of clay to each student.
3. Project the transparency "Pottery Making Tips" and go over steps in making coiled pottery with the students. Give students time to complete their pots.
4. Project the transparency "Pottery Surface Treatments" so that students can see the different types of surface treatment used on ancient pottery from the North Carolina Coastal Plain. Distribute the string-wrapped pencils, corncobs, onion bags, drinking straws, fabric, paper clips, and stones for creating surface treatments. Allow students time to decorate their own vessels.
5. If your school has a kiln, fire the pots.

Closure

Summarize the reasons why archaeologists study pottery and the value the study of pottery has for identifying sites.

Evaluation

The students turn in their pottery for evaluation.

Extensions

Have a Native American potter come to class to show students how he or she makes pots today.

Links

Lesson 2.3: "Artifact Classification."
Lesson 2.8: "Mending Pottery."

Sources

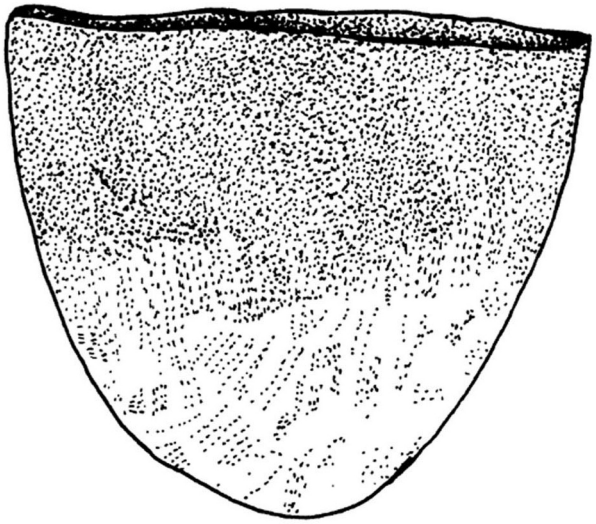
Phelps, David Sutton. 1989. "Ancient Pots and Dugout Canoes: Indian Life as Revealed by Archaeology at Lake Phelps." Pamphlet. Creswell, N.C.: Pettigrew State Park.

Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this lesson's main heading is taken from Figure 4.2.]

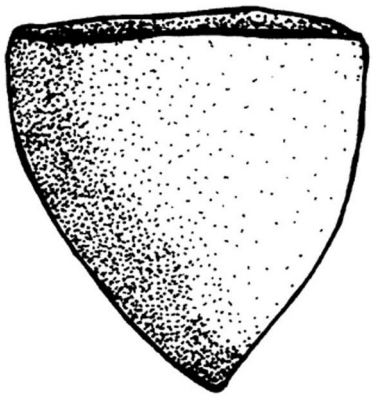
Weiss, Harvey. 1964. *Ceramics: From Clay to Kiln.* Reading, Mass: Addison-Wesley.

Wetmore, Ruth Y. 1975. *First on the Land: The North Carolina Indians.* Winston-Salem, N.C.: John F. Blair.

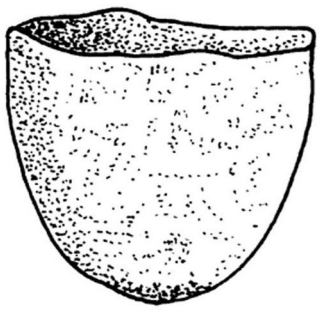
North Carolina Pottery



Deep Creek Cord Marked

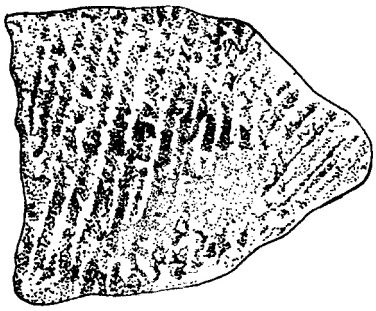


Mount Pleasant Ware

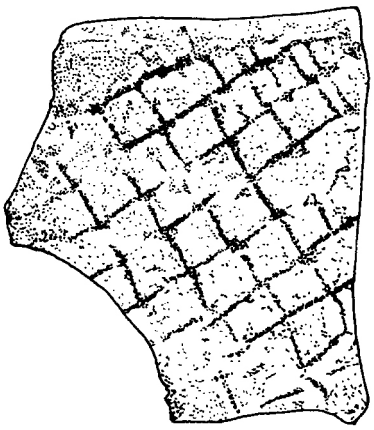


Colington Ware

Pottery Surface Treatments

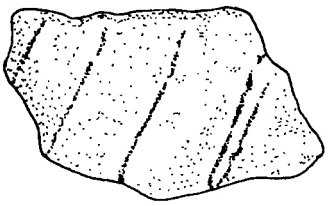


Cord Marked



Net Impressed

Fabric Impressed



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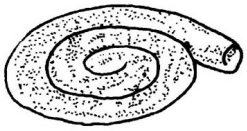
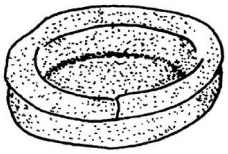
Pottery-Making Tips

Roll a piece of clay into a long coil about 12 inches long and as thick as your finger. Make ten or so of these coils and cover them with a damp paper towel.



Using one coil, create the bottom of your pottery vessel by spiraling it around itself on a flat surface. Join the clay strips by pressing firmly and smoothing with your fingers. Turn the clay spiral over and repeat the joining process on the opposite side.



Build up the sides of your vessel by placing a coil along the outer edge of the base. Press it into place and smooth with your fingers on both the inside and the outside. When you have made a complete circle of clay around the base of the vessel, cut off the excess clay and join the two ends.

Repeat this process with the other coils until your vessel is the size you want it to be. To make a curve in your vessel's profile, you will need to vary the size of your circles. If the circles are larger, the vessel will spread out; if they are smaller, it will become narrow.

Finish your vessel by smoothing it inside and outside. Add surface treatment or decoration if desired.

Lesson 4.5

A SIOUAN VILLAGE

Ceramic pot from Orange County, North Carolina, ca. AD 1700.

Subjects: social studies, language arts, science.
Skills: knowledge, comprehension, application, analysis.
Strategies: decision making, problem solving, discussion, classification, writing, research skills, scientific inquiry.
Duration: 30 to 45 minutes.
Class Size: any.

Objectives

In their study of an excavated village site, students will:

- record observations about a site feature;
- infer how past peoples used individual features and the site as a whole;
- summarize how archaeologists use observation and inference to determine past lifeways.

Materials

For the teacher, transparencies of "Child's Bedroom," "Observation and Inference Organizer," and "Jenrette Site Map" to project. For each group of students, copies of "Observation and Inference Organizer," "Child's Bedroom," "Jenrette Site Map," and one "Feature Card" with related "Artifact Cards." For each student, a "Research Team Report."

Vocabulary

Artifact: any object made, modified, or used by humans; usually this term refers to a portable item.
Context: the relationship artifacts have to one another and the situation in which they are found.
Feature: a human-made disturbance in the ground, such as a pit or basin; it is often marked by a distinctive stain in the soil.
Function: the use of an object.
Inference: a conclusion derived from observations.
Observation: the act of recognizing or noting a fact or occurrence; or the record obtained by such an act.
Palisade: a walled enclosure built around a village or town; a stockade.
Site: a place where human activities occurred and material evidence of these activities was left.

Background

Archaeologists use *observation* and *inference* to learn the stories of past people. By observing *features* and artifacts at archaeological *sites* and the context in which they are found, archaeologists can then make inferences about the behavior and lifestyle of the people who lived there. When archaeologists find the remains of a large village (observation), they could infer that the people who lived there were farmers. To test that inference (hypothesis), they would look for

evidence of farming, such as farming implements (like hoes), and food remains from crops (like corn cobs and squash seeds). If they find these things, their hypothesis is verified. These inferences become the bases for hypotheses that can be tested as more contemporary sites are found and excavated.

One archaeological site scientists have studied in North Carolina is called the Jenrette site, which is located along the banks of the Eno River in central Orange County. Excavations were conducted there in 1989 and1990. The Jenrette site is what remains of a 17th-century Siouan village. Siouan refers to the language family of people living in the Piedmont at the time Europeans arrived. There were at least ten different tribes, many of which spoke a distinctive Siouan dialect. The Jenrette site was home to one group. From the 90 features archaeologists mapped and excavated there in 1989–1990, the village had at least three buildings located within a *palisade*. Archaeologists also found places near and between the buildings where people had dug earthen basins for different purposes, such as smoking deerskins, preparing food, and discarding trash. In other places in the village, there were graves where people had buried their dead.

Archaeologists have specific names for each type of feature they find. Some of these are defined below:

A *food-preparation pit* was used to cook food. People dug a large, shallow pit and then layered the bottom with wood and rocks. The wood was lit and allowed to burn, creating a bed of glowing coals and hot rocks. A deer was roasted by covering this bed with leaves, placing the animal on top, then covering the pit with additional leaves and earth. When found by archaeologists, such pits typically contain charcoal, fire-cracked rocks, as well as the bones of the animals that were cooked and eaten.

Storage pits were used to store possessions. Rather than carry possessions with them on hunting or other trips away from the village, people hid them underground. Storage pits were usually deep round holes with straight sides and flat bottoms. People put food or other items in such a pit, placed a cover over the top, and then concealed the cover with a layer of soil. Since people eventually removed their things from the storage pits, archaeologists digging today generally find few artifacts that had actually been kept in the pits. Sometimes, archaeologists identify storage pits just by their distinctive shape. However, it appears that people often filled these pits with trash after they were no longer needed for storage. Archaeologists typically find refuse from everyday activities, such as broken pots, animal bones, charcoal, chipped stone, and glass beads in these pits. Thus, most storage pits eventually became trash pits.

A *smudge pit* was a shallow hole used to prepare animal hides. People used corncobs, which burned slowly with little flame and a great deal of smoke, to fuel the fire to smoke deer skins. These smoked skins were then used for clothing, shoes, and other items. Smudge pits were often located outside or near the edges of villages, perhaps due to the amount of smoke they produced. When archaeologists excavate smudge pits, they discover burned corncobs and charcoal.

Setting the Stage

1. Project the “Child’s Bedroom” photo.
2. Show the students the “Observation and Inference Organizer” and review the meanings of observation and inference (see Vocabulary).
3. Record the student’s observations about the child’s bedroom. For example, there are ballet and tap shoes on the shelves; there are several alarm clocks; there is fishing gear.
4. Ask what inferences they could make based on these observations. For example, the room’s

occupant is a dancer; she has a hard time waking up in the morning; she likes fishing. Stress that inferences are conclusions based on the facts gathered through observation.

Procedure

1. Project "The Jenrette Site" map for the class. Tell the class that this map shows only part of the village area archaeologists have excavated. Point out the main palisade, the three buildings, and several of the features that archaeologists found there. Describe how three kinds of features—the food preparation, storage, and smudge pits—were used and how archaeologists identify them (see Background). Emphasize that archaeologists make inferences about how people used these features by examining the artifacts found in them and by looking at the relationship of all the different features. (Note that on "The Jenrette Site" map, features are the larger, roundish circles. The ones used for this exercise are darkened and numbered. The buildings are labeled as Structure 1, Structure 2, and Structure 3. The palisade line is also labeled; the closely spaced, black dots show where each wooden pole was placed.)

2. Divide the class into research teams made up of 4 to 5 students. Each team will study the artifacts found in a feature of the Jenrette site.

3. Distribute the following to each group: an "Observation and Inference Organizer," "The Jenrette Site" map, one "Feature Card," and the corresponding "Artifact Cards." The list of artifacts associated with each feature follows.

- Feature 71: pottery sherds, chipped stone flakes, deer bones, glass trade beads, pipe.
- Feature 77: deer antler, grinding stone, deer bones, pottery sherds.
- Feature 78: fire-cracked rocks, pottery sherds, charcoal, deer bones.
- Feature 96: turtle shell, deer antler, deer bones, pottery sherds, mussel shells, charcoal.
- Feature 113: ash, charcoal, charred corn cobs.
- Feature 114: charcoal, charred corn cobs.

4. Give the following assignment: You are a research team investigating the Jenrette site. You are assigned one feature of the site and the artifacts found in it. First, record your team's observations about the feature, especially about where it is located in the site, its size and shape, and what artifacts were found in it. Based on your observations, infer what the feature was used for. Record your inferences. Once you have recorded your observations and inferences, plan a way to present your findings to the class.

5. Make a copy of each team's "Observation and Inference Organizer" and distribute it to the other teams. Each team considers all of the information and infers how the site was used. Teams present their findings and compare conclusions.

Closure

1. Each team presents to the class its findings.

2. Ask students to consider conclusions reached by other teams. Did they gain additional insights after listening to the other reports?

3. Have students summarize what they learned about how archaeologists use observations to make inferences.

3. Have students discuss how their findings would have been affected if a relic collector had dug into the Jenrette site, removing or displacing artifacts and other evidence from their original placements.

Evaluation

Students use the "Research Team Report" form to individually write a report on their team's findings.

Links

Part 1: Lessons 1.1–1.8.
Lesson 2.9: "Looking at an Object."
Lesson 3.4: "The Village Farmers."
Lesson 5.4: "Artifact Ethics."

Sources

Binford, Lewis R. 1967. "Smudge Pits and Hide Smoking: The Use of Analogy in Archaeological Reasoning." *American Antiquity* 32(1), pp. 1–12.

Dickens, Roy S., H. Trawick Ward, and R. P. Stephen Davis, Jr., eds. 1987. *The Siouan Project: Seasons I and II.* Monograph Series 1. Chapel Hill: Research Laboratories of Anthropology, University of North Carolina at Chapel Hill.

Ward, Trawick, and R. P. Stephen Davis, Jr. 1993. *Indian Communities on the North Carolina Piedmont, AD 1000 to 1700*. Monograph Series 2. Chapel Hill: Research Laboratories of Anthropology, University of North Carolina at Chapel Hill.

Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this lesson's main heading is taken from Figure 7.9.]

"Jenrette Site" Activity Sheet Answers:

Features 78 and 96 are food-preparation pits. Features 113 and 114 are smudge pits. Features 71 and 77 are storage pits reused as trash pits. A more detailed consideration of each feature follows.

Feature 71 has a size and shape that suggest it had first been used as a storage pit. The hole is round and deep, with straight sides and a flat bottom. The soil and artifacts excavated from the pit had been discarded as village trash. (Artifacts: pottery sherds, chipped stone flakes, deer bones, glass trade beads, pipe.)

Feature 77 has straight side walls and a flat bottom. A large number of artifacts, including pottery fragments, animal bone, charcoal, and deer antler fragments, were found in this pit. Its size and shape suggest it was originally constructed as a storage pit, but later filled with trash. (Artifacts: deer antler, grinding stone, pottery sherds, deer bones.)

Feature 78 is a shallow basin containing two layers of fill. The bottom layer, which was put in first, had fired clay and ash left from the fires built to cook food. The top layer was dark organic soil that resulted from discarded bone and other food remains put there after the food was eaten. (Artifacts: fire-cracked rocks, pottery sherds, charcoal, deer bones.)

Feature 96 is a rounded basin containing rich dark brown soil with many animal bones, pottery fragments, charcoal, and mussel shell. The pit was used first to prepare food; then artifacts were thrown into it after feasting. (Artifacts: turtle shell, deer antler, deer bones, pottery sherds, mussel shells, charcoal.)

Feature 113 is a shallow basin located just inside the palisade line. Its size, location and shape, along with the presence of charcoal and burned corn cobs suggest that this was a smudge pit. (Artifacts: ash, charcoal, charred corn cobs.)

Feature 114 is a small pit located just outside of the palisade. Several corncob fragments and pieces of charcoal were found in the pit, suggesting it had been a smudge pit used to prepare and tan hides. (Artifacts: charred corn cobs, charcoal.)

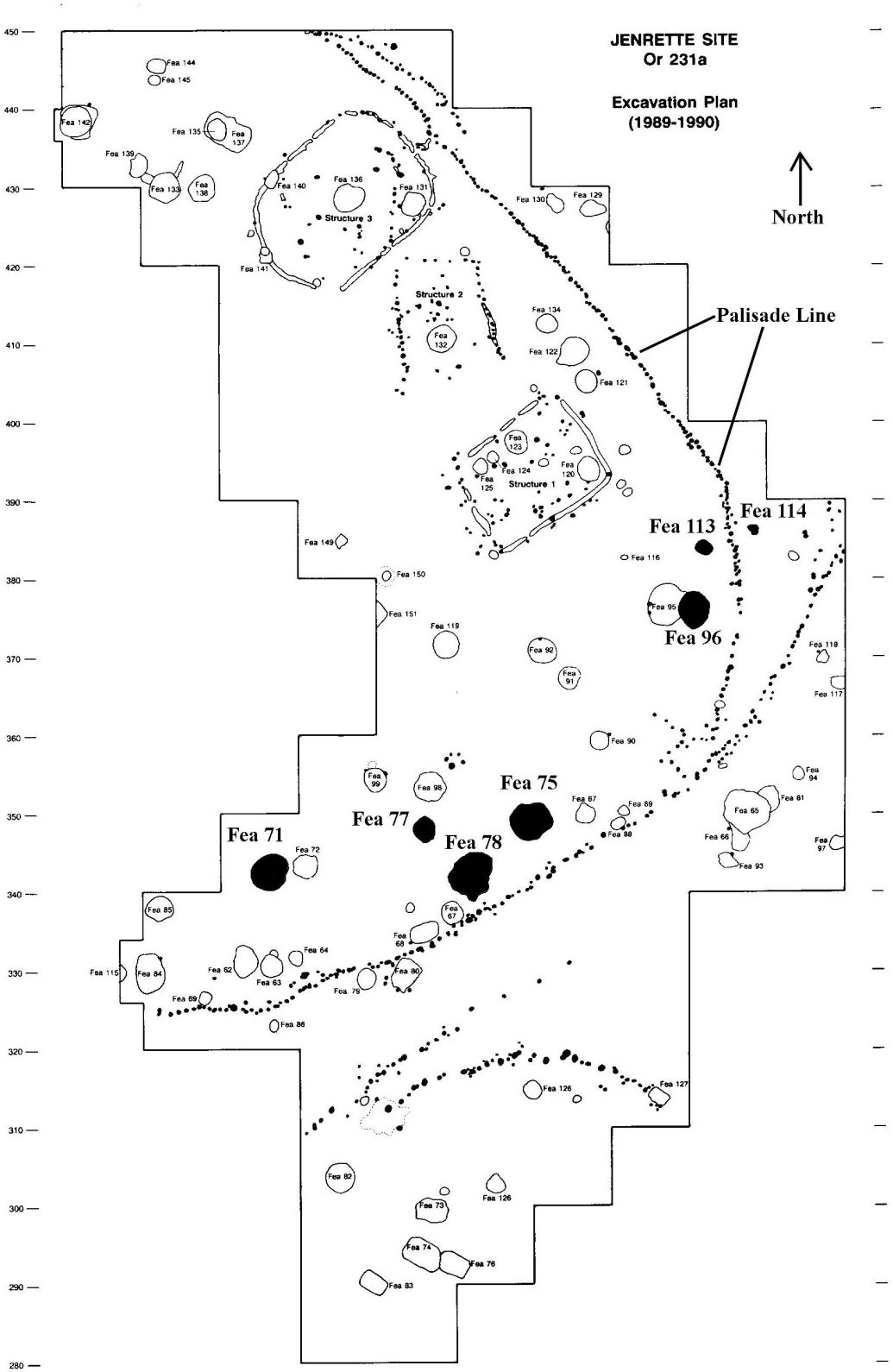
Child's Bedroom

Observation and Inference Organizer

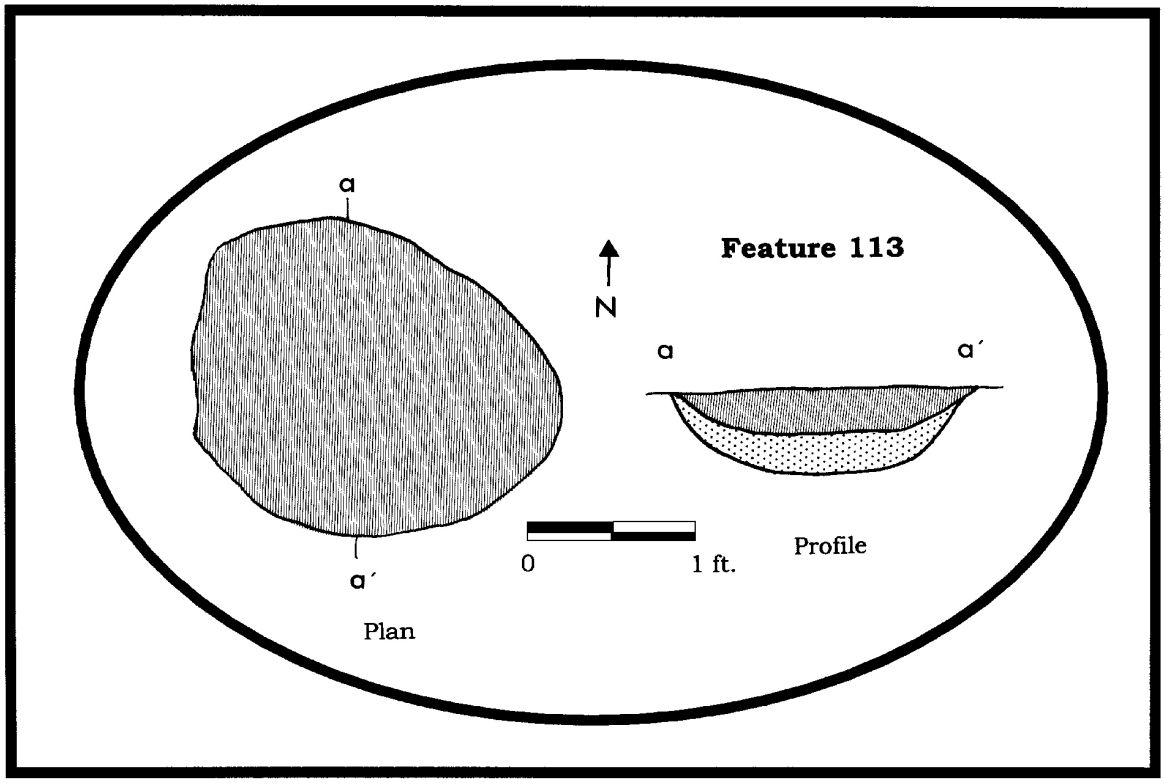
Feature Number: **Name:**

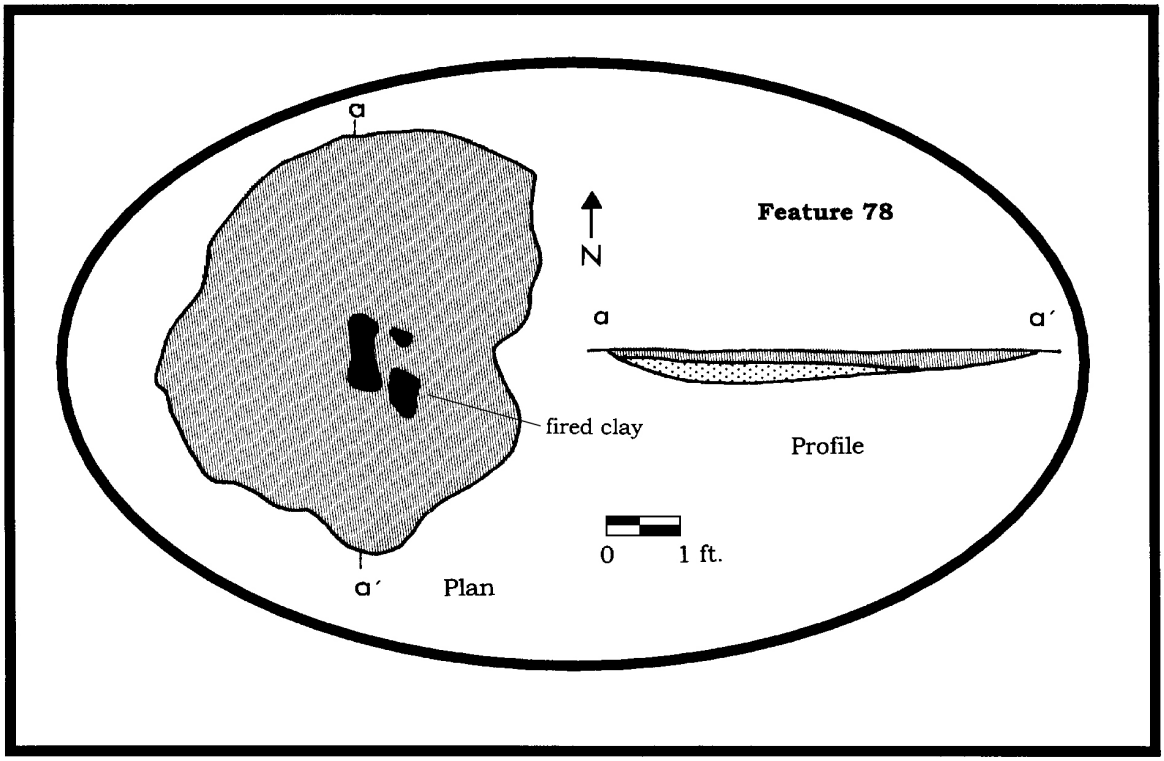
Observations		Inferences
	→	
	→	
	→	
	→	
	→	

Jenrette Site Map

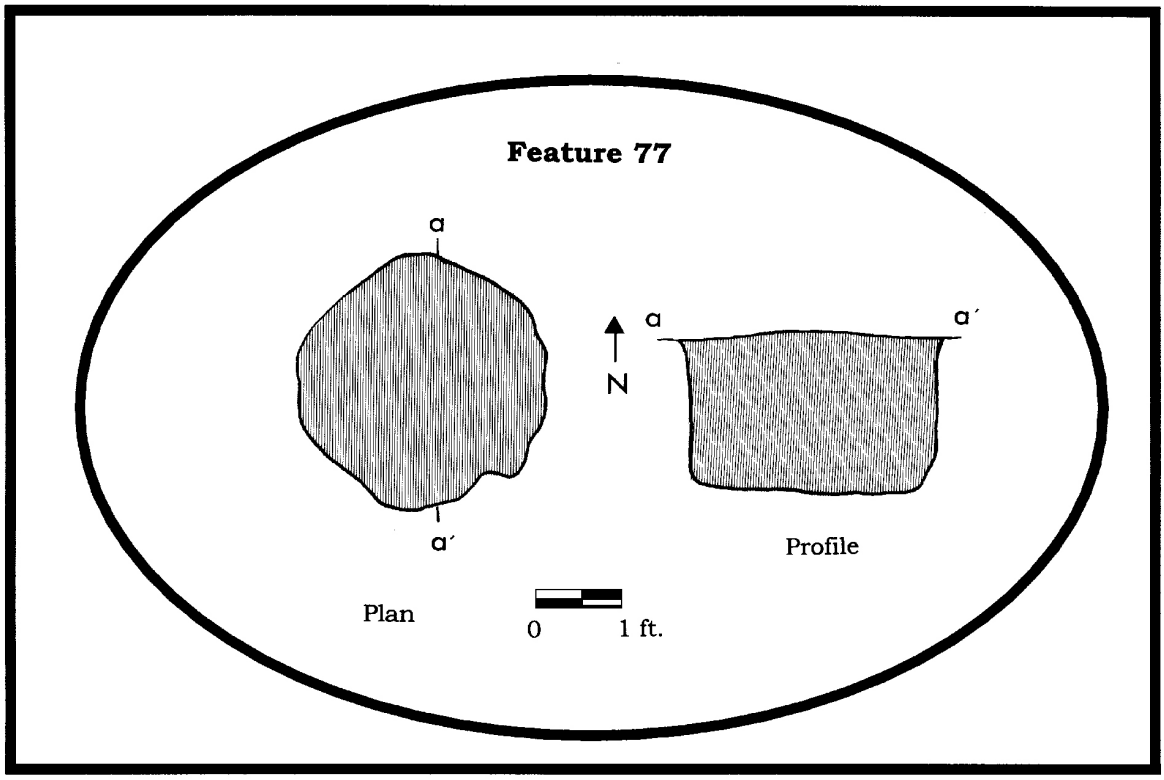


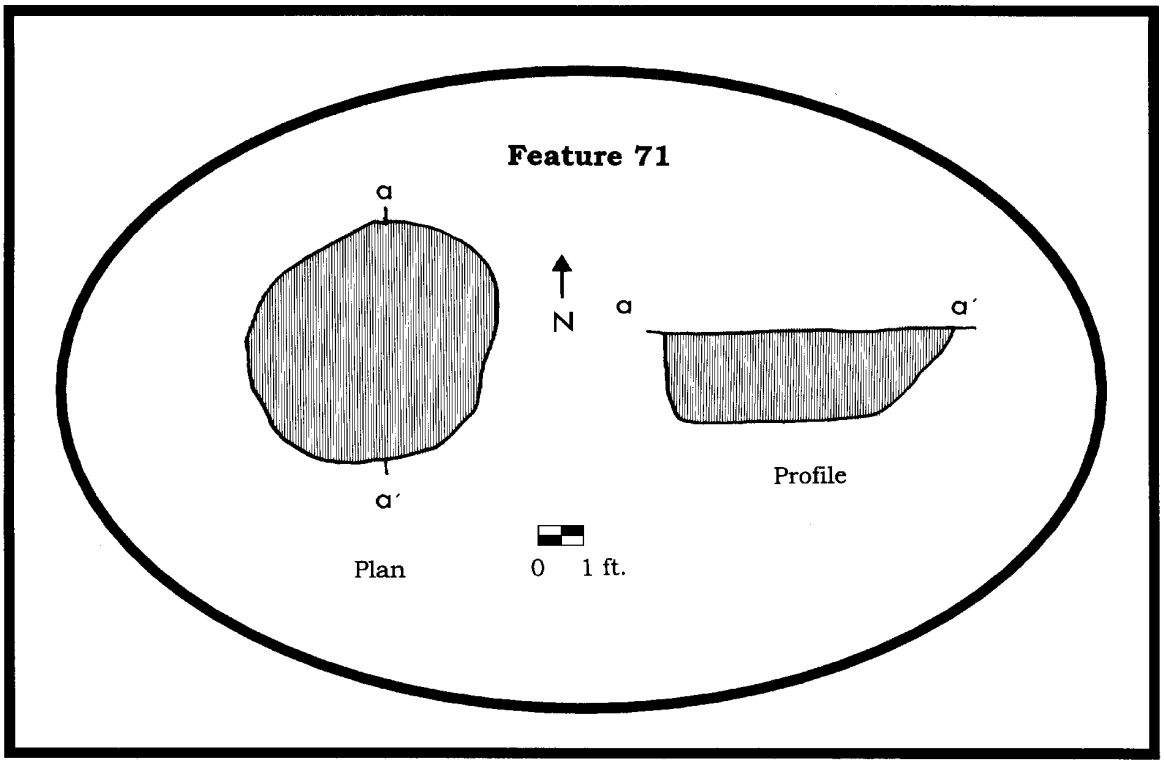
Feature Cards (Page 1)



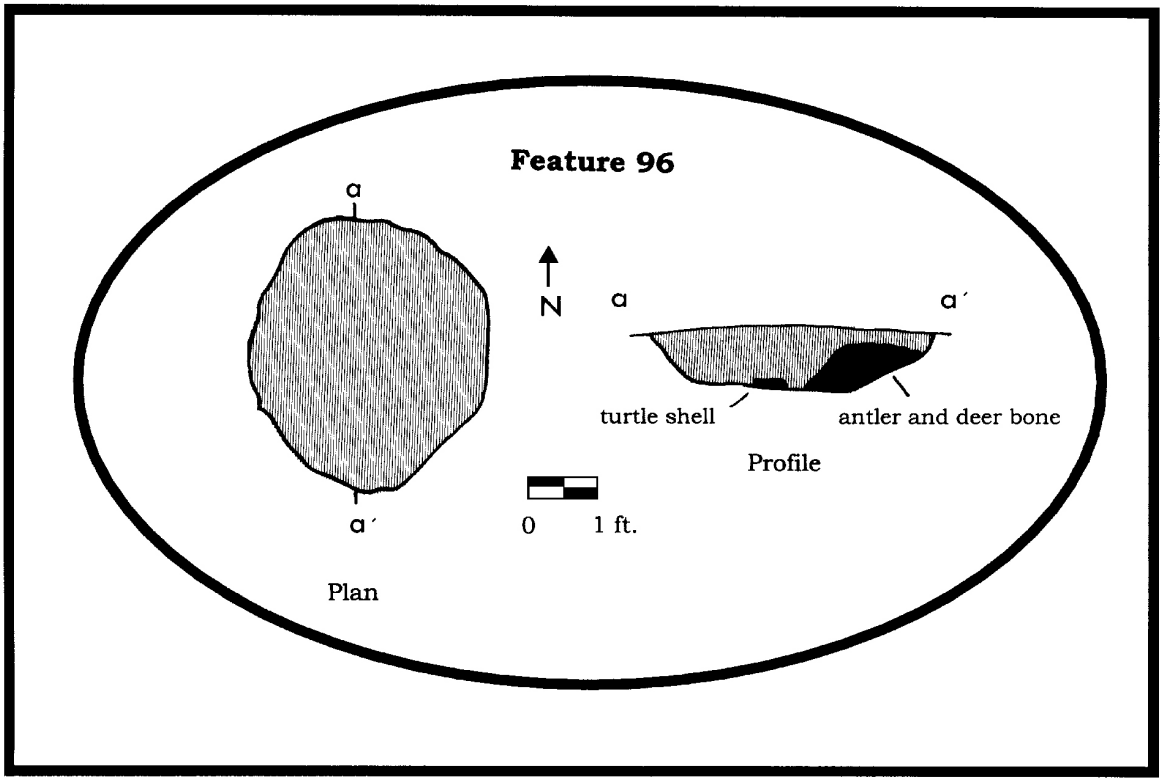


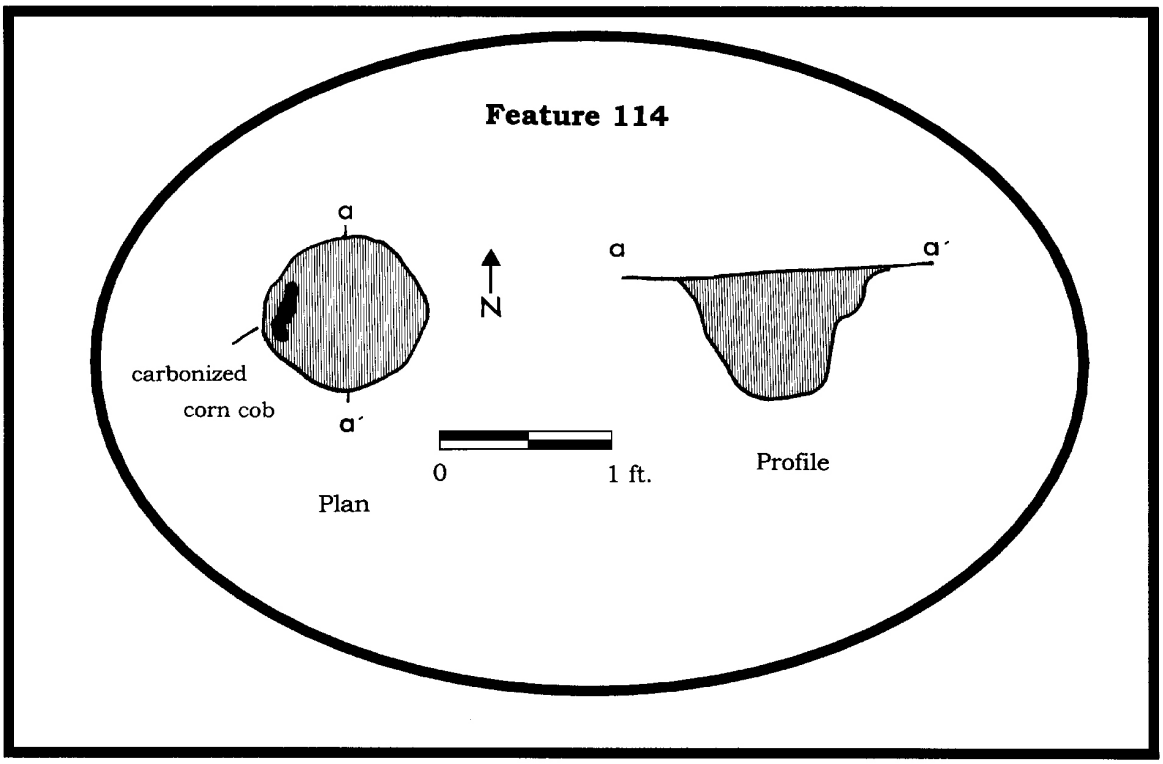
Feature Cards (Page 2)



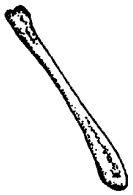
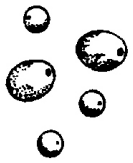
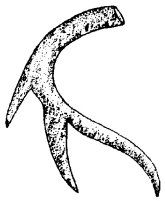
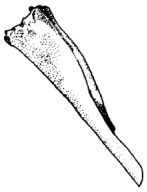
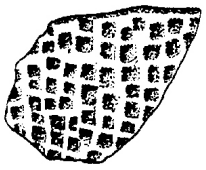


Feature Cards (Page 3)

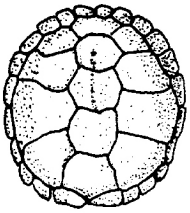
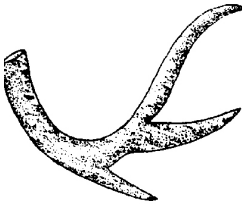
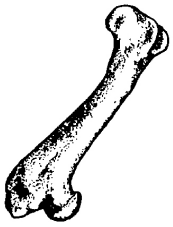
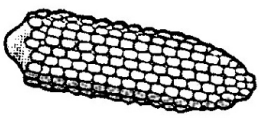
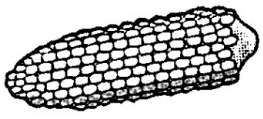




Artifact Cards (Page 1)

Feature 71  Pottery sherds	**Feature 71**  Chipped-stone flakes	**Feature 71**  Deer bones
Feature 71  Glass trade beads	**Feature 71**  Pipe	**Feature 77**  Deer antler
Feature 77  Grinding stone	**Feature 77**  Deer bones	**Feature 77**  Pottery sherds
Feature 78  Fire-cracked rocks	**Feature 78**  Pottery sherds	**Feature 78**  Charcoal

Artifact Cards (Page 2)

Feature 78  Deer bones	**Feature 96**  Turtle shell	**Feature 96**  Deer antler
Feature 96  Deer bones	**Feature 96**  Pottery sherds	**Feature 96**  Mussel shells
Feature 96  Charcoal	**Feature 113**  Ash	**Feature 113**  Charcoal
Feature 113  Charred corn cobs	**Feature 114**  Charcoal	**Feature 114**  Charred corn cobs

Research Team Report

Name:

Research team members:

Feature observed (write its number):

Summary of observations (include artifacts and location):

Based on our observations, we infer that our feature is (circle one answer):

- a storage pit reused as a trash pit;
- a smudge pit;
- a food preparation pit.

Explain your inferences and how they are based on your observations:

Lesson 4.6

LANGUAGE FAMILIES

Stone pipe from Halifax County, North Carolina, ca. AD 1000.

Subjects: social studies, mathematics, language arts.
Skills: knowledge, analysis.
Strategies: observation, discussion, mapping, classification, computation.
Duration: 45 to 60 minutes.
Class Size: any; groups of 3 to 4.

Objectives

In their study of language families, students will:

- identify and locate the three language families of contact period North Carolina;
- calculate the physical area covered by each language family.

Materials

For the teacher, a world map and colored push pins, transparencies of "Historic Native American Villages," "Native American Village Names," and "Selected Native American Place Names." For each student, copies of "Historic Native American Villages" and "Native American Village Names," and a set of markers in three colors. For each group, an "Area Estimation Work Sheet," the "Historic Native American Villages" map, and a pair of scissors.

Vocabulary

Dialect: a regional variant of a particular language. A dialect can sometimes be so different in vocabulary, grammar, and pronunciation that it is not understood by speakers of another dialect of the same language.

Language: the words, their pronunciation, and ways of combining them used and understood by a broad community of people.

Language family: a group of related languages, which developed from a common ancestral language.

Scale drawing: a representation used to show something too large or too small to be drawn full size, in which the proportions (but not the size) are accurately preserved.

Background

When the first English arrived on North Carolina's shores, they were met on the beach by a small group of Algonkian men. The Englishman in charge walked up to one of the Indian men and asked, "What is this place called?" The Algonkian looked at the English thoughtfully and then said, "Wingandacon." The Englishman who asked the question wrote down the word the way it sounded, and he later put it on the map one of his companions was drawing to indicate where they landed.

The Algonkian man, however, had not answered the Englishman's question. This was the first

time he saw the English and did not understand the newcomer's language. Because Indian tradition was to greet strangers politely, some response was needed. So the Algonkian simply said: "Those are nice clothes you are wearing."

While it is not surprising that Native Americans and Englishmen could not understand one another, there were also *language* differences among North Carolina Indians. There were three *language families* among the Native peoples of North Carolina at the time of European contact. A language family can be defined as a group of related languages that have descended from a common ancestral language. Language families exist all over the world. English is part of the Indo-European language family, which arose between 5,000 and 8,000 years ago. At that time, the people living in Europe or southern Asia spoke the ancestral Indo-European language. Over many years, as these people moved to other parts of Europe and Asia, the structure, pronunciation, and vocabulary of the Indo-European language began to change in each new location. Eventually, the ancestral Indo-European language was replaced by a number of separate languages. The diversity in languages within language families is often caused by geographical isolation and the development of *dialects*. For example, Americans and Britons speak different dialects of the English language; similarly, distinctive regional dialects of English exist within the United States.

The three language families among North Carolina Native Americans were Algonkian, Iroquian, and Siouan. Algonkian speakers lived in villages along the coasts and sounds north of the Cape Fear River. Algonkian tribes included the Chowan, Hatteras, Moratok, Pamlico, Secotan, and the Weapemeoc. Iroquois speakers lived in two different places: along the Coastal Plain were the Tuscarora and the Meherrin, and in the Mountains were the Cherokee. The Siouan speakers lived in the Piedmont, and their tribes included the Cape Fear, Catawba, Eno, Keyauwee, Occaneechi, Saponi, Shakori, Sissipahaw, Waccamaw, and Wateree.

Like everywhere else in the world, North Carolina's Indian peoples had considerable language differences. Verbal communication could be difficult, especially across the language families. But even tribes, such as the Cherokee and Tuscarora, who spoke dialects belonging to the same language family, had to find ways to "talk" to one another. Some scientists think many Native North Carolinians may have communicated using a simplified common language.

Setting the Stage

Non-English languages are more common than most people think within North Carolina communities. Ask students if they or anyone they know speaks a language besides English. Ask them what language that person speaks and how or where he or she learned to speak that language. Place a colored pin on the language's country of origin. How many different areas of the world are represented? How many languages besides English are spoken within the students' community?

Ask students what kinds of problems people who are still learning English can face. For example, they can be socially isolated; they don't know how to find or ask for things they need and want. Ask how these people might overcome difficulties. For example, they learn English better; they find alternative ways to communicate what they want, such as by sign language or taking an object to a merchant to show what they want. Finally, consider how English is enriched by incorporation of expressions or words from other languages. Can students think of examples?

Procedure

1. Share background information with the students.

2. Distribute to each student the "Historic Native American Villages" map, a copy of "Native American Village Names," and markers in three different colors.

3. Assign specific marker colors for each language family. Tell students that on their copy of "Native American Village Names," the names of towns occupied by speakers of each major language family are listed. Have students highlight the village locations on the "Historic Native American Villages" map with colors designated for each language family, so that distributions of language groups can be seen.

4. Have students describe where the different groups were living.

5. Ask the students: What does the separation of the Iroquois speaking peoples suggest about North Carolina's history before European contact? Get students started by giving them some scenarios about what the separation possibly means. For example, history shows both the Cherokee and Tuscarora were related to the Iroquois of New York state. Archaeologists think the people who were the ancestors of the Cherokee moved into North Carolina much earlier than the Tuscarora's ancestors did. You may want to suggest how geographic isolation, or time differences, or warfare between different Iroquois groups may have contributed to their forming distinct dialects (and cultures) as ways to get students thinking of examples. How do archaeologists and other people who study the past use place names to learn about past peoples? What can be learned from the study of language and place names?

6. Divide students into groups of 4 to 5 individuals. Hand out a pair of scissors to each group. Have each group's members work together to draw rough boundaries around language families on the "Historic Native American Villages" map, using the locations of the villages as a guide. With the scissors, they then cut out the shape of each language family along the drawn boundaries.

7. Hand out the "Area Estimation Work Sheet." Have each group select one language family and its cutout. Tell students that they will work together within their groups to calculate the approximate number of square miles covered by the language family they picked.

8. Following directions on the "Area Estimation Work Sheet," have each group of students calculate the square miles (or geographic area) covered by the language family they chose.

Note: Point out to the groups figuring area for the coastal Algonkian language family that they will have to account for large bodies of water in their calcuation. You may want to suggest that they cut away the Outer Banks and not count it at all.

Closure

Tell students that in North Carolina today, many Native American place names are still in use. For example, the word *Newasiwac* is the source for the name of the Neuse River, and Saxapahaw is derived from *Sissipahaw*. Project the "Selected Native American Place Names" map. Ask students to compare this map with the one showing Native American villages. Do any of the names of the villages sound similar to names that are still in use today? For example: *Roanoak* and Roanoke Island, and *Occoneechy* and Occaneechi Mountain.

Evaluation

Have students turn in their activity sheets for evaluation.

Extension

More advanced students may wish to carry the exercise one step further by calculating a rough estimate of each language family's area in square miles. Explain to the students that the "Historic

Native American Villages" map is a scale drawing, which means that distances on the map differ from real distances by a constant factor. On this map, for example, 1 inch equals 50 miles. This means that the map is drawn so that 1 inch on the map represents 50 miles of real distance on the ground. In order to estimate area in square miles, one can proceed as follows:

- Measure the dimensions of one of the boxes on the "Area Estimation Work Sheet." (All the boxes are the same size.)
- Convert the dimensions to miles, using the scale factor of the map. For example, if the map is scaled so that 1 inch equals 50 miles, and one side of a box measures ½ inch, then that side equals 25 miles.
- Calculate the area of each box in miles as represented on the map. The area of the box is the length multiplied by the width. In this example, the length and the width both equal ½ inch, or 25 miles on the map. Thus, the area of each box in map units is 25 miles times 25 miles, or 625 square miles.
- Multiply the number of boxes covered by each language family by the area of each box, in this case 625 square miles. For example, an area covered by 5 boxes would be equivalent to 3,125 square miles.

Links

Lesson 4.7: "North Carolina Place Names."

Sources

Boyce, Douglas W. 1973. *Tuscarora Political Organization, Ethnic Identity, and Sociohistorical Demography*. Unpublished Ph.D. dissertation, Department of Anthropology, University of North Carolina, Chapel Hill.

Perdue, Theda. 1985. *Native Carolinians: The Indians of North Carolina.* Raleigh: North Carolina Division of Archives and History.

Stick, David. "Indian Words and Place Names in Coastal North Carolina 400 Years Ago." Pamphlet. Raleigh: America's Four Hundreth Anniversary Committee, North Carolina Department of Cultural Resources.

Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this lesson's main heading is taken from Figure 4.6.]

Wetmore, Ruth Y. 1975. *First on the Land: The North Carolina Indians.* Winston-Salem, N.C.: John F. Blair.

Native American Village Names (from Early Colonial Times)

Algonkian

Neusiok
Secotan
Pomeioc
Chepanoc
Croatan
Moratoc
Roanoke
Pasquenoc
Ramushonoq

Siouan

Otari
Guaquiri
Keyauwee
Occaneechi
Upper Saratown
Lower Saratown
Sissipahaw

Iroquoian (Cherokee)

Tuckasegee
Kituhwa
Nuquassee
Nununyi
Joara
Tocae
Cauchi

Iroquoian (Tuscarora)

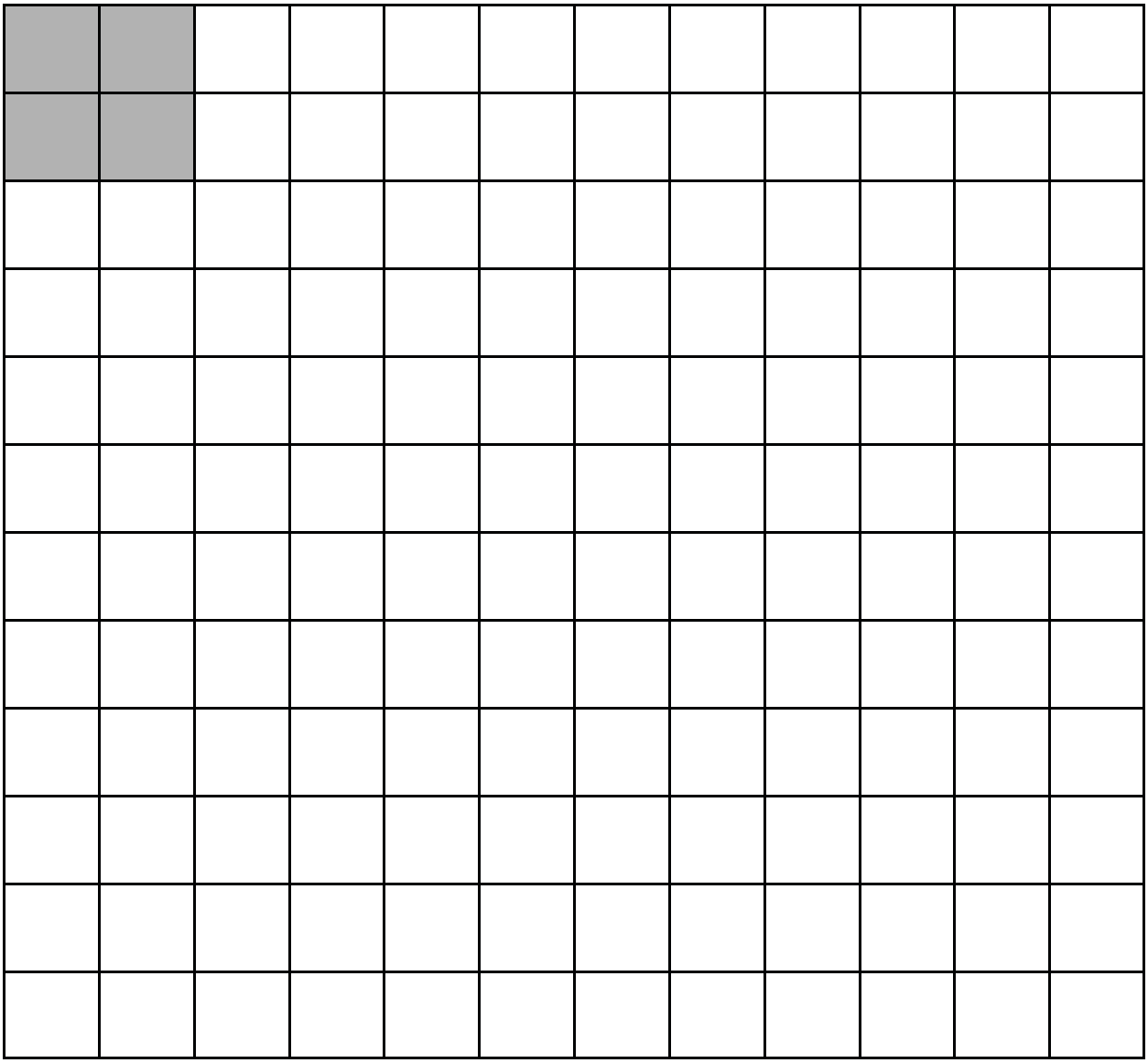
Catechna
Haruta
Kenta
Narhunta
Nayharuka
Tosneoc
Tonarooka
Ucouhnerunt

Note: You may wonder why the southeastern part of the state is bare of towns. The Waccamaw lived in this part of North Carolina, but no maps have been found that document the locations of their villages.

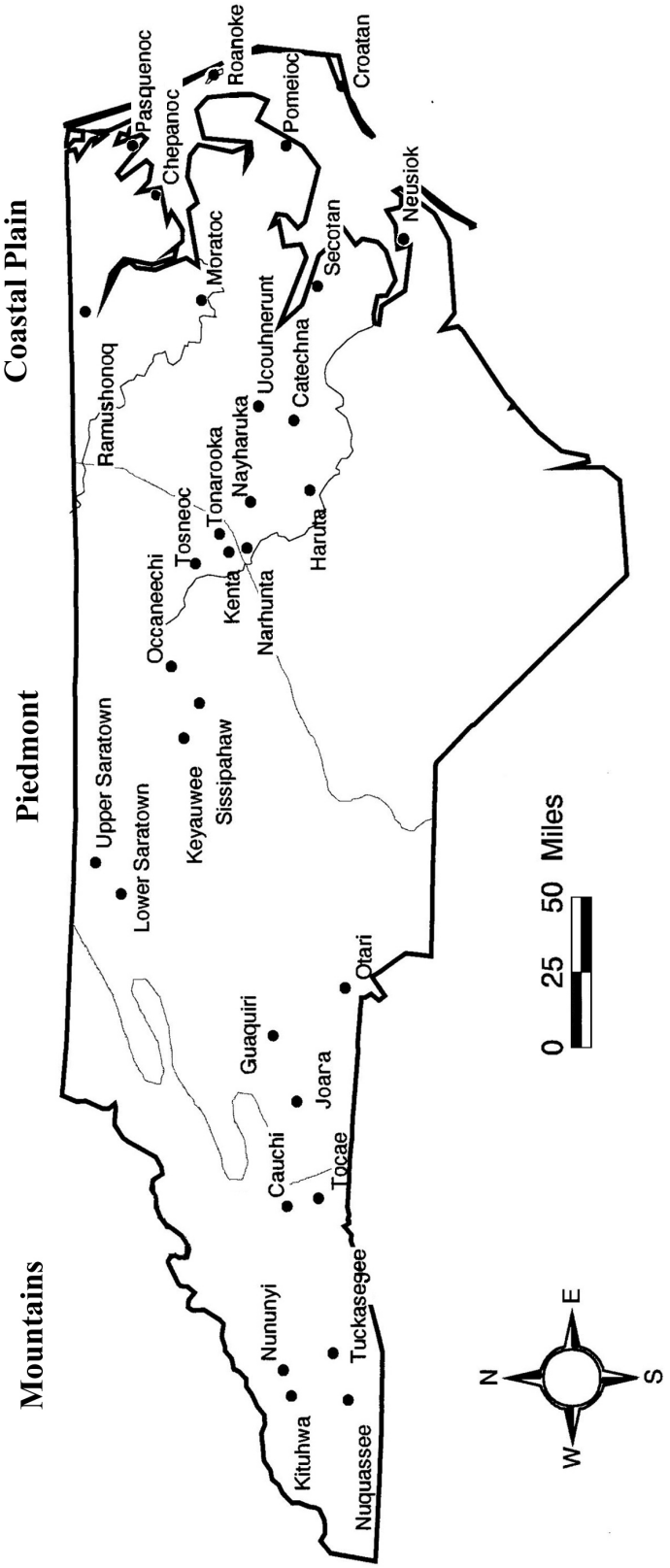
Area Estimation Work Sheet

Use this sheet to help estimate the area covered by the language families of native North Carolinians. Area is defined as the number of square units needed to cover a surface.

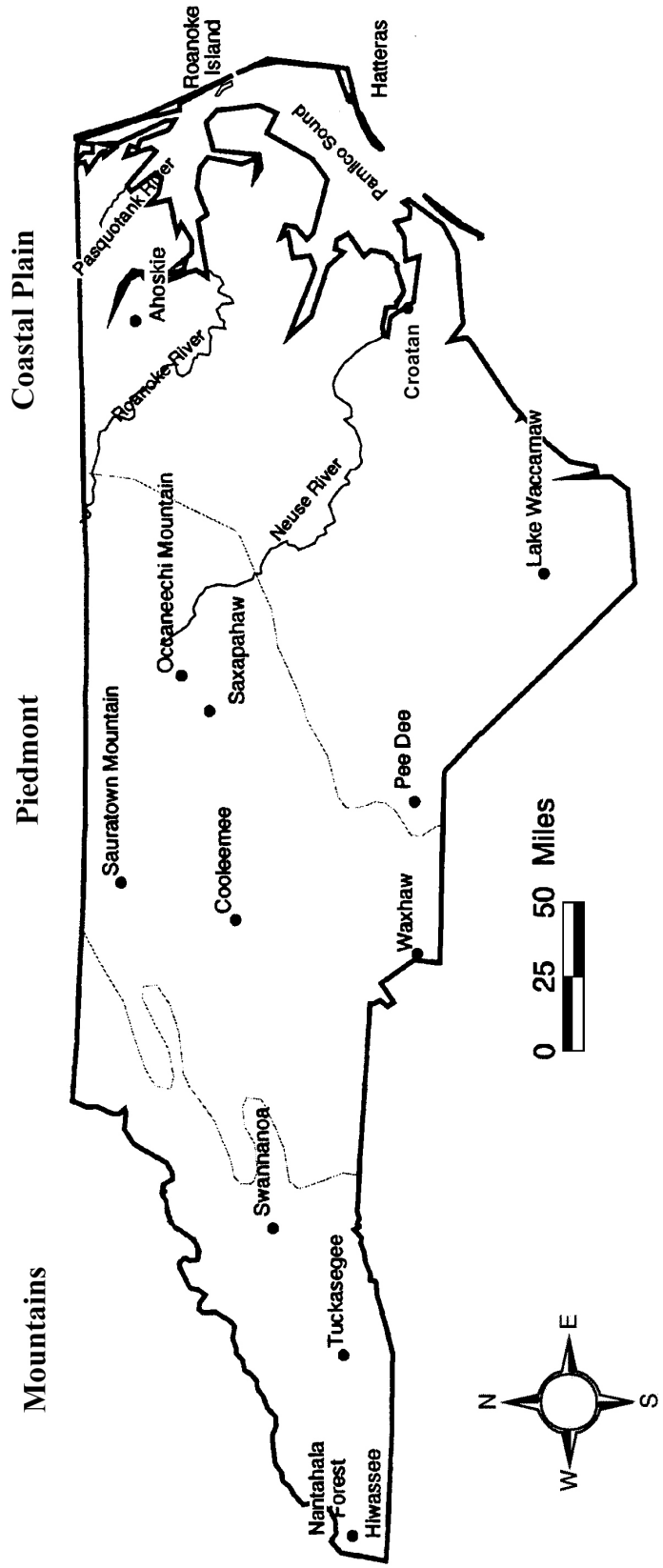
Directions: Cut out language family areas using drawn boundaries. Each square box on the grid below is a square unit. Trace the language family area onto the grid and then count the number of squares covered to estimate area (Since the land covered by each language family is not square in shape, not all of each square below will be covered. Therefore it is not possible to measure area accurately, but only to estimate the area covered by each language family. Squares that are less than half covered should not be counted). For example, the area of the shaded blocks below is 4 square units.



Historic Native American Villages



Selected Native American Place Names



Lesson 4.7

NORTH CAROLINA PLACE NAMES

Firing mechanism from flintlock pistol, Stokes County, North Carolina, AD 1650–1700.

Subjects: social studies, language arts.
Skills: knowledge, analysis, evaluation.
Strategies: observation, discussion, mapping, compare and contrast.
Duration: 45 minutes.
Class Size: any; groups of 4 to 5.

Objectives

This lesson contrasts and compares the names that Native Americans living in North Carolina gave to their villages and places with the names that European and other settlers gave to theirs. In a study of North Carolina place and village names, students will use a state map to:

- discover the heritage left by Native Americans and settlers in the names of places;
- differentiate the cultural values expressed in names.

Materials

For the teacher, one large state road map. For each group of students, a North Carolina road map, copies of "Native American Place Names" and "Settler Place Names," along with stars or paper dot markers in two colors.

Background

Echoes of North Carolina's past peoples linger today in a place's name. Whether towns, rivers, meadows, or mountains, the names given to locations in North Carolina are derived from a variety of sources. Some come from Indian words, which usually describe the landscape or qualities of the area, such as Nantahala, meaning "land of the noonday sun," or Cullowhee, meaning "place of the lilies." Others are taken from commodities or natural resources that were produced by the settlers, such as Sapphire or Cranberry. Still other names are derived from the influence of the English, European, and African settlers, such as Jefferson and Jackson Springs, or from military and religious history.

A name is a word or group of words by which a person, thing, or place is known. Everything has a name which identifies it to others, and it is through names that people can communicate with and understand one another. Names help people tell stories about the past. For example, the town of Silk Hope in Chatham County was probably named before the Civil War, when there was an interest in producing home-grown silk. Sometimes, however, the original meanings of names have been lost. Some Indian place names continued to be used by European settlers, but over time people forgot what the words originally meant. For example, Chockoyotte Creek, which flows into the Roanoke River, is believed to be a Tuscarora word, but its meaning is no longer known.

Setting the Stage

Show students the names and origins of two towns. For example, Jugtown, a small community in Moore County, was named for the hand-turned pottery that has been produced in that area for several centuries. Tuckasegee—the name of a river, a lake, and a community in western North Carolina—is the Cherokee word meaning "crawling terrapin." What differences, if any, do students notice about the names?

Procedure

1. Give each group of 4 to 5 students a state road map, dots or stars, and a copy of "Native American Place Names" and "Settler Place Names." Show students how to find a particular place by looking up the name and coordinates on the map index. Depending upon the amount of time you wish to spend on the exercise, you may wish to assign each group only three or four names from each of the two lists.

2. Working cooperatively, students place a star or dot on the map next to each listed place they find. Native American place names should be marked with stars or dots of one color, while European settler place names should be marked with stars of another color.

3. Display a large state map, and ask each group to share two or three places they have found. As the students call out the names and their meanings, place a star on the map.

Closure

In class discussion or in quiz form, ask students to contrast and compare place names derived from Native American culture and those derived from European or other settlers.

- For what kinds of things was each place named?
- What can be learned about past cultures from place names?
- Did Native Americans and settlers tend to live in the same places? What observations support the student's conclusion?

Evaluation

Have students turn in their maps for evaluation.

Links

Lesson 4.6: "Language Families."

Sources

Powell, William S. 1968. *The North Carolina Gazetteer*. Chapel Hill: University of North Carolina Press.

Smith, Shelley J., Jeanne M. Moe, Kelly A. Letts, and Danielle M. Paterson. 1993. *Intrigue of the Past: A Teacher's Activity Guide for Fourth through Seventh Grades*. Washington, D.C.: Bureau of Land Management, U.S. Department of the Interior. [This lesson is adapted from "State Place Names" on pp. 127–130, courtesy of the Bureau of Land Management.]

Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this lesson's main heading is taken from Figure 7.13.]

Native American Place Names

Chapanoke: a community in Perquimans County; named for an Indian village *Chepanoc*, whose name meant "Land of the Dead."

Chinquapin: a community in Duplin County; named after an Algonquian word for a type of chestnut.

Chocowinity: a town in Beaufort County; said to be named after an Indian word meaning "fish from many waters."

Cullowhee: a community in Jackson County; originally named Kullaughee Valley, a Native American name meaning "Place of the Lilies."

Hatteras: an Outer Banks island; apparently an English rendition of the Algonkian expression "there is less vegetation."

Hiwassee: a lake in Cherokee County; named after the Cherokee word *awuhwá-si*, meaning "a meadow."

Junaluska: a lake in Haywood County; named to honor Junaluska, the Cherokee chief who saved Andrew Jackson's life at the battle of Horseshoe Bend in 1812.

Nantahala: a National Forest in western North Carolina; named for the Cherokee word *Nan-toh-ee-yah-heh-lih*, meaning "Sun in the Middle" or "Land of the Noonday Sun."

Saxapahaw: a community in Alamance County; named for the Sissipahaw Indians who once lived in the area.

Swannanoa: a community in Buncombe County; name is derived from the Cherokee word *Suwali-Nunna*, meaning "trail of the Suwali tribe."

Tuckasegee: a river in Western North Carolina; named for Cherokee word meaning "crawling terrapin."

Settler Place Names

Cash Corner: a community in Pamlico County; named for a store located at the crossroads that sold goods less expensively for cash than on credit.

Cerro Gordo: a town in Columbus County; named for the Mexican battlefield where General Winfield Scott fought a battle in 1847. In Spanish the name means "big hill."

Charlotte: a city in Mecklenburg County; named for Queen Charlotte (1744–1818), wife of King George III.

Fruitland: a community in Henderson County; named for the large amount of fruit produced there.

Marble: a community in Cherokee County; named for the deposits of marble located near there.

Micaville: a community in Yancey county; named for the mica mined in this area.

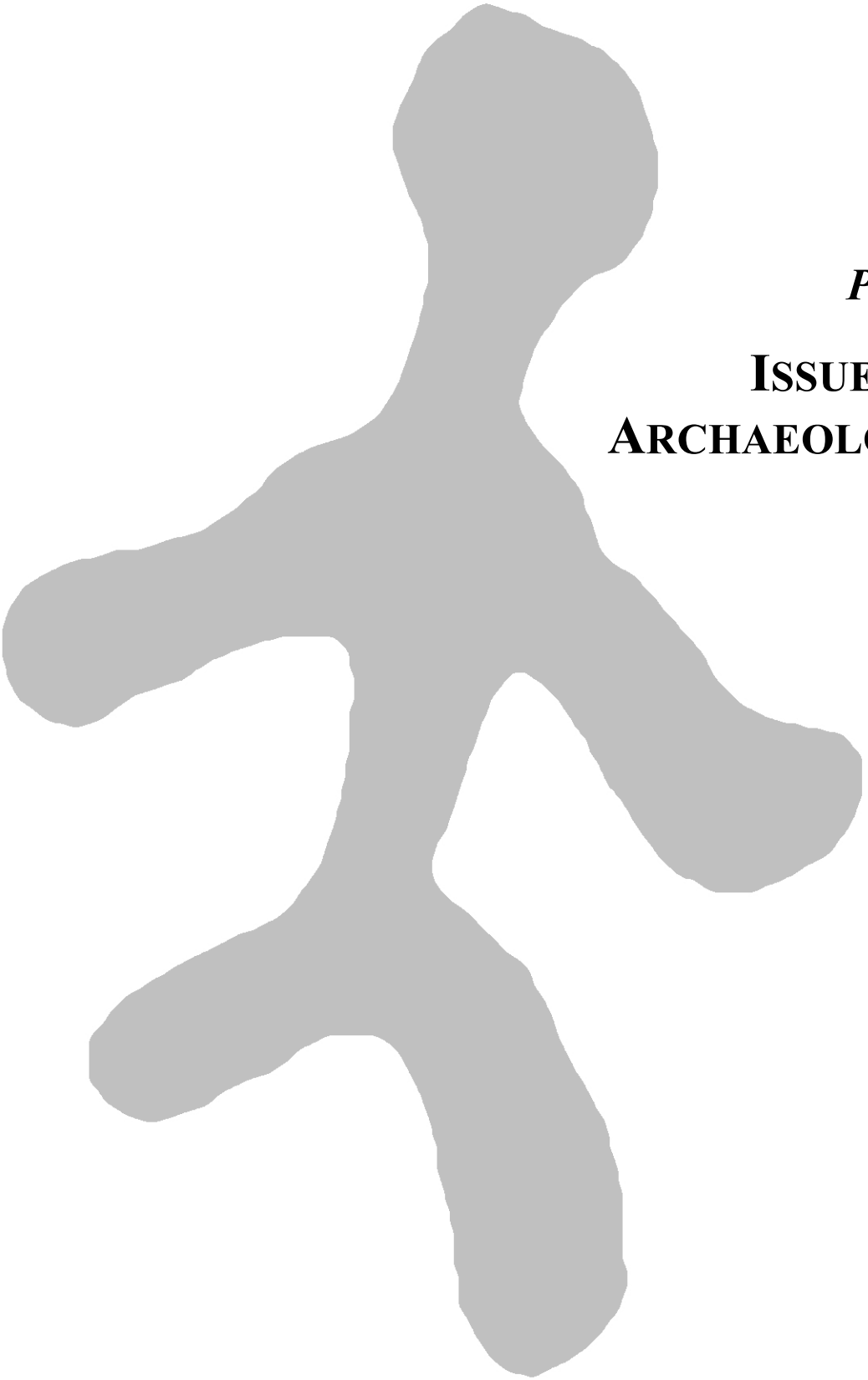
Micro: a town in Johnston County; name came from the small size of the town.

Sapphire: a town in Transylvania County; named because sapphires are found in the vicinity.

Seaboard: a town in Northampton County; named for the Seaboard Air Line Railroad.

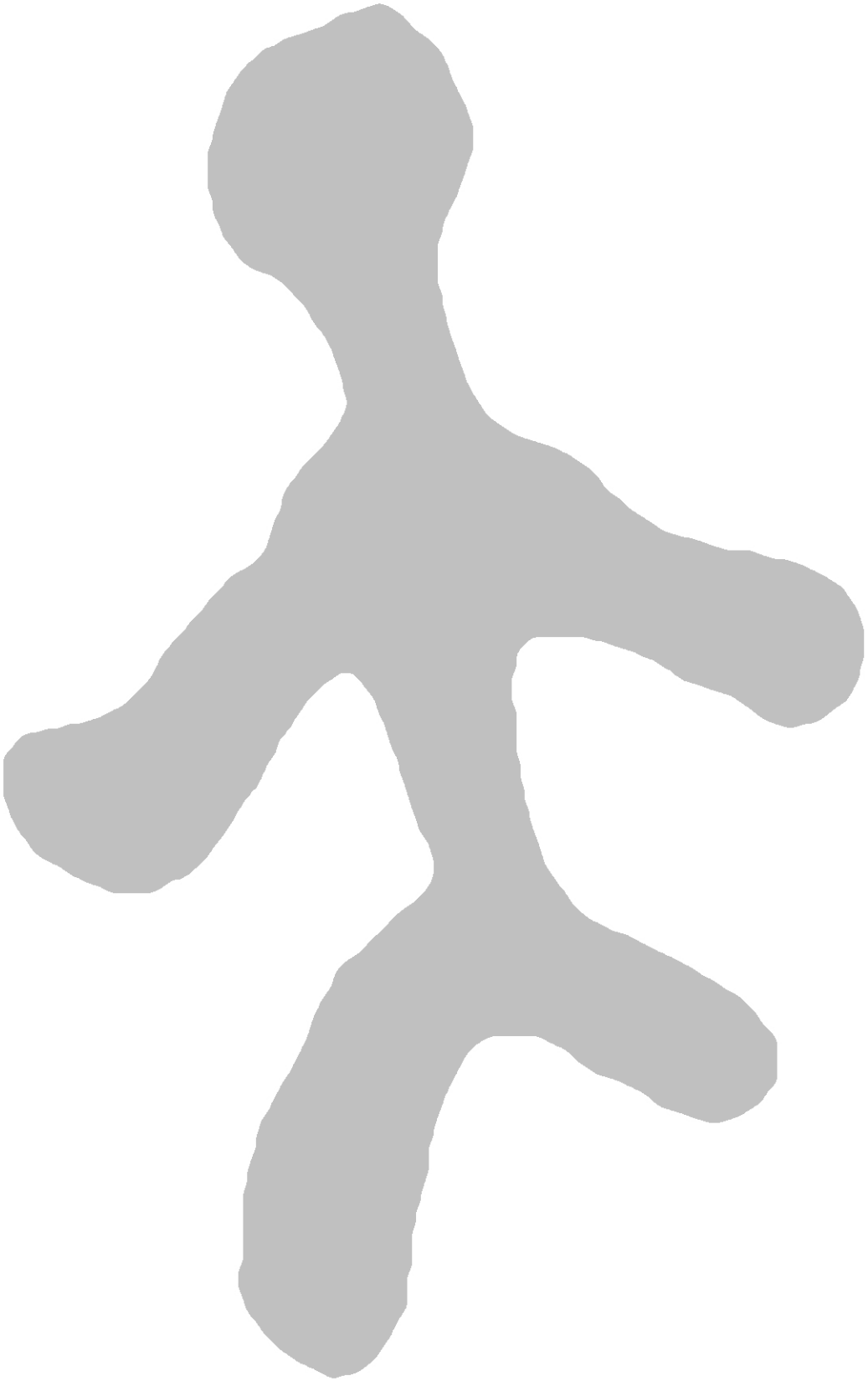
Snead's Ferry: a community in Onslow County; named for Robert Snead, the ferry operator in the late 18th century.

Tobaccoville: a community in Forsyth County; named for a chewing tobacco factory built there in the 1880s.



Part 5

ISSUES IN ARCHAEOLOGY



Part 5

INTRODUCTION

Ceramic pot from Macon County, North Carolina, ca, AD 1500.

Most lessons in this part provide opportunities for students to explore and sometimes wrestle with their values concerning archaeological resources and their protection. Although some of the issues are controversial, many teachers have successfully used Part 5's lessons with their students. Here are some testimonials from teachers who have used these lessons in their classrooms:

> I was hesitant to do ethical-values-type lessons with my fourth graders. I thought that these types of activities might be too sophisticated for them, but I decided to try it and see what would happen. We had completed a unit on archaeology . . . I chose to have them do "Artifact Ethics" from Part 5. I was amazed and pleased with their enthusiasm for the activity, and with the insights and conclusions they reached. They enjoyed the lesson, and I think they appreciated being asked their opinions about a real issue they care about. (Kathleen Atkinson, fourth-grade teacher)

About the activity "Creating Your Own Rock Art" and the act of defacing it:

> I like doing things that shock them [the students], rather than dancing around the subject. This is a good opportunity. The only reservation I had was that I wanted them to fully understand why we did what we did before they left for the day. Everything worked just fine. (Deborah K. White, sixth-grade teacher)

We hope you find these lessons equally successful.

Sources

Smith, Shelley J., Jeanne M. Moe, Kelly A. Letts, and Danielle M. Paterson. 1993. *Intrigue of the Past: A Teacher's Activity Guide for Fourth through Seventh Grades.* Washington, D.C.: Bureau of Land Management, U.S. Department of the Interior. [This lesson is adapted from the "Introduction" on p. 88, courtesy of the Bureau of Land Management.]

Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this chapter's main heading is taken from Figure 5.18.]

Lesson 5.1

ARCHAEOLOGY AS A CAREER

Ceramic pot from Haywood County, North Carolina, AD 1000-1400.

Subjects: science, careers.
Skills: knowledge, comprehension, application, evaluation.
Strategies: reading, research skills, brainstorming, interviewing, writing.
Duration: 45 to 60 minutes.
Class Size: any.

Objective

In their study of archaeology as a career, students will read essays and complete an activity to gain an understanding of and appreciation for the career of a professional archaeologist.

Materials

A copy of "Profiles of Archaeologists" for each student.

Vocabulary

Hominid: the family consisting of humans and their ancestors.

Background

Archaeology is one of the four subfields of anthropology. Anthropology is the study of humanity, in the broadest sense. Linguistic anthropologists study languages: how they change, how they are related to one another, and the relationship between culture and language. Cultural anthropologists study the cultures of living peoples. Physical anthropologists study the physical characteristics of human populations and the evolution of the *hominid* family. Archaeologists study past human cultures through material remains—artifacts and sites.

Anthropologists study human cultures and how they change. They seek to make general statements about human behavior. Anthropology addresses questions like: In what ways does a culture change when people who were nomads become village-dwelling farmers? How does a technological invention, such as the automobile or the computer, change a society? Is the passage through adolescence to adulthood less traumatic in some cultures than it is in others? Archaeology is the method anthropologists have of studying these kinds of questions as they pertain to cultures in the past.

Archaeology is the laboratory of time, where human cultures and how those cultures have changed can be studied over thousands of years. Popular movies have helped create a public image of archaeologists as swashbuckling adventurers. In reality, archaeologists are much more like the fictional character Sherlock Holmes, working with clues to piece together mysteries of the past.

Archaeology is related to history; both attempt to understand the past. The differences between history and archaeology center on the types of evidence used and, to some extent, the kinds of questions asked of that evidence. Historians rely mainly on written documents to study the past.

They examine, for example, old courthouse records, newspapers, books, diaries, and letters. Archaeologists study artifacts and sites—the things people used and the places where they used them. When the culture being studied has left behind written records or oral history, such as stories or songs, archaeologists use these sources, along with archaeological data, to help them understand the past.

Many people think archaeologists study only ancient cultures and historians study just more recent events. Yet historians do study written records of ancient Egyptians, which are more than 5,000 years old, and some archaeologists research the behavior of modern people by studying their garbage. For example, one archaeologist studies early 20th-century coal mining camps in California. To put it simply, archaeology is a method of studying the past, even the past of one hour ago, by researching material evidence—the things people created and used. History is a method of studying the past by researching written records.

In the United States, archaeologists earn degrees in Anthropology. But in some countries, archaeology is considered to be its own discipline. A few colleges in the U.S. offer degrees in archaeology. Most practicing archaeologists have a Bachelor of Arts degree and a Master of Arts degree. Many archaeologists also have a Doctor of Philosophy degree, a necessity for becoming a university professor.

Considerations for selecting a college or university include the kinds of programs each offers, the opportunities for field work and internships, and the background and research interests of the faculty. At the undergraduate level, a broad anthropological background and an archaeological field school are the most important experiences for students to gain. By participating in a field school, students learn the techniques used to excavate and record sites, how to analyze artifacts and other finds and how to interpret their findings. It is often advisable to seek employment in archaeology after completing an undergraduate degree and before beginning a graduate program. Graduate school is where students study the special branch of archaeology that most interests them. Because archaeology is such a diversified field, a refinement of research interests helps a person select the graduate school best meeting his or her needs.

Archaeologists can specialize in a wide range of topics. Some choose to work with museum collections. Others decide to specialize in one of the analytical techniques, such as pollen analysis, identifying animal bone and plant fragments or geological sediment analysis. Some archaeologists specialize in a geographical area, like Peru or the southeastern U.S. Others specialize even further, working with a particular cultural group or time period, such as African-American sites or the Woodland period, which falls chronologically in North Carolina between 1000 BC to AD 1000. Underwater archaeology is another specialty. Field work is a component of most archaeologists' work, as well as writing and working with computers and other scientific equipment.

Employment opportunities in archaeology are primarily with colleges and universities, state and federal agencies, private consulting firms, museums, and historic sites. Archaeologists who work for colleges and universities spend a lot of time teaching and training students both in the classroom and in archaeological field schools. Cultural resource management is a branch of archaeology that grew out of legislation requiring state and federal agencies to consider the impact a proposed development project, such as a pipeline or road, could have on prehistoric and historic sites. Archaeologists who work for the government help enforce laws protecting archaeological sites and data from destruction. Archaeologists who work for private consulting firms, as well as some who work for universities, are frequently hired by businesses and government agencies requiring archaeological services for proposed development projects. Archaeologists pursuing research topics often receive funding by writing grant proposals.

Recently, there has been a surge of interest in involving the public in archaeology. Interpretation of sites, publications written for a general audience, tours, curriculum development, and children's activities are all part of this new specialty. By educating the public about the importance of the past, archaeologists hope to help save archaeological sites from destruction.

Archaeology is a study that requires a broad understanding of many things: soils, plant and animal life, geology, surveying, chemistry, computers, statistics, and the social sciences, to name a few. People with interests in many fields will find an opportunity to integrate them in archaeology. Sometimes skills learned in archaeology will lead a person to new employment opportunities and career directions in related fields. Field work in remote areas and foreign countries is another aspect of archaeology that many people enjoy.

Procedure

This lesson can be used in a variety of ways. It can be a part of a careers fair or an element in a unit on archaeology. Some suggestions:

- Students research possible specialties in which an archaeologist might work. Also have them list the skills they think a person should have in order to work in that specialty.
- In small groups, students create a list of questions they would like to ask an archaeologist about his or her profession. They then arrange to interview an archaeologist.
- Students read the profiles of two archaeologists and write a short essay about why they will or will not consider a career in archaeology.
- Invite archaeologists working in a variety of specialties to speak to your class or be panel members discussing questions and issues identified by the students.
- Ask students to think of other fields of study that relate to archaeology. Conversely, ask them how they think being an archaeologist could provide a person with background to work in other fields.
- Either individually or as a small group project, students interview an archaeologist on the future of archaeology as a career.

Sources

Smith, Shelley J., Jeanne M. Moe, Kelly A. Letts, and Danielle M. Paterson. 1993. *Intrigue of the Past: A Teacher's Activity Guide for Fourth through Seventh Grades.* Washington, D.C.: Bureau of Land Management, U.S. Department of the Interior. [This lesson is adapted from "Archaeology as a Career" on pp. 89–94, courtesy of the Bureau of Land Management.]

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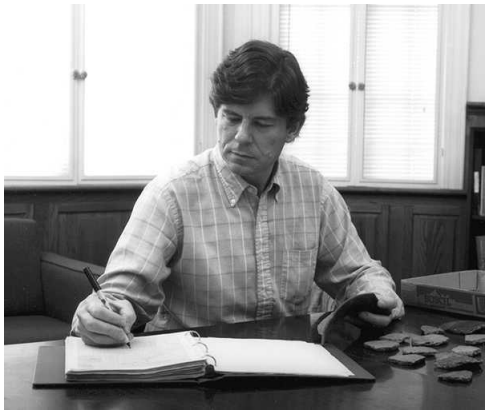
Stuart, George E., and Francis P. McManamon. 1996. *Archaeology and You.* Washington, D.C.: Society for American Archaeology.

Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this lesson's main heading is taken from Figure 5.14.]

Profiles of Archaeologists

David Moore

David Moore works in Asheville for the Office of State Archaeology, Division of Archives and History, North Carolina Department of Cultural Resources. He identifies and preserves key archaeological sites and conducts excavations when significant sites are going to be destroyed. Dr. Moore also gives public programs on archaeology and prepares exhibits for local museums. Born in California, he grew up in Williamsville, New York. Dr. Moore attended the University of California at Berkeley and received his doctorate in Anthropology at the University of North Carolina at Chapel Hill.



David Moore working in his lab.

How did you become interested in archaeology?

I read a book called *Aku-Aku*, by Thor Heyerdal, when I was in the sixth or seventh grade. It was about Easter Island and the people who erected the mysterious stone statues there. The story about how the huge statues were quarried, transported across the island, and erected was really exciting to me, and it taught me about how complex ancient cultures could be. From that point on, I had a fascination with archaeology.

When did you decide to be an archaeologist?

After I graduated from college, I got a summer job working at the Hardaway site in North Carolina. This was my first experience with real archaeology. We excavated a camp that was nearly 10,000 years old, and I learned how to identify stone tools. I loved the work, and I loved learning about the past, so I decided to apply to graduate school and become an archaeologist.

What kinds of archaeology jobs have you had?

I have worked for the Office of State Archaeology for nearly 14 years. During that time I have also taught archaeology field schools and classes at several local colleges and universities.

What do you enjoy about being an archaeologist?

I enjoy the actual process of uncovering evidence of the past through excavation. It is an exciting challenge to understand how people lived at a particular place at some time in the past and to try to understand all the forces that were a part of their environment. I also enjoy teaching about archaeology and helping others share my interest in learning about the past.

What do you dislike about being an archaeologist?

Often archaeological sites are destroyed by vandalism or construction. I try hard to help protect important sites, so it is extremely painful to see a site that has been destroyed, since we will never be able to learn about what was there.

Have you made any important discoveries?

None that would make the headlines, but I like to think that everything I do adds to what we

know about the past. I think it's an important discovery for everyone if I can help people learn about an Indian village located in their community 500 years ago.

What advice would you give a young person considering a career in archaeology?

Read about everything that interests you in history and try to meet professional archaeologists that work in your area. They often offer opportunities to volunteer in archaeology labs or on field projects. Explore these if you can to learn whether archaeology is something that you would enjoy.

What else would you like to tell people about archaeology?

Archaeology is a unique window on the past. If you want to learn about ancient peoples and cultures you can explore the past in books, at museums, on archaeological sites, and at historic sites. You may be surprised to know how much history is all around you if you begin to look for it.

Linda Carnes-McNaughton

Linda Carnes-McNaughton works in Raleigh as the archaeologist for the Historic Sites Section, Division of Archives and History, North Carolina Department of Cultural Resources. In this capacity, she conducts excavations at historic sites across the state and helps to develop public programs there. Dr. Carnes-McNaughton grew up in Atlanta, Georgia where she graduated from Walker High School. She received her undergraduate degree in Anthropology from Georgia State University in downtown Atlanta. She received a doctorate in Anthropology at the University of North Carolina at Chapel Hill.

Linda Carnes-McNaughton excavating.

How did you become interested in archaeology?

I have always been interested in people—past, present, and future. Some of my fascination for old things and other cultures probably came from living in Japan for two years as a small child.

When did you decide to become an archaeologist?

In high school and early college, I took courses in sociology, biology, geology, and geography. I was a sophomore in college, majoring in Biology, when I was accepted to go on a dig. After that experience, I changed my major to anthropology and knew with certainty I would become an archaeologist.

What kind of archaeology jobs have you had?

Over the years I have worked as an archaeologist for university-sponsored projects, private-consulting excavations, and federal and state-government agencies. Mostly my work has taken places in the southeastern states, such as Alabama, Georgia, North Carolina, South Carolina, Tennessee, and Virginia. Once I did a small survey in Northern Ireland on historic pottery sites. I loved it and would like to return to do more work in the United Kingdom.

What do you enjoy about being an archaeologist?

As an anthropologist and archaeologist, I am able to blend many diverse kinds of research and skills to expand our knowledge of past human cultures. I embrace that diversity and the multi-dimensional aspect of exploration and discovery. And working outdoors, in many different settings, keeps me in touch with nature and the environment.

What do you dislike about being an archaeologist?

The only frustrating part of my job as an archaeologist is trying to preserve and protect our cultural resources—the sites, artifacts, buildings, etc. Many people take for granted that these ancient (and not-so-ancient) remains will be here forever. Educating people about preservation is very challenging, but very important.

Have you made any important discoveries?

I get asked this question a lot! Usually I respond by saying, "It's not what you find (artifact or feature-wise), it's what you find out (information-wise) that's important." But the most exciting sites I've worked on were a 4,000-year-old soapstone quarry near Atlanta and the earliest European-style pottery kiln in North America, dated to the AD 1570s and located near Beaufort, South Carolina.

What advice would you give a young person considering a career in archaeology?

Learn to think clearly, listen hard, and write well. Take courses in social sciences (such as sociology, geography, and folklore) and physical sciences (such as biology, geology, mathematics, and chemistry). Learn skills such as photography, map drafting, and even art work. But most importantly, polish communication skills, such as writing and public speaking. Begin by volunteering on archaeological projects sponsored by your state or regional archaeological societies or organizations. Proper training in field techniques is crucial to continuing your archaeological career. Finally, learn the preservation laws in your state or community. This will help you to educate others.

What else would you like to tell people about archaeology?

Being an archaeologist means looking at the world around us in a different perspective. We live in the present as we study the past in order to learn what to do in the future—on this planet and possibly others. We learn to be humanists while at the same time we practice as scientists.

Lesson 5.2

ROCK ART

Petroglyph from Judaculla Rock, Jackson County, North Carolina, 3000–1000 BC.

Subjects: science, social studies, language arts, visual arts.
Skills: knowledge, comprehension, analysis, evaluation, application.
Strategies: brainstorming, discussion, visualization, drawing, writing, observation.
Duration: 45 to 60 minutes.
Class Size: any.

Objectives

In their study of rock art, students will use art materials, drawings, and rock art examples to:

- differentiate between symbol, petroglyph, pictograph, and rock art;
- interpret rock art to illustrate its importance in the cultural heritage of a people and as a tool for learning about the past;
- evaluate the importance of protecting rock art for study.

Materials

For the teacher, a transparency of "Judaculla Rock Art Panel" for projection and an "Interpretation of Judaculla Rock Art" master. For each student, a copy of "Judaculla Rock Art Panel" and "Interpretation of Judaculla Rock Art;" clay, paper, and paint or marker; popsicle stick or paper clip.

Vocabulary

Petroglyph: a design chiseled or chipped out of a rock surface.
Pictograph: a design painted on a rock surface.
Rock art: a general term for the pecking, incising, or painting of designs onto rock surfaces.
Rock art panel: a group of rock art figures.
Soapstone: a type of stone which is soft and easily carved; also called steatite.
Symbol: a thing or design that represents something else.

Background

Indian people throughout North America created *rock art* in ancient times. Its meaning is mysterious and sometimes controversial. Some archaeologists think rock art is a type of storytelling. Others believe it depicts religious or spiritual beliefs, while still others regard it as solely an artistic expression.

North American rock art is not a true writing system that can be read like Egyptian hieroglyphics or a phonetic alphabet, although some rock art specialists attempt to decode rock art *symbols*. Archaeologists analyze rock art figures and patterns, and they frequently find that different cultural groups made different styles of rock art. Other researchers analyze legends and information from Indian people to draw conclusions about rock art meanings.

Some Indian tribes have oral traditions about rock art and its meanings. Many Indian people believe that the spirits of the makers reside in what they have created. Therefore, rock art is living, and it has a spirit. Whatever our responses to, or interpretations of, rock art may be, it stimulates our thoughts and imaginations. It expands our awareness of cultural expressions. Rock art can mean something different to each person who ponders it.

Setting the Stage

1. Discuss the meaning of the word *symbol* and brainstorm examples of symbols meaningful to us today. You may want to use the American flag or the bald eagle as examples to get the students started thinking about symbols and their meanings.
2. Give each student a piece of paper, a marker or paint, clay, and a popsicle stick or paper clip. Ask them to flatten the clay into a slab and imagine that it and the paper are rock walls. Ask them to carve a symbol of their culture into the clay with the popsicle stick or the paper clip. Have them paint or draw this same symbol on the paper.
3. Show students the words *pictograph* and *petroglyph*. Ask them to determine which word fits which method of rock design and give reasons for their answers. Verify the correct answer and explain that both design methods are classified as rock art. Give them the definitions of the root words prior to determining the correct definitions:
    - "picto," to paint (Latin);
    - "graph," to write (Greek);
    - "petro," rock (Latin);
    - "glyph," carved work (Greek).

Procedure

1. Project the "Judaculla Rock Art Panel" transparency. Explain that this *rock art panel* was created by ancient peoples of North Carolina.
2. Use the following questions to analyze the rock art panel:
    - What words might you use to describe the symbols on this page?
    - Why do you think people created these designs?
    - If there is a message in these designs, what do you think it is?
3. Using the "Interpretation of Judaculla Rock," share the various interpretations with the students.
4. Discuss the ways rock art might be important to archaeologists' study of ancient people?

Closure

In summary, why is the preservation of rock art important?

Evaluation

Instead of allowing students to answer the last question as a group, require them to answer it individually in a story, poem, essay, advertisement, or song.

Links

Lesson 5.3: "Creating Your Own Rock Art."

Sources

Ashcraft, A. Scott, and David G. Moore. 1998. "Native American Rock Art in Western North Carolina." Paper distributed at the Fall Meeting of the North Carolina Archaeological Society, Cherokee, North Carolina. [The images in this lesson's main heading and in the activity sheets are taken from this paper, courtesy of the authors.]

Smith, Shelley J., Jeanne M. Moe, Kelly A. Letts, and Danielle M. Paterson. 1993. *Intrigue of the Past: A Teacher's Activity Guide for Fourth through Seventh Grades.* Washington, D.C.: Bureau of Land Management, U.S. Department of the Interior. [This lesson is adapted from "Rock Art One: An Introduction" on pp. 95–98, courtesy of the Bureau of Land Management.]

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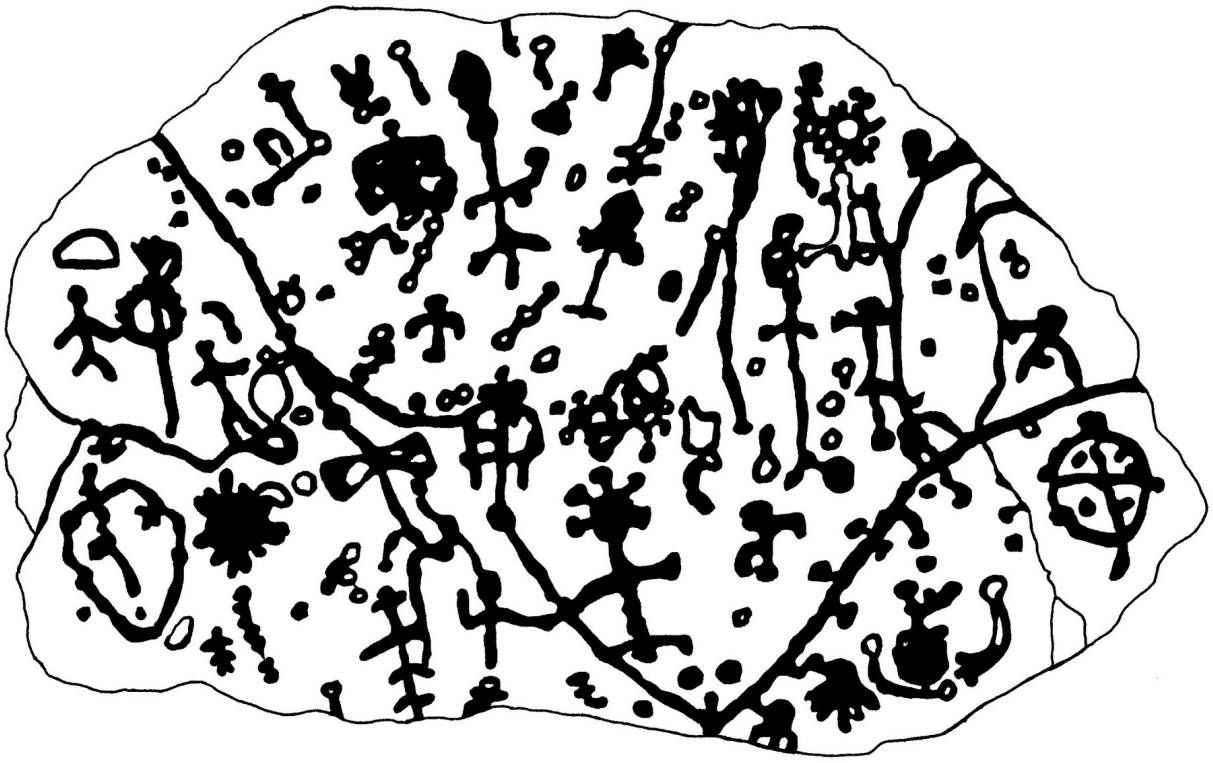
Judaculla Rock Art Panel



Interpretation of Judaculla Rock

Judaculla Rock, located in western North Carolina, is a large soapstone boulder whose surface is covered with carvings. The rock has sometimes been described as depicting a map of a battle in 1755 between the Cherokee and their enemies. Some people believe this battle was between the Cherokee and the Creek Nation, while others believe the Cherokee fought with the Catawba. In reality, the carvings are probably much older. Archaeologists studying soapstone quarries believe the Judaculla Rock was probably carved during the time archaeologists call the Late Archaic, which dates from 3000 to 1000 BC. Outcrops of soapstone, used by Native Americans in the past to sculpt pipes, beads, bowls, and bannerstones, are located near the Judaculla Rock. Archaeologists think Native Americans camped at, or near, the rock when they came to quarry the stone.

James Mooney, a researcher at the Smithsonian Institution who collected southern Indian stories, recorded the Cherokee legend of Judaculla Rock in the 1880s. According to Mooney's story, a being named Judaculla (called by the Cherokee *Tsul-ka-lu*, or the Great Slant-eyed Giant) was a giant hunter who lived atop a mountain at the head of the Tuckaseegee River in Jackson County. Judaculla was very powerful and could control the wind, rain, thunder, and lightning. The carvings on the boulder represent scratches made by Judaculla's feet as he jumped from the top of the mountain to the creek below. The seven-toed foot at the lower right hand side of the boulder is said to depict Judaculla's footprint.

The actual meanings of the Judaculla Rock symbols are a mystery. It is possible these figures may represent humans, animals, or figures of religious importance. As late as the 1880s and 1890s, Cherokee groups would assemble at Judaculla Rock to hold ceremonies. Today the land around the Judaculla Rock has been turned into a small park, where visitors can view the boulder and ponder its meaning.

Lesson 5.3

CREATING YOUR OWN ROCK ART

Petroglyph from Hiwassee Rock, Clay County, North Carolina, AD 1000–1600.

Subjects: science, visual arts.
Skill: synthesis.
Strategies: visualization, drawing, invention.
Duration: 45 to 60 minutes.
Class Size: any; groups not larger than 10.

Objectives

In their study of rock art, the students will:

- use regional rock art symbols or their own symbols to cooperatively create a rock art panel;
- use a replica of a vandalized rock art panel to examine their feelings about rock art vandalism and discuss ways to protect rock art and other archaeological sites.

Materials

For the teacher, transparencies of "Rock Art Symbols" and "Protecting the Past: Things Not to Do" for projection. For each student, a crumpled and then flattened out brown paper bag, or, if available, a roll of brown butcher paper; markers or paint, a can of spray paint, and a copy of "Rock Art Symbols."

Vocabulary

Deface: to spoil or mar the surface or appearance of something.
Petroglyph: a design chiseled or chipped out of a rock surface.
Pictograph: a design painted on a rock surface.
Vandalism: willful or malicious defacing or destruction of public or private property.

Background

People living over the entire world and in virtually every culture made rock art. It has been found in caves, on cliff walls, and on boulders. Some rock art is as old as 30,000 years.

Rock art occurs in modern America as well, although some people may not think of it as art. The most common modern rock art is painted on the concrete and brick walls in our cities and on bridge abutments and rock faces along highways. In modern America, as in all societies, this art expresses the values, attitudes, beliefs, and desires of the people who created it. As members of the artists' society, we may or may not understand what the representations mean. While American society is based on common ideals and beliefs, many different cultures form it. On the other hand, even if we understand the art's meaning, we may or may not like it or agree with the values or sentiments it represents.

Regardless of our views of modern rock art, however, the art means something to whoever put it there. The archaeological/historical issue of the future is this: if some piece of the art survives

into the future, will the ideas people have about its meanings even come close to what it originally meant?

North Carolina is fortunate to have fine examples of prehistoric rock art as part of our rich archaeological heritage. Six *petroglyphs* and one *pictograph* have been recorded so far in western North Carolina. The history revealed, however, is threatened by people who *vandalize* sites by collecting artifacts or *defacing* rock art. The unscientific digging of sites and other forms of vandalism are harmful because they destroy data about the past. Additionally, vandalizing and disturbing sites violates the cultural heritage of Native Americans. These sites are the burial grounds, homes, and sacred places of their ancestors, and destroying these places is the equivalent of someone vandalizing your home, church, or cemetery.

Setting the Stage

Distribute a copy of the "Rock Art Symbols" master to each student and display it on the overhead projector. Give students time to observe and talk with each other about the symbols.

Procedure

1. Explain to students they will be using symbols to make a group "rock art panel." They may use the symbols from the "Rock Art Symbols" master for their artwork, or they may create their own.

2. Divide the class into groups no larger than 10 students and give each student a marker or a paintbrush and paint. Cut one 5-to-7-foot-long piece of butcher paper for each group of students or give each student a brown paper grocery bag on which to create an individual rock art panel. Lay the butcher paper pieces on a table or floor. The paper can be crumpled and re-flattened at this point to more accurately depict real rock surfaces.

3. Space students a few feet apart if working on the large butcher paper sheets. If students use brown paper bags, have smaller groups work at a time; several may tape their bags together to create a longer panel.

4. When students have completed their panels, have them share the meanings of their rock art.

5. Exhibit the "rock art panels" in the classroom. Hold a can of paint or a marker in front of one of the panels, ask the students, "How would you feel if I were to paint my name over your rock art panel? Would that harm it?" Connect their feelings about their rock art being damaged to how Native Americans, archaeologists, and the public might feel when they see vandalized sites.

Closure

Ask students to think of ways to prevent the vandalism of archaeological sites. Draw upon "Protecting the Past: Things Not to Do."

Links

Lesson 5.2: "Rock Art."
Lesson 5.4: "Artifact Ethics."

Sources

Ashcraft, A. Scott, and David G. Moore. 1998. "Native American Rock Art in Western North Carolina." Paper distributed at the Fall Meeting of the North Carolina Archaeological Society, Cherokee, North Carolina. [The images in this lesson's main heading and in the activity sheets

are taken from this paper, courtesy of the authors.]

Hurst, Winston B., and Joe Pachak. 1989. *Spirit Windows: Native American Rock Art of Southeastern Utah*. Blanding, Utah: Edge of the Cedars Museum.

Smith, Shelley J., Jeanne M. Moe, Kelly A. Letts, and Danielle M. Paterson. 1993. *Intrigue of the Past: A Teacher's Activity Guide for Fourth through Seventh Grades.* Washington, D.C.: Bureau of Land Management, U.S. Department of the Interior. [This lesson is adapted from "Rock Art Two: Creating Your Own" on pp. 99–101, courtesy of the Bureau of Land Management.]

Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press.

Rock Art Symbols

Protecting the Past: Things Not to Do

- Touching or walking upon rock art can harm it.
- Making paper rubbings, tracings, or latex molds of rock art can cause damage. Chalking of rock art makes it impossible to use new methods of dating the figures.
- Removal or rearrangement of artifacts destroys archaeological data. Artifacts should be left where they are found. While it is okay to pick up and look at most artifacts, do not make piles of artifacts or take them home.
- Any digging at an archaeological site is not allowed. Not only does unscientific excavation rob the site of artifacts that tell archaeologists about the past, it also destroys data about village patterns, houses, trash deposits, and other important archaeological features.

[Adapted from Hurst and Pachak (1989, pp. 25-26).]

Lesson 5.4

ARTIFACT ETHICS

Chipped-stone adze from Stanly County, North Carolina, ca. 8500 BC.

Subjects: social studies, language arts.
Skills: application, analysis, synthesis, evaluation.
Strategies: discussion, values clarification, decision making, problem solving, communication, debate, drawing, composing, writing.
Duration: one to three 45-minute periods.
Class Size: any; groups of 3 to 4.

Objectives

In their study of archaeological issues students will use *ethical* dilemmas to:

- examine their own values and beliefs about archaeological site protection.
- evaluate possible actions they might take regarding site and artifact protection.

Materials

For the teacher, "Dilemma Cards" and 5 × 8 inch index cards; a transparency of "Archaeological Resources Protection Act of North Carolina" for projection. For each student or team, "Dilemma Cards" and a copy of "Archaeological Resources Protection Act of North Carolina."

Vocabulary

Ethics: the rules of conduct or right and wrong behavior recognized by a society or a profession.
Values: established ideas about the way life should be lived; that is, the objects, customs, and ways of acting that members of a given society regard as desirable.

Background

North Carolina's archaeological resources are being destroyed at an alarming rate. As a result, scientific data is destroyed, and the peoples of North Carolina lose an important part of their heritage. This lesson encourages students to examine personal beliefs, feelings, and *values* concerning the protection of archaeological sites and artifacts, to decide what action they would take in difficult situations, and to suggest solutions to the problems of archaeological resource destruction. There are no right or wrong answers except where laws apply. This lesson should be taught after the students have established a foundation in archaeological concepts and methods. Federal and state antiquities preservation laws state it is illegal to collect, deface, injure, or excavate sites and artifacts more than100 years old on public land. Public land includes properties administered by any state or federal agency, such as the National Park Service, the U.S. Forest Service, and the Fish and Wildlife Service. North Carolina's archaeological-resource-protection laws apply to all stated-owned land and make it illegal to excavate, remove, or damage archaeological resources more than 50 years old. In North Carolina, public lands are administered by groups such as North Carolina State Parks or State Historic Sites. Archaeologists who conduct

approved field work are granted permits by federal and state agencies.

People hiking, hunting, or camping on public land often discover an archaeological site or artifact. By law, the artifact is to be left in place, and the site is to be undisturbed. Discoveries of rare or remarkable artifacts and sites should be reported to the land managing agency, or, in the case of private lands, to the Office of State Archaeology in Raleigh.

Some sites have been destroyed by people who are interested only in removing, possessing, and sometimes selling artifacts, but not in what they tell us about the past. Most things archaeologists recover from sites are broken and not worth any money. The information these artifacts provide about the past is priceless, however, and once a site has been destroyed, its information is lost forever.

Students should never approach someone they see collecting artifacts or excavating sites on public lands. The best thing to do is to record information about the people—their physical description, what they were seen doing, the license number of their vehicle—and immediately report them to law enforcement authorities. The Archaeological Resources Protection Act (ARPA) allows rewards for those providing information leading to the arrest and conviction of people disturbing sites.

Setting the Stage

1. Ask students: Have you ever been in a situation when you were not sure of the right way to behave or respond? For example, your best friend had her hair cut in a style you think is unattractive. What do you tell your friend when she asks if you like the way it looks? Or, your best friend shows you some money that he has stolen from another friend's bookbag. What do you say to your friend? Do you report the incident to someone? If so, whom?

2. Distribute or project "Archaeological Resources Protection Act of North Carolina." Review this law and its penalties.

3. Explain that the dilemmas in the following activity will require decision making about difficult situations. As they share solutions to the dilemmas, students should be prepared to give reasons for their decisions.

Procedure

1. Copy the dilemmas and glue each one on a 5 × 8 index card. Students could also create dilemma cards, with each student responsible for one dilemma.

2. Take one of the dilemma cards and read it aloud to the entire class. Without group discussion, ask the class to write a paragraph or two about how they feel about the dilemma and what they would do about it. They should not put their names on their papers.
Have students turn in their papers (without names) and write several of their solutions on the blackboard until you have listed many strategies and viewpoints.

3. Have students discuss the pros and cons of each solution and perhaps come to a class consensus. This activity can help students examine and clarify their values, while demonstrating there are many perspectives on any issue. Ask students to consider silently what they had originally written. Have they changed their thinking after listening to other viewpoints?

4. Divide the class into groups of 4 to 5 students and give each group one of the dilemma cards. Have students discuss the dilemma as a group and decide how they would solve the problem. If students create a solution they think is better than the ones listed, allow them to share this solution. Allow about 15 minutes for their discussion. Have students choose a spokesperson for each group to report to the class the group's decisions and their reasons for taking the actions

or positions they did. Were they able to all agree on what they would do?

5. Ask students if they had enough information upon which to base their decisions. Ask them if their opinion changed once they heard different points of view.

Closure

Ask students to share their overall position concerning the protection of archaeological resources. Or, ask them to create a symbol, story, poem, drawing, or song that summarizes their opinion.

Evaluation

Evaluate student participation in the dilemma discussions and the closure activities.

Links

Lesson 5.2: "Rock Art."
Lesson 5.3: "Creating Your Own Rock Art."

Sources

Project WILD. 1992. "Ethi-reasoning." In *Project WILD Activity Guide*, pp. 310–314. 2nd ed. Boulder, Colo.: Western Regional Environmental Education Council.

Smith, Shelley J., Jeanne M. Moe, Kelly A. Letts, and Danielle M. Paterson. 1993. *Intrigue of the Past: A Teacher's Activity Guide for Fourth through Seventh Grades.* Washington, D.C.: Bureau of Land Management, U.S. Department of the Interior. [This lesson is adapted from "Artifact Ethics" on pp. 108–113, courtesy of the Bureau of Land Management.]

Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this lesson's main heading is taken from Figure 2.5.]

Archaeological Resources Protection Act of North Carolina

(North Carolina General Statutes Chapter 70, Article 2)

The purpose of this Act is to protect archaeological resources on state lands. Major points of the law are as follows:

- Archaeological resources are material remains of past human activities that are at least 50 years old and are of archaeological interest, including pottery, bottles, weapons, tools, structures, rock art, or graves.
- Permits are required in order to conduct archaeological work on state lands.
- Information about where archaeological sites are located can be kept confidential in order to protect sites from vandalism and looting.
- All illegally obtained artifacts and any equipment and vehicles used while violating this law are subject to forfeiture.

Prohibitions and penalties under the law are as follows:

- No person may excavate, remove, damage, or otherwise alter or deface any archaeological resource located on state-owned land without a permit.
- No person may sell, purchase, exchange, transport, or receive any archaeological resource taken from state-owned lands in violation of the law.
- Any person who knowingly violates the law shall, upon conviction, be fined not more than $2,000 or be imprisoned not more than six months, or both.
- Each day on which a violation occurs shall be a distinct offense.
- Civil penalties may also be assessed against any person who violates the provisions of the act.

Dilemma Cards

Dilemma 1

You and your family are on a camping vacation in western North Carolina and decide to visit Judaculla Rock. As you approach the boulder, you pass a man and woman walking toward the parking lot and carrying a paper bag. When you get to the Judaculla Rock, you see that there is fresh red and white spray paint on some of the carved figures. The paint is still dripping down the sides of the boulder when you arrive. What do you do?

- Run back to the man and woman and tell them it is against the law to damage rock art.
- Do nothing; mind your own business.
- Run back to the parking lot and get their license number, description of the car and people, and report them immediately to the park ranger.
- Use some of the wet paint to write your name on the rock art, too. After all, the Native Americans and later settlers wrote their names on rocks.
- Call the police when you return home.
- Have your parents make a citizen's arrest of the man and woman.
- Do something else.

Dilemma 2

You are a judge in a case where a man has been charged with removing iron objects from the underwater shipwreck site of the USS Huron at Nags Head. As part of the laws protecting archaeological sites, the boat he used to transport the stolen artifacts has been seized. Without his boat, this fisherman will not be able to support his family. What will you do?

- Put him in prison for six months and keep his boat.
- Fine him $2,000, but return his boat.
- Release him with a warning.
- Sentence him to 100 hours of community service, requiring him to learn about and then give talks to schools about the importance of protecting archaeological sites.
- Do something else.

Dilemma 3

You are an amateur archaeologist aware that the reservoir from construction of a large dam will eventually cover an entire river basin containing many Woodland Period village sites. One of your friends asks if you want to go down to the river and retrieve just a few artifacts because, after all, if you don't, the artifacts will just be buried under water. What do you do?

- Go and get just one or two artifacts in the river basin. Maybe the law does not apply to areas that are going to be destroyed anyway.
- Don't go with your friend, and if your friend goes, anonymously report him/her to the law.
- Refuse to go and tell your friend that it is against the law.
- Let him or her go and get a few things for you.
- Organize a local group of amateur archaeologists to work with professional archaeologists so that more information can be recovered before the reservoir is flooded.
- Do something else.

Dilemma 4

You are hiking beside a river in a remote section of a North Carolina State Park and discover a large prehistoric pot sticking out of a bank that is eroding. What do you do?

- Try to remove the pot and take it back to the park office.
- Leave the pot where you found it, photograph it, carefully record on a map where you found it and report your information to park officials.
- Leave the pot there and don't tell anyone about it or its location.
- Remove the pot, hide it in your car and take it home.
- Do something else.

Dilemma 5

You are on a scout trip to a national forest and during your hike your troop walks across a plowed field. There are pieces of broken pottery, stone projectile points, and chipped stone tools scattered on the ground. In school you learned that archaeological sites on public land are protected by law and that you should take nothing but photographs and leave nothing but footprints. As you walk across the field, you see your scout leader pick up a few pieces of pottery and a projectile point. Several of the scouts are doing the same. When you tell the leader what your teacher said about not taking artifacts, the leader says, "Taking little things like broken pottery doesn't count." What do you do?

- Act as if you saw nothing and let them take the artifacts home.
- Pick up just one artifact as a souvenir.
- Do nothing, knowing you were obeying the law by not taking anything.
- Find another scout troop.
- Ask your parents to report the scout leader to the Forest Service.
- Ask a professional archaeologist to come and talk to your scout troop.
- Do something else.

Dilemma 6

During the last several years, students at your school have worked hard to convince teachers and the principal that a swimming pool would be an excellent addition to the school's sports program. Pool construction has finally begun next to the playground and during the first day of soil removal, workers uncover the remains of a Late Woodland village site. The principal calls a meeting of the students to discuss the various options listed below. What would you do?

- Call a complete stop to the pool construction, since you cannot allow the present to destroy evidence of the past.
- Decide that many Late Woodland villages have been excavated already, so destroying this one won't matter.
- Notify archaeologists so they can excavate the site, even though this means waiting an extra year for the pool to be completed.
- Let pool construction continue, but first let students pick up visible artifacts to put in a display case at school.
- Do something else.

Lesson 5.5

SITE ROBBERS

Shell mask from Macon County, North Carolina, ca. AD 1500.

Subjects: science, social studies, language arts.
Skills: analysis, synthesis, evaluation.
Strategies: reading, interviewing, writing, discussion, analogy, values clarification, communication.
Duration: 60 to 90 minutes.
Class Size: any; groups of 3 to 4.

Objectives

Students will use an interview with a Native American to write a newspaper article or letter that expresses concern about robbing archaeological sites.

Materials

For each student, a copy of "A Point of View" and "Fact Sheet."

Vocabulary

Context: the relationship artifacts have to one another and the situation in which they are found.
Projectile point: a pointed implement (usually made from chipped stone) that was attached to the end of a spear or an arrow. This is a general term that includes both spear points and arrowheads.
Stratify: to form or place in layers.
Vandalism: willful or malicious defacing or destruction of public or private property.

Background

The desire to own and/or sell ancient Indian artifacts has been popular for many years. In search of artifacts, people dig, backhoe, and bulldoze their way through sites occupied hundreds and thousands of years ago by ancient peoples. Since Native Americans in North Carolina often buried their dead with offerings, looters dig their way into grave sites in search of jewelry, pottery, and other objects. The skeletons are removed haphazardly from their resting place and are sometimes found scattered around the site. Graves are not the only parts of archaeological sites that looters destroy. They also dig into the ground around house sites and trash pits in order to find projectile points and other stone tools.

Whenever looters dig on a site, they are destroying archaeological data that help archaeologists learn about what life was like for Native North Americans. Archaeologists rely on finding archaeological artifacts in the place they were originally discarded, or in *context*, to help them draw conclusions about the people who lived at the site. Ancient human remains, if they are to be disturbed at all, must be treated with respect and carefully recorded in the location where they were originally buried so that information will not be lost. Physical anthropologists study human remains and help archaeologists understand prehistoric nutrition, ages, injuries, diseases,

and genetic relationships. Irreplaceable scientific information is lost forever when ancient sites are looted. Equally important, *vandalism* of graves offends the living descendants of ancient people.

Vandalism and theft at ancient sites shows a lack of respect for past peoples. All cultures have beliefs about theft and the proper treatment of the dead and feel very shocked and upset when the graves and former homes of their ancestors are disturbed. When excavating sites where Indian peoples are buried, archaeologists work closely with modern Native American groups. Archaeologists will avoid excavating the graves of Native Americans if the modern ancestors do not want the human remains disturbed. If the graves are threatened by the construction of a road or reservoir, archaeologists will work with Native Americans to insure that the human remains are treated respectfully during their excavation, removal, and reburial.

Setting the Stage

1. Discuss the purpose of Memorial Day and the tradition of grave decorating. Explore various reasons for this custom.

Procedure

1. Share background information with students.
2. Have students read "A Point of View."
3. Have students imagine they are newspaper reporters. Tell them they just learned that the site where Mr. Jeffries believes his ancestors lived was vandalized by people in search of artifacts to collect and sell. As reporters, their assignment is to write an article about the vandalism. They should use "A Point of View" and "Fact Sheet" as resources for facts and insights. Tell students that in organizing information for their article, they should answer the five key journalistic questions: What happened? When? Where? Who was involved? Why (did it happen; matter; etc.)? Their articles should include observations about the impact the loss of information has on understanding the ancient villagers' lives, along with the thoughts and feelings about the incident expressed by the archaeologist and, especially, Mr. Jeffries.

Closure

Ask students to think about some special object that is in their home that a family member values for sentimental reasons. Perhaps it is an antique dresser that belonged to their mother's grandmother. Perhaps it is the baseball cap an older brother wore when his team won a regional championship. How would they and their family feel if someone vandalized or stole such an item? Why are these things important to people?

Evaluation

Students turn in their articles for evaluation.

Links

Part 1: Lessons 1.1–1.8.
Lesson 5.4: "Artifact Ethics."
Lesson 5.7: "Take Action, Save the Past."

Extension

The piece entitled "Police Track Down Looters" is adapted from several newspaper articles describing an actual case of looting at the Hardaway Site in western North Carolina. Read the excerpt to students and ask the following questions:

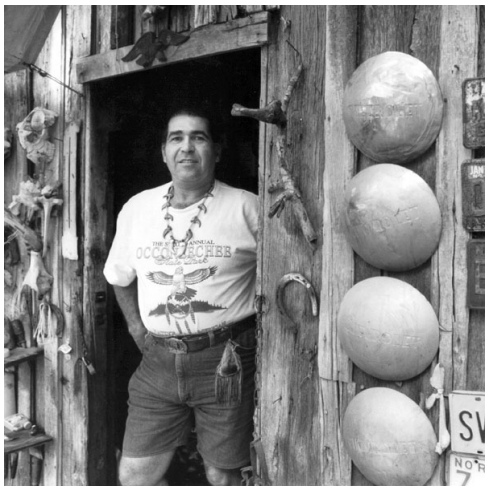
- What evidence did the detectives collect?
- Do you feel there was enough evidence to convict the couple of looting on a protected site? Why or why not?
- Do you feel that people digging unlawfully on Indian sites are disrespectful of Native American people? Why or why not?

Sources

Smith, Shelley J., Jeanne M. Moe, Kelly A. Letts, and Danielle M. Paterson. 1993. *Intrigue of the Past: A Teacher's Activity Guide for Fourth through Seventh Grades.* Washington, D.C.: Bureau of Land Management, U.S. Department of the Interior. [This lesson is adapted from "Grave Robbers" on pp. 117–118, courtesy of the Bureau of Land Management.]

Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this lesson's main heading is taken from Figure 5.22.]

A Point of View


John Jeffries.

John Jeffries belongs to the Occaneechi Band of the Saponi Nation and lives in Hillsborough, North Carolina. Mr. Jeffries's Native American name is John Blackfeather. He, like the other 400 members of his tribe, descends from Siouan-speaking people who lived in the area long before Europeans arrived. Their territory covered parts of northern Orange County up through Person County and into southern Virginia.

As is true for many of North Carolina's Indian people, part of Mr. Jeffries's history is lost. European diseases, to which Native Americans had no immunity, mercilessly killed his ancestors, wiping out many who would hand down oral traditions and customs. Of those who remained in early Colonial times, conflict claimed some. Survivors faced removal to reservations away from their homelands. Put in Colonial schools and churches, Mr. Jeffries's people found that what they had managed to keep of their heritage began slipping away as their children learned other lessons.

Mr. Jeffries knows that some of his history speaks from the ground—the kinds of tools and jewelry his people used; the size and shape of their houses; the layout of their villages; the foods they ate; the rituals and offerings they used for burials. So each time archaeologists excavate parts of a 17th-century village near Hillsborough Mr Jeffries believes was home to his ancestors, he regularly comes to watch and learn what archaeologists find.

Asked how he would feel and what he would say to vandals if they dug up the site to take artifacts or human remains, Mr Jeffries replied:

"There's a man I know about. He has a barber shop near a town where some of my ancestors lived. He has relics all over his shop, and he has a skull. That really bothers me. The bones really bother me. The skull gives me the chills; it upsets me. I did a ceremony where I touched the skull. There's no way to describe my feelings.

"Graves, in particular, should not be disturbed. But I'm of two minds about that. The archaeologists I know treat remains in a respectful way. So do their students. I wouldn't want them exhuming people. Nobody needs to disturb another person that way. When I see remains of people in museums, I think their spirits are not resting. Would you want somebody lifting out your grandmother?

"But I know, too, that if the archaeologists didn't open the graves, I wouldn't know my ancestors. This is my history, and I wouldn't have it if they didn't do that. But I expect the archaeologists to have respect. When they open graves, I do a special prayer. If I touch the bones, I feel those people.

"I'm against removing artifacts from graves—by archaeologists or anybody else. Once in a grave, I saw an Occaneechi pot. I wanted this pot bad. But, it belonged to the person it was buried with. The Creator gave me the chance to see something my ancestors made. But I couldn't take it; it belongs with the person.

"How can I explain this so non-Natives can understand?

"People who'd rob graves are thieves. They're thieves of a culture, the past and the present.

They steal our identity. They also intrude on someone's privacy—the people who are buried there. Those sites are special places; they are the resting places of ancient people.

"Fortunately, I've never witnessed vandalism. I would hate to go into a site and see it all dug up, destroyed. I'd hate to think how I would act if I caught somebody.

"There's nothing special about Native American stuff. Why does anybody else want it? I'll tell you why: they want money. They want to sell our things, like this man I knew about who took gorgets [a kind of ornament carved from marine shell] and sold them. But these things have no monetary value to anyone who respects Native culture.

"Really! What I want to know is why do people want to possess these things? If they are not Native, they can't possess the spirits of my people. Only Natives can possess the spirits of their ancestors. By spirits, I mean it would be like if you wear your grandmother's brooch. It may not mean anything to somebody else. But when you wear it, you are holding her, touching her.

"To hold something like an arrowhead in my hand and know it belonged to my ancestors, it connects me to them. It also gives me a greater sense of respect for them. Understanding how they could survive using those implements. They had to be a strong people."

Fact Sheet

- Vandals destroyed part of Occaneechi Town last night. They struck between midnight and 6 a.m.

- Occaneechi Town is a 17th-century Siouan Indian village site. It is located in Orange County.

- Police don't know how many people vandalized the site. Footprints make police think there were two men and one woman.

- The vandals dug up two graves. They scattered the people's remains, and they stole the offerings that had been placed in the graves.

- Archaeologists had scientifically recorded information from one of the destroyed graves. They knew, thus, that the vandals stole a clay pipe, a bead necklace, several arrow points, and the beautiful clay pot Mr. Jeffries talked about in his interview. Archaeologists had not studied the other grave.

- "The information about that person is gone forever," said Dr. Explorit, the site archaeologist. "We will never how that person died or anything at all about him or her. We will never know what items grieving relatives and friends had placed in the grave. The disrespect the looters showed to the deceased, the descendants, and to all of us in terms of knowledge lost is inexcusable."

- Besides looting the graves, the vandals dug up a deep trash pit the Indian people had used. Archaeologists had not had the chance to excavate and record the pit's contents. The vandals threw out what was in the pit. Deer bone, pieces of broken pottery, and rock cracked by cooking fires were found all over the ground. Police and the archaeologist, Dr. Explorit, think the looters were looking for arrowheads.

- "The vandalism makes me angry and sad," said Dr. Explorit.

- Mr. Jeffries is a descendant of the Indian people who lived in Occaneechi Town. He said he was angry and sad, too. "Those vandals are thieves of my culture," said Mr. Jeffries. "They also intruded on the privacy of the people who were buried there. Why would anybody do that? Those are special places; they are the resting places of ancient people."

- For other comments and insights by Mr. Jeffries, refer to "A Point of View."

Police Track Down Looters

by David Deese, Stanly News & Press Staff Writer

A screen commonly used to sift dirt for artifacts was found this week at the Hardaway archaeological site. Earlier in the week, two people carrying digging tools had been discovered near where the screen was found. Hardaway was recently named a historic landmark, which protects it from unlawful digging for artifacts.

The couple was discovered on the property Monday morning by the land owners. On Tuesday, the landowner took detectives and a state archaeologist to the place where the couple was discovered on the property. The screen was found near where the man and his wife had been standing. They told police during questioning that they had left a screen at the site.

Near the screen, the archaeologist found small piles of dirt created when soil is sifted through a screen. The detective described the soil as "freshly dug" and the screen showed signs that it had been recently used for sifting dirt. Also nearby were stone tools used by ancient Indian cultures. The archaeologist said that the Hardaway projectile point, or arrowhead, and other rare tools like snub-nosed scrapers are valued by people who collect Indian artifacts.

The Hardaway site is protected by state law, and there are many signs warning that the area is off-limits to digging.

"One sign was within 50 feet of where the couple were found," said the archaeologist.

When the couple was discovered, the landowner told them they were on protected property and asked for their names and addresses. The couple would not reveal their names and left the site. They were later arrested by police. Inside their backpack, the police found digging tools, including a pick, and a small shovel. No Indian artifacts were found in their possession.

The Hardaway site is important because soil at the site is stratified in layers. This means the artifacts are found at different levels below the surface. The deeper in the ground an artifact is found, the older the artifact is. Before they dug at Hardaway, archaeologists had no way to date artifacts of ancient Indian cultures because all artifacts found were from a single soil layer. Because of the soil layers at Hardaway, archaeologists have been able to date similar artifacts found at sites all across the southeastern United States.

"Hardaway is very unique, and it is being substantially affected by people coming in and looting the site with no respect for the history of North Carolina," said the state archaeologist.

[The above article was excerpted and revised from two articles: "Badin Indian Site Declared U.S. Landmark" by David Deese, The Stanly News and Press, July 10, 1990; and "Police Recover Dirt-Sifting Tool at Indian Camp" by David Deese, The Stanly News and Press, July 12, 1990.]

Lesson 5.6

A GUIDED JOURNEY INTO THE PAST

Palmer spear point from Stanly County, North Carolina, 8000–7000 BC.

Subjects: science, social studies, language arts, visual arts, music.
Skills: synthesis, evaluation.
Strategies: guided imagery, discussion, writing, drawing, composing, visualization.
Duration: 45 to 60 minutes.
Class Size: any.

Objective

In their study of archaeological resource conservation, students will use guided imagery to discover and judge an alternative way to enjoy artifacts without removing them from archaeological sites.

Materials

For the teacher, a copy of "Guided Imagery."

Background

In her book *Everybody Needs a Rock* (1974), Byrd Baylor expresses the wonder in finding a rock and pondering its source.

"Always sniff a rock," she says. "Rocks have their own smells. Some kids can tell by sniffing whether a rock came from the middle of the earth or from an ocean or from a mountain where wind and sun touched it every day for a million years."

Baylor suggests an atmosphere for this experience: "When you are looking at rocks don't let mothers or fathers or sisters or brothers or even best friends talk to you. Don't let dogs bark at you or bees buzz at you. But if they do, *don't worry*."

To hold a rock in our hand that may have been created millions of years ago sets our imagination in motion. We can transport ourselves back to the time and surroundings of its creation. We can journey with it through time, imagining what other beings might have touched it or used it. Mystery and intrigue are the forces at work in our mind, and many times we want to keep this mysterious object in our possession.

This same mysterious power is held within the artifacts made by the early peoples of North Carolina. Finding an artifact like a beautiful Palmer spear point (see above) made by Archaic people connects us with those humans in a way that books cannot. We can almost sense them, and we desire to know them. What made them laugh and cry? How did they spend their day? As our minds travel back in time and connect to the people whose objects (artifacts) we hold in our hand, we desire to keep the object.

It takes discipline to leave something in its place when we desire to keep it. This exercise will suggest a way for students to learn to control that desire to own an artifact.

Setting the Stage

Share the analogy of finding a rock from the Background. You might want to have students bring their favorite rock to school and share its significance with others.

Procedure

1. Explain that students will be taking a journey inside their minds. The purpose of this journey is to suggest an alternative for appreciating found artifacts without taking them home. Encourage students to relax their bodies, either in their chairs or lying on the floor, and to close their eyes. You can help create the mood by turning the lights off and softly playing appropriate music.
2. Read "Guided Imagery."

Closure

Have students share what they saw, experienced, felt, or thought during the guided imagery in a discussion, a cooperative team share, a drawing, or a song. Encourage students to suggest many ways to enjoy an artifact without taking it from a site. Examples: draw a picture of the artifact, write a poem or song, compose a story, take a photograph, bring someone else to the site to see the artifact, describe your find to someone else.

Sources

Baylor, Bird. 1974. *Everybody Needs a Rock.* New York: Atheneum.

Smith, Shelley J., Jeanne M. Moe, Kelly A. Letts, and Danielle M. Paterson. 1993. *Intrigue of the Past: A Teacher's Activity Guide for Fourth through Seventh Grades.* Washington, D.C.: Bureau of Land Management, U.S. Department of the Interior. [This lesson is adapted from "A Journey Back in Time: A Guided Imagery" on pp. 119–121, courtesy of the Bureau of Land Management.]

Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this lesson's main heading is taken from Figure 3.9.]

Guided Imagery

Imagine you are on a camping trip in a state or national park. Your camp is surrounded by beautiful countryside, and above you is a deep blue sky. The wind is blowing in gentle, gusting breezes as you hike along. You stoop to pick up rocks of many shapes, sizes, and colors. You wonder about the rocks' names, how they were formed, how long they have been on the earth. One of these rocks you now hold in your hand. Examining it closely, you notice its edges look broken, just like your mom's pottery vase you broke last summer. Its surface feels smooth and cool and is covered with a geometric pattern.

Suddenly, you realize you have found something special. You remember learning about pottery made by the early peoples of North Carolina and about how archaeologists study these people from their artifacts. You are sure you have found an ancient piece of pottery. You want to keep the pottery sherd so much and you slip it into your pocket. Your heart beats with excitement. You want to run back to camp to share your find. Then you stop yourself. You know artifacts are to be left where they are discovered.

Sitting down, you become very aware of your surroundings. Pottery fragments are scattered here and there. The wind blow gentle breezes through the trees. Crows call to each other. The hot sun warms your back as you gaze out over the landscape. You remove the sherd from your pocket as your mind begins to wander back in time to the village of the ancient people. You are there among the people watching them at their daily activities. In the shade of a tree you see someone making stone tools. A small child watches intently. The rhythmic sounds of meal being ground on a stone can be heard in the distance. In the shade of a storage room, a potter is skillfully creating a clay pot. Small children run about calling to each other.

(Give the students 2 to 3 minutes to do their own dreaming.)

The sound of a crow's call nearby brings you back to the present. You lay the potsherd back where you found it, feeling good about your decision. Before you leave you make a sketch of the potsherd to hang on your bedroom wall.

Lesson 5.7

TAKE ACTION, SAVE THE PAST

Spear point from North Carolina, ca. 9000 BC.

Subjects: science, social studies, language arts.
Skills: application, analysis, synthesis, evaluation.
Strategies: brainstorming, decision making, planning, communication, discussion, research skills, writing, problem solving, values clarification, debate, role play.
Duration: approximately 2 to 4 weeks, working 2 to 4 hours each week.
Class Size: any; groups of 3 to 5, preferably 4.

Objective

In their study of archaeological resource conservation, students will use a problem-solving model to identify a problem and solve it creatively.

Materials

For each team, a copy of "Decision-Making Sample" and the "Review of the Problem" masters; a copy of the "Decision Making" activity sheet. For each student, a copy of "Rules for Brainstorming."

Background

The growing concern about destruction of archaeological resources (sites and artifacts) lends itself to a creative problem-solving model. Problem solving is a skill students will need for future success. Students use their creative and critical thinking skills to find useful solutions to current and future problems. When possible, students should be supported to carry out their solutions. In recent years, students across the country have been influential and instrumental in finding and implementing solutions to problems by using problem-solving models. Teachers may wish to experiment with the following model. Listed under "Sources," below, are two books for those who want more detailed information on using a problem-solving model.

Problem solving is most frequently done in groups of four students. It can also be done as a whole class under the guidance of the teacher. The more this process is used, the more competent teachers and students become.

Procedure

1. *Creating Awareness:* Make students aware that a problem exists. This can be facilitated by teaching students about archaeology and reading "A Review of the Problem."

2. *Researching the Problem:* Research is essential to problem solving. Students who have experienced many lessons from this teaching guide will have sufficient background for solving archaeological problems. These lessons together with reading the "Review of the Problem" may be adequate preparation for completing the process. Additional research may be done if the students think they do not have enough information.

3. *Brainstorming Problems:* Students will brainstorm a list of specific problems related to the

overall problem of archaeological resource destruction. This will help to clarify the problem. Encourage students to list as many problems as possible (10 to 25). For example:

- digging up sites destroys valuable research data;
- archaeologists cannot learn as much if artifacts are taken away or stolen from a site;
- Native Americans think graves of their ancestors that are dug up have been desecrated;
- tourists cannot enjoy and learn from sites if they have been destroyed.

4. *Identifying the Underlying Problem:* The students now select the one problem from their list that they think is the most important. "It should be one which, if solved, might solve many of the other problems on the list as well. It may appear individually on the list or it may be a combination of a number of problems on the list" (Crabbe 1988, p. 40). The problem is most easily solved if it is stated as a question beginning with the phrase "How might we?" or "In what ways might we?" and contains one main verb. For example:

- How might we preserve archaeological sites for enjoyment by the public during the next 100 years?
- In what ways might we involve community members in the preservation of archaeological resources?

5. *Brainstorming Solutions:* "Once the underlying problem has been identified and written, the teams should begin their quest for solutions. This is the time for truly creative brainstorming. Students should stretch their minds as they look for actual ways to resolve the issue they have described" (Crabbe 1988, p. 44). Students should follow the "Rules for Brainstorming" in Appendix 3. Examples of solutions include:

- Create brochures about how and why to protect sites, and put brochures in a park visitor center.
- Write a letter to the editor of a newspaper discussing the importance of protection.
- Talk about the problem of destruction on a radio talk show.

6. *Choosing and Evaluating the Best Solution:* Students should review their list of solutions and write their 10 best solutions on the "Decision Making" activity sheet. From this list they should choose their best solution (see "Decision Making Sample" activity sheet). This is done by establishing a set of criteria by which to judge each solution. The criteria should be stated as questions, be problem specific, and establish lasting effects. Here are some examples:

- Which solution will have the longest-lasting preservation effect on archaeological sites in our state?
- Which solution will be the quickest to implement? Which solution will be the easiest to implement?
- Which solution will cost the least to the state taxpayer? Which solution will influence the most people?
- Which solution will involve the most community members in the preservation of archaeological sites?

7. *Describing the Best Solution:* In paragraph form the students describe how they will carry out their solution. They should answer the questions: Who? What? Why? Where? When? How?

8. *Carrying Out the Solution:* When possible provide students with an opportunity to carry out their solution. Example: If their best solution is to create an educational display for a visitor center in a national park (or other location), allow time for the construction of the display and arrange for permission to show it.

Sources

Bouchard, T. J. 1977. "Whatever Happened to Brainstorming?" In *Guide to Creative Action*, edited by S. J. Parnes, R. B. Noiler, and A. M. Biondi. New York: Charles Scribner's Sons. [The "Rules for Brainstorming" are adapted from this source.]

Crabbe, Anne B. 1988. *The Coach's Guide to the Future Problem Solving Program.* Laurinburg, N.C.: The Future Problem Solving Program.

Lewis, Barbara A. 1990. *The Kid's Guide to Social Action.* St. Paul: Free Spirit Publishing.

Smith, Shelley J., Jeanne M. Moe, Kelly A. Letts, and Danielle M. Paterson. 1993. *Intrigue of the Past: A Teacher's Activity Guide for Fourth through Seventh Grades.* Washington, D.C.: Bureau of Land Management, U.S. Department of the Interior. [This lesson is adapted from "Take Action—Save the Past" on pp. 131–135, courtesy of the Bureau of Land Management.]

Ward, H. Trawick, and R. P. Stephen Davis, Jr. 1999. *Time Before History: The Archaeology of North Carolina*. Chapel Hill: University of North Carolina Press. [The image in this lesson's main heading is taken from Figure 2.1.]

Review of the Problem

Out there, in our country's public lands, Americans are being plundered, robbed of a history that the land has held for thousands of years. This history has been passed down to us by the people who were here before us. They have left artifacts, drawings, and remains of their way of life. Archaeologists study the remains, drawings, and other artifacts left by the early Americans to discover clues to past cultures.

Some of these areas are far off the beaten path and some have been set aside as deserving of special protection. In the past, only the hearty outdoors enthusiast made the difficult journey to these sites. Today, more roads and highways cross the land, making it easier for sites to be visited by many people—including vandals, professional scavengers, casual collectors, and tourists.

Many ancient sites have been damaged in some way. For example, looters have dug large holes and taken artifacts from the Hardaway site, a camp site important to early Native Americans. Unless we act now to save such pieces of our North Carolina past, there may not be anything left to save. Large quantities of pottery and stone tools, human skeletal remains, rock art, historic cabins, and trails, as well as other valuable clues to our past have been damaged.

The large numbers of people visiting sites are endangering their existence. Visitors climbing in and out of ruins damage archaeological evidence. Campers building campfires near sites can harm rock art. People with metal detectors who dig bullets and belt buckles from Civil War battlefields in North Carolina destroy archaeological evidence. Each shovelful of dirt that is taken out of these sites may cause a loss of knowledge about past people. Each time a skeleton is unearthed and its bones scattered, we lose another link in our American heritage. Rock art is changed beyond repair each time uninformed or uncaring people chalk over a pictograph so it can be photographed, add their own carvings to a petroglyph for amusement or chisel a part of the art away from the wall. Each time artifacts are destroyed or removed from a site, the past culture can no longer be accurately dated and studied. The worst thing about vandalism and destruction of historic and prehistoric sites is the finality of the situation; the loss of history is complete and can never be recovered.

Federal and state agencies are working to prevent this destruction, with the help of concerned citizens. As guardians of our public lands, these agencies (such as the U.S. Forest Service, National Park Service, Department of Defense, Fish and Wildlife Service, Bureau of Land Management, and state governments) safeguard these special places.

You too can help. You can learn about artifacts and their value in the search for knowledge of the past. You can contact archaeological groups or historical societies in your area to find out how you can learn more. You can teach others about the importance of archaeological sites. You can form citizen groups who watch over sites. You can help prevent further destruction of these sites and become involved in legal and meaningful archaeology projects.

There are many other solutions to the problem of archaeological resource destruction. Your creative ideas are needed now!

Decision Making Sample

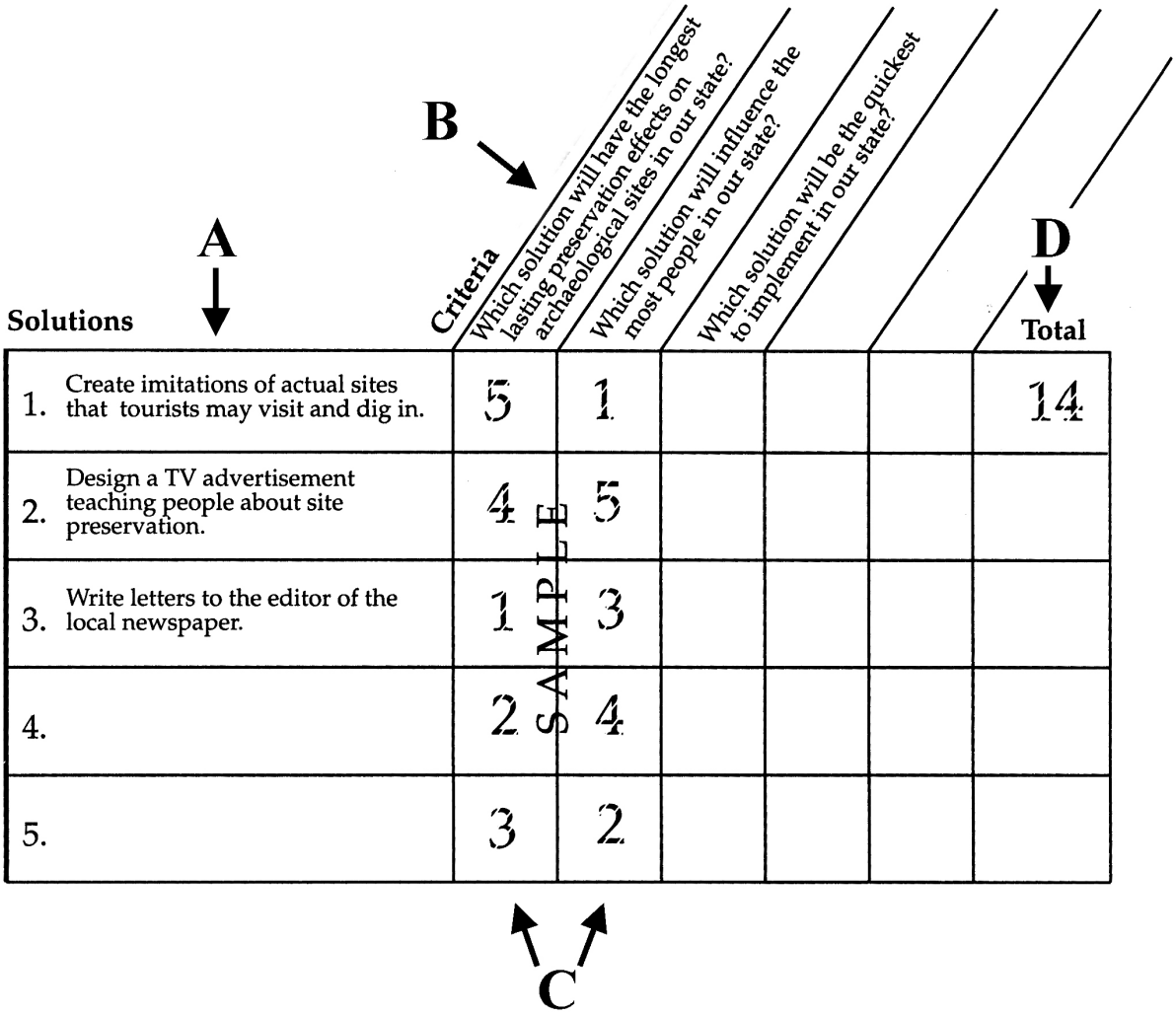
Follow the lettered instructions (A–D) to complete the "Decision Making" activity sheet. Some examples are given in the sample at the bottom of this page.

A. Summarize your best solutions.

B. Write your criteria in each diagonal.

C. Rate each solution according to each criterion on a scale of 1 to 5 (with 5 the highest, and 1 the lowest). Use each number only once in each column.

D. Add the numbers across each solution line. The highest number indicates your best solution. In the case of a tie, combine the two ideas into a super solution.



Decision Making

Solutions	Criteria					Total
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

Rules for Brainstorming

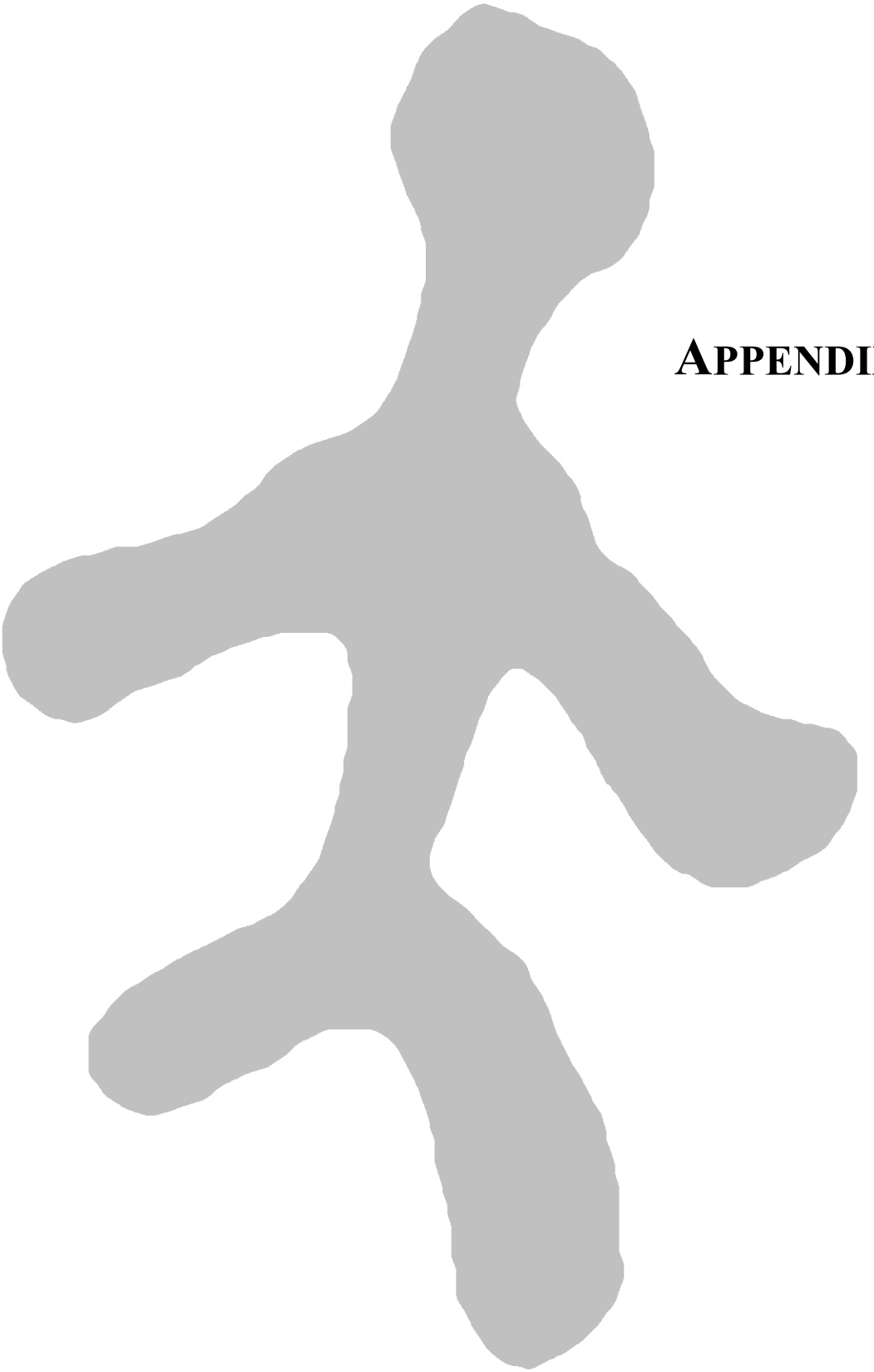
1. Criticism is ruled out.
- Judgment of positive and negative ideas must be withheld.
- No one should criticize anyone else's ideas.

2. Freewheeling is welcome—the wilder, the better.
- It is easier to tame down than to think up ideas.
- Don't be afraid to say anything that comes into your mind; the farther out the idea, the better.
- This complete freedom stimulates more and better ideas.

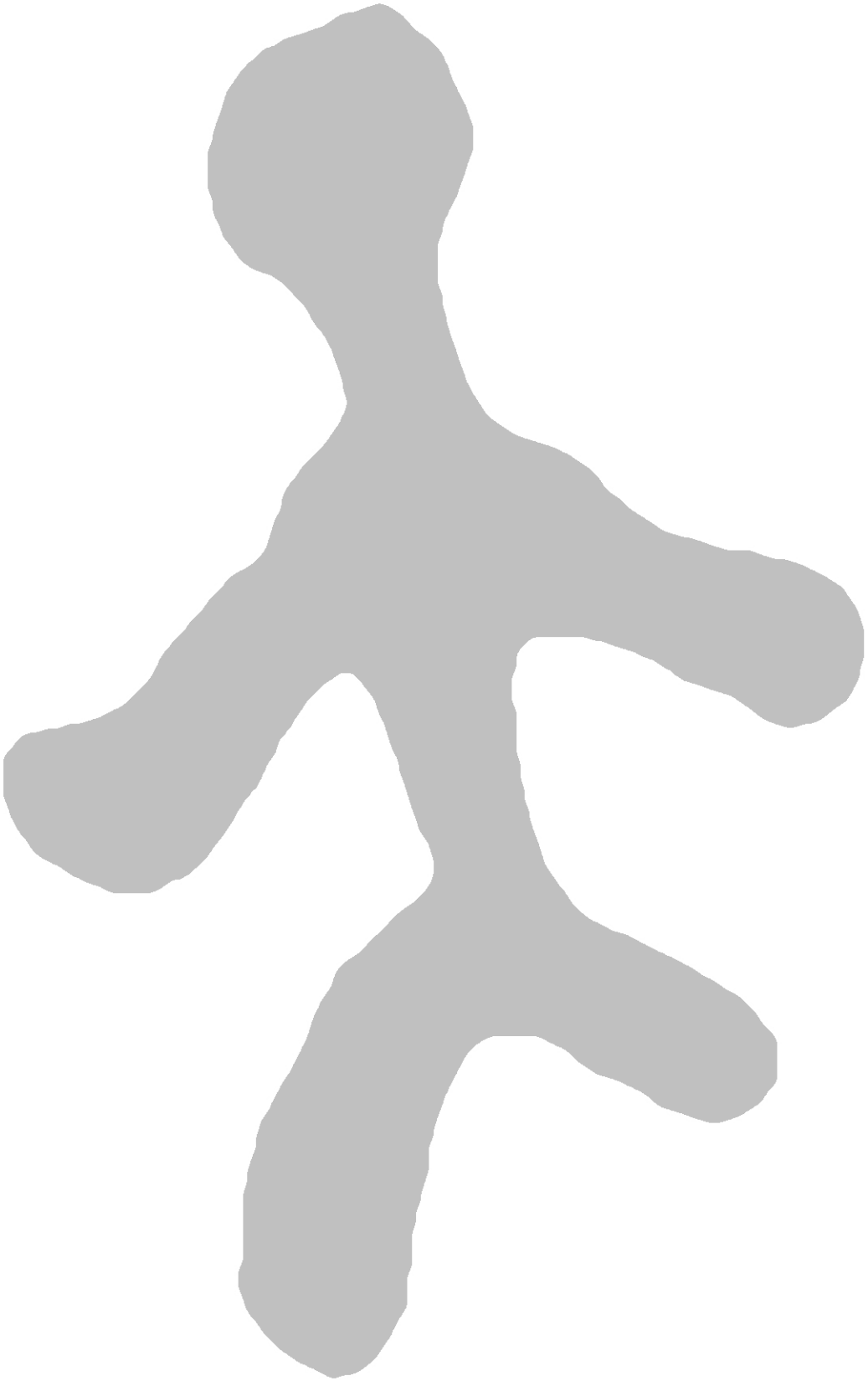
3. Quantity is wanted.
- The greater the number of ideas, the more likelihood of winners.
- Come up with as many ideas as you can.

4. Try piggybacking ideas; suggest combinations and improvements.
- In addition to contributing ideas of your own, suggest how ideas of others can be turned into better ones, or how two ideas can be joined into still a better one.

[Adapted from Bouchard (1977).]



APPENDIXES



Appendix 1

VOCABULARY

Agriculture: the cultivation of domesticated plants, such as corn, beans, and squash, as primary sources of food.

Anthropologist: a scholar who practices anthropology—the comparative study of human culture, behavior, and biology, and of how these change through time.

Anthropology: the comparative study of human culture, behavior, and biology, and of how these change through time. Archaeology is often considered a specialty within anthropology.

Archaeobotanist: a specialist who studies seeds and other plant remains from archaeological sites in order to understand the relationships between plants and people in past cultures.

Archaeologist: a scientist who seeks to understand past human cultures by careful study of the artifacts and other evidence from archaeological sites.

Archaeology: a method for studying past human cultures based on material evidence (artifacts and sites). Archaeology is often practiced as a subfield of anthropology.

Archaic period: the period in North Carolina between 8000 BC and 1000 BC. During this period, Native Americans lived in small nomadic bands and made their living principally by hunting, fishing, and gathering wild foods.

Artifact: any object made, modified, or used by humans; usually this term refers to a portable item.

Atlatl: a tool used to throw spears faster and with more accuracy; also called a spearthrower. It consists of a short pole with a handle at one end and a hook (for engaging the spear) at the other.

Attribute: a characteristic or property of an object, such as size, color, or shape.

Awl: a sharp pointed tool used to punch holes in skins and other materials.

Barrier islands: a line of islands that run parallel to the mainland coast and are separated from the mainland by a body of water known as a sound.

Base camp. A relatively larger, more stable camp site that serves as a base for a wide range of activities within a group's territory. It may serve as a staging area for far-flung food-collecting, hunting, or quarrying expeditions.

Bast: fiber from the inner bark of trees.

Beringia: the name of the land bridge that connected Asia and North America during the last Ice Age.

Cambium: the thin layer of living, dividing cells just under the bark of trees; these cells give rise to the tree's secondary growth.

Carbonize: to turn a seed or other organic item into charcoal through burning.

Cartesian coordinate system: two- or three-dimensional grid based on intersecting, perpendicular incremented lines or planes.

Ceramic: an item or material made from soft, moist clay that is first shaped and then fired at high temperatures. Pottery is a ceramic material.

Chronological: pertaining to chronology, which is an arrangement of events or periods in the

order in which they occurred.

Chronology: an arrangement of events or periods in the order in which they occurred.

Classification: a systematic arrangement in groups or categories according to established criteria.

Clay: a type of soil whose particles are too small to be seen or felt. When wet, clay is sticky and plastic.

Climate: the general weather conditions of an area.

Context: the relationship artifacts have to one another and the situation in which they are found.

Continental Shelf: the part of the continent beyond the current shoreline that is submerged in relatively shallow seas.

Cordage: several strands of fiber twisted together; string or rope.

Cross-dating: the principle that a diagnostic artifact dated at one archaeological site will be of the same approximate age when found elsewhere.

Crossmend: to fit together fragments of a single artifact that have been found in different soil layers or features; crossmending provides clues that allow one to infer relationships among various parts of a site.

Cultivate: to promote or improve the growth of a plant or crop by labor and attention.

Cultural relativism: understanding other cultures in their own terms without making judgments about them.

Culture: the set of learned beliefs, values, styles, and behaviors generally shared by members of a society or group.

Data: information, especially information organized for analysis.

Datum: something to use as a basis for measuring; a reference point for a grid or a map.

Deface: to spoil or mar the surface or appearance of something.

Dendrochronology: the study of the growth rings in trees to reconstruct climate variations and to determine the age of trees, beams and other timbers.

Diagnostic artifact: an item that is indicative of a particular time and/or cultural group; a computer would be a diagnostic artifact of our time and culture.

Dialect: a regional variant of a particular language. A dialect can sometimes be so different in vocabulary, grammar, and pronunciation that it is not understood by speakers of another dialect of the same language.

Domesticate: to modify, by selective breeding, the characteristics of plants or animals for human use.

Ethics: the rules of conduct or right and wrong behavior recognized by a society or a profession.

Ethnocentrism: the attitude that one's own traditions, customs, language, and values are the only right and proper way, and that those of other cultures are inadequate or wrong.

Ethnographic analogy: a method for inferring the use or meaning of an ancient site or artifact based on observations and accounts of its use by living people.

Ethnography: the study or description of cultures based on observation of and interaction with living people.

Ethnohistoric analogy: a method for inferring the use or meaning of an ancient site or artifact based on information from ethnohistoric sources.

Ethnohistory: the study of past cultures using oral traditions and written documents, particularly documents written by outside observers (e.g., European descriptions of 18th-century Indian tribes).

Evidence: data that are used to support a conclusion.

Experimental archaeology: a method of studying ancient artifacts that involves making and using replicas of those artifacts.

Feature: a human-made disturbance in the ground, such as a pit or basin; it is often marked by a distinctive stain in the soil.
Fiber: a slender, threadlike strand.
Flake: a thin piece of stone removed by striking a larger piece with a hammer (usually made of antler or stone). Flakes have sharp edges and were sometimes used as cutting implements. Flakes also were further shaped into tools or were left as waste by-products of flintknapping.
Flintknapping: the technique of making chipped-stone tools.
Flotation: a method used to recover seeds from archaeological sites. Soil is placed into a large container of water. The soil falls to the container's bottom, while the seeds remain floating on the water's surface.
Function: the use of an object.
Geomorphologist: a scientist who studies the characteristics, origins, and development of landforms, including soil.
Gorget: an ornament worn on the chest, suspended from the neck.
Grid unit: a specific square or rectangular area on the Cartesian coordinate system, designated by the coordinate in one corner (often the southwest corner).
Haft: a handle, especially of an edged tool.
Hemp: known as common dogbane, one of various plants that have a tough, strong fiber (called sisal) in the stem; the sisal is used to make rope.
History: the study of past events and cultures using written records, oral traditions, and archaeological evidence as sources of information.
Hominid: the family consisting of humans and their ancestors.
Horticulture: the cultivation of gardens whose foods supplement those obtained from some other primary source, such as hunting, gathering, fishing, or shell fishing.
Hypothesis: a proposed explanation or interpretation that can be tested by further investigation.
Hypothesize: to propose a hypothesis, an explanation, or interpretation that can be tested by further investigation.
Increment borer: a hollow instrument used to drill into the center of a tree to remove a long narrow cylinder of wood (called a core sample).
Inference: a conclusion derived from observations.
Kinship: the way in which a society defines how people are related to each other and which people make up a family. Kinship systems vary greatly from one society to another.
Language: the words, their pronunciation, and ways of combining them used and understood by a broad community of people.
Language family: a group of related languages, which developed from a common ancestral language.
Lifeway: how a group of people live.
Loam: a rich soil containing a relatively equal mixture of sand and silt, and a smaller proportion of clay.
Maize: another name for corn.
Mend: to fit together broken fragments of an artifact, such as a pottery vessel.
Midden: an area used for trash disposal; a deposit of refuse.
Munsell Color Chart: a book whose pages contain color chips that are used to determine soil color.
Naturalist: a person who studies plants or animals.
Nomadic: a way of life in which a group of people have no permanent residence, but move from place to place.

Nomenclature: a set or system of names or terms.
Observation: the act of recognizing or noting a fact or occurrence; or the record obtained by such an act.
Palisade: a walled enclosure built around a village or town; a stockade.
Pendant: an ornament hung on a cord around the neck and worn as a necklace.
Permanent village. A settlement that is continuously occupied by people throughout the year.
Petroglyph: a design chiseled or chipped out of a rock surface.
Pictograph: a design painted on a rock surface.
Posthole: a circular soil discoloration caused by decay of a wooden post where it had been buried upright in the ground.
Potter: someone who makes pottery.
Pottery: a ceramic item or material made of fired clay, usually in the form of a vessel.
Prehistory: the period of human experience prior to written records; in the Americas, prehistory refers to the period before Europeans and their writing systems arrived, covering at least 12,000 years.
Projectile point: a pointed implement (usually made from chipped stone) that was attached to the end of a spear or an arrow. This is a general term that includes both spear points and arrowheads.
Proportion: the amount of a portion or a constituent in relation to the whole.
Replication: the act or process of reproducing artifacts, structures, or use patterns.
Rim sherd: a piece of the rim or border of a broken vessel.
Ritual: an established procedure for a ceremony.
Rock art: a general term for the pecking, incising, or painting of designs onto rock surfaces.
Rock art panel: a group of rock art figures.
Sand: a type of soil whose particles are large enough to be easily seen and felt. Sand particles do not adhere or stick to one another, and grate against each other when rubbed together.
Scale drawing: a representation used to show something too large or too small to be drawn full size, in which the proportions (but not the size) are accurately preserved.
Sea level: the water level of the sea at a point midway between low and high tide.
Seed: a fertilized plant egg that has the capacity to produce a new plant.
Semi-permanent village: a settlement occupied by people for several months each year, but not year round.
Sherd: a broken piece of pottery; a shard.
Short-term camp. A camp occupied for a relatively brief period of time.
Silt: a type of soil whose particles are too small to be easily seen with the naked eye. Particles of silt are intermediate in size between those of clay and sand.
Sinew: an animal tendon prepared for use as a cord or thread.
Site: a place where human activities occurred and material evidence of these activities was left.
Site datum: a stable or permanent feature established as an arbitrary reference point from which the entire site is measured and recorded.
Soapstone: a type of stone which is soft and easily carved; also called steatite.
Soil triangle: a chart used by archaeologists and geomorphologists to determine soil texture.
Spatial: concerned with space.
Strata: layers (the plural of stratum); in archaeology, this term usually refers to layers of earth.
Stratify: to form or place in layers.
Stratigraphy: the layering of deposits in an archaeological site. Cultural evidence and natural sediments become buried over time. The layer on the bottom is the oldest; the layer on top is

the youngest.

Stratum: layer (the singular of strata); in archaeology, this term usually refers to a layer of earth or human-generated debris.

Style: the combination of shape and decoration distinguishing a group of artifacts, such as pottery, found in specific geographic areas and dated to certain times; a particular way of doing something that is associated with a specific culture or cultural tradition.

Subsistence: the means of supporting life, usually referring to food and other basic commodities.

Surface treatment: the way the outside surface of a pottery vessel has been finished by the potter. On ancient Native American pottery from North Carolina, surface treatments typically consisted of stamped or impressed designs made by cordage, nets, fabric, or carved wooden paddles pressed into a vessel's surface while the clay was still wet.

Suspension: a state or condition where particles of a substance are mixed with a fluid, but are not dissolved.

Symbol: a thing or design that represents something else.

Technology: the technique or means for making or doing something, often associated with tool making.

Temper: material, such as sand or crushed shell, mixed with clay to make pottery stronger and to reduce the risk of it breaking.

Temporal: concerned with time.

Timeline: a visual representation of events in chronological order.

Tradition: a particular technology or way of life that persists over a long span of time.

Tree rings: the concentric circles visible in cross sections of tree trunks and limbs; each pair of light and dark rings represents a year's growth.

Tuscarora: a North Carolina Indian tribe whose traditional territory extended from the western coastal plain to the eastern Piedmont. Their traditional language is Iroquoian. Most modern-day Tuscarora live in New York state. They migrated north after a war with European colonists and allied Indians in 1711–1713. They became the sixth member of the Iroquois Confederacy.

Values: established ideas about the way life should be lived; that is, the objects, customs, and ways of acting that members of a given society regard as desirable.

Vandalism: willful or malicious defacing or destruction of public or private property.

Vessel: a hollow or concave utensil for holding something.

Appendix 2

SELECTED READINGS

North Carolina Archaeology

Coe, Joffre L. 1964. *The Formative Cultures of the Carolina Piedmont.* Transactions 54(5). Philadelphia: American Philosophical Society.

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Mathis, Mark A., and Jeffrey J. Crow, eds. 1983. *The Prehistory of North Carolina: An Archaeological Symposium.* Raleigh: North Carolina Division of Archives and History.

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World Wide Web Resources: General Archaeology

American Anthropological Association.
<www.aaanet.org>. Home page of the major professional organization of anthropologists. Contains links to many web sites of archaeological interest.

Archaeological Institute of America.
<www.archaeological.org>. Home page of an organization devoted principally to the archaeology of the Mediterranean region. Contains both information and links of interest to teachers.

ArchNet, World Wide Web Virtual Library of Archaeology.
<archnet.uconn.edu>. This site, based at the University of Connecticut, is by far the most comprehensive guide to archaeological content on the web.

Learn North Carolina.
<www.learnnc.org>. A comprehensive web resource for K-12 teachers across North Carolina. One of its many features is a database of lesson plans keyed to the North Carolina Standard Course of Study. Most of the lesson plans in the current edition of *Intrigue of the Past: North Carolina's First Peoples* are available in this database. As these lesson plans are refined and as new lesson plans are written, the most up-to-date versions will be available on this site. The site is based at the School of Education, University of North Carolina at Chapel Hill.

National Park Service, Links to the Past.
<www.cr.nps.gov>. An excellent portal to all sorts of historical and archaeological topics, not limited to national parks.

Society for American Archaeology.
<www.saa.org>. Home page of the largest professional organization of archaeologists in the United States. Note especially the links under "Education" and "Publications."

Society for Historical Archaeology.
<www.sha.org>. Home page of a professional organization of archaeologists who study more recent, historically documented periods. The site contains general information on archaeology of interest to teachers.

World Wide Web Resources: North Carolina Archaeology

Archaeology and Ancient History of North Carolina.
<www.learnnc.org/learnnc/resources/anthro2.nsf>. A web resource on North Carolina archaeology designed especially for K-12 students and teachers. It is maintained by Learn North Carolina, a program for teachers based at the School of Education at the University of North Carolina at Chapel Hill.

North Carolina Archaeology.
<www.arch.dcr.state.nc.us>. This site is the most comprehensive guide to archaeology and archaeologists in North Carolina. It is maintained by the Office of State Archaeology, a branch in the Division of Archives and History.

North Carolina Archaeological Society.
<www.arch.dcr.state.nc.us/ncas.htm>. This is a membership organization of people interested in North Carolina archaeology, with local chapters across the state.

North Carolina Historic Sites Section, Division of Archives and History.
<www.ah.dcr.state.nc.us/sections/hs/default.htm>. This site contains links to state-run historic sites in North Carolina, many of which have archaeological exhibits (such as Town Creek Indian Mound, Historic Halifax, Historic Bath, Brunswick Town, Fort Dobbs, and Somerset Place).

Research Laboratories of Archaeology, University of North Carolina at Chapel Hill.
<rla.unc.edu>. Home page of the oldest research center devoted to North Carolina archaeology. Contains information and links of interest to teachers, including a web version of this book.

World Wide Web Resources: Magazines on Archaeology

American Archaeology.
<www.americanarchaeology.com>. A bimonthly magazine published by the Archaeological Conservancy.

Archaeology.
<www.archaeology.org>. Magazine published by the Archaeological Institute of America. Articles from current and back issues are available here.

Archaeology and Public Education.
<www.saa.org/Education/PubEdu/a&pe/index.html>. An internet newsletter on K-12 archaeology education published by the Society for American Archaeology. Articles from current and back issues are available here.

Discovering Archaeology.
<www.discoveringarchaeology.com>. Bimonthly magazine published by Scientific American.

Appendix 3

ARCHAEOLOGICAL SITES OPEN TO THE PUBLIC

Native American Sites

MACON COUNTY: NIKWASI MOUND

A small platform mound maintained as a park by the city of Franklin. This mound was built during the Misissippian period. A Cherokee townhouse constructed on top of the mound was described by 18th-century Scottish and British visitors to the site. There was also a village associated with the mound. Neither the mound nor the village have been archaeologically excavated.

- Located off East Main Street in Franklin, North Carolina.
- Open to the public year round. Handicapped accessible.
- For further information, call the Franklin Chamber of Commerce at (800) 336-7829.

MONTGOMERY COUNTY: TOWN CREEK INDIAN MOUND

A reconstructed ceremonial center of the Pee Dee culture, in use from about AD 1000 to 1600. The site has been extensively excavated and archaeological information used to reconstruct the platform mound, circular mortuary house, and a sacred square ground on this palisaded site. The site is maintained as a State Historic Site, open year round. In addition to the reconstructed ceremonial center, there is a museum with a variety of exhibits on the Town Creek site and North Carolina archaeology. Guided tours available.

- Located off N.C. 731, 5.5 miles southeast of Mt. Gilead, on Town Creek Mound Road.
- Free admission. Open to the public year round. Closed Mondays, November through March. The museum is handicapped accessible.
- On the Web at <www.ah.dcr.state.nc.us/sections/hs/town/town.htm>.
- For further information, call (910) 439-6802.

STANLY COUNTY: MORROW MOUNTAIN STATE PARK

Of archaeological interest here are a number of quarry sites, which were used for thousands of years by Native Americans as sources of raw material for chipped-stone tools. The type of stone quarried is called rhyolite, and outcrops of this material occur on and around Morrow Mountain's summit. Exhibits on this activity can be found in the park's visitor center.

- Located off N.C. 740, approximately 3 miles east of Albemarle.
- Free admission. State Park is open year round.
- On the Web at <ils.unc.edu/parkproject/momo.html>.
- For further information, call (704) 982-4402.

SWAIN COUNTY: OCONALUFTEE ARCHEOLOGICAL DISTRICT

This district is composed of seven sites located near the educational complex of the Great Smoky Mountain National Park.

- The park entrance is on U.S. 441, approximately 2 miles north of Cherokee.
- Free admission. Park is open year round.
- For further information, call (615) 436-5615.

WASHINGTON COUNTY: PETTIGREW STATE PARK

Lake Phelps, a shallow (4–9 feet deep) clear lake, contains 30 submerged dugout canoes, some of them nearly 4,400 years old. One of the excavated canoes is currently on display in a small exhibit which also features information on area wildlife.

- Located approximately 7 miles south of U.S. 64 at Creswell. From U.S. 64, follow signs to Pettigrew State Park through Creswell, turn right on Thirtyfoot Canal Road, proceed 5 miles to Lake Shore Road, where the park is located.
- Free admission. State Park is open year round, except Christmas Day. Exhibit building is handicapped accessible.
- On the Web at <ils.unc.edu/parkproject/pett.html>.
- For further information, call (252) 797-4475.

Colonial-Period and Later Sites

BEAUFORT COUNTY: TOWN OF BATH

Dating back to 1705, Bath was the first incorporated town in North Carolina. Two restored houses (Palmer-Marsh House and Bonner House) are maintained as State Historic Sites. Each building contains displays on aspects of colonial life in eastern North Carolina.

- The Historic Bath Visitor Center is located on Carteret Street (N.C. 92) in Bath.
- Admission prices for buildings varies. Open year round. Closed Mondays, November through March.
- On the Web at <www.ah.dcr.state.nc.us/sections/hs/bath/bath.htm>.
- For further information, call (252) 923-3971.

BRUNSWICK COUNTY: BRUNSWICK TOWN, FORT ANDERSON

Maintained as a State Historic Site, Brunswick Town was in existence between the 1720s and the 1780s. During the Civil War, Fort Anderson was constructed on part of the town site. Archaeological investigations done between the late 1950s and the 1970s uncovered the remains of 25 structures, including houses, churches, and craft buildings. There is an interpretive center at the site, as well as visible archaeological ruins along a wooded path.

- Located along the bank of the Cape Fear River, 15 miles north of Southport. From Southport, take N.C. 133 north, following signs to Brunswick Town.
- Free admission. Open year round. Closed Mondays November through March. Exhibit building is handicapped accessible.
- On the Web at <www.ah.dcr.state.nc.us/sections/hs/brunswic/brunswic.htm>.
- For further information, call (910) 371-6613.

DARE COUNTY: FORT RALEIGH

This English fort, occupied between 1585 and 1590, has been reconstructed based on archaeology done there by J. C. Harrington. The site is owned by the National Park Service and is a National Historic Landmark.

- Located on Roanoke Island, North Carolina.
- Free admission. Park is open year round. The visitor center and the earthen fort are handicapped accessible.
- On the Web at <www.nps.gov/fora/raleigh.htm>.
- For further information, call (252) 473-5772.

DURHAM COUNTY: STAGVILLE

This 19th-century plantation complex is owned by the State of North Carolina. There are several standing structures, including the late 18th-century plantation house, a slave quarter, and a large timber frame barn.

- Located near Durham on Old Oxford Highway, 7 miles northeast of Roxboro Road (U.S. 501 Business).
- Free admission. Open year round, Monday through Friday.
- On the Web at <www.ah.dcr.state.nc.us/sections/do/stagvill/>.
- For further information, call (919) 620-0120.

FORSYTH COUNTY: HISTORIC BETHABARA PARK

This archaeological park is the remains of a mid to late 18th-century Moravian community. This property includes a visitor center, reconstructed and original structures, and the foundations of buildings which have been explored archaeologically. Tours available.

- Located on Bethabara Road, off University Parkway approximately 5 miles north of downtown Winston-Salem.
- Free admission to grounds; small charge for exhibit buildings. Grounds are open daily, year round; exhibit buildings open daily, April through November.
- On the Web at <www.co.forsyth.nc.us/beth/default.htm>.
- For further information, call (336) 924-8191.

FORSYTH COUNTY: OLD SALEM

Reconstructed 18th- and 19th-century Moravian community. Old Salem is a living history site and many structures are open to the public.

- Located southwest of the intersection of U.S. 421 (I-40 Business) and U.S. 52 in Winston-Salem. Look for the brown Old Salem exit signs off I-40 (exit 193B), U.S. 52 (exit 108C), or U.S. 421 (exit 5D heading east or exit 6A heading west).
- Admission charge. Open daily year round.
- On the Web at <www.oldsalem.org>.
- For further information, call (336) 721-7350; also (336) 779-6190 or (888) 653-7253.

HALIFAX COUNTY: HISTORIC HALIFAX

Halifax was a commercial and political center during the 18th century. Four restored buildings maintained by Historic Sites are open for tours and there is a visitor center. Archaeological excavations have taken place at the old jail. The Montfort Interpretive Center is an archaeological exhibit in which walkways bring visitors over the excavated ruins of Joseph Montfort's house.

- Located in Halifax. From I-95, take N.C. 903 to the town of Halifax; the site is on U.S. 301 at the corner of St. David and Dobbs streets.
- Open year round. Closed Mondays November through March. Visitor center is handicapped accessible.
- On the Web at <www.ah.dcr.state.nc.us/sections/hs/halifax/halifax.htm>.
- For further information, call (252) 583-7191.

IREDELL COUNTY: FORT DOBBS

Fort constructed during the French and Indian War to protect settlers. Archaeological excavations have revealed the moat, cellar, magazine area, and well of the fort. There are exhibits which show both the military and civilian life of Fort Dobbs. Operated as a State Historic Site.

- Located in Statesville. From I-40, take U.S. 21 north (exit 151) for approximately 3 miles, turn left on Fort Dobbs Road, and proceed for 1 mile to the site.
- Open year round. Closed Mondays November through March.
- On the Web at <www.ah.dcr.state.nc.us/sections/hs/dobbs/dobbs.htm>.
- For further information, call (704) 873-5866.

WASHINGTON COUNTY: SOMERSET PLACE

Late 18th- and 19th-century plantation with existing house and outbuildings. Archaeological excavations have taken place in the formal gardens, the smokehouse, and at some of the houses and other structures associated with the enslaved African-American community. There is a visitor center and guided tours are available. Somerset Place is operated as a State Historic Site.

- Located approximately 7 miles south of U.S. 64 at Creswell. From U.S. 64, follow signs to Somerset Place through Creswell, turn right on Thirtyfoot Canal Road, proceed 5 miles, turn left on Lake Shore Road, and proceed .5 miles to the site.
- Free admission. Open year round.
- On the Web at <www.ah.dcr.state.nc.us/sections/hs/somerset/somerset.htm>.
- For further information, call (252) 797-4560.

Appendix 4

LESSON INDEX

In the three sections that follow, the lessons in this book are indexed by subject areas, skills, and strategies. The terminology corresponds to that used in each lesson's heading. The lesson number precedes each title.

Subjects

Careers

5.1. Archaeology as a Career

Language Arts

1.1. Why is the Past Important?
1.2. Culture Everywhere
1.3. Observation and Inference
1.4. Archaeological Context
1.5. Chronology: The Time of My Life
1.6. Classification and Attributes
1.7. Scientific Inquiry
1.8. It's in the Garbage
2.1. Gridding a Site
2.3. Artifact Classification
2.4. Tree-Ring Dating
2.5. Archaeobotany
2.7. Experimental Archaeology: Making Cordage
2.11. Inference by Analogy
4.1. Shadows of North Carolina's Past
4.3. Name That Point!
4.4. Pottery Traditions
4.5. A Siouan Village
4.6. Language Families
4.7. North Carolina Place Names
5.2. Rock Art
5.4. Artifact Ethics
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5.6. A Guided Journey into the Past
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2.1. Gridding a Site
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2.5. Archaeobotany
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Science

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2.7. Experimental Archaeology: Making Cordage
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Categorize
1.2. Culture Everywhere

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5.5. Site Robbers
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Compare and Contrast
1.2. Culture Everywhere
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5.4. Artifact Ethics
5.6. A Guided Journey into the Past

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2.4. Tree-Ring Dating
2.6. Measuring Pots
2.7. Experimental Archaeology: Making Cordage
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Debate
5.4. Artifact Ethics
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Decision Making
1.3. Observation and Inference
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5.3. Creating Your Own Rock Art
5.4. Artifact Ethics
5.6. A Guided Journey into the Past

Experiment
2.7. Experimental Archaeology: Making Cordage

Forecasting
1.5. Chronology: The Time of My Life
1.8. It's in the Garbage
2.4. Tree-Ring Dating
2.5. Archaeobotany

Game
1.4. Archaeological Context

Graphing
2.5. Archaeobotany
4.2. Shifting Coastlines

Guided Imagery
5.6. A Guided Journey into the Past

Interviewing
5.1. Archaeology as a Career
5.5. Site Robbers

Invention
2.7. Experimental Archaeology: Making Cordage

4.4. Pottery Traditions
5.3. Creating Your Own Rock Art

Mapping
2.1. Gridding a Site
2.11. Inference by Analogy
4.2. Shifting Coastlines
4.6. Language Families
4.7. North Carolina Place Names

Observation
1.3. Observation and Inference
1.6. Classification and Attributes
2.2. Stratigraphy and Cross-Dating
2.4. Tree-Ring Dating
2.8. Mending Pottery
2.9. Looking at an Object
2.10. Archaeological Soils
4.1. Shadows of North Carolina's Past
4.4. Pottery Traditions
4.6. Language Families
4.7. North Carolina Place Names
5.2. Rock Art

Planning
5.7. Take Action, Save the Past

Problem Solving
1.3. Observation and Inference
1.4. Archaeological Context
1.5. Chronology: The Time of My Life
1.8. It's in the Garbage
2.5. Archaeobotany
4.2. Shifting Coastlines
4.5. A Siouan Village
5.4. Artifact Ethics
5.7. Take Action, Save the Past

Reading
1.2. Culture Everywhere
2.7. Experimental Archaeology: Making Cordage
2.11. Inference by Analogy
5.1. Archaeology as a Career
5.5. Site Robbers

Research Skills
1.6. Classification and Attributes
1.7. Scientific Inquiry
1.8. It's in the Garbage
2.3. Artifact Classification
2.11. Inference by Analogy
4.3. Name That Point!
4.5. A Siouan Village
5.1. Archaeology as a Career
5.7. Take Action, Save the Past

Role Play
2.3. Artifact Classification
2.11. Inference by Analogy
4.3. Name That Point!
5.7. Take Action, Save the Past

Scientific Inquiry
1.3. Observation and Inference
1.6. Classification and Attributes
1.7. Scientific Inquiry
1.8. It's in the Garbage
2.1. Gridding a Site
2.3. Artifact Classification
2.4. Tree-Ring Dating
2.5. Archaeobotany
2.7. Experimental Archaeology: Making Cordage
2.10. Archaeological Soils
2.11. Inference by Analogy
4.1. Shadows of North Carolina's Past
4.2. Shifting Coastlines
4.3. Name That Point!
4.5. A Siouan Village

Sequence
1.5. Chronology: The Time of My Life
1.8. It's in the Garbage
2.2. Stratigraphy and Cross-Dating
4.1. Shadows of North Carolina's Past

Using Scale
2.1. Gridding a Site
4.2. Shifting Coastlines

Values Clarification
5.4. Artifact Ethics
5.5. Site Robbers
5.7. Take Action, Save the Past

Visualization
2.8. Mending Pottery
5.2. Rock Art
5.3. Creating Your Own Rock Art
5.6. A Guided Journey into the Past

Writing
1.3. Observation and Inference
1.4. Archaeological Context
1.6. Classification and Attributes
1.7. Scientific Inquiry
1.8. It's in the Garbage

2.5. Archaeobotany
2.7. Experimental Archaeology: Making Cordage
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