

ARTIFACTS

Teacher's Manual



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Subjects:

Social Studies, History, Archaeology

Duration:

Option 1: 45 to 60 minutes

Option 2: 75 to 90 minutes

(Plus homework)

Class size:

10 - 30

Overview:

This module focuses on the artifacts recovered in the Kuril Islands. Students will examine, identify, and analyze replica artifacts included in the kit to learn how ancient people lived and what they ate.

Goals:

- To introduce the basic features of artifacts and their value to archaeologists.
- To develop students' critical thinking skills about how people used material objects to live and interact with the environment around them.

Objectives:

- To examine and analyze artifacts using skills such as drawing, measuring, and writing.
- To identify the different material types used by ancient humans to make artifacts (stone, ceramic, bone).

Material Included:

- "Treasure out of Trash" slideshow with teaching script
- Stone, bone, and ceramic artifact collections (objects labeled KBP Burke 001 - KBP Burke 091)
- Artifact analysis worksheets for stone, bone, and ceramic artifacts

Vocabulary

Adze:

A stone blade that is ground, shaped, polished, and usually hafted to a handle to be used for woodcarving.

Applique:

The addition of low-relief clay forms to a preformed vessel.

Archaeological material:

Remains found in archaeological sites such as artifacts, plant and animal remains, and features (e.g., house structures, monuments, hearths, etc.).

Artifact:

An object made or used by people.

Assemblage:

An archaeological grouping of artifacts (such as pottery) from a site according to their form or function.

Awl:

A tool with a pointed end used for sewing, punching holes in hides, or basket weaving, usually made from animal bone.

Base:

The underside of a vessel, or that part of the vessel which comes into contact with the surface upon which it rests during normal use.

Bipoint:

A small piece of bone pointed at both ends; bipoints were usually attached to fishhook sor shafts for catching fish.

Body:

The portion of a vessel between the orifice and the base, also sometimes called the belly.

Chisel:

A tool with a tapered, beveled end that was usually attached to a handle and used for woodcarving.

Coiling:

A method for hand-building an object of clay by successive additions of ropes or coils of clay.

Cord-marked:

Impressing cord into the interior or exterior surface of an object, often used in reference to cord impressions found on ceramics.

Core:

The piece of stone that remains after outer sections of stone have been chipped or flaked off of it to make tools.

Cortex:

The natural outer layer of rocks, formed by processes of chemical and mechanical weathering.

Debitage:

Pieces of stone that have been removed from a tool during manufacture, resharpening, or repair.

Drilling:

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

Vocabulary

Fabric:

The composition of a fired ceramic, including clay, inclusions, and pores, but excluding surface treatment. Synonymous with body, paste, or ware.

Flake:

A piece of stone that has been chipped away from a core or a larger flake. Flakes were either used, shaped into other tools, or discarded.

Flintknapping:

The process of making stone tools by shaping pieces of stone by various flaking methods.

Graver:

A tool with a sharp point or edge, usually hafted to a handle, and used for incising fine lines or carving thin grooves in wood or bone artifacts.

Grinding:

Rubbing an abrading stone against the surface of an artifact to achieve a smooth finish.

Hammerstone:

A hard cobblestone used by flintknappers to strike flakes off of lumps of tool stone.

Harpoon:

A spear-like weapon with a barbed head, used for hunting marine animals such as whales, sea mammals, and large fish.

Incised:

Figures or letters carved by hand or impressed by machine into the surface of an object. Often used to refer to marks on pottery and ceramics.

Incising:

Cutting or engraving fine lines into the surface of an object.

Inclusion:

Particulate matter (usually minerals) which is present in the fabric of ceramics, and which either naturally occurs in clay or is added by potters.

Indirect percussion:

A flintknapping method in which the hammerstone does not directly hit the stone tool but instead strikes an intermediary, blunt-pointed tool.

Neck:

The part of a vessel between the shoulder and rim, typically characterized by a marked constriction of the body diameter.

Pecking:

A flintknapping method in which the stone is shaped by sharply and repeatedly hitting it with a stone of greater hardness.

Percussion Flaking:

A flintknapping method in which a percussion tool such as a hammerstone is used to remove flakes from an artifact to shape it.

Pressure Flaking:

A flintknapping method in which small flakes are removed from the edges of an artifact, using a bone or antler tool, to refine the shape of the tool in precise detail.

Procure:

To collect resources by special effort, e.g., hunting, gathering, and fishing.

Projectile point:

A stone tool that is pointed on one end and usually attached to a shaft on the other, for example the tip of an arrow, spear, or dart used for hunting or fishing.

Rim:

The area between the lip and the side wall or neck of a vessel.

Scraper:

A stone tool that is used for tasks such as scraping fish scales and animal hides.

Sherd:

A broken fragment of pottery. This is a technical term used in archaeology, rhyming with “herd,” and should not be confused with the more common term “shard” (as in “glass shard”).

Subsistence:

Activities required to meet basic biological needs, usually referring to the quest for food.

Unipoint:

A bone tool pointed on one end.

Wedge:

A tool usually used with mauls and adzes for heavy woodworking tasks such as splitting wood planks for houses and canoes, and usually made of bone or antler.

Background Information

The thousands of artifacts recovered from the Kuril Islands are incredibly diverse, representing many different types of tools and ornaments. Stone, ceramic, and bone artifacts constitute the majority of the archaeological materials collected from the Kuril Islands. The stone artifacts represent numerous types of stone tools, including cores, flakes, projectile points, blades, scrapers, and hammerstones. These tools were made from a wide variety of raw stone materials, including basalt, chert, and obsidian. Some of these stone materials (e.g., basalt and chert) were locally available in the islands, but some (e.g., obsidian) naturally occur only on the island of Hokkaido and the Kamchatka Peninsula, both located beyond the far ends of the archipelago.

Other artifacts found in the Kuril Islands include ceramics and bone artifacts. The most commonly discovered ceramic artifacts are pieces of broken pots, called “sherds.” Ceramic vessels were most likely made locally on islands, using a combination of clay and sand, and hardened through firing in open-air fires. The ceramic artifacts discovered in the Kurils also often have

decorations on them, the most common decoration being cord-marking, formed by impressing a cord onto the surface of the vessel before firing. Bone artifacts are also found throughout archaeological sites in the Kuril Islands. Bone artifacts are extremely versatile and were used for a wide variety of tasks including hunting, fishing, and sewing, and some bone artifacts were even used as jewelry or ornaments. The bone tools were made from the bones of a variety of different animals, but most commonly from sea lion, seal, and occasionally bird bone.

Procedure

1. Display the “Treasure out of Trash” slideshow (available in PowerPoint or PDF format), using the script that has been prepared for the slideshow to help narrate the slides.
2. At the prompt in the slideshow, divide the class into three groups of approximately equal size, and distribute the artifact analysis worksheets to the students. Have each group start with one of the artifact collections (stone, bone, or ceramic) and complete the artifact worksheets.

Option 1: Each group of students analyzes only one artifact type (stone, ceramic or bone) for 8-10 minutes.

Option 2: Each group of students analyzes all artifact types for 8-10 minutes and then rotates to a different artifact type, 24-30 minutes total.

3. Return to the “Treasure out of Trash” slideshow and discuss the questions highlighted in the slideshow as a class.



Collection of stone and ceramic artifacts from the Kuril Islands

Student Worksheet guide

Analysis of Artifacts:
Describing Stone Artifacts

Introduction:

Stone artifacts are some of the most commonly found artifacts by archaeologists. Stone tools can be used for a wide variety of tasks, and they are durable, lasting for a long time in the archaeological record. Using the collection of stone tools collected from your site, analyze the artifacts to help answer questions about how past humans lived.

Step 1:

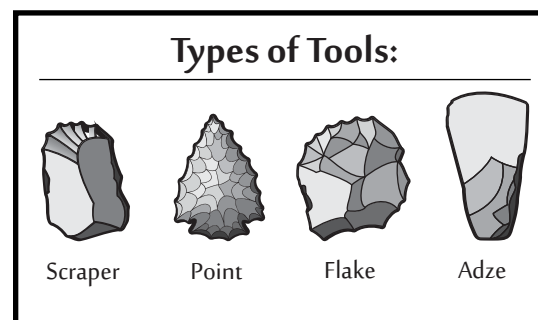
Look at the whole collection of stone artifacts and divide the artifacts into two smaller groups based upon their size. Record the number of artifacts in each group.

Small Group:

Answer: Group sizes will differ between different students' classifications (and this is the point!)

Large Group:

Answer: Group sizes will differ between different students' classifications (and this is the point!)



Step 2:

Choose one artifact from each group and describe the artifact following the example:

Small Stone Artifact

Length: _____ cm	Type (circle one below):	Point
Width: _____ cm		Blade
Color: _____		Flake
Texture: _____		Adze

Large Stone Artifact

Length: _____ cm	Type (circle one below):	Point
Width: _____ cm		Blade
Color: _____		Flake
Texture: _____		Adze

Student Worksheet guide

Analysis of Artifacts:

Describing Stone Artifacts - continued

Step 3:

Instead of sorting the stone artifacts based upon their size, try sorting them by their tool type. Once again, record the number of artifacts belonging to each tool type.

Scrapers:

Answer: 2

Flakes:

Answer: Around 20

Points:

Answer: 9

Adzes:

Answer: 1

Step 4:

Answer the following questions based on the tools from this site.

Looking at the variety of stone tools from the Kuril Islands, what activities were Kuril inhabitants likely engaging in?

Answer:

Projectile Points: The projectile points are not all the same size but range from small to large. Differences in the size of different projectile points likely relate to the size of the animals that people hunted, with the smallest points (the triangular points) likely used for birds or small mammals, the medium points likely used for medium mammals like foxes, and the largest points likely used for larger mammals such as deer.

Scrapers: Scrapers likely suggest the processing of hides from either marine or terrestrial mammals.

Adzes: The adze suggest the use of stone tools to perform wood-working or tree clearing tasks.

The various rocks Kuril inhabitants used to make stone artifacts is quite diverse. What can this diversity in stone resources tell you about the mobility of people who lived in the Kurils Islands? What additional information might be helpful in answering this question?

Answer: The tools are made out of a wide variety of raw materials, including chert or flint (the grey and red/orange material), obsidian (the black, shiny material), and basalt (the black, dull material). The diversity of raw materials clearly shows that the past inhabitants of the Kuril Islands had access to a wide variety of materials and used it in various ways. To really investigate this question, we would want to know the distribution of the various stone resources from throughout the island chain. For instance, we know from geologic evidence that obsidian does not occur locally in the Kurils and could only be obtained by trading with other groups living in Hokkaido or Kamchatka.

Student Worksheet guide

Analysis of Artifacts:
Describing Ceramic Artifacts

Introduction:

Ceramic artifacts are found throughout the Kuril Islands, having many different shapes, and with many different designs associated with them. Using the collection of ceramic artifacts from your site, analyze the pottery to help understand why and how ancient people used these artifacts.

Step 1:

Using the assemblage of pottery sherds, attempt to refit the pottery vessel back together.

Hint: Focus on fitting the rims and the bases back together and don't worry too much about the body sherds.

Which of these vessels shapes do you think best represents the shape of your vessel? (Circle your answer).



Answer: Assemblage 1: Flat base with full conical body



Answer: Assemblage 2: Flat base with conical lower half and straight upper half



Answer: Assemblage 3: Flat base, conical lower half leading to a shoulder, constricted neck and expanding rim

What sort of activities do you think ancient people might have used this vessel for?

Answer: All three of the vessels were likely used for cooking purposes. This probably included the cooking of animal products such as marine mammals and boiling plant products. The best evidence suggests that there is no major difference in the functional properties of each of these different vessel shapes. The differences are more likely a product of different personal or cultural styles.

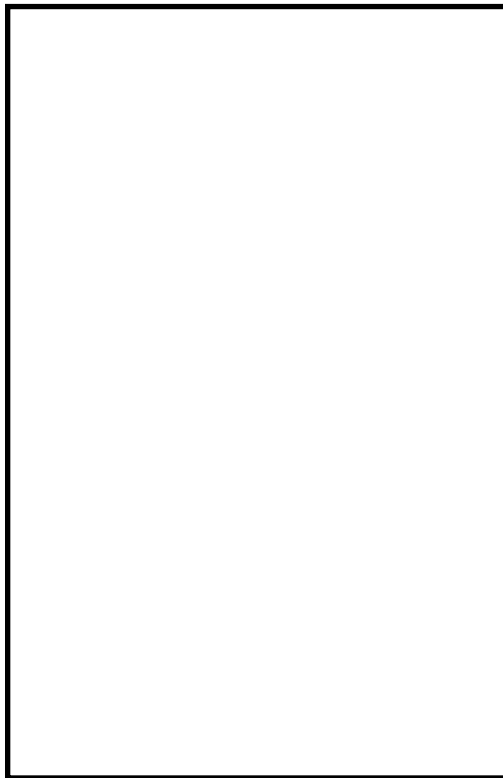
Student Worksheet guide

Analysis of Artifacts:

Describing Ceramic Artifacts - continued

Step 2:

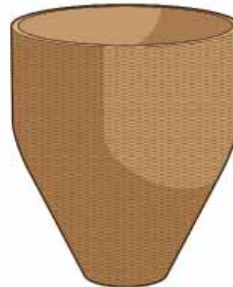
Looking at your ceramic vessel, study the decorative patterns and draw a sample of the decoration in the box provided below:



Step 3:

Given the examples below, how would you best describe the pattern on your vessel?

Cord-Marked



Applique



Incised



The decoration on my vessel is best described as:

Answer:

Assemblage 1: Cord-Marked

Assemblage 2: Cord-Marked and Incised

Assemblage 3: Incised

Student Worksheet guide

Analysis of Artifacts:

Describing Ceramic Artifacts - continued

Step 4:

Now compare the ceramic vessel pieces that you have with the other two ceramic vessel sherds. What are some of the similarities between them? What are some of the differences?

Similarities

Vessel 1 and Vessel 2:

Answer: Both have cord-marking and a similar shape

Vessel 2 and Vessel 3:

Answer: Both have circular incisions (or "punctates")

Vessel 1 and Vessel 3:

Answer: Little to no similarities

Differences

Vessel 1 and Vessel 2:

Answer: Vessel 1 does not have any incisions (specifically circular incisions/"punctates")

Vessel 2 and Vessel 3:

Answer: Different shapes, vessel 3 clearly has a neck

Vessel 1 and Vessel 3:

Answer: Vessel 1 has cord-marking and Vessel 3 is different in shape (has a neck)

Thinking critically, what might be some of the reasons why two pieces of pottery might look similar or different?

Answer: The similarity of two objects is often seen by archaeologists in two different ways: similarity due to functional properties and those due to stylistic properties. For example, when cooking pots are compared to skillets, any two cooking pots will look more like one another than they do skillets, because pots having similar functional traits such as higher walls since they are often used for holding and heating liquids. Additional traits such as decorations are often considered as stylistic traits. These traits are more culturally determined and are therefore often used to hypothesize connections between groups of people. If ceramic artifacts at one site are very similar to ceramic artifacts at another, it is possible that pottery might have been traded between the two communities or that people from the one community might have moved or migrated to the other community.

Student Worksheet guide

Analysis of Artifacts:
Describing Bone Artifacts

Introduction:

Bone artifacts are extremely useful for populations living in the cold, maritime environment of the Kuril Islands. Using the collection of bone artifacts from your site, analyze the various ways ancient people used these artifacts to survive in the harsh environment.

Step 1:

Using the collection of finished bone tools, sort the tools into groups that relate to their function. Please give your group a name that relates to its function and briefly describe the artifacts in that group.

Hunting/Harpoon Group:

The function of this group of tools is **hunting**.

Description: All of the artifacts in the harpoon group have at least one pointed end used for piercing animal skins. Student could possibly split the harpoons into two or three different groups such as the toggle harpoons (2-holes), the non-toggle harpoon (1-hole), and the leister point (long and barbed).

Sewing Group:

The function of this group of tools is **sewing**.

Description: Three of the four artifacts in the group are needles and can be described as small and pointy. The fourth artifact is a needle case designed to prevent the needles from being damaged.

Ornamental Group:

The function of this group of tools is **decoration**.

Description: The bone disc is decorated with geometric patterns suggesting its ornamental use. The circular shape of the bone disc also suggests possibly use as a spindle whorl, used in the spinning of fibers.

Student Worksheet guide

Analysis of Artifacts:

Describing Bone Artifacts - continued

Step 2:

Using the collection of finished and unfinished bone tools, further investigate the function of the bone tools and try to identify the process of making bone tools by matching the finished product with their earlier forms.

Bone Artifact KBP Burke 0175

1. What do you think the function of this artifact was?

Answer: The function of this artifact is not entirely clear to archaeologists. It clearly has some decorative designs suggesting it might be an ornamental artifact worn like a pendant or brooch. Its circular shape with a hole in the center also indicates it could have been used as a spindle whorl, which were useful pieces in the spinning of fibers.

2. Which of the unfinished tools would have likely been turned into this type of artifact? (Provide the artifact number.)

Answer: The most likely unfinished bone that would have been turned into the finished artifact is KBP 0179. This is a dense piece of whale bone that likely comes from a much larger piece of whale bone such as a femur or vertebrae.

3. Do the bones most likely used in the manufacture of this artifact come from a mammals or birds? How can you tell?

Answer: These are most likely from a mammal, specifically a whale. This is because of the thickness and density of the bones and that the bones are not hollow (birds bones are usually hollow).

Student Worksheet guide

Analysis of Artifacts:

Describing Bone Artifacts - continued

Bone Artifact KBP Burke 0185 or 0186

1. What do you think the function of this artifact was?

Answer: These artifacts are known as leister points. Given their long and pointed shape, they are most likely used for the hunting of fast moving animals such as fish or other river animals.

2. Which of the unfinished tools would have likely been turned into this type of artifact? (Provide the artifact number and skeletal element if possible.)

Answer: The most likely preform of the leister points are the three whale bone pieces (KBP Burke 0176, 0177, 0178). This is because the whale bone is very dense and strong, allowing it to be easily shaped into durable bone harpoon points.

3. Do the bones most likely used in the manufacture of this artifact come from mammals or birds? How can you tell?

Answer: These are most likely from a mammal, specifically a whale. This is because of the thickness and density of the bones and that the bones are not hollow (birds bones are hollow).

Bone Artifact KBP Burke 0183 or 0184

1. What do you think the function of this artifact was?

Answer: These artifacts are known as non-toggling harpoon points. They are most likely used for the hunting of marine mammals located on the near shore or shallow waters (as opposed to hunting on or near sea ice).

2. Which of the unfinished tools would have likely been turned into this type of artifact? (Provide the artifact number and skeletal element if possible.)

Answer: The most likely preforms of the non-toggling harpoon points are the three whale bone pieces (KBP Burke 0176, 0177, 0178). This is because the whale bone is very dense and strong, allowing it to be easily shaped into durable harpoon points.

3. Do the bones most likely used in the manufacture of this artifact come from mammals or birds? How can you tell?

Answer: These are most likely from a mammal, specifically a whale. This is because of the thickness and density of the bones and that the bones are not hollow (birds bones are hollow). You can feel how the texture of the harpoon points and the whale bone is similar.

Student Worksheet guide

Analysis of Artifacts:

Describing Bone Artifacts - continued

Bone Artifact KBP Burke 0206-0209 (Toggling Harpoons)

1. What do you think the function of this artifact was?

Answer: These artifacts are known as toggling harpoons. They are most likely used for the hunting of marine mammals, such as seals, walruses, or whales from a boat and near areas that contain sea ice. The main advantage a toggling harpoon provides is that the two holes in the harpoon head allow the hunter to insert the harpoon vertically and then lodge the harpoon head horizontally inside the animal, which helps to hang onto the animal in the water or ice.

2. Which of the unfinished tools would have likely been turned into this type of artifact? (Provide the artifact number and skeletal element if possible.)

Answer: The most likely preforms of the toggling harpoons are the four seal rib pieces (KBP 0202-0205) or possibly the three whale bone pieces (KBP Burke 0176, 0177, 0178). This is because seal rib bones and whale bones provide a dense, strong bone that is easily shaped into a toggling harpoon.

3. Do the bones most likely used in the manufacture of this artifact come from mammals or birds? How can you tell?

Answer: These most likely came from a mammal, either a seal or whale. Similar to other harpoons, this is because of the larger thickness and density of the bones and that the bones are not hollow (birds bones are hollow).

Bone Artifact KBP Burke 0182, 0193, 0194, 0195

1. What do you think the function of this artifact was?

Answer: These are all artifacts associated with sewing. The three smaller artifacts (KBP 0193, 0194, 195) are all needles and the larger artifact (KBP 0182) is a needle case to store the needles.

2. Which of the unfinished tools would have likely been turned into this type of artifact? (Provide the artifact number and skeletal element if possible.)

Answer: The most likely preforms of the needles are the thin, hollow bones (KBP 0199, KBP 0200 KBP 0201). The most likely preforms of the needle cases are the larger, but still hollow, bird wing bones (KBP 0180, KBP 0181).

3. Do the bones most likely used in the manufacture of this artifact come from mammals or birds? How can you tell?

Answer: The bones most likely used to create the needles and needle case come from bird bones. This is mainly because they are hollow so can be easily splintered to make thin needles. Larger pieces can be sectioned to make needle cases.