Historic Indian Agency House

at Fort Winnebago

Archaeology Kids' Camp

Grades 3-5

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Curriculum For Grades 3-5

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How to use this curriculum:

Each lesson section includes both a scripted component to assist in teacher preparation and an outline component for ease of presentation. The narrative does not need to be read verbatim to the students unless desired. The Archaeology Kids' Camp is designed to be approximately 2 1/2 hours in length, and it is geared toward groups of approximately 12 to 20 students at a time. The targeted age range of participants is 3rd through 5th grade. A leader coordinates and conducts the camp with the assistance of volunteers, school group chaperones, and/or parents who accompany their children to the camp. These assistants help guide and support small groups of students at the various activity stations.

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Wisconsin Educational Standards

SCIENCE, TECHNOLOGY, MATHEMATICS

- SCI.CC1: Students use science and engineering practices, disciplinary core ideas, and patterns to make sense of phenomena or solve problems.
- SCI.CC3: Students use science and engineering practices, disciplinary core ideas, and an understanding of scale, proportion and quantity to make sense of phenomena and solve problems.
- SCI.CC6: Students use science and engineering practices, disciplinary core ideas, and an understanding of structure and function to make sense of phenomena and solve problems.
- SCI.CC7: Students use science and engineering practices, disciplinary core ideas, and an understanding of stability and change to make sense of phenomena and solve problems.
- SCI.SEP1: Students ask questions and define problems, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.
- SCI.SEP3: Students plan and carry out investigations, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.
- SCI.SEP4: Students analyze and interpret data, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.
- SCI.SEP5: Students use mathematics and computational thinking, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.

SOCIAL STUDIES

- SS.Inq1: Wisconsin students will construct meaningful questions that initiate an inquiry.
- SS.Inq3: Wisconsin students will develop claims using evidence to support reasoning.
- SS.Inq4: Wisconsin students will communicate and critique conclusions.

Setting Up For Camp

PREP WORK

- The leader should thoroughly comb through the curriculum to become familiarized with it.
- Purchase and prepare all required materials. There are various items that will need to be assembled and constructed ahead of time. These are noted in the lesson plans.

SETTING UP THE DAY OF THE CAMP

Indoor Learning Area

- Prepare a learning area in which the students may sit comfortably on the floor while the leader has ample space for all his/her teaching materials. Chairs may be set up for chaperones. Look through the materials lists and lesson plans to determine which materials should be placed in large tubs in the learning area.

Indoor Activity Stations

- Set up four tables to be used when students are split up into 4 different groups for various activities.
- Prepare large labeled tubs containing materials for individual activity stations so that the tub may simply be carried over to a table when needed.

Outdoor Survey Area

- Identify a location in which the students may stand side-by-side and walk forward without too many obstacles in the way.

Outdoor Mock Dig Site

- Set up and securely anchor a 10'x10' event tent (no need for side panels—just canopy).
- Under the event tent, build the simple wooden frame filled with sand/soil. Bury the "artifacts" of choice at varying depths. Make sure each quadrant has ample artifacts for students to excavate.
- Place a large labeled tub with dig materials under the event tent, along with a 5-gallon bucket that will be used by each of the groups. (If it needs to be emptied, it may be emptied back into a quadrant that has already been excavated.

STAFF REQUIREMENTS

- Leader: Lead all of the teaching and activities of the camp.
- Assistants: Volunteers, chaperones, and/or parents accompanying their children will in a general way assist the students at activity stations, etc.
- Photographer: If desired, arm someone with a camera or smart phone to chronicle the fun!
- Welcome Desk Staff: A HIAH staff member / volunteer should be at the welcome desk for the duration of the camp.

I. Introduction to Archaeology

Materials List

- Light-colored 2-pocket folder and pencil (personalized w/ HIAH web address) for each student and teacher/chaperone
- Large foam boards with one of the vocabulary words written on each one (ARCHAEOLOGY, ARTIFACTS, INTERPRETATION, SCIENTIFIC METHOD, HYPOTHESIS)
- 3 artifacts of choice (e.g., arrowhead, buttons from 1800s, food remains like bones and seeds)—put in protective cases to allow the students to pass them around
- Fossil (real if possible)
- *Motel of the Mysteries* book by David Macaulay (Bookmark pages 37 and 69.)
- "Complete the Picture" handout (one per student and teacher/chaperone)
- Dark-colored crayon (one per student and teacher/chaperone)
- "Completed Picture" handout (one per student, teacher, and camp leader)
- 4 household objects (e.g., large serving fork, computer mouse, roll of masking tape, and baseball glove)
- "Scientific method" handout (one per student)
- 3D puzzle vase (Purchase 2 of the same; 1 should remain as just pieces; 1 should be partially assembled/glued ahead of time with pieces still missing, but enough put together to unmistakably recognize its vase shape)

Approximate time required: 40 minutes

[Distribute a folder and pencil to each student and teacher. Instruct them to write their names on the front of their folders. They will receive handouts to place in these folders which they may take home along with the pencils.]

Archaeology and Artifacts:

- How many of you have heard the word ARCHAEOLOGY? **[Hold up the "archaeology" foam board.]**
- Whenever we hear a word with "-ology" on the end, it means "the study of" something. For example, BIOlogy is the study of living things. GEOlogy is the study of rocks. "-Ology" means the study of something, so what do you think ARCHAEology might be the study of? [Hear student ideas.]
- "Archae" just means "old" or "from long ago," so archaeology is the study of old stuff. Why would we want to study old stuff? [Hear student ideas.]

Archaeologists are scientists who study old stuff in order to learn more about history. Archaeologists want to learn about how people lived in the past by studying the things people left behind. The things people left behind have a name, too. They're called ARTIFACTS. **[Hold up the "artifact" foam board.]**

ARTIFACTS are things that people made or used in the past—things like arrowheads that Native Americans used for hunting **[Pass around the arrowhead]** or buttons from the clothes people used to wear **[Pass around the buttons]** or even leftovers from meals people ate a long time ago **[Pass around the bones and seeds]**. We can learn more about how people lived in the past by studying artifacts like these.

The things that you and I make and use today could even become artifacts that someone might discover two hundred years from now. Maybe they'll dig up your old shoes that you threw away last year. Or maybe they'll dig up my cell phone. Those artifacts would help future people understand how you and I live today.

Archaeology vs. Paleontology:

- Does anyone know what this might be? **[Pass around the fossil]** [Hear student ideas.]
- It 's a fossil. A fossil is a plant or animal that was once alive but it died and was preserved in rock. Archaeologists *don't* study fossils. Does anyone know what we call the scientists who study fossils? What kind of –ologists are they? [Hear student ideas.]
- PALEONTOLOGISTS study fossils. Paleontologists try to learn all about the plants and animals of the past. But archaeologists *don't* study fossils. Archaeologists study what? **[Hold up "artifacts" foam board.]** Artifacts are things that people made and used in the past. Artifacts help us learn about how PEOPLE used to live.

[Collect the arrowhead, buttons, bones/seeds, and fossil.]

Interpretation:

Archaeologists are like detectives. They put together clues to find answers to their questions—like solving mysteries. Instead of finding a whole clay pot, they might only find a couple of pieces and have to try to figure out what the rest of the pot looked like. Or they might find several strange objects in the ground and have to try to figure out what they are and how they might have been used. Just like detectives, archaeologists find clues, and then they try to figure out what those clues actually mean—the story behind them.

COMPLETE THE PICTURE ACTIVITY

- Distribute a "Complete the Picture" handout and a dark-colored crayon to each student and their teacher. Do not allow them to see the "Completed Picture" handouts yet.
- Instruct the students to complete the picture, but they should not look at one another's papers.
- Give students just a couple of minutes to complete their drawings. Ask for four volunteers to stand in the front and hold up their drawings for the class to see.
- While the students are lined up with their pictures, hold up a "Completed Picture" handout. Briefly compare the students' work to what it is actually supposed to look like. Distribute a "Completed Picture" handout to each student and teacher. Collect the crayons.

Just as each of you had your own INTERPRETATION **[Hold up the "archaeology" foam board.]** of what that picture might look like, when archaeologists find clues, they try to interpret how those clues fit together in the story of the past. Often, they don't see the full picture—just bits and pieces, just like with your picture. Archaeologists try to make sense of the artifacts they find. That's what INTERPRETATION means. **[Hold up the "archaeology" foam board.]** Interpretation is explaining the meaning of something.

- Do you think that an archaeologist's interpretation of artifacts can sometimes be wrong? [Hear student ideas.]

Even when we think we have something figured out, our interpretation could possibly be wrong. Scientists know all about that. They have to be wiling to change their interpretation if necessary as more information becomes available. As archaeologists learn more, they understand the big story of past better. That's the whole goal!

Now, sometimes archaeologists have other clues, too, such as things people from long ago wrote down. They can read what those people wrote about, and it might help them understand their artifacts better.

Sometimes archaeologists can get a good idea of how old an artifact might be, too, by looking for patterns and styles. Even today, there are patterns and styles in each time period. Back in the 1970s, people wore a lot of polyester clothes, like brightly-colored polyester pants suits. In the 1800s, women wore very long dresses and men wore top hats. Today, we tend to wear things like jeans, tee-shirts, and athletic shoes. If an archaeologist finds a clay pot, he might be able to tell approximately how old it is based on its style because clay pots were made in different styles during different time periods in history. But a clay pot doesn't talk or come with a label that says, "I was made in 1789," does it. So interpretations can still end up being wrong.

[Hold up the *Motel of the Mysteries* book.] There's a funny fiction book called *Motel of the Mysteries* about an archaeologist waaaay in the future who digs up a motel that was buried in a catastrophe back in 1985. He uncovers a motel room and interprets the artifacts all wrong. Here are a couple of examples of artifacts the archaeologist in the story found in the bathroom of the motel room. **[Show the pictures from the two pages listed below.]**

- Page 69—Bathtub faucet, shower head, and plunger—misinterpreted to be ancient musical instruments
- Page 37—Toothbrush earrings, a drain plug necklace, a toilet lid collar, and a toilet seat headband, all interpreted to be used for religious ceremonies

MISINTERPRETATION ACTIVITY

- Divide students into 4 groups.
- Give each group a common household object (examples: a large serving fork, a computer mouse, a roll of masking tape, and a baseball glove)
- Instruct each group to imagine that they're an archaeologist way in the future who just dug up an artifact with which they are unfamiliar. They've never seen one of those before. They need to give the artifact a name and determine its use. The catch is they need to come up with a different name and use than the real ones (just like in the book). In other words, they need to misinterpret their artifact.
- Give the groups no more than 5 minutes. Each group should then briefly present their misinterpretation to the whole group. Collect the items from the groups.

Scientific Method:

Scientists, including archaeologists, use something called the SCIENTIFIC METHOD in their detective work. **[Hold up "scientific method" foam board.]** The SCIENTIFIC METHOD is just some careful steps scientists take in order to answer a question. Using the scientific method often helps scientists interpret things better.

SCIENTIFIC METHOD ACTIVITY

Distribute the "Scientific Method" handout. Follow the narration below and illustrate with the 3D vase puzzles as described.

- Step 1 is to ask a question. What do we want to know? Let's pretend that these puzzle pieces **[Hold up 4 puzzle pieces.]** are actually pieces of pottery that I found lying on top of the ground. Maybe my question is, "What did these pieces of pottery come from? What did it actually look like?"

- Step 2 is to figure out what we already know and to find out as much as we can. What I know is that these are pieces of pottery. I know that they have a design painted on them. I suspect that it's really old pottery, but I don't know that for sure. I do a little looking online and at the library and find out that archaeologists in this area have dug up similar pieces of pottery that were from ancient bowls.

- Step 3 is to come up with a HYPOTHESIS. **[Hold up "hypothesis" foam board.]** "HYPOTHESIS" is just a fancy word that means to come up with a possible answer to our question. We don't just make a guess. We try to answer our question based on what we already know . My hypothesis, based upon what I already know, is that these pieces came from an ancient bowl.

- Now, in step 4, it's time to test my hypothesis to see if I might be correct about that. I get permission to do an archaeological dig where I discovered the pottery pieces. As I dig, I find more pieces that seem to have come from this very same artifact! **[Hold up a big handful of additional puzzle pieces.]**

- Okay, I've asked my question: "What did this piece of pottery actually look like?" I've thought about what I already know about pottery like this. I've developed a hypothesis: "I think these pieces came from an ancient bowl." I've tested my hypothesis by doing an archaeological dig, and I found lots more pieces of what I think is an ancient bowl. Now I'm on step 5. I have to INTERPRET what I found. I go to the lab and clean the dirt off the pieces. Then, I very carefully reassemble the pieces that I found and glue them together with special glue. Wow—this is how it all came together! **[Hold up the glued-together puzzle vase that has several pieces still missing]** My hypothesis may be partly right. I found these pieces in a deep layer of earth, so it is probably an ancient piece of pottery, but I still don't totally know that part for sure. But I thought this pottery would be bowl-shaped. It's not a bowl at all! It's a vase!

- The final step is to share my results with others so they can learn and continue to test my hypothesis. Archaeologists write reports and often put artifacts on display in museums. Sometimes interpretations need to be changed when we learn more information. As more clues are discovered, our understanding of the big story gets better, too. That's why it's important to share what we learn with others. Archaeologists work together to figure out the mysteries of history.

I. Introduction to Archaeology Outline

I. Archaeology and Artifacts

A. Distribute folder / pencil to each student

B. ARCHAEOLOGY **[Foam board "archaeology" sign]**
   1. "-ology": the study of
   2. "arche": old / from long ago
   3. Archaeologists: scientists who study old stuff in order to learn how people used to live
   4. Study things people left behind

C. ARTIFACT **[Foam board "artifacts" sign]** — things people made or used in the past
   1. Arrowheads, buttons, leftovers **[Pass around]**
   2. Things we use today could become artifacts

II. Archaeology vs. Paleontology

A. Fossil **[Pass around]**

B. Paleontologists—plants and animals of the past—study fossils

C. Archaeologists—people of the past—study artifacts

III. Interpretation

A. Detectives — clues — figure out what they mean

B. "Complete the Picture" activity

C. INTERPRETATION **[Foam board "interpretation" sign]** — Explaining the meaning of something

D. Other sources (writings, etc.)

E. Age of artifacts — patterns and styles

F. Interpretations can be wrong / scientists change interpretations as more info. is available

G. *Motel of the Mysteries* book
   1. Page 69
   2. Page 37

H. "Misinterpretation Activity"

IV. Scientific Method

A. SCIENTIFIC METHOD **[Foam board "scientific method" sign]** — series of careful steps scientists take to answer Q's
   1. Distribute handout
   2. "Scientific Method Activity"

Complete the picture.

Completed picture

Dog image only traced from Clker-Free-Vector-Images from Pixabay.

The Scientific Method

1. Ask a question.

2. What do I already know? Where can I find more information?

3. Construct a hypothesis (a possible answer to the question).

4. Test your hypothesis. (Find artifacts and make observations.)

5. Interpret your observations. Was your hypothesis supported? Make a conclusion.

6. Share your results so others may learn and continue to test your hypothesis. Remember, sometimes our interpretations can be wrong and need to be changed when we learn more. As more clues are discovered, our understanding of the big story gets better, too.

II. Preparing to Excavate

Materials List

- 3" marking flags with wire staffs (appx. 10)
- 4 brown grocery bags ("strata bags"), each containing the following: 3 slices of bread, 2 Tbsp. strawberry jam, 2 Tbsp. chocolate frosting, 1 Tbsp. mini chocolate chips, 1/2 tsp. colored candy sprinkles, 2 Tbsp. broken M&Ms, 2 paper plates, plastic knife, plastic spoon, large clear straw, 4 individually-packaged wet-wipes
- Large foam boards with one of the vocabulary words written on each one (SURVEY, STRATA, EXCAVATE, GRID, COORDINATE)
- Ahead of time, make a small model of an excavation site with a grid laid out using miniature stakes and string (any medium desired; for illustration purposes)
- "Grids" handout (one per student and teacher/chaperone)
- Laminated "grids" handout for leader
- HIAH pencils (from previous section)
- Dry erase marker and eraser

Approximate time required: 40 minutes

Surveying

- Once an archaeologist has a question and a hypothesis, then it's time to prepare to dig for artifacts. How do you think archaeologists decide where to dig?

One of the very first things archaeologists do is a SURVEY of an area **[Hold up the "survey" foam board.]** A SURVEY is an overall inspection of an area to find clues. Archaeologists might slowly walk back and forth over a site to see what they find lying on the ground. If they find pieces of broken pottery on top of the ground, that might be a good place to dig. They stick a little flag in the ground when they find something interesting.

- ...or they might find large stones all in a line sticking partway out of the ground. What do you think that could be? [Hear student ideas.] They put in flags if they find these, too.

...or they might find sunken areas in the ground or a little mound in the middle of a flat area or other strange features that could alert them that it might be a good place to consider digging. They might take long sticks called probes and push them into the ground to see if they hit anything. Sometimes probes help archaeologists find the outline of an old building. They put in flags whenever they find possible clues. Sometimes archaeologists will even use drones to get high-up pictures of an area so they can see things they can't see from ground level. There's also an instrument called a GPR (Ground Penetrating Radar). It looks a little like a lawn mower. You push it around over an area and it sends signals into the ground to help the archaeologist get an idea of whether or not there's anything important underneath. These are all ways to SURVEY a possible site. **[Hold up the "survey" foam board.]**

SURVEY ACTIVITY

- **EXPLAIN THAT PERMISSION IS ALWAYS REQUIRED—SOMETIMES FROM THE GOVERNMENT—BEFORE ANY ARCHAEOLOGICAL DIG MAY BE DONE.** The whole Indian Agency House property is a historic site. We can't do archaeology digs here without permission from the government. We have old buried buildings and lots of artifacts under the ground. We even have Native American burial sites all throughout our property. It's important that if we find anything, we leave it there and just mark it with our flag.

- Take the students, along with 10 marking flags (an adult should carry these), outside. Line the students up side-by-side in a large open area. They will be walking at a slow, uniform pace in this line to survey the ground right in front of them. They are to look for any clues that might indicate a good place for an archaeologist to dig in the future. Mark any indicated places with a flag. They may or may not find anything. That's how it is in real-life archaeology, too.

- Allow the students no more than 8 minutes to do this mini-survey. If any artifacts or areas of interest are discovered, notify the Executive Director. He will then document anything potentially important and collect the flags. Bring any remaining flags back inside with you.

Understanding Strata

- How do you suppose artifacts get buried in the ground, anyway? [Hear student ideas.]

STRATA ACTIVITY

(Based on http://flpublicarchaeology.org/resources/2008v2BA.pdf;
originally from *Expeditions into Ohio's Past: Teacher's Guide)*

Divide the students into 4 groups. They should each gather around a table. Distribute one "strata bag" to each table. Students should take turns following your instructions so they are all able to participate in their small group. Read the following narrative:

1. Lay down one piece of bread on a paper plate. Let's imagine that this bread is a piece of land somewhere in Wisconsin.
2. Along comes a flood that leaves behind a layer of mud. Spread the chocolate frosting over your bread.
3. Shortly after the flood, a group of early Native Americans camp in this area and build a fire for cooking. Their fire leaves behind charcoal and rocks. Lay some of your mini chocolate chips in a circle to make it look like stones around a campfire. Then fill in the circle with colored sprinkles.

—Continued on next page—

STRATA ACTIVITY (cont.)

4. This group of people leaves, and through time, a layer of dirt forms over their old campsite. Lay down another piece of bread on top of that one.
5. Eventually, another group of people comes to that same area. These people build shelters to live in. Very carefully and gently, use your plastic knife to cut four small holes in the slice of bread because the people had to dig holes to hold the posts for their shelters. Remove those tiny piece of bread that you cut out and just set them aside. These holes are their post holes.
6. These people who are now living here made a lot of pottery, but some of the pottery got broken, so they put the broken ones into trash pits in the ground. Let's dig two more holes on the top of your bread—one on each side. They should be much bigger than the post holes. Fill your trash pits with the broken M&Ms, which represent the broken clay pots.
7. These people leave this site because it's so close to the river that it gets flooded often. Spread some strawberry jelly over the top of the site where they lived. Some of the pottery might move around a little, which is okay because that happens during real floods, too.
8. Through time, more layers of dirt are laid down until we get to the present time. Put the third piece of bread on top.
9. Today, an archaeologist comes to this place and suspects that people used to live here a long time ago. He surveys the land and takes some core samples to see if anything shows up. Take your straw and push it down through your sandwich. Did you hit something? You might have found some artifacts! Pull out the straw and look at it. Are there any sprinkles or pieces of pottery in it? Use your straw to take 3 or 4 core samples to see if maybe this is a good place to do an archaeological dig.
10. The archaeologist finds some clues that this would be a good site to dig, so he gets permission and does a small test dig. Take your knife and cut a square out of your sandwich. Pull the square off to the side a little and take a look at the cool layers! Those layers are called STRATA. **[Hold up the "strata" foam board.]**
11. Which layer—or stratum—is the oldest? The one on the top or the one on the bottom? [Hear student ideas.] The one on the bottom is the oldest.
12. You may each take one of the wet wipes and wipe any sticky stuff off your fingers.
13. Students should return to the large group learning area.

- If you put your sandwich in a blender, would you be able to read the layers anymore? [Hear student ideas.]

This is why, when archaeologists find a site to search for artifacts, they don't just dive in and start digging like crazy! When we disturb an archaeological site by digging or bulldozing or plowing it, it destroys the strata and disturbs or destroys the artifacts, too.

Archaeologists must be very, very careful how they EXCAVATE a site. **[Hold up the "excavate" foam board.]** EXCAVATE means to very carefully remove earth from a site little by little in order to find something buried.

Grids

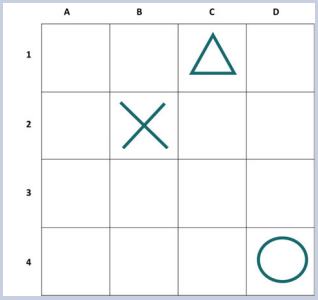
- Archaeologists first lay out a GRID over the area they want to excavate. **[Hold up the "grid" foam board.]** A GRID is a system of carefully-measured squares made from wooden stakes and string. **[Show the model of an excavation site with a grid laid out.]** Why do you suppose archaeologists lay out a grid like this? [Hear student ideas.]

A grid helps archaeologists keep track of where artifacts are found. Each of the squares has a COORDINATE, **[Hold up the "coordinate" foam board]** which is kind of like an address. Each square has its own unique address, or CO-ORDINATE.

GRID ACTIVITY

Distribute "Grids" handout. Students should get out their HIAH pencils for this activity. Demonstrate on the laminated handout as you speak.

- Here's how coordinates work. Pretend you're working on an excavation. You dig up an arrowhead at coordinate B2. Let's find the B at the top of the paper and put one finger on it. Find the 2 on the left side of the paper and put another finger on that. Now bring your fingers slowly together, and where B and 2 meet, that's where we should draw an X to show where you found the arrowhead. The coordinate is B2.



- Now you're working in a new square, and you find a little hand-carved toy canoe. The coordinate of the toy canoe is D4. Draw a circle at coordinate D4.

- In yet another square, you excavate a Native American beaded necklace. This one you found at coordinate C1. Draw a triangle at coordinate C1 to show where you found the necklace.

- Now draw a star in whatever empty square you'd like. Turn to the person next to you and ask him or her to tell you the coordinate of your star.

II. Preparing to Excavate Outline

I. Surveying

A. How do archaeologists decide where to find artifacts to answer their questions?

B. SURVEY **[Foam board "survey" sign]** — overall inspection of an area to find clues
   1. Flags
   2. Surface artifacts
   3. Large stones in a straight line
   4. Sunken areas or mounds
   5. Probes
   6. Drone pictures
   7. GPR (Ground Penetrating Radar)

C. "Survey Activity"

II. Understanding Strata

A. How do artifacts get buried in the ground in the first place?

B. "Strata Activity" **[Foam board "strata" sign]**

C. If you put the sandwich in the blender, would you be able to read the layers anymore?

D. EXCAVATE **[Foam board sign]** — carefully remove earth from a site little by little in order to find something buried

III. Grids

A. GRID **[Foam board "grid" sign]** — carefully-measured system of squares made from wooden stakes and string

B. Why do archaeologists lay out a grid?

C. COORDINATE **[Foam board "coordinate" sign]** — Address of a square in a grid

D. "Grid Activity"

GRIDS

	A	B	C	D
1				
2				
3				
4				

III. Field Work

Materials List

- Small garden trowel, 2" paintbrush, dental pick
- 1 chocolate chip cookie per student (with regular-sized chips...not tiny chocolate bits), 1 toothpick per student, and 1 small paper plate per student
- Sand sifter
- Disposable 9"x13" aluminum pan
- Cup of sand with 1 tsp. plastic beads mixed in
- Notebook (field journal) with graph paper pages
- Tape measure and camera or smart phone
- Large foam boards with one of the vocabulary words written on each one (FIELD JOURNAL, IN SITU)

Approximate time required: 20 minutes

Tools

Once the grid is laid out, it's finally time to dig.

- Do archaeologists jump into digging with bulldozers and big shovels? [Hear student ideas.]

Sometimes bulldozers and big shovels are needed to get the top stuff off, but after that, digging goes very, very slowly so that no artifacts get missed or broken. The earth is removed thin layer by thin layer, perfect square by perfect square. Some of the tools archaeologists use might be things like small trowels, brushes, and dental picks. **[Hold up the tools.]**

Excavation Process

As dirt is slowly removed, it's put into buckets that get dumped into a sifter. **[Show the sifter.]** This is just a sandbox sifter. Have you ever used one of these? An archaeology sifter works the same way, but it's really big. It's usually made of a large wooden frame with wire mesh. It sits on top of a wooden stand about waist-high and can be shaken back and forth by one or even two people depending upon how it's made and how big it is. **[Hold the sifter over the aluminum pan and dump the beaded sand into the sifter. Shake it back and forth and show the beads that remain in the sifter.]**

- Why do you think archaeologists sift the dirt after they've already carefully dug it up with trowels and brushes? [Hear student ideas.] Some artifacts, like beads, are very tiny and can be easily missed, but they get caught in the mesh screen of a sifter.

COOKIE DIG ACTIVITY

(Based on http://flpublicarchaeology.org/resources/2008v2BA.pdf;
originally from *Florida Museum of Natural History, Fossil Cookie Excavations)*

- Distribute one chocolate chip cookie, one plate, and one toothpick to each student. Explain that when archaeologists excavate a site, they have to be very careful not to damage any artifacts. There are no "do-overs." Archaeologists can't know exactly what's in the ground, so when they're excavating an artifact, they have to work slowly and be careful not to damage any other artifacts beneath it which they can't yet see.

- Students should use the toothpick to try to excavate artifacts (chocolate chips) from a site (cookie). To the best of their ability, they should keep their chips whole and intact as they dig them out.

- Do this for no more than 5 minutes.

- Was it easy to see where all the chips were in the cookie? [Hear student ideas.]
- What kinds of problems did you have when trying to excavate your chocolate chips? [Hear student ideas.]
- Were you able to get any chips out whole without damaging any other chips? [Hear student ideas.]

Field Journals

- When a dig site gets excavated, will it ever be the same again? [Hear student ideas.] Was your cookie the same after you tried to dig out the chocolate chips? [Hear student ideas.]

When archaeologists excavate a site, the site actually gets destroyed, doesn't it. That's why it's extremely important for archaeologists to keep FIELD JOURNALS.

A FIELD JOURNAL **[Hold up the "field journal" foam board.]** is a notebook in which archaeologists can keep very careful records of everything while they're excavating because once the artifacts are dug up, no one can go back to see exactly how they were sitting in the ground. In the field journal, **[Hold up the notebook.]** archaeologists keep track of everything they can. They do a lot of measuring and record the numbers. **[Hold up the tape measure.]** They measure artifacts. They measure how deep they are in the ground. They measure where the artifacts are from side-to-side within the grid square. They also draw sketches—or pictures—of the artifacts in their field journals. The sketches show how an artifact looks while it's still in the ground. They also write detailed descriptions. Archaeologists take lots of pictures with their cameras, too. **[Hold up the camera.]** Anything they can do to document exactly how things are found IN SITU is very important! **[Hold up the "in situ" foam board.]**

Now there's a cool word: IN SITU. It just means how things are found situated right there in the ground. When you pull an artifact out of the ground, it is no longer "in situ." IN SITU means in its original place. In situ sounds a little bit like you're saying, "In sit YOU"—you are sitting in the ground! That's an easy way to remember what it means. Imagine an artifact sitting in the ground and you tell it, "Hey, in there sit you!" IN SITU.

Labels

When artifacts are removed from the ground, they need to be placed in bags and boxes labeled with their grid co-ordinates. Each artifact is assigned a special number, too. That way, everything stays neat and organized.

III. Field Work Outline

I. Tools

A. Bulldozers and big shovels?

B. Trowels, brushes, dental picks **[Hold up the tools.]**

II. Excavation Process

A. Dirt slowly removed

B. Sifter
   1. **[Demonstrate]**
   2. Why sift the dirt that was already dug out from the site?

C. "Cookie Dig Activity"
   1. Was it easy to see where all the chips were in the cookie?
   2. What kinds of problems did you have trying to excavate your chocolate chips?
   3. Were you able to get any chips out whole without damaging any other chips?

III. Field Journals

A. When a dig site gets excavated, will it ever be the same again? Was your cookie the same after you tried to dig out the chocolate chips?

B. FIELD JOURNALS **[Foam board "field journal" sign]** — notebook for keeping careful records as excavate a site **[Hold up notebook]**

C. Measuring **[Hold up tape measure.]**
   1. Artifacts
   2. Depth
   3. Horizontal position

D. Sketches

E. Photographs **[Hold up camera.]**

F. IN SITU **[Foam board "in situ" sign]** —in its original place / "in sit YOU" in ground

IV. Labels

A. Artifact numbers

B. Bags labeled with grid coordinates

C. Everything stays neat and organized

IV. Lab Work, Reports, and Exhibits

Materials List

- Toothbrush
- 3D puzzle vase pieces and partially reconstructed vase from Part I
- Large foam board from Section I with INTERPRETATION written on it

Approximate time required: 5 minutes

Classification

- Archaeologists aren't done when they excavate artifacts from a site. They take everything in its labeled bags and boxes to a lab. What is a lab, or laboratory? [Hear student ideas.]

A laboratory is a room for doing science work. At the lab, several things happen. Artifacts get carefully cleaned—often with toothbrushes and special cleaning solutions. **[Hold up toothbrush.]**

They also get sorted. There might be several artifact pieces all mixed up in an artifact bag. They need to be sorted out. The pieces that look like they go together are put together in an area separate from other artifact pieces.

Just as careful notes were taken out in the field, careful notes are taken in the lab, too. There's more measuring and photographing and sketching after the pieces are cleaned up.

Restoration and Reconstruction

Then, archaeologists spend lots of time carefully trying to put the pieces of the artifacts back together. For example, our pretend ancient vase **[Display a handful of the puzzle pieces.]** started out as a handful of pieces, but once we put them together, **[Hold up the partially-reconstructed vase.]** a beautiful vase started to take shape.

Interpretation

Now the archaeologist has a bunch of clues, and they need to think about them like a detective.

- Who remembers the word that means to try to explain the meaning of something? **[Hold up the "interpretation" foam board sign if they need a hint.]**

Reports and Exhibits

- Once the archaeologist has thought through his interpretation of the artifacts and has come to a conclusion about them, what should he do with what he learned? [Hear student ideas.]

Archaeologists share what they learned by writing reports and even making museum exhibits out of their artifacts, just like this museum does.

- Why is it important for an archaeologist to share what he learned? [Hear student ideas.]

It's important to share so that others can also think about the clues and learn something from what you discovered. Archaeologists help one another to interpret the stories of history.

IV. Lab Work, Reports, and Exhibits Outline

I. Classification

A. Artifacts next go to a lab. What is a laboratory? (room for doing science work)

B. Artifacts get cleaned **[Hold up toothbrush]**

C. Artifacts get sorted out

D. More documentation (measuring, photographing, sketching)

II. Restoration and Reconstruction

A. Put pieces of artifacts back together **[Hold up puzzle vase pieces and partially-completed vase]**

III. Interpretation

A. Clues — think like a detective

B. What word means to try to explain the meaning of something? **[Hint: Hold up "interpretation" sign]**

IV. Reports and Exhibits

A. Interpretations —> conclusions

B. What should an archaeologist do with what he or she has learned? [Reports / exhibits]

C. Why is it important for an archaeologist to share what he learned? [others learn / continue to test hypothesis]

V. Activity Stations

Materials List

- 10'x10' event tent
- Tarp for covering dig site overnight
- Ahead of time, create a wooden framework (old pallet boards work well) for the mock dig site (appx. 6' x 6') and fill with soil (below). Make a stake-and-string grid with 4 quadrants labeled in some way (laminated signs if desired) A1, A2, B1, and B2
- Soil to fill mock dig site to appx. 6" depth (appx. 18 cubic feet of soil)
- Ahead of time, bury "artifacts" (for example, an assortment of small treasure-box-type toys), distributing them among the quadrants at various levels
- 3 field journals (spiral-bound to lie flat) and 3 HIAH pencils
- 3 tape measures
- 5-gallon bucket
- 4 small boxes or brown grocery bags labeled with quadrants numbers (A1, A2, B1, B2)
- Box of broken shards from several pottery-type artifacts (edges sanded smooth)
- 60-piece jigsaw puzzle with NO box top
- Ahead of time, create a giant tabletop version of the game "Battleship" except with arrowheads instead of ships (or use the game "Battleship" instead)
- 2 dry erase markers and erasers for giant game
- Metal mesh wastebasket filled with the following: Birthday card that was sent to "Mandi" with June 3 written on it and signed by "Aunt Mildred"; crumpled up math worksheet with grade of 5/10; short hand-written poem with sticker on top; candy bar wrapper or empty raisin box; broken flip-flop or hole-y sock; empty juice box or soda can; movie ticket stub; magazine or newspaper with a page dog-eared and something circled in red marker
- Portable chalkboard with chalk and eraser

Approximate time required: 40 minutes

Activity Stations

[Divide students into four groups. Very briefly explain the four stations. Instructional signs are placed at each of the 4 stations, as well. Assign one group to each of the four stations. A volunteer, chaperone, or parent should generally supervise each station while the leader walks around to all the stations during the allotted time. AFTER EXACTLY 10 MINUTES, SIGNAL THAT STUDENTS NEED TO SWITCH STATIONS! The leader will need to direct groups to their next station: #1 goes to #2, #2 goes to #3, #3 goes to #4, and #4 goes to #1. Repeat the process until each group has been to each station. This should take no more than 40 minutes.]

STATION #1: DIG PREPARATION
(Practicing With Grids and Coordinates)

Ahead of time, set up the giant tabletop "Battleship"-style game with 2 dry erase markers and erasers.

1. Divide into 2 teams
2. Play the game like the game of "Battleship":
    - On horizontal grid, each team should place 2 arrowheads as desired. (Don't peek at your opponents' positions!) The vertical grid is used to record in dry erase marker whether or not the coordinates you inquire about on your turn are a "hit" (X) or a "miss" (O).
    - Team 1: Choose a coordinate where you think the opponent's arrowheads could be located. Team 2: If you have an arrowhead located there, say "Hit." If not, say "Miss." Team 1 records the results on their vertical white board (X or O). If it is a "hit," then team 2 places a peg inside that particular hole in their arrowhead. Now team 2 takes a turn.
    - When all the holes in an arrowhead have been filled with pegs, the artifact has been "excavated" by the opponent. The object of the game is to be the first to excavate the opponent's artifacts!
    - Play for 10 minutes. At the end of that time, the team who had the most "hits" on their opponents' artifacts is declared the winner of the game.

(Alternative: Play the game "Battleship.")

STATION #2: FIELD WORK

Ahead of time, set up a 10'x10' event tent outside over the top of a 6'x6' framework filled with topsoil to appx. 6" deep. Create a stake-and-string grid which divides the area into four quadrants. Bury some 'artifacts' of choice within each quadrant at various levels. Additional materials to have in this station include a 5-gallon bucket, 3 trowels, 3 2-inch paint brushes, 3 field journals with 3 HIAH pencils, 4 small boxes or bags labeled with different quadrant numbers (A1, A2, B1, and B2), and 3 tape measures.

1. Choose ONE of the four quadrants for your group and pick out the corresponding artifact box.
2. Half the group should slowly and carefully use the trowels and brushes ONLY in your quadrant to excavate the buried artifacts.
3. The other half should use field journals, pencils, and tape measures to document what is found "in situ." Draw a large picture of the quadrant. When an artifact is discovered, measure its length and width to the nearest half-inch and record it. Do a basic sketch of the object "in situ" within the quadrant drawn in the field journal. Continue for any other artifacts found.
4. After FIVE MINUTES, switch: the excavators become the field journalists and vice versa.

STATION #3: LAB WORK

Ahead of time, on a table, place a box of broken shards from various pottery-type artifacts and a 60-piece puzzle with NO box top.

1. Work together to sort the pottery shards into piles. Each pile should contain shards from only ONE piece of pottery.
2. Then, work together to assemble the 60-piece puzzle. There is NO box top to which to refer. How easy is it to do the puzzle with no idea of what the end result is supposed to look like? Archaeologists must do this all the time when reconstructing artifacts and interpreting them.
3. When you're done, undo the puzzle and carefully put the pottery shards back into the box.

STATION #4: INTERPRETATION
(Wastebasket Archaeology)

(Based on pg. 13 of *Archaeologists Dig For Clues,* by Kate Duke)

Ahead of time set up a metal mesh wastebasket filled with the following: Birthday card that was sent to "Mandi" with June 3 written on it and signed by "Aunt Mildred"; crumpled up math worksheet with grade of 5/10; short hand-written poem with sticker on top; candy bar wrapper or empty raisin box; broken flip-flop or hole-y sock; empty juice box or soda can; movie ticket stub; magazine or newspaper with a page dog-eared and something circled in red marker. On the table, place a portable chalkboard, chalk, and eraser.

1. Work together to excavate the trash can. Each piece should be pulled out and analyzed.
2. Together, write on the chalkboard some information that can be known about the owner of the trash can just from looking through the garbage. Also write down some questions that pop up in the process—things that aren't totally clear from just the trash itself.
3. If time remains, think of 3 items that you could personally put in a shoebox that would tell people about yourself. (For example, if you love doing math, you might choose to put a calculator in your box. If you like getting new hairstyles, a comb might be a good choice.) Share with one another as time permits.
4. Put the items back into the trash can when you're finished.

[At the end of the day, cover the mock dig site with a tarp to keep it dry.]

V. Activity Stations Outline

I. Activity Stations—10 MINUTES AT EACH! (4 groups / 4 stations)

A. Station #1: "Dig Preparation"

B. Station #2: "Field Work"

C. Station #3: "Lab Work"

D. Station #4: "Interpretation"

[At the end of the day, cover the mock dig site with a tarp to keep it dry.]

Signs for Stations

(Cut out and laminate if desired)

STATION #1: DIG PREPARATION

- Divide into 2 teams
- Play the game like the game of "Battleship":
  - On horizontal grid, each team should place 2 arrowheads as desired. (Don't peek at your opponents' positions!) The vertical grid is used to record in dry erase marker whether or not the coordinates you inquire about on your turn are a "hit" (X) or a "miss" (O).
  - Team 1: Choose a coordinate where you think the opponent's arrowheads could be located. Team 2: If you have an arrowhead located there, say "Hit." If not, say "Miss." Team 1 records the results on their vertical white board. If it is a "hit," then team 2 places a peg inside that particular hold in their arrowhead. Now team 2 takes a turn.
  - When all the holes in an arrowhead have been filled with pegs, the artifact has been "excavated" by the opponent. The object of the game is to be the first to excavate the opponent's artifacts!
  - Play for 10 minutes. At the end of that time, the team who had the most "hits" on their opponents' artifacts is declared the winner of the game.

STATION #2: FIELD WORK

1. Choose ONE of the four quadrants for your group and pick out the corresponding artifact box.
2. Half the group should slowly and carefully use the trowels and brushes ONLY in your quadrant to excavate the buried artifacts.
3. The other half should use field journals, pencils, and tape measures to document what is found "in situ." Draw a large picture of the quadrant. When an artifact is discovered, measure its length and width to the nearest half-inch and record it. Do a basic sketch of the object "in situ" within the quadrant drawn in the field journal. Continue for any other artifacts found.
4. After FIVE MINUTES, switch: the excavators become the field journalists and vice versa.

REMEMBER TO EXCAVATE ONLY IN YOUR GROUP'S QUADRANT!

Signs for Stations

(Cut out and laminate if desired)

STATION #3: LAB WORK

- Work together to sort the pottery shards into piles. Each pile should contain shards from only ONE piece of pottery.
- Then, work together to assemble the 60-piece puzzle. There is NO box top to which to refer. How easy is it to do the puzzle with no idea of what the end result is supposed to look like? Archaeologists must do this all the time when reconstructing artifacts and interpreting them.

WHEN YOU'RE DONE, UNDO THE PUZZLE
AND
CAREFULLY PUT THE POTTERY SHARDS BACK INTO THE BOX.

STATION #4: INTERPRETATION

- Work together to excavate the trash can. Each piece should be pulled out and analyzed.
- Together, write on the chalkboard some information that can be known about the owner of the trash can just from looking through the garbage. Also write down some questions that pop up in the process—things that aren't totally clear from just the trash itself.
- Put the items back into the trash can to prepare for the next group.
- If time remains, think of 3 items that you could personally put in a shoebox that would tell people about yourself. (For example, if you love doing math, you might choose to put a calculator in your box. If you like getting new hairstyles, a comb might be a good choice.) Share with one another as time permits.

MAKE SURE THE TRASH IS BACK IN THE TRASH CAN WHEN YOU'RE FINISHED.

VI. Wrapping it Up

Materials List

- "Vocabulary" handouts (one per student and teacher)
- "Educator Resources" handout (one per teacher or parent—6 pages/print double-sided on 3 sheets of paper)
- *Archaeologists Dig For Clues* book (one per teacher for school groups; one per child for community camp)
- "Come Dig With Us" HIAH business cards (one per student, teacher, and chaperone)

Approximate time required: 5 minutes

Items to Take Home

[Distribute a "Vocabulary" handout to each student and teacher to put in their folders]

This is a list of all the great archaeology words we learned today. These folders with all the handouts you've received today, plus the pencils, are yours to take home with you.

I'm also giving your teachers a handout with some educational resources and a vocabulary game that your class might like to play sometime, plus a really cool book called, *Archaeologists Dig For Clues* that you can read together and keep in your classroom.

[Distribute an "Educator Resources" handout and an *Archaeologists Dig For Clues* book to the teacher (or each child if Saturday camp)]

Announcement

[Distribute a "Come Dig With Us" HIAH business card to each student, teacher, and chaperone]

Now comes the really exciting part. The card that I just gave you has a web page listed on it with details about a REAL archaeology dig that we're going to be doing in a few weeks right here at the Historic Indian Agency House! Make sure you take the card home with you and tell your family and friends about it because you will actually be able to watch! In fact, not only can you watch, but you can even dig with the archaeologists! Not very many people get a chance to work on a real archaeological excavation. The archaeologists' goal is to try to locate and excavate the blacksmith shop that was on our property in the early 1830s in order to help us understand it better.

Thanks

I hope you learned a lot and had fun at Archaeology Kids' Camp! Thanks for coming!

VI. Wrapping It Up Outline

I. Items to Take Home

A. Folders with all handouts and HIAH pencils

B. Distribute “Vocabulary” handout

C. Distribute “Educator Resources” handout to teacher (to parents if community program)

D. Distribute *Archaeologists Dig For Clues* book to teacher (to each child if community program)

II. Announcement

A. Distribute “Come Dig With Us” cards to each student, teacher, and chaperone

B. Real archaeology dig at HIAH - may participate! - 1830s blacksmith shop on property

III. Thanks

A. Hope you learned a lot and had fun - Thanks for coming!

Vocabulary

Archaeology—The study of human history through interpretation of artifacts

Artifacts—Things people made or used in the past

Interpretation—Explaining the meaning of something

Scientific Method—Careful steps that scientists take to answer questions

Hypothesis—A possible answer to a question

Survey—Overall inspection of an area to find clues

Strata—Layers of earth

Excavate—To carefully remove earth from a site in order to find something buried

Grid—A system of carefully-measured squares

Coordinate—The address of a square in a grid

Field Journal—A notebook in which archaeologists keep records as they excavate

In Situ—An artifact in its original place in the ground

Educator Resources

Find many educational resources throughout our website:

Historic Indian Agency House

www.agencyhouse.org

...and follow us on Facebook, too!

- Watch for additional educational opportunities and events
- Take a guided tour of the Agency House and visitor center museum
- Explore our grounds, including our chipoteke and nature trails
- Request a visit to your classroom

Additional Recommended Resources:

American Museum of Natural History, "Archaeology," https://www.amnh.org/explore/ology/archaeology (website)

Duke, Kate, *Archaeologists Dig For Clues* (book)

Florida Public Archaeology Network, "Beyond Artifacts: Teaching Archaeology in the Classroom," http://flpublicarchaeology.org/resources/2008v2BA.pdf (curriculum)

Macauley, David, *Motel of the Mysteries* (book)

National Park Service, "Archaeology for Kids," https://www.nps.gov/archeology/public/kids/index.htm (website)

Newton's Apple, "Archaeology," http://www.newtonsapple.tv/video.php?id=1153 (video)

PBS Learning Media, "Kid Archaeology," https://wisconsin.pbslearningmedia.org/resource/62a10a53-e7ac-4fd2-84db-e13b19eebf74/62a10a53-e7ac-4fd2-84db-e13b19eebf74/#.Xexgp-hKiUl (video)

SciShow Kids, "Solving Mysteries With Archaeologists!," https://www.kidzsearch.com/kidztube/solving-mysteries-with-archaeologists_45f2b79ce.html (video)

PBS, "SciGirls 104: Digging Archaeology" https://www.pbs.org/video/scigirls-tpt-digging-archaeology-full-episode/ (video)

Vocabulary Memory Game

Print the next four pages double-sided (cardstock works best) and cut out the cards. Laminate each card if desired. Turn them all face-down in neat rows and columns. On each student's turn, he should turn over two cards. If he gets the word and its matching definition, he gets to keep the match and play again. If not, he turns the cards back over and play continues with the next student. The object of the game is to find the most matches.

Archaeology—The study of human history through interpretation of artifacts

Artifacts—Things people made or used in the past

Interpretation—Explaining the meaning of something

Scientific Method—Careful steps that scientists take to answer questions

Hypothesis—A possible answer to a question

Survey—Overall inspection of an area to find clues

Strata—Layers of earth

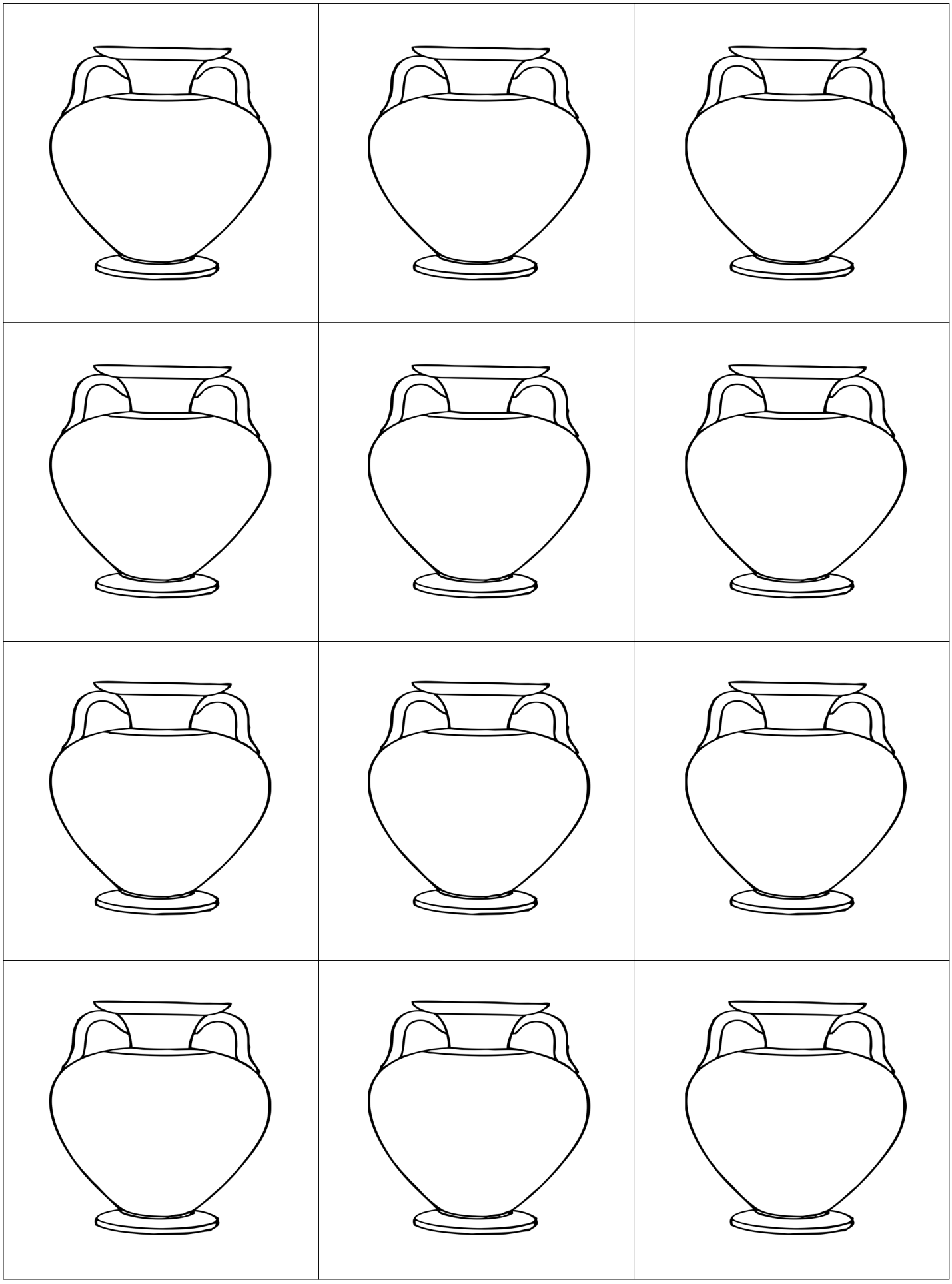
Excavate—To carefully remove earth from a site in order to find something buried

Grid—A system of carefully-measured squares

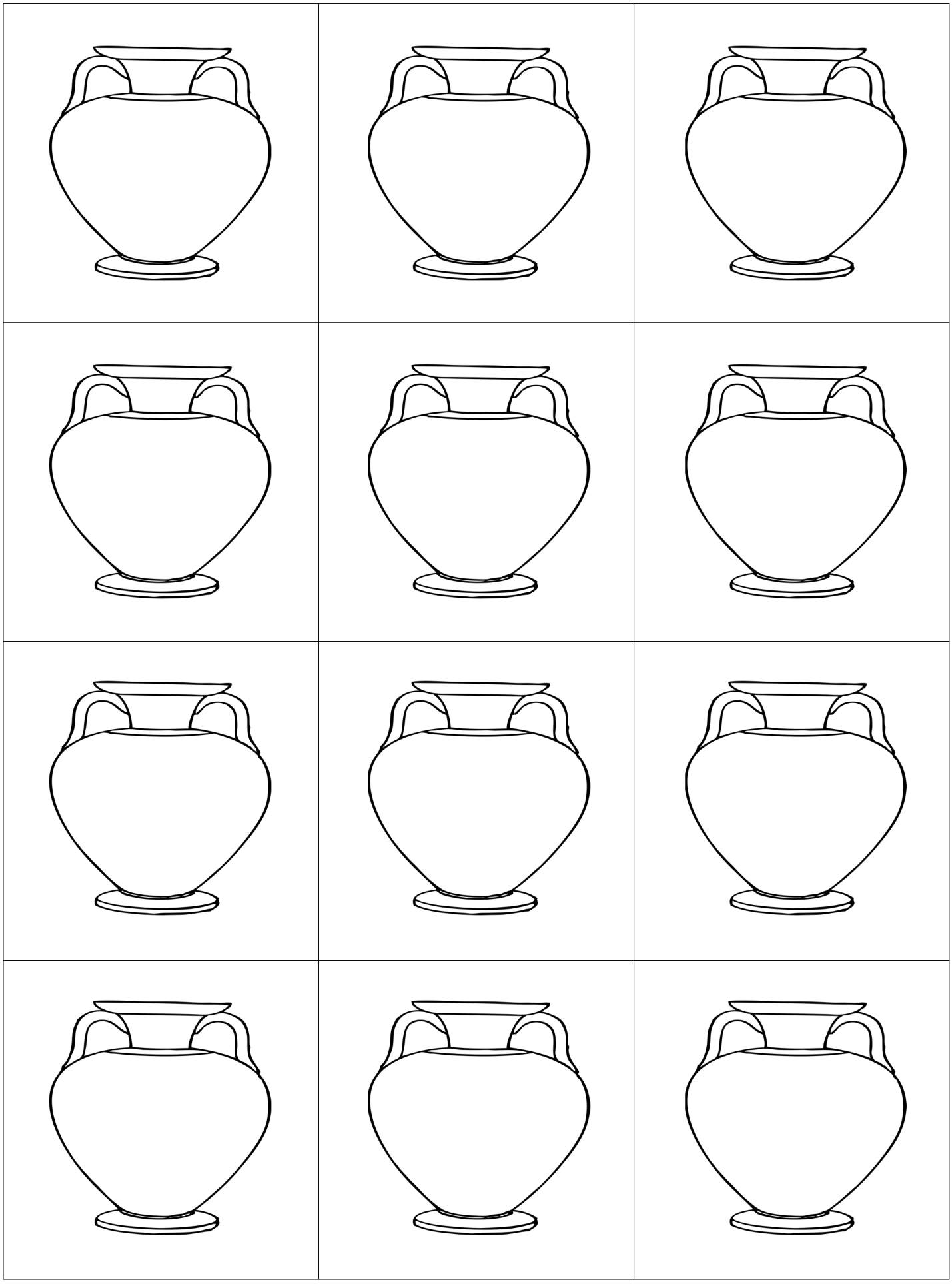
Coordinate—The address of a square in a grid

Field Journal—A notebook in which archaeologists keep records as they excavate

In Situ—An artifact in its original place in the ground



Archaeology	Artifacts	Interpretation
Scientific Method	Hypothesis	Survey
Strata	Excavate	Grid
Coordinate	Field Journal	In Situ



The study of human history through interpretation of artifacts	Things people made or used in the past	Explaining the meaning of something
Careful steps that scientists take to answer questions	A possible answer to a question	Overall inspection of an area to find clues
Layers of earth	To carefully remove earth from a site in order to find something buried	A system of carefully-measured squares
The address of a square in a grid	A notebook in which archaeologists keep records as they excavate	An artifact in its original place in the ground