

## Living Archaeology Weekend: Lesson 2

### Chronology: The Time Of My Life

**SUBJECTS:** Science, social studies, language arts

**SKILLS:** Knowledge, comprehension, application, analysis, evaluation

**STRATEGIES:** Discussion, problem solving, analogy, forecasting

**DURATION:** 45 to 60 minutes

**CLASS SIZE:** Any; groups of 2

**CURRICULUM CONNECTIONS:** Math, Science, Social Studies, Speaking/Listening/Observing

#### *Academic Expectations*

- 1.12 Students speak using appropriate forms, conventions, and styles to communicate ideas and information to different audiences for different purposes.
- 5.1 Students use critical thinking skills such as analyzing, prioritizing, categorizing, evaluating, and comparing to solve a variety of problems in real-life situations.
- 5.3 Students organize information to develop or change their understanding of a concept.
- 6.2 Students use what they already know to acquire new knowledge, develop new skills, or interpret new experiences.

#### *Program of Studies*

##### **SS-5-HP-U-1**

Students will understand that history is an account of human activities that is interpretive in nature. A variety of tools (e.g., primary and secondary sources) are needed to understand and analyze historical events.

##### **MA-5-M-S-SM4**

Students will describe, define, give examples of and use to solve real-world and/or mathematical problems both nonstandard and standard (U.S. Customary, metric) units of measurement to include length, time, money, temperature (°F and °C) and weight.

##### **EL-5-SLO-U-1**

Students will understand that communication, both formal and informal, is an interpretative process that integrates listening, observing, reading, writing and speaking with confidence. Different levels of discourse are appropriate for different contexts, occasions, purposes and audiences.

##### **SC-4-EU-U-3**

Students will understand that the surface of the Earth is always changing through both fast and slow processes. These changes may be steady, repetitive or irregular.

#### **MATERIALS:**

Ten strips of colored paper, scissors, glue  
Copy of "The Life of \_\_", and "Pledge Site Stratigraphic Section" activity sheet for each student.

#### **Objectives:**

In their study of chronology, the students will use personal time lines and an activity sheet to:

1. Demonstrate the importance of intact information to achieve accuracy.
2. Compare and contrast their timelines with the chronological information contained in a stratified archaeological site.
3. Appreciate the impact vandalism and looting have on archaeological deposits and on our understanding of the past.

#### **Vocabulary:**

chronology: an arrangement of events in the order in which they occurred.

data: information, especially information organized for analysis.

diagnostic artifact: an item that is indicative of a particular time and/ or cultural group; a computer would be a diagnostic artifact of the modern age.

looting: willfully or maliciously destroying archaeological deposits to recover artifacts for personal gain or sale.

strata: many layers.

stratigraphy: the arrangement of layers of earth representing different geologic events; the layering of deposits in archaeological sites. Cultural remains and natural sediments become buried over time.

stratum: one layer.

timeline: a visual representation of events in chronological order.

vandalism: willful or malicious defacing or destroying of property.

## **Background:**

The proper sequence of events must be known when trying to understand the past. Each piece of information contributes some understanding to the overall story, but only if the information can be placed in chronological order. Chronological order means that events are arranged in their order of occurrence, establishing a *chronology*.

One way to display events visually in chronological order is with a *timeline*. A timeline is divided into equal time segments (month, year, or century, for example), with one end representing the oldest events and the other end the most recent events.

Natural materials (rocks, soil, and plant and animal remains) and materials of human origin (artifacts and trash or ash deposits) occur on the earth's surface and can accumulate in layers, or *strata*. Natural and human-generated materials occur together in archaeological sites, and these strata form a record of past events.

When archaeologists dig a site, they record the *stratigraphy* and the location of what they find, so that through analysis and interpretation, they can establish the age of the site, its artifacts, or events that took place there and place them in chronological order. All of the artifacts in a given layer or *stratum* will be of approximately the same age. The materials deposited first are the oldest and are always found at the bottom. The most recently deposited materials are the youngest and are always at the top.

Stratified sites can show how a culture changed over time and have the potential to give clues about the relationship one group of people had to those who came before or after them. Because of their great information potential, archaeologists consider stratified sites particularly important.

When vandals or looters disturb or dig a site, they mix the stratigraphic layers together, making it difficult to place archaeological events in order. And when artifact-seekers collect artifacts from the surface of a site, they remove the very information that could help place the site in time and determine the site's age. It's like tearing up a page of the past and throwing it away.

Within the Red River Gorge, decades of looting, vandalism, and recreational use, such as rock climbing or camping, have destroyed or damaged many of its rockshelter sites, prehistoric rock art, and historic logging camps and homestead sites. Archaeologists estimate that at least 90 percent of the archaeological sites recorded in the Gorge have been disturbed in some way.

The Daniel Boone National Forest tries to prevent the destruction of these fragile and important cultural resources in many different ways. It no longer allows camping in rockshelters. Forest heritage staff, backcountry rangers, college students, and volunteers monitor the condition of sites, checking to see if illegal activities are occurring. A few rockshelter sites are fenced with four-foot high chicken wire. While the wire fence will not stop someone from entering these sites, it does serve as a reminder that an important place is being protected. If problems are discovered during monitoring, law enforcement gets involved. People caught digging are prosecuted, and may pay hefty fines or serve prison sentences. The Forest's most important tool for protecting sites in the Gorge is educating people about how human impacts destroy its unique cultural heritage. Lessons like this one can help students understand their responsibility to protect archaeological sites.

Everyone can help stop site destruction and vandalism. Don't dig in sites or collect artifacts. Don't buy artifacts from people who dig and destroy sites. Report people who are digging and collecting on the Forest to law enforcement officials: write Forest Supervisor's

Office, Daniel Boone National Forest, 1700 Bypass Road, Winchester, Kentucky, 40391; phone (859) 745-3112); or go to the web: <http://www.fs.fed.us/r8/boone/contact/>

### **Setting the Stage:**

Tell a familiar story out of sequence, such as Goldilocks and the Three Bears or Jack and Jill, leaving some parts out. Ask students to describe the problems with the story. Why is it important to relate sequential information, including all the important details?

### **Procedure:**

1. Define chronology and state the necessity of establishing chronological order when studying the past.

2. Have the students list ten events in their lives, one on each of the ten strips of colored paper. (Note: It may be helpful to have the students do this as a homework assignment with parental assistance). Next to each event, ask students to draw an object that might symbolize that event. These events should not have obvious time links, such as “my eighth birthday party,” or “I started 4th grade.” The events could be things like “my sister was born (rattle),” “the family moved (moving van),” “we went to the Red River Gorge on vacation (tent).” Students should try to include events from their entire lives.

3. They then shuffle their strips and exchange them with another student, who tries to lay the strips out in correct chronological order, with the most recent at the top.

4. The two students who have exchanged strips then tell each other their best guess of the proper chronological order. The strips are then returned to their owners. This is usually a humorous experience for students.

5. Discuss: Were you able to reconstruct the timeline correctly? Why or why not? It is difficult, sometimes impossible, to reconstruct a story if the order of events is not known.

6. Ask students to randomly remove four events from their personal timeline. Ask students if the chronological order would have been more difficult to construct and if the story of their classmate would have been as complete if there were even fewer strips. Connect this activity to archaeological sites by stressing how archaeological data is usually impossible to place in chronological order if vandals have dug up a site (like mixing up the event strips) or if artifact collectors have removed artifacts (equivalent to removing some of the event strips).

7. Distribute the “The Life of \_\_\_” activity sheet (which forms the backing for the student’s timeline). Students glue their own strips in chronological order, beginning with the most recent event at the top. They can write the year of the event (or they can number the events one through ten) in the column to the left of their strips.

### **Closure:**

1. Distribute a copy of the “Pledge Site Stratigraphic Section” activity sheet to each student. Have them lay their timeline next to it.

2. Using a drawing on the board, different colors of construction paper layered on top of each other, or any other visual model, demonstrate how stratigraphy is formed: artifacts are deposited as people live on top of the layer; and then a new layer of sediments is deposited on top of that, by natural processes or by another group of people leaving different types of artifacts. This happens several times until the stratigraphy is built up to present-day levels.

2. Using the background information and the “Pledge Site Stratigraphic Section” activity sheet, discuss the effects of illegal digging on archaeological data recovery efforts.

3. Using the “Pledge Site Stratigraphic Section” activity sheet and the students’ timelines, explore the following questions:

a. In what ways is your chronology similar to an archaeological stratigraphic section?

In what ways is it different?

b. Imagine that you cannot remember significant events in your life. How would that change the history of your life?

c. In what ways is a hole dug by vandals in an archaeological site similar to a loss of significant events in your life? Would the archaeologists be able to study the stratigraphy of a site if the strata had already been mixed up by illegal digging? If someone took an arrow point, what kind of information would he or she have removed from the site?

4. In summary, what might you say to an artifact collector about the importance of leaving sites undisturbed, as it relates to the importance of stratigraphy?

### **Evaluation:**

Discuss the following questions as a class, or in pairs and then report back to the class:

1. How would you feel if your timeline was all that would ever be known about you and somebody tore part of it up?

2. How do you think a Forest Service archaeologist might feel when he or she visits a site in the Red River Gorge that has been looted? Give reasons for your answer.

Ask the students to present an extemporaneous persuasive speech that defines chronology as used by an archaeologist and explains the importance of intact sites.

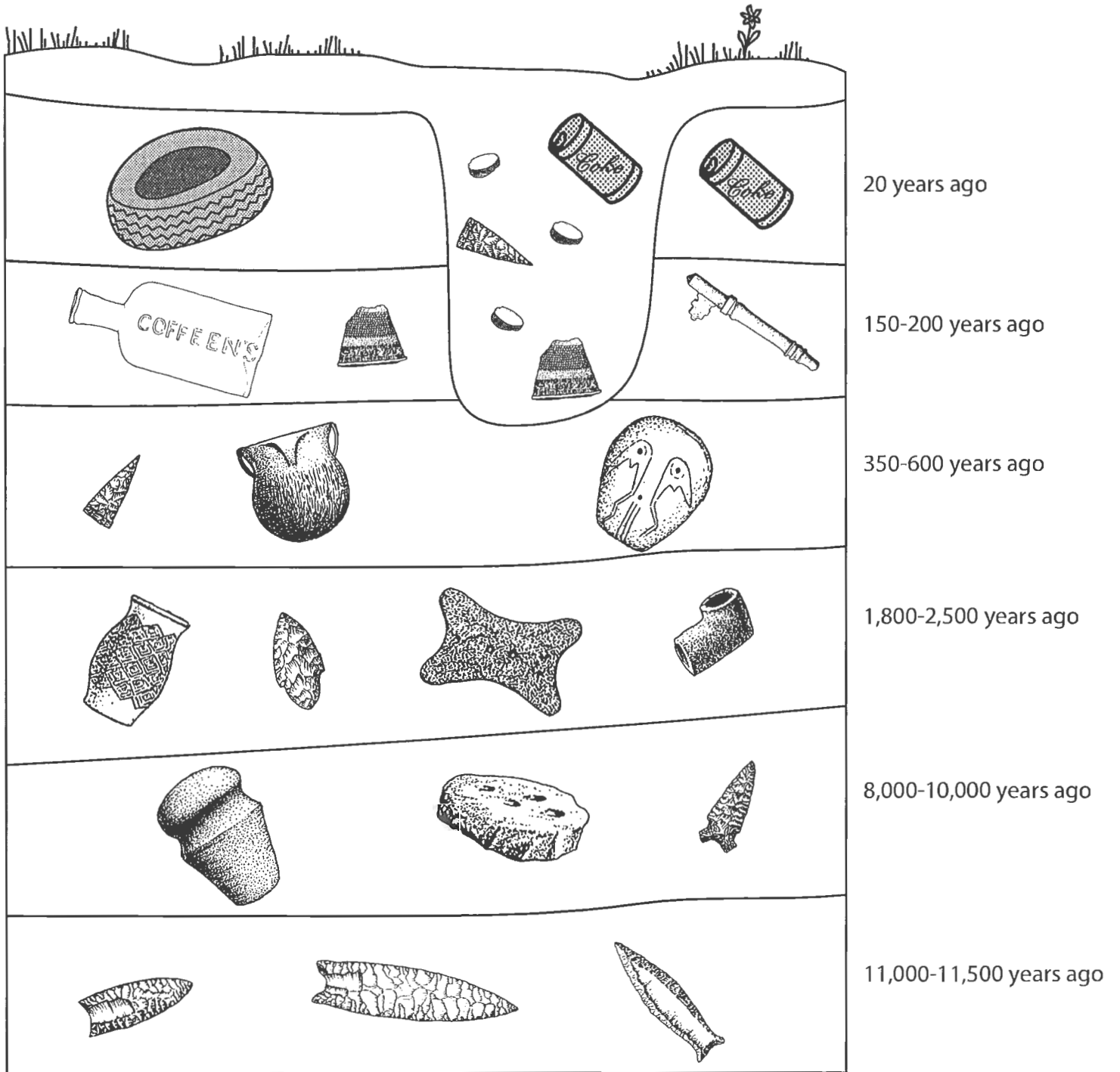
### **Extension:**

Take a field trip to examine the stratigraphy of road cuts. Measure and draw the layers on graph paper. Describe the strata by comparing differences in color and texture and other observable characteristics.

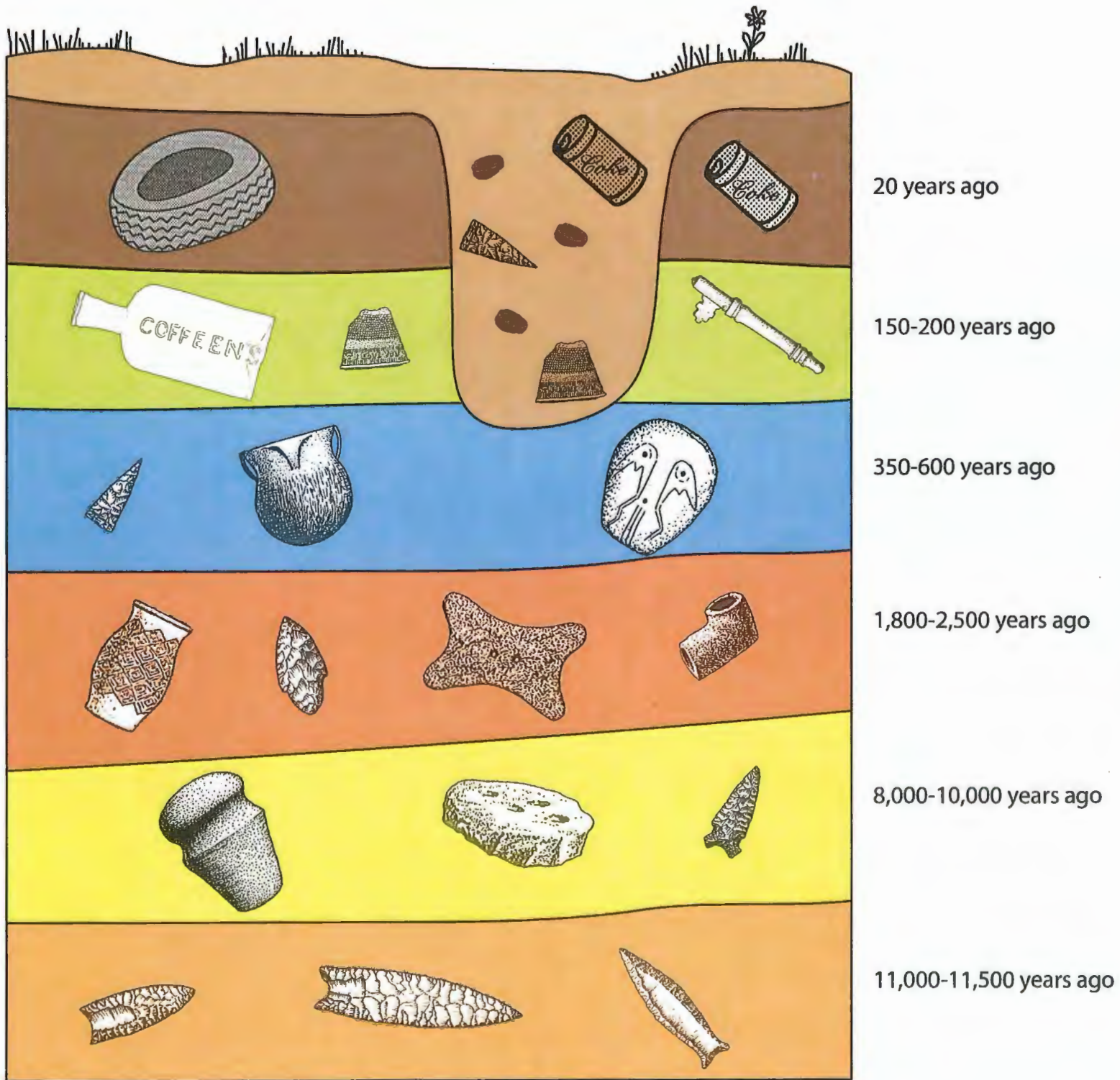
This lesson was adapted with permission from *Lesson 5: Chronology: the Time of My Life*, pages 22-26 and *Lesson 10: Stratigraphy and Cross-Dating*, pages 49-52, in **Intrigue of the Past: A Teacher's Activity Guide for Fourth Through Seventh Grades**, by Shelley J. Smith, Jeanne M. Moe, Kelly A. Letts, and Danielle M. Patterson. U.S. Department of the Interior, Bureau of Land Management (1993).



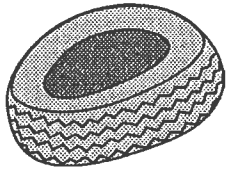
# Pledge Site Stratigraphic Section



# Pledge Site Stratigraphic Section



# Pledge Site Stratigraphic Section Legend



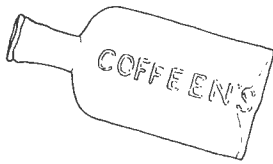
tire (rubber)



soda can (aluminum)



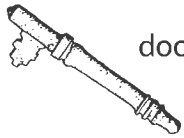
rock (limestone)



Coffeen's liniment patent medicine bottle (glass)



thimble (brass)



door key (iron)



triangular arrowhead (chert also known as flint)



cordmarked and plain-surfaced jar (ceramic)



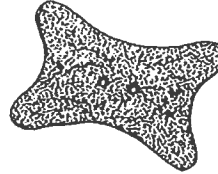
"weeping eye" mask gorget (marine shell)



decorated [incised] jar (ceramic)



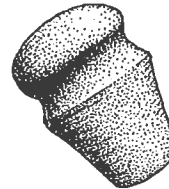
stemmed spearpoint (chert also known as flint)



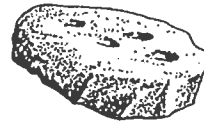
reel-shaped gorget (copper)



elbow pipe (siltstone)



fully grooved ax (granite)



pitted stone or nutting stone (sandstone)



side-notched spearpoint (chert also known as flint)



fluted dart point (chert also known as flint)



fluted dart point (chert also known as flint)



fluted dart point (chert also known as flint)



## Artifact Key

(all objects are right to left within each depositional zone)

### **10 years ago; A.D. 1990 Looter's hole**

soda can (aluminum)  
3 rocks (limestone)  
triangular arrowhead (chert also known as flint)  
thimble (brass)

### **20 years ago; A.D. 1980 Modern deposits**

tire (rubber)  
soda can (aluminum)

### **150-200 years ago; A.D. 1800-1850 deposits, Antebellum**

Coffeen's liniment patent medicine bottle (glass)  
thimble (brass)  
door key (iron?)

### **350-600 years ago; A.D. 1400-1650 deposits; Fort Ancient/Late Prehistoric period**

triangular arrowhead (chert also known as flint)  
cordmarked and plain-surfaced jar (ceramic)  
"weeping eye" mask gorget (marine shell)

### **1800-2500 years ago; 500 B.C. to A.D. 200 deposits; Adena/Middle Woodland subperiod**

decorated (incised) jar (ceramic)  
stemmed spearpoint (chert also known as flint)  
reel-shaped gorget (copper)  
elbow pipe (siltstone)

### **8,000-10,000 years ago; 6,000-8,000 B.C. deposits; Early Archaic subperiod**

fully grooved ax (granite)  
pitted stone or nutting stone (sandstone)  
side-notched spearpoint (chert also known as flint)

### **11,00-11,50 years ago; 9,000-9500 B.C. deposits; Late Paleoindian subperiod**

fluted dart point (chert also known as flint)  
fluted dart point (chert also known as flint)  
fluted dart point (chert also known as flint)