

# Transparent Shoebox Dig

by Shelby Brown (J. Paul Getty Museum)

This dig teaches simple lessons about stratigraphy and excavation. Young students learn basic archaeological concepts as they personally create two or three layers of a stratified site and then dig them. They experience how information can be lost when artifacts are missed or finds from different layers 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 teacher invents a story about the cultures across two or three layers and the students help describe the people's interests. They create the layers and deposit artifacts representing the cultures. Since the shoebox is transparent, students can see the strata being formed and then observe the stratigraphy through the sides of the box. The class can then dig the excavation site.

Even if there is not enough time to dig, students can understand and discuss why archaeologists excavate one layer at a time to preserve the changing story of a site.

## Grade levels

2-3. This simple excavation works best with young elementary grades. It relies on the teacher's assessment of how much complexity the students can handle.

## Goals

Creating a stratified site will help young students learn basic archaeological concepts and become invested in the future interpretation of their site. As they then discuss or dig, they will experience how information is 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 inference applicable to many disciplines, including science, math, social science/history, and art.
- distinguish observations (discoveries we make) from inferences (stories we make up).
- See that context (making connections) matters.
- join in teamwork and share ideas.
- Translate three dimensions into two (if they create a top plan).

*Archaeological goals are to:*

- emphasize that we excavate to learn about past people.
- illustrate that careless work impacts what we can learn.
- show why archaeologists do not dig holes to pull out 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.

- Even very young excavators should if possible be asked to do some recording, and the dig should end with discussion about why it is important to notice where things are.

### **Materials and preparation**

Teachers should first read *Basics of Archaeology for Simulated Digs* and look at *Shoebox 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. Alternatively, teachers may choose to add small culturally specific simulated artifacts or laminated images to make the lesson relevant to cultures students are studying.

*Supplies needed to create layers:*

(The teacher can vary content and complexity and add layers as needed.)

- Transparent plastic shoe boxes
- Sand, not too fine and dusty, for a bottom layer of sand-dwellers  
(Sand ONLY works on the bottom layer of a very small dig since it is so loose)
- 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 plastic tablecloth to work on

*Supplies needed for excavating:*

- Hollow spoons (or small painters' palette knives) 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 needed for recording:*

- Pencils
- Optional: a top plan for each layer (a sheet of graph paper with a square or rectangle drawn on it can represent the excavation square) for noting where artifacts are
- A record sheet for each layer, designed by the teacher, if age-appropriate, or a very simple list of artifacts in the layers

### **Inventing the cultures and creating the dig site**

**Divide 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).

*Students choose aspects of culture, such as:*

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

### **Classroom procedure**

The class learns basic rules and goals of archaeology.

Students and teacher tell a story about the site and create the layers. The layers must be thick enough to be easily seen in cross section.

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.

The teacher explains that sea level rose, 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, they observe and discuss the stratigraphy they created, visible through the sides of the box, and then excavate.

### **Pitfalls**

When designing a dig, sand and loose potting soil need to be compressed, but they can still be messy. (Sand is very unstable and can only be used on the bottom.) Students must try not to dig holes, which damage the site, lose connections between objects in a layer, and mix layers. If the layers contain too many artifacts, these may become confusing and difficult to record, while too few artifacts may be frustrating.

Team members may only want to dig. They need to know that all the members of a dig team are contributing, whether digging or recording, finding artifacts or not.

### Assessment

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

#### ***Some questions the teacher can ask 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!  
(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 it being merged with another one?  
*Probably they would not be pleased – whether as “designers” or “inhabitants” of the area.*

### Grand finale

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

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.