

# Schoolyard Dig

## A Simulated Life-size Excavation

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Students will become archaeologists and uncover part of a single-layer, one-period site. This dig works well with students in middle school through high school. Unlike small-scale portable digs (*Layer Cake Archaeology*, *Transparent Shoebox Dig*, and *Shoebox Dig*), this dig simulates a full-scale excavation and requires space and considerable planning.

**Acknowledgements:** This simulated dig owes a great deal to the many archaeologists who have brought archaeology into schools. The lesson addresses their interest in teaching budding archaeologists the importance of context. Special thanks go to AIA member Craig Lesh.

### Overview

The simulated dig teaches basics of archaeology, including horizontal excavation (rather than digging holes), keeping records, and preserving the context of finds. The lessons in observing, recording, drawing, writing, and analysis are applicable to many disciplines. Adding culturally specific artifacts or laminated images makes the excavation relevant to even more fields.

- Teachers should modify the site to suit their classroom goals and areas of study. Since archaeologists generally use the metric system, the teacher might want to do so.

Surface finds supposedly from nearby farmers' fields, or perhaps from a test excavation, should allow students to hypothesize about what they will uncover before they begin to dig. They then take on different roles as excavators, recorders, and draftspersons as they excavate, sieve the dirt (if feasible), and interpret the site, ending with a report or a group conversation about their conclusions and their remaining questions.

The teacher, who knows the story of the dig (such a seer unfortunately does not exist on a real dig!), can ask final questions and explain the invented history of the site. This will reveal how carefully the students excavated and validate the importance of collaborative teamwork, proper procedures, and basing one's inferences on careful observations.

### Grade Levels

The dig is designed for middle through high school. The teacher can modify the complexity of the site or the record-keeping to suit the ages and abilities of the students.

## Goals

Students learn archaeological skills as they experience in a kinesthetic way the fact that excavating an archaeological site destroys it. They record as they dig, and the dig ends with discussion of what they observed and why it is important to excavate and record the context of the objects all together rather than pick them out as they find them.

*Interdisciplinary goals are to:*

- help students practice skills of observation, critical thinking, inquiry, and hypothesis-testing applicable to many disciplines, including science, social science/history, and art.
- permit kinesthetic learning, including excavating and drawing.
- illustrate the importance of context to the meaningful interpretation of data.
- promote teamwork, sharing, academic honesty, and building on the work of others.
- practice the distinction between observations (the discoveries we make) and inferences (the stories we make up).
- engage students in thinking about multiple interpretations.
- allow for design flexibility, so that teachers can meet their own classroom's needs.

*Archaeological goals are to:*

- introduce principles of stratigraphy (even with a one-layer site) and make excavation strategies clear and relevant.
- show that our knowledge of the past is incomplete and illustrate how some of its gaps came to exist.
- illustrate that careless work can affect interpretation and destroy context.
- emphasize that excavation and archaeological research are not treasure hunting, but ethical endeavors to restore a past culture's heritage.
- teach students how to measure, draw, and read a top plan.

## Materials and Preparation

The teacher should read *Basics of Archaeology for Simulated Digs* and the *Shoobox Dig* lesson.

This dig requires schools or property owners to permit a simulated excavation on their land. Time for planning is essential. Someone must prepare the site, including surface cleaning, laying out excavation squares, and neatly digging out compact soil down to about 8 inches. The bottom is seeded with artifacts and then the soil is put back and compacted (by hand and foot pressure). The side walls of the excavation area must be vertical (see Pitfalls).

A 5' x 2' long excavation site with enough room along the edges for students to stand or sit is recommended for 10 students, so that each student will have a square foot—or a minimum of 30 x 30 cm.—in which to dig down approximately 8 inches or 20 centimeters. An excavator and recorder can work together. The site will require some equipment and tools whose cost can add up (wheelbarrow, sieve, trowels, brushes, dustpans), and some should therefore ideally be borrowed or re-used over the years.



Left: An excavation unit is gridded with string attached to nails. Students discuss their first finds. Note that the soil is not very compact. Students also need to brush their finds more carefully as they emerge.

Right: Soil is sieved as it is excavated. Small finds are revealed on the sieve screen as the dirt passes through.

**Content of excavation squares:** The teacher can design, or one class can design for another class, the layout and content of the squares to represent either part of one larger area or two different work or habitation areas. For simplicity, the area being excavated should represent one location. Even so, the teacher may leave some objects/pieces of an object in different squares so that inferences are most effective if teams share information.

Several objects should be related to tell a story (place them near one another). Parts of a broken artifact can be positioned so that students who dig carefully will see the original connection.

- Small beads that might have appeared in a certain order in a necklace can be arranged in a circle. A circle of stones with charred wood inside it can represent a fire pit. Cherry pits may be left just outside a bowl fallen on its side. Olive pits may be put inside as well as near a jar for olive oil.

Additives to soil or changes in soil type in certain areas of the square can reveal spilled food, a fireplace, pigments from a fallen fresco, and so on.

**Roles:** Students excavate, record, draw, bag artifacts, sieve soil (if feasible). They can rotate through the roles so that the teacher does not need to create too large a dig site. Digging the squares and drawing the top plan require working together at the square, while other roles can rotate away from the square (artifact bagger/recorder, sieve specialist).



Students re-tie broken grid string. Recorders hold record sheets on clipboards. An easel with paper permits students to draw an ongoing plan of the whole site.

**The story:** The dig site should be built around a story the teacher has in mind, which will vary depending on the artifacts collected. The site can be culturally specific or neutral (see Shoe Box Dig). Artifacts put into each layer can be inexpensive and include small objects saved up from past projects. Simple features, such as a damaged wall or a fire pit, can be created from bricks, pieces of wood, or stones. Replicas of genuine artifacts can enhance the site and make it more relevant to topics being studied in class, and laminated images of real artifacts may also be substituted for artifacts. For fun, the teacher can put a mystery artifact in a square.

**Partial excavation:** Once the artifacts and features have been set out as planned, the square is filled back in with dirt and the dirt is vigorously tamped down. If the dirt excavated from the squares during preparation of the site is too rocky or debris-filled, potting soil is a good substitute when re-filling the squares, since students will be confused by many small rocks and twigs and may spend time recording them. It is quite difficult to excavate 8" of soil properly, so to save time and to encourage observation and analysis, the site can be envisioned as already partly excavated or eroded, with clues visible on the surface or in a small section of the dig.

**Gridding the site:** Once filled in with soil, the site will be divided into grids using nails and string. Set the nails back at least 5 inches from the square's edge since they can loosen and tend to fall into the square. If the string sags and breaks during digging, the grid should be maintained and the string lines repaired, since they assist in proper drawing and recording.

**An aside: Why not a sand pit? Making context important**

Many would-be excavators have worked with sand or sandy soil. The problem is that sand is too fine and slippery to keep objects in place, and most lessons about context are lost as objects move around in the sandy matrix, even during digging. The result is that the relationships of specific objects to one another are lost.

What an archaeologist wants students to learn is the importance of the relationships of artifacts to one another and to features in the ground. Of course, finds with no clear connection to one another discovered in trash pits or in sand are still useful. But they don't serve as a successful model for archaeological skill-building.

- If teachers do not want to teach lessons about context and careful digging, but instead just want to help students analyze groups of objects (for example, to infer their different contexts or functions, such as "habitation," "workshop," "kitchen," etc.), it is better to lay the objects out on a table in their groups and explain that they have already been excavated rather than have students excavate them from loose sand.
- A haphazard layout of unconnected objects can however be successfully represented as a trash put.

**Materials***Excavation Materials*

- Cheap mason's flat, pointed trowel (not gardening trowel) for excavating
- Paintbrushes, large and small, for brushing dirt off finds still in the ground
- Containers for excavated dirt
- Small plastic bags to hold the artifacts
- Waterproof black markers to label the bags
- Rulers/measuring tape
- Pencils
- Clipboards
- Reproduced artifacts and/or laminated images of artifacts
- Wheelbarrow, shovel
- Plastic storage bin for tools and for finds and records from each square
- Sieve or screen (several feet square) to check for small missed finds

*Examples of artifacts*

- Fake ancient or real (modern, not ancient!) coins
- Plastic and ceramic dishes and pots
- Plastic and metal tools
- Objects being worked on (wood, etc.)
- Dried pasta
- Popcorn, fruit pits, bones • Beads of different types • Fake gems

*Examples of features*

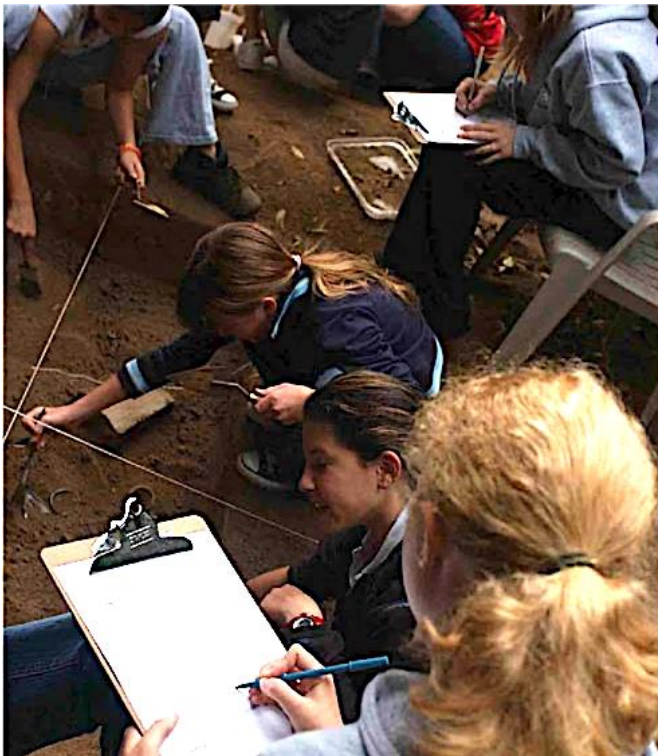
- Wall of stones or bricks
- Hearth or fire pit of stones (with charcoal or wood inside)
- Midden (garbage dump with darker potting soil mix)

**Recording is essential**

The teacher should design top plans and record sheets based on the dig goals, the age and number of students, and the number of artifacts. See *Sample Record Sheets* for simple, full-page examples.

At a minimum, the teams need:

- a record sheet: designed by the teacher and requiring (in a simple version) a list of artifacts uncovered, with notes, or (in a more complex version) a description and sketch of each artifact, and notes.
- a top plan: a sheet of graph paper with a square or rectangle already drawn on it to represent the excavation square.



Students measure and record finds.

As an alternative or addition to individual top plans, the teacher can set up a stand or table with large sheets of graph paper (an “architect’s top plan”) representing the squares at the site. Teams add finds to the squares as they dig. Since this is not a multi-layer site, if the finds are not too numerous this system can replace individual top plans for each square. Used in addition to top plans, this overview of the site ensures that everyone can follow what is happening and can discuss the site as a whole at the end of each excavation session.

### Class Time

Depending on how the site is designed and how much dirt needs to be removed, the project takes the students several hours of class time spread out over a week and requires several adults to assist (and to remind them not to dig holes and to record properly).

- More time and adult supervision may be needed if the teacher allows everyone to rotate through roles on the team and to dig.
- If different groups rotate through the same site, cleanup and re-seeding and re-filling the squares take time and adult assistance. It is difficult to cause every team to excavate the same finds at the same pace and this requires careful handling.

Discussion of the dig and follow-up questions and answers will also take at least another hour or more of class time.

### **DIGGING: Introduce archaeology and the site**

The class learns basic rules and procedures of archaeology. See *Basics of Archaeology for Simulated Digs*.

The teacher can explain how this place is known (old records, previous excavation, construction that revealed artifacts), or simply begin the dig by revealing several finds that have turned up in this area. The finds and thus the story of the site can be modified based on available artifacts, the students' ages, and the degree of complexity desired in the dig.

The artifacts lead archaeologists to think a site lies buried here. Ideally, a section of site is already partially dug or eroded, and some finds are partially or fully exposed. The students can begin by examining them. The artifacts should reveal something about the kind of site this is, and students should discuss what they expect to find and generate hypotheses about the site, which they will test as they dig.

Some of the finds may be contradictory or confusing and generate discussion of multiple uses or changes through time. The teacher should stress how important it is for archaeologists to separate their observations about the site from their conclusions and to avoid focusing on only one conclusion.

### **Divide students into teams and prepare to dig**

Each team has 5–10 students working in a 5' x 2' excavation area, with room for one student per square if there are ten one-foot squares (or approximately 30 x 30-cm. squares). Working with larger students will require larger squares or fewer people per square.

Each team receives top plans and record sheets. The teacher reminds students that archaeologists do not dig just to "find things," but rather to interpret someone's culture and

way of life. On a real dig, nothing would be removed at all until it had been drawn, photographed, and recorded. Every dig destroys as it uncovers.

Depending on the number and age of the students, team members or the teacher decide on roles (excavator, top plan drafts person, artifact recorder, artifact bagger, sieve specialist). The teacher may allow team members to rotate through different roles so that everyone has a chance to dig and to experience all jobs.

Teams dig, draw, record finds, and put artifacts into correctly labeled bags. The gridded squares allow students to measure the location of finds easily and represent them on a top plan or graph paper. If there are several dig areas, students should take turns visiting the whole site, watching the other teams in action, and seeing the finds in place.

In a large-scale dig, one layer provides a manageable first exposure to archaeological practice. If a layer has too many artifacts, these may be confusing and will be difficult to record, so plan based on student numbers. Team members need to be reminded that everyone on the dig team is contributing and shares in uncovering and interpreting the puzzle that is the site.

### Pitfalls

While excavating a large square with compact dirt, the side walls (balks) should be kept vertical. (This will happen naturally if the square was dug properly by the dig creators.) On a real site, balks allow the excavator to see the stratigraphy. Sometimes the balk, just like the sides of a transparent shoebox dig, reveals that the excavator has accidentally dug through or missed a layer.



A trowel and brush sit on the edge of a gridded dig square

Students need to be motivated to dig carefully and avoid stepping into their dig squares. Loose soil is messy and far easier to remove than the hard soil at a real site, although it should have been compressed as much as possible. Students should wear clothing that can get dirty.



### Summing Up

At the end, all students can come together to share their conclusions. A series of questions about the site will allow them to showcase their teamwork and attention to detail. Individual teams may answer some questions while the whole class will answer others. Ideally students will recognize the value of the information they gained from artifacts evaluated in context. They can make educated guesses about the site, the people who lived here, and the information that is still missing.

The teacher, who magically knows the full story of the site, can reveal its history, show how proper digging helped uncover the evidence, and point out that some questions can simply not be answered by what has been excavated. In the real world, a dig usually ends with questions.

### Assessment

It can be difficult to grade an excavation project on results since it is acceptable for students to make mistakes and learn from them. The teacher can instead assess the care and thoroughness of top plans and record sheets and note students' ability to separate inferences from observations. Questions about the site will also reveal teams' successes.

### Following Up

Older students may continue their analytical thinking by studying the AIA's *Mystery Cemetery*, drawing conclusions about the site (Map 1 and photographs) and then checking their ideas after further excavation (Map 2).

## Resources

Coan, J. 1999. *Digging into Archaeology: Hands-On, Minds-On Unit Study*. Pacific Grove: Critical Thinking Books & Software.

Cochran, J. 1999. *Archaeology: Digging Deeper to Learn About the Past*. Nashville: Incentives Publications, Inc.

McIntosh, J. 2000. *Archeology*. London: Dorling Kindersley Ltd.

Moloney, N. 1997. *The Young Oxford Book of Archeology*. Oxford: Oxford University.

White, J.R. 2005. *Hands-On Archaeology: Real-Life Activities for Kids* (Grades 4–10). Waco, TX: Prufrock Press.

Online: see AIA and Archaeology Magazine's Interactive Digs:  
<https://www.interactivedigs.com/>