

event an occurrence or happening.

excavate to dig up the soil in a scientific manner.

feature structure; could be either man-made or naturally occurring.

final report after an excavation takes place, all the information is gathered by the archaeologists and written into a final report that is released for peer review prior to being published.

forage to gather food from land.

granary a building used to store surplus grains.

grid a checkerboard-like network of uniform horizontal and vertical lines that provides guidelines for archaeological excavations.

hearth fireplace.

history recorded past events.

Hohokam (means “all gone” or “all used up” in the O’odham language) the culture that occupied the desert of south-central Arizona from about A.D. 300–1450.

huerta a private Mexican-owned garden in Tucson in the 1800s, 25–30 feet square in size.

hunter-gatherer culture people who hunt small game animals and gather plants from the land to satisfy their diet.

irrigate to divert water from a river, stream, or lake to farmland usually using ditches and canals.

laboratory analysis to decipher information in a scientific laboratory usually involving tests.

Law of Original Horizontality a geologic concept that states that soils are deposited first horizontally.

Law of Superposition a geologic concept that states that layers of soil deposited first are below those deposited at a later date. The layers that are the oldest are beneath those that are younger.

lithic referring to stone.

maize corn.

mano a hand-held rock used to grind grains, used in conjunction with a metate.

metate a rock used as a base to hold grains for grinding, used in conjunction with a mano.

mission a community established by and focused on the Catholic Church. Set up by Spaniards to colonize New Spain, the mission’s purpose was to convert North American natives to Christianity and turn them into tax-paying Spanish citizens.

Mogollon refers to the culture found in the Mogollon Mountains. The Mogollon Culture existed approximately A.D. 200–1200.

ostracod water-dwelling crustacean.

paddle and anvil method a pottery technique used by Hohokam and O’odham people. First, coils of clay are stacked on top of one another. Once the basic shape is decided, the potter places his/her hand inside the pot while holding a smoothing rock (the anvil). The other hand gently pats the pot with a paddle to smooth out the coils.

Paleo-Indian migratory people who crossed exposed land in the Bering Strait from Siberia and spread throughout the Americas, following herds of mammoth, bison, and other big game, around 12,000–8,000 B.C.

Piman relating to a language from the Uto-Aztecan family.

pithouse a house built partially below the surface of the earth. Generally, the above surface part was made of sticks, desert brush, and mud. Pithouses usually had a dome shape, no windows, and one entrance.

plaiting braiding.

pothunter one who illegally removes evidence from an archaeological site.

potsherd piece of pottery or ceramic.

prehistory the period of time occurring prior to written language.

presidio a walled fort housing soldiers and their families, built by the Spaniards to help colonize Spanish-claimed land in North America. Presidios were part of a two-pronged approach, in conjunction with missions, to settle the land.

radiocarbon dating tests organic materials such as charcoal, bone, or wood, to determine the quantity of a radioactive form called carbon 14 (usually written 14C). Living things ingest carbon 14, which decays at a steady known rate. By determining the ratio between carbon 14 and regular carbon in the object, it is possible to discover an age range for the object.

relative dating techniques scientific measures that tell the age of an artifact, site, or feature by relating the object to another object. This technique can tell us whether an artifact is older than, younger than, or the same age as another. It cannot provide an exact calendar date for an artifact.

research design a plan of action that guides an archaeological excavation.

riverine pertaining to an aquatic setting, such as a river or stream.

sample grids specific grids chosen by archaeologists to excavate

sedentary to remain in one place.

sediment material deposited by water, wind, or glaciers.

site a place or area that was used by humans.

staple crop a principal plant raised for food or used for manufacturing.

storage pit underground storage used for surplus food.

strata layers.

stratification different layers of soil piled on top of each other.

stratigraphy the study and interpretation of soil or rock layers.

stylistic analysis determining the meaning of an artifact by comparing an artwork style with that of other cultures.

survey to examine a parcel of land to ascertain location, condition, and extent of property. An archaeological survey examines land to identify and record any cultural materials present.

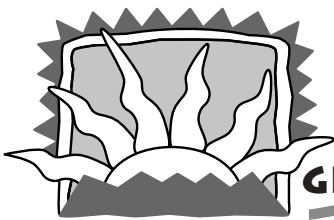
temper adding products, such as grass, mica, or sand to clay, to strengthen the clay for firing

zanjero an elected water judge who oversaw the fair and equitable distribution of irrigated water.

ARCHAEOLOGICAL TECHNIQUES: DOCUMENTING EVIDENCE

Lesson 1

In this lesson, students will practice data recording and observation skills. Students will learn the importance of detailed and accurate data recording by mapping a designated area, recording and reevaluating data, and comparing final product with the original source.



GETTING STARTED

OBJECTIVES

- to introduce students to the scientific method, archaeological procedures, and vocabulary terms
- to enable students to perform an archaeological survey using scientific methods

STANDARDS ADDRESSED

Grades 4–5 1SC-E3 (PO1, PO2), 2SC-E4 (PO1)

Grades 6–8 1SC-E3 (PO1, PO2), 2SC-E4 (PO1), 2SC-E5 (PO3)

KEY WORDS

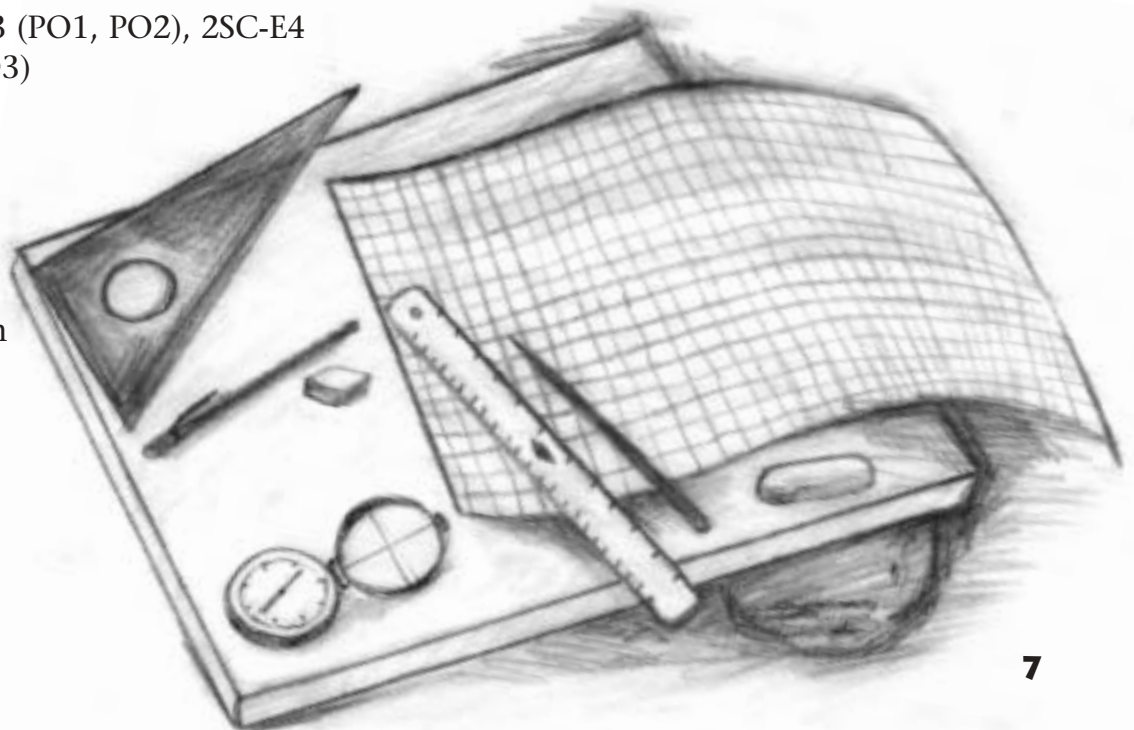
archaeology
artifacts
ceramics
context
data interpretation
excavate
features
grid
lithics
research design
site
survey

MATERIALS

- graph paper
- pencils
- rulers
- classroom, playground, or gymnasium
- tape, clothesline, or chalk
- compass

TIME

1–2 class periods





TEACHER'S CORNER

Archaeology is the study of human behavior by examining the **artifacts**, or material objects people have made or used. Among these pieces of evidence are **ceramics** (pottery), **lithics** (stone tools), and **features** (structures). A location that people used (blacksmith shop, school, animal carcass preparation area) or a location in which they lived (pithouse community, presidio, boarding house) is called a **site**. Once archaeologists excavate a site and recover the artifacts, they must piece together the story that the objects tell, just like a detective pieces together the clues at a crime scene to determine what happened. How do archaeologists do what they do? Archaeologists do their job in stages:

- a. Survey and records check
 - b. Testing
 - b. Research design
 - d. Excavation
 - e. Laboratory analysis
 - f. Data interpretation
 - g. Final report
- Q.** What is the first step for an archaeologist?
- A.** Archaeologists are often asked to examine an area before development and construction take place. The first step is to do a records check and survey. Archaeologists read public records to discover if the area or surrounding areas have been examined before and whether any archaeological sites are present. Archaeologists will then walk across the surface of the project in transects, or lines spaced at regular intervals. Archaeologists search

for evidence of human activity, such as broken pottery, stone chips, broken glass bottles, or mounds of earth. Earth mounds could indicate a buried structure or garbage dump.

Archaeologists make detailed maps showing the location of everything they find. Photographs may also be taken to record what the site looked like.

- Q.** How are archaeological excavations planned?
- A.** Before archaeologists excavate a site, they prepare a research design. This is a plan of action that addresses the Who, What, When, Where, How, and Why questions. Some research design questions might be:
1. What kinds of crops were grown here?
 2. Who lived at this site?
 3. When did the people use the area?
 4. Where did the people get food?
 5. Why was the site abandoned?
 6. How old are the artifacts?

The research design summarizes what is already known about the site and other sites in nearby locations. It identifies the best excavation methods and the experts who will analyze the artifacts.

- Q.** Why do archaeologists try to preserve some sites without digging them?
- A.** Archaeologists develop new techniques all the time. Radiocarbon dating, for example, first became available in the early 1950s; techniques for “floating” the burned wood and seeds to recover them from soils were not widely practiced until the 1970s. These new techniques have provided a great deal

of fresh information and have improved archaeologists' abilities to understand the past. Many more new techniques may become available in the next 50 or 100 years that will help answer questions that are mysteries today. This is one very important reason for preserving archaeological sites.

Another reason for preservation is that many archaeological sites contain cemeteries, places, or artifacts that are important to Native Americans and other descendants of people who lived here in the past. Although specific procedures for carrying out excavations—even human burials—have been developed, most groups prefer to see these sites remain undisturbed. In these cases, human remains and other sensitive artifacts are turned over to descendant groups for special treatment, which generally includes reburial of human remains.

- Q.** What happens during an archaeological excavation?
- A.** Archaeologists use a variety of tools and methods to remove soil. Smaller tools, such as picks, shovels, and trowels, remove dirt to locate the edges of pits, foundations, and floors. Sometimes excavators lay out the site in large squares, called grids. This allows for easier and more accurate mapping. The relationship between one artifact and another gives archaeologists important information; this is called context. For example, finding small pieces of stone together with drilling tools and finished beads might tell archaeologists that a jeweler lived in the house. Because excavating a site is a destructive process, accurate recording of information is essential.
- Q.** What happens to artifacts after they are excavated?

- A.** If artifacts are large and easily visible, archaeologists carefully remove them and pack them for shipment to the lab. Screening is the most efficient way to recover small items that may be hidden in dirt clumps or piles. Excavators shovel dirt onto screens, which are shaken so that dirt falls through, leaving behind gravel and artifacts. The artifacts are collected, sorted by material (pottery, stone, animal bone, shell, metal, glass, etc.), and placed in labeled bags. The artifacts are taken to the laboratory, where most items are washed and dried.
- Q.** What happens during the analysis phase?
- A.** Artifacts and samples are sent to experts for identification and interpretation. Experts look at potsherds to determine the type and age of a pot, who made it, and how it was created. Modern materials, such as tin cans and nails, can provide similar information. In order to reconstruct past environments and diets, zooarchaeologists study animal bones and ethnobotanists study plant parts. Once the experts have completed their analyses, the project director collects and collates all the reports and then writes a final report about the history of the site.
- Q.** What is in the final report?
- A.** The report usually includes a summary of previous work in the area, techniques used in excavating the site, documentation of what was found, conclusions, and suggestions for future research. At the end of the project, all of the paperwork, photographs, and artifacts are sent to a museum, where they may be exhibited for the public or stored for future researchers. Sometimes new technologies, or a reexamination of the information, yield different conclusions.



LESSON SETUP

Students will map the school playground, gymnasium, or classroom. Prior to the activity, prepare a transparency from the handouts in the Pass It On! Section.

Prepare one transparency of the map and a separate one for the grid.

Prepare a grid area that students are to map. Use masking tape, clothesline, sidewalk chalk, etc., to establish lines for the grid on playground, in classroom, or in gymnasium. Grid lines should be 1' × 1' squares, or 2' × 2' squares. Number grid squares in any manner so long as there is some order to the grid. Materials used will depend on the type and location of the grid.

Within each square, place objects that students can draw, such as jump ropes, balls, rocks, and pencils. Try to choose objects that pertain to student life. To make it interesting, place some items so that they overlap grid marks. Have students draw **ONLY** the portion of the items that fall within their square. Students will record data on graph paper. Instruct students to use the graph paper to record object information according to scale. Students can work in teams or individually.

Students need to be aware that they are creating a primary source for future researchers. Recording information properly will insure proper context from which researchers can make plausible conclusions or inferences.



LESSON OUTLINE

1. Ask students if they have ever found an item while walking in the desert and were either unsure of what it was or how old it was. Did they ever drop something outside and never see it again? What do they think happened to that item? What would people in the future think they had found if they came upon the lost item?
2. Explain to students the processes and steps in archaeological survey. Define context and emphasize the importance of taking detailed notes. Inform students that they will be participating in a mapping activity.
3. Using the overhead map transparency, point out different structures and areas of activity. What artifacts could students expect to find in the trash area? What about the monkey bar area? Should they expect to see playground structures like picnic tables and monkey bars?
4. Place the grid over the map and show the students how the appearance of the area changes if viewed only in smaller squares of the grid. If students were only responsible for one grid square, could they still get an idea of the entire area? Explain how archaeologists grid an area and then choose sample squares to determine where they will excavate. What areas would students choose to excavate? What about the squares that appear to be empty? Should archaeologists select some of the empty squares? (*Yes, because some of the artifacts may not be visible on the surface. If they do not choose some empty grids, they may miss some artifacts below the surface.*)
5. Hand out the graph paper and pencils, and lead the class to the previously established grid.

6. Divide children into groups and assign them to squares. This can be either a group or an individual project. As a group, use a compass to determine the location of North. Diagram the objects with north to the top of the page.
7. Have each group diagram the items within their square according to scale. Include vegetation, rocks, cracks in the playground, playground equipment, desks, changes in material (going from asphalt to gravel). Remind students that they are creating a historical document. Future researchers may use their maps as primary sources.
8. Once the students feel comfortable with their squares, hang squares on bulletin board and arrange them in proper order to form the entire mapped area. Have students determine whether or not the squares match the original area mapped. What are the differences? What are the similarities? By looking at the squares, can students tell which area was mapped? Could they reconstruct the site? Would someone unfamiliar with the area be able to locate the site by consulting the student maps?
9. Explain how historical archaeologists rely on primary sources to guide or double check their studies. Archaeologists may use maps, photographs, letters, and diaries to guide them toward areas that may then be excavated. They may also use primary sources to help them explain something they might have found.
10. Once the map is complete, the teacher should take the class back to the mapped area. Ask students to imagine that over many years four feet of soil has been deposited at this site. Illustrate to the students how high four feet is. What structures would still be visible on the surface? (*tops of monkey bars, swing sets or trees*). What objects would not be visible on the surface? (*jump ropes, seats, low lying objects*). Would students miss some valuable information if they only excavated the areas where they could see things protruding above the surface?
11. Based on the samples the class has chosen, what can they conclude about the site?

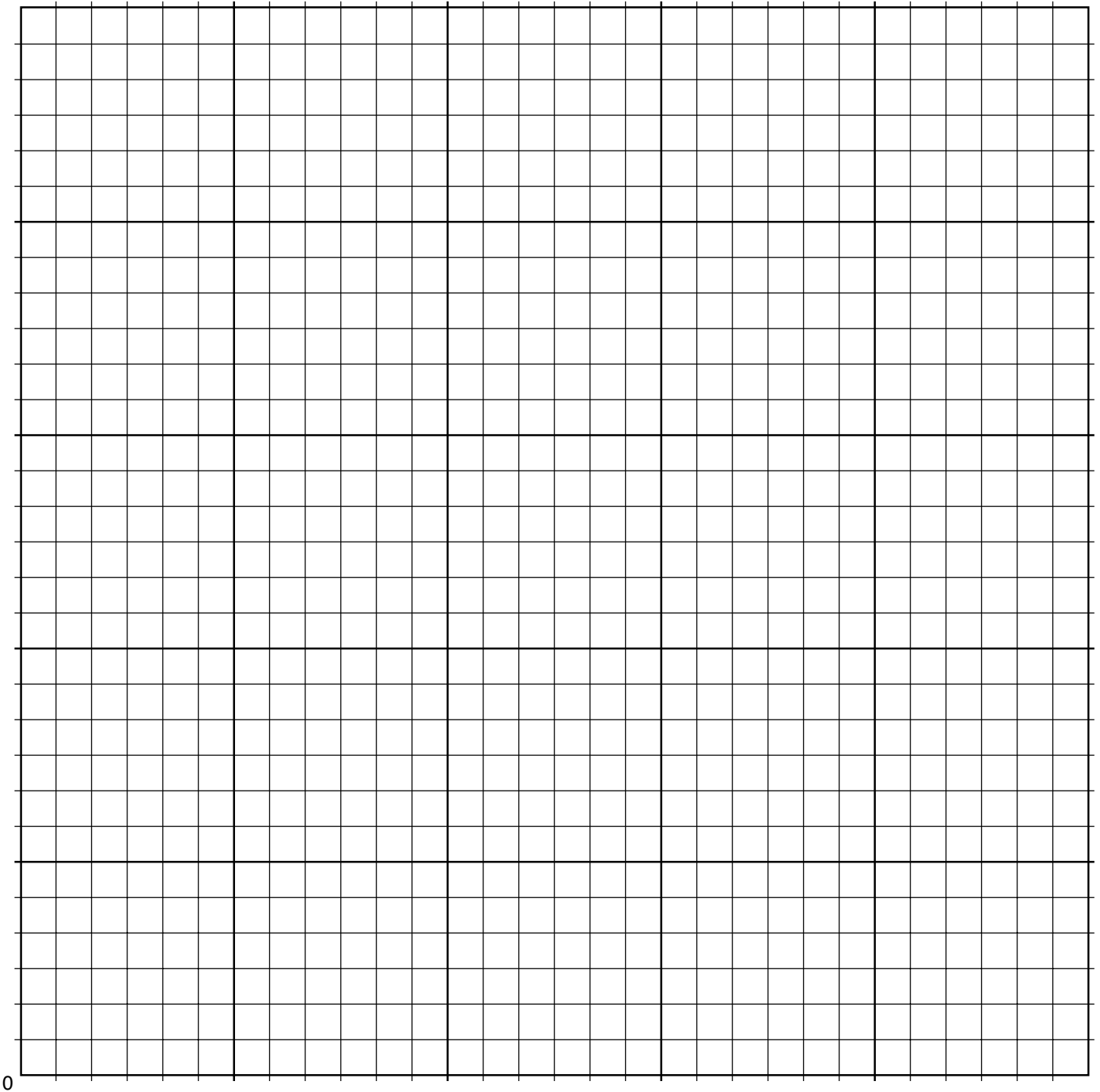


PASS IT ON!

Following two (2) pages are to be used as overhead slides or copied for handouts for the class.

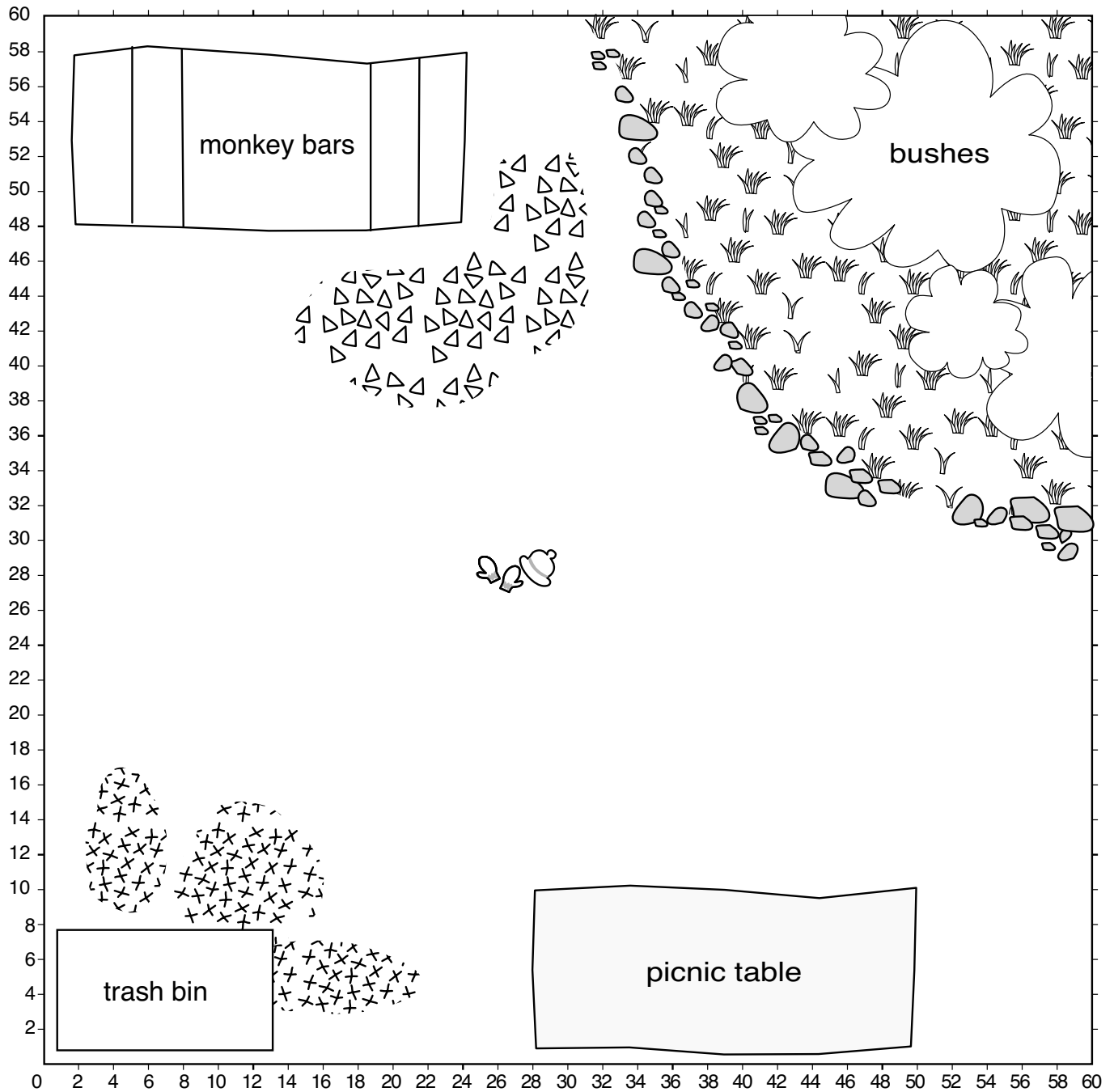
Name _____

GRID

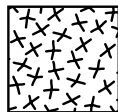


Name _____

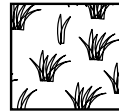
MAP



1" = 2 feet



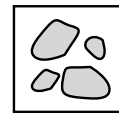
trash



grass



wood chips



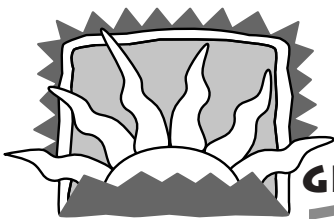
rocks



THE SCIENCE OF ARCHAEOLOGY

Lesson 2

It is sometimes difficult to visualize different layers of soil. By using a layered dessert, students will understand the layering of soils. When spooning out the dessert, teachers illustrate how soil layers, and therefore artifacts, can be disturbed because of digging or animals burrowing.



GETTING STARTED

OBJECTIVE

- to introduce students to the geologic concept of stratigraphy
- to illustrate the Law of Superposition.
- to enable students to apply these concepts to the archaeology of the Rio Nuevo Project
- to learn Tucson's history through the interpretation of stratigraphic layers

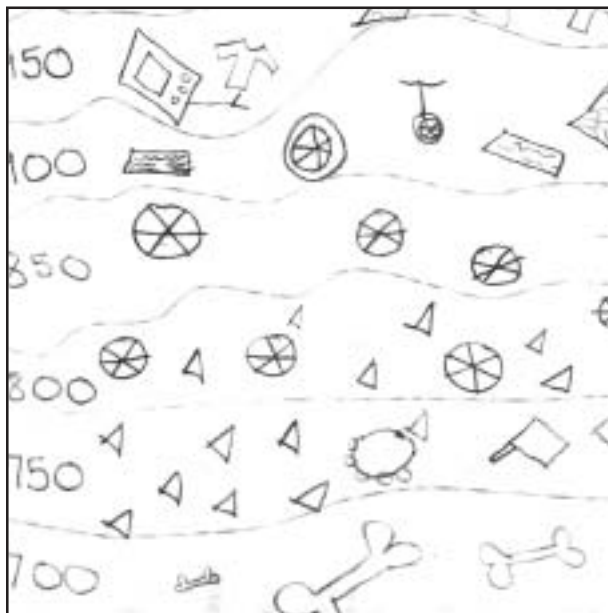
MATERIALS

- Glass bowl in which to construct the dessert
- Six layer dessert ingredients; ingredients will vary
 - a. graham crackers
 - b. instant chocolate pudding
 - c. vanilla wafers
 - d. instant vanilla pudding
 - e. sliced bananas
 - f. non-dairy whipped topping

Use your imagination when deciding upon ingredients. Experiment with raisins, apple slices, sliced strawberries, Jello jigglers, jelly beans, peanuts, M&Ms, peanut butter, jelly, etc. **Make certain students' allergies, dietary restrictions, and taste preferences are taken into consideration when choosing ingredients for the layer dessert.**

TIME

Approximately one hour for overview; longer if detailed extensions are employed.



Drawing by Hannah Willet, age ten.



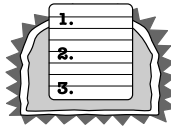
TEACHER'S CORNER

One way archaeologists determine the age of an **artifact** is through the use of **relative dating techniques**. Relative dating techniques provide the age of an artifact, **site**, or **event** by relating one object to another. There can be no absolute calendar date assigned to the artifact by using this method. Instead, relative dating techniques tell us if one object is older than another, younger than another, or appears to be the same age as another.

Relative dating techniques are based on the **Law of Superposition** and the **Law of Original Horizontality**. The Law of Superposition states that soils deposited first lie below those deposited at a later time, unless the soils have been disturbed. Therefore, the soil layers, or strata, on the bottom are older than those found at the top. The Law of Original Horizontality states that initially, soils are deposited horizontally. Therefore, layers of soil can be followed to determine the original placement of the layers.

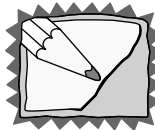
These geologic concepts can be extended to archaeology. Artifacts found in lower layers of soil are said to be older than artifacts found in the higher layers. It may be helpful to get students to think of the classroom waste basket. When students throw items into the trash can, the can fills from the bottom to the top. Items at the bottom may have been deposited in the morning. Those items at the top may have been deposited in the afternoon. Therefore, students can deduce that the items at the bottom have probably been there longer, and are probably older, than the items deposited on the top. There can be exceptions to this general theory. For instance, animals burrowing into the ground may upset soil

layers and mix the original order. The process of one layer of soil being deposited on top of another is called **stratification**. The study of strata is called **stratigraphy**.



LESSON SETUP

Prepare ingredients for layered dessert ahead of time. Preparation time will vary according to ingredients chosen.



LESSON OUTLINE

1. Have you ever been on a walk in the desert and found something lying on the ground that looked old, like a spoon, bottle, or piece of pottery? Did you wonder who might have used it? How old is it? How was it used? It's interesting to try and guess how old the object is; and who left it in that spot? If you think you have found something really old, don't pick it up and take it home, rather contact an archaeologist because you might have found an artifact, which is any material object made or used by humans.
2. Using the transparency, or copying the master for handouts, explain how Tucson's history can be interpreted through six layers. You may want to find some pictures to help illustrate each layer to the class. A good focus for each layer is to discuss how each group used the river. The six layers on which to concentrate, from youngest to oldest, are:

6. Modern Tucson (1912–present)
 5. Territorial Tucson (1854–1912)
 4. Mexican Period (1821–1854)
 3. Spanish Colonial Period (1775–1821)
 2. European Contact (1690–1775)
 1. Prehistoric Tucson (10,500 B.C.–A.D.1690)
3. “Layer Dessert” activity. Teacher creates a six-layer dessert in a glass bowl so that students can view the six layers. The teacher writes a list of all possible ingredients on overhead or on a chalkboard and explains that each ingredient represents one layer of Tucson history. Identify which food represents which layer and describe as you go. For example, the first layer of graham cracker crumbs represents prehistoric Tucson. The dessert can be shared with students upon completion. The teacher can also share the recipe with students to try at home with their families.
 4. The teacher discusses with the class the different layers of Tucson history, beginning with Prehistoric Tucson. What was the climate like? (*In Paleo-Indian times it was rainy, grassy, there were many trees and no saguaros. Later the climate began to dry out.*) Who lived here? (*American Indians, including early farmers, Hohokam, O’odham*) How do we know anything about the people who lived here? (*Through archaeological discoveries*) How did these people utilize the Santa Cruz River? (*Through farming using irrigation canals. Also probably bathed in, drank, and fished the river.*) Once the teacher feels that the students have a sense of Tucson in prehistoric times, put the first layer into the bowl.
 5. Proceed to the next layer: European contact. What was the climate like? (*much like today*). Who lived here? (*Native American groups: O’odham, Apache, earliest Spanish missionaries like Father Kino*). Why would we mark the end of the Prehistoric times with the arrival of Father Kino? (*Because he introduced the Spanish language to the area. Prior to his arrival, the Native American groups had no written language.*) How did the people use the Santa Cruz River? (*They farmed using irrigation techniques. They also probably bathed in, drank, and fished the river.*)
 6. Proceed to the next layer: Spanish Colonial. What was the climate like? (*little changed from the arrival of Father Kino*). Who lived here? (*O’odham, Apache, Spanish settlers, missionaries, Spanish soldiers and their families*). How did they use the river? (*farmed using irrigation techniques, bathing*).
 7. Proceed to the next layer: Mexican Period. What marks the change between Spanish Colonial and Mexican period? (*Local people wanted their independence from the Spanish Crown. After a ten-year war leading to independence, the area became Mexico.*) Who lived here? (*Native American groups, Mexicans*) How did they use the river? (*people continued to farm the land using irrigation techniques, drinking, and bathing*).
 8. Proceed to the next layer: Territorial Tucson. What marks the change in periods between the Mexican period and the territorial period? (*The Gadsden Purchase of 1854 transferred ownership of 29,000 square miles of present-day southern Arizona and southern New Mexico to the United States from Mexico.*) Who lived here? (*Native American groups, Hispanics, railroad laborers, miners, explorers, American and European pioneer*

settlers, and immigrants from around the world.) How did these people use the river? (*farming using irrigation techniques*).

9. Proceed to the next layer: Modern Tucson. What marks the change from Territorial Tucson to Modern Tucson? (*Statehood was granted on February 14, 1912.*) Who lives in this area? (*people from all over the world.*) How do Tucsonans use the river today? (*There is no river to use today unless it rains.*)
10. By now, all six layers should be visible to the students.
11. Why would it be difficult for us to find artifacts from people who lived in the Rio Nuevo area 2,000 or even 3,000 years ago? (*The people moved around instead of staying in one area. River flooding and continued building on top of older sites has covered evidence. Pothunters, construction companies, archaeologists, have disturbed the sites throughout the years, and some of the*

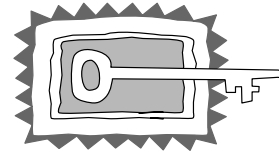
information has been removed from the site.) What types of artifacts might we expect to find in the excavation of the Rio Nuevo area? (*House remains, glass, metal, pottery pieces, animal bones, tools*) Would we be able to tell which artifact is older than another artifact? (*Possibly. We could use various dating techniques*)

12. Review the six layers of Tucson's history with the class, using the overhead projector.
13. After the review allow students to take a bite out of Tucson's history!



PASS IT ON!

The following pages are to be used as transparencies or copied for handouts for the students.



ANSWER KEY

Science of Archaeology worksheet,
page 20.

1. relative dating techniques
2. artifacts
3. Law of Superposition
4. excavate
5. site
6. stratum
7. stratification
8. stratigraphy
9. relative age
10. artifact

Name _____

TUCSON'S SIX-LAYER HISTORY

6 _____

5 _____

4 _____

3 _____

2 _____

1 _____

Unscramble the layers of Tucson's history and place them in the correct sequence using the choices below.

- a. Mexican Period
- b. Modern Tucson
- c. European Contact
- d. Prehistory
- e. Territorial Tucson
- f. Spanish Colonial Period

THE SCIENCE OF ARCHAEOLOGY

Use the following word list to fill in the blanks for the following worksheet. Use each word only once. It may be helpful to read through the page once before trying to fill in the blanks.

One way archaeologists determine the age of an artifact is through the use of _____¹ _____² _____. Relative dating techniques provide the age of _____³ _____² _____, sites, or events by relating one object to another. There will be no exact calendar date assigned to the artifact by using this dating technique. Instead, relative dating techniques tell us which object is older than another, which is younger than another, or which is the same age as another.

Relative dating techniques are based on the _____³ _____³ _____³ _____, which states that soils deposited first are located beneath those deposited at a later time. Therefore, those soils that are deposited first are at the bottom and are considered older than those soils at the top. This geologic concept can be extended to archaeology. Artifacts found in the lower layers of soil are said to be older than those found in the higher levels of soil.

When archaeologists _____⁴ _____⁵ _____, they sometimes remove one layer of earth at a time. Each layer of soil is called a _____⁶ _____. The process of one stratum being deposited on another is called _____⁷ _____. The study of these strata is called _____⁸ _____.

No matter how the earth rotates or tilts; no matter how the earth may be rearranged by earthquakes or uplifting mountains, the original placement of the sediment was horizontal, according to the Law of Original Horizontality.

By understanding the Law of Superposition and the Law of Original Horizontality, archaeologists can determine the _____⁹ _____ of an _____¹⁰ _____ by studying the stratification of soil in which the object was discovered.

- | | | |
|--------------------------------|--------------------------------------|---------------------|
| a. excavate | e. artifact | i. stratum |
| b. relative age | f. site | j. artifacts |
| c. law of superposition | g. stratigraphy | |
| d. stratification | h. relative dating techniques | |

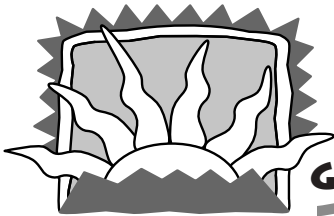


Lesson 3

Archaeologists at work.
Photo courtesy Desert Archaeology, Inc.

ARCHAEOLOGICAL TECHNIQUES: DIGGING THE PAST

Shoebox archaeology gives students the opportunity to see how archaeologists find artifacts in different layers of soil and how the different layers of soil help archaeologists approximate dates of the artifacts.



GETTING STARTED

OBJECTIVES

- to enable students to assemble clues and indicators concerning a family
- to enable them to develop an understanding of how archaeologists discover the story of the past by digging for clues.
- to provide students with an exercise in problem solving and deductive reasoning

STANDARDS ADDRESSED

Grades 4–5 1SS-E1 (PO1, PO2),
1SC-E1 (PO3, PO4)

KEY WORDS

artifact
context
excavate

MATERIALS

- shoebox
- personal items
- family items
- small paintbrush
- spoon
- sand or dirt

TIME

1 hour



TEACHER'S CORNER

Shoobox archaeology can be performed in the classroom or outside to minimize the mess. Extensions to this lesson plan can be added to include a mock excavation. For a fee, Old Pueblo Archaeology provides an educational experience for a classroom excavation at their headquarters:

Old Pueblo Archaeology Center
1000 East Fort Lowell
Tucson, AZ

Teachers may also want to contact a local archaeology firm to see if it has any excavations in progress available for class field trips. If no excavations are underway, teachers may want to contact Pima Community College West Campus Archaeology Department, 206-6022. The college has a mock site established and regularly train field archaeologists.

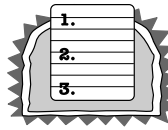
Following is a list of archaeology firms that have been contacted and have agreed to try to accommodate students. There are other archaeology firms in Tucson. A complete list can be obtained by contacting the State Historic Preservation Office (602) 542-7159.

Desert Archaeology, Inc.
3975 North Tucson Blvd.
Tucson, AZ 85716
(520) 881-2244

Old Pueblo Archaeology Center
P.O. Box 40577
Tucson, AZ 85717
(520) 798-1201

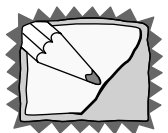
Statistical Research, Inc.
P.O. Box 31865
Tucson, AZ 85751
(520) 721-4309

SWCA
343 South Scott Avenue
Tucson, AZ 85701
(520) 325-9194



LESSON SETUP

1. Copy directions in the Pass It On! Section. Instruct each student to prepare at home a shoobox for archaeology. The teacher should go over instructions in class and send instructions home with each student. Shooboxes should be layered, alternating soil or sand with personal objects. Teachers may choose to use sand in various colors or soils with various textures to represent different soil layers. To prevent layers from combining beyond recognition, it may be necessary to moisten soils or sands prior to placing them in the box.
2. Teachers may choose to create kits complete with all materials and instructions to send home with each student.
3. See directions on worksheet.
4. Once all shooboxes are in the classroom, the teacher should number them. Do not place names on the shooboxes. Students should not know whose shoobox they have.
5. Teacher should provide some sort of repository for sand or soil once students begin excavating. Students will need something in which to place the excavated sand or soil.



LESSON OUTLINE

1. Once all shooboxes are in the classroom and numbered, pass boxes out, one per student. Make certain no student has his/her own shoobox.
2. Pass out plastic spoons or brushes for the excavation.

3. Instruct students to gently remove the soil to expose the first layer of artifacts. Make sure they know that there may have been shifting in the boxes, so not all layers of soil will be the same. Some of the artifacts may be fragile, so it is important that the students do not simply “dig in.”
4. Once students have begun to uncover artifacts, lead a class discussion as to what students are finding and how they are finding the artifacts. Sample questions include:
 - a. What can you tell from the artifacts? Male/Female? Old/Young? Ethnicity? Family interests?
 - b. How many people do these artifacts represent? Can you tell what the people did to make a living? Were they farmers, bankers, photographers, etc? What language did the people speak? What other information might you need to complete the interpretation?
5. Instruct students to remove the top artifacts and place them in one pile on their desks before moving to the next layer. The teacher may want to provide paper lunch bags to keep artifacts separate.
6. Have students continue excavating until they find the next layer of artifacts. Repeat the questions from before. How do these new artifacts impact the students’ original interpretations? Do the new artifacts help interpret the preceding artifact? Do the new artifacts add any information? Or do they confuse the interpreter?
7. Have students remove the second layer of artifacts and place them in a separate pile or bag on their desks.
8. Continue the excavation until all artifacts are removed and placed in their separate piles.
9. Have students interpret their assemblages for the class.



PASS IT ON!

The following pages can be copied for students as take home directions for constructing shoebox archaeology.

SHOEBOX ARCHAEOLOGY

Directions

1. Select a few personal objects that represent three generations. An example of three generations is grandparents, parents, and students. Objects to consider include photos, coins, jewelry (not expensive), key chains, pens, toiletries, etc. If using actual items, place in Ziploc bags to prevent soiling. You may also wish to draw or make representative objects dated from the time periods.
2. Place a thin layer of soil (or one color of sand) at the bottom of the shoebox. If sand or soil is too dry, you may need to moisten the layers with a spray bottle to prevent shifting. Place the objects from the oldest generation on the first layer of soil. This will be the bottommost layer of artifacts.
3. Place a second layer of soil deep enough to cover the artifacts.
4. On top of the second layer, place objects from the middle generation.
5. Place a third layer of soil on top of these artifacts.
6. Place some of the youngest generation's items on top of the third layer of soil.
7. Cover with a final layer of soil.
8. Cover shoebox and tape shut to prevent spilling.
9. Bring shoebox to class for classroom activity. Try not to move the box around too much.
10. DO NOT write your name on the box. You will be excavating another student's box.

