

TEACHER'S GUIDE



MACGILLIVRAY FREEMAN'S
GREECE
SECRETS OF THE PAST

**ARCHAEOLOGY IS RATHER LIKE A VAST, FIENDISH
JIGSAW INVENTED BY THE DEVIL AS AN INSTRUMENT
OF TANTALIZING TORMENT, SINCE:
A) IT WILL NEVER BE FINISHED,
B) YOU DON'T KNOW HOW MANY PIECES ARE MISSING,
C) MOST OF THEM ARE LOST FOREVER,
D) YOU CAN'T CHEAT BY LOOKING AT THE PICTURE.**

—PAUL BAHN

Educational Standards for Activities in this Guide

ACTIVITY 1: TRASH TALKS!

National Science Teachers Foundation Standards
www.nsta.org/standards

Table 6.8: Content Standards Grades K-4
“Unifying Concepts and Processes”:
Systems, order, and organization
“Science in Personal and Social Perspectives”:
Characteristics and changes in populations;
changes in environments; types of resources

Table 6.9: Content Standards, Grades 5-8
“Unifying Concepts and Processes”:
Systems, order, and organization;
evidence, models, and explanation;
change, constancy, and measurement
“Science in Personal and Social Perspectives”:
Populations, resources, and environments;
science and technology in society

National Science Academy:
National Science Education Standards
www.nap.edu/readingroom/books/nses/html/
Science as Inquiry Grades K-8 Standard A:
Abilities to do scientific inquiry

National Council for the Social Studies Standards
www.socialstudies.org/standards/strands/
Theme I: Culture and Cultural Diversity:
Ia, Ic, Id,
Theme II: Time, Continuity, and Change:
IIb, IIc, IID

ACTIVITY 2: GODS AND GODDESSES PARTY
National Council of Teachers of English
(NCTE) Standards Grades 6-8

www.ncte.org/about/over/standards/110846.htm
NCTE/IRA-1: Students read a wide range of print
and non-print texts to build an understanding
of texts, of themselves, and of the cultures of
the U.S. and the world.

NCTE/IRA-3: Students adjust their use of spoken,
written, and visual language to communicate
effectively with a variety of audiences and for
different purposes.

National Council for the Social Studies

Theme I: Culture and Cultural Diversity:
Ic
Theme IV. Individual Development and Identity:
IVd

ACTIVITY 3: SHOE BOX DIG

National Science Teachers Foundation
Table 6.1: Science as Inquiry Standards Levels K-8:
abilities to do scientific inquiry; understanding
about scientific inquiry

Table 6.8 and 6.9: Content Standards, Levels K-8
Unifying Concepts and Processes:
Systems, order, and organization

National Council for the Social Studies

Theme II: Time, Continuity, and Change:
Id, If

ACTIVITY 4: WHAT WOULD SURVIVE?

National Science Teachers Foundation
Table 6.3: Life Science Grades K-4:
Characteristics of organisms
Table 6.4: Earth and Space Grades K-4:
Properties of earth materials

Table 6.9: Physical Science Grades 5-8:
Properties of matter

National Council for the Social Studies

Theme I: Culture and Cultural Diversity:
Ia

ACTIVITY 5: HEROES AND HYBRIDS

Visual Arts Standards ArtsEdge
Content Standard 5:
Researching by finding information to support
classroom dramatization
Content Standard 6:
Comparing and connecting art forms by
describing theatre, dramatic media and other
art forms

Content Standard 3:
Choosing and evaluating a range of subject
matter, symbols, and ideas

Content Standard 4:
Understanding the visual arts in relation to
history and cultures

Content Standard 6:
Comparing and connecting art forms by
describing theatre, dramatic media and other
art forms

ACTIVITY 6: INSIDE THE VOLCANO and

ACTIVITY 7: CONVECTION CURRENTS

National Science Teachers Foundation Standards
Grades K-8: Earth and Space Science:
Content Standard D

National Science Academy: National Science
Education Standards

Table 6.4 Earth and Space Science Standards
Grades 5-8:
Earth's history; geochemical cycles

Tables 6.8 and 6.9 Content Standards Grades K-8:
Unifying Concepts and Processes: Evidence,
Models, and Explanations; Change,
Constancy, and Measurement

ACTIVITY 8: FRESCO FANTASY

Visual Arts Standards ArtsEdge
artsedge.kennedy-center.org/teach/standards.cfm

Grades K-8
Standard 1:
Understanding and applying media,
techniques, and processes

Standard 4:
Understanding visual arts in relation to
history and cultures

ACTIVITY 9: DEMOCRACY IN ACTION

National Council for the Social Studies
Theme V: Individuals, Groups, and Institutions:
Vc, Vf, Vg

Theme VI: Power, Authority, and Governance:
VIc, VIh

NCTE Standards for the English Language Arts

Students conduct research on issues and interests
by generating ideas and questions and by posing
problems. They gather, evaluate, and synthesize
data from a variety of sources (e.g., print and
non-print texts, artifacts, people) to communicate
their discoveries in ways that suit their purpose
and audience
Students use spoken, written, and visual language
to accomplish their own purposes (e.g., for
learning, enjoyment, persuasion, and the
exchange of information).

The large format film, *GREECE: SECRETS OF THE PAST*, is appropriate for all intermediate grades (4-8). This Educator's Guide will be most useful when accompanying the film, but is a valuable resource on its own. Teachers are strongly encouraged to adapt activities included in this guide to meet the specific needs of the grades they teach and their students.



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MACGILLIVRAY FREEMAN'S
GREECE
SECRETS OF THE PAST

An Educational Resource for Teachers

INTRODUCTION

In *GREECE: SECRETS OF THE PAST*, students are presented with an overview of the remarkable culture and achievements of the ancient Greeks, from before the Bronze Age into the Hellenistic period. The film focuses in particular on two time periods and places: the Bronze Age island civilization represented by the people of Santorini, whose volcanic island exploded in one of the most devastating eruptions ever known, and classical Athens of the fifth century BCE, the “Golden Age” of Greece. Aerial shots and sweeping views illuminate the geography and magnificent seascape, while famous images of art and architecture are supplemented with reconstructions to seize the imagination. The eruption of Santorini and loss of its Bronze Age culture is reproduced in detail, and the Parthenon on the acropolis of Athens is restored to its former colorful glory. Throughout, the film makes connections with today and shows the enduring impact of this ancient culture on our own.

This Teacher’s Guide provides background information on archaeology, Greek art and architecture, and volcanoes. It provides a variety of activities to carry out with students and refers the teacher to useful resources and bibliographic references.

The Greeks of the Bronze Age called themselves Achaians, according to Homer, and later Greeks called their land *Hellas* and themselves *Hellenes*. It was the Romans who called them Greeks (*Graeci*), the name by which we know them. Greece was never a united nation with fixed geographical borders. Rather, it was a collection of city-states (although town-states or even village-states is probably more accurate) that shared the same language and basic beliefs. These city-states behaved like a large family, often fighting, but also banding together to battle against outsiders. Together, these people changed the way we see the world.



In *GREECE: SECRETS OF THE PAST*, archaeologist Christos Doumas and his team work as detectives by studying the remains of a dig site left from the volcanic eruption in Santorini. Here, at the base of the Temple of Poseidon at Sounion, Doumas and one of his graduate students discuss with children how time has changed this region.

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TRASH TALKS

Interpreting What People Throw Away



ACTIVITY

1

GOALS

Students will learn how archaeologists answer questions about people by studying the things they use day-to-day and discard: their trash and garbage. Students will practice categorizing, will build upon initial facts to come to a conclusion, and will solve problems working in teams. Ideally, they will end by summarizing questions still unanswered by their data, questions that will require further research or excavation.

BACKGROUND

Archaeology is often the study of garbage. Excavators often recover *potsberds* (pottery fragments), animal bones left from past meals, broken tools, and discarded objects of all kinds. Sometimes these were intentionally thrown out and are found in trash pits, old wells, and dumps. Other times objects were simply lost or discarded wherever the ancient owner happened to be. It is not as common as one would wish for archaeologists to find beautiful, well-crafted, whole objects; their discoveries are more often the broken bits and pieces of everyday life that people have left behind.

These small frequently forgotten items are the clues that archaeologists use to reconstruct the way people lived in the past. When taken together as a whole *assemblage* (or group of objects that were used together), and in *context* (that is, with associated things from the same time and place), trash can tell us about trade, about the environment, about diet, about the numbers of people who lived at a site, and about much more.

In this project students use modern garbage to learn about people today in the same way that archaeologists use ancient garbage as evidence to learn about people in the past.

MATERIALS AND PREPARATION

Plan to divide the class into small groups of 4-6 students. Since professional archaeology is a group activity, having students work in teams makes the analysis more realistic as well as more fun.

Either the teacher will collect trash, manufacturing it to suit a story s/he has in mind, or s/he can ask some reliable students to collect trash (with parent or teacher help) at home or school and to bring it to class for analysis. The collection needs to be carefully monitored to avoid saving anything that is wet, unsafe, or unsanitary (e.g., used tissue or dental floss, sharp cans or broken glass, food remains that could become spoiled). If from

home, the trash will ideally be from several different rooms (e.g., kitchen, bedroom, office) and allow for discussion of what part of the house it came from, how many people were living in the house when the trash was collected, who the people were, and what they were doing. If the trash is from school, it should come from several different classrooms, permitting conclusions to be drawn about subjects taught, student ages, and whether both adults and children produced the trash. The teacher may also design a scenario, such as a birthday party for two different children of different genders and ages. Be sure to collect enough trash for all the groups.

The trash from different rooms may be kept separate for easier analysis, with the goal being to identify the function of the room as well as anything that can be inferred about its users. The organized trash mirrors the collection of artifacts an archaeologist might find in the carefully, separately-excavated rooms of a house. For a more challenging project, divide trash from a common container into several bags, mixing the trash from different rooms. This trash might mirror the discarded finds all mixed together in an ancient pit or dump. A teacher-designed scenario could fall into either category (a birthday party held in multiple rooms with different activities, or the trash all dumped together).

Different student groups should be assigned the job of becoming experts in particular bags of trash. First they should categorize the objects to start to gain control over the mess. They may change their minds about how to categorize as they proceed. They should then write down their observations and—completely separately—the inferences they draw from them. Separating observations from inferences can be difficult for students and adults alike, and should be a high priority.

When the teacher is satisfied that each group has organized its finds, made reasonable observations, and come to some logical inferences, the groups should come together to present their findings. Each group should: explain how categorizing helped them organize the collection of objects, summarize their observations, and present their inferences. After each group has presented its findings, the class as a whole can come to new conclusions based upon having seen the full set of surviving data.

INSTRUCTIONS FOR STUDENTS

Give a bag of trash to each group. You may give students rubber gloves if you wish. Each group of students should



be instructed to sort the trash into categories.

Many different categories are possible, for example:

- 1 material: all plastic, all paper, all metal
- 2 color: all red, all white, all multi-colored
- 3 type: all food items, all tools, all sports equipment
- 4 theme: food-related items, tools
- 5 combinations of the above: all plastic tools, all food containers.

The point of categorizing is to make order out of a jumble of materials. Students may change their minds about their categories and, if so, should discuss why categorizing was difficult and why they changed their minds.

The compiled data should be considered as the base from which students put together their observations and make interpretations about the people who left the trash.

Teachers should first discuss the difference between observations and inferences or interpretations.

Students will combine their observations together with their knowledge of modern society to draw reasoned inferences and answer specific questions. The teacher should develop the questions in part based on the trash collected.

Questions should include:

- Who were the people who discarded the trash?
- How many people were in the group?
- What were they doing?
- What time of year was it?
- How old were they?
- What gender were they?
- How many inferences are based on cultural assumptions that could be incorrect?
(For example, does pink always = female?)
- What might be missing from the trash, and why?

After the groups come to their individual conclusions and present them, ask the students to put all the clues from the entire assemblage together and try again to interpret the trash.

Students should reach a clearer and fuller understanding of the people who left the trash when they consider all of it together rather than in isolation.

If the trash assemblage has been partially “manufactured” by the teacher with a story in mind, tell the students what the actual story is behind the trash they have been analyzing. On a real excavation, there would be no one to tell the story unless the archaeologist found an explanatory text buried with the trash!



Finally, the end of an archaeological project requires that the investigators think again about what they have found and have NOT found. Have the students reconsider the interpretations they made, pose new questions based on the knowledge they now have, and specify additional material remains they would like to find (that they might indeed find if this were a real dig site and they continued excavating, or that other archaeologists might uncover at similar sites).

This lesson was modified from the Archaeological Institute of America's Excavation Projects curricula: www.archaeological.org (Education > Teacher Resources)

GOING FURTHER

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“The Garbage Project: A New Way of Looking at the Problems of Archaeology.”

In *Archaeology*, vol. 27, no. 4, 236-241.

Doherty, E. J. S., and L. C. Evans. 1992.

Stones and Bones: Archaeology.

Windsor Hills, CT: Synergetics

(Box 84, East Windsor Hill, CT 06028). Lesson plans.

Cotsen Institute of Archaeology: Portals to the Past

<http://www.ioa.ucla.edu/portals>

Portals to the Past Lesson Plans and Garbology Exercises

<http://www.ioa.ucla.edu/portals/pages/projects.html>

GODS AND GODDESSES PARTY

Dressing Divinely and Acting Out



ACTIVITY

2

GOAL

This exercise is designed to permit students some creativity and fun while showing their knowledge of an ancient Greek divinity and his or her role in the ancient *pantheon*. This can be a culminating activity for a mythology lesson. Students learn about Greek gods, take on one god as their own research interest, and then “become” that divinity at a tea or party, where they perform in a relaxed setting. Students dress in a manner appropriate to their divinity and interact with others as dictated by the god’s personality, history, and relationships with gods and mortals.

As a variation on the party, teachers may choose to play a form of charades in class to allow students to reveal their character. Students can also devise a short Trivial Pursuit® contest to let classmates discover some of the symbols and feats of their chosen deity.

BACKGROUND

Students must be introduced to—and ideally do some of their own research on—a particular divinity, from major Olympians to lesser-known nymphs and divine beings associated with rivers and springs. Each student should become “invested in” his or her god.

Students will then attend a party as a particular god or goddess and behave the way the god would at a semi-formal event. The students must know the usual attributes/symbols of the divinities, their ages, their relationships to one another, their sphere of influence, and their commonly-known behavior. Either the students will dress in appropriate ancient clothing (the teacher should provide some help with this) or the teacher may require them to modernize the costume in an appropriate way (and be able to justify the clothing choice). More than one student may play the same divinity.

MATERIALS AND PREPARATION

Everyone can bring in supplies—the types of food and drink can be limited or the class can have a serious party. Adult assistance with set up, oversight, and assessment of “impromptu interactions” will be helpful. The teacher may provide a seating chart to allow students advance notice about their seatmates and to facilitate interactions likely to be funny or interesting (especially if there will be more than one person playing the same divinity). Time could also be allowed for more free-form wandering or seat-changing. Depending on student ages and numbers, time may also be scheduled for all students playing the same god to be together. (All the Zeus characters could get together and vie for the attention of a wood nymph, for example.) Students should have some time to think in advance about their relationships with other beings

and to plan several interactions. During the tea, students should react to their immediate neighbors and also have an opportunity to move around and improvise. Hades might be grim, Aphrodite might be flirtatious, Artemis might show that she would rather be out hunting (and bring her favorite hunting hound to the tea, where it could cause trouble), Hera might keep a jealous eye on Zeus, Poseidon might get upset and pound the ground with his trident, Hermes’ winged hat might upset the hairdo of a vain nymph, and so on.

The teacher will need to schedule a time to observe pairs or small groups of students and to assess their appearance and behavior. Ideally, other teachers or students can be invited to participate or to witness the event. The teacher should ask students to explain (on the spot, or in an associated write-up) the aspects of their god they focused on and how these affected his or her behavior at the tea.

INSTRUCTIONS FOR STUDENTS

- 1** Dress carefully in a manner that indicates who you are. You may, but do not have to, dress in ancient Greek style (look at clothing models—do not just wear a towel or sheet draped any which way). If you want to update your look, consider these factors:
 - the age of your divinity
 - his or her sphere of influence or role in the world
 - his or her attitude toward others and about himself or herself that might affect dress (Aphrodite comes to mind, as compared to a sober married woman like Hera)
 - attributes (well-known physical symbols) associated with the god
- 2** Act the way your god/dess would act. Expanding on the characteristics you considered while designing your clothing for the event, also develop your behavior on the basis of:
 - stories about the god/dess and his/her relationships with others
 - generational role of your divinity (such as Gaia grandmother, Rhea daughter, Hera granddaughter; Zeus father, Athena daughter)
 - events in the life of the divinity that might have affected his or her outlook
 - the other gods you will be sitting near (or want to talk to) with a view to making your divinity interesting, causing some trouble, or pointing out character flaws in your or someone else’s god!

BRIEF INTRODUCTION TO THE ORIGINAL GREEK GODS AND GODDESSES

The original couple:

Gaea (Earth) and **Uranus** (Sky)

Pontus (Sea) was Gaea's second husband after Uranus; he ceased to be powerful when Poseidon took over.

Titans, a group of children of Gaea and Uranus:

Cronus chief god after Uranus; became "Father Time" to us

Rhea chief goddess after Gaea (Cronus and Rhea married; their children were the older Olympic gods)

Prometheus Forethought; he gave fire to mortals against Zeus' command

Epimetheus Afterthought; he married Pandora, who let loose all the evils from her box

Atlas he was punished by having to bear the heavens upon his shoulders

Other children of Gaea and Uranus:

Cyclopes one-eyed giants

Hundred-handers giants with a hundred arms and hands

Olympians: original 6 children of Cronus & Rhea (Roman equivalents in brackets):

Zeus ruler of land and sky [Jupiter]

Poseidon ruler of the sea [Neptune]

Hades ruler over the dead and the underworld [Pluto]

Hera goddess of marriage and wifely duties [Juno]

Hestia goddess of the fire at the center of the home (and city) [Vesta]

Demeter goddess of fertility and plant growth [Ceres]

Metis She was a Titan's daughter. Zeus married her and swallowed her while she was pregnant with Athena, who was then born from Zeus' head

Younger gods and goddesses

(Roman equivalents in brackets):

Persephone Demeter's daughter, abducted by Hades; reason for the existence of winter, as Demeter mourns [Proserpina]

Athena Zeus' daughter: clever, a warrior, a weaver [Minerva]

Hermes messenger god [Mercury]

Dionysus wine god; helps people with creativity [Bacchus]

Apollo god of prophecy & music; rational god; associated with the sun [Apollo]

Artemis goddess of the hunt, chastity; associated with the moon [Diana]

Hephaestus god of the forge, a blacksmith; associated with volcanoes [Vulcan]

Aphrodite goddess of love [Venus]

Eros Aphrodite's son; shoots people with arrows of love or hate [Cupid]

Ares god of war [Mars]

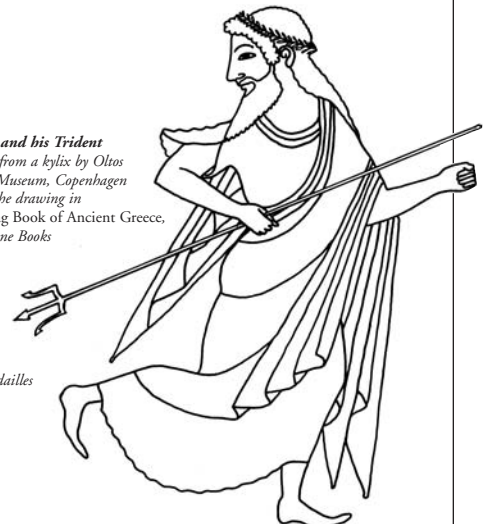


*Dionysus
from a kylix
Metropolitan Museum of Art,
New York*



*Athena
by the Amasis Painter
Paris, Cabinet des Medailles*

*Poseidon and his Trident
red figure from a kylix by Oltes
National Museum, Copenhagen
based on the drawing in
A Coloring Book of Ancient Greece,
Bellerophone Books*



You will be assessed on how well you demonstrate awareness of your god's appearance, nature, role in myths, and relationships with others (gods and humans).

GOING FURTHER

COSTUME

Sichel, M. 1980. *Costume of the Classical World*.
New York: Chelsea House Publishers.

MYTHOLOGY

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New York: Gotham Books.

Kirkwood, G.M. 1995.

A Short Guide to Classical Mythology.

Wauconda, Illinois: Bolchazy-Carducci Publishers.

Graves, R. 2004.

The Greek Myths.

London: Moyer Books.

Lefkowitz, M.R. 2002.

Women in Greek Myth.

New York: Duckworth Publishing.

CHILDREN'S BOOKS ON MYTHOLOGY

D'Aubaire, I. and EP.

D'Aubaire's Book of Greek Myths.

New York: Bantam Doubleday Dell Publishing.

Great Greek Gods and Goddesses.

Redding, CA: Good Apple Schaeffer Publications.

Wolff, R. 1999.

Bright Eyed Athena: Stories from Ancient Greece.

Los Angeles: The J. Getty Museum.

MACGILLIVRAY FREEMAN'S
GREECE
SECRETS OF THE PAST

TEACHER'S GUIDE

SHOE BOX DIG

Archaeologist in a Box



ACTIVITY

3

GOALS

This small-scale dig for older elementary school children teaches the basics of archaeology, the logic of stratigraphy, and the importance of digging carefully to preserve the finds within each layer. Students excavate in teams in a shoe box in order to identify different layers, dig them carefully, collect and record artifacts from each layer, and interpret their finds. They learn basic archaeological terms, skills, and concepts and use teamwork to interpret. If they dig carefully, they will be able to answer questions about their dig site at the end of the process. If they excavate carelessly, they will not be able to answer questions, and they will see that they have lost information forever. The dig can be modified for middle schoolers.

OVERVIEW OF PROCEDURES

Archaeologists are scholars who excavate and study the physical remains of people who lived long ago. Students will be archaeologists on a small scale and uncover the stratigraphy in a shoe box, working carefully, the way real excavators do.

Teachers may explain the history of the shoe box site in advance (appropriate for younger students) through a story about the people who lived in the box and created the layers or they may save the story for the end.

After reviewing archaeological basics (including not mixing artifacts from different layers, and sharing information), the teacher divides the students into excavation teams of about 4 students each. Team members take turns digging, recording finds, and putting artifacts into correctly labeled bags.

At the end of the session, the teams answer questions about the artifacts and come to conclusions about the people who lived in the different layers.

CLASS TIME AND OVERSIGHT

The project takes the students at least several hours and, for younger grades, it requires several adults to remind the children not to dig holes with their spoons and to take turns digging and recording. Cleanup takes about a half hour. Discussion of the dig and follow-up with questions and answers takes another hour at least.

MATERIALS AND PREPARATION

Shoe boxes will be filled with three or four one-inch-thick superposed layers into which objects are placed. The *strata* may be composed of sand and dirt from various locations (or potting soils of different textures and colors,

possibly mixed with colored sugar crystals, birdseed, or sand). The different colors and textures help students recognize changes in strata as they excavate. *Artifacts* in each layer can be of inexpensive plastic, metal, stone, and other media; these can be small objects saved up from a variety of contexts and past projects. The dig should be built around a story the teacher has in mind and can tell at the end of the excavation to bring the finds to life. The story will vary depending on the artifacts the teacher has collected. Examples of artifacts include:

- Popcorn
- Pennies
- Miniature plastic doll dishes, “fast food” containers
- Lego™ pirate artifacts
- Beads of different types

It is best to create the “dig sites” at the school or site where the boxes will be excavated, preferably outdoors. Once all the boxes, dirt, and objects have been lined up, the easiest way to proceed is for the teacher and helpers to complete the lowest layer of dirt and artifacts in all boxes in exactly the same way, and then move up to the next layer. Depending on the number of boxes needed for the teams (there should be 4-5 students per team), filling the boxes and cleaning up afterward may take more than an hour.

For older grades (middle school) the teacher should leave some objects out of certain boxes so that it can only be possible to learn about all the finds through sharing information between teams.

Each box should be *numbered*. The layers should be packed down tightly. Excavation tools are *spoons* for half the members of each team. The team members will take turns recording finds on a *record sheet* (see page 8) and bagging them in *small plastic snack bags*.

The story the teacher has in mind should involve simple examples of cultural change. For example, people who eat popcorn and live on a sandy coast are succeeded, once the sea has receded, by people who eat fast food and dwell on dirt; pirates whose artifacts include skull and crossbones and “gold nuggets” are followed by people who wear gold necklaces and use pennies for money.

In at least one layer, several objects should be related and the teacher should place them near one another. For example, small beads that might have appeared in a certain order in a necklace could be arranged in a circle. Parts of a broken artifact could be placed together so that students who dig carefully will see the original connection.



In addition, the teacher should put a “mystery artifact” in one layer of each box that careful excavation will reveal.

In conjunction with creating the story, the teacher should prepare a simple series of questions about the people who lived in each layer that will test students’ skill at excavation and observation. (Which layer is the earliest? What food did the people who lived on sand eat? What kinds of treasures did the pirates collect? What mystery object did one pirate hide? How many beads were in the chief pirate’s bracelet?)

Each student should receive a simple record sheet that may vary slightly depending on the age of the students and the number of artifact types in each layer.

INSTRUCTIONS FOR STUDENTS

Review basics of archaeology and excavation. Explain to students that on a real dig, nothing would be removed at all until it had been drawn, photographed and recorded. Every dig destroys as it discovers.

Advise students how many *types* of artifacts (not total number) they should expect to find.

Divide the class into teams of up to 5 members each.

TEAM EQUIPMENT

- Shoe box
- Bags (labeled by layers: A, B, C)
- Spoons
- Containers for excavated dirt
- Record sheet

This lesson was modified from the Archaeological Institute of America’s Excavation Projects curricula: www.archaeological.org (Education > Teacher Resources)

GOING FURTHER

BOOKS

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

Start, Rebecca. 1994.

Archaeology.

Hawthorne, NJ: Educational Impressions, Inc.

Cochran, J. 1999.

Archaeology: Digging Deeper to Learn About the Past.

Nashville: Incentives Publications, Inc.

www.asor.org/outreach/Teachers/lesson_plan.htm

Doing Archaeology in the Classroom: A Sandbox Dig

www2.sfu.ca/archaeology/museum/classroom/sandbox.html

DEFINITIONS

Archaeology: Archaeos = old, ancient. Logos = word, study.

Archaeologists excavate down into the earth to find the physical remains left behind by people who used to live in an area, and to answer questions about who the people were, how they lived, what they ate, and what their lives were like.

Material Culture: Material culture is physical remains: the tools, houses, art, food (and other remains) of people who lived in the past.

Culture: Culture is people’s beliefs and behavior. These cannot be excavated; however, the objects people leave behind give us clues to their beliefs and behavior.

Excavation: Digging, recording, and interpreting the physical remains of the people who lived in an area to understand their culture. Archaeologists dig horizontally and stop to clean around any finds instead of digging down to take them out right away. This is because the context of artifacts may tell us a great deal about how they were used. Digging holes to take out objects or find more objects in one area destroys all the connections between them, and may even mix up two different layers representing different people from different times.

Artifacts: The objects, tools, pottery, and other items people used. Artifacts are made by humans and are portable.

Context: The associations of artifacts in one layer.

Strata=Layers: (stratum = layer)

When people live in an area, sometimes dirt and rubble from fallen buildings, and other debris build up in layers called strata. Older layers are on the bottom, unless an earthquake or other event changes their order. Example: If a house burns down in a fire, the owners may not clear all the pieces away, but rather smooth the debris over and build on top. The new house is higher up than the first house. If many houses burn down, a whole city may rebuild itself on top of the fallen houses. A city that started on flat ground may end up on a hill made of layers, each layer from a different time the houses burned/fell down. One famous ancient city in Italy, called Pompeii, was at the base of a volcano. The ashes from the eruption of the volcano buried the city. The ashes hardened and turned to stone. Many hundreds of years later a new city was built on top of the stone, right above the old city.

A longer glossary is available online at:

www.archaeological.org/webinfo.php?page=10299

SHOE BOX DIG TEAM RECORD SHEET

Box Number:

Team Members:

INSTRUCTIONS

GETTING STARTED

- 1 Each box has a number written on it. On your team's *Record Sheet*, write down your box number and the names of all the people on your team.
- 2 Decide in what order you will take turns excavating. Each person excavates until s/he finds an artifact. Then it is another person's turn.

IMPORTANT RULES

Archaeologists must work together and share information! No one archaeologist can do everything alone. And when you dig to learn information, you also destroy your source of information. Once you have dug it up, you can't go back and correct it; there is nothing left. So—no fighting! Help each other figure out what to do.

Archaeologists have a very big responsibility to be careful and record information properly. If you dig carelessly and mix up the artifacts from one layer with those of another layer, you will be passing on incorrect information. The people who lived there would hate that! You must excavate your shoebox *carefully* so that you can identify the different artifacts used by different people. As you collect all the artifacts, you will list them by layer and then answer questions about the people who lived in the shoebox.

REMEMBER:

- Do not dig holes! Dig carefully and horizontally, staying in one layer. Remove spoonfuls of dirt and put the dirt in the container provided. Check to make sure you have not accidentally discarded an artifact.
- Stop if you see a change in soil color or texture or notice any major change.
- When you find an artifact, stop. Do not pull it out! Clear around it, and see if it is next to any other object. Then you may record it on the Record Sheet and bag and label it. If you need more room for records, get additional Record Sheets.
- Do not start to dig the next layer down until the whole layer above it has been removed.
- When everything has been excavated, your team will represent your dig to the class.

Together you will interpret the people of the Shoe box Dig!

LAYER A (top) Soil Type:

Artifact Number:	Sketch:
Type:	
Observations	

Artifact Number:	Sketch:
Type:	
Observations	

Comments:

LAYER B (middle) Soil Type:

Artifact Number:	Sketch:
Type:	
Observations	

Artifact Number:	Sketch:
Type:	
Observations	

Comments:

LAYER C (bottom) Soil Type:

Artifact Number:	Sketch:
Type:	
Observations	

Artifact Number:	Sketch:
Type:	
Observations	

Comments:

WHAT WOULD SURVIVE?

Organic and Inorganic Remains

GOALS

Students are introduced to the concept of organic and inorganic remains and the effect that material has on preservation in an archaeological site. What is known about a society will often depend on what survives, and chance, weather, and medium determine which artifacts and features will survive. Students will evaluate their possessions and consider which may survive into the future and which will probably be lost.

BACKGROUND

Organic remains are susceptible to decay and are affected by humidity and air. (This is the reason “time capsules” need to be airtight and dry.) Organic remains generally decay badly within a fairly short time, unless they are preserved in unusual circumstances. Santorini’s eruption preserved the site in a fine layer of airtight, protective ash. Frescoes and even organic remains were preserved. At most sites, however, fragile artifacts and organic remains are lost to us forever. Inorganic remains survive better, but ancient people often re-used (stole, or took legally) organic materials if they were abandoned (as in the stones in house walls)—just as people do today! Sometimes it is a miracle that anything survives at all!

MATERIALS AND PREPARATION

The teacher may want to “seed” the classroom with particular organic and inorganic objects before discussion begins. S/he presents and students discuss or review the properties of organic (living or once living) remains and inorganic (never living) remains:

Organic remains include people, plants, animals, and anything made of plant or animal matter, such as clothing, paper, wood, and food.

Inorganic remains include stone, metal, cement, plastic, and glass.

Ask students to look around them in the classroom and start to list the things (and people) that are organic and those that are inorganic. What might survive in 1,000 years—without a volcanic eruption—to say anything about us to the archaeologists of the future? A binder may have metal rings and a plastic body, but the paper and the writing on it will be long gone. Leather shoes will decay. Parts of synthetic shoes might survive, but not the laces. A lunch box might survive, but not the lunch—although a plastic container might preserve a dried-out residue of a former food. A computer or a movie screen could survive, but will cease to work. Skeletons may survive, but not the clothes or skin on them. Given what will (perhaps) survive in the room students are in, what kinds of conclusions might future archaeologists

draw about us? Where might they go completely off track? What would students like them to know about the class or the school?

Ask students if their names will survive into the future—especially if computer disks are not functioning. (Consider: there is still a reason to inscribe on stone and metal, as the ancients did!)



Over time, any organic material in this wagon, such as wood, would deteriorate, leaving only the inorganic parts, such as the wheel rims and the hitch.



INSTRUCTIONS FOR STUDENTS

Make a list of the furniture and objects in your room (or in a selected area of your home). Carefully note whether each object is organic, inorganic, or has elements of both.

Assume 1,000 years have passed, and your room has not been specially preserved. List what will be left after all the organic materials decay.

Summarize what you think an archaeologist in the future will be able to say about your room and about you as an individual. Will your name survive? Will your taste in colors survive? Will the archaeologist know for certain what your gender or age is?

Follow up in class with a discussion of what artifacts students wish would survive to provide information for future archaeologists.

GOING FURTHER

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

Moloney, N. 1995.
The Young Oxford Book of Archeology.
Oxford: Oxford University Press.

ACTIVITY

4

MACGILLIVRAY FREEMAN'S
GREECE
SECRETS OF THE PAST

TEACHER'S GUIDE

9

HEROES AND HYBRIDS

Making a Mythological “Monster”



ACTIVITY

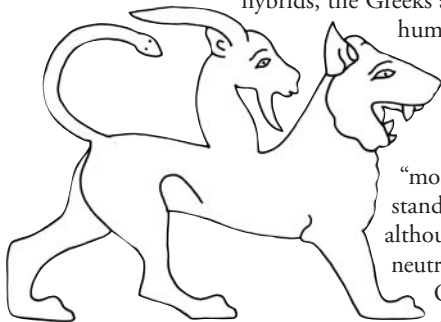
5

GOALS

Students will create their own hybrid “monster” modeled on Greek prototypes, and in doing so will recognize the Greek ancestors of many creatures still thrilling readers and moviegoers today, depicted in works ranging from “Harry Potter” books to animated movies. If there is time, students may also create a hero to combat or outwit their being, and generate an entire story around the creature.

BACKGROUND

Hybrid beings are especially interesting—and pose special problems to humans—because they are combinations not only of different bodies, but also of different natures. Some Greek hybrid beings were adopted from the east (Egypt or Mesopotamia) while some were invented from animals easily found at home. The Greeks liked to combine inappropriate animals, and the merging of human and animal was particularly dangerous because normal human nature was warped. In addition to creating hybrids, the Greeks also imagined giants (animal and



Proto-Corinthian Chimera
Museum of Fine Arts, Boston

human), usually ferocious in addition to being large. Sometimes the Greeks also added or subtracted body parts to create bizarre beings. Greek hybrids, giants, and “monsters” do not behave by normal standards and are often threatening, although they may also be amusing or neutral in their relationship with humans. Often the abnormality of behavior or appearance has to do with excess:

overall large size, duplicated parts, frequent or violent performance of an act that might otherwise be normal (fighting, eating, killing), or absence of normal body parts or emotions. Greek “monstrous” behavior is given full force when the context is understood: the one-eyed giant Polyphemus, a host who eats his guests, is even more horrifying because he breaks a Bronze Age law of hospitality. Female hybrids (siren, sphinx, gorgon) are among the trickiest and most terrifying beings in Greek mythology, disobeying traditional rules of modesty and obedience.

Some animals from which Greek monsters and hybrids may be created:

Human	Lion	Horse
Bull	Goat	Bird
Snake	Fish	

Examples of how to create a “monster,” bizarre being, or hybrid:

- Combine body parts of two or more animals, or a human and one or more animals, attaching at the neck, shoulder blades, or groin, or at a joint.

- Increase the size and ferocity of otherwise normal animals.
- Add (head, eyes, arms) or subtract (eye) body parts of the same animal
- Make normal bodily functions (speaking, seeing, eating) work in some horrifying way

INTRODUCTION

Introduce ancient story themes and the role of the hero.

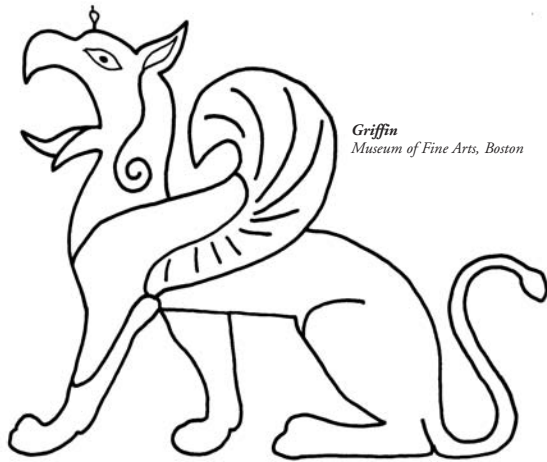
There are a host of terrific storylines and themes in ancient Greek mythology, many including heroes and hybrids. Have students pick a few favorite myths and review them with the class to get everyone thinking. Examples involving heroes and hybrids might include Perseus and his adventure with Medusa; Bellerophon (riding the hybrid Pegasus) and his defeat of the chimaera; Heracles dragging the multiple-headed dog Cerberus up from the underworld; Oedipus confronting the sphinx and solving her riddle (What walks on four legs in the morning, two legs at noon, and three legs in the evening?); Theseus killing the minotaur with the help of the sword and thread provided by Ariadne.

Discuss the definition of an ancient Greek hero. Students should focus on ancient stories and not on modern conceptions of heroism, since these may emphasize altruism and disinterest in fame. Ancient Greek heroes were often quite happy to be famous, and they looked out for themselves—if they were victorious in an exploit the result could, but did not have to, involve helping someone. A Greek hero generally:

- has divine ancestry
- uses special devices, tools, or herbs provided by a divine or human helper
- shows courage and persistence
- undertakes exploits involving strange or fearsome humans, beasts, or hybrids
- is brave and skilled in battle or fighting
- possesses special intelligence and cool-headedness
- reveals a flaw or weakness
- goes on a dangerous quest or mission
- is attractive to women

MATERIALS AND PREPARATION

Before the teacher introduces and shows images of Greek mythological hybrids, it can be illuminating to start the discussion with examples of our “monsters.” With the exception of mummies, zombies, and vampires (who did not exist in ancient Greece), the same increase in



size, exaggeration or omission of parts, and behavioral deficiencies apply to our monsters and hybrids as they did to those of the Greeks! Examples include: King Kong, giant spiders, the Hunchback of Notre Dame, the Phantom of the Opera, the Werewolf, the Creature from the Black Lagoon, Frankenstein, and the Wicked Witch. Students will need only paper and colored markers for a simple image, although they may choose to create their being in any medium.

INSTRUCTIONS FOR STUDENTS

You will create a Greek “monster” or hybrid being. The term “monster” is used loosely! Any unusual being, “different” from normal mortals in 1) a physical and 2) an emotional/psychological way, is acceptable, although a genuine hybrid will be welcome.

Review the ways Greek “monsters” and bizarre beings look, and consider some of the Greek myths about them.

Then invent your own “monster.” It should have a distinctive appearance and nature, and it should be the focus of a (brief) story (What does it do? Who fights it, if anyone does?).

Your monster can take virtually *any* form you choose that can be presented to the class. You can draw a simple drawing on paper, make a video, write a text, make a movie poster for a movie about your monster, put on a play, create a sculpture, or make a drawing or painting. The monster does not need to be shown in a particular artistic style. The only requirement is that your audience be able to see clearly what your being looks like and how it behaves, and that it must be based on Greek mythology/art.

In your presentation:

- Show your being and explain its physical characteristics and emotional/mental state.
- Say clearly how this creature is based on bizarre Greek beings.
- Tell a short story about the being and explain a Greek theme you borrowed for your story. (Ideas: curious woman, jealous wife, hero uses special equipment, trickery can be a good thing, fathers fear sons, women betray parents for love, women are disloyal, etc.)
- HAVE FUN!

EXAMPLES OF ANCIENT GREEK MONSTERS

Animals

Calydonian Boar Boars of exceptionally large size, ferocity

Cerberus Multiple-headed dog who guards the underworld

Animal + Animal

Griffin Lion with a bird head and wings

Chimaera Lion body, goat head growing from shoulders, snake tail

Human

Giant Giant may multiple torsos

Human + Animal

Siren Bird body (or legs and wings), human female head or head and torso; sings to lure sailors to their death

Harpy Female human with bird parts; has a voracious appetite and fouls others’ food with bird droppings!

Typhon Snaky lower body, human upper body

Minotaur Bull head, human body or humanoid body

Sphinx Lion with wings and a human female head

Centaur Horse body with human (torso and head) attached at the neck; flattened face

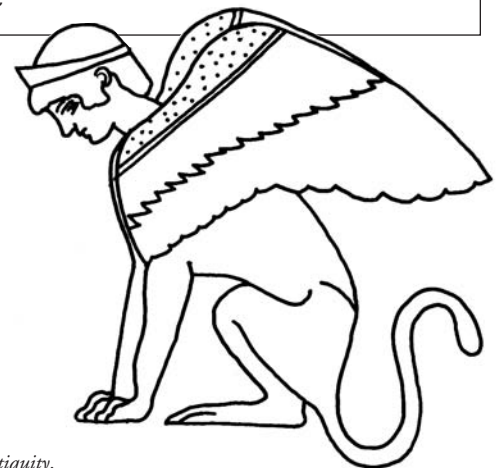
Satyr Human with goat/horse elements—shaggy legs, tail, odd face

Gorgon Female with normal body and horrifying, leonine face, with snakes in her hair, fangs, and glaring eyes that turn the viewer to stone

Normal beings but with fishy tails or wings added

Sea Serpent Aquatic snake or dragon

Pegasus Winged horse



Sphinx
from a red figure cup by the Oedipus Painter
Vatican Museum 569 based on the drawing in
A Coloring Book of Ancient Greece, Bellerophone Books

GOING FURTHER

OVERVIEWS OF MYTHOLOGY IN ART

Henle, Jane. 1973.

Greek Myths:

A Vase Painter’s Notebook.

Don Mills: Ontario:

Fitzhenry & Whiteside Ltd.

Woodford, Susan. 2003.

Images of Myths in Classical Antiquity.

Cambridge: Cambridge University Press.

Mythweb

www.mythweb.com

Has a useful overview of famous Greek heroes

NEH: EDSITEMENT

myth lesson:

edsitement.neh.gov/view_lesson_plan.asp?id=234

hero cycle:

edsitement.neh.gov/lesson_images/lesson587/HeroCycle.pdf

INSIDE THE VOLCANO

Drawing a 3-D Elevation Map



ACTIVITY

6

GOALS

This is a fun exercise in making an elevation map in three dimensions. When the students have finished, they can look down on their volcano from outside, or “go inside” the volcano and look up. Students are assigned to research different types of volcanoes and to choose a specific volcano to learn about and present to the class. It is this volcano that they will create in 3-D elevation.

BACKGROUND

This lesson will teach or reinforce skills in drawing to scale, understanding top plans and topographical maps, and reading elevation lines. It can also be used as a springboard for understanding types of volcanoes and cone and crater shapes.

DEFINITIONS

Cinder cones are the simplest type of oval or circular cone with a single vent and a bowl-shaped crater with steep sides. They range in height from about 1,000 to 1,500 feet. The common order of events in the formation of a cinder cone is: eruption, formation of cone and crater, and lava flow.

Stratovolcanoes or Composite volcanoes are created by more complex processes, including lava flow, ash, and mudflow, and they may have a single central vent or a clustered group of vents. They can rise more than 8,000 feet. An essential feature is a conduit system of tubes and fissures letting lava move from a reservoir to the surface. Mt. Fuji and Mt. St. Helens are stratovolcanoes.

Shield volcanoes, among the largest in the world, have a broad sloping cone that creates a shape resembling a shield. The volcano is formed almost entirely by lava flows. Santorini is a shield volcano.

Craters, depressions at a volcanic vent, are one mile or smaller in diameter. A *caldera* a larger basin caused by an explosion that happens when magma drains from a reservoir. The top of the mountain collapses inward and creates a steep basin larger than a mile in diameter.

A larger glossary is available online at:
volcano.und.nodak.edu/vwdocs/glossary.html

MATERIALS AND PREPARATION

The easiest way to create the 3-D volcano is to use transparent rectangular lids (about 6" x 8"), easily found at salad bars for take-out salads, and available in bulk at food packaging supply stores. The teacher will need to obtain these in advance, enough for each student to have at least 5 lids. Black fine point markers can be used to draw the elevation lines. As part of their research on one volcano, each student should search for a good relief map. For Santorini they might go to: <http://www.decadevolcano.net/Santorini/Santorini.htm> (Maps and Space Images).



In the film, George Vougioukalakis, who studies the Santorini volcano, inspects the crater left by the eruption. He and his team identified the distinct “mineral fingerprint” of the volcano and pinpointed the date of the eruption: 1646 B.C.

INSTRUCTIONS FOR STUDENTS

Ask students to bring in the topographical maps of the volcano they chose. Explain that they are each going to use the map they found to create a three-dimensional topographical map, with one elevation shown on each transparent lid. The map must be sized to fit the lids. Students can either reduce the maps by photocopying or—better—can as their first step scale down the map, simplifying it so that it only shows 5 elevations (or more if the volcano is large and there are enough lids), and making it fit the lid.

Once the map is the correct size, have the students turn one lid upside down and draw a short line (parallel to the right edge) in the lower right corner. This will serve as a fixed point to aid in orienting the lids again when the volcano is disassembled. Stack another lid on the first one and copy the line, drawing carefully immediately above the first one. Do this with all five lids.

Now, remove the lid on the top of the stack of upside down lids, turn it over, and carefully draw the bottom elevation. Move the lid aside and draw the next elevation line on the second lid, putting it on top of the first (now right side up) lid. Complete the process, and a small 3-D model of the volcano will be sitting on the desk. Turn it over, and you are looking from inside the volcano out the top!

GOING FURTHER

Field, Nancy, and Sally Machlis. 1993.

Discovering Northwest Volcanoes: A Learning and Activity Book. Corvallis, Oregon and Middletown, WI: Dog-Eared Publications. (P.O. Box 620863, Middletown, WI 53562-0863, USA.)

USGS Photo Glossary of Volcano Terms:

volcanoes.usgs.gov/Products/Pglossary/pglossary.html

CONVECTION CURRENTS

Plate Tectonics and Volcanic Activity

GOALS

This exercise shows students what convection currents are and how they can contribute to the eruption of volcanoes and move tectonic plates. Teachers need to assess their own students, classroom environment, and oversight capabilities, since students will use a small candle in pairs. If s/he needs to maintain strict control, the teacher can set up several experiments at the front of the room and invite only two pairs of students to come forward at a time, while others make predictions or work on a related volcanic activity at their desks. Ideally, each pair conducts the exercise and writes up their observations.

BACKGROUND

A convection current is one in which hot material rises (usually a hot current of air, and in the case of a volcano, magma; in this case food coloring). In the “Water Cycle,” water evaporates through heat, rises and condenses into clouds, and then comes back down as rain. As hot magma rises, it puts pressure on the tectonic plates and (at weaker points or cracks) comes through in a volcanic explosion. Much of the newer research trying to determine when a volcano might erupt involves tracing the seismic movement of the magma up into the volcano.

What students will see is the movement of food coloring upward as it gets heated in oil, rises, and pushes on “tectonic plates” of Styrofoam™. As the food coloring goes up it gives off energy, and so starts to cool. As it cools it becomes denser and falls back down, and then it heats up again and goes through the same cycle.

MATERIALS AND PREPARATION

Each student will need:

- a working surface that cannot be harmed by a small candle flame.
- a 1000 ml beaker or a small glass bowl that can withstand heat.
- between 2 to 3 cups of cooking oil.
- about 2 tablespoons of liquid food coloring or concentrate diluted in water.
- a pipette or eye dropper.
- small candle for each pair of students.
- two bricks or some other means of raising and supporting the beaker so the candle can fit under it to heat the liquid.
- several small pieces of Styrofoam sheets to represent tectonic plates.
- notepaper and pencil or a lesson rubric designed by the teacher.
- paper towels and other supplies for cleaning up.

INSTRUCTIONS FOR STUDENTS

- 1 Pour the cooking oil into the beaker.
- 2 Take the pipette and extract about 2 tablespoons of the food coloring.
- 3 Insert the pipette carefully into the oil all the way to the bottom of the beaker.
- 4 Slowly squeeze the pipette; try to leave a “puddle” of food coloring in the bottom center of the beaker.
- 5 Float the Styrofoam pieces gently on top of the oil.
- 6 Light the candle and within a few minutes the food coloring should start to heat up.
- 7 Observe what is happening. Describe what you did, note what you see happening, and say what your conclusions are.
 - Describe the way the food coloring first reacts to the heat.
 - Why are the “balls” of food coloring falling down?
 - Why do they push back up?
 - Does this remind you of any other “cycles” in nature?

GOING FURTHER

O’Meara, Donna. 2005.

*Into the Volcano:
A Volcano Researcher at Work.*
Kids Can Press.

Farndon, John. 1992.

*How the Earth Works:
100 Ways Parents and Kids can
Share the Secrets of the Earth.*
Pleasantville, New York: The
Reader’s Digest Association, Inc.

Seymour, Simon. 1988.

Volcanoes.
New York: HarperCollins Children’s Books.

Volcano World lesson plans:

volcano.und.nodak.edu/vwdocs/vwlessons/lesson.html

ACTIVITY

7



MACGILLIVRAY FREEMAN'S
GREECE
SECRETS OF THE PAST

TEACHER'S GUIDE

13

FRESCO FANTASY

Paint the “Culture” of your Classroom



ACTIVITY

8

GOALS

This lesson introduces students to the techniques and subject matter of ancient “fresco,” the technique used in painting scenes preserved on walls and ceilings from houses at Santorini to the Sistine Chapel. Students will learn the history and technique of fresco painting and consider the function of wall painting in telling future generations what is important to a culture. Younger students can create a “mural” on butcher paper, while older students can paint in a true fresco style if the teacher has the time and resources. Since ancient images include life-sized depictions of humans as well as smaller-scale scenes, the teacher has the option to propose either a life-sized mural or a series of small scenes that can be mounted in a frieze high up on the wall. Frescoes

from almost 4,000 years ago. The Romans learned the techniques of painting fresco from the Greeks. Their process and materials, as well as many names for the stages they went through (for which we have descriptions from Pliny the Elder and Vitruvius), survived and influenced later Renaissance artists as well as fresco painters practicing in modern times.

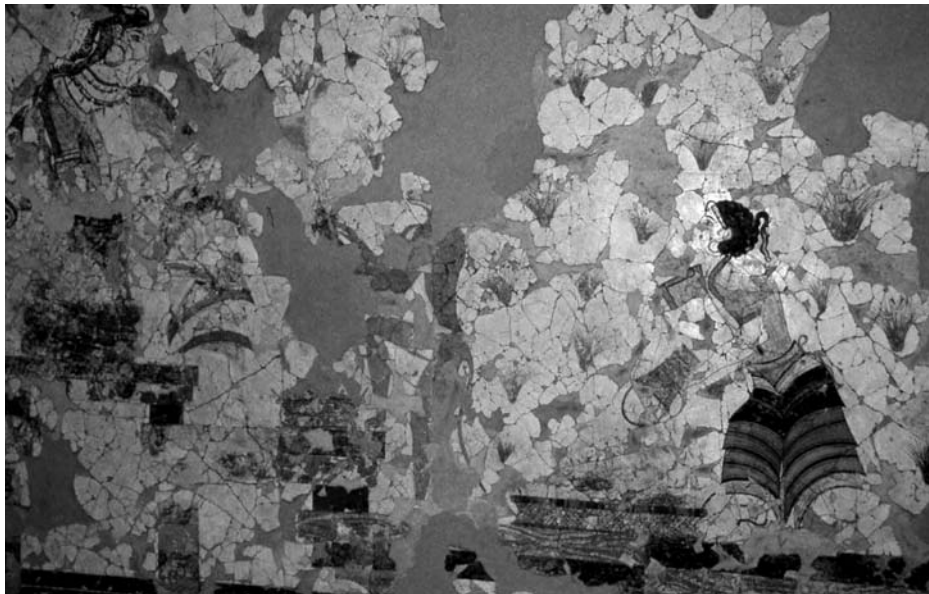
In true *fresco* (“fresh”) painting, as opposed to a dry wall painting (*mural*), lime (*quicklime* created from roasting limestone to change calcium carbonate to calcium oxide) is *slaked*, or broken down with water, and mixed with sand to make a mortar. The wall is first coated (using Renaissance terms) with varying mortars in layers: coarse-sand mortar (*trusilar*), medium-sand mortar (*arriccio*), and fine-sand mortar (*intonaccio*). Lime and powdered marble can be applied on the surface.

Colored pigments, ground fine, are mixed and ground again wet, and water is added to create the desired intensity.

Working in sections, while the fresco is still fresh and able to absorb the wet pigment, the artist applies a “cartoon” outline, perforated with holes, to the plaster and then swabs or paints over the holes, leaving a painted outline of the image on the wet plaster. Additional lines and interior color can then be added directly once the cartoon is removed.

MATERIALS AND PREPARATION

If creating a mural or a faux fresco, students can work on a large ream of butcher paper, pulled out to perhaps 20 feet long in a hallway, and perhaps stacked one long sheet on top of another. They can use watercolors or colored markers. Requirements for a true fresco are more complicated and expensive (see resources below). Students will prepare in advance for a faux fresco, planning the whole wall and then dividing up their scenes onto squares of paper. To mimic a fresco technique, the teacher will need to find needles (or other, safer pointed tools for perforating holes) appropriate for the students at each grade level. Low-stick drafting tape will be needed to attach the smaller squares of paper to the larger fresco during image transfer.



Frescos shattered during Santorini’s volcanic eruption take years to reassemble, as the volcano blast smashed the wall paintings to pieces. The pieces survived only because the site was covered in a protective shield of volcanic ash and pumice.

depict scenes of daily life as well as other culturally meaningful themes. In designing a fresco painting as a class, students will identify their own meaningful symbols, behavior, and messages to leave for the future.

BACKGROUND

At Lascaux in France, roughly 30,000 years ago, the moist walls of humid limestone caves turned the famous images painted on them into perhaps the earliest frescoes known. True precursors to the fresco painting still known today are the Greek frescoes from Crete and Santorini



Frescos are reconstructed in a large workroom by the archeological team who studies the partially assembled wall paintings for clues as to how people lived before the 1646 B.C. volcanic eruption.

INSTRUCTIONS FOR STUDENTS

Clarify the distinction between murals and frescoes. As an introduction to wall painting in general, the teacher should discuss some of the symbols and “short-hand” images found in Cretan and Thera frescoes:

- Men have reddish brown skin, women chalky white skin (as in Egyptian art).
- Faces are always in profile.
- Women wear colorful, layered skirts and men wear a short tunic or kilt-like garment, or one that resembles long shorts tight over the knee. Both can have long black hair (women’s hair may be tied up). Women sometimes wear lipstick and cheek rouge.
- The rocky volcanic landscape is often shown through wavy multicolored stripes or irregular bumps or outcroppings. Realistic flowers are shown.
- The sea has leaping dolphins.

Students should then consider:

- Which aspects of appearance (dress, clothing colors, hair styles, skin) reveal a gender or other information about today’s students—boys versus girls?
- How will they represent their school or community? Which elements of architecture or art and which spaces in their school or community will they choose to depict? How will they turn large spaces or three-dimensional architecture into recognizable two-dimensional forms?

Students should draw a small-scale version of their wall-length fresco as a simple sketch that will allow the planned design to be broken into sections.

Once students have decided on their themes and symbolism and drawn an overview, they should be assigned to specific topics and sections of the mural and should plan their work on squares of paper about 2' x 2'. One way to re-create a fresco technique on a dry mural is to have the students outline their images on the smaller sheets and then perforate the lines with closely-set holes. Working in small teams, taking turns, they will attach the square templates to the butcher paper with artists’ tape, and then color over the holes with paint or marker, leaving a dotted outline below. Finally, they can fill in both the outline and the colors and details inside the silhouettes left on the butcher paper.

Once students have completed their fresco, they should present it, explaining their background knowledge, goals, and techniques, to others in their school or community.

In class, follow up with discussion of what future archaeologists might think when they find this fresco, but have no one left to explain it to them. What might they understand correctly? What might they misunderstand?

GOING FURTHER

The Arts Foundation of Michigan (Fresco Workshop)
www.artservemichigan.org/fresco/afm/fresco.html

On The Arts Foundation of Michigan fresco workshop website:
 Zuccarini, Richard, and Deborah. 1992.
 “Fresco History and Technique.”
Sacred Art Journal vol. 13 (3): 102-113,
www.artservemichigan.org/fresco/afm/howtoa.html

DEMOCRACY IN ACTION

Selecting by Lot and by Vote



ACTIVITY

9

GOALS

In this exercise, students are introduced to the way democracy functioned in ancient Athens. Only male citizens who owned property were allowed to vote, so all women, slaves, and foreign residents (*metics*) were excluded. In a class of about 30 students, only about 4 would have been voting members of the “democracy.” Step one is to make that point! In the next step, the class (with the students now all miraculously turned into voting males) will enact a meeting of the Council and the Assembly.

BACKGROUND

Before instituting a democratic form of government, the Athenians were ruled at various times by aristocrats, oligarchs, and tyrants, and they made many attempts to reform their laws and curb the power of individual leaders, who were generally rich landowners (these were

the men who could afford to buy armor and horses in times of war). In 508 BCE, the aristocrat Cleisthenes reformed the government and introduced a system that allowed even poor men to have a say in the decisions affecting the city. (Democracy comes from *demos* = people and *kratos* = power, rule.) Unlike

democracy in the United States, where citizens vote for representatives to speak for them at meetings of the government, all Athenian citizens represented themselves. At least 6,000 citizens needed to attend a meeting of the Assembly for it to function!

It was Cleisthenes who divided the people of Athens and Attica (the area around the city) into different administrative groups. The largest group was the ten *phylai* (tribes). The next was the thirty *trittyes*. Each of the phylai was composed of three trittyes, one representing the city, one the country, and one the coast. The trittyes were made up of the smallest communities, *demoi*. The Athenian *ekklesia* (assembly) was a meeting of all citizens, at least 6,000, who voted on proposals for state policies and laws presented to it by the *boule* (council) of 500 citizens. The council was not an elected body, but rather was chosen annually by lot, 50 from each of the tribes. Each tribal group of 50 had the responsibility of leading the council and handling daily business for one of ten months in the year, and every day a new chair was selected. The 50 council members met in a round building called the *tholos*, while the assembly met about every week and a half on a hill called the Pnyx.

The citizens proposing public policy were not elected and were not “in power” for long! Each tribe did elect a *strategos* (general or military commander) annually, who could be re-elected multiple times. These commanders were important officials who carried out the council’s policies. The Athenians used a system called *ostracism* to help avoid a situation in which a popular or an overly power-hungry citizen-politician or military leader could gain too much power. Every year at a special meeting each assembly member who wanted to do so voted (by writing on broken pot fragments called *ostraca*) to banish anyone he thought was politically dangerous or undesirable. If the total number of votes rose above 6,000 votes, then the one who received the most votes was banished from Athens for 10 years.

PREPARATION AND INSTRUCTIONS FOR STUDENTS

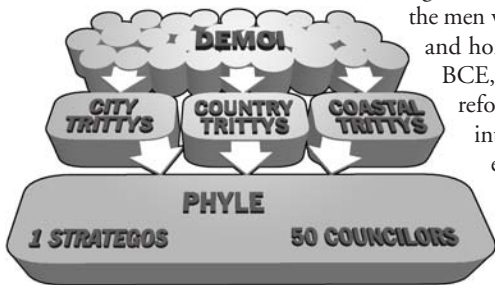
The teacher should introduce students to the differences between ancient Greek democracy and ours. The students all start as citizens divided by the teacher into ten tribes, and draw lots to see who will become council members, with about a tenth of the students selected to represent the council. The lots can simply be pieces of paper equal to the number of students, 90% white for the assembly, 10% colored for the council. Depending on the size of the class, the number of council members could be quite small. (Point out that the council would have been further subdivided since it was in turn led by 10% of its members every month.)

The teacher should assign specific topics on which small groups of students become experts, in preparation for holding a debate. The students should research, in particular, famous debates in the assembly and some accounts of ostracism. Then they should hold a debate, led by the council, to consider one of the following topics (or a topic of the students’ choice):

- Is the Athenian system of selecting council members to run the city-state by lot a meaningful way to open up leadership to all and run the state effectively?
- Is the practice of ostracism a useful socio-political strategy?

GOING FURTHER

- Greek government overview
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- Demos: Classical Athenian Democracy
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The following sources (books and websites) represent a wide range of topics and approaches relevant to the film *GREECE: SECRETS OF THE PAST*, and include a separate list of resources for children. They cover: basics of archaeology, the Bronze and "Golden" Ages, mythology, cultural heritage, and teacher-friendly information.

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volcanoes.usgs.gov/

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www.geology.sdsu.edu/how_volcanoes_work/

Hawaii volcano education
www.nps.gov/havo/educate/education.htm

FEMA (Federal Emergency Management Agency)
for Kids: Volcanoes
www.fema.gov/kids/volcano.htm

Volcano World (includes kids' and teachers' information, lessons, games)
volcano.und.edu/

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Written by Shelby Brown, Ph.D., *Classical Archaeology*,
Vice President of Education and Outreach,
Archaeological Institute of America. Archaeology
teacher, The Archer School for Girls, Los Angeles.
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Frank Corcoran, Suzanne Hertzberg, Ron Miller,
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