Archaeology Fast Facts

What Should People Know?

- Archaeology is the study of the human past through material culture and human impacts on the environment. Archaeologists **do not** study dinosaurs or fossils.
- Archaeologists identify and study the sites, artifacts, and physical remains that make up the past 13,000 years of human settlement. This includes any site that is 50 years or older!
- Archaeology is not just about artifacts! Artifacts and archaeological sites help to tell stories about people in the past who are the ancestors of people who are alive today. We do not call artifacts "relics" or "treasure."
- Archaeology is a destructive science. Sites are non-renewable resources; once they're excavated or destroyed, they are gone forever!
- Digging is only one of many ways to learn about the past. There are multiple steps in a professional archaeological investigation, and an excavation is often only one of those steps. This is called the archaeological process.
- There are many ways to do archaeological fieldwork without digging! Archaeologists use innovative technology like aerial or drone surveys, photogrammetry and 3D modeling, ground penetrating radar, mapping, and photography to learn about past peoples.
- Archaeological sites can be damaged by weather, erosion, agriculture, development, and looting. It is important to protect sites from further destruction through preservation and stewardship.
- It is illegal to take archaeological artifacts from any public lands in the US, and it is illegal to trespass onto someone's private property to look for sites or artifacts.
- Archaeologists work with descendant communities, such as Native American Tribal Nations, who are connected to the people who lived at archaeological sites. The oral histories and memories of descendant community members are very important to learning about the past!
- Indiana Jones was not a good archaeologist. We love his movies, but professional archaeologists are guided by ethics!

From https://archaeology.uiowa.edu/iowa-archaeology-resources/unearthed

Some Issues to Consider When Deciding What Archaeological Book to Buy For Your Library Patrons
A. Gwynn Henderson
4-19-26

My Realizations/Musings in No Particular Order

I worry about the books that say they offer "do-it-yourself" archaeological instructions. To my mind, this promotes the potential for the destruction of archaeological sites through looting, vandalism, and other site disturbance, albeit well-intentioned. Even archaeologists don't know exactly what they're going to find when they stick a shovel in the ground. For someone who is not trained in archaeological methodology, the concern is even greater. Unsupervised digging destroys our heritage and our history.

It is clear to me from reviewing trade publications for adults, children's books, and other books assigned to the subject "archaeology" that there is no way to get around the overarching focus on the fantastical, high civilizations in the Old World and the New World, which includes Egypt, Greece, Rome, the Vikings, Peru, the Maya. However, the problem I have with all this is that the fantastical is not a good representation of the archaeological. There are zillions of archaeological sites that are just as interesting and compelling that are not considered "high civilization" sites.

I think archaeologists do ourselves a disservice when we focus so much on fieldwork when we give presentations, so it's not surprising that so many archaeology books are often exclusively about archaeological field work. And that so many people think that's all we do.

Archaeological fieldwork is simply the way archaeologists uncover/recover the information/the data they need so they can tell evidenced-based stories about the past. But the recovery of artifacts is not the whole story; excavation is not the whole story. It is only the beginning of the story-telling.

What comes next is the analysis of artifacts *and* their patterns/their context. Observation and inference. Interpretation. Comparative research. All of this linked to the initial research question that sent the archaeologist out to the field/curation facility in the first place.

There is no storytelling without a research question, the objects, and the analysis/interpretation, which is how the archaeologists gains insights into how people lived long ago. Then, and only then, has the story been "unearthed."

Bones are rarely what we dig up. What's with people's focus on bones?

Yes – archaeology is much like detective work.

My cursory examination was titles purporting to be related to archaeology, particularly books of fiction. I understand they are not necessarily what I would consider being "about" archaeology. in these books, the archaeology topic or the archaeology context is a vehicle for the romance or mystery or whatever story is being told. What I mean is: these stories have archaeological trappings; archaeology is a very, very thin disguise, but I don't think you can consider them "archaeological books," unless elements of archaeological accuracy or activities, informed by

true archaeological procedures and activities, are part of the story. “Archaeology” bodice-rippers are still just bodice rippers.

Looking for relics or treasure, a la Indiana Jones and Lara Croft, is not archaeology. Archaeological research is not about relics and treasure. It’s about objects recovered in context providing information about people long ago.

I do understand that the idea is to sell books to readers. And so, sounding mysterious or talking about detectives or mysteries or fantasy or other such hyperbolic characterizations of a story is part of the business. However, this does not mean that it is a story that is informed or grounded in or influenced in any way by accurate archaeological concepts and methods and approaches and investigations.

The “archaeological” in some of these books is only represented by the aura of faraway ancient, intriguing, and mysterious places in which the story takes place. So, for example, Egypt, Rome, Jerusalem. Adventure mysteries with a thin veil of archaeology are not archaeological books, are not *archaeological* stories.

I’m not saying that these are not interesting books to read or aren’t fun to read. But as an archaeologist, I don't see them as particularly archaeology books. I do believe that there can be true fictional archaeology-infused books, but many of the trade publications are not this.

Looks like my colleagues and I have a BIG assignment.

When Selecting “Archaeology” Books…

So, when looking to add archaeological titles to your library’s collections, consider seeking out books that provide a broad range of places (where the archaeology was carried out), times (the archaeology of historic times as well as ancient times), and methods (underwater archaeology or bioarchaeology).

When selecting books for your library, if the book *says* archaeology but then talks about dinosaurs or fossils, then it is not *about* archaeology. Remember: archaeologists study artifacts – objects made or modified by humans. Paleontologists study fossils, and this includes dinosaurs as well as the fossils of early hominids and plants.

Uninformed, Seat-of-the-Pants Recommendations

It is difficult for me to evaluate or to recommend books of these sorts I have discussed and described above, because I have not looked at or read them. Nevertheless, the 18 titles (children’s and adult titles) below might be worth taking a look at.

I selected them as I reviewed curated lists on Goodreads that Amy Olson pointed me to. Their subject headings were 1) Experimental archaeology, 2) archaeology adventure, romance 3) anthropology/archaeology-based science fiction, 4) romancing in the ruins, 5) great archaeology thrillers, and 6) archaeology in middle grade and YA fiction.

In no particular order whatsoever, they are…

Hannah and The Magic Eye by Tyler Enfield. Ages 8 to 12. Treasure hunting in Jerusalem.

The Secret Seven by Enid Blyton. The first book in a 15-book series about child detectives.

The Lifters by David Eggers. Ages 7 to 12. An adventure mystery of a hidden world beneath a town.

Ruin Hunters and the Dead Man's Myth by Rob Beare

The Curse of the Lost Cave (A Raven Gallows Mystery) by Stephanie Bearce

Marked in Clay: Ellie's Adventures in Archaeology by Courtney Rauck-Copher

The Crossing Places (Number 1, Ruth Galloway Mystery) by Elly Griffiths

A Dig in Time by Peni Griffin

The Tunnel to Yesterday by Jerome Beatty, Jr.

The Rattled Bones by S. M. Parker

Field Rules (Number 1, Romancing the Ruins Series) by Carla Luna

Ancient Winds (Number 3, The Pathways Series) by Chris McCaffrey

Birthright by Nora Roberts

Carbon Dating by Jen Smith

Crocodile On the Sand Bank (An Amelia Peabody Series book) by Elizabeth Peters

How to be a Tudor: A Dawn to Dusk Guide to Tudor Life by Ruth Goodman

Wartime Farm by Peter Ginn, Ruth Goodman, and Alex Langlands

Hidden Cities: The Discovery and Loss of Ancient North American Civilization by Roger G. Kennedy

THE ARCHAEOLOGY OF ME

Summary: Using "artifacts" related to the students' own life, students are asked to make interpretations about each other and to consider how archaeologists use artifacts to make inferences about past peoples.

Intended Outcomes: Recognize the kinds of information "things" hold concerning people and the way they lived both now and in the past

Experience the way historic archaeologists collect information, draw inferences from, and interpret the past from their data

Length of Time: About 1 to 1.5 hours

Materials: 12 "artifacts" from each student
A paper bag for each student
Laboratory Record Form
Worksheet with major categories to consider for each student
Pencils
Metric rulers

Instructions: Give each student a paper bag and ask them to bring from home 12 items that relate in some way to or could provide clues about them (their interests, family, age, hometown; in short any things that might describe who they are) and put them in the bag. Stress that there should be **no names or identification** on any of the items.

Collect the bags, assigning a number to each bag keyed to a list of the students' names. This number is the Site Number.

Divide the group into pairs of students or have the students work alone. Assign a "site" (i.e., bag) to each student, making sure they do not get their own "site". Hand out the Laboratory Record Forms, pencils, rulers, and Worksheets. Ask the students to remove the artifacts from the "site" bag and record, or analyze, each item, writing their observations on the Laboratory Record Form.

Then ask each student to describe the owner of their "site" from an examination of the data they have collected on the "artifacts". Students could fill out the Worksheet regarding the owner's interests/hobbies, family, age, hometown, etc. or they could report the results of their analysis to the class: have each student tell the group what was in their bag, whose bag they think it is, and why (this works best when students know each other before hand).

As a group, discuss the results. Some questions to consider:

1. Were all of the "artifacts" correctly analyzed? Why or why not?

2. Were there some questions on the Worksheet the students couldn't answer? Why?

3. How might the use of interviews or documents help their "analysis"?

4. Ask students to explain the process of inference they used to reach their conclusions. Why were they successful in some instances and unsuccessful in others?

5. Discuss the strengths and weaknesses of trying to describe people in the past/someone of today from their "artifacts".

6. What insights did the students gain from this archaeological experience?

Variations: Incorporate oral history techniques into discovering facts about the partner. As before, ask each student to fill the paper bag with items that relate to them. As the bags are turned in, mark a code on each bag and by the student's name on a list. This will keep the bag's owner anonymous.

Arrange the contents in front of each bag on a table, and divide the group into pairs of students. Provide each student with a list of questions to ask their partner or brainstorm questions as a group. Using the information from the interview, ask the students to identify their partner's paper bag.

This activity adapted from "Story in a Bag: An Archaeological Lesson for Grades 3-6" by Carol Ellick, Archaeology and Public Education Newsletter, 1(1), 1990 and "Icebreaker" by Martha Williams, 1995.

Worksheet

"Site" owner's age:

What artifact or artifacts lead you to make this conclusion?

"Site" owner's sex:

What artifact or artifacts lead you to make this conclusion?

What kinds of interests or hobbies does the "site" owner of these artifacts have?

Where in the world is this "site"?

Is the "site" owner's family rich, poor, or somewhere in-between?

Directions: Use this activity sheet to take notes during your "excavation." When you have completed your excavation, use the information to write a report about the garbage that addresses the items below. You must give reasons for your answers based on the "evidence" —the artifacts which 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?

Laboratory Record Form

Site Number ________

Date ____________

Analyzed by ____________

Artifact Number	Made Of?	Artifact Description (include color)	Shape Of Item	Size

ARTIFACT ANALYSIS SHEET

Artifact:

Sketch It. Include as much detail as possible.

Describe It.

Shape.....

Size.....

Color.....

Texture.....

Material.....

Decoration.....

Explain It.

Who used the artifact?

How old is the artifact?

How was the artifact used?

Analyze its Meaning.

What does it tell us about the people who used it?

Lesson Plan

ARTIFACT Interpretation

Overview

A simple yet intriguing exercise demonstrates the amount of information that the study of a single artifact can yield about a society.

Objectives/Skills

Students will

- assess the characteristics of a society based on analysis of a single coin
- make inferences, analyze details and features, examine assumptions, brainstorm, work cooperatively, formulate questions

Subjects

Social studies

Age Level

Grades 5 through 12

Materials

- one or two pennies for each group
- paper
- pencils

Time Required

Allow 40 minutes to prepare for this activity and 40 minutes to complete it.

Background

Among the hundreds, and often thousands, of artifacts that an archaeologist finds at a site, sometimes a single object will provide an inordinate amount of detail about a society. A coin is an example because it has the potential to reveal information about leaders, values, technological accomplishments, language, political structure, and a numerical system in operation, as well as the date of manufacture of the coin.

Studying a United States penny, students can gather certain information about the American society, such as:

1. Americans have access to minerals, presumably through mining or trade;
2. men wear or have worn facial hair;
3. Americans believe in a deity;
4. they construct open-air, monumental architecture;
5. they have knowledge of the Latin language;
6. they have a numerical system;
7. they are organized into a system of affiliated states;
8. this object is not wearable.

The temptation may exist to make inferences from the coin based on actual or modern knowledge—for example, that Americans know how to mine or that they construct buildings of stone. Both facts are true, but does the information on a penny really prove them?

Archaeologists often are faced with similar dilemmas, when a recovered object suggests that something may have occurred or existed, but further proof is needed. Armed with such circumstantial evidence, archaeologists develop new questions and hypotheses to test as they proceed with their research. While they hope that certain proof will emerge, sometimes they must state their conclusions by noting that something "may have" or "probably" occurred.

Procedure

1. Divide students into groups of three or four. Distribute one or two pennies per group, and tell the groups to select one member to be responsible for recording the group's findings on paper.

2. Ask students to imagine that they are examining a single artifact, found alone, from an unknown society. Their task is to determine as many features as possible about the people who made the object.

3. When the work group time has elapsed, ask teams to present their conclusions and to describe the processes that they used to reach their decisions. Lead students in a discussion about the details that can be derived from artifacts and the problem of making assumptions based on modern knowledge and behavior. Discuss as well the cumulative process that allows archaeologists to reach larger conclusions about a population of people.

Extensions

- Present this activity using old or foreign coins.
- Ask older students to develop a schema for artifact analysis and test it on other artifacts from contemporary society.

This activity was adapted from a lesson plan provided by Leonora Isakk, Hollis, NH.

An Object Lesson

by Susan Miner

Before visitors, especially students, can be expected to "read" museum objects on a tour, they should be given an example for practice. Whether during a pre-touring visit to a classroom, or as an introduction before entering the galleries, docents can conduct a simple "object lesson" as preparation.

Using a jar of apple pie filling as the object to be "read," let's consider and answer the following six questions:

1- What is the object?
2- For what purpose was it intended?
3- Who might have made, owned, used, or kept it?
4- What activities are associated with this object?
5- How does this object represent change?
6- How do you feel about those changes; and why do you feel that way?

The answers to these questions can quickly expand the meaning of this fairly mundane object.

1- The object is a glass jar with a paper label and painted steel lid, containing 32 ounces of prepared, apple pie filling.

2- The contents are intended to be baked into a pie and eaten. The container is meant to be thrown away or recycled. The filling was prepared in advance as a convenience; to make a time consuming/ labor intensive activity, fast and easy to accomplish. It also allows people to enjoy apples in their pie regardless of the season.

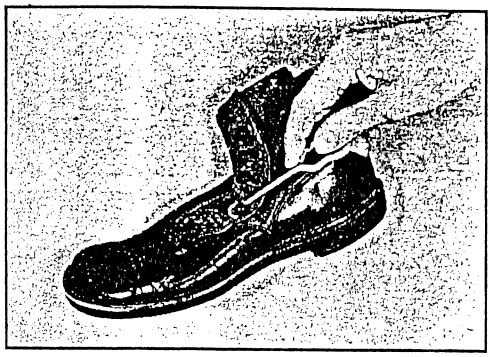
3- Those who produced, marketed, used, and disposed of this jar may include: farmers and orchard managers; seasonal labor for harvesting; factory workers and supervisors for preparing and packaging; corporate buyers; growers of sugar cane; sugar processors; spice importers; label designers; advertisers; printers; iron ore miners; steel plant workers; workers in glass factories and bottling plants; truckers and shippers; grocery store buyers, shelf stockers, and checkers; consumers; cooks; diners; garbage haulers; landfill operators; and recyclers.

4- Activities associated with this object could be as diverse as: hiring; working; firing; cooperating; competing; selling; buying; planning or failing to plan; cooking; cleaning; dining; conversing; and keeping or breaking resolutions about eating sweets. Some symbolic activities associated with this object are: patriotism ("as American as apple pie"); wholesomeness; and traditionalism.

5- The way we get and use apples for pie has changed significantly over the years. During earlier times, apples were grown and sold locally, while in season, for use by neighboring customers who made their pies "from scratch." Today, large scale growers, mass production, rapid transport, technology, and marketing make fresh fruit available year-round, and provide time-saving, prepared pie filling for consumption. The make-up and pattern of consumption has also changed. More people live on their own as singles; and many family cooks have responsibilities outside the home, have little time to prepare meals, and may not be mothers or wives with support or assistance from partners.

6- A wide variety of feelings may be associated with these changes. Everyone should be encourage to express opinions and to offer reasons for their point-of-view.

All of these questions, and their responses, offer docents an avenue for further discussion about the object, the culture, the time period, and so forth. The purpose of this activity is to acquaint visitors with the process of reading, interpreting, and constructing meaning from objects, and to demonstrate that even the simplest objects can offer insights into the people and time associated with it. (This exercise was adapted from "Interpreting History through Objects" by Barbara G. Carson, *The Journal of Museum Education: Roundtable Reports,* Vol. 10, No. 3, pp. 2-5.)



Most historical objects can also be considered using this approach. Try applying the same questions asked about the apple pie filling to the buttonhook pictured above.

These questions should lead to discussions about use and obsolescence. They might even have you imagining a dialogue between a parent buttoning a child's shoes while the child hurries out to play. Perhaps you might wonder about the status and cost of buttonhooks; which type might have been given away with a new pair of shoes, and which might have been purchased as a more decorative item?

No matter what objects or phenomena a tour presents, pre-tour practice in object reading and interpretation prepares visitors for the content of the tour, equips them with important skills for participation, and helps them make personal sense out of museum collections.

Susan Miner is Education Director at the Wichita-Sedgwick County Historical Museum in Wichita, Kansas, where she has been responsible for tour development and docent supervision for 20 years. She is a frequent contributor of texts and images to The Docent Educator.

Lesson Plan

Predictions

READING BETWEEN THE LINES

Overview

Students predict the types of archaeological evidence that might be found at a hypothetical site, based on information from a historical account.

Objectives/Skills

Students will

- obtain data from varied sources
- use written records to predict archaeological remains
- practice the skills of prediction, hypothesis, comparison, analysis

Subjects

Language arts, social studies, science

Age Level

Grades 6 through 8

Materials

- accounts of early expeditions and surveys of the area

Vocabulary

artifact: an object made or modified by a human being

assemblage: artifacts found together that presumably were used at the same time for similar or related tasks

feature: associated cultural evidence that is more complex than a single artifact, e.g., a trash pit, hearth, burial

Background

Archaeologists read journals and history books when considering an area for investigation. Clues to sites often are found in the authors' descriptions of places in which they lived and routes that they travelled. Archaeologists locate and investigate sites to verify the written record and to expand ideas about how the people lived. Sites that have been described in written accounts include ancient sites in literature such as Troy, fortifications of empires like the Romans in England, colonization such as Jamestown or sites in the West Indies, historic Indians such as the Apache, and early settlements like Strawbery Banke, NH.

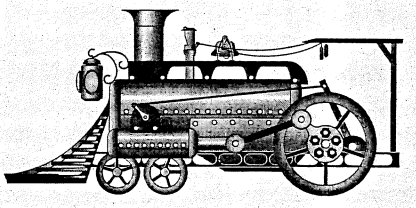
Procedure

1. Read aloud to students from a journal or diary about an early expedition to a selected area. As you read, have the students list or draw artifacts and features that they would expect to find at a site from that area.
2. Compare their predictions with recorded sites. Emphasize the types of materials that do remain and the information that can be gained from these assemblages.

❦ ❦ ❦

These lesson plans have been adapted from Clues from the Past, *edited by Pam Wheat and Brenda Whorton, illustrated by Eileen Thompson, and published in co-operation with the Texas Archaeological Society by Hendrick-Long Publishing Co., P.O. Box 12311, Dallas, TX 75225-1123.*

For more information, contact Pam Wheat at Crow Canyon Archaeological Center, 23390 County Road K, Cortez, CO 81321; (303) 565-8975. Contact Brenda Whorton at 3620 Haynie, Dallas, TX 75205; (214) 368-8290.



The Education Station invites examples of lesson plans and activity ideas, comments about useful resources, and articles about unique approaches to teaching archaeology. Illustrations and black and white photos are welcomed. Send material to Cathy MacDonald, Social Sciences Department, Fr. Austin Secondary School, 570 Walsh Drive, Port Perry, Ontario, Canada L9L 1K9.

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HISTORY and the YOUNG LEARNER

Buttoning Up a Hands-On History Lesson

Using Everyday Objects to Teach About Historical Change

Audrey C. Rule Cynthia Szymanski Sunal

Introducing elementary school students to history concepts is difficult because, due to their age, they have few reference points for comprehending change over time (Thornton & Vukelich, 1988). A historical collection of everyday items can provide concrete examples to help students construct a concept of change.

Artifacts of the past are all around us. Items found in the home, school, and community have a history and have undergone change. Even something as common as a button can be surprisingly useful in revealing how technology, fashion, and the physical materials for creating clothing have evolved over time. Likewise, the consistent patterns of socioeconomic and other differences across history can be identified.

Student interest might guide the selection of items for study. Dolls, toys, comic books, cameras, tools, quilts, clocks, jewelry, keys, shoes, etc. all reflect a history and could lead to meaningful investigations. Collections of a particular item might be discovered among family members, located through collector's clubs (see your local history society for referral), or developed in the classroom (by soliciting the donation of particular items or securing them at garage sales or rummage sales). Any small, inexpensive, easily stored item that has undergone style, material, or technological changes will work well as a basis for lessons of this type. The investigation of a collection, particularly one that students have contributed to or one containing familiar items, can help students recognize their own relationship to the past. This article will concentrate on using a button collection to illustrate historical change.

Developing Process Skills

• *First, the lesson concentrates on the important process skills of making observations and inferences and classifying real objects* (Taba, 1967). Begin the lesson by dividing students into small groups. Give each group a representative set of eight to ten buttons to explore. Students will be surprised at the tremendous variety of buttons. Allow them ample time to discuss and record their observations and inferences. What different characteristics do buttons have? How are individual buttons different? What can you infer about the age of a button from these characteristics? (See Figure 1.)

After they've had some time to make observations and inferences, ask students to arrange their buttons in a timeline from most recent to oldest, based upon the information they've gathered. While their information is limited, this activity will help students consider differences they have noted and utilize any prior knowledge they have that relates to changes in button design or materials. For example, one student may remember reading that plastic did not come into wide use until the late 1950s. Another student might note a previously popular rock star or commercial logo on a button. The utilization of prior knowledge builds connections between the new learning and existing information. Students' timelines may be inaccurate but they represent their current knowledge and enable the teacher to informally assess that knowledge. Have them think about how buttons have changed through time. Table 1 contains information that may be helpful. Why are buttons from one time period different from those of another? Each small group should record its ideas on a list and then share their findings.

• *Next, the whole class brainstorms different characteristics of button design and draws them as a web or concept map.* See Figure 2 (Sunal & Haas, 1993). As characteristics are identified, have students show buttons which demonstrate these characteristics.

• *Then the class considers factors that affect button design and webs them.* Identify as many examples of these as you can. Then ask the students if they can think of examples

Figure 1. How Can You Tell That Something Is Old?

Physical changes that may have occurred in the item:

Color change to gray, white	People's hair, gorillas' fur
Yellowed	Magazines, newspapers, fabric, ivory
Faded	Dyed fabrics, plastics, painted items, paper
Stained	Fabrics, paper
Wrinkled	People's skin, paper, fabric
Chipped	Glass, pottery, wooden items
Threadbare	People's hair, stuffed animals, carpets, fabrics
Torn, frayed	Electric cords, ribbons, fabric, paper
Brittle	People's bones, rubber, elastic, paper, plastic
Rusty, tarnished	Nails, metal tools, buttons, statues
Moldy, mildewed	Food, wallpaper, fabrics
Deterioration, disintegration	Paper, fabric, wooden items
Insect damage	Horn, wooden, food items

that will link the two webs together. After they've done so, choose a few button examples and call on students to classify the characteristics of each button to see where it would be located on the web.

Understanding Factors for Change

• *At this point the expert (collector or teacher) steps in to broaden and deepen students' knowledge* (Lawson, Abraham, & Renner, 1989). The expert shows students new examples from the button collection, demonstrates how button design has changed over time, and makes connections between economic, political, and cultural characteristics of the past and button design. For example, in the late 19th century manufacturers sought a substitute for ivory, which was becoming increasingly rare, and celluloid, originally developed as a substitute for billiard balls, became a popular medium for buttons. Also at this time, "vegetable ivory," made from nuts of the South American tagua palm was used extensively. Some men's suits sold today still have old stock vegetable ivory buttons.

• *Students should compare their timeline arrangement of buttons with the new information they have received.* The expert should answer questions and discuss the examples.

• *Then a chart of events affecting button design is completed.* See Figure 3 for example.

Linking Personal Lives with "The Big Picture"

• *Personal significance of artifacts such as buttons is connected to larger historical realities and can be related to modern trends as well.*

Discuss for example:

1. Why are most buttons now sold in stores plastic?
2. What motifs (patterns) do we find today on buttons? Snoopy, Ninja Turtles, and dinosaur buttons have recently been sold in stores. How are these related to popular television shows and movies? What other motifs are common today?
3. Why are the beautiful glass buttons of the 1950s no longer popular? Could this be related to the popularity of spin washers and tumble dryers?
4. What about the recent trend of selling ornate removable button covers for plain blouse buttons? Does this save buttons from the rigors of automatic washers and dryers?

• *Close the lesson by having each student choose one button, describe it, and explain how it is consistent with its current or historical circumstances.*

• *Teacher's goals are achieved as adequate background research and high level student thinking leads to significant generalizations.*

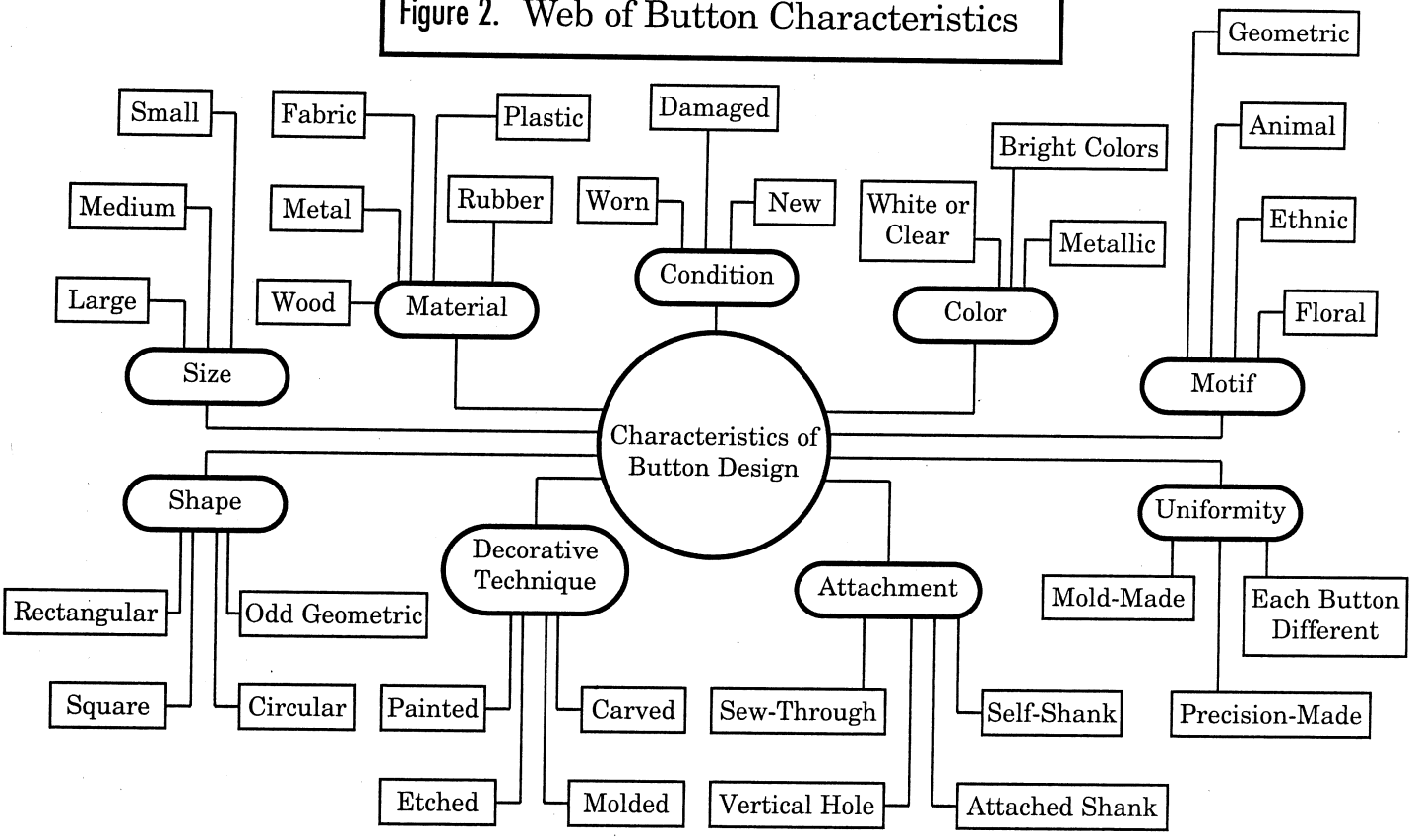
Depending on the grade level of the students and the particular goals of the lesson, students may learn to connect resource concepts with business and marketing realities, and they may even evaluate the material and political culture in which they find themselves.

The depth and significance of the lessons will depend on the depth and significance of the teacher's own research and historical, social, and political goals.

Button Collecting References and Resources

Albert, A. H. (1976). *Record of American uniform and historical buttons.* Boyertown, PA: Boyertown Pub.

Figure 2. Web of Button Characteristics



Dates associated with the item:

Patent, copyright dates	Buttons, mechanical items, books, songs, printed items
Mintage, manufacturing dates	Coins, statues, cars, food packages
Written and printed dates	Letters, contracts, calendars, diaries, quilts, samplers

Characteristics of the place or manner in which the item was found:

In a container believed to have been sealed a long time ago.	Attic or basement trunk, safe deposit box, buried chest.
In an accessible area.	Items that slipped through cracks in floor or wall, inside stuffed furniture, under porches
Under a layer of dust, dirt, trash	Items found in an archaeological dig, discovered while digging.

Style:

Mode of manufacturing	Hand carved, hewn, forged
Outdated art style or fashion	Art Nouveau, bustles, high-topped shoes

Materials:

Materials no longer in common use due to scarcity	Pelts, horns of endangered or extinct species, ivory
Outdated materials	Pure linen or cotton items, celluloid

Button collecting is the third largest organized hobby in the U.S. There is a national society for button collectors: The National Button Society, Ms. Lois K. Pool, Secretary, 2733 Juno Place, Akron, OH 44313. Contact the National Button Society and ask for the name of the button collector's group nearest you.

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About the Authors

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Figure 3. Examples of Events That Have Affected Button Design

Event	Effect on Button Design
1870s. John Wesley Hyatt develops celluloid as a substitute for ivory billiard balls.	Celluloid becomes a popular medium for buttons: transparent celluloid replaces glass, "ivoroid" replaces ivory.
1861. Prince Albert dies. Queen Victoria wears black mourning clothing with jet buttons.	Black is the fashion, even wedding gowns are often black. An inexpensive substitute for jet, black glass, becomes popular for buttons.
Post Civil War to early 1900s. Industrial growth and labor organizations.	Brass uniform buttons are numerous and fashionable.
"Gay" 1890s period of rising prosperity. Many millionaires are made in the banking, mining, manufacturing, trade, and transportation businesses.	Large buttons with a gaudy central jewel are popular.
1902. Teddy Roosevelt refuses to shoot a bear cub encountered on a hunting expedition. Toy bears are used as party favors for the President's daughter Alice's birthday. They become known as "Teddy Bears."	Sew-on political buttons featuring Teddy bears become popular.

Lesson Idea

TELLING An Object's Story

Overview

During a museum visit, students select objects to study and describe, then write stories based on their observations of and reactions to the objects.

Objectives

Students will

- closely observe cultural objects and list concrete details about them
- select important details to include in a descriptive paragraph
- distinguish between objective and subjective language
- write a descriptive text using only objective details
- write a story using both objective and subjective language

Subjects/Skills

- archaeology, anthropology, history, language arts, art
- observation, description, evaluation, comparison, interpretation, composition, drawing

Age Level

Grades 6–10

Materials

- paper and pens or pencils
- clipboards

Time Required

Allow 1–2 hours to prepare for this activity and 1–3 hours at the museum. Optionally, the final step of the activity can be done during a class period.

Background

Whether objects that they recover are whole or fragmentary, an archaeologist must analyze the characteristics of each artifact—such as shape, size, fabric, decoration, and mode of construction—and then try to determine its function. This latter quality is sometimes hard to assess, and archaeologists take care not to assign a function based on modern perceptions about what people need and the tools they make.

In addition, a researcher may have subjective or emotional reactions to an artifact because of its attributes, symbolism, or the statements it makes about a past population. In writing about their finds, archaeologists emphasize the objective details, although they sometimes weave their subjective responses into the story as well.

In an activity that combines the observation of objects with a writing exercise, teachers make use of the rich array of cultural materials available at local museums. Adapted from a lesson plan in which paintings are the focus of attention, the activity as presented here can be tailored further, based on current classroom topics or the age and abilities of students. For example, the lesson can complement an archaeology unit by demonstrating one of the tasks that archaeologists perform; or it can be used to highlight artifacts from a particular culture or time period.

Older students may be able to work with limited supervision in different areas of the museum, while younger students should be kept together in a single gallery. In selecting their artifacts for study, students should avoid objects that have few distinctive attributes, such as a plain pot sherd; and avoid reading interpretive labels, focusing instead on the qualities of the artifact.

Vocabulary

artifact — any object made, modified, or used by humans

attribute — a characteristic or property of an object, such as weight, size, or color

culture — a set of learned beliefs, values, and behaviors—the way of life—shared by members of a society

historic — a term referring to past eras or cultures in which or about which written records were made

prehistoric — a term referring to past eras or cultures in which or about which written records were not made

Preparation

1. Select a local museum to use for this activity, then visit it to become familiar with the exhibits. Note the locations of objects that students can study during the exercise.
2. Contact the museum education or program staff to make a reservation (if necessary) and to ask whether there is a quiet area—perhaps a corner of a gallery—where you can conduct part of the lesson without being disturbed.
3. If necessary, model the activity in class before the field trip so students will know what to expect. Bring a selection of "thingamajigs"—objects that are not readily identifiable—to class and guide students through the steps 2–5 of the lesson plan.
4. Gather writing materials.

Procedure

1. Students select an object to study.

Lead students on a brief tour of the museum, pointing out several objects that you find appropriate for the activity. Tell them to note the locations of artifacts that interest them and explain that each person will write about a different object. Then instruct each person to choose an item for the assignment.

2. Students make a list of the details, or attributes, of their object.

Allow students a few minutes to observe their artifact, then instruct them

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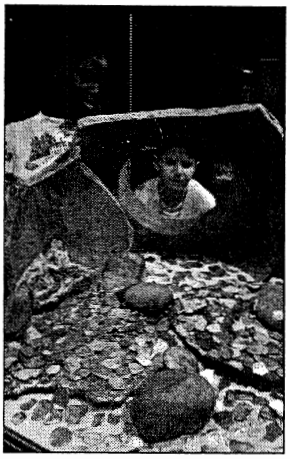
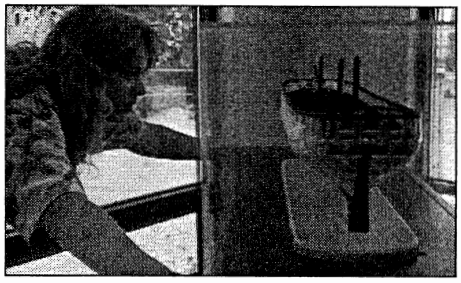


When students study and write about objects that may be unusual or unfamiliar, they learn to appreciate the significance of artifacts, and the people who made them.



to make a list of as many details as possible that describe its appearance. The list should include physical attributes rather than subjective observations, assumptions, or emotions that the artifact evokes. For example, a student might write, "pointed stone object with nicks along the edges of both sides," but avoid such language as "small, perfect arrowhead used for hunting."

3. Students write descriptions of their objects.

Gather students in the quiet area identified during preparations. Allow them several minutes to write a description of their object based on the list that they compiled. Explain that the description should enable someone else to find the artifact in the museum. Tell students not to include all of the attributes that they listed, but rather to select the most important or distinctive traits; and remind them again to avoid making subjective remarks or assumptions. For now, the point is to focus on the physical details of the object.

4. Volunteers read their descriptions aloud.

Select a few volunteers to share their descriptions. After each one, ask listeners to state whatever details they remember. If two students wrote about similar artifacts, discuss similarities and differences in the two descriptions. Discuss any subjective language or assumptions that may have slipped into the descriptions, explaining that the focus at this stage is to give "just the facts." Ask students how subjective language can portray more than the facts.

5. Students create drawings based on each other's descriptions.

Divide students into teams, ensuring that students who worked on similar artifacts are not paired. Instruct team members to exchange artifact descriptions and to draw an illustration of the other's object.

6. Students attempt to find their partner's object.

Give students 10 minutes to try to find the object described by their partner. They may use the descriptions and drawings, and they should work in teams, although partners should not give each other hints as they search.

7. Students evaluate the written descriptions.

When the search time has elapsed, reconvene students in the quiet area and ask how many located their partner's object. Invite several teams to share their descriptions and drawings with the rest of the class, using these examples to discuss aspects of the descriptions in general that were useful in helping to draw an artifact and find it in the museum, as well as ways in which descriptions could have been improved. If time permits, take students to an artifact that no one has studied, preferably one with many attributes, and collectively create a descriptive list of its details, asking students to draw on the experiences that they have just had.

8. Students write stories about their objects.

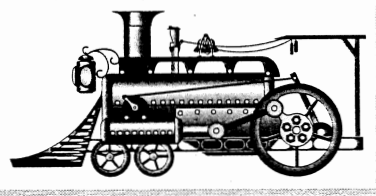
To help students combine the visible aspects of cultural items with the feelings and ideas that they inspire, ask students to write a story about their artifact. Explain that they may use their descriptions or return to the object; and, unlike their descriptions, the stories do not have to stick to the facts. The inclusion of emotions, assumptions, and subjective language is quite acceptable.

9. Students share their stories.

(This step can be done at the museum or in the classroom.)

Ask students to read their stories aloud to their classmates.

The concept and portions of the text for this activity have been adapted from "Telling a Painting's Story," in Collecting Their Thoughts: Using Museums as Resources for Student Writing, *pp. 13–17, produced by the Smithsonian Institution Office of Elementary and Secondary Education. The activity was adapted by KC Smith, Museum of Florida History, Tallahassee, FL.*



The Education Station invites examples of lesson plans and activity ideas, comments about useful resources, and articles about unique approaches to teaching archaeology. Please accompany material with illustrations and black and white photos. Do not send color slides or negatives.

Send material to Cathy MacDonald, 570 Walsh Drive, Port Perry, Ontario, Canada L9L 1K9; (905) 666–2010.

Lesson Idea

Picture This

USING PHOTOGRAPHS TO STUDY THE PAST

Overview

An old photograph provides a basis for discussion about life in the past, and demonstrates the value of photos as primary sources.

Objectives

Students will

- understand that photographs represent primary source material
- recognize that photos record details about the past and can be used for interpretive and comparative purposes

Subjects/Skills

- social studies, photographic arts
- observation, deduction, inference, comparison, interviewing

Age Level

Grades 4—8

Materials

- copies of the student worksheet
- old photos brought from home
- paper and pencil

Time Required

Allow one hour to prepare for this activity and 1–2 class periods to complete it.

Background

Photographs are a form of artistic expression and human record that modern people understand very well. They are used to capture peoples' lifestyles, special or historic events, candid activities, familial and social relations, artistic feelings, and even criminal deeds. Photographs of peoples who do not, or did not, keep written records sometimes provide a primary source of information about those cultures. A century ago, when having one's picture taken was a rare experience, people often posed with serious and formal expressions—creating the impression that society and people were a little dour.

For modern researchers who use photographs to glean details about the past, the adage "a picture is worth a thousand words," could not be more accurate. But despite their seeming objectivity, historic photos must be studied carefully and critically. While many scenes and events have been recorded because a photographer was "in the right place at the right time," more often photographs are, or have been, taken with purpose, forethought, and composition in mind. It is the photographer, through his or her positioning of the camera's eye, who defines a picture's content and determines what will be included or omitted in a scene.

Thus, when a photo is used as a primary source, it should be augmented by other information. Knowing who took the photo; why, when, and where it was taken; who requested it; and the identity of the subject(s) can shed additional light on the content and meaning of the image. Documents, artifacts, oral histories, and personal papers or records also can help to place a photograph into a larger pattern of events or behaviors and give it greater validity.

Historical archaeologists use old photographs in many ways. For example, by determining the earlier appearance of an area, including the landscape and structures, an archaeologist can anticipate and better interpret features found during an excavation. Photographic images also help to identify fragments of recovered objects that may appear intact in a photo.

Photographs are a particularly vivid teaching device for students because they provide views of the past for people whose own history may be very short. They can provide a source of inquiry and explanation; and, of course, they serve a lasting purpose by stimulating the visual and mental senses.

The photo on page 7, taken in 1900 in Pensacola, Fla., portrays two people relaxing in rocking chairs, surrounded by the types of household artifacts found in many homes at the time. After analyzing the photo, students will discuss how the couple's turn-of-the-century lifestyle compares to scenes in their own family and to the observations of elders whom students have interviewed. They also will discuss how an old photograph might be useful to an archaeologist.

Preparation

1. Several days before the activity, assign students two tasks to complete.

a. Ask them to talk to an elder relative or neighbor who has lived in the same area for many years and can describe some changes that he or she has witnessed over time. As a group, the class might develop two or three questions to ask the subjects. Students should make notes during or immediately after the conversation, and bring the notes to class for the activity.

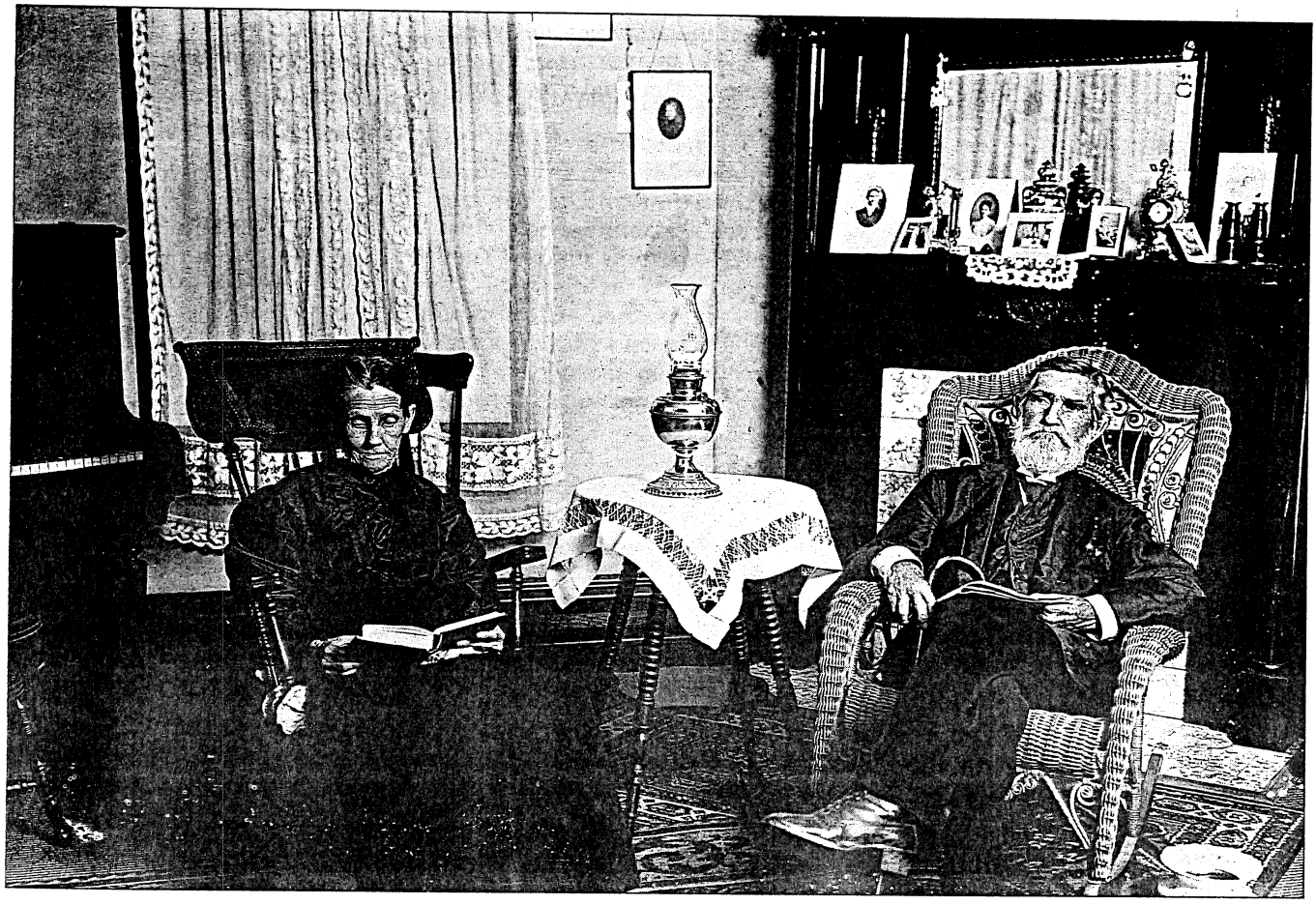
b. Ask students to find an old family photo to bring to class on the day of the activity. The image can illustrate people, a place, or an event, but the scene should be as "unmodern" as possible. Students should know details about their picture.

2. Decide how students will be divided into two-person teams. Make one copy of the student worksheet (page 7) for each team.

3. The day before the activity, remind students to bring their photos and interview notes to class. Instruct them not to show their pictures to classmates.

Continued on page 8

Student Worksheet



Instructions

The way that people live and the equipment that they use changes constantly over time. We can learn about people and activities of the past from old photographs. However, when we study these images, we need to remember that the photographer probably had a specific idea in mind when she or he took the picture. We have to ask ourselves these questions:

- *What does this photograph tell me?*
- *Why did the photographer take this picture?*
- *Is it a fair and accurate portrait of the past?*

Examine the photograph above and answer the following questions on a separate sheet of paper.

First Impressions

1. What is your first impression about this photograph? What seems to be happening in the picture?
2. How would you describe the people (their age, clothing, expressions, relationship, economic status)?
3. Make a list of the objects in the photograph. Make another list of the kinds of technology that the people have or do not have (by today's standards).
4. When do you think the picture was taken (year, time of day)? Where was it taken? How can you tell?

Drawing Conclusions

1. Why do you think the photo was taken? Did the photographer have a message to share?
2. What does the picture tell you about the past?
3. What objects in the picture would survive over time?
4. What questions do you have about the photograph?
5. How could you get more information about the photograph and the time period in which it was taken?

Continued from page 6

Procedure

1. Open the activity with a brief discussion about photographs as primary sources of historical information. Talk about photos as visual records of change over time, and how this might be useful to archaeologists and historians. Invite students to share some of their interviewees' comments about social or technological changes that they have witnessed.

2. Divide students into teams and give each group three sheets of plain paper and a copy of the student worksheet, which will guide their analysis of the photograph. Review worksheet instructions and tell students how long they will have to complete the task. Their joint conclusions about the worksheet photo should be recorded on one piece of plain paper.

3. When the teams have finished analyzing the photograph, lead a discussion about their observations and conclusions. If necessary, draw their attention to such details as the kerosene lamp used for light; the couple's dress and appearance; and the spittoon next to the gentleman and the cane in his hand—which may indicate disabilities caused by poor diet as much as old age. Encourage students to make comparisons between the apparent lifestyle of the 1900s couple, their own family, and the comments received from their interviewees.

4. Ask students to exchange the personal photos brought from home with their partner and to use the worksheet and remaining sheets of paper to analyze the new image. (They work independently on this task.)

5. When this is done, tell them to verify their conclusions through a second "source"—their partner—whom they interview for additional information. If some worksheet questions still cannot be answered, the students should decide what other sources (parents, books, archives) might provide the missing details.

6. Close the activity by inviting several volunteers to discuss their analyses, noting the information gleaned from the photo and their partner, and other possible sources of data. Ask students as a group to discuss whether the content and meaning of the photos were easier to determine because an additional "source" (their partner) was available to provide details.

Related Activities

These extensions to the lesson plan, recommended for students in grades 9–12, were provided by Cathy MacDonald.

1. Obtain photographs from the same time period that show people from different classes. Compare and contrast the experiences of their time.

2. Ask students to shoot some photographs that parallel or replicate the scene in the lesson plan photo, except in a modern setting. Use these images as a basis for discussion: Is it possible to "recreate" the past? Why not? What aspects of society have changed? Are these changes for the better?

3. After comparing photos from the past and present, ask students to describe several features that are different about modern life. They should include attitudes in their descriptions.

4. Ask students to research the history of photography, especially ways in which the art and science of photography have changed over time.

Except as noted above, this lesson plan was prepared by KC Smith, program supervisor for statewide service at the Museum of Florida History, Tallahassee.

Resources For Teachers

Compiled by Martha Williams

Anderson, John. *From Map to Museum: Uncovering Mysteries of the Past* **(New York: Morrow Books, 1988).** *Based on a Spanish mission site in Georgia, this book explains the processes of historical archaeology from document research and excavation to the development of an interpretive museum. Level: 4th—6th grade.*

Deetz, James. *In Small Things Forgotten: The Archaeology of Early American Life* **(New York: Anchor, 1977).** *The underlying tenets of historical archaeology are presented, detailing how the discipline enriches the documentary record of American life. Level: 10th grade—adult.*

English Heritage Education Service. *English Heritage Education Service Teaching Packets* **(London: English Heritage Education Service).** *Titles relevant to historical archaeology include: St. Augustine's Abbey, Carisbrooke Castle, Yarmouth Castle, St. Catherine's Oratory, Appuldurcombe House, Osborne House, Life on a Royal Estate, and A Teacher's Guide to Learning from Objects.*

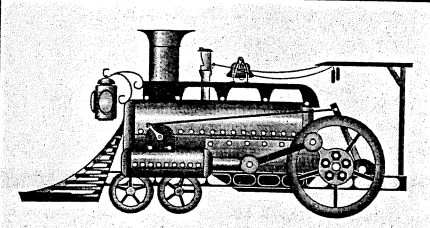
Gould, Richard. "Nautical Archaeology: Non-Intrusive Approaches" (Weston, Ct.: Pictures of Record, 1995). *This slide set featuring the* Monitor *and a 17th-century warship shows how shipwrecks can be investigated in a non-destructive way.*

Hume, Ivor Noël. *Historical Archaeology* **(New York: Alfred A. Knopf, 1969).** *This classic work offers a methodical explanation of historical archaeology and types of sites typically encountered. Level: adult.*

Public Broadcasting System, Odyssey Series. *"Other People's Garbage."* *This videotape deals with the historical archaeology of 20th-century coal mining towns in California, slave quarters in coastal Georgia, and urban archaeology in Boston. Level: all ages.*

Samford, Patricia, and David L. Riblett. *Archaeology for Young Explorers* **(Williamsburg: The Colonial Williamsburg Foundation, 1995).** *A new booklet guides young readers through historical archaeology, from research to conservation, with self-directed activities throughout the text and a strong preservation message at the end.*

Starbird, Robert, and Daniel Rainey. *"American History? It's Beneath Your Feet!"* **(Media, Penn.: Media, Inc., 1990).** *This videotape shows the processes of historical archaeology being applied to urban sites in Alexandria, Va., and Baltimore, Md. Level: 10th grade—adult.*



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Ancient Native American Cave Art In Kentucky

Resources and Lessons for the Kentucky Educator

Kentucky Archaeological Survey
A program of the
Department of Folk Studies & Anthropology
Western Kentucky University
1906 College Heights Blvd. #61029
Bowling Green, KY 42101-1029

Revised and Updated 2024

Table of Contents

These lessons were adapted by A. Gwynn Henderson from Lessons 18-20 in *Intrigue of the Past*, by Shelly J. Smith, Jeanne M. Moe, Kell A. Letts, and Danielle M. Paterson, 1993, published by the United States Department of the Interior, Bureau of Land Management, Utah. They were revised and updated by A. Gwynn Henderson (Kentucky Archaeological Survey) and Heather Ransom (Division of Academic Program Standards, Kentucky Department of Education)

Intrigue of the Past is a teacher curriculum guide for *Project Archaeology*, a national heritage education program that introduces students to the process of archaeology and teaches them to appreciate and protect our nation's rich cultural heritage (https://projectarchaeology.org/).

On the cover: Close-up photograph of Mud Glyph 16 in Crumps Cave, Warren County, Kentucky. Photograph by Daniel B. Davis.

The original version of these lessons was created by A. Gwynn Henderson for *This Land Is Our Land*, the supporting curriculum of the 2002 Kentucky State Fair educational exhibition of the same name,
funded by The Gheens Foundation.

No assistance from AI was used to write this document.

Background for Ancient Native American Cave Art in Kentucky

by
A. Gwynn Henderson
Education Director
Kentucky Archaeological Survey

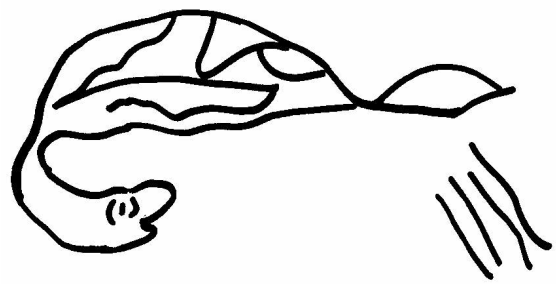
Introduction

Many people have heard about or have seen reproductions of ancient European cave "art" (visual imagery with symbolic meaning). The most famous are the Ice Age horses, bison, musk ox, and reindeer painted on cave walls at Lascaux and Altamira, deep below the mountain valleys in southern France and northern Spain, respectively. Archaeologists have studied these paintings to learn about the techniques these ancient artists used, and they have attempted to interpret the paintings' cultural, social, and spiritual significance to the ancient artists and their viewers.

Far fewer people know about the ancient cave art of the southeastern United States. Research into this fascinating subject began in earnest only after 1980, with the discovery of symbols drawn on mud walls within an eastern Tennessee cave. Since then, more than 30 other cave art sites have been found in this region. As of the early 2000s, archaeologists have found cave art in five Kentucky cave sites: Mammoth Cave in Edmonson County; Salts and Fisher Ridge caves in Hart County; Adair Glyph Cave in Adair County; and Crumps Cave in Warren County. These sites reflect the complete range in age, diversity of artistic techniques, and variety of symbols that archaeologists have documented for the southeastern United States as a whole.

How Did Ancient Peoples Use Kentucky's Caves?

- The ancient use of Kentucky's caves ranged from exploring; to straightforward, practical, even exploitative; to ceremonial and ritual.



Mud glyph of a turtle, Crumps Cave, Warren County.

It is safe to say that Native peoples entered and explored every fairly dry cave with a reasonably accessible opening during the past. Cane torch fragments found deep in Lee Cave, part of the Mammoth Cave system, show that ancient Native peoples entered and explored this cave as early as 2880-2495 B.C. (i.e., during the Late Archaic period: 3000-1000 B.C.).

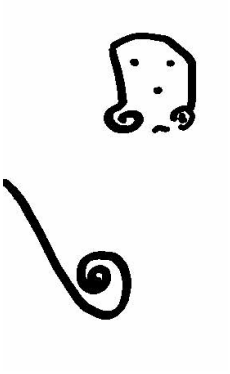
Native peoples used conspicuous natural cave entrances for their homes. Some of these places doubled as cemeteries, the dead buried in the cave near where the family lived. Other caves were used primarily or exclusively as burial places, with both sexes and all ages placed in horizontal passages or dropped into pit caves.

Beginning around 1000 B.C., ancient Native peoples of the Early Woodland period (1000-200 B.C.) began to systematically exploit the special resources found in caves, and they continued to do so for 600 years. They mined **chert** (or flint) from limestone deposits exposed in the underground passages, and they used the chert to make stone tools, like spearpoints, knives, scrapers, and drills. They also mined minerals in the Mammoth Cave area, such as gypsum and mirabilite, that had formed on the cave walls. **Gypsum** could be used as paint, while **mirabilite** has medicinal properties: when taken orally, it serves as a laxative. Its salty taste also means ancient peoples may have used it as a seasoning and as a food preservative. Undoubtedly, these miners also exchanged chert and minerals with their neighbors. Men, who were probably the most common Native miners, may have held coming-of-age ceremonies within the caves during this period.

Ancient Native peoples also used caves only for ritual or ceremonial use, and these are the places where archaeologists have found the bulk of Kentucky's cave art. These were often small caves or small cave passages in larger caves that required some effort and expertise to enter. People went into these places seeking spiritual encounters with supernatural beings. Native American oral history indicates that some Native peoples considered caves the entrances to the underworld and that they were inhabited by monsters. In the southeastern United States, the use of caves exclusively for ceremonies began after around A.D. 1200, during the Mississippian/Fort Ancient period (A.D. 900/1000-1700/1750).

How Did Ancient Native Artists Make Kentucky Cave Art?

- In the five Kentucky caves, as elsewhere in the southeastern United States, Native artists made three different kinds of cave art: pictographs, petroglyphs, and mud glyphs.



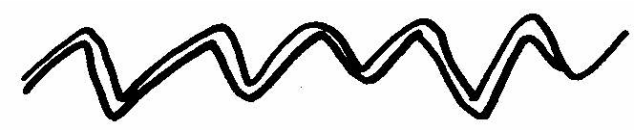
Devil's Looking Glass, a pictograph, Mammoth Cave, Edmonson County.

Pictographs are images produced by applying mineral pigments or coloring to cave walls or large fragments of the ceiling that fall into cave passages, known as "**cave breakdown**." In the Southeastern U.S., these pigments include fine clay, ochre, and especially charcoal. These are the rarest form of Southeastern cave art. In Kentucky, archaeologists have found charcoal drawings on the cave walls in Mammoth and Salts caves, and possibly Crumps Cave. They are very fragile because ancient Native artists apparently did not use any **fixative**, such as animal fat, in their pigments.

Petroglyphs are engravings carved or pecked directly into the stone of the cave walls and ceilings or on fragments of ceiling breakdown. While this is the most common form of cave art outside of Kentucky, only a very few examples of petroglyphs have been documented in Kentucky caves (i.e., in Salts Cave and in Fisher Ridge Cave). This does not mean petroglyphs themselves are rare in Kentucky. Archaeologists have documented scores of petroglyphs at Kentucky rockshelter sites, especially in the eastern Kentucky counties of Menifee, Powell, and Lee. Technically, **rockshelters** are not caves, because they do not extend underground far enough to contain a "dark zone."

Mud glyphs are images drawn in wet clay deposits using fingers or sharp tools. These deposits are found on cave ceilings, walls, or floors. Adair Glyph Cave and Crumps Cave in Kentucky

are two of only nine known mud glyph sites in the southeastern United States. Native artists used several techniques to create mud glyphs. They **incised** or cut lines into a thin veneer of clay – using a sharp tool, such as a fragment of a freshwater mussel shell or a blunt instrument, such as a cane reed. Alternatively, the artist may have used his or her fingers to trace the lines into the clay. Another technique was to cut the glyphs into the clay with a sharp tool or dig out sections of the glyphs with their hands.



Zig-zag mud glyph, Crumps Cave, Warren County.

What Does Kentucky Cave Art Look Like?

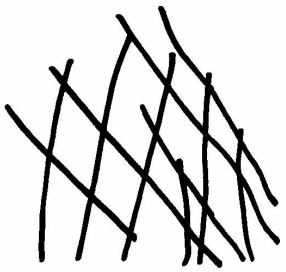
- Kentucky cave artists drew many different geometric designs, and animal and human figures.

When seen for the first time, Kentucky cave art appears crude, but it isn't. It is best to consider it "casual," "simple," "purposeful," or "minimal" art. Its simplicity can mask the sophistication of the ancient artist. Minimal designs can be very sophisticated, expressing something recognizable in a simple way to convey the essence of the thing. Perhaps for all ancient Native artists, the act of drawing was more important than the end product. Since archaeologists have not found food remains in the ceremonial cave passages of Adair Glyph Cave and Crumps Cave, perhaps the placement of the glyphs was more important that the actual drawings themselves or their "quality."

Mud glyph geometric design, Crumps Cave, Warren County.

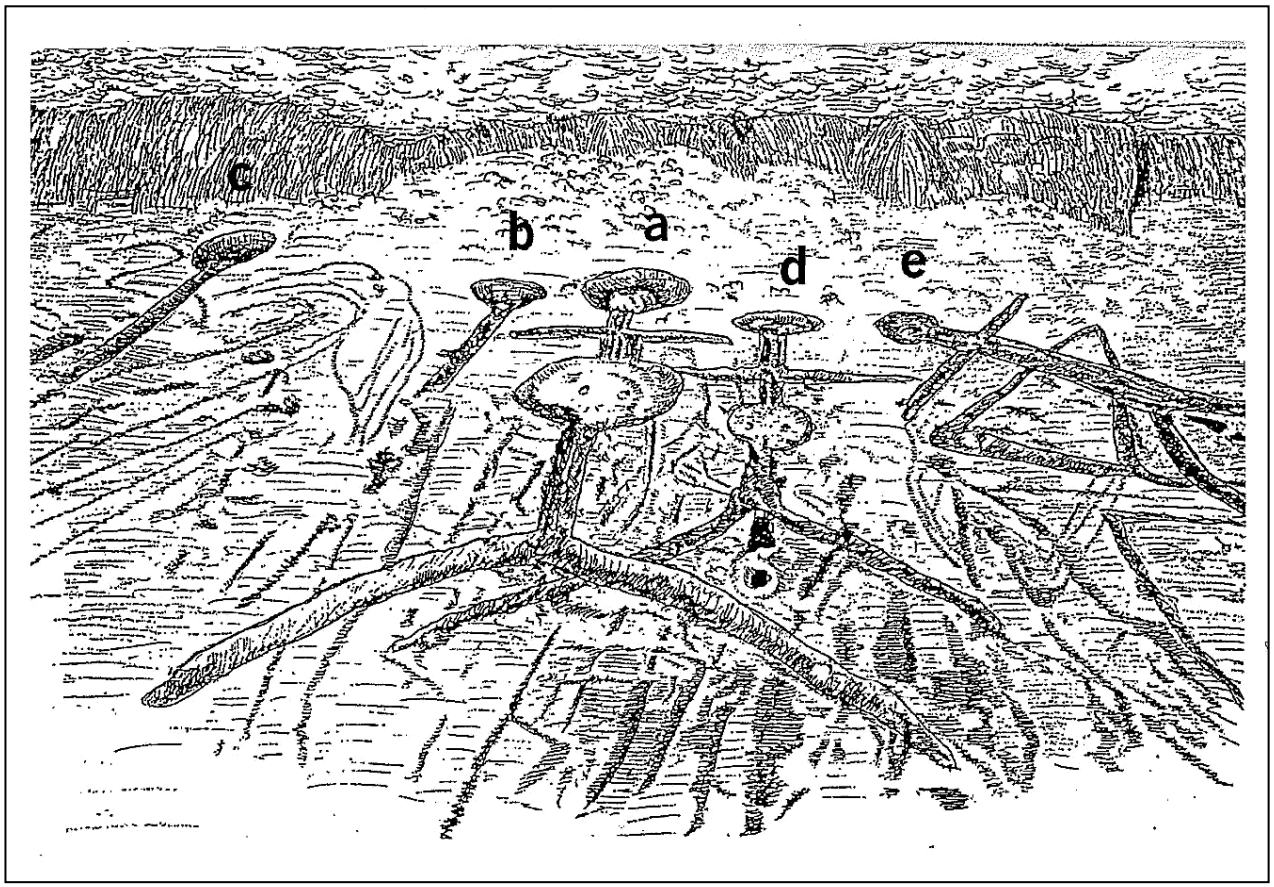
Whether drawn in the mud, drawn in charcoal on the cave walls or isolated fragments of ceiling breakdown, or pecked into cave walls, we need to remember that Native American cave artists did not work by the steady, bright light of today's carbide lanterns. Flickering torches were their only source of light. The movement of the fire's flame and the shadows it cast provided an element of animation to their art that today's steady cave lighting cannot duplicate.

Mud glyphs reflect the greatest diversity in Kentucky cave art. They occur in two caves used during two very different periods of time: Adair Glyph Cave, which was used during the Late Archaic period (3000-1000 B.C.), over 3,000 years ago; and Crumps Cave, where the glyphs are similar in style to Mississippian/Fort Ancient period (A.D. 900/1000-1700/1750) cave art found in southeastern United States caves beginning around 800 years ago. A dark patina on the drawings and on the untouched mud contrasts sharply with the bright orange clay revealed by the names and dates of modern vandalism and other recent disturbances carved into the clay.



Mud glyph cross-hatching, Glyph Passage Cave, Adair County.

The early mud glyphs consist exclusively of geometric elements. Zig-zags, crosshatching (or "grids"), and chevrons are the most common, but other elements are present, too. These include overlapping X's, curvilinear lines, asterisks,



Mud Glyph 16 in Crumps Cave, Warren County.

and possible snakes. Some of these elements occur in clusters: parallel zig-zag lines in rows of three or four; a pair of chevrons found with asterisks; and crosshatched areas in clusters, several covering oval areas outlined by a single line.

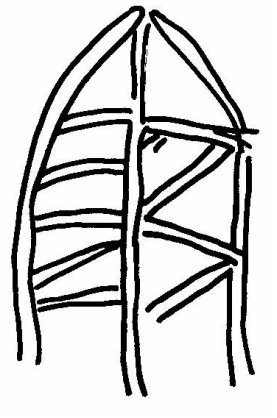
The later mud glyphs consist of geometric elements as well as human ("**anthropomorphic**") and animal ("**zoomorphic**") figures. They occur as individual elements and as a series of elements that make up a unit or "**panel**." Examples of individual elements include geometric designs such as stacked chevrons; **concentric** (having a common center) circles or nested circles; and an oval with lines across it. Other individual elements include images such as a shield, a **monolithic** ax (an ax with the blade and handle made of one piece of stone), or a hand surrounded by a circle. Figures also occur as individual elements. Examples include a rattlesnake with horns or antlers and maybe wings and claws; horned serpent-like figures; and human stick figures.

Panels of glyphs contain unique combinations of elements. One consists of a bird man (depicted as a stick figure with an inverted tail, and taloned hands and feet), a cross and circle, and a possible **mace** (ceremonial scepter). Another large panel consists of a group of five human figures. Two human stick figures (represented only by heads and torsos) and two more complete human stick figures flank a large, central pregnant female figure with legs that extend underneath the other four figures in the panel (see pages 16 and 26).

There are not as many examples of pictographs or petroglyphs in Kentucky cave art. Like the

mud glyphs of Adair Glyph Cave, this art probably dates to the Late Archaic/Early Woodland period (around 3000-200 B.C.), so there are not as many different elements. These examples occur at Salts Cave, Mammoth Cave, and Fisher Ridge Cave. Using charred cane torches, Native artists drew mainly geometric pictographs, but cave archaeologists have also found a few animal figures. The geometric designs include crosshatching, zig-zag, and spiral elements, while the animal figures include a turtle, a horned salamander or lizard, a spider or a person holding a torch, and a snake or lightning bolt. Petroglyphs occur as geometric designs, consisting of crosshatching and random lines, or human stick figures.

How Old Is Kentucky Cave Art?



Mud glyph shield, Crumps Cave, Warren County.

- Ancient Indigenous Kentuckians made cave art for nearly four thousand years, beginning over 4800 years ago and ending about 650 years ago.

Dating ancient cave art is hard to do. Many commonly used dating methods, like **stratigraphy** (the layers of soil built-up over time at a place) or association with other kinds of ancient artifacts, are not useful for dating cave art. This is due to the special characteristics of the places where the art is found and of the art itself. In their attempts to date cave art, archaeologists have used **ethnographic** information (descriptions from traditional hunter-gatherers or farming cultures all over the world) and **ethnohistoric** accounts (histories of traditional American Indian lifeways) and have examined the order in which the Native artist drew the lines.

But the most useful ways to date cave art are 1) to compare the style of the artist's renderings to styles of known age and 2) to secure an absolute date on burned fragments of river cane torches left in the cave (as scattered fragments across the cave floor or broken off in mud glyphs) or the charcoal stoke marks left by cane torches near the images. **Radiocarbon dating** is the most common method archaeologists use for absolute dating. This method uses the decay of a radioactive isotope of carbon (^{14}C) to measure time and to date objects containing carbon.

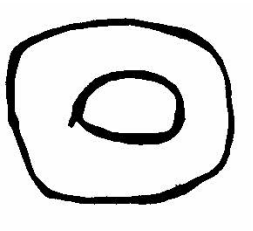
The earliest dates for cave art in Kentucky, and one of the earliest dates for the whole southeastern United States, come from Adair Glyph Cave. Dates range from 2300-1600 B.C. for the mud glyphs in this cave. During this period, which archaeologists refer to as the Late Archaic period (3000-1000 B.C.), Native Americans lived a mainly hunting and gathering way of life, but they were beginning to experiment with domesticating native plants and growing their own food. They also were developing far-reaching trade networks that included the exchange of items made from copper and marine shell.

Radiocarbon dates for Indigenous exploration (2910-2460 B.C.) and mineral mining (1000-400 B.C.) at Mammoth and Salts caves may indirectly date the few pictographs and petroglyphs found there. Many of these examples of cave art may date to the Early Woodland period (1000-200 B.C.). At this time, Native peoples in Kentucky hunted, gathered wild plants, and grew domesticated plants in their gardens. They began to make jars from clay, using these vessels for cooking, storing seeds, and carrying water. In some areas of Kentucky at this time, Native

peoples built conical burial mounds and geometric **earthworks** (ceremonial mounds, often as circles or squares); and in the Mammoth Cave area, these Native peoples mined the caves for minerals.

Radiocarbon dates for the mud glyphs at Crumps Cave (170 B.C. - A.D. 140 and A.D. 0-390) suggest that these images, too, were drawn during the Early Woodland period (1000-200 B.C.). There is a problem with these dates, however: the style of the Crumps Cave mud glyphs are much more similar to ancient Southeastern U.S. cave art produced between A.D. 1200 and A.D. 1350, made during the Mississippian/Fort Ancient period (A.D. 900/1000-1700/1750), when Indigenous peoples in Kentucky were living in villages or in large towns with platform mounds.

These peoples farmed for a living, but also hunted and gathered wild foods, and were involved in long-distance trade. The groups that lived in towns and built mounds had complex, socially **stratified societies** (societies with many classes). Their religion was based on ancestor worship, an earth/fertility cult, and a chiefly warrior cult. The artists of these cultures used a very recognizable art style. Designs in this style, found on shell and copper ornaments and on pottery vessels, were associated with the chiefly warrior cult. These are the artistic elements they also used in their cave art. While the beliefs concerning these designs and their use may not have been the same from region to region across the Southeast, the artistic styles themselves were well-known and widespread.



Concentric circles mud glyph, Crumps Cave, Warren County.

What Does Kentucky Cave Art Mean?

- It is very difficult to understand what the images in the caves mean and why the ancient Native artists produced them. But at least for the mud glyphs, we can infer that they held special religious, ceremonial, or spiritual meaning for the people who drew them.

Cave art is very ancient and complex. From its origins among Late Archaic period (3000-1000 B.C.) hunter-gatherers to its use by farming societies that shared complex religious beliefs across the southeastern United States, the function of cave art has undoubtedly varied.

The fact that this art is found deep inside caves – often in hard-to-access places, removed from observation by or interaction with people in general – rules out the public use of these designs. Thus, archaeologists can infer that cave art was probably used, especially in the case of the mud glyphs, for special ceremonial or ritual purposes. It is hard to say, though, if these symbols and panels represent the private efforts of individuals to enhance their own spiritual power or some kind of ritual to protect society as a whole.

Because archaeologists know more about the artistic symbols of the Mississippian/Fort Ancient period (A.D. 900/1000-1700/1750) than of previous periods, they can get an idea of the meaning of this cave art. The images in caves like Crumps Cave are similar in subject matter to some Mississippian/Fort Ancient period symbols Native artists drew on ceramic vessels and on shell, bone, and copper ornaments. The contexts within which archaeologists have found these vessels and ornaments indicate that they reflect important social status or ceremonial behavior.

Therefore, this cave art was probably steeped in the culture, religion, and world view of its makers.

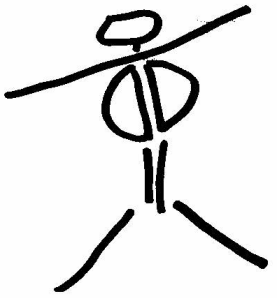
Late Archaic and Early Woodland period cave art lacks stylistic links to Mississippian/Fort Ancient period (A.D. 900/1000-1700/1750) religious symbols or to design styles on contemporary artifacts found outside the caves. The meanings of this art are, therefore, more difficult to infer. Right now, archaeologists are limited in how much they can say about the meaning of the earliest cave art in Adair Glyph Cave, and in Mammoth, Salts, and Fisher Ridge caves.

Are Kentucky's Cave Art Sites Preserved?

- Although a few laws offer some measure of protection for these fragile and significant places, most cave art sites are not satisfactorily protected from vandalism and are threatened by it.

Pictographs, petroglyphs, and mud glyphs are rare and very fragile. Because charcoal drawings and images etched in mud can wash away, and rock surfaces can erode over time, few of these sites have survived to modern times. The best examples are found deep in caves, where, because of special geological conditions, the ceilings, walls, and floors of some cave passages remain virtually unchanged from ancient times.

They are preserved and were not discovered until recently because the passages in which they are located are often hard to reach. A modern cave explorer who is not observant, or who thoughtlessly leaves graffiti in a cave, in addition to destroying the beauty of the cave, could be destroying Native American cave art thousands of years old.



Human figure mud glyph, Crumps Cave, Warren County.

At almost every cave art site in Kentucky, people have engraved, painted, or etched modern graffiti on cave walls and in the mud deposits; and the foot traffic of modern cavers continues to threaten some sites. In some cases, modern graffiti overlie and have destroyed Indigenous cave art. Some of this vandalism is inadvertent, done by people who are unaware of the age and significance of the artwork they are defacing; but some of the acts of vandalism are intentional.

Attempts to protect these sites have included using alias names to protect a cave's location and identity. In 1988, the Kentucky General Assembly passed the Kentucky Cave Protection Act (KCPA) with the purpose of protecting Kentucky caves, and by extension, the cave art within them. Gating the most endangered cave sites, as was done at Crumps Cave in 1993, is another way to stop vandalism, but this requires landowner commitment and funding. It is hard to find the financial resources to protect cave art sites, especially on private lands, and convincing the cave-using public to preserve cave art sites in specific cases remains problematic.

Unless we can preserve these sites from vandalism, Kentucky's Native American cave art will disappear. If you are a caver, be careful where you walk. Remember that Native peoples undoubtedly preceded you into the cave. If you identify what you think is ancient Native cave art, notify the Kentucky Heritage Council (https://heritage.ky.gov/Pages/index.aspx) or the

Office of State Archaeology at the University of Kentucky (https://anthropology.as.uky.edu/office-state-archaeology).

Educational Resources

Turtle pictograph, Salts Cave, Hart County.

Videos

Kentucky Archaeology and Heritage Series, Volume I: *Episode 3: Saving a Kentucky Time Capsule* (9:00 min.) VHS. (2000) Voyageur Media Group for the Kentucky Heritage Council. This program documents efforts to preserve dozens of ancient American Indian mud glyphs discovered deep inside a Kentucky cave. Archaeologists Valerie Haskins and Dan Davis lead viewers on an unforgettable journey to see rare legacies from Kentucky's early artists.

The Series' web page provides detailed summaries of all the episodes, directions on how to order copies (https://www.kentuckyarchaeologicalsurvey.org/video-series/), and a link to The Archaeology Channel to view them online.

Saving A Kentucky Time Capsule: A Companion Guide for Intermediate and Middle School Social Studies and Science Teachers is being developed for this episode by Judy Sizemore. It will consist of eight cross-curricular activities.

Books and Articles

"Ancient Americans Made Art Deep Within the Dark Zones of Caves Throughout the Southeast" by Jan Simek. *The Conversation*, 2021. https://theconversation.com/ancient-americans-made-art-deep-within-the-dark-zones-of-caves-throughout-the-southeast-158497

"Ancient Art Deep in the Southeastern United States" by Jan Simek. Sapiens, Anthropology Magazine, 2021.
https://www.sapiens.org/archaeology/ancient-art-deep-in-the-southeastern-united-states/

"Issues in the Study of Southeastern Prehistoric Cave Art," by Jan F. Simek and Alan Cressler. *Midcontinental Journal of Archaeology* 26(2):233-250, 2001.

The Prehistoric Native American Art of Mud Glyph Cave, edited by Charles H. Faulkner. University of Tennessee Press, Knoxville, 1986.

"A Preliminary Report on the Mud Glyphs in 15WA6, Warren County, Kentucky," by Daniel B. Davis. In *Current Archaeological Research in Kentucky, Volume Four*, edited by Sara L. Sanders, Thomas N. Sanders, and Charles Stout, pp. 332-353. Kentucky Heritage Council, Frankfort, 1996.

Of Caves and Shell Mounds, edited by Kenneth C. Carstens and Patty Jo Watson. University of Alabama Press, Tuscaloosa, 1996.

Prehistoric Drawings in Mammoth Cave - Excerpt from a Gaines Thesis by Logan Kistler. *Kaleidoscope* vol. 6, article 14, 2015. https://uknowledge.uky.edu/kaleidoscope/vol6/iss1/14

Rock Art of Kentucky, by Fred E. Coy, Thomas C. Fuller, Larry G. Meadows, and James L. Swauger. University Press of Kentucky, Lexington, 1997.

"Woodland Cave Archaeology in Eastern North America," by George M. Crothers, Charles H. Faulkner, Jan F. Simek, Patty Jo Watson, and P. Willey. In *The Woodland Southeast*, edited by David G. Anderson and Robert C. Mainfort, Jr., pp. 502-524. University of Alabama Press, Tuscaloosa, 2002.

Related Web Sites

American Cave Conservation Association
https://caveconservation.com/

Cave Research Foundation
https://www.cave-research.org/

National Caves Association
https://cavern.com/about-the-nca/

National Speleological Society
www.caves.org
Particularly useful for its list of cave resources. This organization also has information about grottos (local caving clubs) in Kentucky, and resources for planning a wild caving experience.

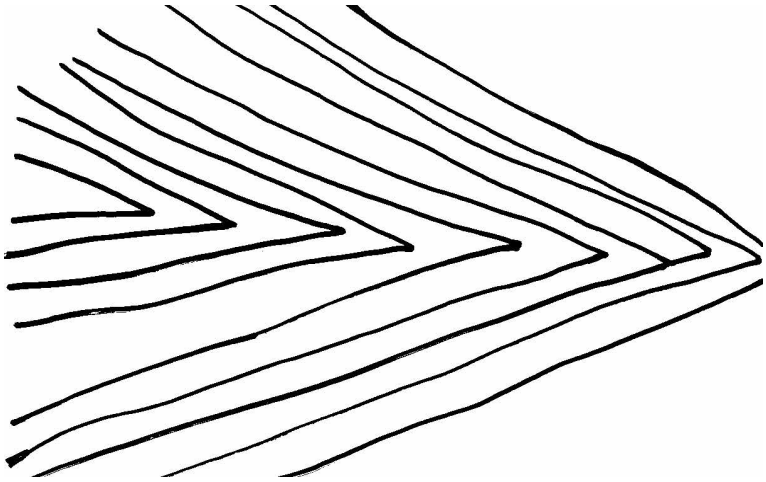
To compare Kentucky's ancient Indigenous cave art to rock art from all over the world, visit this web site (https://www.ccsp.it/web/CCSP_home_eng.html).

Mammoth Cave's web site includes several activities for the classroom and information sheets for students (https://www.nps.gov/maca/learn/education/curriculummaterials.htm).

Take the Electronic Field Trip to Mammoth Cave
https://education.ket.org/resources/electronic-field-trip-mammoth-cave/

The Cincinnati Museum Center features a permanent exhibit that interprets a Kentucky limestone cave (https://www.cincymuseum.org/sciencemuseum/cave/).

"Mammoth Cave: Its Explorers, Miners, Archaeologists and Visitors" is a lesson plan developed as part of the *Teaching With Historic Places* curriculum. It can be downloaded from this address (https://www.nps.gov/articles/000/mammoth-cave-its-explorers-miners-archeologists-and-visitors-teaching-with-historic-places.htm).



Mud glyph chevrons, Glyph Passage Cave, Adair County.

Lesson Plans

Cave Art One: Introduction

Grade Level: 4-7
Subjects: Science, social studies, language arts, art
Skills: Knowledge, comprehension, analysis, evaluation
Strategies: Brainstorming, discussion, visualization, drawing, writing, observation
Duration: 45 to 60 minutes
Class Size: Any

Objectives:

In their study of cave art, students will use art materials, photographs, and cave art examples to:
1. Differentiate between symbol, petroglyph, pictograph, and mud glyph.
2. Interpret cave art to illustrate its importance in the cultural heritage of a people and as a tool for learning about the past.
3. Evaluate the importance of protecting cave art for study.

Materials:

Activities PowerPoint or copy for each student of **A Kentucky Cave Art Panel**, page 16
Clay or Plaster of Paris slabs (prepared ahead of time)
Paper
Paint, marker, or charcoal pencil
Paper clip
Copy of **An Interpretation of a Cave Art Panel**, page 16

Vocabulary:

cave art: a general term for pecking, incising, or painting designs on cave walls, ceilings and ceiling breakdown, and in mud deposits on cave ceilings, walls, and floors.

cave art panel: a group of pictograph, petroglyph, or mud glyph elements.

petroglyph: a design carved or pecked directly into stone.

pictograph: a design applied to a rock surface using mineral pigments or coloring.

mud glyph: a design incised or cut into mud deposits inside a cave.

rock art: a general term for pecking, incising, or painting of designs on rock surfaces.

symbol: an image, mark, or object which represents something else.

Background:

Cave art is a special kind of rock art, found deep within the earth. Indigenous people throughout North America created cave art in ancient times. Its meaning is difficult to interpret. Some people think cave 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 cave art/rock art is not a true writing system that can be "read" like Egyptian hieroglyphics or a phonetic alphabet, although some researchers attempt to decode the symbols. Archaeologists analyze cave art figures and patterns, and frequently find that different cultural groups made different styles of cave art. Others analyze stories and information from living Indian people to draw conclusions about cave art.

Some Indian tribes have oral traditions about rock art (and by extension cave art) and its meaning. Many Indian people believe that the spirit of the makers reside in what they have created; therefore, the art is living, and has a spirit. Whatever our responses to, or interpretations of rock art/cave art may be, it stimulates our thoughts and imaginations and expands our awareness of cultural expressions. Rock art and cave art can mean something different to each person who ponders it.

TEACHER'S NOTE: For more background information about Kentucky's cave art, please refer to **Background for Ancient Native American Cave Art in Kentucky**.

Setting the Stage:

1. Brainstorm examples of symbols meaningful to us today.
2. Give each student a piece of paper, a marker, a charcoal pencil, or paint -AND- clay or Plaster of Paris slab and a paper clip.
Ask them to flatten the clay into a slab and imagine that it (or the Plaster of Paris slab) represents mud deposits deep in a cave in west-central Kentucky. Ask students to imagine that the paper is a cave wall or ceiling.
Then, ask students to imagine they are living 2,000 years ago. Have them carve a symbol of their culture into the clay or Plaster of Paris (mud deposits) with the paper clip -AND- have them paint or draw this same symbol on the paper (cave wall or ceiling).
3. Show the students the words "pictograph," "petroglyph," and "mud glyph." Ask them to determine which word fits which method of design, and give reasons for their answers. Verify the correct answer and explain that all the design methods are classified as cave art. Or, give students 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 **A Kentucky Cave Art Panel**. Explain that this cave art panel was created by the ancient people of Kentucky 800 years ago.
2. Use the following questions to analyze the cave art panel:
    a. What words might you use to describe the symbols on this panel?

b. Why do you think people created these designs?

c. If there is a message(s) in these designs, what do you think it is (they are)?

d. Specifically, what might the message(s) be in the symbol labeled a, b, or e in the panel? Using the **An Interpretation of a Cave Art Panel** handout, page 17, share the archaeologist's interpretations.

3. In what ways might cave art be important to archaeologists' study of ancient people?
4. How might vandalism to cave art create problems for the archaeologist? for the descendants of the ancient cave artists? for all of us?

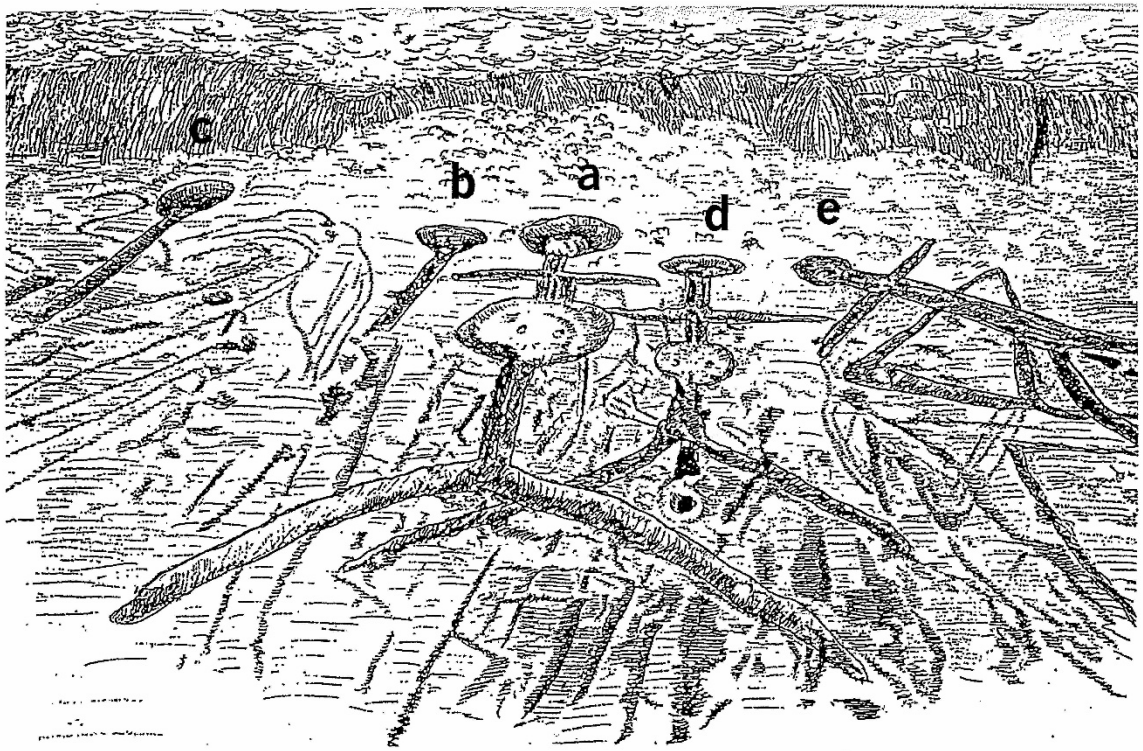
Closure:

In summary, discuss with the class as a whole why preserving cave art is important.

Extension:

Instead of discussing the closure as a group, require students to consider it individually in a story, poem, essay, advertisement, or song.

A KENTUCKY CAVE ART PANEL



This is a drawing of Glyph 16, a mud glyph located in Crumps Cave. Daniel B. Davis, an archaeologist who has studied Crumps Cave, drew this picture. He published his research on the cave's mud glyphs in 1996. When he drew the glyph panel, he purposely left out initials that vandals had carved over the glyphs, so that we could see what the panel would have looked like before it was vandalized. We numbered the figures to go along with the discussion questions.

An Interpretation of a Kentucky Cave Art Panel

Glyph 16 at Crumps Cave is a mud glyph panel of anthropomorphic figures, the only ordered glyph in the cave. Drawn on the western wall of the cave passage, it measures 8.2 feet wide by 3.3 feet high. It consists of five human figures: a large central figure flanked by four smaller figures, two on either side. A long area of crosshatching appears along the base of all the figures in the panel.

The central figure (a) is substantially larger than the other figures. The legs are splayed wide, are oversized, and appear to extend beneath all the other figures in the panel. The figure appears to represent a pregnant woman. The two figures on the left (b and c) are represented only by heads and trunks. Their gender is unknown. One of the figures on the right (d) is a smaller version of the central figure. Although its gender is less obvious, it is probably a woman. The second figure on the right (e) is oriented at an angle to the other figures. A large triangle pierces the side of this figure and passes completely through to the other side. This figure's gender also is not obvious, but is probably a man, possibly "killed" by the triangle.

After studying the mud glyphs at Crumps Cave, drawing the glyphs, and researching other examples of cave art, especially mud glyphs in the Southeastern United States and their meaning, archaeologist Daniel B. Davis offered the following possible interpretations of Glyph 16:

The placement of the panel beneath the earth on the west side of the cave passage alludes to death, fertility, and change. In the belief systems of the Indigenous peoples of the Southeast, each of the cardinal directions were associated with a series of social values. West was often associated with death. Similarly, they divided their cosmos into three worlds: This World, which existed on the earth's surface; the Upper World, which existed above the sky vault; and the Under World, which existed beneath the earth and the waters. The Under World was associated with **inversions** (reversal of position, order, form, or relationship), fertility, disorder, and change.

The ordered layout of the panel reflects a dualistic structure/a structural balance. Indigenous peoples were concerned with maintaining balance between opposites (such as good and bad/male and female/clean and unclean) as the path to the good life. For the whole panel, the pair on the right (the living) may represent balanced opposites to the pair on the left (spirit world). But each pair may represent balanced opposites: the two figures to the right may represent male/female or death/life, and the two genderless figures on the left also may represent balanced opposites.

The large fertile woman is an intermediary, balancing the world of the dead/the spirit world and the world of the living. The central figure, a pregnant woman, is a reference to fertility. The two figures to the right, one possibly a woman and the other one, possibly a man "killed" by the triangle, may be references to life/fertility and death. The two figures to the left, given their purposefully limbless, genderless bodies, may represent the non-physical or spiritual world.

The Glyph 16 panel may be a depiction of a creation story or another similarly important story that links death and life/fertility.

The five figures may be a group of mythological characters.

FROM: "A Preliminary Report on the Mud Glyphs in 15WA6, Warren County, Kentucky," by Daniel B. Davis. In *Current Archaeological Research in Kentucky, Volume Four*, edited by Sara L. Sanders, Thomas N. Sanders, and Charles Stout, pp. 332-353. Kentucky Heritage Council, Frankfort, 1996.

Cave Art Two: Creating Your Own

Grade Level: 2-7
Subjects: Science, art
Skills: Synthesis
Strategies: Visualization, drawing
Duration: 30 to 45 minutes
Class Size: Any

Objectives:

In their study of cave art, students will use Kentucky cave art symbols or their own symbols to:
1. Create a mud glyph or pictograph replica, or their own pictograph.
2. Cooperatively create a "cave art panel."

Materials:

Black construction paper
A box of cotton swabs
A roll of brown butcher paper
Crayons or markers
One cup of chlorine bleach diluted with an equal amount of water
Small paper or plastic cups
Activities PowerPoint or copy for each student of **KENTUCKY CAVE ART SYMBOLS**, pages 20-21
(This activity could also be adapted as a pictograph activity, using charcoal pencils or chalk to draw on paper.)

Background:

Cave art occurs on hard rock surfaces of cave walls and ceilings and on fragments of the ceiling that fall down into the passages – called "cave breakdown." It also occurs in soft mud deposits on cave walls, ceilings, and floors.

Rock art in general occurs all over the world, in virtually every culture, and surviving examples of cave art are known to be as old as 30,000 years, from the time of the last Ice Age.

TEACHER'S NOTE: For more background information about Kentucky's cave art, please refer to **Background for Ancient Native American Cave Art in Kentucky**.

Setting the Stage:

Distribute a copy of **Kentucky Cave Art Symbols** to each student or project the **Activities PowerPoint**. Give students time to observe and talk with each other about the symbols.

Procedure:

1. Explain to students that they will be using symbols to make an artwork that resembles Kentucky mud glyphs or pictographs. They will also contribute to a "cave art panel." They may

use the symbols from **Kentucky Cave Art Symbols** for their artwork, or they may create their own.
2. Give each student a piece of black construction paper and a cotton swab. The art is created by dipping the cotton swab in bleach mixed with an equal amount of water, and then drawing with the wet cotton swab on the paper to form the desired design.
Demonstrate the process before asking students to try their hand at this, emphasizing that they must be very careful not to touch anything but the paper with their cotton swab. Place a jar lid with a small amount of bleach in the center of the worktable or carry a small cup of bleach to each student and have them dip in their cotton swab. They will only need one or two dips for the activity.
3. Lay the roll of brown butcher paper on a table or floor. Divide the class into groups no larger than 10 students. An adult aide for each group would be helpful. Alternatively, have only one group at a time do the activity.
4. After students have completed their own mud glyph or pictograph, they will take turns drawing figures on the large piece of butcher paper. Space students a few feet apart, and have small groups work one at a time. Exhibit the "cave art panel" in the classroom or hallway.
The panel is used for an activity in the following lesson: **Cave Art Three: Protecting Our Past**.

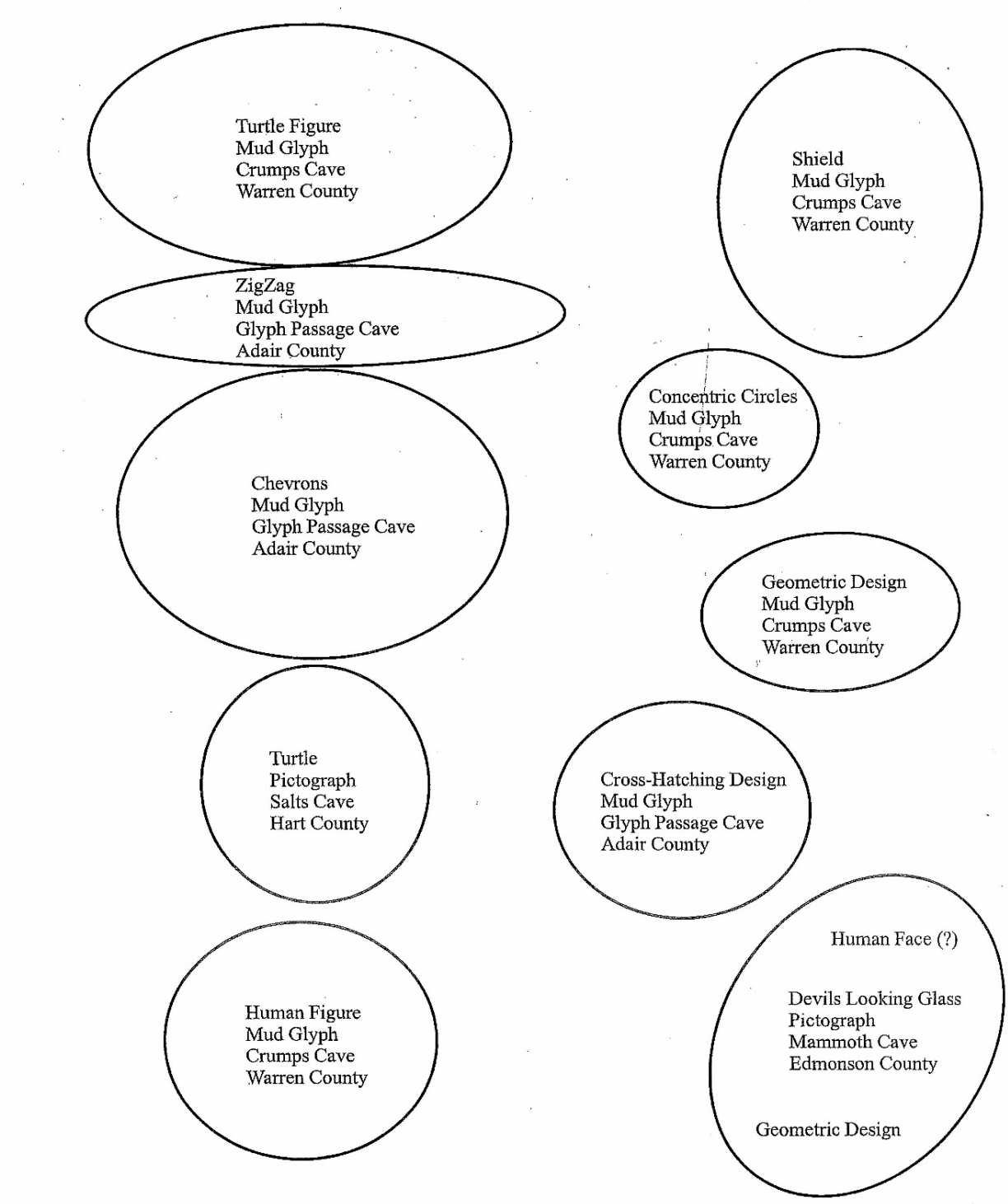
Closure:

Ask students to share the meanings of their cave art.

Kentucky Cave Art Symbols

(drawings after actual Kentucky cave art designs)

Kentucky Cave Art Symbols
(Image, Image Type, Site Name, and Kentucky County Location)



Cave Art Three: Protecting Our Past

Grade Level: 4-12
Subjects: Social studies, language arts
Skills: Analysis, synthesis, evaluation
Strategies: Observation, discussion, values clarification, brainstorming, decision making, problem solving, writing, drawing, invention, communication
Duration: One to three 45-minute periods
Class Size: Any; work groups of 3 to 4

Objectives:

In their study of cave art, students will use a replica of a vandalized cave art panel to:
1. Examine their feelings about cave art vandalism.
2. Discuss ways to protect cave art and other archaeological sites.
3. Evaluate the Archaeological Resources Protection Act and the Kentucky Cave Protection Act.

Materials:

The "Cave Art Panel" the students created during the previous lesson: **Cave Art Two: Creating Your Own**.
Activities PowerPoint
Photograph of Vandalized Cave Art from a Kentucky Cave, page 25

For each student or team, copies of
Federal Laws Protecting Archaeological Resources and **Kentucky Laws Protecting Archaeologcal Resources**, page 26
Protecting Cave or Rock Art: Things Not To Do, page 27

Vocabulary:

deface: spoiling or marring the surface or appearance of something.

vandalism: willfully or maliciously defacing or destroying public or private property.

Background:

America is fortunate to have many fine examples of rock art/cave art, and a rich archaeological heritage. Our past, however, is threatened by people who collect artifacts and dig sites, as well as by those who vandalize rock art panels and cave art sites.

Collecting artifacts, digging sites, and defacing rock art/cave art is harmful. First, it destroys the evidence of people who lived here before us. Sites are very fragile, and one person with a shovel and ten minutes of time can destroy hundreds of years of history. We and the generations of tomorrow are being robbed of the chance to learn about America's past.

Second, disturbing and vandalizing sites attacks the cultural heritage of American Indians. These sites are the burial grounds, homes, and sacred places of their ancestors. Archaeological sites can represent part of their spiritual and cultural legacy. To destroy or deface these places can be the equivalent to someone vandalizing your home, church, or cemetery.

Finally, people who vandalize and destroy sites steal from all of us the opportunity to appreciate and understand other cultures. It is a personally enriching experience to gain a perspective on one's life and time by understanding how and where we fit in the human history of this land.

Some people who dig in sites are engaged in illegal market activity, are armed with weapons, and should be considered dangerous. Never approach someone you see digging in sites or collecting artifacts. Instead, record information about them – their physical description, what they were seen doing, the license number of their vehicle – and immediately report them to a local law enforcement agency.

People recreating outdoors occasionally find archaeological sites, and they wonder what they should do. Always leave artifacts where they are found, including small surface finds such as potsherds and spearpoints. Discoveries of rare or remarkable artifacts and sites should be reported to land-managing agencies (Kentucky State Parks, for example, or federal National Parks). In the case of private lands, report discoveries to an archaeologist at a university or college; to the Kentucky Heritage Council (410 High St, Frankfort, KY 40601; 502/564-7005 or https://heritage.ky.gov/Pages/index.aspx); or to the Office of State Archaeology (1020-A Export Street, Lexington, KY 40506-9854; 859/257-1944, ky-osa@uky.edu or https://anthropology.as.uky.edu/office-state-archaeology).

For a list of federal laws and regulations that pertain to and protect archaeological sites within the federal government's jurisdiction, go to (https://www.nps.gov/subjects/archeology/laws-regulations-guidelines.htm). To access relevant Kentucky state laws that pertain to archaeological sites (**KRS 164.705 - KRS 164.735**; **KRS 164.990**; **KRS 171.780-171.788**; **KRS 171.3801 - KRS 171.395**; **KRS 433.871 - 433.885**; **KRS 525.110**; **KRS 525.115**; **KRS 525.120**; and **KRS 72.020**) and the complete text of these laws, go here: (https://apps.legislature.ky.gov/lrcsearch#tabs-3). Be sure the "Statutes Numbers" box is checked before entering the number of the statute you are searching for (e.g., 164.705).

TEACHER'S NOTE: For more background information about Kentucky's cave art, please refer to **Background for Ancient Native American Cave Art in Kentucky**.

Setting the Stage:

1. The purpose of the first part of this activity creates a situation in which students react to their "cave art panel" being defaced or threatened. You need to decide the best approach for your students. If the students are mature and if they will not think that school is an unsafe place, then anonymously deface the "cave art panel" by spray painting or using a Sharpie to write words over it.
Say nothing to the students, but when they begin to talk about it, start the activity.
Alternatively, bring the cave art panel into the classroom and, holding a can of spray paint or a Sharpie, ask "How would you feel if I were to write my name over the cave art panel you created? Would that harm it?" Connect their feelings about their rock art being damaged to how American Indians, archaeologists, and the public might feel when they see vandalized sites.
2. Show students a picture of defaced cave art (on page 25). Ask them how they feel about the vandalism of these ancient and irreplaceable cave art panels, and what they think should be done about it. It is important to move students beyond trying to discover and punish the person who did the damage. Ask students to think of solutions for repairing the damage and preventing

vandalism from happening in the future.
3. Distribute **Protecting Cave or Rock Art: Things Not To Do** (page 27) and ask students to read the page.

Procedure:

1. Inform students about the problem of people vandalizing archaeological sites, including cave sites, rock art panels, as well as the remains of ancient Native villages and camp sites, mounds and earthworks, and historic buildings. Explain that vandalism includes a range of behavior, from picking up stone tools to mining sites with a bulldozer.
2. Ask students to brainstorm: What are the harmful results of vandalism? They can brainstorm in the following categories: destruction of information, destruction of cultural heritage; destruction of historical appreciation; or they can be given the categories after brainstorming. (See the **Background** section for this lesson and the **Background for Ancient Native American Cave Art in Kentucky** for ideas to add to students' list).
3. Distribute or project **Federal Laws Protecting Archaeological Resources** and **Kentucky Laws Protecting Archaeological Resources**, page 26. Review the laws and their penalties.

Closure:

Ask students to propose an improvement to the federal or state laws. As a class project, have students prepare their ideal law to protect archaeological sites.

Extension:

Have students create a pamphlet, a public service radio announcement, poster, advertisement, video, etc. that will communicate to others the importance of protecting archaeological resources. They should include a description of ARPA and KCPA, and some of the ideas from **Protecting Cave or Rock Art: Things Not To Do**. Students' products could be shared at visitor centers, libraries, a PTA meeting, a teacher convention booth, or a school fair.

Photograph of
Vandalized Cave Art from a Kentucky Cave

A close-up photograph of the central figure and the two immediately flanking figures in Glyph 16 in Crumps Cave.

Someone has vandalized the panel by carving the letters “D” and “B” (only the “B” shows in this picture) into the mud over the figure to the left of the central figure in the panel. Notice how the lines of the vandalized letter and the color of the mud in the letter are different from the lines of the ancient mud glyphs.

Photograph by Daniel B. Davis.

Federal Laws
Protecting Archaeological Resources

Federal laws provide for severe penalties to those who disturb and destroy sites more than 100 years old. The *Archaeological Resources Protection Act* (ARPA) was passed in 1979, and prohibits unauthorized digging and collecting of archaeological resources, including pottery, basketry, bottles, sites with coins or arrowheads/spearpoints, tools, structures, rock/cave art, graves, and human skeletons. No person is permitted to sell or buy any archaeological resource that was illegally acquired. ARPA outlines rewards to people who supply information leading to the arrest and conviction of ARPA violators.

Penalties for people convicted of violating ARPA are:
1. First Offense: a person who breaks this law for the first time may be fined $100,000 and spend one year in jail. If the cost of repairing the damage exceeds $500, the offender may receive a fine of $250,000 and spend two years in jail.
2. Second Offense: a person who breaks this law for the second time may be fined $250,000 and spend five years in jail.
3. Vehicles and other equipment used in breaking this law may be confiscated.

ARPA applies to all public and Indian lands, including those administered by the U.S. Forest Service, Bureau of Land Management, the military, Fish and Wildlife Service, the National Park Service (for example, Mammoth Cave National Park in Kentucky), and the Bureau of Reclamation.

Kentucky Laws Protecting Archaeological Resources

The *Kentucky Cave Protection Act* (KCPA), passed in 1988, prohibits anyone from disturbing or damaging cave surfaces or materials found inside caves. This includes breaking, carving, writing or marking on cave surfaces, or removing, destroying or defacing cave surfaces. It also prohibits excavating, removing, destroying or disturbing any burial grounds, historic or ancient Indigenous resources, or archaeological or paleontological sites, including fossils, bones, relics, inscriptions, saltpeter workings, or other remains of historical human activity.

Archaeological investigations inside caves cannot be carried out without a permit from the Office of State Archaeology. They must be carried out under the supervision of the Office of State Archaeology and the Kentucky Heritage Council. Only a qualified professional archaeologist or qualified amateur can receive a permit, and to do so, they must explain their research goals and methods.

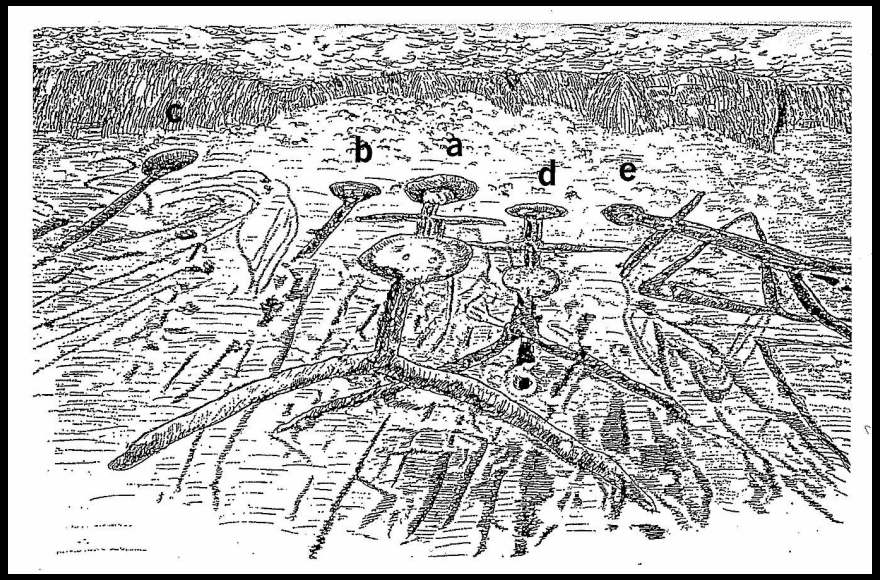
A person who is convicted of disturbing caves or removing an archaeological feature, either of ancient Indigenous origin or of a more recent age, without a permit from the Office of State Archaeology may be fined up to $500 and spend three months to one year in jail. A person who is convicted of not carrying out all the terms of their permit from the Office of State Archaeology may be fined up to $250 and spend three months in jail.

KCPA applies to all Kentucky caves, except state-owned caves or those designated as state archaeological sites. These cave sites are protected under the *Kentucky Antiquities Act* (KRS 164.705 – KRS 164.735).

Protecting Cave or Rock Art:
Things Not To Do

- **Touching** cave or rock art with your hand can harm it.
- **Making paper rubbings or tracings** may crumble the cave or rock art.
- **Making latex molds** of cave or rock art should only be done by professionals if the cave or rock art is going to be destroyed by construction or development.
- **Building fires nearby** can cause serious damage from smoke and high temperatures.
- **Taking it home.** Some selfish people steal cave rock art by using rock saws and chisels.
- **Chalking** is harmful to the petroglyphs, making it impossible to use new methods of dating the figures.
- **Re-pecking** or **re-painting** a difficult-to-see image doesn't restore it, but rather destroys the original.
- **Defacing.** Insensitive people often paint or carve their names over cave or rock art, or shoot bullets at it. Defacement is a sign of disrespect for other cultures.
- **Walking carelessly.** People like cave or rock art so much, they often forget to watch where they are walking and may trample or damage important artifacts.
- **Disturbing the ground.** Any ground disturbance, above or below ground, at an archaeological site is not allowed. Even too many visitors walking around may damage a cave or rock art site. Visitors should tread as lightly as possible.

Adapted from Winston B. Hurst and Joe Pachak, *Spirit Windows: Native American Rock Art of Southeastern Utah*. Edge of the Cedars Museum, Blanding, UT, pages 25-26, 1989.



Images to Project for

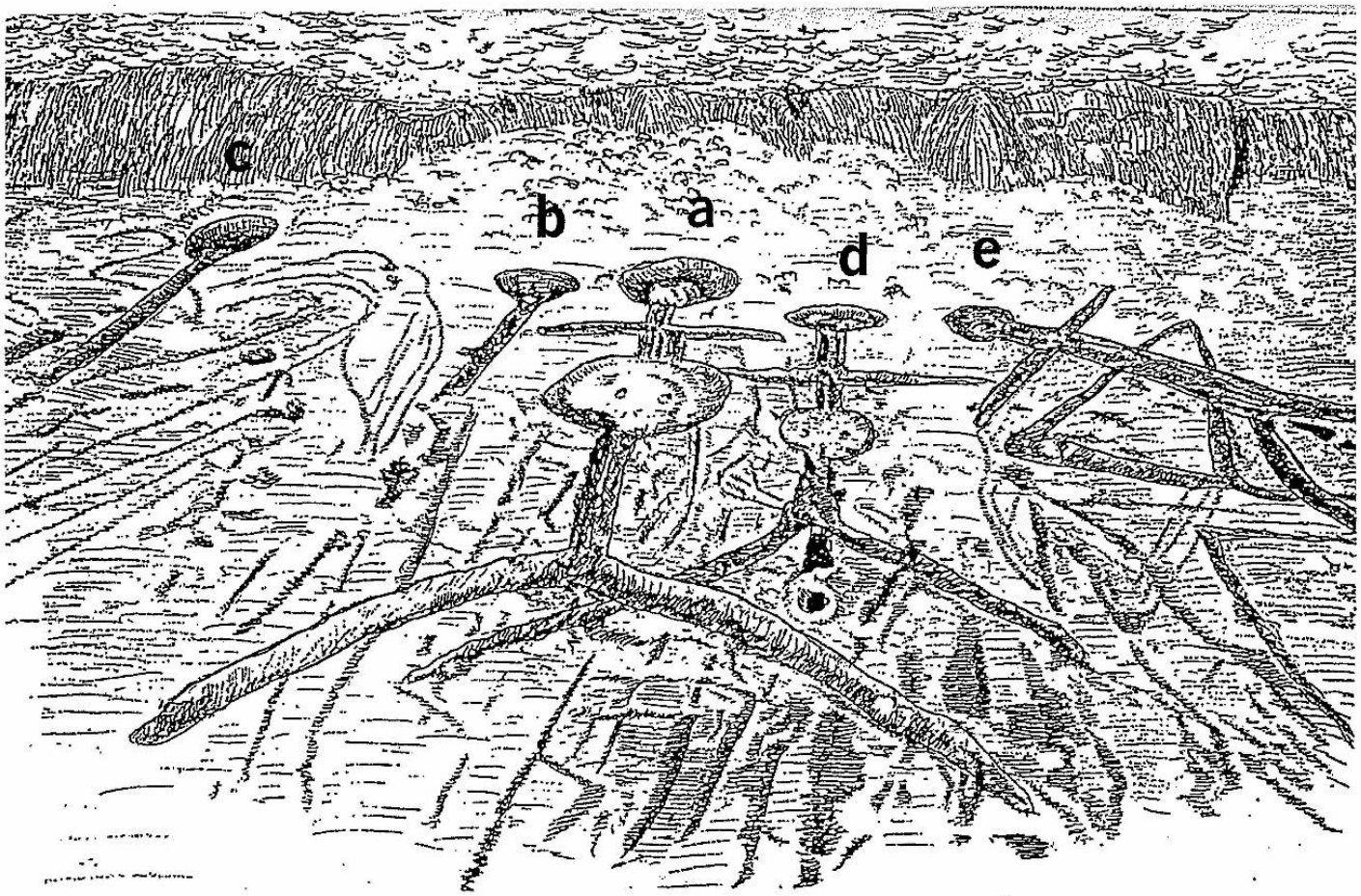
Ancient Native American Cave Art In Kentucky

Resources and Lessons for the Kentucky Educator

Kentucky Archaeological Survey

2024

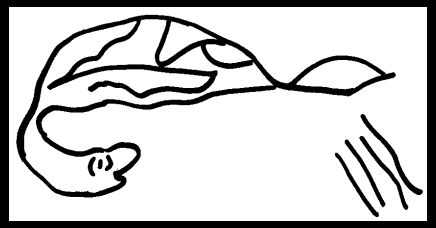
A KENTUCKY CAVE ART PANEL

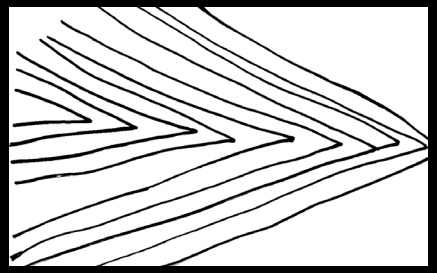


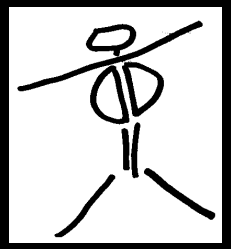
This is a drawing of Glyph 16, a mud glyph located in Crumps Cave. Daniel B. Davis, an archaeologist who has studied Crumps Cave, drew this picture. He published his research on the cave's mud glyphs in 1996. When he drew the glyph panel, he purposely left out initials that vandals had carved over the glyphs, so that we could see what the panel would have looked like before it was vandalized. We numbered the figures to go along with the discussion questions.

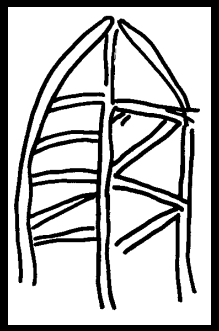
by
Daniel B. Davis 1996

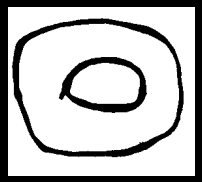
Kentucky Cave Art Symbols
Drawings After Actual Kentucky Cave Art

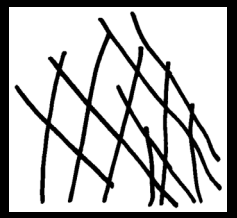


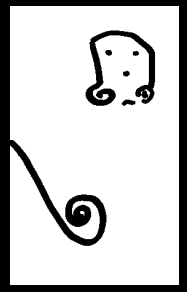


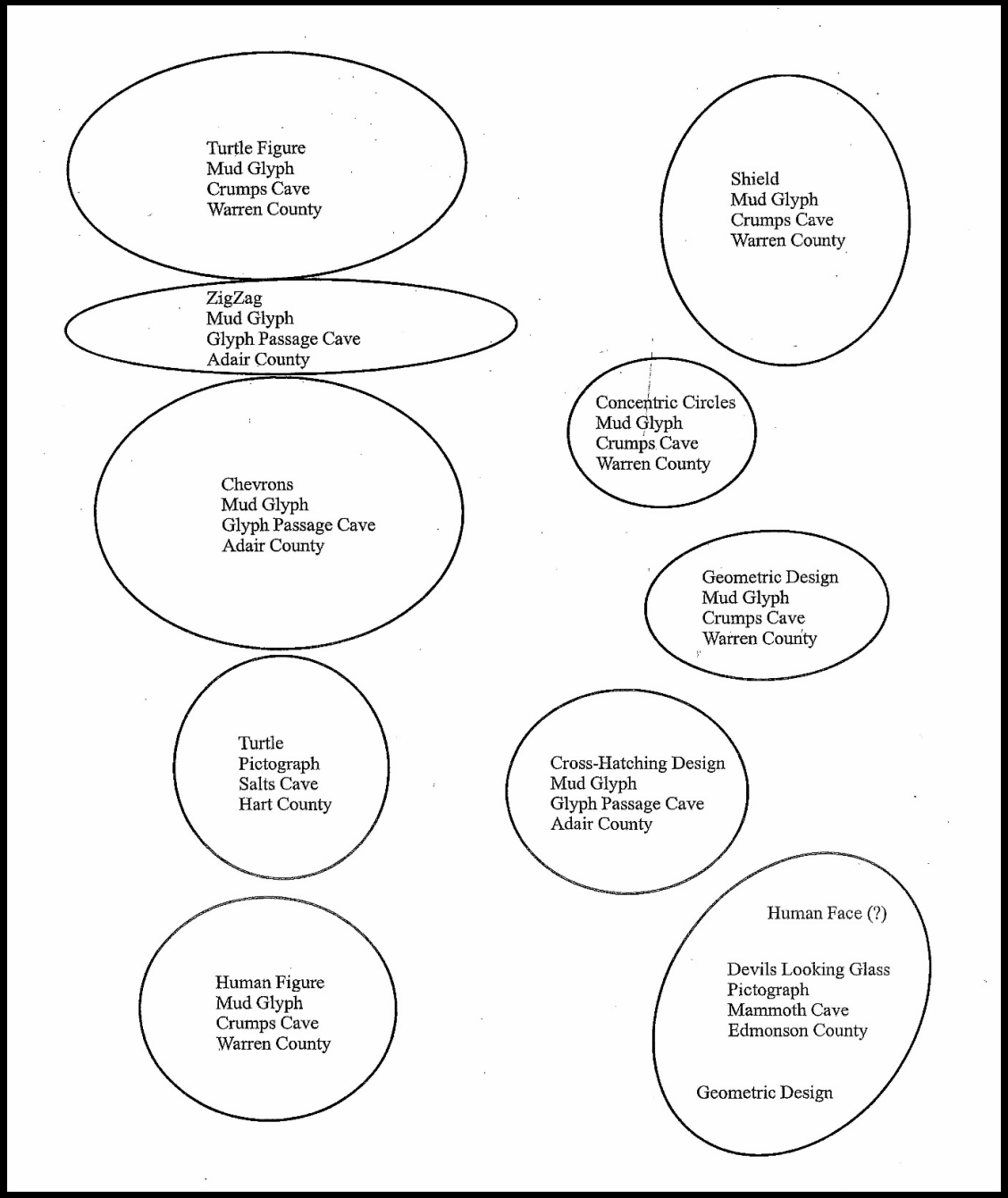












Kentucky Cave Art Symbols

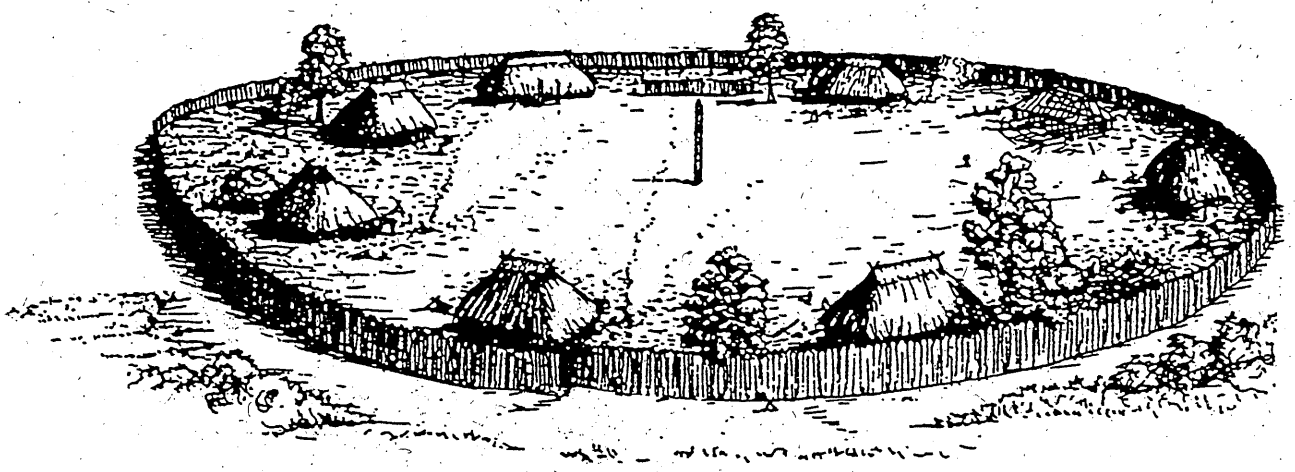
Image
Image Type
Site Name
Kentucky County Location

Close-up photograph of Crumps Cave Glyph 16's central figure and the two adjacent figures.

Vandals carved letters "D" and "B" (only the "B" shows in this picture) into the mud over the figure on the left.

COLUMBIAN KENTUCKY

A hands-on workshop for teachers



Kentucky Historical Society
100 W. Broadway
Frankfort, KY 40601-1931
(502-564-1792)

COLUMBIAN KENTUCKY
UNIT OVERVIEW

This unit includes ten activities for the whole class, small groups, and individual students. Although most of the activities focus on social studies outcomes, arts and humanities themes are explored as well. A whole language dimension can be added by reading excerpts from children's fiction about prehistoric life in Kentucky and the Upper South; in particular, the University Press of Kentucky's book *Kentuckians Before Boone* by A. Gwynn Henderson (Lexington, 1992).

The content pages, resource lists, and some of the following activities in this unit have been excerpted from the Kentucky Historical Society's 1992 collection of resources for teachers entitled *Building a Society: Kentucky Life From Settlement to Statehood,* compiled by Vicky Middleswarth.

Content Pages — Kentucky Prehistory Overview; Native Cultures in Contact

Activity 1 — Kentucky Timeline: Students construct timelines that compare Kentucky prehistory and history with events occurring worldwide.

Read "Picture the Past" in *Kentuckians Before Boone* (p. 1).

Activity 2 — Prehistoric Object Study: Students examine prehistoric objects for clues to the lifestyles of their makers and users.

Read the description of the land, plants, and animals of prehistoric Kentucky in *Kentuckians Before Boone* (p. 2-3).

Activity 3 — Museum Alphabet (Discovering Kentucky's First People): Students infer information about prehistoric life from groups of artifacts on display in museum exhibits.

Read about how the Indians learned to live in the natural world in *Kentuckians Before Boone* (p. 4-6).

Activity 4 — Understanding Indian Houses: Students measure and compare contemporary houses and Native American houses of the Late Prehistoric Period (A.D. 1000-1750).

Read about the houses of a Fort Ancient summer village in *Kentuckians Before Boone* (p. 6-8 or 13-14).

Activity 5 Imagining Prehistoric Clothing: Students brainstorm a list of materials available to prehistoric Kentuckians, then create drawings of the clothing the Indians might have worn and compare it to their own.

Read a description of prehistoric clothing and the way hides were prepared to make it in *Kentuckians Before Boone* (p. 9 and 48-49).

Activity 6 Evaluating Indian Foodways: Students match images and descriptions of prehistoric Kentucky foods and compare them to contemporary counterparts in nutritional terms.

Read about summer and winter foodways in *Kentuckians Before Boone* (p. 10-12 and 46-48).

Activity 7 Kentucky Indian Games: Students play and compare Indian games with their favorite pastimes.

Read about the festivities surrounding trading trips in *Kentuckians Before Boone* (p. 29-33).

Activity 8 Death Rituals in Prehistoric Kentucky: Students listen to a description of a prehistoric funeral and analyze lists of burial goods that reflect the activities and values of prehistoric people in Kentucky.

Read about Masked-Eyes' burial ceremony in *Kentuckians Before Boone* (p. 37-41).

Activity 9 Mapping Native American Stories: Students read and analyze Native American stories and compare their basic elements with stories from other cultures. Then they write their own stories, plays, poems, or songs about prehistoric life in Kentucky.

Read additional excerpts from *Kentuckians Before Boone* or other children's fiction about prehistoric North American life.

Activity 10 Celebrate Prehistoric Kentucky! Share traditional stories and student writings over a feast of hominy stew, squash corncakes, popcorn, and blackberries. Recipes for hominy stew and squash corncakes are provided.

Resource Pages Lists of books for teachers and children; teaching ideas and curriculum guides; museums and loan kits; and artists who make replicas.

CULTURES IN CONTACT
CONTENT OUTLINE: KENTUCKY PREHISTORY OVERVIEW

I. Paleoindian period (10,000-8000 B.C.)

A. Environment: Glaciers extended into northern Boone County, so the region was covered in coniferous forests and had an arctic climate.
B. Indians traveled across land bridge between Siberia and Alaska and arrived in Kentucky from the west.
C. Lived in small, mobile groups composed of close family members.
D. Subsisted by hunting animals such as mammoths, mastodons, and giant beavers, though they made some use of available plant resources.
E. Known archaeologically by large, very well made fluted spearpoints made from non-local chert (known in Europe as flint).

II. Archaic period (8000-1000 B. C.)

A. Many changes occurred during this longest period of Kentucky prehistory.
B. Environment became like Kentucky's today, with deciduous forests and animals of today.
C. Indians lived in small, mobile groups composed of family members and other relatives (group size somewhat larger than Paleo groups).
D. Seasonally inhabited small camps and larger base camps.
E. Subsisted by hunting deer, bear, elk, and other animals; fishing; and collecting freshwater mussels; gathering wild plant foods and nuts.
F. In latter centuries of period, began to cultivate squash and gourds.
G. Known archaeologically by many kinds of chipped stone spearpoints; ground stone tools, such as axes, mortars, and nutting stones; and atlatls, or spearthrowers.
H. In some parts of Kentucky during latter part of period, people engaged in long-distance trade of ritual objects.

III. Woodland period (1000 B.C.-A.D. 900/1000)

A. Indians lived in small to medium-sized groups made up of family members and other relatives.
B. Inhabited small camps, larger base camps, and small villages; some villages were inhabited almost year-round.
C. Subsisted by hunting animals; collecting wild plants and nuts; fishing and collecting freshwater mussels; and by growing plants, such as sunflowers, goosefoot, little barley, squash, and gourds, in small garden plots.
D. During early part of period, people explored deep caves to mine salt and minerals.
E. During middle centuries of the period, people known as Adena and Hopewell built burial mounds for important people; built geometric earthworks for religious and ceremonial purposes; and engaged in long-distance trade of exotic burial items, such as copper, mica, obsidian, and marine shell.
F. During latter part of period, people began to grow corn.

FROM: Building A Society: Kentucky Life from Settlement to Statehood compiled by Vicky Middleswarth (1992). Kentucky Historical Society, Frankfort.

G. Known archaeologically by ceramic vessels and, later in period, by arrowheads, signalling the beginning of the use of the bow and arrow.

IV. Late Prehistoric period (A.D. 900/1000-1700/1750)

A. Mississippian peoples in western Kentucky.
   1. Lived in medium-sized to large groups of related kinfolk.
   2. Inhabited tiny hamlets of a few houses, larger villages, or palisaded towns with many houses, a plaza, and flat-topped earthen temple mounds; lived in villages year-round.
   3. Subsisted by farming corn, beans, squash, tobacco, sunflowers; hunting animals and waterfowl; collecting plants and nuts.
   4. Known archaeologically by finely-made decorated pottery, tiny triangular arrowheads, stone hoes, shell ornaments, and gaming stones.

B. Fort Ancient peoples in central, northern, and eastern Kentucky.
   1. Lived first in small groups of related kinfolk, later in large groups of related kin.
   2. First inhabited small villages; then medium-sized, circular villages with central plazas and low, earthen burial mounds near the village; then large villages in the spring, summer, and early fall, and winter camps in the late fall and winter.
   3. Subsisted by farming corn, beans, squash, sunflowers, tobacco; hunting animals; and collecting plants and nuts.
   4. Known archaeologically by pottery, triangular arrowheads, mussel shell hoes, worked bone tools and ornaments, and shell ornaments.

A. Gwynn Henderson
September 1991

CULTURES IN CONTACT
CONTENT OUTLINE: NATIVE CULTURES IN CONTACT

I. Protohistoric Fort Ancient culture (A.D. 1550-1700)

A. Settlement:
1. Summer villages of 300-500 people living in clusters of houses scattered along major rivers or streams; everyone lived in the village from the spring to early fall.
2. Winter hunting camps of fewer than 30 people located in the mountains or hills with a larger, communally used central structure surrounded by huts; the youngest, the oldest, the sick, and those who cared for them remained in the summer village year-round.

B. Houses:
1. Summer houses long and rectangular with rounded corners; walls made of posts set into the ground and the framework covered with either thatch, bark, mats, or skins; doors located on narrow end.
2. Fire hearth in center.
3. Storage pits lined the inside walls and also were placed outside house.

C. Subsistence activities:
1. Mainly farming corn, beans, squash, sunflowers, and tobacco; used wooden digging sticks and mussel shell hoes; cleared fields with fire.
2. Collected wild plant foods, such as hickory nuts, grapes, sumac, and pokeberry, for food and medicines.
3. Hunted mainly deer, bear, elk, and wild turkey, but also hunted or trapped small mammals, such as squirrel, fox, raccoon, and rabbit; used bows and arrows tipped with triangular, chipped stone points, sharpened antler tips, or fish bones.
4. Fished using nets, weirs, and fishhooks, and collected freshwater mussels.
5. Stored food in baskets or ceramic jars; served food in ceramic or wooden bowls.

D. Social and political organization:
1. Extended families or kin-based groups made up each household.
2. Village was composed of several kin-based groups; during winter, extended family groups composed the winter camp.
3. Leaders determined by strength of character and personal achievements, not by birth; they settled internal disputes, coordinated trade, and negotiated alliances with other villages.

E. Burial patterns:
1. Burial areas in clusters near the village.
2. Buried singly in shallow pits dug into the ground, sometimes covered with limestone slabs.
3. Goods buried with dead included ceramic vessels, stone and bone tools, and ornaments of bone, marine shell, and sometimes pieces of Euroamerican trade

goods.
4. Evidence of graveside ritual involving corn and beans, breaking ceramic vessels, and removal of selected bones after flesh decayed.
5. Some examples of multiple (2-30 individuals) or mass (over 100 individuals) graves.

F. Trade:
1. Acquired marine shell ornaments from groups to the south either by traveling to southern towns or by reciprocal trade through groups living in between.
2. These were the same trade routes through which non-native Euroamerican goods moved.
3. Unclear what they traded in return—perhaps salt.
4. Probably controlled in some manner by the village leaders; integrated into culture, tied up with social obligations between villages and kin-groups within villages.

G. Ethnic identity:
1. Unknown; difficult or impossible to ascertain correlation between archaeologically documented prehistoric cultures and historically documented cultures.
2. Possibly the ancestors of the Shawnee, Miami, or other midwestern groups who were living in the area when the Euroamericans arrived.
3. Possibly the ancestors of little-known groups, such as the Mosopelea, or groups who were completely destroyed by the infectious diseases that followed the Euroamerican arrival.

H. Contact with Europeans:
1. First contact was indirect or of very short duration if face-to-face.
2. Contact was with explorers.
3. Ornaments of non-native materials (metal trinkets) placed in burials along with shell and bone ornaments, ceramics, and stone objects of native manufacture.
4. Multiple/mass graves point to the introduction of diseases to which natives had no natural immunity.
5. Pandemics of smallpox, measles, and influenza decimated or completely wiped out whole groups.
6. Loss of elders meant loss of important cultural knowledge and heritage.
7. Survivors banded together, moving out of the region or dispersing across the region in much reduced numbers.

II. Historic Indian culture (A. D. 1700-1760)

A. Settlement:
1. Much the same as before, with summer villages and winter hunting camps; with the decrease in population, there may not have been as many villages.
2. Very large villages, containing upwards of 1,200 people of many different tribal affiliations.

4. Individuals now could trade for themselves; trade not integrated into Indian culture.
5. Increasing dependency on Euroamerican trade.

G. Ethnic identity: Shawnee, Mingo (the Seneca group of Iroquois), Cherokee, Tutelo.

H. Contact with Europeans:
1. By mid-1700s, a wide variety of Euroamerican manufactured goods appeared in large quantities in Indian villages (glass trade beads, iron pots, knives, scissors, keys, guns, ceramic smoking pipes, and silver earrings).
2. Maps depict locations of Indian villages and Euroamerican trading houses.
3. Traders' and explorers' journals and letters describe Indian life and events on the new frontier.
4. Few settlers had arrived, so most contact was with traders.
5. Contact was direct and continuous, revolving around trading in a friendly atmosphere.
6. At the end of the period, with the fall of Fort Duquesne in November 1758, most native groups probably no longer maintained large villages in Kentucky, only small winter hunting camps.

III. Historic Indian culture (A.D. 1760-1795)

A. Settlement:
1. Possibly still summer villages/winter hunting camps, but villages now located north of the Ohio River, which had been designated by the English as the boundary between Indian and English settlement.
2. Probably only winter hunting camps in Kentucky.

B. Ethnic identity: Shawnee, Mingo (the Seneca group of Iroquois), Delaware, and Wyandot (Huron from Canada).

C. Contact with Europeans:
1. No longer friendly; instead hostile, direct, and violent.
2. Small multi-tribal groups of men conducted raiding/war parties into Kentucky.
3. Raiding/war party attacks in 1770s and 1780s were particularly violent.

IV. Effects of contact on native populations

A. Things that changed:
1. Due to effects of foreign diseases brought to Kentucky by the Europeans, thousands of Indians, who possessed no natural immunity, died; as older people died, centuries of cultural memory was lost; some peoples completely disappeared.
2. Villages became larger and multi-tribal.
3. Tools and ornaments were no longer made of shell and bone.
4. Metal pots replaced ceramics for certain chores (i.e., making salt).
5. Native trade routes disrupted and finally destroyed; context and function of trade changed.

B. Houses:
   1. Some probably still constructed as they had been in the past.
   2. Others were log cabins, constructed like the settlers', covered in clapboard with chimneys.

C. Subsistence activities:
   1. Probably much the same as before, though some animals and plants may have been harder to find or became extinct later due to Euroamerican settlement and clearing of land.
   2. Some incorporation of Euroamerican foods and techniques of preparation probably occurred.
   3. Use of some Euroamerican goods, such as iron pots, axes, and firearms incorporated into subsistence activities, but use of native-made objects and bow and arrow continued.

D. Social and political organization:
   1. Undoubtedly changed, though unclear exactly how.
   2. Extended families or kin-based groups probably still made up each household, and each village probably was still composed of several kin-based groups; during the winter, extended family groups probably still lived in winter camps.
   3. Development of multi-tribal villages probably altered social/political organization; inter-tribal marriage and adoption may have increased.
   4. Construction of log homes suggests new emphasis on the nuclear family.
   5. Leadership probably still determined by strength of character and personal achievements, not by birth; leaders would have had the most constant and intensive contact with Euroamericans.
   6. Factions developed within groups in response to positions on dealing with the Euroamericans; some were split between conservative/traditional faction and more liberal faction groups.

E. Burial patterns:
   1. Buried in the village near the house in clusters of two or three.
   2. Buried in shallow pits dug into the ground; burial structures, such as low wooden lean-tos, covered the graves.
   3. Grave goods buried with the dead included ceramic vessels, stone and bone tools, and some ornaments made from pieces of Euroamerican trade goods or glass trade beads in limited quantities.
   4. No longer placed marine shell or bone ornaments in graves.

F. Trade:
   1. Trade in marine shell with native peoples replaced by trade in Euroamerican goods (deerskins for metal pots, guns, gunpowder, knives, axes, ribbons, clothing, silver ornaments, mirrors, and alcohol) with Euroamerican traders.
   2. Many items now more utilitarian in nature and not associated with ritual.
   3. Items available directly from traders at trading houses located along the Ohio or from those who traveled to the region.

6. Acceptance of the gun.
7. Acceptance of many other items of European manufacture into natives' lives, such as glass trade beads, clothing made from cloth, metal jewelry, possibly certain European foodstuffs, and liquor.

B. Things that persisted:
1. Basic way of living (farming, hunting, collecting wild plants and nuts, fishing).
2. Manufacture and use of ceramic pots.
3. Manufacture and use of arrowheads and the bow and arrow.
4. Shape of houses.
5. Method of burying the dead, including mainly native-made objects in graves.

A. Gwynn Henderson
September 1991

COLUMBIAN KENTUCKY
CLASSROOM ACTIVITY PLAN

TITLE: Kentucky Timeline

SUMMARY: Students construct timelines that compare Kentucky prehistory with events occurring worldwide.

CONCEPTS & SKILLS: Basic skills: Accessing sources of information; Visual arts
Social studies: Historical perspective; Cultural diversity

MATERIALS:
Timeline illustration
Length of rope at least 15 feet
Clothespins
3 x 5-inch index cards
Colored tape
Paper plates
Sources of pictures of historical figures and events
Hole punch
Paper clips

PROCEDURE:

1) **Ask students to guess when the first people came to Kentucky.** After establishing that the first "Kentuckians" were Paleo Indians that hunted big game as long ago as 10,000 years, challenge students to name some things that were happening in other parts of the world at the same time. List responses on the board.

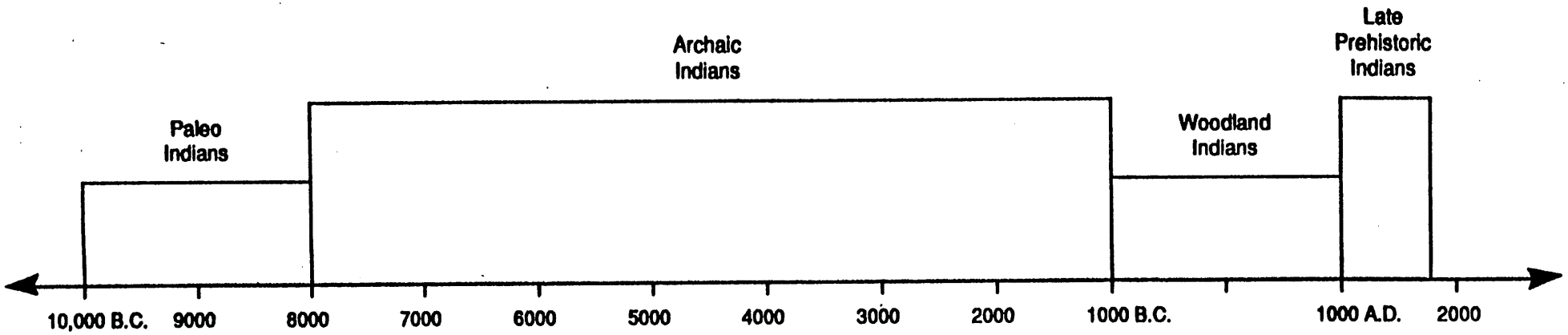
2) **Brainstorm additional events for the list.** Then ask students to select an event or famous person to research. The goals are to find out when the event happened, to choose an image to represent it, and to draw the image on a paper plate.

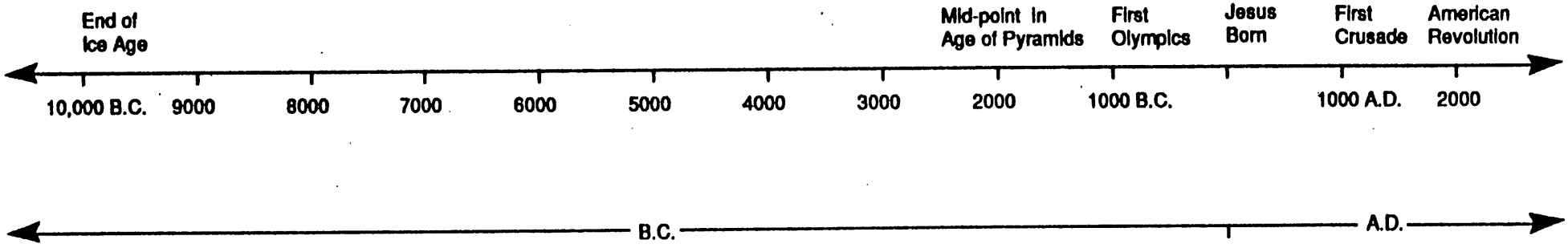
3) **Prepare the timeline** while the students work on their history disks. Stretch the rope across the room or a wall. Mark 1000-year intervals by clipping numbered index cards to the line with the clothespins every ten or twenty inches, depending on the length of the rope. Mark 100-year intervals with colored tape every one to two inches. Make disks to represent the Paleo Indians (10,000-8000 B.C.), the Archaic Indians (8000-1000 B.C.), the Woodland Indians (1000 B.C.-A.D. 1000), the late Prehistoric Indians (A.D. 1000-1750), and any other dates you want to add. Use the hole punch and paper clips to make hangers.

4) **Begin the discussion by explaining what a timeline is and identifying the year 1994** on the line. Then ask students to volunteer to add their disks to the line.

5) **When everyone's disk is in place, add those that you have made,** saving the Indian disks until last.

NATIVE AMERICANS IN KENTUCKY
TWO TIMELINES





COLUMBIAN KENTUCKY
CLASSROOM ACTIVITY PLAN

TITLE: Prehistoric Object Study

SUMMARY: Students examine prehistoric objects for clues to the lifestyles of their makers and users.

CONCEPTS & SKILLS: Basic skills: Observing; Writing
Social studies: Geography; Historical perspective; Cultural diversity

OBJECTIVES:
1) Identify everyday objects used by prehistoric Kentuckians.
2) Infer aspects of prehistoric lifeways reflected by the objects.

MATERIALS:
Projectile point
Prehistoric object cards

PROCEDURE:

1) **Make prehistoric object cards before class.** List the questions on the card on one side of the board.

2) **Show the projectile point to the class,** making sure that each student gets a close look. Then ask the questions on the board and record student responses.

3) **Divide students into groups and distribute object cards.** Instruct groups to answer as many questions as they can.

4) **Ask groups to report their observations to the class,** recording data on the board beside the questions. Compare the information recorded about each object. List any questions raised by differing opinions and plan to research the answers in the library or museum.

VARIATIONS:

1) To simplify the activity for slower learners, select five or six images, project them using an overhead projector, and discuss questions as a class.

2) Substitute real objects for the pictures by borrowing a kit from a nearby archeology museum, ordering replicas, or taking the cards to a museum to use.

RESOURCES:

The Kentucky Heritage Council's poster and booklet "Kentucky Before Boone" pictures and describes a variety of prehistoric objects and their uses. To obtain a free copy, contact the Council at (502) 564-7005. For sources of loan kits and replicas, see the resource list "Native Americans in Kentucky."

COLUMBIAN KENTUCKY
HOW-TO-DO-IT PLAN

ACTIVITY: Prehistoric object cards

MATERIALS: Prehistoric object images
5 x 8-inch plain index cards
Glue stick

EQUIPMENT: Copying machine with enlarging feature
Typewriter with memory function
Scissors

INSTRUCTIONS:

1) Enlarge object pictures 150% and cut out.

2) Using the typewriter's storage feature, print the following questions on the bottom half of enough 5 x 8-inch index cards for your students.

WHAT IS THIS OBJECT?_____

HOW WAS IT MADE?_____

_____

WHO USED IT?_____

WHEN AND WHERE DID THEY USE IT?_____

_____

WHY DID THEY USE IT?_____

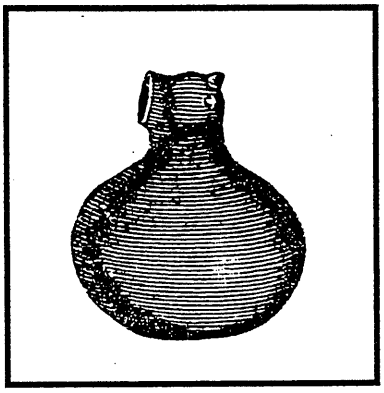
_____

WHAT DOES THIS OBJECT TELL US ABOUT THE PEOPLE WHO MADE AND USED IT?_____

_____

3) Glue an object picture to each card.

COLUMBIAN KENTUCKY
PREHISTORIC OBJECT IMAGES



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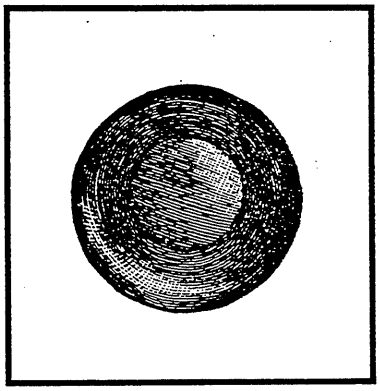

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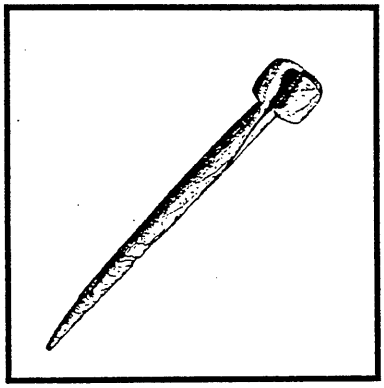

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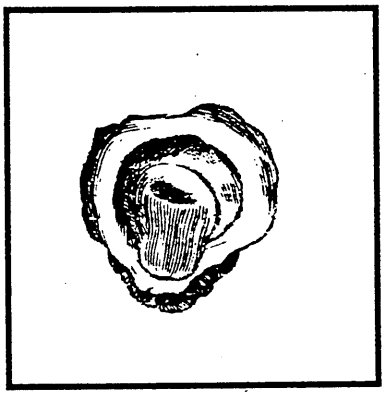

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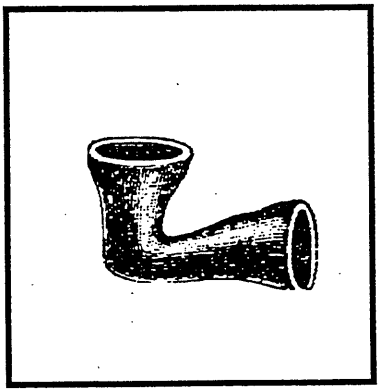

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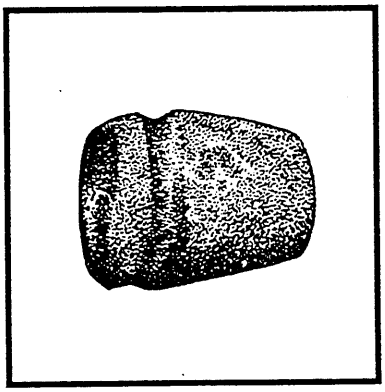

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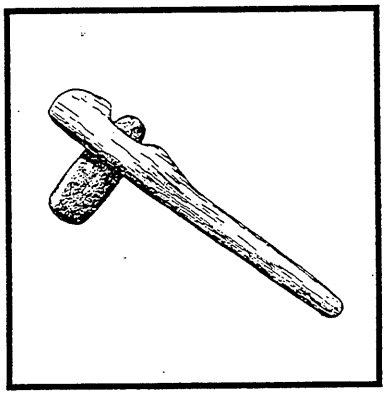

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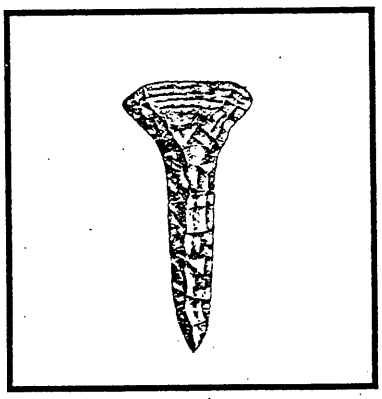

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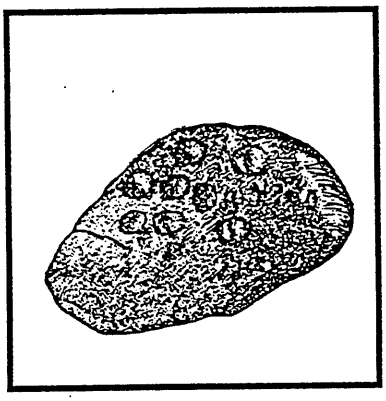

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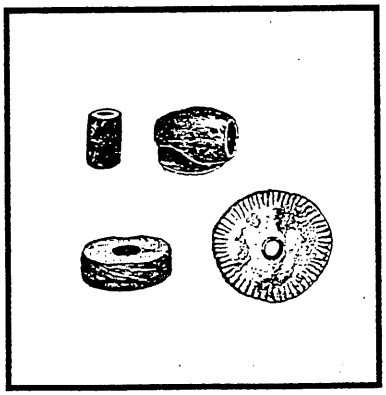

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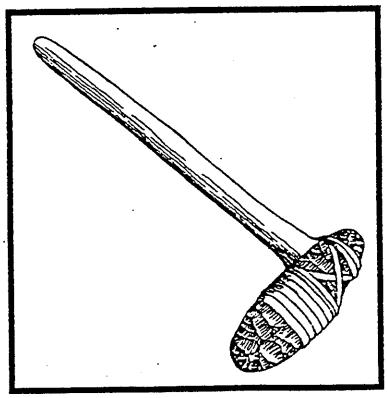
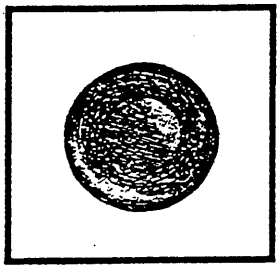


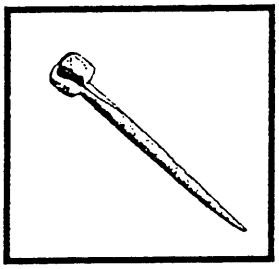
12

COLUMBIAN KENTUCKY
PREHISTORIC OBJECT DESCRIPTIONS

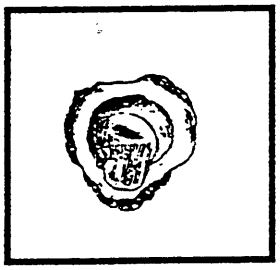
1) Mississippian Indians made **hooded bottles** of clay to hold water, oil, and other liquids. Whether or not the animal-shaped hoods had special meanings is unknown.



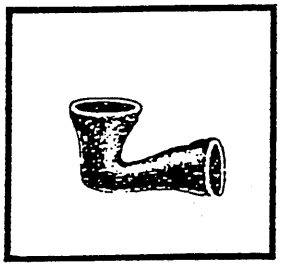
2) Stone **gamestones**, or discoidals, were used in a popular game called Chunkge. On teams of two or three men or boys, one rolled the stone and the other two threw spears at the place on the ground where they thought the stone would land.



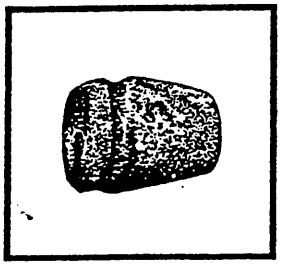
3) The Indians made bone objects as early as the Archaic Period (7,000-1,000 B.C.) Possibly worn by a man or woman, this bone **hairpin** suggests that prehistoric people cared about their appearance.



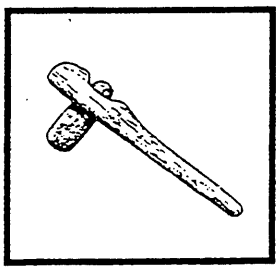
4) Archaic Indians probably began using **shell dippers** when they began collecting freshwater mussels to eat. Made and used primarily by women, dippers served as ladles for food.



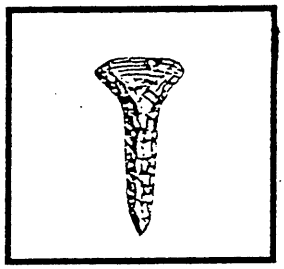
5) Used by men and women at all levels of society, **stone pipes** served recreational and ritualistic functions. To make a pipe, the Indians ground the basic form from granite on a sandstone slab and fashioned the hole with sand and a stick.



6) **Stone axes** date to the Archaic Period. Men made them by grinding granite or other rock on a sandstone slab and socketing or lashing the head to a wooden handle. Axes were used for everyday chores, such as cutting down trees, splitting bark for houses, or hollowing out canoes.



7) **Celts** first appeared in the Woodland Period (1,000 B.C.-A.D.1,000). An important technological development, these ungrooved axes fit tightly into their wooden handles but slipped out easily for sharpening.

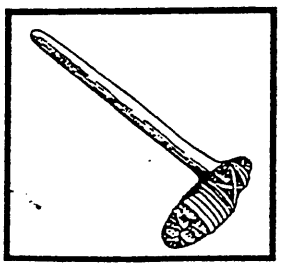


8) **Drills** were used to punch holes in wood, bone, or shell to make tools and decorative items. Chipped from stone, drills were common tools used by men and women.

9) Protein-rich nuts gathered in the forest were an important food in prehistoric Kentucky. After shelling and grinding the nuts on a stone like this one, Indian women could mix them into breads or stews or boil them in water until the oil floated to the surface.

10) Personal adornment was common among Indians of all ages, at all levels of society. **Beads** of animal bones or teeth and mussel shell made ornaments accessible to everyone.

11) **Ceramic vessels** date to the Late Woodland Period (beginning around 1,000 B.C.) Shaped by hand from clay mixed with crushed shell or rock, pots were fired in the open air. Women made and used pots to store, cook, and serve food.



12) Prehistoric Kentuckians began to tend vegetable gardens in the Woodland Period. Women used hoes made of stone or shell and lashed to wooden handles to turn the soil.

COLUMBIAN KENTUCKY
MUSEUM ACTIVITY PLAN

TITLE: Museum Alphabet

SUMMARY: Students create an alphabet broadside featuring words from the museum.

CONCEPTS & SKILLS:
Basic skills: Observing; Writing
Social studies: Historical perspective

MATERIALS:
Eighteenth-century pictorial alphabet broadside (attached)
Clipboards
Blank grids
Pencils

PROCEDURE:

1) **Before the trip, make a transparency of the eighteenth-century alphabet** and project it in front of the class. Identify each image and write the words on the board.

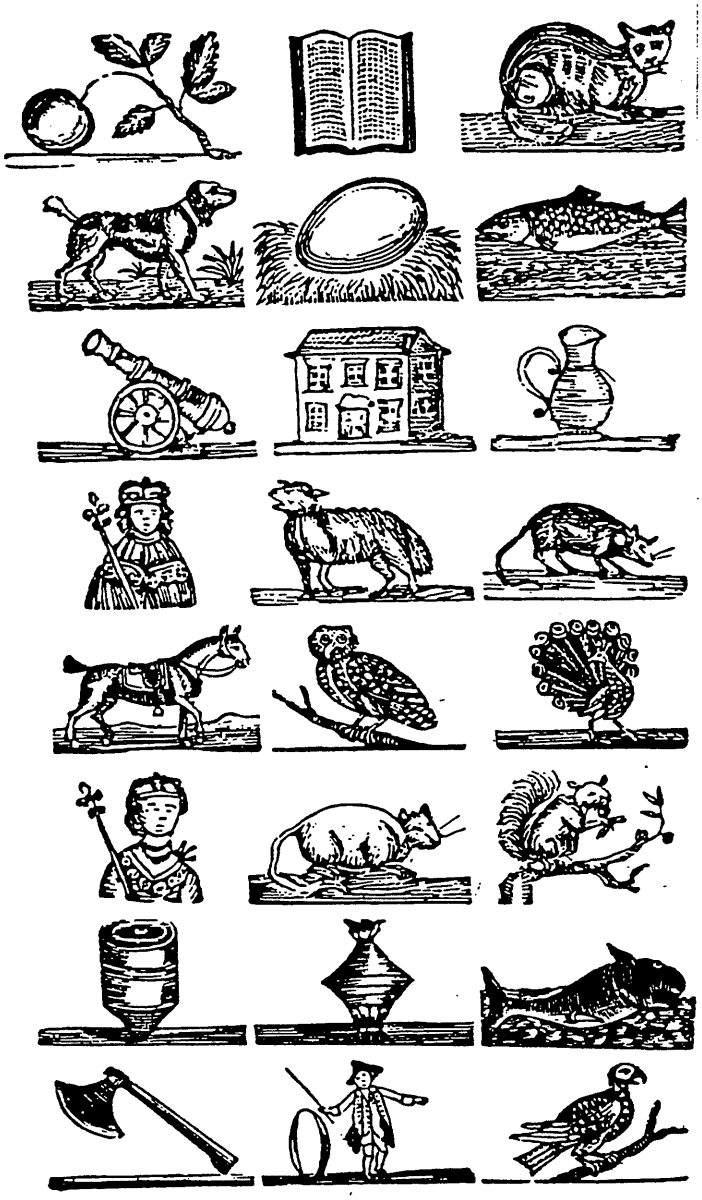
2) **Just before the trip, divide the class into groups or pairs.** Give each group a clipboard, a blank grid, and a pencil. Ask groups to appoint a writer and an artist, then challenge the class to find things at the museum beginning with each letter of the alphabet. Artists are responsible for sketching the objects. Writers create a sentence or two describing them.

3) **When you return from the trip, use the broadsides as a basis for a writing assignment that *informs* the reader about the historical era represented by the museum.**

VARIATIONS:

1) To simplify the activity, divide up the alphabet and assign a few letters to each group. Create a composite broadside back in the classroom.

2) To add a level of difficulty, challenge student groups to create alphabet booklets with a page for each letter. Loan the finished booklets to another class to introduce them to the period represented by the museum.



Adapted from 1800 Woodcuts by Thomas Bewick and His School *(New York: Dover Publications, 1962). The pictures represent an apple, a book or Bible, a cat, a dog, an egg, a fish, a gun, a house, a jar or jug, a king, a lamb, a mouse, a nag, an owl, a peacock, a queen, a rat, a squirrel, a top, an urn, a whale, an ax, a youth, and a zebra. There are no pictures for the letters "i" and "v."*

COLUMBIAN KENTUCKY
COOPERATIVE LEARNING PLAN

TITLE: Understanding Indian Houses

SUMMARY: Students compare Native American and contemporary houses.

CONCEPTS & SKILLS:
Basic skills: Measuring; Computing; Visualizing
Social studies: Cultural diversity; Geography; Historical perspective

MATERIALS FOR EACH GROUP:
Calculator
Measuring tape
String, rope, or yarn
Scissors
House descriptions from *Kentuckians Before Boone* (pp. 6-8 or 13-14)
Blank paper
Pencil

TEACHER INSTRUCTIONS:

1) **Assemble a box of materials for each group.**

2) **Review the meaning of the terms "length," "width," "area," and "square feet/meters"** and demonstrate how to transfer measurements to the ground using the measuring tape and string.

3) **Divide the class into groups** and provide each with a box of equipment and the instructions below. Circulate among the groups as they work to make sure they understand the activity.

4) **Optional assessment activity:** Design a house that combines the best qualities of prehistoric and modern homes. Write an ad for the newspaper convincing readers to consider buying it.

STUDENT INSTRUCTIONS:

1) Appoint a reader, a calculator, a measurer, and a writer.

2) Select one line of measurements form the chart below and read it aloud.

3) Calculate the area (square meters) in the house.

4) Use the measuring tape and string to measure and mark on the ground the length and width of the house.

5) Sit down in the house and read about Indian houses in *Kentuckians Before Boone*.

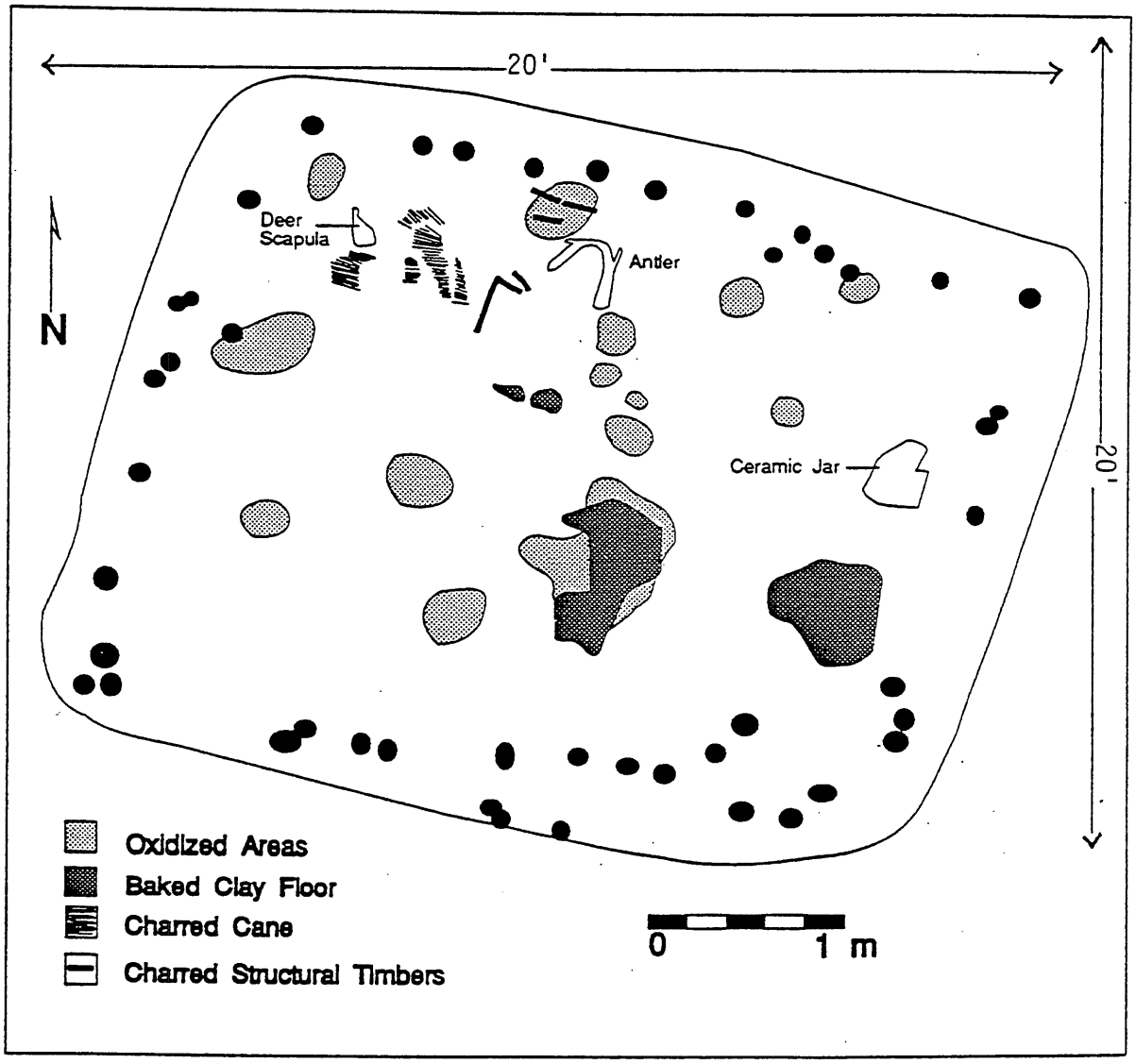
6) Make a matrix or circle diagram that shows how Indian and modern houses compare in terms of size, shape, building materials, ease of construction, and comfort. Copy the matrix into your journal.

RESOURCES:

The figures below are taken from *Indian Occupation and Use in Northern and Eastern Kentucky During the Contact Period (1540-1795): An Initial Investigation* by A. Gwynn Henderson, Cynthia E. Jobe, and Christopher A. Turnbow (Lexington: University of Kentucky, 1986. Gwynn Henderson's book about an imaginary Kentucky family living around 1500, *Kentuckians Before Boone* (Lexington, 1992), is available from the University Press of Kentucky.

Site	County	Type of structure	Length	Width
Hardin	Greenup	Summer house	17.4 m	8.4m
Hardin	Greenup	Summer house	20.2m	8.2m
Hardin	Greenup	Summer house	9.0m	9.0m
Goolman	Clark	Winter house	5.0m	4.0m
Bentley	Greenup	Summer house	15.2m	10.6
Middles	Fayette	1990s apartment	14.7m	7.1m

COLUMBIAN KENTUCKY
SOURCE: ARCHAEOLOGIST'S DIAGRAM OF PREHISTORIC HOUSE



Courtesy of Kentucky Heritage Council (300 Washington Street, Frankfort, KY 40601).

COLUMBIAN KENTUCKY
COOPERATIVE LEARNING PLAN

TITLE: Imagining Prehistoric Clothing

SUMMARY: Students list materials available to prehistoric Kentuckians, then draw the clothing the Indians might have worn and compare it to their own.

CONCEPTS & SKILLS:
Basic skills: Visualizing; Visual arts
Social studies: Geography; Cultural diversity; Historical perspective

MATERIALS: FOR EACH GROUP:
Prehistoric clothing worksheet
Crayons or colored markers or pencils
Images of sixteenth-century Americans
Clothing excerpts from *Kentuckians Before Boone* (pp. 9 and 48-49)
Manilla folder
Gummed circles
Pencils

TEACHER INSTRUCTIONS:

1) **Make boxes of equipment for each group** by photocopying worksheets, prehistoric clothing images, and *Kentuckians Before Boone* excerpts. Staple the 16th century images and the excerpts inside the folders and seal with gummed circles.

2) **Divide the class into groups** and provide each with a box of equipment and the instructions below. Circulate among the groups as they work to make sure they understand the activity.

3) **Optional assessment activity:** Design a piece of clothing or jewelry made of materials available in prehistoric Kentucky.

STUDENT INSTRUCTIONS:

1) Appoint a reader, a writer, and an artist.

2) Read and complete the worksheet.

3) Use the crayons to make your drawing.

4) To check your work, open the folder, look at the pictures, and read the descriptions from *Kentuckians Before Boone.*

5) Make a circle diagram to show the differences and similarities between prehistoric and modern clothing. Copy it into your journal.

RESOURCES:

For addition pictures of early Native Americans, see *The Indians of the Southeastern United States* by John Swanton (Washington, D.C.:

Smithsonian Institution, 1979) or *A Pictorial History of the American Indian* by Oliver LaFarge (New York: Crown, 1974).

COLUMBIAN KENTUCKY
SOURCE: IMAGES OF SIXTEENTH-CENTURY INDIANS

Indian woman of Secoton

Indian Woman of "Aquascogoc"

Indian in body paint

Old Indian man

Drawings from America 1585: The Complete Drawings of John White *by Paul Hulton (Chapel Hill: University of North Carolina Press, 1984). White was the official artist of Sir Walter Raleigh's 1585 expedition to Roanoke Island. His watercolors of plants, animals, and people of the New World, printed in black and white by Theodor de Bry in 1590, are the earliest surviving pictorial record of North American life at the time of contact. White probably created the drawings above during the summer months.*

COLUMBIAN KENTUCKY
PREHISTORIC CLOTHING WORKSHEET

Make a list of everything one of your group members is wearing today. Beside each item, write what it is made of and where you got it.

Clothing:	Made of:	Got at:

Now make a list of the materials available to prehistoric Kentuckians, from nature or through trade.

Material	Got at:

On the back of the page, use the crayons to draw a picture of the way you think a prehistoric Kentucky person might have dressed using the materials you have listed above.

COLUMBIAN KENTUCKY
COOPERATIVE LEARNING PLAN

TITLE: Evaluating Indian Foodways

SUMMARY: Students match images and descriptions of prehistoric Kentucky foods and compare them to contemporary counterparts in nutritional terms.

CONCEPTS & SKILLS:
Basic skills: Reading; Observing; Writing; Visual arts
Social studies: Geography; Cultural diverstiy; Historical perspective
Practical living: Physical wellness

MATERIALS:
Prehistoric food images and answers
3 x 5-inch index cards
Scissors
Glue stick
Crayons or colored markers or pencils
Posterboard
Yardstick
Felt-tipped marker

TEACHER INSTRUCTIONS:

1) **Make a set of prehistoric food cards for each group.** Xerox a copy of the images and answers. Cut and glue the sets to index cards. Use the crayons, markers, or pencils to make colored dots on the backs of each set, with a different color for each set.

2) **Make a nutrition sorting board for each group.** Cut a strip of posterboard, 30 x 6 inches. Divide into five 6 x 6-inch boxes and write the names of the food groups in the boxes: PROTEIN, FRUITS AND VEGETABLES, GRAINS, DAIRY, and MISCELLANEOUS.

3) **Make a box of equipment for each group,** containing a set of cards, a nutrition sorting board, blank index cards, crayons or colored pencils or markers, and pencils.

4) **Divide the class into groups** and give each group a box of equipment and the instructions below. Circulate among groups as they work to make sure they understand the activity.

5) **Optional assessment activity:** Create a menu for the Prehistoric Cafe, including dishes and short, convincing descriptions of their tastiness.

STUDENT INSTRUCTIONS:

1) Match the pictures with the answer cards to see what prehistoric Kentuckians ate.

2) Check your answers by turning over the cards and seeing if the dots match.

3) Make a set of cards that illustrates your diet for one day.

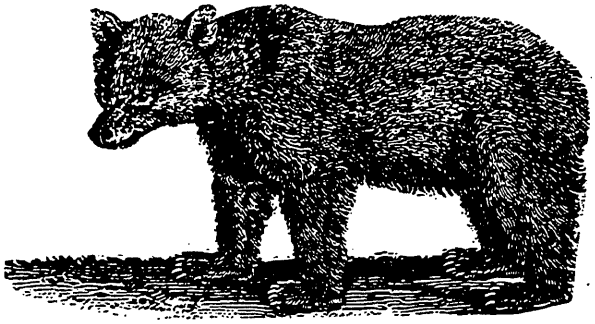
4) Sort both sets of cards on the nutrition chart.

5) Which diet is better? Why? Make notes about your decision in your journal.

RESOURCES:

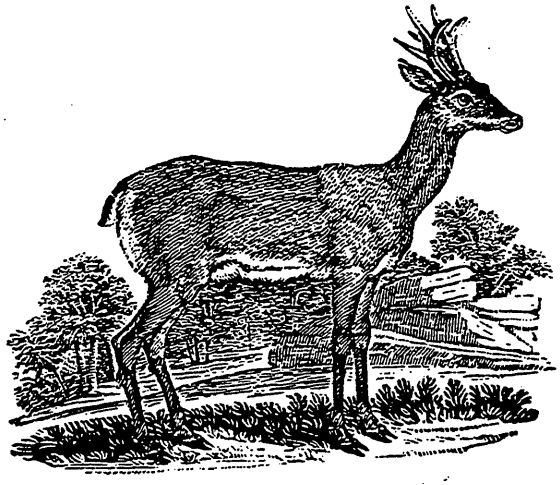
The images that follow are from *1800 Woodcuts by Thomas Bewick and His School* (New York: Dover Publications, 1962; *Food and Drink: A Pictorial Archive from Nineteenth-Century Sources* (New York: Dover Publications, 1976); and *Indian Harvests* by William Grimm (New York: McGraw-Hill, 1973). Additional information about prehistoric foodways in Kentucky can be found in the poster "Kentucky Before Boone" (Frankfort: Kentucky Heritage Council, 1991) and Gwynn Henderson's *Kentuckians Before Boone* (Lexington: University Press of Kentucky, 1992).

COLUMBIAN KENTUCKY
SOURCE: NATIVE AMERICAN FOOD IMAGES



BEAR

Native Americans found many uses for the **bears** they hunted. Fresh meat was roasted or boiled. Fat was boiled to make oil. Skins could be used for winter clothing or sleeping mats. Teeth and claws were used to decorate clothing and make jewelry.



DEER

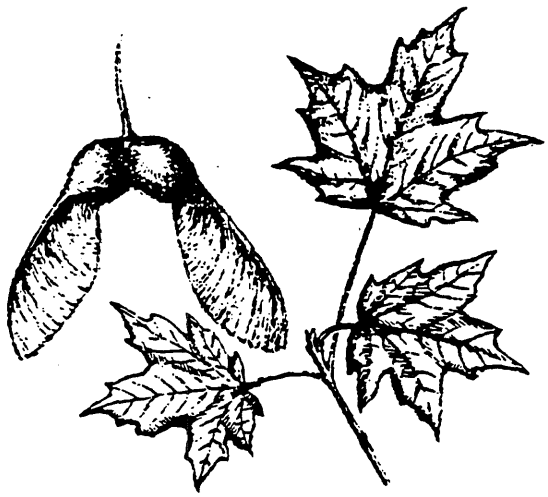
The Indians used all parts of the **deer** they hunted. They roasted and ate the fresh meat, or venison, and dried strips of it by the fire to make jerky for winter. They tanned the hides to make soft deerskin clothing. Antlers and bones could be cut up for tools, beads, or game pieces. Hooves were boiled for glue.

GRAPES

Muscadine **grapes**, which grow wild in the southeastern United States, have a tough skin and sweet taste. Native Americans cooked grapes with dumplings to make a sweet dessert and dried them for use in pemmican and other foods eaten during the winter.

HICKORY NUTS

Native Americans living in the eastern half of the United States found several uses for **hickory nuts**. When crushed and boiled in water, the nuts released oil, which floated to the surface of the water. The Indians saved the oil for cooking and mashed the nut meats to make porridge or cakes to dry for the winter. Nuts of all kinds were staples in the Native American diet.



MAPLE TREES

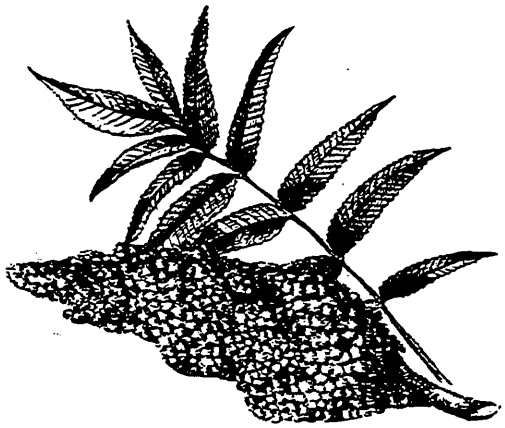
Maple trees supplied Native Americans with wood for tools and sap for making sugar. To gather the sap, the Indians cut gashes in the tree's trunk and inserted a spout made of wood or a reed. A wooden trough was used to collect the sap. To make sugar, the Natives boiled the sap so it would thicken and harden as it cooled.

MUSSELS

The Indians gathered **mussels** from the streams and rivers for food and tools. The soft meat inside the shell made a tasty meal. The empty shells could be converted to hoes, spoons, or jewelry.

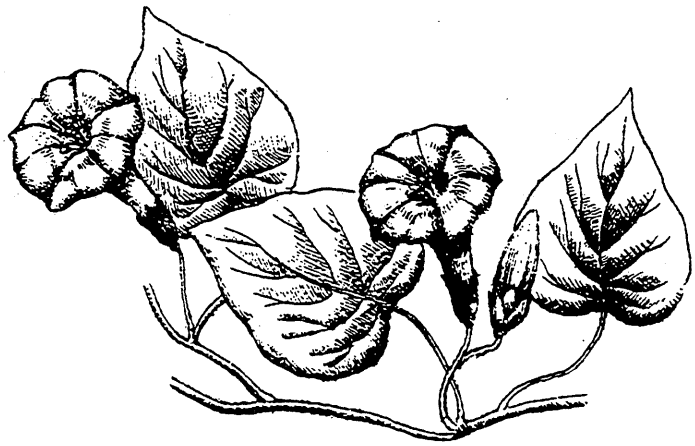
PERSIMMONS

Persimmons grow in the southeastern United States and ripen in the fall. They are soft and sweet unless they are picked too early, when they are very sour. The Indians dried persimmons to use in bread and pudding during the winter.



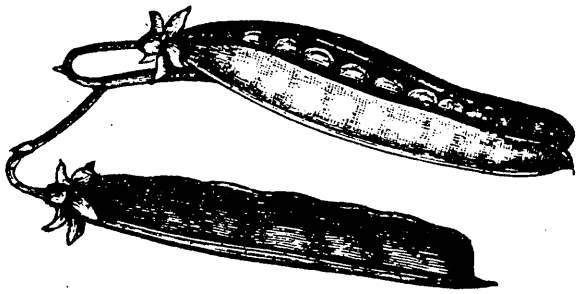
SUMAC

Native Americans used **sumac,** a member of the cashew family, to make a tart drink known as "Indian lemonade." After gathering the red fruit, they soaked or boiled it in water until the liquid turned red. Sumac drinks were an excellent source of vitamin C.



WILD POTATOES

Wild potato vines look like morning glories, but they are really more like sweet potatoes. The Indians dug in the ground beneath the vines and harvested the large roots to roast over the fire.

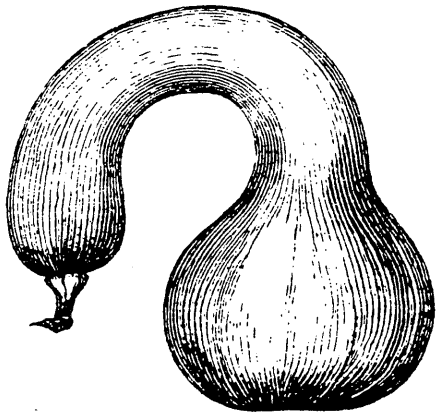


BEANS

Fort Ancient people grew **beans** in their gardens during the Late Prehistoric Period. High in protein, beans could be mixed with corn and squash to make a tasty stew. Dried beans could be stored and cooked through the winter.

CORN

Kentucky's native people began to grow **corn** late in the Woodland Period, about A.D. 700 or 800. Corn could be dried on the cob, then ground into meal for thickening stews and making breads. Parched corn, made by scraping the kernels off the cob and drying them by the fire, served as trail food for hunters and travelers.



SQUASH

People living in Kentucky began to cultivate **squash** in the late Archaic Period. Fresh squash could be cooked, mashed, and mixed with cornmeal to make into cakes or cut up and cooked with beans and corn as a stew. To preserve squash for the winter, native women cut it into slices and strung the slices to hang by the fire to dry.

COLUMBIAN KENTUCKY
COOPERATIVE LEARNING PLAN

TITLE: Kentucky Indian Games

SUMMARY: Students learn games played by Native Americans in Kentucky and compare them to contemporary favorites.

CONCEPTS & SKILLS:
Basic skills: Reading; Movement
Social studies: Cultural diversity; Historical perspective
Practical living: Psychomotor; Lifetime physical activity

MATERIALS:
2 plain beanbags
Brown felt
Fabric glue
Replica gamestone (or canning jar lid)
Brown paper
Felt-tipped marker
Walnuts
Bakeable craft clay in neutral color
Paring knife
Game instructions
Clear contact paper
Game matrix worksheet

TEACHER INSTRUCTIONS:

1) **Plan to make enough copies of the games** for each group of 4-5 students to work with one at a time. You will probably need two of each.

2) **To make the chunkey game,** cut four arrow shapes out of felt. Glue one to either side of the beanbags. Put the beanbags and gamestone in a box.

3) **To make the rolling game,** cut fourteen 8-inch circles out of brown paper. Number the circles as shown in the directions. Put the circles and the walnuts in a box.

4) **To make the horn dice,** roll a cylinder of craft clay about 3/4-inch in diameter and 3 inches long. Cut the cylinder into six disks and bake according to manufacturer's intructions. One one side of one disk, draw one black dot. On the second disk, draw two, continuing through six. Put the horn dice in a box.

5) **Laminate game instructions** in clear contact paper and add to boxes.

6) **Divide the class into groups** and give each a copy of the game matrix worksheet and the instructions below. Circulate among the groups as they work to make sure they understand the activity.

7) **Optional assessment activity:** Plan a Kentucky Olympics that includes a variety of games from the past and present. Write a press release convincing people to attend.

STUDENT INSTRUCTIONS:

1) Appoint a reader, a writer, and an equipment handler.

2) Decide as a group on a game you all enjoy. Fill in one column on the worksheet with information about your game.

3) Using one game box at a time, learn to play three games prehistoric Kentucky people played. Then fill in the other columns on the worksheet with information about the Indian games.

4) Make a circle diagram that shows how the games are different and what they have in common.

RESOURCES:

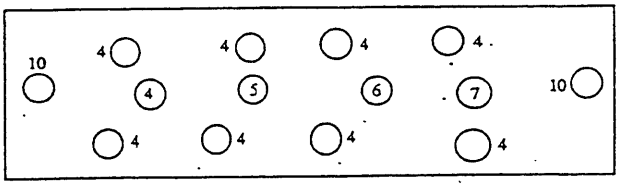
The rolling and dice games were described by Tecumseh's brother, The Prophet, in an interview with anthropologist C. C. Trowbridge in 1824. The instructions for playing chunkey came from *Prehistoric Implements* by Warren Moorehead (Cincinnati, 1900; New York: Arno, 1968).

The Rolling Game

Equipment: Numbered paper circles
8 walnuts

Number of players: 2 teams of 2, 3, or 4 players each

Directions: 1) Put the circles on the floor in this pattern:



2) One team takes 4 walnuts and goes to one end of the playing area.

3) The other team takes 4 nuts and goes to the other end.

4) Teams take turns rolling nuts into circles.

5) When there are no nuts left, teams add up scores and switch places.

6) The winner is the first team to reach 60.

More information: The Indians dug holes in the ground to play this game.

Chunkey

Equipment: 2 spear beanbags
Gamestone

Number of players: 3

Directions:
1) One player takes the gamestone and the other two take the beanbags.
2) All three players start walking together.
3) The player with the stone rolls it ahead on the ground.
4) Other players toss bags toward the stone.
5) The winner is the player with the bag nearest to the stone when it stops rolling.

More information: The Indians used real spears, but beanbags are safer. They played in a big field, too, so they ran instead of walking.

Horn Dice

Equipment: 6 clay dice

Number of players: Any number

Directions:
1) Players take turns shaking dice in their hand and dropping them on ground.
2) To keep score, add up points that show when dice land.
3) The winner is the first player who reaches 50.

More information: The Indians made their dice form deer antlers, or horns.

COLUMBIAN KENTUCKY
WORKSHEET: GAME COMPARISON MATRIX

	Equipment needed	How to play	Skills taught
Modern game:			
Chunkey			
Rolling game			
Horn dice			

COLUMBIAN KENTUCKY
COOPERATIVE LEARNING PLAN

TITLE: Death Rituals in Prehistoric Kentucky

SUMMARY: Students read a description of a prehistoric funeral and analyze lists of burial goods that reflect the activities and values of prehistoric people in Kentucky.

CONCEPTS & SKILLS:
Basic skills: Listening
Social studies: Social systems; Cultural diverstiy

MATERIALS FOR EACH GROUP:
Burial excerpt from *Kentuckians Before Boone* (pp. 37-41)
Lists of burial goods found at Kentucky archaeological sites
Highlighter marker
Pencil
Blank paper

TEACHER INSTRUCTIONS:

1) Photocopy the ***Kentuckians Before Boone excerpt*** and burial goods lists for each group.

2) **Make a box for each group** containing the excerpt, burial goods lists, a highlighter, pencils, and blank paper.

3) **Divide the class into groups** and provide each with a box of equipment and the instructions below. Circulate among the groups as they work to make sure they understand the activity.

STUDENT INSTRUCTIONS:

1) Appoint one or two readers, a highlighter, and a writer.

2) Read the description of Masked Eyes' burial from *Kentuckians Before Boone*. Why do people have special ceremonies for those who have died?

3) Highlight the items placed in Masked-Eyes' grave. What activities and interests do these objects represent? Why were they important to Masked-Eyes?

4) Read the burial goods lists. Next to each lists *write down* what you think the objects tell about their owners.

5) What might present-day Kentuckians want to be placed in their graves?

RESOURCES:

For additional information about the elaborate burial customs of Mississippian people living in western Kentucky and Illinois, see *People of the Dawn* by Richard B. Lyttle (New York: Atheneum, 1980) or read the novel *Cricket Sings* by Kathleen King (Athens: Ohio University Press, 1989).

Site #1:	Hardin Village
County:	Greenup County, Kentucky
Date:	About 1650
Burial goods:	Bone needle
	2 stone celts (ungrooved axes)
	Whetstone
	Fragments of red ochre and hematite (colorings)
	Shell beads

Site #2:	Hardin Village
County:	Greenup County, Kentucky
Date:	About 1650
Burial goods:	Small ceramic pot
	Shell beads

Site #3:	Bentley
County:	Greenup County, Kentucky
Date:	About 1750
Burial goods:	16 triangular arrowheads
	5 bone drifts (polished antler tubes used in games or stone working)
	2 stone scrapers
	1 bone harpoon
	1 polished stone smoking pipe

COLUMBIAN KENTUCKY
COOPERATIVE LEARNING PLAN

TITLE: Mapping Native American Stories

SUMMARY: Students read and analyze Native American stories and compare their basic elements with stories from other cultures.

CONCEPTS & SKILLS:
Basic skills: Reading; Listening
Social studies: Cultural diverstiy
Arts and humanities: Analysis of forms

MATERIALS FOR EACH GROUP:
Native American story texts
Story maps
Pencils
Blank paper

TEACHER INSTRUCTIONS:

1) **Make a box of equipment for each group.**

2) **Model how to fill in a map** using a well-known story.

3) **Divide class into groups** and provide each with a box of equipment and the following instructions. Circulate among the groups as they work to make sure they understand the activity.

4) **Optional assessment activity:** Write a story based on a prehistoric object in the museum or information learned in one of the unit activities.

STUDENT INSTRUCTIONS:

1) Appoint a reader and a writer.

2) Read a story out loud to the group.

3) Write details from the story in the blanks on the story map.

4) Make a T-chart on a blank sheet of paper. On one side, write the setting, characters, problem, solution, and lesson of the Native American story. On the other, try to write names of stories from other cultures that have the same elements.

RESOURCES:

Published collections of Shawnee stories are rare, but there are many anthologies of Cherokee stories. One good example is *Myths of the Cherokee*, a collection of transcriptions of stories collected by anthropologist James Mooney at the end of the nineteenth century and resissued by Charles Elder (Nashville, Tenn., 1972).

COLUMBIAN KENTUCKY
SOURCE: SHAWNEE STORY

How the Wildcat Got Its Spots

A long time ago a Wildcat pursued a Rabbit, and was about to catch him, when the Rabbit ran into a hollow tree. The Wildcat took a position in front of the entrance, and told the Rabbit that he would remain there until the Rabbit, from hunger, would be compelled to come out; that he need not think of escape. After a time the Rabbit said he would come out and let the Wildcat make a meal of him on one condition, and that was that the Wildcat should make a fire in front of the tree, saying that, as soon as a bed of coals sufficient to roast him had been prepared, he would come out and be roasted; that he did not want to be eaten raw.

The Wildcat built the fire as directed; and when the sticks were burned to coals, he settled himself on his haunches and notified the Rabbit that all was ready, whereat the Rabbit gave a spring, striking all his feet into the coals, knocking them into the face and over the breast of the Wildcat, and then escaping. This burned the hair in spots in the cat's breast; and when it grew out agin, it was white. This is why the wildcat has white spots on its breast.

This story was told by a member of the Rabbit Clan as a good joke on the Wildcat Clan.

*Told by Charles Bluejacket to missionary J. Spencer in 1858. The grandson of the Shawnee war chief Bluejacket, Charles was born in Michigan in 1816, moved to Kansas with the Ohio Shawnee in 1832, and died in Oklahoma in 1897. The Bluejackets were members of the Rabbit Clan. This and other tales appeared in "Shawnee Folk-Lore" by J. Spencer (*Journal of American Folklore *1909).*

COLUMBIAN KENTUCKY
SOURCE: SHAWNEE STORY

Why the Deer Has a Short Tail

Once there was a brother and sister who lived alone in their lodge. The brother said one morning, "I want to hunt, for we must have some meat." He put some water in a shell in a corner of the lodge, and told his siter not to drink it, for, if he were killed while out hunting, the water would turn red, and thus give her warning. Then, telling her not to parch the little ears of corn, he went off into the forest.

After her brother had gone away, she began to think, "What is the mystery about this corn, that I should not pop it? But I am going to see." So after a while she got down the little ears of corn, and shelled the kernels off the cob, and began to pop the corn. It popped, and the little grains became large and white, and smelled good. She popped and popped; and the little lodge became fuller and fuller of the white corn, until finally, when it was all popped, she was crowded back against the wall. Then she heard the deer coming, for they smelled the corn. They crowded up to the door and began to eat. More deer came, little and big; and they ate and ate, and finally they had eaten all the corn. Then they looked around to see if there was anything else they could eat. She had hidden under a skin in a corner; but they saw the skin move, and they told her to come out, and then they put her on the antlers of the big deer. Then they all went off together, the big deer first, they following.

When the brother came back, he saw what his sister had done, and he called up everything; and two big black snakes came to help him find his sister. He said, "Put your teeth together, and help me find my sister." They did so, and carried him fast to find his sister. They were the evil spirits. They knew the way the deer went, and followed all day and all night, and the next day they saw the deer. When the deer saw the pursuit, they all gave up and stuck their heads in the ground, and the brother overtook them and got his sister. He then kicked the tails off the deer and made them short. This was the punishment they received.

Because his sister had disobeyed him, he painted her legs red; and she turned into a duck and went and swam in the creek. He himself turned into a wolf and went off hunting. They never turned back into people again.

Told by Shawnee Julia Stinson to missionary J. Spencer around 1858 and published in the Journal of American Folklore *in 1909. Archaeologists are uncertain of the relationships between prehistoric and historic Indian cultures, but it is possible that Fort Ancient people were the ancestors of Shawnee and other midwestern groups encountered by Euroamerican explorers.*

COLUMBIAN KENTUCKY
SOURCE: CHEROKEE STORY

The Origin of the Pleiades and the Pine

Long ago, when the world was new, there were seven boys who used to spend all their time down by the townhouse playing the gatayusti game, rolling a stone wheel along the ground and sliding a curved stick after it to strike it. Their mothers scolded, but it did not good, so one day they collected some gatayusti stones and boiled them in the pot with the corn for dinner. When the boys came home hungry their mothers dipped out the stones and said, "Since you like the gatayusti better than the cornfield, take the stones now for your dinner."

The boys were very angry, and went down to the townhouse, saying, "As our mothers treat us this way, let us go where we shall never trouble them any more." They began a dance--some say it was the Feather dance--and went round and round the townhouse, praying to the spirits to help them. At last their mothers were afraid something was wrong and went out to look for them. They saw the boys still dancing around the townhouse, and as they watched they noticed that their feet were off the earth, and that with every round they rose higher and higher in the air. They ran to get their children, but it was too late, for ther were already above the roof of the townhouse--all but one, whose mother managed to upll him down with the gatayusti pole, but he struck the ground with such force that he sank into it and the earth closed over him.

The other six circled higher and higher until they went up to the sky, where we see them now as the Pleiades, which the Cherokee still call the Anitsutsa (The Boys). The people grieved long after them, but the mother whose boy had gone into the ground came every mothing and every evening to cry over the spot until the earth was damp with her tears. At last a little green shoot sprouted up and grew day by day until it became the tall tree that we call now the pine, and the pine is of the same nature as the stars and holds in itself the same bright light.

Collected by anthropologist James Mooney from CHerokee storyteller Swimmer around 1890, when Swimmer was in his sixties. The tale appears in Mooney's report, Myths of the Cherokee, *published in 1900 and reissued by Charles Elder (Nashville, Tenn.) in 1972.*

COLUMBIAN KENTUCKY
WORKSHEET: STORY MAP

Name of story_____

Culture_____

Setting (Where? When?)	Characters (Who? What qualities?)

Problem (What is the main problem?)	Solution (How is it solved?)

Moral (What lesson does the story teach?)

_____

_____

Adapted from Managing the Whole Language Classroom *by Beverly Eisele (Cypress, Cal.: Creative Teaching Press, 1991).*

CULTURES IN CONTACT
HOW-TO-DO-IT PLAN

ACTIVITY: Making Hominy Stew for Twenty-five

INGREDIENTS:
2 cups cooked beef or pork
2 packages frozen lima beans
4 cups canned hominy
Salt

EQUIPMENT:
Cutting board
Paring knives
Colander
Large kettle
Large spoon

INSTRUCTIONS:

1) Cut the meat into 1/2-inch pieces.

2) Remove the lima beans from the packages, place them in the colander, and run water over them to separate them. Allow them to thaw for 30 minutes.

3) Mix the meat, beans, and hominy in the kettle and cook over low heat for 30 minutes, or until beans are tender. Add salt to taste.

BACKGROUND:

Corn was a staple for many Native American groups, and making hominy was one way of converting dried corn into a cooked vegetable dish. The Indians made hominy by simmering cracked corn in water mixed with lye. Once the hominy was cooked, meat, beans, and even wild fruit could be added to make a stew. The meat and lima beans in this recipe are contemporary substitutes for the game and beans the Indians would have used.

CULTURES IN CONTACT
HOW-TO-DO-IT PLAN

ACTIVITY: Making Squash Corncakes for Twenty-five

INGREDIENTS:
2 cups cornmeal
4 cups water
1 package frozen whipped acorn squash, thawed
1/2 cup maple syrup
Vegetable shortening

EQUIPMENT:
Large kettle
Large spoon
Tablespoon
Electric frying pan
Tin cup
Spatula
Paper towels

INSTRUCTIONS:

1) Pour the water into the kettle and bring it to a boil over medium heat.
2) Slowly add the cornmeal to the boiling water, stirring constantly to keep the mixture from becoming lumpy. Cook for 5 to 10 minutes, stirring constantly, until the mixture thickens slightly.
3) Add the squash and the maple syrup to the cooked cornmeal and mix well. Add enough water to make the mixture thin but not runny.
4) Melt a couple of tablespoons of shortening in the electric skillet on the medium-high setting.
5) Using the tin cup to transfer batter from the kettle to the frying pan, pour small amounts of batter into the hot shortening.
6) Cook like pancakes, a few minutes on each side, turning when the edges are brown and adding shortening if the skillet becomes dry. Drain on paper towels before eating.

BACKGROUND:

Corn was a staple for many Native American groups, and breads made with cornmeal were common. The recipe above combines cornmeal with pumpkin, a vegetable cultivated by the Woodland Indians, and maple syrup, a natural sweetener. The Cherokee recipe on which these instructions are based involved shaping the dough into cakes to be baked in a Dutch oven. Thinning the batter and cooking in an electric skillet makes a more manageable classroom project.

CULTURES IN CONTACT
RESOURCE LIST: NATIVE AMERICANS IN KENTUCKY

Background reading for teachers

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Eckert, Alan W. The Frontiersmen. Boston: Little Brown, 1967—Historical novel about Simon Kenton, Tecumseh, and the settlement of Kentucky.

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Swanton, John R. The Indians of the Southeastern United States. Washington, D.C.: Smithsonian Institution Press, 1979--Well illustrated guide to the daily lifeways of native inhabitants.

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Thwaites, Reuben Gold, ed. The Jesuit Relations and Allied Documents. In 73 Volumes. Cleveland, 1896-1901—Missionary reports about the Indians compiled over several centuries.

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Books for students

Cowan, C. Wesley. First Farmers of the Middle Ohio Valley. Cincinnati: Cincinnati Museum of Natural History, 1987—A description of the culture of the Fort Ancient Indians, of Kentucky.

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area in western Kentucky.

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Teaching ideas

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Carpenter, James C. and Fraser, Kathryn M. Environmental Approaches to Prehistory/ Archaeology. Murray, Ky.: Center for Environmental Education (address above), 1980—Activities and annotated bibliography for prehistory courses at the junior high or high school level.

_____. Studying the Prehistory of Man in Kentucky: Activities for the Middle School Classroom. Murray, Ky.: Center for Environmental Education (address above), 1983—Lesson plans, simulation games, and other teaching tips.

_____. Studying the Prehistory of Man in Kentucky: Resources for the Classroom Teacher. Murray, Ky.: Center for Environmental Education (address above) 1983—Detailed descriptions of museums with prehistory collections and programs, field schools, portable exhibits, books, media, and other resources for teaching prehistory at the middle school level.

National Park Service. Everything We Know About Archaeology For You To Use In Your Classroom. Washington, D.C.: National Park Service (Archaeological Assistance Division, P.O. Box 37127, Washington, D.C. 20013), 1990--Archaeology material for the classroom.

McNutt, Nan. Project Archaeology: Saving Traditions (P.A.S.T.) Longmont, Col.: Sopris West (1120 Delaware Ave., Longmont, CO 80506), 1988—An interdisciplinary middle school curriculum that challenges students to apply science, social studies, mathematics, and language arts skills to real-life archaeological study.

Museums with prehistory exhibits and programs

—Ancient Lifeways Institute (RR1, Michael, IL 62065; 618-576-9255)--Living prehistory workshops in which students live in a recreated Late Woodland village for a weekend for week.

—Angel Mounds State Memorial (8215 Pollack Avenue,Evansville, IN 47715; 812-853-3956)--Middle Mississippian site with self-guided tours and a special school program on Native Americans.

—Behringer-Crawford Museum (P.O. Box 67, Covington, KY 41012-0067; 606-491-4003)—General museum with prehistory collections. Offers suitcase exhibit on area prehistory.

—Blue Licks State Park (Box 81, Mt. Olivet,KY 41064; 606-289-5507)—Extensive collections and displays on prehistoric Kentucky.

—Cahokia Mounds (Cahokia, IL 62206; 618-346-5160)—Middle Mississippian site with visitor center exhibits interpreting prehistoric eras through the present.

—Kentucky History Museum (P.O. Box H, Frankfort, KY 40602-2108; 502-564-3016)—General history museum with a section on Kentucky prehistory.

—Kentucky Museum (Western Kentucky University, Bowling Green, KY 42101; 502-745-2592)—General museum with small exhibit and school loan exhibit on Kentucky prehistory.

—Museum of Anthropology (Northern Kentucky University, 200 Landrum, Highland Heights, KY 41076; 606-572-5252)—Exhibits and loan kits on Kentucky prehistory.

—Museum of History and Science (727 W. Main Street, Louisville, KY 40202; 502-589-4584)—General museum with prehistory collections and programs for children.

—Owensboro Area Museum (2829 South Griffith Avenue, Owensboro, KY 42301; 502-683-0296)—General museum with displays and loan kits on Kentucky prehistory.

—Sunwatch Indian Village (2301 W. River Road, Dayton, OH 45418-2815; 513-268-8199)—Living history museum demonstrating the lifeways of Fort Ancient Indians.

—University of Kentucky Museum of Anthropology (Lafferty Hall, University of Kentucky, Lexington, KY 40506-0024; 606-257-7112)—Exhibits and loan exhibits on the prehistory of the region.

—Wickliffe Mounds (Archaeology Laboratory, Murray State University, Murray, KY 42071; 502-762-4058)—Temple and burial mounds protected by museum buildings. A useful pre-visit guide for teachers is available by writing to the address above.

COLUMBIAN KENTUCKY
RESOURCE LIST: CHILDREN'S BOOKS ABOUT PREHISTORIC AMERICA

Fiction

King, Kathleen. *Cricket Sings: A Novel of Precolumbian Cahokia.* Athens: Ohio University Press, 1989--An aging medicine women living in a large Mississippian town confronts the dangers posed by powerful priests. Some adult themes. Glossary and bibliography included.

Rockwood, Joyce. *Long Man's Song.* New York: Holt, Rinehart and Winston, 1975--Apprentice Cherokee medicine man Soaring Hawk enters a desperate battle of mystical power when his sister's illness forces him to oppose a powerful rival in the pre-Columbian Southeast.

_____. *To Spoil the Sun.* New York: Henry Holt, 1976--A courageous Cherokee woman confronts the complexity of her people's traditions and the horrors that follow the arrival of European explorers in sixteenth-century America.

Searcy, Margaret Zimmer. *Kiwa of the Moundbuilder Indians.* New York: Pelican, 1989--Twelve-year-old Ikwa's first offering to the sun god brings a sign that foretells great change in her life.

Steele, William O. *The Eye in the Forest.* New York: E.P. Dutton, 1975--Apprentice shaman Kontu accompanies a small party of Adena people on a dangerous journey from Ohio to Tennessee in search of an ancestral homeplace.

_____. *The Magic Amulet.* New York: Harcourt Brace Jovanovich, 1979--Abandoned by his family when a wound cripples him, a boy living in the southeastern United States in the Paleo period combines courage and resourcefulness to make a life for himself with unfriendly hunters.

_____. *The War Party.* New York: Harcourt Brace Jovanovich, 1978--A young Native American living in the southeastern United States in the sixteenth century longs for glory of battle until he confronts the real horrors of war. Includes a glossary. Easy to read.

Nonfiction

Grimm, William. *Indian Harvests.* New York: McGraw-Hill, 1973--Descriptions of wild, edible plants harvested and eaten by Indians living all over North America. Illustrated.

Hofsinde, Robert. *Indian Hunting.* New York: William Morrow, 1962--Descriptions of hunting methods, weapons, and ceremonies.

_____. *Indians at Home.* New York: William Morrow, 1964--Descriptions of a variety of Native American houses of North America.

Lyttle, Richard B. *People of the Dawn.* New York: Atheneum, 1980--The history of early New World people traced through important archaeological

dicoveries of recent years. USeful illustrations help to explain how archaeological research sheds light on prehistoric life.

Scheele, William E. *The Earliest Americans*. Cleveland: World Publishing, 1963--An overview of major Ice Age discoveries in North America and archaeologists' theories of how prehistoric Americans lived.

Shannon, Terry. *Stones, Bones, and Arrowheads.* Chicago: Albert Whitman, 1962--A definition of "prehistory" and an overview of how archaeological digs are conducted and how artifacts are treated for preservation in museums.

Silverberg, Robert. *Home of the Red Man: Indian North America Before Columbus*. Greenwich, Conn.: New York Graphic Society, 1963--Descriptions of ten Native American groups representing different geographical regions of the North American continent.

Wolfson, Evelyn. *Growing Up Indian*. New York: Walker, 1986--Questions and answers about babies, schools, toys and games, becoming an adult, and Indians children today.

COLUMBIAN KENTUCKY
RESOURCE LIST: REPLICA ARTIFACTS

Tammy Beane (822 Brummel Avenue, Bridgeport, AL 35740; 205-495-3307) is a potter who specializes in prehistoric styles of the southeast.

Ken Duerkson (RR 2 Box 121,Corinth, KY 41010; 502-484-3094) is an archaeologist who does flintknapping demonstrations and makes replicas of stone tools based on Kentucky sources.

Larry Kinsella (645 Pleasant Ridge Road, Fairview Heights, IL 62208; 618-397-1377) specializes in stone tool and weapon replication and crafting demonstrations.

Lithic Casting Lab (Pete Bostrum, 577 Troy O'Fallon Road, Troy, IL 62294; 618-667-2447) sells museum-quality casts of prehistoric stone implements.

Joan Miller (3307 Cummings Avenue, Royal Oak, MI 48073; 313-435-5159) is an archaeologist and a weaver who specializes in twining, a braiding technique used to make slippers, pouches, and other textiles.

Ne Shutsa Traders (Box 186, Haven, KS 67543) sells replicas of early midwestern gear, including hunting equipment and trade beads.

Scott K. Silsby (Route I, Box 2426, Front Royal, VA 22630) makes replicas of Native American and prehistoric tools from stone and wood.

Ele White (Ancient Lifeways Institute, RR 1, Michael, IL 62065; 618-576-9255) specializes in prehistoric textile-making. Her husband, John, performs Native American stories.

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C	D	E	F
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S	T	U	V
W	X	Y	Z

SUPPORT MATERIALS FOR TEACHERS

HANDS-ON LESSON PLAN

Connect Through Hands-on Experience: Experimental Archaeology - Making Cordage

One way that archaeologists learn about the cultural material of the past is by attempting to replicate the technical processes used. They examine artifacts and consider how they might have been created and then begin to experiment. Your students can have the same experience by making their own cordage.

Overview

In one to two class sessions, students will study experimental archaeology by experiencing a technique and skill Kentucky's ancient Native peoples needed for everyday life: making cordage.

Materials

Most craft stores sell a variety of suitable fibrous materials that can be used to make cordage. For this lesson, you will need to purchase:

- 2-ply jute or twine
- One bundle of raffia fibers

You will also need:

- **Steps in Making Z-Twist Cordage** diagram (see pages 11-12)

Preparing to Teach

1. Purchase the materials.
2. Cut the 2-ply jute or twine into one-foot lengths.
3. Prepare the raffia fibers for the activity by separating the strands from the bundle. Use the longest and widest pieces.
4. Make copies of the **Steps in Making Z-Twist Cordage** diagram (pages 11-12).
5. Review the Teacher Background Essay (pages 3-4).

Vocabulary

artifacts: objects made or modified by humans
cordage: several strands of fiber twisted together; string or rope
culture: the customs, beliefs, laws, ways of living, and all other results of human work and thought that belong to people of the same society
experimental archaeology: scientific studies designed to discover processes that produced and/or modified artifacts and structures that are found in archaeological sites
fiber: a single piece of plant material or animal fur. It is usually long, with a roughly round cross-section. A fiber is often twisted with other fibers to make yarn or thread. *Bast* fibers are the long fibers from a plant stalk.
replication: the act or process of reproducing artifacts, structures, and patterns of tool usage
sinew: an animal tendon prepared to use as cord or thread
technology: the technique or means for making or doing something, often associated with tool making
textiles: objects woven from two distinct sets of elements (cordage or yarn) – a warp and a weft

Teacher Background Essay

Archaeologists cannot ask ancient Native peoples how they made their tools. Thus, archaeologists must find other ways to learn about past **technological** systems.

Experimental archaeologists use techniques that ancient peoples may have used. They learn through observing craftspeople who are using these techniques today and from their own experiments. When possible, experimental archaeologists learn from descendants of the peoples whose technological systems they study.

Veteran Living Archaeology Weekend demonstrator Johnny Faulkner uses an animal bone pressure flaker to serrate a replica chipped stone spearpoint. Photograph courtesy Kary Stackelbeck.

Their experiments provide possible interpretations and a basis for further study of past technologies, although they do not directly prove how those peoples used or made tools, materials, or structures. These studies help researchers better understand the processes that produced the artifacts and structures found at archaeological sites.

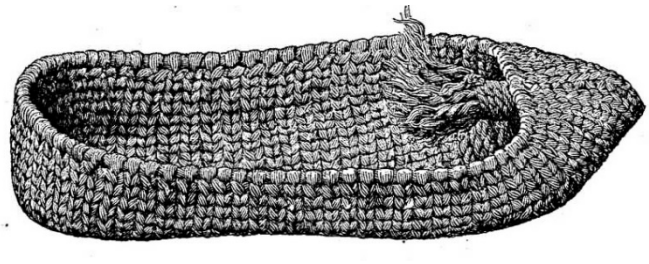
Experimental **replication** of structures, tools, and wear patterns on tools is one way to do this. Replication studies include the reproduction of stone tools, basketry, ceramics, and **cordage**.

Veteran Living Archaeology Weekend demonstrator Roberta Burnes (left) and volunteer Rebecca Nimmo (right) demonstrate cordage making at the in-person event. Photograph courtesy Darlene Applegate.

Using ancient indigenous techniques to make these items, archaeologists can address many questions about how people lived in the past. Examples include: How long would it have taken to make an arrowhead or spearpoint? Are some raw materials better for stone tool manufacture than others? What kind of clay is the best for ceramic vessels and where might ancient Native potters have found it? How long would it have taken Native people to make a small snare from plant fibers? What kinds of plant fibers did Native people use when weaving fabrics used for clothing?

Experimental archaeologists make cordage to learn how ancient Native peoples prepared the fibers, how they made the cordage, and how much time it took them to make the finished pieces. They also make cordage to understand the details and artistry involved in producing these important items. Listen to Narrator Erika Brady describe the evidence archaeologists use to study archaeological textiles: **Evidence of Textiles**.

Native weavers made cordage from a variety of materials, including the leaves of rattlesnake master and the stem or **bast fibers** of milkweed and dogbane. They also used human hair and animal **sinew**.



Ancient Native-made slipper woven of plant fibers from a Kentucky cave. Engraving in Prehistoric Textile Art of Eastern United States by William Henry Holmes, Figure 9, page 35, 1896.

Listen to Living Archaeology Weekend Demonstrator Christina Pappas describe how to make a slipper like this from rattlesnake master: ***Weaving a Slipper****.*

Finished cordage varied in diameter from very thin (0.0394 inches or 1 millimeter) to very thick (over 1 inch or 25.4 millimeters - archaeologists who study ancient Indigenous cultures use the metric system). The fibers selected and the intended purpose of the finished object likely determined the relative thickness of the cordage.

Archaeologists have found fragments of cordage and **textiles** in the dry rockshelters of the Red River Gorge in eastern Kentucky, as well as in some of Kentucky's dry caves, like Mammoth Cave.

Teaching the Lesson

Uncover Prior Knowledge

1. Share information from the **Teacher Background Essay** with your students. You also may wish to show the video - ***American Indian Textiles*** - to your class.

2. Distribute one length of jute or twine to each student. Ask if they can determine how the jute/twine was made. Encourage them to pull it apart as part of their examination.

3. Explain that the techniques Indigenous people used to make the tools necessary in everyday life are unknown today. Thus, archaeologists are confronted with problems similar to what the students just experienced with the jute/twine. To better understand how ancient peoples made and used objects, archaeologists must sometimes learn the manufacturing techniques used by long-ago craftspeople, occasionally by trial and error. This is called **experimental archaeology.**

4. Ask students how they think archaeologists, who study **artifacts**, figure out the technologies and processes used by ancient Native peoples. Discuss these questions:

   How difficult do you think it would be to make twine or rope from natural materials?

   What materials could be used?

   How long would the process take from collecting the materials to completing the twine or rope?

   Have students record their answers in a journal to compare to their thoughts after trying to make cordage.

5. Ask students to identify the characteristics of useable cordage. Specific characteristics would depend on the intended use of the cordage - whether for making hard-wearing items like slippers or for delicate items like a shawl - but all cordage will have certain characteristics that make it useable. For example:

   - It will not untwist
   - It will be strong

6. Discuss student suggestions and work with students to create criteria for a successful cordage project. Explain that they will not be graded on the expertise of their cordage making, but on their ability to assess the success of their efforts and to explain what they have learned from the activity.

Discover New Knowledge - Making Cordage

Making Cordage Activity

1. Begin by using raffia to demonstrate for students how to make cordage. **Practice this at home before demonstrating for your students.**

2. You may want to view this 5-minute video - **Make Natural Cordage in Minutes** (by survival and bushcraft training company *Coalcracker Bushcraft* - https://coalcrackerbushcraft.com/). It shows the technique of making 2-ply cordage from natural materials. The demonstrator makes S-twist cordage and Z-twist cordage; and shows how to splice materials into the already-made cordage to lengthen it (https://www.youtube.com/watch?v=X3I_ele6Ums).

3. **Steps in Making Z-Twist Cordage** (see diagram on pages 11-12)

The process of making cordage is difficult to describe, and it sounds more complicated than it really is. Try it! It's surprisingly easy. The steps below assume the cordage-maker is right-handed.

Hold Strand A and Strand B side-by-side, in your left hand between your forefinger and thumb.

Step 1. Pick up Strand A with your right forefinger and thumb, and twirl the strand *away* from your body (clockwise).

Step 2. Bring Strand A toward your body, crossing it *over* Strand B (counterclockwise).

Hold strands A and B between your left forefinger and thumb - about where you crossed A over B.

Step 3. Pick up Strand B with your right forefinger and thumb, twirl it *away* from your body (clockwise). And then

Step 4. Bring Strand B toward your body, crossing it *over* Strand A (counterclockwise). And then

Hold strands A and B between your left forefinger and thumb about where you crossed B over A.

That's it. Now it's just a matter of repeating this process again and again.

Step 5. Pick up Strand A, twirl it *away* from your body (clockwise). And then

Step 6. Bring Strand A toward your body, crossing it *over* Strand B (counterclockwise).

By twirling in one direction and crossing in the opposite direction, the cordage-maker creates an interlocking pattern like that of machine-made rope. If Strand A and Strand B are twisted and crossed in the same direction, the locking is not taking place.

Left-handed people will reverse the directions of twirling and crossing.

Hold Strand A and Strand B side-by-side, in your right hand between your forefinger and thumb.

Step 1. Pick up Strand A with your left forefinger and thumb, and twirl the strand *toward* your body (counterclockwise).

Step 2. Bring Strand A away from your body, crossing it *over* Strand B (clockwise).

Hold strands A and B between your right forefinger and thumb - about where you crossed A over B.

Step 3. Pick up Strand B with your left forefinger and thumb, twirl it *toward* your body (counterclockwise). And then

Step 4. Bring Strand B away from your body, crossing it *over* Strand A (clockwise). And then

Hold strands A and B between your left forefinger and thumb about where you crossed B over A.

That's it. Now it's just a matter of repeating this process again and again.

Step 5. Pick up Strand A, twirl it *toward* your body (counterclockwise). And then

Step 6. Bring Strand A away from your body, crossing it *over* Strand B (clockwise).

4. Now it's your students' turn! Pass out the diagram **Steps in Making Z-Twist Cordage**. You may also want to show **Make Natural Cordage in Minutes** (*Coalcracker Bushcraft*) to your students: https://www.youtube.com/watch?v=X3I_ele6Ums

5. Then, divide the class into groups of 4 to 5 students. Give each student about 15 inches of raffia fibers.

6. Assist each group, asking students who successfully learned the procedure to help other students.

Discussion

7. Revisit the answers to these questions your students recorded before the experience of making cordage:
   How difficult do you think it would be to make twine or rope from natural materials?
   What materials could be used?
   How long would the process take from collecting the materials to completing the twine or rope?
   Have their thoughts changed? In what ways? Did all students have the same reaction to the experience?

Clean Up

8. Involve the students in cleaning up and putting away any left-over materials. Discuss why it would have been important for ancient Indigenous people to take care of their tools and materials. Why is it still important today?

Closure

Based on their experience with making cordage, ask students to share their impressions of what daily life might have been like for Kentucky's ancient Native peoples. In what ways might the lives of those long-ago peoples have been similar to the students' lives? In what ways were they different?

Engage students in creating a physical or virtual exhibit of their work. Who is their intended audience? What information will that audience need in order to understand the exhibit? Will you want photos of the steps in the process? Do you need other images? Where could you find them? How can you create an attractive display and signage?

Evaluation

Exit Slip or Short Essay

Ask students to assess their effort to make useable cordage. What was successful? What did not work out as well as they had hoped? What did they learn about making cordage? What did they learn about the daily lives of ancient American Indians in Kentucky?

Open Response Assessment

Prompt

Experimental archaeologists replicate artifacts using the techniques of ancient peoples. Their studies help everyone better understand the processes that Native peoples used to make the tools and structures found at archaeological sites.

Direction

This can be done as an individual assignment or small group project.

Pick a tool or object created by ancient peoples and describe two experiments archaeologists might conduct to determine the object's purpose and how the people made it. Explain how the experiments would help determine the purpose and production process.

Objects might include:

chipped stone spear points or arrowheads
chipped stone knives, scrapers, or drills
ground stone nutting stones, or manos/metates
stone smoking pipes
animal bone tools, like awls
animal bone or shell beads
ceramic vessels, like bowls, jars or bottles

If your class created an exhibit, you could engage students in self-assessment of the exhibit or ask for comments from exhibit viewers.

Open Response Scoring Guide

0	1	2	3	4
Non participation	• The student describes one experiment. • The student has little or no success in explaining how these experiments help determine the selected artifact's purpose and production process.	• The student describes one to two experiments. • The student is partially successful at showing how these experiments help determine the selected artifact's purpose and production process.	• The student describes two experiments that generally help determine the selected artifact's purpose and production process.	• The student clearly and effectively describes two experiments that accurately help determine the selected artifact's purpose and production process.

Kentucky Academic Standards

Reading and Writing Standards - Guiding Principles for Reading and Composition

• Students will read, comprehend and analyze complex literary and informational texts independently and proficiently.

• Students will compose informative and explanatory texts to examine and convey complex ideas clearly and accurately through the effective selection, organization and analysis of content.

• Students will conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.

• Students will use a variety of strategies to determine or clarify the meaning of words and phrases, consulting reference material when appropriate. Students will acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking and listening in order to be transition ready.

Reading and Writing Standards - Literacy Practices

1. Recognize that text is anything that communicates a message.

2. Employ, develop and refine schema to understand and create text.

6. Collaborate with others to create new meaning.

8. Engage in specialized, discipline-specific literacy practices.

Visual and Performing Arts Standards

Anchor Standard 1: Generate and conceptualize artistic ideas and work.

Anchor Standard 2: Organize and develop artistic ideas and work.

Anchor Standard 3: Refine and complete artistic work.

Anchor Standard 4: Select, analyze, and interpret artistic work for presentation.

Anchor Standard 5: Develop and refine artistic technique and work for presentation.

Anchor Standard 6: Convey meaning through the presentation of artistic work.

Anchor Standard 9: Apply criteria to evaluate artistic work.

Anchor Standard 11: Relate artistic ideas and works with societal, cultural and historical context to deepen understanding.

Steps in Making Z-Twist Cordage

The steps below assume the cordage-maker is right-handed.

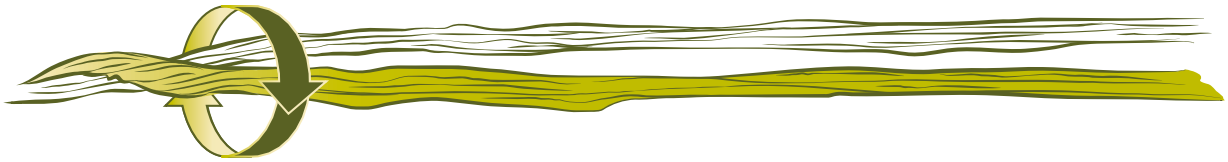
Strand A

Strand B

Step 1

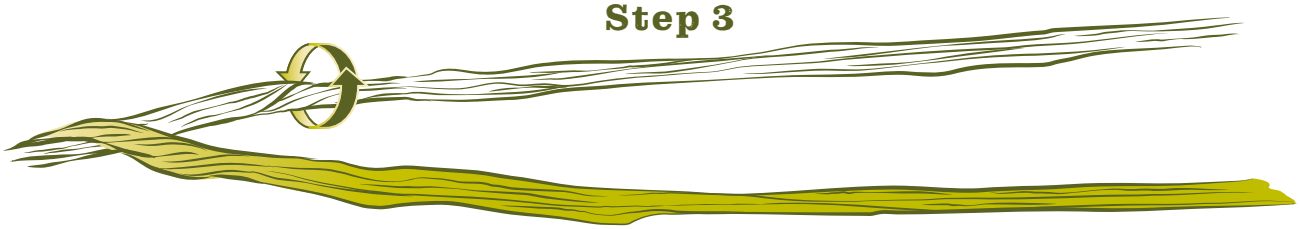
Holding Strand A and Strand B side-by-side in your left hand, pick up Strand A with your right forefinger and thumb, and twirl the strand *away* from your body (clockwise).

Step 2



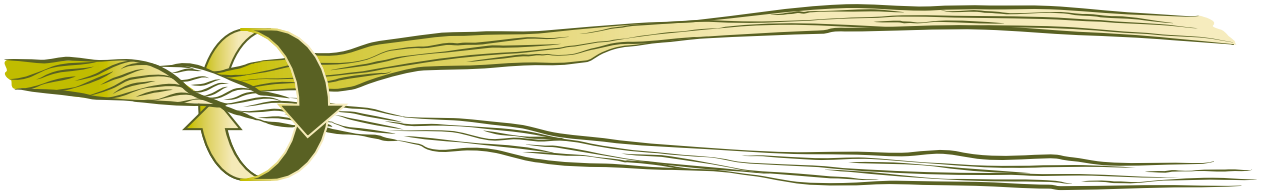
Bring Strand A toward your body, crossing it *over* Strand B (counterclockwise).

Step 3



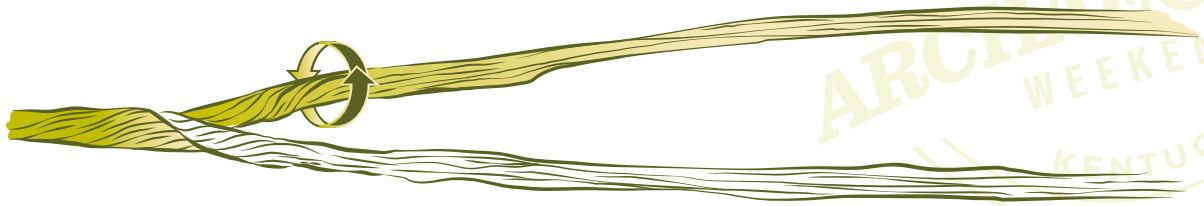
Holding strands A and B between your left forefinger and thumb - about where you crossed A over B - pick up Strand B, and twirl the strand *away* from your body (clockwise).

Step 4



Bring Strand B toward your body, crossing it *over* Strand A (counterclockwise).

That's it. Now it's just a matter of repeating this process again and again.



Twirl the strand farthest from you *away* from your body.

Take the strand you just twirled and cross it *over* the other strand.

By twirling in one direction and crossing in the opposite direction, the cordage-maker creates an interlocking pattern like that of machine-made rope.

Lesson adapted with permission from *Intrigue of the Past: A Teacher's Activity Guide for Fourth Through Seventh Grades*, by Shelley J. Smith, Jeanne M. Moe, Kelly A. Letts, and Danielle M. Patterson, U.S. Department of the Interior, Bureau of Land Management (1993), pages 81-86: *Lesson 16 - Experimental Archaeology: Making Cordage*. Also adapted from *Living Archaeology Weekend: Lesson 3 Experimental Archaeology: Making Cordage* (2009) and *Visual Arts Toolkit: Lesson Plan - Experimental Archaeology*, KET and Judy Sizemore (2016).

*Activity 4. Garbage Can Archaeology**

Age Level Grades 3–8

Time 1 hour

Focus

The students will learn the idea of using stratigraphy to date objects by understanding that the material at the bottom of the basket was thrown in first.

Equipment

Two or more wastebaskets from the school filled with trash. The teacher should select wastebaskets from rooms that will show clear-cut, interpretable differences. Wastebaskets from a classroom or two, possibly from different grades, could be contrasted with ones from the cafeteria, gymnasium, library, and offices.

Activity Preparation

Collect wastebaskets from the several predetermined locations. Gather the students and carefully go through the wastebasket from your classroom. Discuss the meaning of the trash and ask the students questions such as: What items do you think were placed in the wastebasket first and which last? By using only the trash, what can be learned about the activities that have taken place in this room?

Activity

Divide the students into groups and have each group sort through a different wastebasket using the principles of stratigraphy. One idea to show that the top layer is the most recent and the bottom the oldest would be to take the groups outside and draw the wastebasket on the sidewalk with chalk. With chalk, divide the wastebasket into three layers. The children are to put the top third of the garbage in the top layer, the second in the middle, and the last third in the bottom layer. Next, the artifacts can be categorized. Then have the students decide the original location (provenience) of each wastebasket. Remember, don't tell the students where the wastebaskets originated!

Extension

This activity can also be a good exercise in making inferences about a culture from material remains. It can be used as a springboard to discussions on the cultural basis of our knowledge about artifacts. Most of the students' inferences will require already knowing how a given thing functions in our society: if you did not have that knowledge, how would it affect your conclusions? How would you go about getting that knowledge? (See discussions in activities "What is an Artifact" and "Picnic Ground Archaeology.")

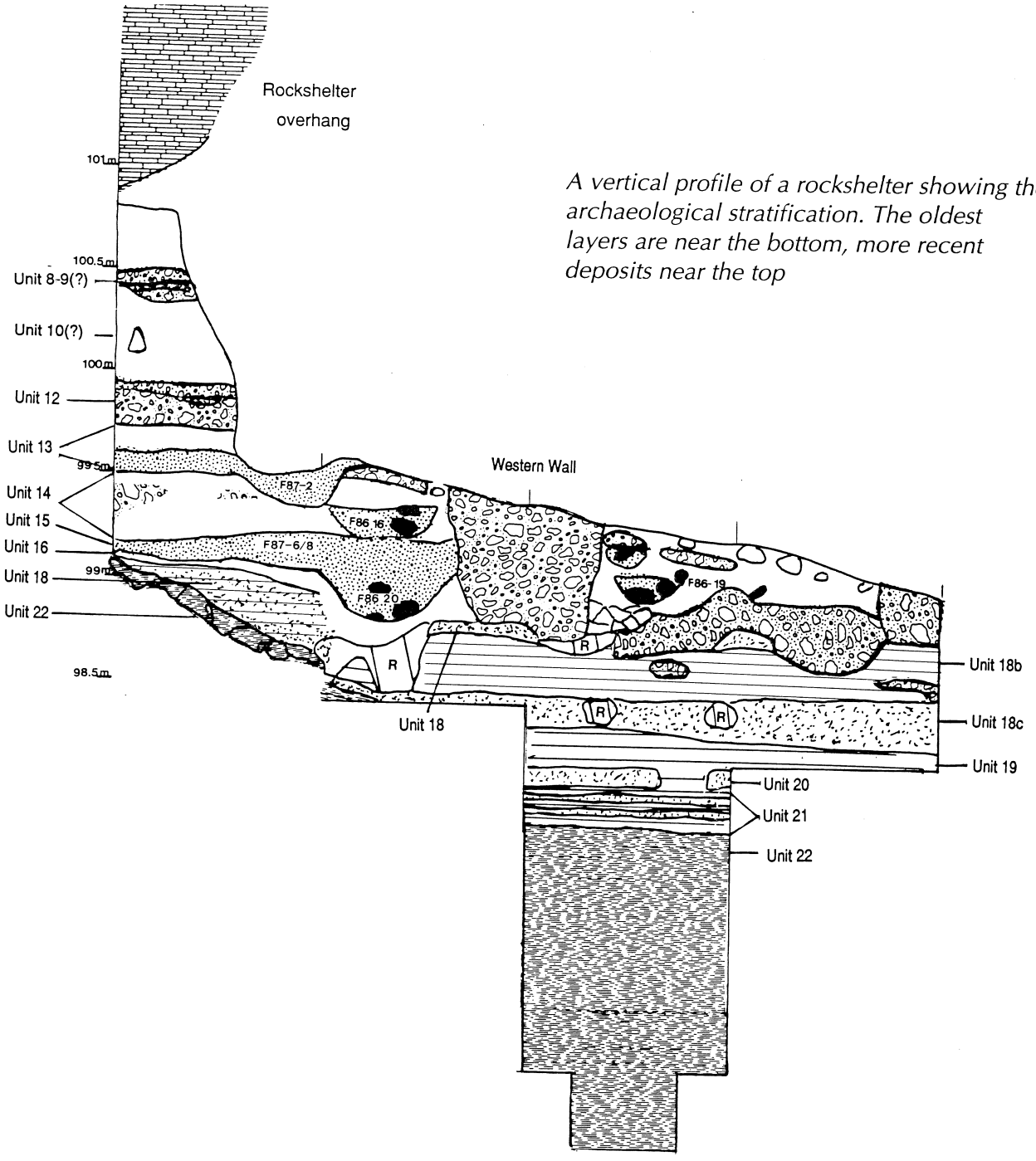
Have students make an actual list of items from the garbage can and their possible uses. Then ask the students to consider these questions:

What kind of life does this inventory suggest?
What goods are used by which members of this society or group?
In what economic and social arrangements would these materials be used?

From: Discovering Archaeology: An Activity Guide for Educators by Shirley J. Schermer. Office of the State Archaeologist, Iowa City, Iowa. 1992.

What can be deduced from the evidence?
How complete an inventory of all the material used is represented in the remains of this garbage can, i.e., what material used would *not* show up in the garbage?

*Adapted from a lesson plan by the same title prepared by E. Charles Adams, Arizona State Museum, and Barbara Groneman, Southwest Learning Sources, appearing in U.S. National Park Service Archaeological Assistance Program, Technical Brief No. 4, May 1989.



A vertical profile of a rockshelter showing the archaeological stratification. The oldest layers are near the bottom, more recent deposits near the top