

An Assembly of Archaeological Lessons  
Concerning

Leetsdale and Pennsylvania Life

by

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# An Introduction to Archaeology in Leetsdale, Pennsylvania

Archaeology? In Pennsylvania? Who knew? But there are several sites practically in our backyards that are older than the pyramids of Egypt. Sites such as the Meadowcroft Rock Shelter have been located in this state, which have existed for over 15,000 years. One site in Western Pennsylvania is not as old as Meadowcroft, but it is quite ancient in terms of human development here.

Leetsdale, a town in northwest Allegheny County, has drawn the attention of archaeologists, engineers and several other groups lately. This began in the 1990's when plans to construct a dam in that area were formulated. Several archaeological sites were uncovered as a result of investigating the area where the construction was to occur. Some of these sites date to the Middle Archaic Period, a time of 6,000 to 4,000 BC. The most recent occupation at the Leetsdale site is the Harmony Brickworks, which ended production in 1902 and dissolved in 1905. A small number of other time periods are apparent in Leetsdale and archaeologists continue to work to uncover more information that will lead to a greater understanding of the people who once lived there.



Leetsdale, Pennsylvania



The Middle Archaic period was a time in which people lived in family-based groups. Glaciers from the last Ice Age had receded enough that Pennsylvania's climate was a temperate one. Trees such as spruces, pines, and other furs could be seen in the forests.

The people surviving during this period relied on others in their groups. The men typically hunted fish, deer, rabbit and other small game while the women gathered food such as berries, nuts and seeds from the forests. Mussels, a shelled water animal, were also used as food if the culture lived near a river. All leadership status was earned, not inherited. One person having the most knowledge about fishing would lead the fishing party while another could lead the hunting party.



Mussels



Man using an atlatl

The people were nomadic. They did not stay in an area for long intervals; however, some recovered evidence suggests that there were temporary camps for the long winter and spring seasons. At this time, Leetsdale is thought to be a camp where early people inhabited for a time. Weapons during this era consisted of spearthrowers and atlatls. The Middle Archaic people also used projectile points (sharpened stones) for daily use.

On the Leetsdale site, several features or specific areas that were used by prehistoric people were located. Many of these were hearths, places where they could cook meals. Because these areas were used for cooking, the sandstone rock around them become reddish in color and crumbled easily. This is referred to as FCR or fire-cracked rock. Sometimes in hearths, charcoal remains of plants can be found. Other features include garbage, fire, and storage pits. Later in the Archaic period, steatite or soapstone bowls were used in daily life. Before this, baskets were utilized but no definite remains have been recovered; baskets made of plant fibers would have long since decayed.



**Fire-Cracked Rock (FCR)**

Although there is not much evidence of the Late Archaic period at Leetsdale, evidence from the Early Woodland period (1,000 to 300 BC) has been discovered. At this time, the Native Americans in Pennsylvania still relied on hunting and gathering as a means of collecting food; however, the people began making ceramic pottery. Native Americans cultivated very few crops and therefore did not need to have permanent homes. These people lived together in small communities.



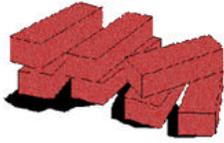
**Prehistoric mound**

Near Leetsdale, there are several prehistoric mound sites. These served as burial mounds for cultures in the Early Woodland era. They are very significant to archaeologists and historians who have an interest in those who lived in that area during that time. The building of mounds in northeast America is isolated to the Woodland period. A group named the Adena constructed them. During the Middle Woodland period (300 BC to 900 AD), the Hopewell produced larger mounds and earthworks than that of the Adena. The Hopewell also carved ceramic pipes. Shells, precious stones, and jewelry recovered from that time indicate that these people traded with other tribes.

Later in the Woodland period (900 to 1,600 AD), the introduction of corn, beans and other domesticated crops occurred. Native Americans began to settle an area for longer periods and built houses. The bow and arrow used for hunting allowed for a more successful pursuit of prey. Larger animals such as bear, deer and turkey were hunted. These food sources were more reliable. Fire-cracked rock and projectile points are still found in this time period; however, the projectile point seems to have evolved from a spear point of the Archaic period, to an arrow point. Much of the same happened in Leetsdale during this age as in the rest of northeast America.



There is a lack of archaeological material at Leetsdale until the 1700's. The Delaware Indians inhabited this area until 1780 when the Europeans purchased the region. Ownership changed several times throughout the 19<sup>th</sup> century, but in 1888, German separatists (a religious group) contracted for the area and constructed the Brickworks there. The Harmony Brickworks operated from the 1890's until 1902. Archaeologists have recovered many artifacts from this time. They include pulleys, bricks, desks, clocks, axes, glass, sand, and many other relics from the Brickworks. Material was much more recent and quite sturdy. Many historical records exist about this brick-making factory, including well-preserved lists of inventory, so a fuller recreation of the past is available.



**Harmony Brickworks**

Today, archaeologists, geologists, palynologists (people who study pollen) and others are still working to retrieve information and artifacts from Leetsdale. They must deal with problems such as time limitations and inclement summer weather, but they will recover as much as possible to try and rebuild the lives of those who lived in our region as much as 8,000 years ago. By understanding the past, we connect ourselves with it. In this manner, we are able to better appreciate the lives of different cultures and those that lived so long ago.



## Lesson 1

# From Age to Age

**SUBJECT:** Art, History, Social Studies  
**SKILLS:** Understanding, investigation, comprehension  
**STRATEGIES:** Reading, inquiry, use of Internet, history books or encyclopedias  
**DURATION:** 60-90 minutes  
**CLASS SIZE:** Any, groups of 3-4  
**GRADE LEVELS:** 5-8

### Vocabulary:

**Chronology:** a scientific organization of incidents of time in order of their occurrence  
**Time Line:** a visual representation of the events of a certain era in any area of the world

### OBJECTIVES:

The students should use the handout provided to establish a time line. This will allow them to recognize events that happened in the world and connect those events to conditions of the Americas and Pennsylvania at the same time.

### RESOURCES/MATERIALS:

One strip of heavy paper 12 feet long, 3 feet wide; markers, rulers, tape, smaller sheets of composition paper on which to write.

### PROCEDURE:

- 1) Place the large piece of paper on a row of desks. This will be easier for students to write and design. Using the rulers, measure and mark increments of one foot. There should be lines dividing the paper so that it looks like a table. One foot will equal 1000 years from 6000 B.C. until 0, and 500 years from 0 to 2000 A.D. There should be 10 divisions lengthwise and 3 widthwise.
- 2) On each line lengthwise, write 6000 B.C. ... 2000 A.D. For the columns along the width of the paper, label one "PA/Leetsdale," the second "North and South America," and the third "The World."
- 3) Divide the students into groups of three or four. Have older children look in their history books or on the Internet to locate more events around the world. All students may use the provided chart. For the Leetsdale/PA time line, students should read the Introduction provided with these lessons to pick events and add them to the chart.
- 4) After 30 minutes, have students think of various pictures to represent some of the events on the timeline.
- 5) The students may add these pictures and events to the large piece of paper in their assigned timeframe.

### BACKGROUND INFORMATION:

In order to understand a people's past, an archaeologist must determine an order of events. This will shape the culture of a society. Through scientific discovery, progress is made, thus as a civilization ages, one would expect them to become more advanced. The students will be able to see the forward movements of some societies and how they affect others after the time line is produced.<sup>1</sup> Have the students use the introduction to pick out important facts from Leetsdale and Pennsylvania history. The students may use the supplied handout to obtain information about events in various parts of the world from 6,000 B.C. to 2,000 A.D. In addition to this, older students may use the Internet and history books to add other events not included on the handout. These affairs may be ones that presently being discussed in class.

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<sup>1</sup>Teacher's Note: Older students may use the history books and encyclopedias to find some chronological events of the Americas and the world. Younger students may use the supplied handout, or if time is limited, older students may use this as well.

## CLOSURE:

Discuss the advances made in parts of the world verses those made in America verses those of Pennsylvania. Ask the students to trace any patterns of progress that are made in one part of the world in relation to another region.

## EXTENSION:

As a homework assignment, have every student bring in a picture from a certain civilization and add it to the time line. The student should be prepared to tell the class where it came from and when the society used it, as well as its purpose in the culture.

The Leetdale and Pennsylvania Timeline

Dates	
6000 B.C.	
5000 B.C.	
4000 B.C.	
3000 B.C.	
2000 B.C.	
1000 B.C.	
0	
500 A.D.	
1000 A.D.	
1500 A.D.	
2000 A.D.	

The North and South America Timeline	The World Timeline
Tools (dills and projectile points) were present; hunters used spear throwers and atlatls as weapons; fishing occurred.	First pottery and cities in Mesopotamia and the eastern Asia.
Forests had a temperate climate; Native American bands were egalitarian. This meant that leadership was earned.	First pottery made in Egypt.
First domestication of animals in Peru (llamas).	First writing in Mesopotamia.
First pyramids in Peru (2800 B.C.)	First arrows in Europe (2600 B.C.); Pyramids of Giza (2500 B.C.)
Steatite or soapstone bowls were fashioned in Pennsylvania and Maryland.	Bronze Age of Europe (1800 B.C.) Iron Age of Europe (1200 B.C.)
Adena community expanded and traded in the Ohio River Valley (800 B.C.)	Alexander the Great of Greece (400 B.C.) conquered Egypt and the Persian civilizations.
The Hopewell People lived in the Ohio River Valley (200 A.D.) The Mayan people had hieroglyphic writing and chocolate.	The Roman Empire expanded and flourished under Julius Caesar (100 A.D.)
The Mississippian culture and Mound Builders lived in North America (870 A.D.)	The Islam religion was founded in Arabia (600 A.D.)
The Aztec civilization prospered. Over 1 million people lived in Mexico (1350 A.D.) Columbus lands in the Americas (1492 A.D.)	The Bubonic Plague swept through Europe (1350 A.D.); European explorers sailed to find trade routes.
Settlement of Jamestown: est. 1607; The French and Indian War: Mid 1700s. The Revolutionary War began: 1776. The Civil War lasted from 1860-1864.	The French and Indian War occurred. 1793-1850: The Napoleonic Wars.
The Y2K bug does not do much damage to computer systems.	Wars divide several nations in Europe (1990-2000).

## Lesson 2: Tunneling through Time

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Subject: Science, Mathematics  
Skills: Knowledge, understanding, analogy  
Strategies: using a grid, the scientific method  
Time: 60 minutes  
Group Size: any, groups of 3-4  
Grade Level: 5-8

### OBJECTIVES:

Through this activity, students will learn how archaeologists locate and recover artifacts from sites. Students will relate the archaeological site from some prehistoric or historic periods to better understand how people from that era lived.

### BACKGROUND:

Artifacts from a certain time indicate the sort of life of a person or a group of people. Archaeologists recover these clues sometimes by digging through layers of soil. Whenever this is done the soil cannot go back to the way that it once was. The excavated site can never return again to the manner it was before digging. That is why it is very important to know the precise location of an artifact.

Archaeologists use mapping techniques so that it will be more understandable to those who analyze the site's findings. A name given to the grid system is the Cartesian coordinate system. Archaeologists take numerous measurements to establish a definite location of an artifact or feature. Later, this grid will help those who analyze the site to determine the culture of that person or group. However, teachers must emphasize that students should not perform any excavations on their own. Important information may be lost in this manner. It is also a crime to dig on federal land.

### Vocabulary:

**Archaeology:** the study of past human cultures through investigating and analyzing artifacts, sites and behaviors  
**Archaic period:** a time discussed in the introduction that lasted from 7000 to 1000 BC  
**Artifact:** any object made or used by humans  
**Atlatl:** a spearthrower made of stone from the Archaic period. It was attached to a string and allowed the weapon to travel farther when someone hunted with it.  
**Cartesian coordinate system:** usually a two-dimensional grid made of lines and used to establish the location of an object  
**Chert:** a type of hard stone used to make tools and weapons  
**Excavation:** the method of discovering and uncovering artifacts from a site

**Feature:** specific areas such as fire pits refuse pits or storage pits that were used by prehistoric people. They are identifiable in a site because the soil covering them is darker than the soil they are made from.  
**Fire-cracked rock:** sandstone that has been exposed to fire, allowing it to crumble more easily and giving it a reddish tint  
**Flake:** a smaller piece of stone, usually chert that was chipped from a larger stone in order to obtain a sharpened edge.  
**Historic period:** a time mentioned in the introduction that begins in 1600 AD and lasts until the present  
**Projectile:** a stone tool with a sharpened edge used for a variety of activities in the life of prehistoric people  
**Provenience:** the precise location of an artifact based on measurements obtained from a site  
**Site:** an area that contains archaeological material  
**Site datum:** a specific point from which the entire site is measured and recorded  
**Stratification Layer and Stratigraphy:** the layers of earth in an archaeological site. The deeper the level, the older the material that is found in that level.  
**Unit:** typically one square in an archaeological site that is to be excavated and investigated  
**Woodland period:** an era discussed in the introduction of these lessons which lasted approximately from 1000 BC until 1600 AD

### RESOURCES/MATERIALS:

Each group of students must have the following materials: a 24" by 24" piece of heavy paper, at least 12 feet of string, a ruler or yardstick, pencils, composition paper and scotch tape.

### PROCEDURE:

- 1) Have each student imagine an event in his or her life that happened within the last week. On a piece of composition paper, have each student write ten artifacts that deal with that activity. If time allows, tell the students to pass their paper and have another child guess what activity was happening.
- 2) Explain to students that if an archaeologist finds these items 50 years in the future, that he or she will use them to learn about the students' daily lives. By looking at an everyday event, archaeologists have a better idea about the lives and cultures of people.
- 3) Place a 24" by 24" piece of paper in front of group of children. Instruct them to use their rulers to divide the paper into four 12" squares similar to the one on the handout for this lesson.

- Now use the scotch tape to tape the 12 feet of string along the borders of the square. This represents 4 units in a grid.
- 4) Have students cut out at least 10 artifacts from the second and third handouts. The students must choose to create an Archaic period site, a Woodland site, or site displaying items from the Harmony Brickworks (a Historic site). The students may color the artifacts if they wish but this is not necessary for the activity. They may also use a black marker to draw circular shapes on their grid. These may represent features. Tell them to tape those pieces of paper in various places on the grid.
  - 5) After each group has finished generating their archaeological site, have the children visit different 'sites.' Tell them to identify the sites based on the artifacts recovered there. Also have them use the provided grid to make a replica of the site that they visit. They should use the scale provided, 1" on the provided grid = 4" at the site they visit. The conversions should not be too difficult. Each student should measure the distances from the artifact to the edges of the borders of the unit. They should not simply draw pictures of the artifacts on their paper.
  - 6) To the right of the grid, there is a legend. Direct the children to use this to identify all of the artifacts. It is a bit confusing if the children write the name of the artifact directly on the grid and is more understandable if they use the legend.
  - 7) After the students finish the grid and hypothesize about the type of site they are looking at, have them make guesses about the type of people who lived there during that time.
  - 8) As a possible homework activity, instruct students to create a smaller version of a grid for an archaeologist may discover 50 years in the future. The artifact the students use in their grid should be ones that correspond to activities in their daily lives.

They will tape them onto handout 6. The game will then be played as bingo is played. The instructor may say, "this is an artifact from the Archaic period. It was a weapon also called a spearthrower." The students will then look for an atlatl. If it is on their paper, they may mark it. The game will be played until someone wins. (Perhaps they could earn the title, "Archaeologist of the Day?") The second activity is a crossword puzzle that is self-explained and simple for middle school aged children.



#### CLOSURE:

Students now should have an idea about the way archaeologists record and recover material from sites. They should also have attained knowledge about some specific types of artifacts that belong to certain time periods in Pennsylvania's history. The children should be able to distinguish some artifacts from the Archaic period from those of the Woodland period, for example.

#### EXTENSION:

There are two other activities following the 3 artifact handouts. They will enforce knowledge that the students have gained through this lesson. They are optional but encouraged. The first is a game. The students will cut 24 of the artifacts from handouts 2-4.

Name:

### Handout 1: Site Plan

Scale: 1" = 4'

Date:

Legend:

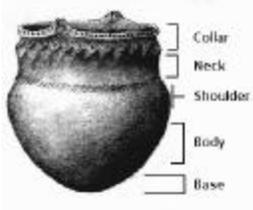
- A)
- B)
- C)
- D)
- E)
- F)
- G)
- H)
- I)
- J)
- K)
- L)
- M)
- N)
- O)

Additional Notes:

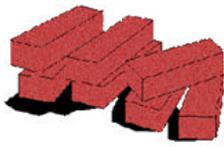
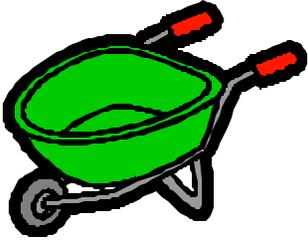

Lesson 2: Handout 2  
Artifacts from the Archaic Period

		
Fish Bones	Acorns	Walnuts
		
Spear Points	Ancient Baskets	Late Archaic Drill Point
		
Native American with Atlatl (spear-thrower)	Temporary House	Pine Tree
		
Fire Cracked Rock	Grinding Slab	Mussel Shells
		
Bone Awl	Stone Ornament	Rabbit

Lesson 2: Handout 3  
Artifacts from the Woodland Period

 <p>Earth Mounds</p>	 <p>Woodland House</p>	 <p>Arrow Point</p>
 <p>Ceramic Pottery</p>	 <p>Pottery Kiln</p>	 <p>Seashells</p>
 <p>Beads</p>	 <p>Birch Tree (hardwood)</p>	 <p>Corn Plant</p>
 <p>Bow and Arrow</p>	 <p>Harpoon</p>	 <p>Hopewell Raven Pipe</p>
 <p>Bear</p>	 <p>Cordage</p>	 <p>Wooden Mortar and Pestle</p>

Lesson 2: Handout 4  
Artifacts from the Harmony Brickworks

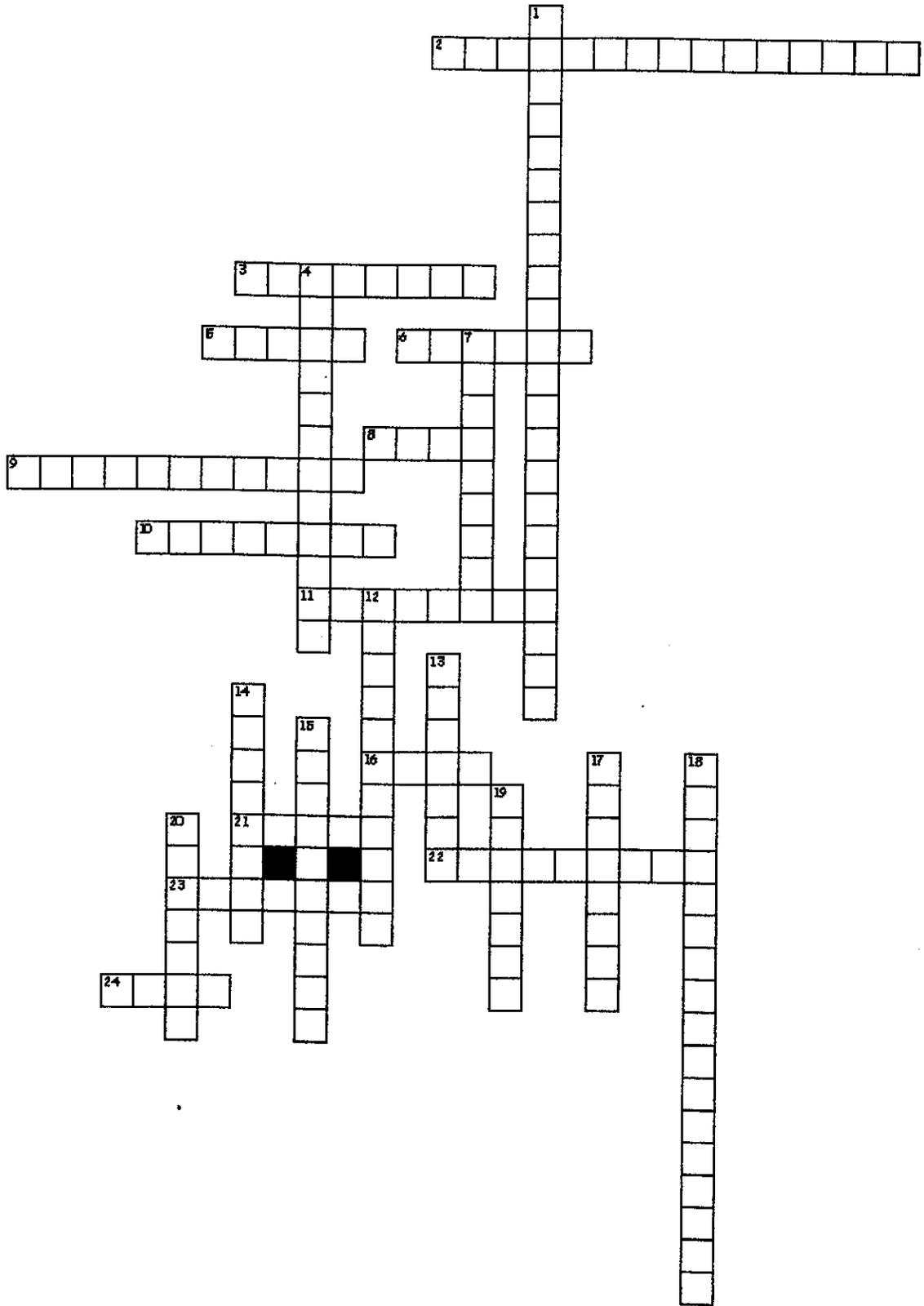
		
Bricks	Clock	Bathtub
		
Old Desk	Wheelbarrow	Old Stove
		
Shovel	Hammer	Sand
		
Lantern	Cooking Pots	Spike
		
Anvil	Brick Factory	Bucket

Lesson 2: Handout 5

The Archaeology Bingo Board

		Free Space		

Lesson 2: Handout 6



#### Across

2. usually sandstone which has been exposed to extreme heat and has a reddish tint
3. this is the period for which there are written records
5. a hard stone used to make tools and weapons
6. a spear thrower; a weapon from the Archaic period
8. one square on an excavation grid
9. the study of past human cultures through investigating and analyzing their artifacts, sites and behaviors
10. this was the period from 1000 BC to 1600 AD
11. mound-building Native Americans from the Woodland period
16. a food gathered in the Archaic period
21. a thin piece of stone cut from a larger piece in the process of making or sharpening a tool or weapon
22. the point from which all other points in an archaeological site are measured and recorded
23. this was a period of 9000 to 3000 years ago
24. a crop grown in the Woodland period

#### Down

1. the oldest known site in PA; one of the oldest sites in North America that could date to 15,000 years ago
4. the layers of the earth; typically at a site, the most recent layer is closest to the top
7. a town in Western PA that is currently being excavated; the site of the Harmony Brickworks
12. the exact location of an artifact based on measurements taken by archaeologists
13. the job of men in the Archaic period
14. something made or used by humans
15. a methodic way to recover and remove artifacts and other material from an archaeological site
17. soapstone; bowls were made from this during the late Archaic period
18. the name of the historic industry at Leetsdale
19. fired clay that does not appear until the Woodland period
20. specific area used by humans; these may have been hearths, cooking, refuse or storage pits

# Teacher's Answers for Crossword

The crossword puzzle contains the following words:

- 1. M (Down)
- 2. fire cracked rock (Across)
- 3. Historic (Across)
- 4. t (Down)
- 5. chert (Across)
- 6. a (Down)
- 7. Latl (Across)
- 8. e (Down)
- 9. archaeology (Across)
- 10. Woodland (Across)
- 11. r (Down)
- 12. Hopewell (Across)
- 13. y (Down)
- 14. r (Down)
- 15. x (Down)
- 16. nuts (Across)
- 17. h (Down)
- 18. A (Down)
- 19. i (Down)
- 20. f (Down)
- 21. flake (Across)
- 22. Sitedatum (Across)
- 23. Archaic (Across)
- 24. corn (Across)

Vertical words (Down): M, a, d, o, w, c, r, o, f, t, a, t, e, R, o, c, k, s, d, a, b, e, l, t, e, r, u, n, s, e, p, o, t, e, r, y, i, c, i, e, n, t, s, t, e, r, y, t, i, t, e, n, y, B, r, i, c, k, w, o, r, k, s.

Horizontal words (Across): fire cracked rock, Historic, chert, Latl, archaeology, Woodland, Hopewell, nuts, Sitedatum, Archaic, corn.

## Lesson 3:

### Shifting through Sherds

Subject: Science, Social Studies

Skills: knowledge, analysis, comprehension

Strategies: scientific method, discussion, comparison

Time: 45 minutes

Group: Any, groups of 2

Grade Level: 5-8

#### OBJECTIVE:

This activity should teach students to label and use ceramics to hypothesize what room the sherd came from in a house. This will help them experience the task of an archaeologist more fully.

#### BACKGROUND:

After excavating a site, archaeologists bring the artifacts that they have recovered back to the laboratory to be analyzed. Each artifact has its own provenience number so that the location of the material is known. At the lab, the artifacts are cleaned and perhaps washed to remove excess soil and other material. They are then separated into bags according to the unit in which they were recovered. Each unit of the site already has a special number or letter designation. A label is placed on each bag. The label contains the cataloging number, the number/letter combination, and other relevant information about the artifacts. Artifacts are later marked so that they may be removed from their bags and examined further.

#### Vocabulary:

**Cataloging:** method archaeologists use to identify the location and other relevant information about an artifact once it has been removed from a site. Each artifact is labeled by directly writing an identification on its surface.

**Classification:** the method archaeologists use to organize artifacts into groups based on certain standards

**PVA:** a liquid solution spread on an artifact so that it may be written on (we will not be using this in our activity.)

**Sherds:** broken pieces of pottery

#### RESOURCES/MATERIALS:

The following materials will be needed to conduct this activity: pencils, black thin permanent markers, several pieces of inexpensive ceramics, ten one-gallon Ziplock bags, several smaller plastic bags, handout 1.

#### Teacher Preparation:

Teachers should obtain several pieces of inexpensive pottery from dollar stores or yard sales. It is

even better if the pieces are already broken. There should be an array of ceramics, but all should be in the second section of the handout (flowerpots, plates, bowls, cups, etc, all easily obtainable). Teachers should break the ceramics by either dropping them or using a hammer. For safety purposes, goggles and gloves are recommended when doing this. Any tiny pieces of ceramics should be discarded, as they may be dangerous to the students. Any sharp edges of the ceramics should be sanded, using sandpaper, to prevent any harm to the students when they are handling the fragments. If this is too time consuming, EVERY broken edge of pottery should be wrapped with masking tape. This will prevent possible injury to the students. Be advised, EDGES ARE SHARPER THAN THEY APPEAR! After this, the instructor should place the sherds in the ten, one-gallon bags. Each bag should contain relatively the same material, (i.e., one bag that is to be from a kitchen should contain portions of plates, cups and bowls, while a bag from the outside of a house may contain parts of a ceramic watering can and flower pots) but each bag should also possess sherds of pottery that clearly did not belong in that unit. For instance, the kitchen bag may contain two pieces of jewelry boxes from a bedroom. Students will hypothesize about the origins of these sherds.

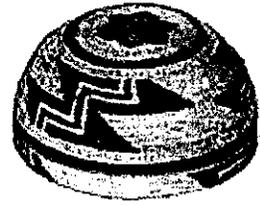
#### PROCEDURE:

- 1) The instructor should prepare each of 10 workstations before the students come to class. Each station should have a bag of sherds, a fine tipped permanent marker and handout 1<sup>1</sup>.
- 2) Students should use the marker to write an identification number on the bag. The number should be "Name of the school"-01, or "..."-02, depending on the number of the group. Then by using the handout students should place this CATALOGING number on the line labeled "Cataloging number." For example, a number could be "My School-08" for group number 8 in the class.
- 3) Students should empty all the sherds from the bags and use the markers to write their specific cataloging number on the inside surface of each of the sherds.
- 4) Now use the handout. Students should create their own classifications for the sherds based on physical characteristics. One classification may be "White and glazed." The students should

<sup>1</sup> Before this activity the teacher should test the markers to see if they do write on the pottery. Also, nail polish remover should remove the marker from the ceramics if the teacher chooses to conduct this activity again. Experiment with the markers to see which works best.

write their classifications on the lines below "Classification." Students should also count the sherds in each classification and write the number to the right, where the handout specifies.

- 5) Now have the children total the amount of sherds and place this number on the "Total" line.
- 6) Next, in section two of the handout, have the students count the number of plate sherds, potsherds, soap dish sherds, etc, and place that number on the line to the left.
- 7) In the third section of the handout, students will choose which they believe the ceramics came from. They will do this by writing the number of sherds on the lines provided. If there are two sherds from bowls and one from a picture frame, then the student will write 2 next to "bowl" and 1 next to "picture frame." Because there should be a majority of one type of sherd in each bag, the student should be able to guess from which room of the house the pieces originated. The children will circle the room and hand in their activity paper.

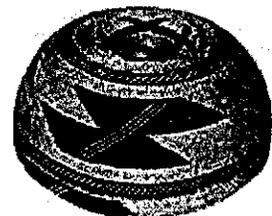
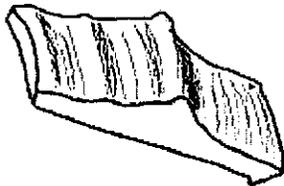


#### CLOSURE:

Groups should present their findings to the class.

#### EXTENSION:

If time allows, have students try to piece their sherds together with the fragments from other groups. Groups may also trade bags before the group presentation and check if the other students achieve the same results.



Names: \_\_\_\_\_

Cataloguing Number: \_\_\_\_\_

Classifications:

Number of Sherds:

- 1) \_\_\_\_\_
- 2) \_\_\_\_\_
- 3) \_\_\_\_\_
- 4) \_\_\_\_\_
- 5) \_\_\_\_\_
- 6) \_\_\_\_\_

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

TOTAL NUMBER OF SHERDS: \_\_\_\_\_

---

Section 2: Count the number of sherds and  
place this number on the line

\_\_\_\_\_ Plates

\_\_\_\_\_ Cups

\_\_\_\_\_ Bowls

\_\_\_\_\_ Flowerpots

\_\_\_\_\_ Watering Cans

\_\_\_\_\_ Figurines

\_\_\_\_\_ Picture Frames

\_\_\_\_\_ Jewelry Boxes

\_\_\_\_\_ Soap Dishes

\_\_\_\_\_ Toothbrush Holders

\_\_\_\_\_ Candle Holders

\_\_\_\_\_ Other

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Section 3: Count how many different items that  
the sherds represent. Put this number  
on the line.

**KITCHEN**

\_\_\_\_\_ Plates

\_\_\_\_\_ Cups

\_\_\_\_\_ Bowls

**BATHROOM**

\_\_\_\_\_ Soap Dishes

\_\_\_\_\_ Toothbrush Holders

**OTHER (specify)**

\_\_\_\_\_

**GARDEN**

\_\_\_\_\_ Flowerpots

\_\_\_\_\_ Watering Cans

**BEDROOM**

\_\_\_\_\_ Figurines

\_\_\_\_\_ Jewelry Boxes

\_\_\_\_\_ Picture Frames

Names: Sample

Cataloging Number: IUP-01

Classifications:

	Number of Sherds
1) <u>Pink, Yellow, Shiny Ceramic</u>	<u>2</u>
2) <u>Light/Dark Blue, Unfired Ceramic</u>	<u>2</u>
3) <u>Pink, Green Hard Ceramic</u>	<u>1</u>
4) _____	_____
5) _____	_____
6) _____	_____

TOTAL NUMBER OF SHERDS: 5

Section 2: # of Sherds

_____ Plates	<u>1</u> Picture Frames
_____ Cups	<u>2</u> Jewelry Boxes
_____ Bowls	<u>1</u> Soap Dishes
_____ Flowerpots	_____ Toothbrush holders
_____ Watering cans	_____ Candle holders
_____ Figurines	_____ Other

Section 3: # of Items Represented

KITCHEN

- \_\_\_\_\_ Plates
- \_\_\_\_\_ Cups
- \_\_\_\_\_ Bowls

BATHROOM

- 1 Soap Dishes
- \_\_\_\_\_ Toothbrush holders

OTHER \_\_\_\_\_

GARDEN

- \_\_\_\_\_ Flowerpots
- \_\_\_\_\_ Watering cans

**BEDROOM**

- \_\_\_\_\_ Figurines
- 1 Jewelry Boxes
- 1 Picture Frames



Journals: My experiences from the dig at Leetsdale

July 23, 2001

Well, after we finally got a car and drove for a LONG time, we arrived at Leetsdale. I thought to myself, this is an archaeological site? It was nothing like I would have pictured it. There was industry everywhere. Machines were doing all sorts of construction. The remains of Three Rivers Stadium lay on both sides of the road. How sad! Because of the construction, every person on site was required to wear a hardhat, steel-toed boots and safety glasses.

After introductions, and looking at the site, Dr. Chiarulli (my professor), Jonathan (the volunteer coordinator) and I began to use shovels and trowels to dig a unit. Wow. It was hard. The soil was sun-baked and machine-packed clay. Back hoes had driven over the area removing the top 60cm or so. Now we were down to layer F14 (F stands for "Fill"). I began to learn how to use a trowel, although I'm not good at it yet. It was hard to scrape away the rock-hard clay.

Dr. Chiarulli sifted the material that I put on the screen. She found a few stone flakes or debitage. We also found lots of FCR—fire-cracked rock—but Jonathan said that it was still close to the surface; most of the material had been moved so we didn't record any provenience data. He also found half of a cobblestone, a stone used around fire pits, but said that that wasn't useful either, so that was a little discouraging. I'm only going to be at Leetsdale this week and won't get much done by the time I leave. There will probably be a few more stone flakes but nothing that will clearly define the Woodland period.

It's a hard site to work at... the soil is hard to dig, the summer sun is relentless and we won't find anything fantastically significant in our area. I guess all archaeologists get into this and feel that way at times, though. I don't mind the hard work, but I like to get results. It didn't seem that we accomplished a lot today. Maybe it'll be easier on Wednesday.

July 25, 2001

We arrived on site at 10:30 today. No problems with traveling, luckily. It had rained earlier which had thankfully. Perhaps the high for today will only be 85 degrees. Thunderstorms threatened our work today... just another problem that archaeologists have to deal with I suppose.

Jonathan picked us up and we started digging a little before 11. He began to dig a unit close to ours. It was SO MUCH EASIER because the rain had softened the soil. I learned how to use a trowel in a more efficient way. We found lots of FCR and quite a few more flakes. I also tried using a shovel but I wasn't used to digging across the soil, just down, and I didn't want to hit and destroy any flakes.

There was no storm after all. It was overcast all day so at least we had a break from the sun. My body wasn't used to working hard in high temperatures for hours. I also left the site and walked to the dam. They were going to float it up the river on the following day. Very Enormous. It was also interesting—how they selected the location to build the dam—anyway, back to archaeology.

I was working trying to make the unit the same level. This was difficult because we weren't supposed to follow the dirt outside the level; we were supposed to dig according to the level itself (confusing, I know...). That way, there would be no mixing of the Stratigraphy or levels of earth. I also screened dirt a little bit when I was tired of digging.

It was about 2:30 when we were almost done for the day. We were volunteers so we didn't have to stay as long as the employed archaeologists. I was still digging when I found a soft, crumbling black object with pinkish flecks. I gave it to Jonathan and Dr. Chiarulli. They said it was a piece of prehistoric ceramic, but it was strange. No one else on the site had found one like that yet. Maybe it had broken and fallen into the fire—that's why it could have been black in color. It was thick and smooth on its outer and inner surfaces. I hope they'll be able to use it in their investigations.

I also learned how archaeologists label and bag artifacts. I'm sure each site has their own methods, but that gave me an idea anyway. After labeling, the pieces will go into bags and be sent to the lab for analysis. That's all for today. I'll be in the lab on Friday.

July 27, 2001

I was in IUP's archaeological lab today. Dr. Chiarulli taught me how to label artifacts once they had been catalogued. Through investigation of the artifacts, an archaeologist can make guesses as to the lives of the people who lived on the site.

After the artifacts are discovered—I was working with potsherds from Belize—they were labeled and put into bags. They're washed and cleaned to remove any extra dirt. Then someone separated them into certain classifications. In our case, all rims of pots from a certain area were together, all bodies were together, etc. Each bag was marked with several numbers and the artifacts were recorded on sheets.

My job: remove all the rims from about 6-7 bags and label them with their provenience number. It was long and tedious task, especially since I knew there was so much more there; I was only doing the RIMS from ONE ROOM. But it was fun and rewarding when I found a couple fragments that went together. I love puzzles and that certainly qualifies...

I used PVA, a liquid solution that keeps the ink on the pottery, and applied it with a small paintbrush. After that was dry, I wrote the provenience number on it. Later, I applied another coat of PVA.

Dr. Chiarulli showed me some of the Mayan rims and explained what it meant when some dishes had higher flanges than others. I also learned about the slants of dishes. Less slant indicates it was a flat piece, probably plate; more slant indicates bowls. Also the jars vary based on the time it was created and the wishes of the potter.



# Breaking Stone with a Stick

**SUBJECT:** Art, Science (Geology), Social Studies  
**SKILLS:** Knowledge, implementation, creation  
**STRATEGIES:** Reading, estimation, inquiry, experimentation, invention  
**DURATION:** 30-45 minutes  
**CLASS SIZE:** Any, groups of two  
**GRADE LEVELS:** 4-7

sponges or other ocean animals that have been fossilized. It was widely used by ancient people to make arrowheads, spear heads, and knives.

## OBJECTIVES:

By studying various drilling techniques, students will gain an understanding of the progression of technology in the Americas. Students will also create their own "bead" through utilization of one of those methods.

## BACKGROUND INFORMATION:

Soft rock is easy to cut; granite and the other hard igneous rocks are difficult. It is thought that ancient Native Americans first used the bamboo only to bore holes through a small stone or shell. Then perhaps later they may have attached a projectile points to the end of the bamboo stick in order to obtain a smaller and more precise hole. In addition to drilling through stones and shells for ornamental purposes, there is evidence that Native Americans have drilled through bones to make them into beads as well. These adornments may have been used for trading or ceremonial purposes, as well as in daily life.

## Vocabulary:

- Anvil:** a large, flat stone used as a hard and sturdy medium on which to drill
- Bow Drill:** tool, shaped like that of a bow (as a bow and arrow) used by ancient cultures. It is used by back and forth movements and rotating the drill in the stone, so friction is caused. It was also used in fire making.
- Chert:** a very hard sedimentary rock that is usually found in nodules in limestone and is light gray to dark gray in color. It probably formed from the remains of ancient sea

## RESOURCES/MATERIALS:

Several chert flakes and chert dust, a large flat stone, a bamboo stick, several pieces of shale, sandstone or slate for each group of students.<sup>1</sup>

## PROCEDURE:

- 1) Before the students enter the classroom, make sure that each group of two will have access to a bamboo stick. Each stick must have one straight, flat edge so that the drilling is easier for the students. This may be done by either sawing or sanding one edge. Also, sharpen the inside of that end of the stick. Place in the stick a piece of chert and rotate it so that the stick is still sturdy, but is big enough to hold the chert.
- 2) Tell each student to take one piece of shale (this is the easiest to drill through) and one piece of chert. Start a hole in the shale by manually whittling with the chert. This is more convenient so the drill will not slip. Once there is a starter hole, have a student place their shale on an anvil. The shale should be thick enough so that it will not break under the pressure of the drill, yet thin so that this activity can be completed in the allotted time.

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<sup>1</sup>Teacher's Note: Chert flakes and dust are obtainable at most hardware stores in the form of gravel. Bamboo sticks can be located in the marches or around ponds in Western Pennsylvania. They can also be purchased at craft stores. Caution should be used during this exercise. The students will be drilling with a sharpened point.

- 3) Now insert a chert flake into the flat edge of the bamboo stick. A pointed end of the flake should be protruding from the stick.
- 4) Place some chert dust on the surface to be drilled. This helps in grinding away the surface of the shale.
- 5) Start drilling by telling the students to rub the stick between their hands, turning the stick. Have one student drill as the other holds the bottom of the stick in place. This is easier so that the drill does not slip.
- 6) Periodically, tell the students to stop drilling and clear the shale of any shale dust. The rock will then be drilled through completely in this manner.

#### CLOSURE:

Based on this activity, have students share with the class their thoughts of how prehistoric people may have drilled through beads and shells. Perhaps this is a reason that they were used in bartering. Ask the students to hypothesize about the size of the holes in the stone. Which would make the most precise hole? Without using a chert flake, what would the hole look like? Again, without use of a flake, how long would drilling take? Examine students' drilling efforts for an evaluation.

#### EXTENSION:

A homework assignment may be for them to write an essay about what other tools may be made by drilling holes (wheels, weapons).



These are bone beads and a pendant from the Woodland period found in Somerset and Bedford Counties, in Pennsylvania.

#### RELATED WEB SITES:

<http://entewa.com/picto.html>

<http://members.truepath.com/cherokeesurvival/fire.htm>

<http://www.shol.com/spa20/gallery/gallery.htm>



These are glass beads from the Contact Period, named for the time when Europeans and Native Americans came into contact with each other. They were found in Somerset and Bedford Counties in Pennsylvania.

## Conclusion

From these series of lessons, your students should now realize that archaeology is not only 'digging up old stuff.' Recovered artifacts are often very important to many people. Students must understand that the purpose of an excavation is to gain knowledge about a culture. There is much more to archaeology than just excavating. Artifacts are analyzed in labs and catalogued for further investigation.

These studies were written with the intent to teach students about the Leetsdale site in Western Pennsylvania. Children will now have knowledge about the people that lived there so long ago. Questions may be asked such as, Who lived in Leetsdale and when did that group live there? What sort of lifestyle did they have? What did they do there? What did the people there eat? How does life in the Archaic period differ than that of the Woodland or historic periods? Students should be capable of answering all of these questions rather easily. The same inquiries can be made about life in Pennsylvania.

Instructors may purchase other archaeology lessons or borrow archaeological trunks that contain replicas of artifacts for various lessons. To obtain a trunk, call Dr. Renata Wolyneec at (814) 723-2573. Many other resources are also available for use through the World Wide Web.

