*Lesson 1.6*

# CLASSIFICATION AND ATTRIBUTES

**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
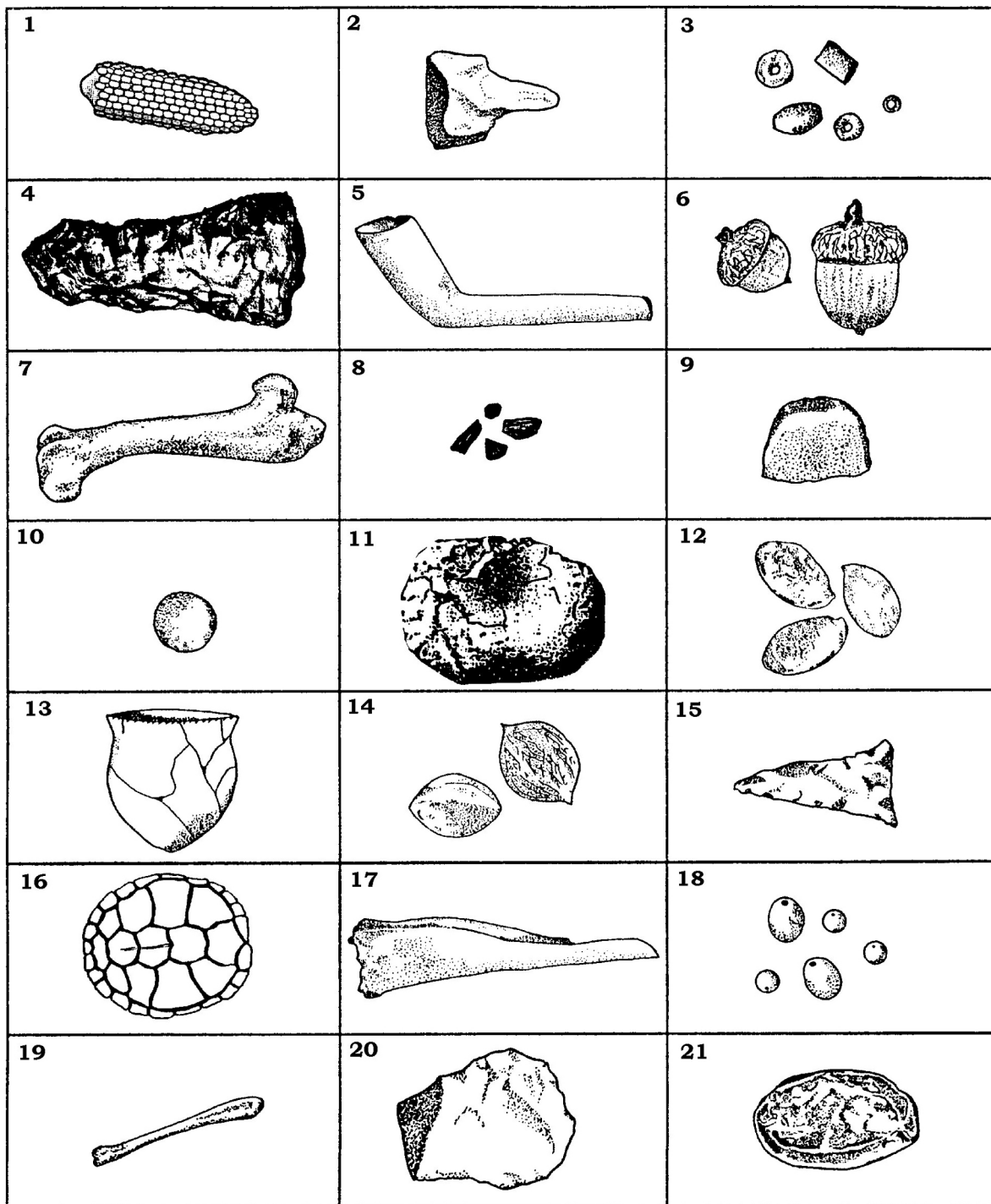


*Key*: 1, corn cob; 2, chipped stone drill; 3, marine shell beads; 4, stone hoe; 5, pipe; 6, acorn shell; 7, deer bone; 8, charcoal; 9, gun flint; 10, lead shot; 11, grinding stone; 12, persimmon seed; 13, clay pot; 14, hickory nut shell; 15, small triangular projectile point; 16, turtle shell; 17, deer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