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LESSON 8: TECHNIQUES OF TOOL MAKING

SUBJECTS

Social Studies, History, Archaeology

DURATION

30 to 45 minutes

CLASS SIZE

10 to 30 students

OVERVIEW

This lesson examines the process of making prehistoric tools from materials such as stone, bone, and antler. Students will learn about the different techniques used to make various types of tools.

OBJECTIVES

- To learn about the process of making prehistoric tools
- To experiment with the methods used to make prehistoric tools

MATERIALS

Artifacts, material samples, laminated graphic "Techniques of Tool Making", "Techniques of Tool Making Photographs", and books *Rocks and Minerals* and *Stone, Bone, Antler and Shell*.

VOCABULARY

Drilling - a method to create a perforation, hole, or hollowed area.

Grinding - a method of rubbing an abrading stone against the surface of an artifact to achieve a smooth finish.

Incising - a method of cutting a fine line into the surface of an object, to engrave.

Indirect percussion - a method of flaking stone; the hammer does not directly hit the artifact, but strikes an intermediary blunt-pointed tool.

Pecking - a stone-working technique; shaping a stone by sharply and repeatedly hitting it with a stone of greater hardness.

Percussion Flaking - a method used in making stone tools in which a percussion tool such as a striker or hammerstone removes flakes to shape the artifact.

Pressure Flaking - a method used in making stone tools to remove small flakes from the edges of an artifact and refine precise details on the artifact using a bone or antler tool.

BACKGROUND

Some archaeologists conduct experimental projects to better understand the process and techniques that people used in the past to make tools. In these experiments archaeologists try to make new tools like those found in archaeological sites. They use materials that closely match the materials used to make the original prehistoric tools and they seek to use the same techniques that people in the past used. These experiments help archaeologists understand how different types of tools were made, how different types of materials were used to make tools, how different materials break or disintegrate, and what debris is left over from the manufacturing process. For example, making chipped stone tools usually results in a significant amount of debris, called debitage. In contrast, making tools from bone results in splinters of bone or dust.

Several techniques were used to make prehistoric stone tools. Some methods used to make stone tools include direct percussion flaking, indirect percussion flaking, pressure flaking, pecking, grinding, drilling, and incising. Different methods were used to make tools from bone and antler. Techniques used to make bone and antler tools include sectioning the bone, grinding and abrading, incising, drilling, carving, adzing, and splintering (see *Stone, Bone, Antler and Shell* for more information about these processes).

Understanding these processes allows archaeologists to make more informed interpretations about what activities took place at a site. For example, finding one type of debris might indicate that tools were made at a site, while finding another type of debris would indicate that tools were repaired at that location. Archaeologists can also study the quantity of debris at a particular location to estimate the number of tools that were actually made at that site.

PROCEDURE

1. Each student should choose an artifact from the kit to analyze.
2. Each student should examine the artifact and try to determine the material that the artifact is made of. A fun game to play with younger students is "Animal, Vegetable, or Mineral?"
3. Students can examine the material samples of different types of stone, bone, antler, and shell included in the kit in order to determine the specific material that the artifact is made of. Also use the book *Rocks and Minerals* and other resources to learn more about the specific types of rocks that some of the artifacts are made of.

4. Display the laminated graphic, "Techniques of Tool Making" in front of the class and begin to discuss how the people at West Point made their tools. Ask the students what methods they think the people at West Point used to make their tools.
5. Discuss some of the methods used to make different types of tools such as the methods used to make stone tools.
6. Show the "Techniques of Tool Making Photographs" that document the techniques used by archaeologist Jeff Flenniken to make many of replica artifacts included in the kit. To make the replica artifacts, Flenniken tried very hard to match the materials for the replicas to the materials of the original artifacts. Flenniken also simulated the techniques used to make the replica artifacts according to the methods that were used to make the original artifacts. He made all of the replica artifacts without using any modern day tools or conventions such as metal chisels or sandpaper.
7. Each student should examine their artifact again and try to identify the methods used to make that artifact (i.e. Was the artifact flaked or ground? Was it incised or drilled?) Use *Stone, Bone, Antler and Shell* and other resources for more information about the processes involved in making different types of artifacts.
8. Finally, each student should describe the process involved in making their artifact by drawing a series of pictures that illustrate how the artifact was made and/or writing a description of how the artifact was made.

EXTENSION ACTIVITIES

1. Students could try making artifacts out of safe materials such as chalk, wood, and small rocks. Students could use pieces of chalk to try various tool making techniques. They could use sticks or small rocks to try direct percussion, indirect percussion, percussion flaking, pressure flaking, abrading, incising, sawing, and drilling the chalk. Be careful!

REFERENCES

- Larson, Lynn L. and Dennis E. Lewarch eds. The Archaeology of West Point. Seattle: Larson Anthropological/Archaeological Services, 1995.
- Stewart, Hilary. Stone, Bone, Antler, and Shell. Seattle: University of Washington Press, 1996.