

Transparent Shoebox Dig

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This dig lesson teaches simple lessons about stratigraphy, careful excavation, and the importance of recording finds rather than “treasure hunting.” Young students learn basic archaeological concepts as they personally create two or three layers of a stratified site and then discuss or, ideally, dig them. They experience how information can be lost when artifacts that belong together are separated or when finds from different layers and times become mixed.

Overview

The shoebox dig is created in a transparent plastic box with a lid, the sort that can be bought at a container store. The students invent or the teacher tells a story about the cultures in two or three layers and the students help create the stratigraphy and deposit artifacts representing the cultures. Since the shoebox is transparent, students can see the layers being formed and then observe the resulting stratigraphy through the sides of the box. If there is time, the class can then dig the layers to add to the experience, or simply discuss the reasons archaeologists carefully excavate one layer at a time.

Grade Levels

This simple excavation works best with young elementary grades. It is designed for grades 2-3 and relies on the teacher’s assessment of how much the students can handle.

Goals

Creating a stratified site will help young students learn basic archaeological concepts and become invested in the future discovery and interpretation of their site. As they then discuss or dig the site, they will experience how information can be lost if excavation is careless. The dig site teaches simple lessons about stratigraphy, the logic of horizontal excavation, and the importance of recording and preserving the context of finds.

Interdisciplinary goals are to help students:

- practice observation and rudimentary hypothesis-testing applicable to many disciplines, including science, math, social science/history, and art.
- distinguish between observations (the discoveries we make) and inferences (the stories we make up).
- See that context (making connections) matters.

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- join in teamwork, share ideas, and build on the work of others.
- Translate three dimensions into two (if they create a top plan).

Archaeological goals are to:

- emphasize that we excavate to learn about past people, not to find treasure.
- illustrate that careless work affects what we can learn.
- show why archaeologists do not dig holes to pull out single objects.

If digging: students will experience that excavating an archaeological site destroys it, so that afterwards there is no way to check information that was not recorded.

- Although record-keeping needs to be simplified with young children, they should still ideally (if they dig) be asked to do some form of recording, and the dig should still end with discussion of what the students observed in each layer and why it is important to dig one layer at a time.

Materials and Preparation

Teachers should first read *Basics of Archaeology for Simulated Digs* and *Dig Design Tips* and look at *Shoebbox Dig Photos*. They will need to obtain one or more transparent shoe boxes, sand, dirt, or potting soil, and an assortment of artifacts. The layers will be created from different soils and sand so they can easily be distinguished.

As described, this two-layer site is not associated with any genuine archaeological cultures. This permits students to focus on close observation and helps them avoid jumping to conclusions based on cultural cues. Alternatively, teachers may choose to add small culturally specific simulated artifacts or laminated images of real artifacts to make the lesson relevant to cultures students are studying.

Materials (for two layers; add layers as needed) The teacher may vary content and complexity.

- Transparent plastic shoe boxes
- Sand, not too fine and dusty, for a bottom layer of sand-dwellers
- Soil, not too fine (of a uniform consistency that will help make it easy to spot artifacts), for an upper layer of dirt-dwellers
- Different artifact types for each layer (perhaps 3 items of 5 types; for example, 3 green beads, 3 tiny plastic doll dishes, and so on, for a total of 15 artifacts per layer)
- Sugar cubes, clay, or small plastic building blocks to create the remains of structures (if desired)
- A piece of plastic or a plastic tablecloth to work on

Supplies for excavating

- Hollow spoons and small brushes (excavation tools)
- Containers for excavated dirt
- Small plastic bags to hold the artifacts from each layer
- Waterproof black markers to label the bags

- Paper (graph paper or blank)
- Rulers

Supplies for recording

- Pencils
- A top plan for each layer (a sheet of graph paper with a square or rectangle drawn on it can represent the excavation square) on which students can note where they found artifacts
- A record sheet for each layer, designed by the teacher, if age-appropriate, or a simple list of artifacts

Class Time

If students create but do not excavate their site, the lesson should only take a few hours, including clean-up. If students excavate, the lesson is best carried out in two stages (creation/discussion, then excavation/discussion) over at least two days. If there is only one shoebox for the class (rather than several boxes to be dug by groups or teams) and students take turns removing only a spoonful or two of dirt at a time, digging and clean-up should take about an hour and a half.

Inventing the cultures and creating the dig site

The teacher divides students into groups representing each layer of the dig site. Each group belongs to a culture with different characteristics. The students learn some typical artifacts of each culture (pre-determined by the teacher, who knows the story of the site) and then have time to choose additional interesting aspects of culture, such as:

- 4 foods their culture likes to eat
- 3 items of clothing people wear
- 2 favorite colors
- 1 favorite animal

Introduce archaeology

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

Tell the story of the site and create the layers

Layers must be thick enough to be easily distinguished in cross section (and during digging, if the students will excavate), since thin layers can easily be mixed).

For a two-layer site with a simple story, the teacher and students describe the earliest culture of beach-dwellers. For example, "A group of people lived on the sand near the shore. They ate fish (represented by plastic fish) and wore purple and green beads because"

- Students representing the beach-dwellers take turns putting sand and small objects into the shoebox.

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Then the teacher explains that sea level rose or some other change occurred, and the beach-dwellers moved away. Soil built up and new people moved in, and students help describe the newer culture.

- Students representing the new dirt-dwelling group take turns adding soil and artifacts.

Dig or discuss

Afterwards, students can excavate the layers they created, or they can simply observe and discuss the stratigraphy they created, visible through the sides of the box.

Pitfalls

Sand and loose potting soil can be messy and, even when they are packed down tightly, are far easier to remove than the hard soil at a real site. Students need to dig carefully, or the rewards of stratigraphic excavation will be lost. If the layers contain too many artifacts, these may become confusing and difficult to record, while too few artifacts may be frustrating.

Team members need to know that all the members of a dig team are contributing, whether digging or recording, finding artifacts or not. It is not the main goal on this or any dig just to “find things.” Everyone shares in uncovering and interpreting the puzzle that is the site.

Assessment

The teacher can design a series of questions about the layers for groups to answer and reward collaborative teamwork and attention to detail.

Possible questions about the two-layer site described above:

Which group lived in the area first?

In stratigraphy, lower layers are earlier.

What would happen if an archaeologist dug holes and excavated dirt and sand together?

The remains of two cultures would be mixed together!

(If the site will not be excavated, the teacher or student can illustrate by digging through layers and bringing up dirt, sand, and artifacts.)

Why would it be best to dig each layer carefully and record the artifacts?

To learn about the different people of each culture instead of combining them.

How would/did students who created a culture feel about their culture being merged with another one?

Probably they would not be pleased – whether as “designers” or “inhabitants” of the area.

What would happen to the stratigraphy if there were an earthquake?

See below!

Grand finale

One student can be selected to jolt the box! Stratigraphy can be very difficult to identify and excavate after an earthquake. Careful archaeologists can usually still do it.