

Transparent Shoebox Dig

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OVERVIEW

The shoebox dig is created in a transparent plastic box with a lid, the sort that can be bought at a department store. The teacher tells a story about two or more cultures, and the students help create the layers and deposit the 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. The class can then either dig the layers or simply discuss the logic behind an archaeologist's careful excavation of one layer at a time. The teacher should see the goals and instructions for the regular *Shoebox Dig* and (whether intending to excavate or not) should read *Basics of Archaeology for Simulated Dig Users*.

GRADE LEVELS

This simple excavation works best with young elementary grades. It is designed for grades K–2.

GOALS

Students will learn basic archaeological terms and concepts and will create a stratified site that archaeologists will (supposedly) later dig. They will see how information is lost if layers are mixed. The dig teaches the logic of horizontal excavation, the nature of stratigraphy, and the importance of recording and preserving the context of finds. The artifacts used in our example are simple and easily obtained, and they are not representative of genuine cultures. They permit students to focus on observation and analysis and help them avoid jumping to conclusions based on cultural cues. Alternatively, teachers may choose to add culturally specific simulated artifacts, replicas, or laminated images of real artifacts to make the lesson relevant to cultures students are studying in class.

Interdisciplinary goals are to

- help students practice transferable skills of observation,

critical thinking, inquiry, and hypothesis-testing applicable to many disciplines, including science, math, social science/history, art, and English.

- permit teachers to make connections across disciplines and engage in kinesthetic learning, including excavating, presenting orally, writing, listening, and drawing (translating three dimensions into two).
- illustrate the importance of context to the meaningful interpretation of data.
- promote teamwork, sharing ideas, academic honesty, and building on the past work of others.
- show 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 and make excavation strategies (digging horizontally and excavating one layer at a time to preserve context) clear and relevant.
- show that our knowledge of the past is incomplete and illustrate how some of its gaps came to exist.
- illustrate how careless work can affect interpretation, destroy context, and disguise cultural change.
- emphasize that excavation and archaeological research are not treasure hunting, but rather ethical endeavors to restore a past culture's heritage.
- teach students how to measure, map, draw, and understand a top plan and cross section (translate three into two dimensions).

If students dig the site after creating it, they will experience in a kinesthetic way the fact that excavating an archaeological site destroys it, so that afterward there is no possibility of checking information not recorded.

Although record-keeping needs to be simplified with young children, they should still be asked to do some form of recording if they dig, 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

The teacher should first read *Basics of Archaeology for Simulated Dig Users*.

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 that they can easily be distinguished. Artifacts need not be culturally specific, and they can vary depending on what is left over from earlier projects and on an individual teacher's ideas about the history of the site and the story behind the artifacts. Alternatively, the teacher may choose to have the dig focus on a specific culture.

As described, this two-layer site is not associated with any genuine archaeological cultures.

Materials (for two layers)

The teacher may vary the content and complexity of the layers.

- + 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
- + A piece of plastic or a plastic tablecloth to work on
- + A pre-selected number of artifact types for each layer (perhaps 3 items of 5 types in each layer; for example, 3 green beads, 3 plastic fish, and so on, for a total of 15 artifacts in each layer)
- + Sugar cubes, clay, or plastic building blocks to create features (if desired)
- + A piece of plastic or a plastic tablecloth to work on

Supplies (if excavating)

- + Transparent plastic shoe boxes
- + Spoons (excavation tools) or miniature trowels
- + Containers for excavated dirt
- + Small sieves
- + Small plastic bags to hold the artifacts from each layer
- + Waterproof black markers to label the bags
- + Pencils
- + Brushes
- + Clipboards
- + Artifacts and/or laminated images of artifacts

And, for students old enough to record their finds:

- + A top plan for each layer (a sheet of graph paper with a square or rectangle already drawn on it representing the excavation square)
- + A record sheet for each layer, designed by the teacher (a simple version requires only a list of artifacts found in each layer; a more complex version, a description and sketch of each artifact; see samples)

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 for groups or teams to work with) and students take turns removing only a spoonful or two of dirt at a time, even digging and clean-up should take about an hour and a half.

PROCEDURES**Divide students into culture groups**

The teacher divides students into groups representing each layer of the dig site. Each group belongs to a culture with different characteristics. The teacher shows the students some typical artifacts of each culture (already pre-determined) and then gives them time to choose, in addition:

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

Introduce archaeology and the dig

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

Tell the story of the site and create the layers

(Two-layer site, simple story)

The teacher tells a story about 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.

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.

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

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

Dig or discuss

Afterwards, students can either dig the layers they created, or they can simply observe and discuss the stratigraphy through the side of the box.

PITFALLS

Also see Dig Design Tips in *Basics of Archaeology for Simulated Dig Users*.

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 be motivated to dig carefully, or the lessons and rewards of stratigraphic excavation will be lost. If the layers contain too many artifacts, these may become confusing and will be difficult to record, yet too few artifacts mean that not everyone can find something. The team members need to know that all the members of a dig team are contributing, whether they are digging or recording, finding artifacts or not, and that 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

It can be difficult to grade an excavation project on results, since it is acceptable to make mistakes and learn from them. The teacher should design a series of questions about the layers (see below) that students answer in teams, so that careful observers and diggers can be rewarded for their understanding of collaborative teamwork, their careful stratigraphic analysis, and their attention to detail.

SUMMING UP

Students answer and discuss the following questions about the two-layer site described above:

- Which group lived in the area first? Which layer is the earlier layer? (In stratigraphy, each layer builds upon the last, and lower layers are earlier than the ones above.)
- What would happen if an archaeologist dug deeply and excavated dirt and sand together, instead of first removing the dirt separately, and then the sand? (The two cultures would be mixed together!) If the site will not be excavated, the teacher or a student can illustrate by digging with a spoon through both layers and bringing up dirt, sand, and artifacts to show the class.
- Why would it be better to dig each layer carefully and

separate the artifacts from each layer? (To preserve the relationships between finds, keep the remains of different cultures separate, and be able to draw meaningful conclusions about them.)

- How would the students of each culture feel if their culture’s remains were merged with the other culture’s remains?
- What would happen to the stratigraphy if there were an earthquake?

Grand finale

One student can be selected to shake/tilt the box sideways! Even the logic of stratigraphy will cease to work in an earthquake zone.

FOLLOWING UP

As a subsequent activity, students can be asked to design (on paper) the possible stratigraphy under their school building. They can imagine or actually research, with assistance, life at the school site before the school was built, and depict the resulting material remains in layers shown in cross section under the present day surface. Their stratigraphic drawings can range in size from notebook paper-size to the height of the classroom or hallway wall.

In the real world, a dig ends with questions that are still unanswered and reconsideration of hypotheses that were not validated. 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 through further excavation (Map 2).

RESOURCES

See *Basics of Archaeology for Simulated Dig Users and Resources and National Standards*.