

Tomb Interiors

Lesson plan based on **Amenemhet**

Explore tomb artwork, its placement, and its function in the afterlife.

Skills and Focus: Art History, Discussion

Subject Area: Fine Arts

Thematic Connection: Signs and Symbols

Grade Level: Middle School

Time Needed: 30 minutes

Objectives

- Identify the objects and figures depicted on the wall fragment.
- Recognize the different areas and chambers of an Egyptian tomb and their functions.
- Determine where the fragment was placed in the tomb based on the subject depicted.
- Analyze how this wall fragment increases understanding of Egyptian daily life and burial customs.

Instructional Materials Needed

Stories: *What Does This Show?* and *How Was This Used?*

Writing paper

Pens or pencils

Activity

Step 1: After watching the stories, discuss as a class or in small groups what students see on the wall fragment. During the discussion, have each student make a list of the objects and items they have identified.

Step 2: Explain the internal structure of Egyptian tombs. The underground chamber contained the mummy. The upper rooms were decorated with scenes of daily life. These rooms were open to the public and provided a space for visitors to leave food offerings or say prayers for the deceased. The ancient Egyptians believed that depicting the deceased with images of favorite foods ensured that nourishment would be available in the afterlife.

Step 3: Have students determine where this fragment might have been located in the tomb, based on the lists they created.

Critical Thinking Ask students to

- **name** the aspect of Egyptian burial that is shown on this fragment of the tomb wall.
- **describe** the purpose of this fragment.

- **explain** why you think the artist included these particular images on the fragment.

Goals

This activity meets **Illinois State Goal 27**: Understand the role of the arts in civilizations, past and present.

- Alternative Alphabet

Lesson plan based on **Amenemhet**

Determine and compare hieroglyph content and frequency to sentences constructed in an alternative alphabet based on symbols that mimic sounds of the alphabet.

Skills and Focus: Calculation

Subject Area: Mathematics

Thematic Connection: Signs and Symbols

Grade Level: Middle School

Time Needed: 90 minutes

- Objectives
 - Understand the relative frequency of hieroglyphs on the relief.
 - Make and critique inferences based on the relative frequency of repeated letters.

- Instructional Materials Needed

Story: *What Does This Show?*

Amenemhet Detail

- Activity

Step 1: Using the printout of the stone relief, have students decide which images are hieroglyphs and which ones are not.

Step 2: Have students cross out the duplicate hieroglyphs and then count the number of individual hieroglyphs that remain.

Critical Thinking Ask students to

- **state** how many hieroglyphs show animals and how many show plants.
- **explain** how the names of different birds, plants, or other familiar things might be used to represent sounds.

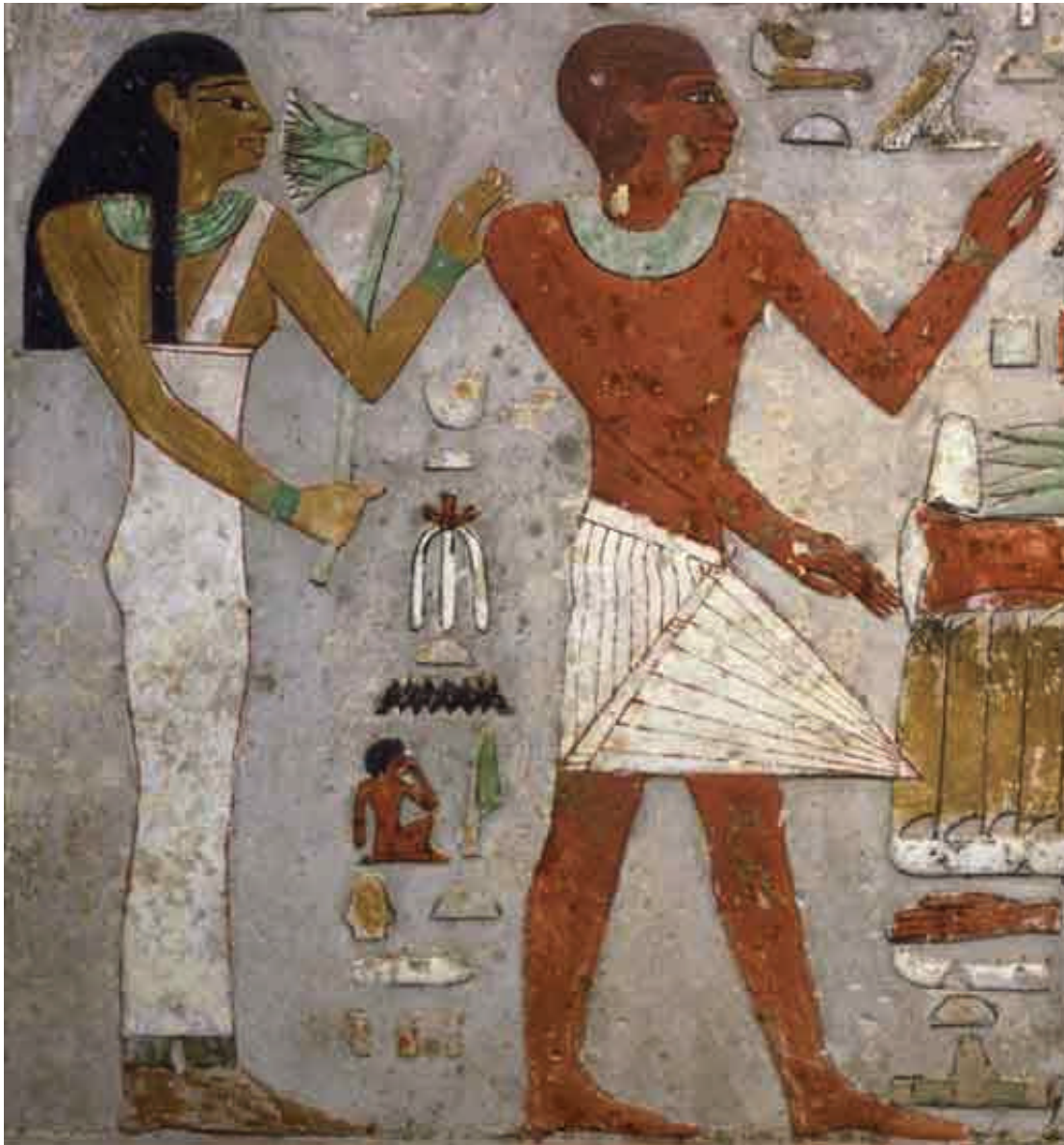
Step 3: Discuss with students how many letters in the Roman alphabet have names similar to common persons, places, or things (i.e., B = *bee*, C = *sea*). Ask

students to create an alternative alphabet using a *bee* to stand for B, and so on, and count up the number of plant, animal and other derived letters that make up their alphabets. Compare results to the Amenemhet inscription.

Step 4: Have students write a sentence or two (about 20 words) in the alternative alphabet they created. Compare the number of repeated signs (letters) in each student's sentence to the number repeated on the relief. Do the results suggest that Egyptian hieroglyphs had more or fewer signs than the Roman alphabet? Discuss possible pitfalls of this sampling process, such as the ritual nature of the Amenemhet inscription and repetition of proper names.

- Goals

This activity meets **Illinois State Goal 6:** Demonstrate and apply a knowledge and sense of numbers, including basic arithmetic operations, number patterns, ratios, and proportions.



Body Building

Lesson plan based on **Amenemhet**

Determine whether ancient Egyptian drawing was proportional and in perspective by comparing ancient Egyptian drawings, a mummy's x-ray, and contemporary photographs of people.

Skills and Focus: Problem Solving

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Subject Area: Science
Thematic Connection: Connecting Past and Present
Grade Level: Middle School
Time Needed: 60 minutes

Objectives

- Understand the difference between standardized representation and realistic proportions.
- Understand the concept of sampling and comparing data sets.

Instructional Materials Needed

[Amenemhet Detail](#)

[Xray Image](#)

Activity

Step 1: Explain that Egyptian artists represented people using a strict ratio of the size of body parts called a canon of proportions. In the time that the relief of Amenemhet was made, the canon of proportions divided the body into 18 identical units. The torso and head were typically represented as 7 units in height and the lower body (from the waist down) as 11 units.

Step 2: Have students divide the printouts of Amenemhet and his wife Hemet into 18 identical units and decide whether this canon has been followed.

Step 3: Tell students to bring in photographs of people from magazines or newspapers and apply the same system to them. Students should compare the results to those for the Egyptian images.

Step 4: Discuss the findings with the class.

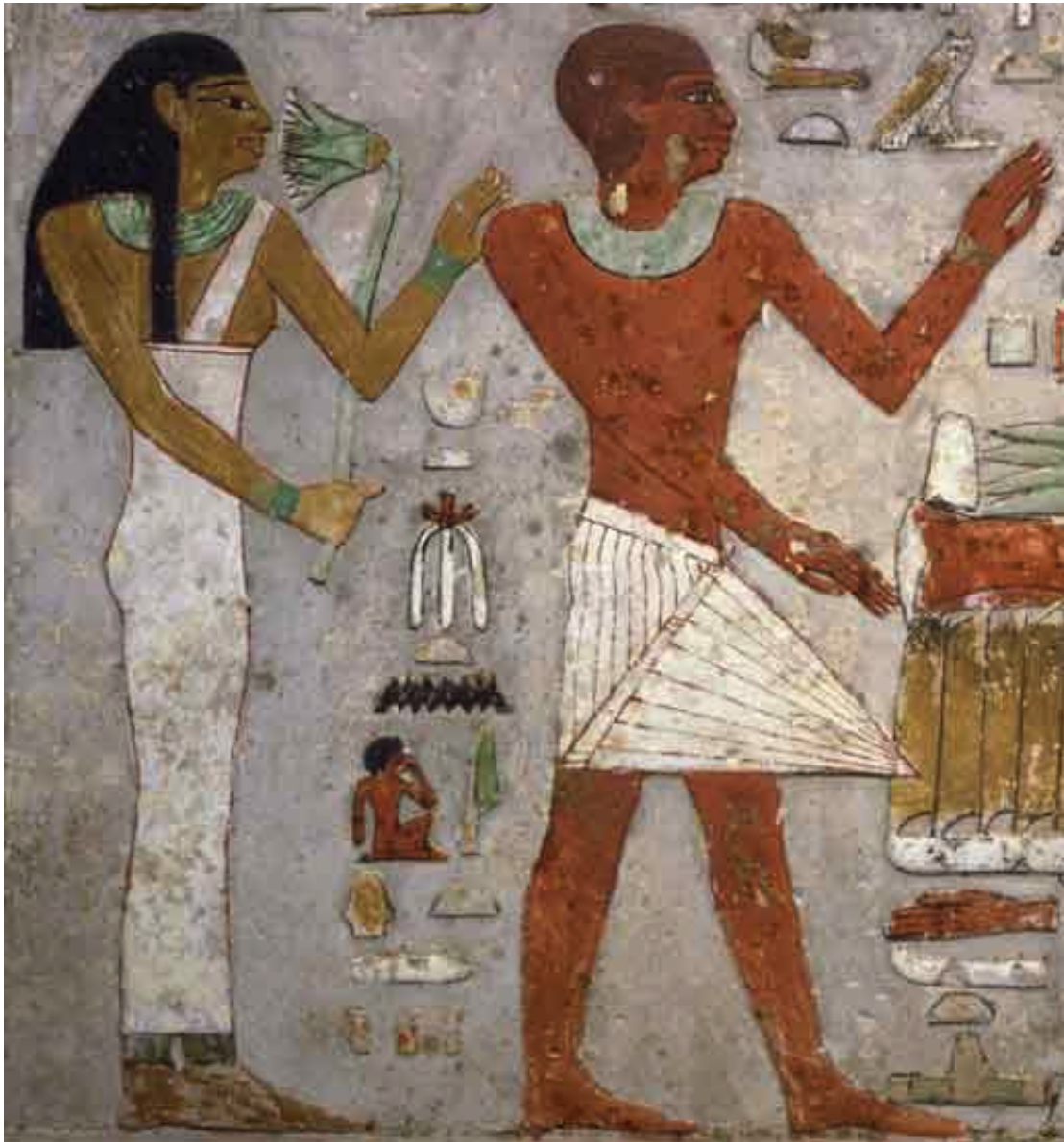
Critical Thinking

Ask students to

- **recognize and describe** how the proportions in the photographs differ from those of Amenemhet and Hemet.
- **conclude** whether this is because ancient Egyptians were physically different from us.
- **resolve** the question by conducting the same experiment on the x-ray image of the mummy.

Goals

This activity meets **Illinois State Goal 11:** Have a working knowledge of the processes of scientific inquiry and technological design to investigate questions, conduct experiments, and solve problems.



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Ancient and Modern Diets

Lesson plan based on **Amenemhet**

Investigate the ancient Egyptian diet and compare it to the contemporary American diet.

Skills and Focus: Cultural Comparisons, Writing

Subject Area: Social Science

Thematic Connection: Connecting Past and Present, Comparing Cultures

Grade Level: Middle School

Time Needed: 30 minutes

Objectives

- Gain an understanding of ancient Egyptian diet.
- Compare students' modern diet to that of Amenemhet.

Instructional Materials Needed

Story: *What Does This Show?*

Fragment

Chart

Activity

Step 1: Have students list all of the foods they see represented on the wall fragment.

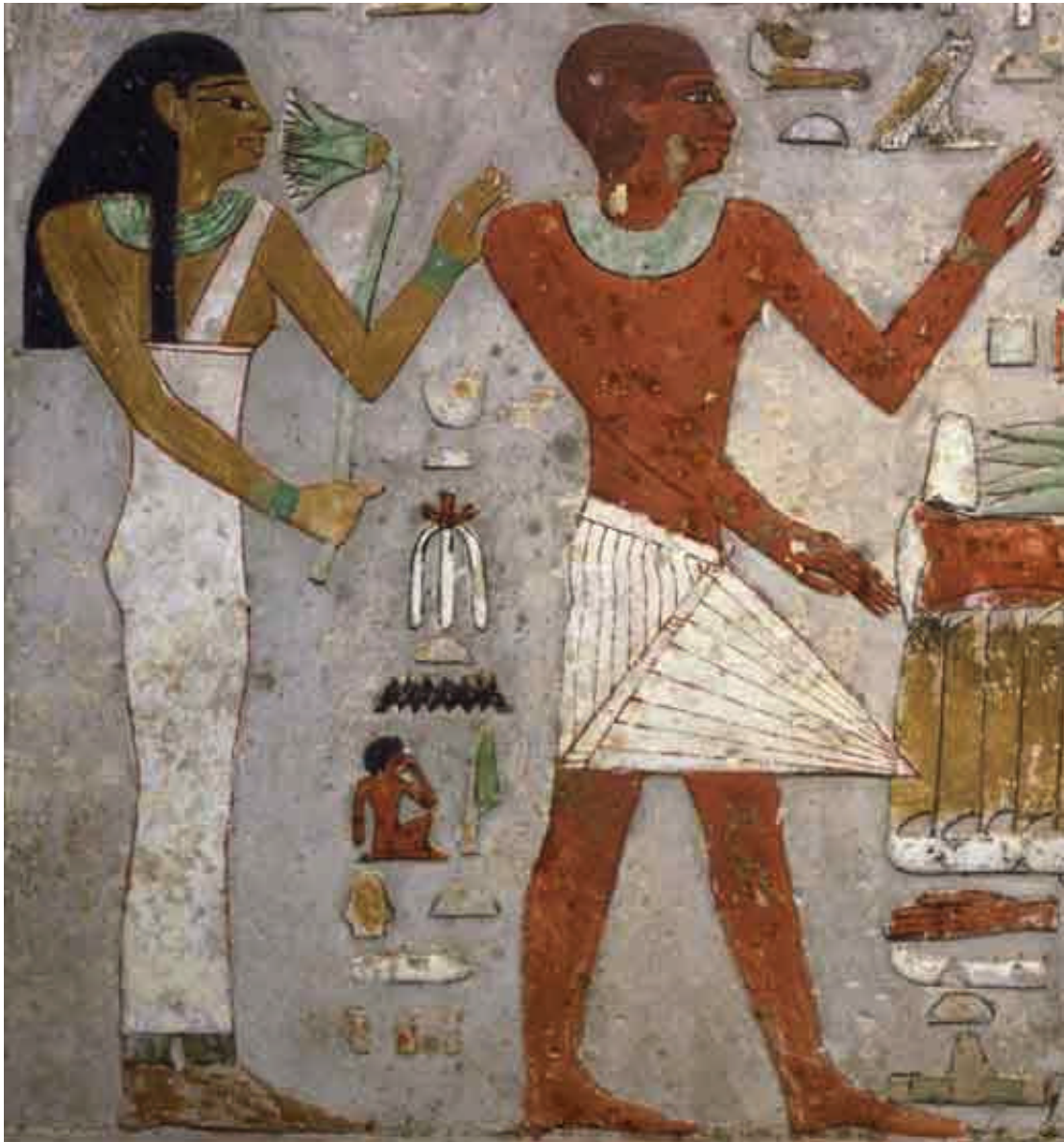
Critical Thinking Ask students to

- **explain** which food is represented in the greatest quantity.
- **recognize** whether all of this food is native to ancient Egypt.
- **conclude** what these foods say about the typical diet in ancient Egypt.
- **predict** how Amenemhet's diet would change if he were suddenly transported to contemporary America.

Step 2: Ask students to fill in the chart with contemporary equivalents to Amenemhet's diet, and decide which diet they would prefer and why.

Goals

This activity meets **Illinois State Goal 12:** Have a working knowledge of the fundamental concepts and principles of the life, physical, and earth/space sciences and their connections.



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| What Amenemhet Ate | What I Eat |
|------------------------|------------|
| Yellow and white bread | |
| Beef | |
| Beer | |
| Vegetables | |
| Fowl | |

A Day in the Life of Amenemhet and Hemet

Lesson plan based on **Amenemhet**

Summarize everyday life in ancient Egypt by writing about a typical day in the life of an Egyptian man or woman

Skills and Focus: Writing

Subject Area: English Language Arts

Thematic Connection: Connecting Past and Present

Grade Level: Middle School

Time Needed: 50-minutes

Objectives

- Use the information presented in the story *What Does This Show?* to write an imaginary journal entry about a day in the life of Amenemhet or his wife Hemet.

- Convey a clear sense of life in ancient Egypt by using appropriate action verbs and sensory details as well as historically accurate details about life in ancient Egypt.

Instructional Materials Needed

Story: *What Does This Show?*

[Storytranscript](#)

Activity

Step 1: Students should watch the story *What Does This Show?*, paying close attention to the details of Amenemhet's and Hemet's lives. Encourage students to take notes on the visual appearance of clothing, food, and people.

Step 2: Distribute the transcript and review the descriptions that were included about the Egyptian couple's professions, clothing, diet, and life together. Encourage the students to use their imaginations to supply missing details.

Step 3: Have students write journal entries describing a day in the life of Amenemhet or Hemet. Encourage students to pattern their entries after the way they write in their own journals. Entries should include vivid action verbs and sensory details and should suggest what life was like in ancient Egypt, from rising in the morning to retiring at night.

Goals

This activity meets **Illinois State Goal 1:** Read for understanding and fluency.

This activity meets **Illinois State Goal 3:** Write to communicate for a variety of purposes.

This slab of limestone came from the tomb of an Egyptian man named Amenemhet. He lived around the year 1800 B.C., nearly 4,000 years ago.

Amenemhet is shown in the middle, wearing a traditional Egyptian kilt. Pleats are indicated by lines, and the point on the front is a representation of a box pleat, seen from the front and side at the same time. Amenemhet also wears a wide beaded necklace.

His wife, whose name is Hemet (which means "wife"), stands behind him. She wears a tightly-fitting white dress with broad shoulder straps, a necklace, green anklets, and bracelets. She holds a flower to her nose, inhaling its sweet scent.

Amenemhet and Hemet stand in front of a stack of food, which was intended to feed them eternally in the life after death. In front of Amenemhet is a white table stacked with tall yellow loaves of bread. On top of the tall loaves of bread are a haunch of beef, a loaf of white bread, and a bunch of vegetables, perhaps leeks.

On the floor, to the right of the table, is a spouted water jar sitting in a basin for the couple to wash their hands before and after eating. To the left are four hieroglyphs which say "funerary meal."

Other offerings stacked on the right side include three tall jars for liquids, parts of a cow, more vegetables, and bread, all of which were staples of the diet in ancient Egypt.

A little figure of a man also named Amenemhet, perhaps their son, offers a choice leg of beef to the tomb owner. Although it looks like he is floating in the air, he is supposed to be behind the offerings. Egyptian artists did not like to overlap figures, so they stacked them one above the other to indicate depth.

The hieroglyphic inscription along the top is a prayer, which ensured that Amenemhet and his wife would have food for eternity. It reads from right to left; "A gift that the king gives; a thousand of bread, beer, oxen and fowl, alabaster, clothing and provisions, and every pure thing upon which the god lives."

These hieroglyphs spell Hemet's name. These are the name of her mother, It. In front of Amenemhet is the name of his father, Ip. By recording the name and image of the deceased, as well as food offerings, the ancient Egyptians thought that they could immortalize themselves and their provisions for an eternal life after death.

Life After Death

Lesson plan based on **Model Boat**

Choose and create objects needed for a productive afterlife in ancient Egypt.

Skills and Focus: Art History, Writing

Subject Area: Fine Arts

Thematic Connection: The Afterlife

Grade Level: Middle School

Time Needed: 80 minutes

Objectives

- Explain how the model boat reflects the people and customs of ancient Egypt.
- Describe the role boats played in ancient Egyptian daily life and the afterlife.
- Identify a variety of other objects used in the afterlife by ancient Egyptians and recreate them in class using paint or clay.

Instructional Materials Needed

- Stories: *Boats in Ancient Egypt* and *Models as Substitutes*
- Modeling clay
- *or*
- Materials for painting

- 11 x 17" sheets of paper
- Tempera paint in a variety of colors
- Brushes
- Small containers for rinsing brushes

Activity

Step 1: Discuss the ancient Egyptian practice of placing objects like this model boat in tombs for use in the afterlife. Boats were an integral part of daily life as the main mode of transportation, and thus would be important for people to take with them to the afterlife.

Step 2: Ask the class to fill the ancient tomb that contained this boat with other objects needed for a productive afterlife, based on their knowledge of life in ancient Egypt. Each student should suggest one object from the following categories:

- Buildings
- Food and drink
- Leisure or entertainment activities
- People
- Animals

Step 3: Ask students to recreate the objects in clay or paint.

Step 4: Finally, have students write a short, first-person account from the point of view of the object they sculpted or painted, titled "My Role in the Afterlife" Display the objects around the classroom and discuss how each was of value to the ancient Egyptians.

Adapted from Model Boat discussion and activity in The Art Institute of Chicago Teacher Packet, *Art on the Move*, 1996.

Goals

This activity meets **Illinois State Goal 26:** Through creating and performing, understand how works of art are produced.

This activity meets **Illinois State Goal 27:** Understand the role of the arts in civilizations, past and present.

A Trip Down the Nile

Lesson plan based on **Model Boat**

Research, write, and illustrate group reports that acknowledge the cultural importance of selected towns, monuments, and sights along the Nile River.

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Skills and Focus: Research, Writing, Illustrating, Geography

Subject Area: English Language Arts

Thematic Connection: Transportation

Grade Level: Middle School

Time Needed: Three 50-minute class periods

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Objectives

- Research the upper and lower kingdoms of Egypt and some of the various towns, monuments, and sites along the Nile.
- Work in small groups to explore in detail one site along the Nile, writing a two-paragraph summary accompanied by an illustration.
- Through reading one another's presentations, understand the cultural importance of different places along the Nile.

Instructional Materials Needed

- Stories: Boats in Ancient Egypt and Egyptian Culture
- Map
- Crayons, markers, or colored pencils
- Print resources on ancient and modern Egypt:
 - Ganeri, Anita. *Focus on Ancient Egyptians*. New York: Gloucester Press, 1993. Pp. 4-5
 - Harris, Geraldine. *Cultural Atlas for Young People: Ancient Egypt*. New York: Facts On File, Inc., 1990. (maps throughout).
 - Bentley IV, John J. *Egypt Guide*. Cold Spring Harbor, NY: Open Road Publishing, 1998.
 - *Exploring Egypt*, 2nd ed. New York: Fodor's Travel Publications, 1998.
 - Haag, Michael. *Egypt*, 2nd ed. London: Cadogan Books, 1998.
 - *Insight Guide: Egypt*, 5th ed. London: Insight Guides, APA Publications, 1998.
 - *Knopf Guides: Egypt*. New York: Alfred A. Knopf, Inc., 1995.
 - Richardson, Dan. *Egypt: The Rough Guide*, 3rd ed. London: Rough Guides, Inc., 1996.

Activity

Step 1: Show students maps of both modern and ancient Egypt, pointing out the Nile Delta, Upper and Lower Egypt, major cities such as Cairo and Memphis, and the locations of historic sites including Giza, Saqqara, Dendera, and the Valley of the Kings. Modern sites of importance, such as the Aswan High Dam, should also be pointed out.

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Step 2: Divide students into groups of two or three. Using modern travel guides alongside books on ancient culture, work with each group as they decide which

sites to explore. Possibilities include but are not limited to Rosetta, Memphis, Giza, Saqqara, Dendera, Valley of the Kings, Aswan, Thebes, and Cairo. The product of this research should be a summary of the site that answers the following questions:

- Why is this place important?
- When was it constructed or founded?
- What are the most interesting aspects of this place?
- Is this place part of ancient or modern Egypt?
- If the place is a remnant of ancient Egyptian culture, what happened there?
- What historical figures are associated with it?
- What kinds of Egyptian art and artifacts can be seen there?
- If the place is part of modern Egypt, why was it constructed?
- How important is the place in current life? Do people live in, work in, or visit this place?

Step 3: Have students use their research to create group reports about their place. Each group also should complete an illustration of the site.

Step 4: When students have completed their reports, ask a representative of each group to read the group's report to the class.

Goals

This activity meets **Illinois State Goal 1:** Read for understanding and fluency.

This activity meets **Illinois State Goal 3:** Write to communicate for a variety of purposes.



Boat Size from Bow to Stern

Lesson plan based on **Model Boat**

Estimate, simulate, and compare the length of an ancient Egyptian boat using human rowers as units of measure.

Skills and Focus: Calculation, Measuring

Subject Area: Mathematics

Thematic Connection: Counting and Calculating

Grade Level: Middle School

Time Needed: 60 minutes

Objectives

- Use numerical ratios to measure an object of unknown size using an object of known size as a measuring tool.

Instructional Materials Needed

- Boat Image
- Xray
- Rulers, paper, pencils

Activity

Step 1: Distribute copies of the model boat to each student. Have students measure the length of the boat and the distance from the hips to the top of the head of each rower.

Step 2: Distribute a copy of the mummy's x-ray to each student. Students should measure the height of the mummy with the ruler and the height of the mummy's torso and head. We know that the mummy was 5'5" tall. Ask students to use the ratio of torso and head: total height of the mummy to estimate the distance from his hips to the top of his head.

Step 3: Assuming the height derived in Step 2 is the same as the height of the rowers, students can use this height to estimate the total length of the boat.

Step 4: Using a yardstick, students can estimate the size of the boat compared to the classroom. Mark the outlines of the boat on the floor with masking tape, and arrange chairs for the student rowers (or have them sit on the floor).

Goals

This activity meets **Illinois State Goal 6:** Demonstrate and apply a knowledge and sense of numbers, including basic arithmetic operations, number patterns, ratios, and proportions.

This activity meets **Illinois State Goal 7**: Estimate, make, and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.





Navigating the Nile

Lesson plan based on **Model Boat**

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Calculate the length of a journey down the Nile River given various weather and water–current conditions.

Skills and Focus: Calculation, Problem Solving

Subject Area: Science

Thematic Connection: Geography

Grade Level: Middle School

Time Needed: 60 minutes

Objectives

- Solve an algebraic problem.
- Understand how the weather affects travel on a river.

Instructional Materials Needed

Story: *Boats in Ancient Egypt*

Activity

Step 1: While watching *Boats in Ancient Egypt*, make sure they note the distance the Nile River travels through Egypt. Then ask them to calculate the number of days it would take for a boat traveling 5 mph in still water for 12 hours a day to sail the length of the Nile.

Step 2: Then ask the students to perform the following calculations:

- Assuming the waters of the Nile flow south to north (S–N) at 4 mph, how long will it take to sail the length of the Nile S–N and then N–S.
- If the S–N wind can increase the speed of a boat using a sail by an additional 6 mph, calculate the S–N travel time.

Step 3: Calculate the difference between the N–S and the S–N travel times.

Goals

This activity meets **Illinois State Goal 11:** Have a working knowledge of the processes of scientific inquiry and technological design to investigate questions, conduct experiments, and solve problems.

A River Runs Through It

Lesson plan based on **Model Boat**

Use timelines to research, compare, and illustrate the impact and influence of the Nile and Chicago rivers on the development of ancient Egypt and the city of Chicago.

Skills and Focus: Hands-on, Cultural Comparisons, Geography, Writing

Subject Area: Social Science

Thematic Connection: Geography, Comparing Cultures

Grade Level: Middle School

Time Needed: 90 minutes

Objective

- Explain ways in which geographic factors influenced the development of ancient Egypt and the city of Chicago.

Instructional Materials Needed

Story: *Boats in Ancient Egypt*

- Timeline
- 18 x 24-inch poster board (one for each student pair)
- Online resources:
 - Information about the Chicago River (Friends of the Chicago River):
 - <http://www.chicagoriver.org/cr/index.html>
 - Images of Chicago from Chicago Historical Society:
 - <http://www.chicagohistory.org/index2.html>
 - Additional Chicago historical link to images:
 - <http://www.suba.com/~scottn/explore/links/links2.htm>
- Print Resource:
 - Mayer, Harold and Richard Wade. *Chicago: Growth of a Metropolis*. Chicago: University of Chicago Press, 1969.

Activity

Step 1: Divide students into two-person groups. Each group will use the above resources to:

- research the impact of the Nile on the development of ancient Egypt.
- research the impact of the Chicago River on the development of Chicago.
- compare the two rivers and their respective importance to each region.
- document key events in the development of each region that occurred specifically as a result of the existence of each respective river.

Step 2: Ask each group to use the poster board to create two timelines documenting each region's development and progress thanks to their life-giving rivers. To illustrate each timeline, have students use images from *Cleopatra* and from the online resources about Chicago. Display the timelines in the class.

Goals

This activity meets **Illinois State Goal 16:** Understand and analyze events, trends, individuals, and movements shaping the history of Illinois, the United States, and other nations.

This activity meets **Illinois State Goal 17**: Demonstrate a knowledge of world geography, as well as an understanding of the effects of geography on society, with an emphasis on the United States.

Personal Mummy Case

Lesson plan based on **Mummy Case**

Create a *papier mâché* mummy case covered with personal symbols from students' lives.

Skills and Focus: Studio

Subject Area: Fine Arts

Thematic Connection: Signs and Symbols, Connecting Past and Present

Grade Level: Middle School

Time Needed: 80 minutes (plus *papier mâché* drying time)

Objectives

- Create a three-dimensional mummy case using *papier mâché*.
- Recognize how the relationship of the different parts of the body relate to each other in three dimensions.
- Describe how artists use symbols to communicate ideas.
- Identify and depict symbols of people, events, and objects in students' lives.

Instructional Materials Needed

- Stories: *Who Is Inside This Case?* and *What Is on This Mummy Case?*
- Mummy Case
- Newspaper
- Masking tape
- Papier mâché materials (strips of paper, water, paste)
- Tempera paints
- Brushes
- Small containers of water to rinse brushes while painting.

Activity

Step 1: After watching the stories, discuss how the human body fits into the form of the mummy case. How would the arms, legs, and torso be positioned?

Step 2: Have each student fold and crunch sheets of newspaper into a three-dimensional shape that approximates the form of a human body reclining on its back (somewhat like a little doll) to simulate the bandages wrapped around corpses by the preparers of mummies.

Step-2: Cover the newspaper forms with *papier mâché* to simulate the shape of a mummy case, and let the forms dry thoroughly.

Step 3: The mummy case in the story is covered with painted symbols of objects and events relating to the life of the man inside the case. Have your students think about people, objects, and events important to each of them, and then paint these personal symbols on the surfaces of their cases.

Goals

This activity meets **Illinois State Goal 26:** Through creating and performing, understand how works of art are produced.



Prayers for Paankhenamun

Lesson plan based on **Mummy Case**

Find out about key attributes, characteristics, and roles of ancient Egyptian gods and goddesses by writing and presenting aloud a letter or poem asking them to welcome and Egyptian to the afterlife.

Skills and Focus: Research, Online Research, Writing

Subject Area: English Language Arts

Thematic Connection: The Afterlife, Myths and Legends

Grade Level: Middle School

Time Needed: Two 50-minute class periods

Objectives

- Work in groups of two or three to research one of the six Egyptian gods and goddesses of the afterlife.
- Recognize images of this god or goddess according to his or her physical attributes.
- Understand the symbols associated with and the role played by that god or goddess in every Egyptian's journey from this world into the afterlife.
- Demonstrate understanding by writing a letter from the perspective of a contemporary of Paankhenamun that appeals on his behalf to one of the six gods or goddesses.

Instructional Materials Needed

- Story: What Is on This Mummy Case?
- Mummy Case
- Print Resources:
 - Fisher, Leonard Everett. *The Gods and Goddesses of Ancient Egypt*. New York: Holiday House, 1997.
- Online Resources:
 - Glossary of gods and goddesses
 - <http://members.aol.com/egyptart/mytho.html> (Click on "Glossary of Deities.")
 - Horus, Osiris, Anubis:
 - <http://angelfire.com/ca/pye/gods.html>
 - Horus, Osiris, Isis:
 - <http://touregypt.net/gods1.htm>
 - For fun or extra credit, try the Egypt Word Search at:
 - <http://www.cyberkids.com/issue1/legend.html>

Activity

Step 1: Before watching the story *What Is on This Mummy Case?*, divide students into groups of two or three and assign each group to one of the following gods or goddesses of the afterlife: Anubis, Horus, Osiris, Sons of Horus, Isis, and Nephthys. Students should take notes about their respective god or goddess as they watch the story.

Step 2: Using the resources suggested in the **Instructional Materials Needed** section, students should research their deities. They should find out the following information about their god or goddess:

- How can this god or goddess be recognized? Does he or she have any distinguishing physical features?
- What was the role of this god or goddess in an Egyptian's journey to the afterlife? (Consider how this god or goddess would have been helpful to Paankenamun, the man in the mummy case.)
- What symbols or attributes are associated with this god or goddess?
- What is the significance of the god's or goddess's name?

Step 3: Using the information gathered via research, the small groups of students will write a short letter, poem, or prayer to their respective god or goddess from the perspective of an ancient Egyptian on behalf of Paankhenamun. The answers to the above questions should be embedded within this document. Encourage students to imagine a personality for the god or goddess and for the individual writer.

Step 4: During a subsequent class period, students can present their letters to the entire class in a dramatic fashion, with one student playing the role of the god or goddess (demonstrating the attributes, role, and personality researched the day before), another the writer. If there is a third student in the group, he or she can play Paankhenamun, using the information contained in the stories.

Goals

This activity meets **Illinois State Goal 2:** Understand explicit and implicit meaning in literature representing individual, community, national, world, and historical perspectives.

This activity meets **Illinois State Goal 3:** Write to communicate for a variety of purposes.

This activity meets **Illinois State Goal 4:** Listen and speak effectively in a variety of situations.



Measuring a Mummy Case

Lesson plan based on **Mummy Case**

Calculate the size of a mummy case and its contents using ancient Egyptian measurements.

Skills and Focus: Measuring, Calculation

Subject Area: Mathematics

Thematic Connection: Counting and Calculating

Grade Level: Middle School

Time Needed: 90 minutes

Objectives:

- Practice measuring in different systems.
- Convert between different measuring systems.

Instruction Materials Needed

- Xray
- 21" strip of stiff cardboard (about 2" wide)
- 3/4" digit and 3" palm templates
- Felt-tipped pen
- Yardstick or meter stick
- Construction paper (or packing paper in one meter wide rolls)
- Egyptian cubit (21") measures Egyptian number chart:
 - <http://www.dia.org/edu/teacher/mathsci/tanke/numchart.html>

Activity

Step 1: Students can make cubit measuring sticks by marking the cardboard strips in 3/4" intervals (digits) and 3" intervals (palms). Every fourth digit mark should be made more prominent (longer and darker) to mark a palm. Mark the palms on the ruler in Egyptian numbers.

Step 2: Mark out the size of the mummy case on a piece of construction paper (length = 3 cubits, 1 span (9"), 1 digit; width = 5 palms, 1 digit). Measure the size of the mummy case using the meter or yard stick.

Step 3: Have students work in pairs to trace their own outlines (lying with hands at their sides and legs together) on construction paper. Use the cubit ruler to measure the height and width across the shoulders of each student. Cut out the images and see how they fit into the mummy case.

Critical Thinking Ask students to

- **compare** the cutouts to the x-ray image of Paankhenamun and determine whether the cutouts fit into the case and, if so, how snugly.

Goals

This activity meets **Illinois State Goal 6:** Demonstrate and apply a knowledge and sense of numbers, including basic arithmetic operations, number patterns, ratios, and proportions.



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Building a Body: Scale, Proportion, and Ratio

Lesson plan based on **Mummy Case**

Measure, analyze, and compare the ancient Egyptian canon of proportions using a mummy, painted images, and photographs of people today.

Skills and Focus: Problem Solving

Subject Area: Science

Thematic Connection: Comparing Cultures

Grade Level: Middle School

Time Needed: 90 minutes

Objectives

- Introduce students to hypothesis definition and testing.
- Introduce the concepts of distortion and abstraction in representation.
- Demonstrate the anatomical similarities between ancient Egyptians and modern humans.

Instructional Materials Needed

- [Paank.Science.2.mummycase.html](#)
- [Paank.Science.2.mummycasedetail.html](#)
- [Paank.Science.2.x-ray.html](#)
- Full-length photographs of contemporary people
- A ruler accurate to 1/8" or 1 mm.

Activity

Step 1: Egyptian artists represented people using a strict ratio for the size of body parts called a canon of proportions. At the time the Mummy Case of Paankhenamun was made, the canon of proportions divided the body into 18 units of identical size. The torso and head were typically represented as 7 units in height and the lower body (from the waist down) as 11 units.

Step 2: Have students divide the images of Isis and Osiris into 18 identical units by measuring each figure and dividing the total height by 18. Mark the 18 units on the printout with a pencil. Counting up from the bottom, decide whether the canon of proportions (11 units from the bottom of the feet to the waist, 7 units from the waist to the top of the head) was followed.

Step 3: Ask students to collect pictures of contemporary people from newspapers and magazines and apply the same system to them. Compare the results to those

for the Egyptian images. Discuss the different ratios seen in the contemporary photographs versus the painted images.

Step 4: Ask students to conduct the same experiment on the x-ray image of Paankhenamun's mummy.

Step 5: Discuss the findings with students.

Critical Thinking Ask students to

- **conclude** whether the people in the contemporary photographs match the proportions of the Egyptian images.
- **describe** how did they differed.
- **explain** whether the proportions of the mummy are closer to those of modern humans or to the painted images on the mummy case.

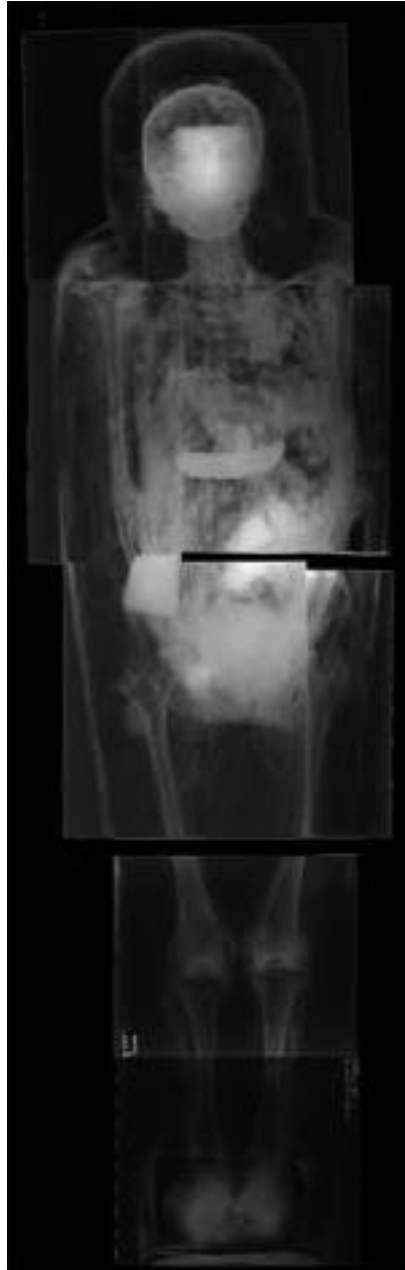
Goals

This activity meets **Illinois State Goal 11:** Have a working knowledge of the processes of scientific inquiry and technological design to investigate questions, conduct experiments, and solve problems.





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Rebirth and Renewal

Lesson plan based on **Mummy Case**

Identify and compare ancient Egyptian and contemporary symbols of rebirth and renewal.

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Skills and Focus: Cultural Comparisons, Writing

Subject Area: Social Science

Thematic Connection: The Afterlife, Signs and Symbols

Grade Level: Middle School

Time Needed: 40 minutes

Objectives

- Identify Egyptian symbols of rebirth in the afterlife.
- Compare and contrast ancient Egyptian and modern symbols of rebirth and renewal.

Instructional Materials Needed

Story: *What Is On the Mummy Case?*

Mummy Case

Chart

Activity

This mummy case is decorated with symbols to ensure that the soul of the mummified person inside it would be reborn in the afterlife. Explore the meaning of the case's gold face, the winged scarab beetle, and the green face of Osiris, god of the afterlife. Ask students to explain how these signs and symbols would help Paankhenamun, whose mummy is inside the case, be safely reborn in the afterlife. In the chart below, have students illustrate and write about a few of today's symbols of rebirth and renewal (e.g., holidays, seasons, customs), then compare and contrast them to those on this mummy case.

Goals

This activity meets **Illinois State Goal 16:** Understand and analyze events, trends, individuals and movements shaping other nations.



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Rebirth and Renewal 2,900 Years Later

| | |
|----------------|-----------------|
| Symbol: | Meaning: |
| Symbol: | Meaning: |
| Symbol: | Meaning: |
| Symbol: | Meaning: |

Rulers For a Day

Lesson plan based on **Alexander Coin**

Design and create foil coins with images that symbolize students' imaginary leadership in the ancient world.

Skills and Focus: Studio, Art History

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Subject Area: Fine Arts
Thematic Connection: Money, Signs and Symbols
Grade Level: Middle School
Time Needed: 80 minutes

Objectives

- Identify Alexander the Great as a powerful ruler in the ancient world.
- Imagine what it would be like to be a ruler in the ancient world.
- Design and create coins with images symbolic of imaginary rulers.
- Demonstrate the knowledge and skills to create a three-dimensional work of art.

Instructional Materials Needed

Stories: *Who Was Alexander?* and *Coins in the Greek World*

Map

Coin Template

Pencils or ball point pens

Scissors

Foil circles cut the same size as the coin template

Poster board circles cut the same size as the coin template

Glue

Activity

Have students look at a the map of the ancient world and choose a country to rule. Have them imagine commissioning a new coin to be used in their country.

Step 1: Discuss how the images on the Alexander coin reflect his rule. Ask students to think about what images or objects will reflect their rule in the ancient world. One side (obverse or front) of the coin they produce should have the ruler's portrait (a self-portrait), while the other side (reverse or back) should have an image of something symbolic of the country.

Step 2: Students should sketch designs with pencil on the coin templates. Remind them that their final image will appear in reverse.

Step 3: Have students cut out templates and lay them on circles of foil. Using a dull pencil or ball point pen, they should carefully trace design while applying steady pressure with pen or pencil. Have them experiment with pressure applied to produce different effects. Repeat with the other design.

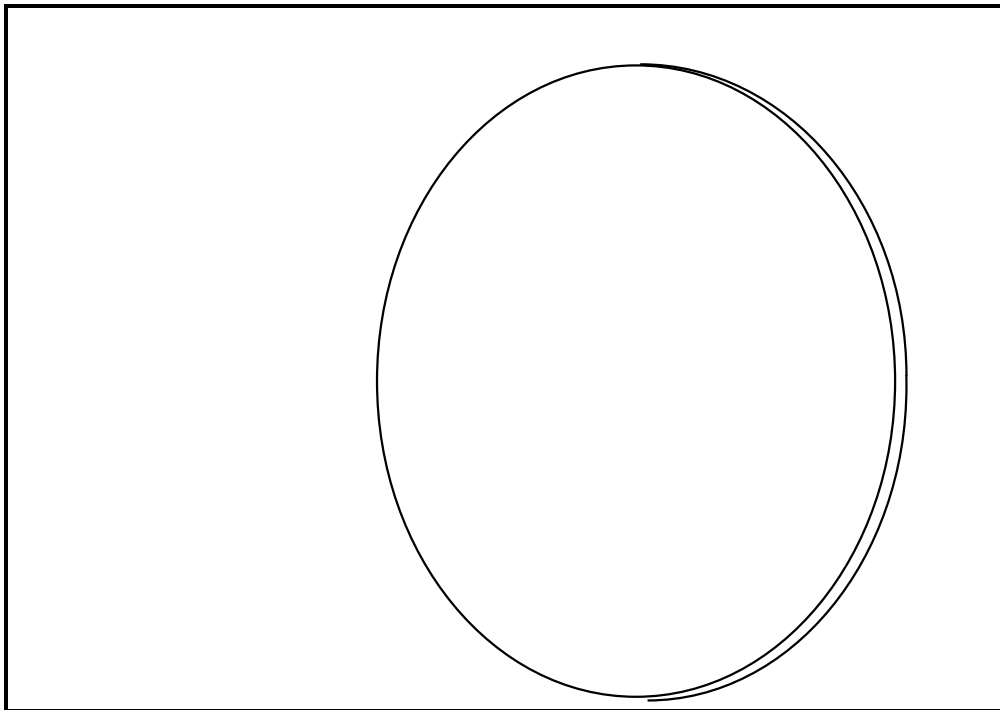
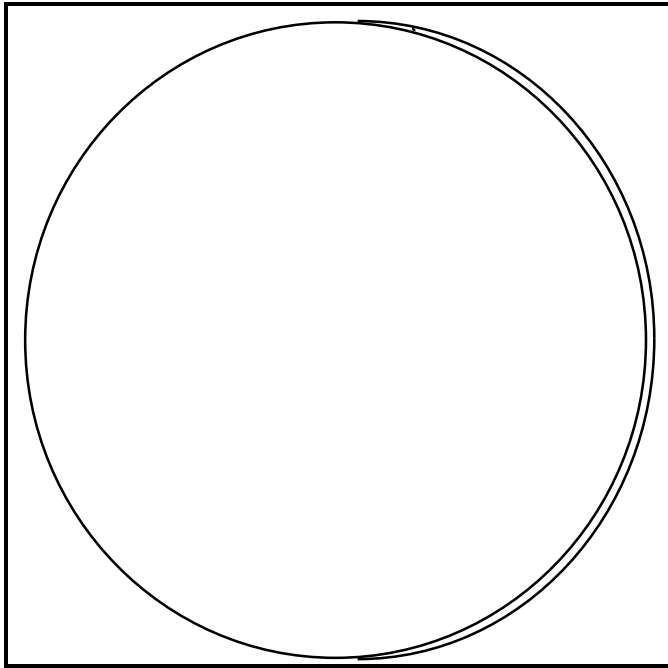
Step 4: Students should glue foil circles onto each side of one poster board circle.

Goals

This activity meets **Illinois State Goal 26:** Through creating and performing, understand how works of art are produced.

This activity meets **Illinois State Goal 27**: Understand the role of the arts in civilizations, past and present.





Count Your Pennies

Lesson plan based on **Alexander Coin**

Analyze and compare imagery and symbolism in ancient Greek and contemporary U.S. coins.

Skills and Focus: Discussion, Cultural Comparisons, Hands-on

Subject Area: English Language Arts

Thematic Connection: Signs and Symbols, Myths and Legends, Connecting Past and Present

Grade Level: Middle School

Time Needed: 50-90 minutes

Objectives

- Identify the kinds of images that were characteristic of the obverse (front) and reverse (back) sides of ancient Greek coins.
- Interpret, based on the information in and discussion of the story *Coins in the Greek World*, what these images represented in ancient Greek culture.
- Compare these images and what they represented to the images on contemporary U.S. coins.
- Discuss the iconography of both coins and possible reasons for the cross-cultural similarities.

Instructional Materials Needed

Story: *Coins in the Greek World*

Chart

Quarters, dimes, nickels, and pennies for students to examine

Activity

Step 1: Watch the story *Coins in the Greek World*. Encourage students to take notes as they watch. Then, distribute the chart.

Step 2: Ask students to refer to their notes as they fill out the ancient Greek portion of the chart.

Step 3: Now ask students to look carefully at contemporary U.S. coins, and then fill out the second portion of the chart.

Step 4: After students have completed their charts, discuss the results.

Critical Thinking Ask students to

- **explain** why ancient Greek and contemporary U.S. coins are so similar in their design.
- **identify** how U.S. coins symbolize the nation.

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| Ancient Greek Coins | |
|--------------------------------|--|
| Front Image: | |
| Represents: | |
| Back Image: | |
| Represents: | |
| Contemporary U.S. Coins | |
| Front Image: | |
| Represents: | |
| Back Image: | |
| Represents: | |

Coin Content

Lesson plan based on **Alexander Coin**

Calculate ancient Greek coin values as compared to their weight, equivalence in grain, and determine their worth today.

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Skills and Focus: Calculation

Subject Area: Mathematics

Thematic Connection: Money, Counting and Calculating, Connecting Past and Present

Grade Level: Middle School

Time Needed: 45 minutes

Objectives

- **Understand how to calculate fractions of a given weight.**
- Use decimal numbers.
- Convert from metric to U.S. customary weight systems.

Instructional Materials Needed

Chart

Online Resources:

- Demosthenes, *Against Phormio* 39:
 - <http://www.perseus.tufts.edu/cgi-bin/text?lookup=dem.+34.39&word=grain>
- Aristotle, *Economics* 1352b:
 - <http://www.perseus.tufts.edu/cgi-bin/text?lookup=aristot.+econ.+1352b&vers=english;loeb&browse=1>

Activity

Step 1: Distribute the chart and work with students to calculate the missing values. Ask students to suggest the appropriate calculations.

Step 2: After calculating the value of the coins, relate their value to that of a silver dollar (1 oz.). Calculate how much the silver in these ancient Greek coins would be worth today (assuming the value of silver at \$7.50/oz.).

Step 3: Look through the following passages together with the class in order to learn the prices in silver of ancient grain. Demosthenes, in *Against Phormio* 39, mentions the price of about 12 gallons of grain in Greece as being 5 drachmae. Aristotle, in *Economics* 1352b, mentions the price for the same amount of grain in Egypt as 10 drachmae. If grain weighs about 5 pounds to the gallon, was silver more or less valuable in ancient Athens than it is today? In ancient Egypt?

Goals

This activity meets **Illinois State Goal 6:** Demonstrate and apply a knowledge and sense of numbers, including basic arithmetic operations, number patterns, ratios, and proportions.

| Find the Values of Ancient Greek Coins | | |
|---|--------------|---------------|
| <u>Coin</u> | <u>Value</u> | <u>Weight</u> |
| obol | 1/6 drachma | |
| diobol | 1/3 drachma | |
| drachma | | 4.1g |
| didrachm | 2 drachmae | |
| tetradrachm | 4 drachmae | |

Coin Comparisons

Lesson plan based on **Alexander Coin**

Create "ancient" clay coins to predict weights and to determine the ratio of weight to value, physical properties, and how ancient coins compare to contemporary coins.

Skills and Focus: Studio, Measuring, Scientific Inquiry

Subject Area: Science

Thematic Connection: Money, Connecting Past and Present

Grade Level: Middle School

Time Needed: 90 minutes

Objectives

- Predict weights, estimate balances, and practice weighing items.
- Understand the ratio of weight to the value of ancient and modern coins.
- Use a balance instrument to collect data.

Instructional Materials Needed

Story: *Coins in the Greek World*

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Chart

Self-hardening clay (different colors)

Scale accurate to 0.1 g

Balance

Coins: pennies, nickels, dimes, quarters, half-dollars, and dollars

Activity

Step 1: Distribute the chart. Then have students measure clay out in grams as indicated on the chart.

Step 2: Students should strike a set of coins in clay using two modern coins to create impressions on both sides, as seen in *Coins in the Greek World*.

Step 3: Have students weigh each of the modern coins and record its value and weight in the chart.

Step 4: Now have students arrange the coins twice, first according to weight, and then according to value.

Critical Thinking Ask students to

- **explain** the weight-to-value ratio of the ancient coins.
- **describe** how the two coin arrangements differ.
- **conclude** whether the modern coins have the same weight-to-value ratio as the ancient coins.

Step 5: Ask students to describe the physical properties of the coins. Their descriptions should include size, weight, color, shape, texture, and depicted images. Have students create a chart that compares the physical properties and monetary value of ancient coins and modern coins. Discuss the similarities and differences.

Step 6: Using the clay coins, have students predict which will weigh more—e.g., 5 obols or 4 diobols. Do the same with the modern coins. Using a balance, have students weigh the coins for accurate weights. Have students create a graph that records their predictions and findings.

Goals

This activity meets **Illinois State Goal 11:** Have a working knowledge of the processes of scientific inquiry and technological design to investigate questions, conduct experiments, and solve problems.

This activity meets **Illinois State Goal 13:** Have a working knowledge of the relationships among science, technology, and society in historical and contemporary contexts.

| Coin | Value | Weight |
|-------------|--------------|--------|
| obol | 1/6 drachma | 0.7g |
| diobol | 1/3 drachma | 1.4g |
| drachma | | 4.1g |
| didrachm | 2 drachmae | 8.2g |
| tetradrachm | 4 drachmae | 16.4g |
| penny | 1/100 dollar | |
| nickel | | |
| dime | | |
| quarter | | |
| half-dollar | | |
| dollar | | |

The Odyssey of a Coin

Lesson plan based on **Alexander Coin**

Create a fictitious newspaper article to document the travels of an ancient Greek coin.

Skills and Focus: Writing, Calculation, Analysis, Geography

Subject Area: Social Science

Thematic Connection: Money, Geography

Grade Level: Middle School

Time Needed: 40 minutes

•

Objectives

- Evaluate the economic conditions that existed in ancient Greece.
- Analyze the impact Alexander the Great had on the ancient world.

Instructional Materials Needed

Stories: *Who Was Alexander?* and *Coins in the Greek World*

Map

Activity

Explain to students that coins enable societies to exchange goods along standard units of value. Coins pass through many hands and over great distances. Therefore, the images on coins can reveal interesting information about the size of a nation's commerce and influence.

Based on what students learn and perceive from both movies, have them write a newspaper article about the spread of Alexander the Great's empire (335-323 BC) as documented through the fictitious travels of the Alexander coin. Articles should include information like the following:

- items that the silver coin might have purchased
- where the coin was first minted and the regions to which it traveled
- the different people who may have possessed the coin

Goals

- This activity meets **Illinois State Goal 15**: Understand, analyze, and compare economic systems, with an emphasis on the United States.
- This activity meets **Illinois State Goal 18**: Understand, analyze, and compare social systems with an emphasis on the United States.



Painting Pottery

Lesson plan based on **Amphora**

Summarize and illustrate the process of painting an ancient Greek vessel.

Skills and Focus: Art Appreciation, Hands-On

Subject Area: Fine Arts

Thematic Connection: Connecting Past and Present

Grade Level: Middle School

Time Needed: 60 minutes

Objectives

- Identify this amphora as an example of the black figure style.
- Identify in order the steps and procedures necessary to produce an amphora in the black figure style.
- Describe how the steps and processes used create specific effects and details in the scene on this amphora.
- Create a design for an amphora using black figure style.

Instructional Materials Needed

Stories: *What Story Is Shown?* and *How Was This Made?*

[Worksheet](#)

[Amphora Illustration](#)

Pencils

Red and black colored pencils or markers

Activity

Step 1: Tell students that this amphora is an example of the black figure style in ancient Greek vase painting, with figures appearing in black on a red background. Encourage students to take notes as they watch the stories. Then distribute the worksheet and have students use their notes to correctly order the steps in the process.

Step 2: Have students create a design from a scene in history for an amphora in the black figure style. Ask students to sketch designs onto the attached amphora template in pencil.

Step 3: Indicate which areas are to be covered in slip before firing by coloring the design accordingly with red or black crayons or markers.

Goals

This activity meets **Illinois State Goal 26:** Through creating and performing, understand how works of art are produced.

Place numbers from 1 to 5 in the brackets to show the correct order for creating an amphora in the black figure style.

- [] Details are scratched into the clay surface or painted on it in different colors.
- [] Oxygen is introduced into the kiln, turning areas on the amphora without slip red while areas covered with slip remain black.
- [] A design is sketched onto the vase with charcoal.
- [] The vase is fired in a kiln, turning first red and then black.
- [] Slip (clay thinned with water) is applied to areas of vase the artist wants to appear black.



Aristophanes's Party

Lesson plan based on **Amphora**

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Calculate the length of time it will take for Aristophanes's guests to deplete his supply of wine.

Skills and Focus: Calculation, Problem Solving

Subject Area: Mathematics

Thematic Connection: Counting and Calculating

Grade Level: Middle School

Time Needed: 60 minutes

Objectives

- Practice converting from U.S. customary to metric measurements.
- Solve an algebraic problem.

Instructional Materials Needed

Story: *Symposia: Ancient Greek Drinking Parties*

Math Chart

Activity

Step 1: After watching *Symposia: Ancient Drinking Parties* or introducing the idea of Greek symposia in a discussion, introduce the various drinking vessels and their functions.

Step 2: Distribute the chart. Ask students to determine how long Aristophanes's wine supply will hold out under the following conditions:

- He bought 1 large amphora of wine (26 liters) for the party.
- He mixes the wine with water in a 1:1 ratio.
- His guests consume wine at the rates shown on the chart.

Goals

This assignment meets **Illinois State Goal 6:** Demonstrate and apply a knowledge and sense of numbers, including basic arithmetic operations, number patterns, ratios, and proportions.

This assignment meets **Illinois State Goal 8:** Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems, and predict results.

| <u>Guest</u> | <u>Vessel</u> | <u>Vessels per Hour</u> |
|--------------|-------------------|-------------------------|
| Socrates | kylix (8 oz.) | 3 |
| Alcibiades | rhyton (4 oz.) | 5 |
| Perikles | kantharos (8 oz.) | 3 |
| Plato | kylix (8 oz.) | 3 |
| Cleon | kantharos (6 oz.) | 5 |
| Polykrates | kylix (6 oz.) | 4 |
| Themistokles | kylix (8 oz.) | 3 |
| Aristophanes | rhyton (4 oz.) | 6 |

A Lion's Lair

Lesson plan based on **Amphora**

Research and illustrate lion habitats and the lions' place in the food chain to determine the likelihood that lions lived in ancient Greece.

Skills and Focus: Biology, Geography, Earth Sciences

Subject Area: Science

Thematic Connection: Geography, Animals

Grade Level: Middle School

Time Needed: 120 minutes

Objectives

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- **Understand the relationship between preferred habitats and where animals live.**
- Evaluate the likelihood that a particular animal lived in a particular habitat.
- Practice using quality online resources.
- Practice reading and making inferences from topographical maps.

Instructional Materials Needed

Colored pencils, crayons, paper for drawing

AIC Lions

Online Resources:

- <http://dialspace.dial.pipex.com/agarman/lion.htm>
- Lincoln Park Zoo Species Data Sheet: African Lion:
<http://www.lpzoo.com/animals/mammals/facts/lion.html>
- Topographical map of Greece
http://www.lib.utexas.edu/Libs/PCL/Map_collection/europe/Greece_rel96.jpg

Activity

Step 1: Research the native habitats of lions, using the online resources listed above.

Step 2: Break the class into groups of students. Have each group investigate the habitats preferred by one species that is considered a primary source of food for lions, using the Lincoln Park Zoo Web page. Each group should report its findings to the class. Discuss the notion of a food chain and the integrated relationships of species in an ecosystem.

Step 3: Have students research the geography of Greece using the topographical map.

Critical Thinking Ask students to

- **describe** the Greek landscape.
- **indicate** whether Greece has the grassy plains that lions prefer.
- **conclude** how likely is it that lions were ever native to Greece.

Goals

This activity meets **Illinois State Goal 12:** Have a working knowledge of the fundamental concepts and principles of the life, physical, and earth/space sciences and their connections.



Form, Story, and Function: Then and Now

Lesson plan based on **Amphora**

Compare the function and decoration of everyday objects from ancient Greece and today's world.

Skills and Focus: Writing, Analysis

Subject Area: Social Science

Thematic Connection: Home and School

Grade Level: Middle School

Time Needed: 30-40 minutes

Objectives

Analyze ways in which stories serve as expressions of ancient and modern cultures.

Instructional Materials Needed

Stories: *What Story Is Shown?* and *The Story of Eos and Memnon*
[Worksheet 2](#)

Activity

Step 1: Remind students that narrative scenes often decorated ancient Greek vessels. Ask students to suggest contemporary everyday objects that also include narrative illustrations.

Step 2: Distribute the chart. Have students complete it by filling in the name of the object, describing its function, explaining the story it tells, and describing the story's connection to the user of the object. Discuss student responses.

Goals

This activity meets **Illinois State Goal 18:** Understand, analyze, and compare social systems with an emphasis on the United States.

| <u>Form, Story, and Function: Then and Now</u> |
|---|
| <p style="text-align: center;">Amphora</p> <p>Function:</p> <p>Narrative:</p> <p>Connection:</p> |
| <p style="text-align: center;">Contemporary Object #1</p> <p>Function:</p> <p>Narrative:</p> <p>Connection:</p> |
| <p style="text-align: center;">Contemporary Object #2</p> <p>Function:</p> <p>Narrative:</p> <p>Connection:</p> |

Human Abstraction

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Lesson plan based on **Cycladic Figure**

Explore and compare abstraction of human forms in various ancient cultures and by creating self-portraits using geometric shapes.

Skills and Focus: Art Appreciation, Studio

Subject Area: Fine Arts

Thematic Connection: Connecting Past and Present

Grade Level: Middle School

Time Needed: 60 minutes

Objective

- Identify the Cycladic figure as an example of abstraction utilizing geometric shapes.
- Identify how the artist used geometric shapes to indicate the parts of the body on the figure.
- Compare and contrast the use of abstraction in the Cycladic figure to an abstracted image from another culture, such as the ancient West Mexican *Seated Male "Storyteller" Figure*, or Barbara Hepworth's *Two Figures (Menhirs)*, both in the Art Institute of Chicago..
- Use this knowledge of abstraction, form, and shape to create an abstract self-portrait.

Instructional Materials Needed

Stories: *Who Is This?* and *The Human Form in Cycladic Art*

Cycladic Figure

Mexican Figure

Two Figures

Drawing paper

Pencils, pastels, oil crayons, and/or tempera paints

Activity

Step 1: Discuss how and why the Cycladic figure is an example of abstraction.

Critical Thinking Ask students to

- **explain** how you know this statue represents a human figure.
- **describe** the human features the artist included to communicate the figure's humanity.
- **identify** which geometric shapes form the following features: face, nose, arms, torso, legs, feet.

Finally, have each student draw or label these shapes on the Cycladic figure template.

Step 2: Have students compare the Cycladic figure to the abstraction of the ancient Mexican sculpture or Hepworth's *Two Figures*.

Critical Thinking Ask students to

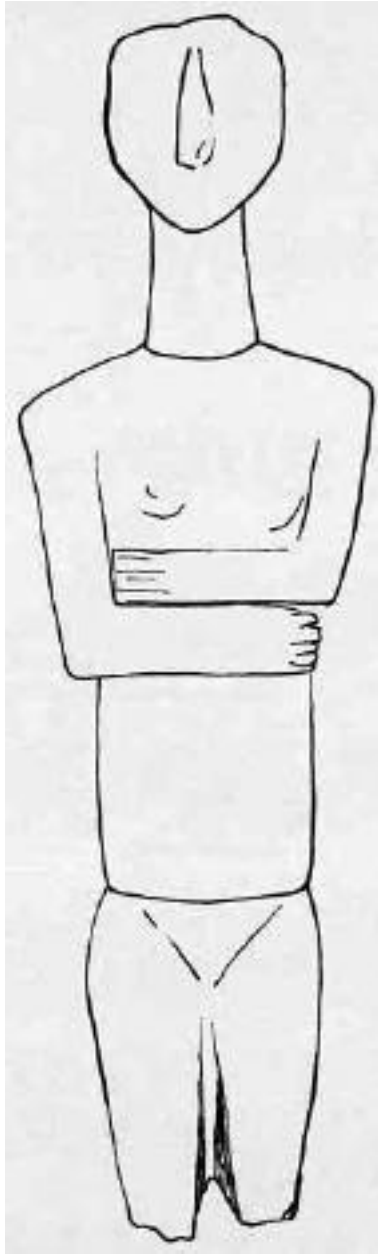
- **identify** those features the other artists have emphasized.
- **explain** whether these other artists have used the same shapes seen in the Cycladic figure or different shapes.
- **describe** how the materials used to create the pieces differ?
- **explain** what these materials enable the artists to do differently.

Step 3: Instruct students to create their own abstract self-portraits (including hair styles, clothing, jewelry, and so on) using paper and the medium of their choice. Remind students to use geometric shapes as much as possible. Display the self-portraits in class.

Goals

This activity meets **Illinois State Goal 25:** Know the language of the arts.

This activity meets **Illinois State Goal 26:** Through creating and performing, understand how works of art are produced.



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Women in Ancient Greece

Lesson plan based on **Cycladic Figure**

Interpret the myth of Arachne and its depiction of women's activities and valued traits.

Skills and Focus: Reading, Discussion, Critical Analysis

Subject Area: English Language Arts

Thematic Connection: Myths and Legends

Grade Level: Middle School

Time Needed: 50 minutes

Objectives

- Understand the myth of Arachne and the concept of metamorphosis.
- Discuss the activities, concerns, and other aspects of women's lives in ancient Greece.

- Understand ancient myths as explanations for curious natural phenomena.

Instructional Materials Needed

- Story: *Who Is This?*
- Print Resources:
 - Gates, Doris. "Arachne," in *Wind by the Sea*. Needham: Silver Burdett and Ginn, 1989. pp. 496-501. (for basic students)
 - Warner, Rex. "Arachne," in *Adventures for Readers Book One*. Orlando: Harcourt Brace Jovanovich, 1989. (for advanced students)

Activity

Step 1: Watch the story *Who Is This?*, which introduces the myth of Arachne as a story that details events in the lives of Greek women and explains a natural phenomenon. Then have students read one of the stories noted above, asking them to note details about the characteristics and activities of women in ancient Greece (e.g., skill at weaving, grace, speed, vanity, knowledge of mythology, pride).

Step 2: Categorize these characteristics as “positives” (skill at weaving, grace, speed, knowledge) or “negatives” (pride and vanity). Ask students which characteristics are more powerful in the eyes of the gods.

Step 3: Introduce students to the concept of metamorphosis, defining the word for them and providing examples from nature (caterpillar to butterfly and tadpole to frog). Then, discuss Minerva's punishment.

Critical Thinking Ask students to

- **judge** whether or not Arachne deserves it and why.
- **explain** how Minerva changes Arachne.
- **recognize** whether Arachne's metamorphosis suits her story and explain how.

Step 4: Finally, explain how myths help explain curious developments in nature. Review the end of the story, discussing the details of Arachne's physical transformation. Tell students that traces of the legend of Arachne can be found in contemporary English, in words like *arachnid*, *arachnoid*, and *arachnophobia*. Have students look up these words in a dictionary and explain what each word means and how it relates to the legend.

Goals

This activity meets **Illinois State Goal 1:** Read with understanding and fluency.

This activity meets **Illinois State Goal 2:** Understand explicit and implicit meaning in literature representing individual, community, national, world, and historical perspectives.

It's All Proportional

Lesson plan based on **Cycladic Figure**

Use the ancient Greek canon of proportion to measure and compare an ancient Greek sculpture to students' body sizes.

Skills and Focus: Measuring, Problem Solving

Subject Area: Mathematics

Thematic Connection: Counting and Calculating

Grade Level: Middle School

Time Needed: 60 minutes

Objectives

- Practice measuring proportions.
- Convert measurements to ratios to solve problems.
- Determine whether there is sufficient information to compute the length of the sculpture's missing lower legs.

Instructional Materials Needed

Cycladic Figure

Ruler, yard stick, or measuring tape

Paper and pencils

Activity:

Step 1: Explain to students that according to the Greek canon of proportion, the length of the body is equal to 8 heads (1:8). Have each student measure the head and the entire length of the figure and record the information. Then have students calculate the length of the body using the 1:8 ratio.

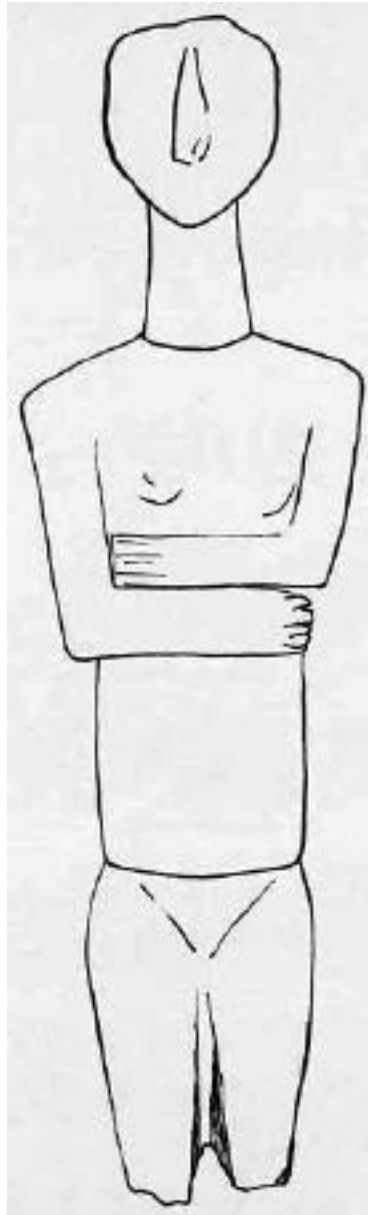
Step 2: Have students determine whether there is enough information to calculate the length of the lower legs and then do so. Ask students to sketch the lower legs and feet on the printout of the figure to confirm their findings.

Step 3: Have students measure another student's head and body length. Convert the measurements to a ratio. Based on their findings, discuss whether the Greek canon of proportion is based on the ideal or the real.

Goals

This activity meets **Illinois State Goal 6:** Demonstrate and apply a knowledge and sense of numbers, including basic arithmetic operations, number patterns, ratios, and proportions.

This activity meets **Illinois State Goal 8:** Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems, and predict results.



Excavate and Explore

Lesson plan based on **Cycladic Figure**

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Simulate an archeological excavation to understand how archeologists identify, date, and make inferences about their findings.

Skills and Focus: Earth Sciences, Scientific Inquiry

Subject Area: Science

Thematic Connection: Connecting Past and Present

Grade Level: Middle School

Time Needed: 120-200 minutes

Objectives

- Gain a general acquaintance with the principles of archaeological excavation.
- Understand how archaeological inferences are made.
- Understand the importance of spatial and stratigraphic contexts in archaeology.

Instructional Materials Needed

- Story: *Who Is This?*
- Tags and Forms
- 4 large (at least 2'-3' square), sturdy cardboard boxes.
- Bricks
- Ashes, charred wood, and bones (boil to clean and sterilize)
- Soil (preferably 2 different kinds)
- Digging equipment: serving spoons, buckets, dustpans, and brushes
- Recording equipment: rulers, pencils papers, notebooks
- Masking tape
- Suggested Print Resource:
 - Joukowsky, Martha. *A Complete Manual of Field Archaeology: Tools and Techniques of Field Work for Archaeologists*. Englewood Cliffs, NJ: Prentice-Hall, Inc., 1980

Activity

Steps 1-4 should be completed in preparation for classroom activities.

Step 1: Trim the four boxes to the same height so that the top of each box can be used as a standard beginning elevation for the excavation. Elevations will be measured from the top down rather than from the bottom up.

Step 2: Prepare an excavation site using or adapting the plan provided. Your site should consist of two levels: a top level that was deposited after the site was abandoned and a lower level that was associated with the use of the site. If possible, use two different soil types to distinguish between the layers. Remember, the students will not be able to excavate the entire site, so be sure that the remains in the excavation trenches conform to the master plan.

Step 3: Use bricks to outline the walls of the building. It is alright if the walls protrude into the upper (post abandonment) level in places. In the lower (occupation) layer, distinguish the interior of the building from the exterior. You may wish to mix ashes into the soil (suggesting the building burned down) and artifacts that suggest what the building was used for. Place artifacts in different contexts (within the building, outside the building, in the hearth, and so on) that suggest distinct activities. Also, place newer items (plastic, aluminum, new coins) in the upper level and older items in the lower level.

Step 4: In order to define the hearth, mix ashes with burnt wood and food debris (e.g., bones).

The following steps should be completed with the students in the classroom:

Step 5: After watching *Who is This?*, discuss why it is important to remove these artifacts in a controlled excavation rather than just digging them up and putting them in a museum.

Step 6: Divide the class into teams of 3 or 4 students and distribute a set of tools to each group. One student should be responsible for excavating, a second for measuring and taking notes, and a third for helping to measure, labeling, and storing finds. Students should rotate job responsibilities. The trenches should start out in place within the 5 x 5 m site (marked in advance with masking tape). The position of each trench can be marked in masking tape and then the boxes moved to make room for each group to work.

As students dig through layers, make sure they carefully measure at what depth from the top of the box they encountered the new layers. They should carefully note whether artifacts come from the upper layer or the lower, and whether they come from inside the building/hearth or outside.

All artifacts should be tagged and bagged using printouts of the tags provided. All archaeological features (e.g., pits, structures) and layers should be recorded and drawn on the forms provided. Bricks, artifacts, and other features should be carefully measured and drawn to scale on the forms. Finds from different sides of an architectural feature (e.g., a wall) or in distinctly different contexts (hearth versus ordinary soil) should be labeled and stored separately. Each trench should have a full record of the distribution of evidence both vertically and horizontally at the end of the dig.

Step 7: Analysis

Ask each team to draw a master plan of the excavation, trying to distinguish the interior and exterior of the building.

Reconstruct the layers (stratigraphy) on the site and construct a section (cut-away) diagram using information from the various trenches.

Try to establish a date for the upper and lower levels. The most recent item found in a level establishes the date after which the level was deposited.

Interpret the results for the whole site, synthesizing the evidence from the different trenches.

Goals

This activity meets **Illinois State Goal 11:** Have a working knowledge of the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.

Artifact Control Tag

Date:
Trench #:
Tag #:
Excavators' initials:
Layer:

Artifact Control Tag

Date:
Trench #:
Tag #:
Excavators' initials:
Layer:

Artifact Control Tag

Date:
Trench #:
Tag #:
Excavators' initials:
Layer:

Artifact Control Tag

Date:
Trench #:
Tag #:
Excavators' initials:
Layer:

Excavation Record Form

Date:
Trench #
Recorder:
Feature #
Layer:

Soil Characteristics

Color:

Texture:

Inclusions:

Finds (tag #s):

Sketch plan of Trench # _____ Layer # _____
Mark elevations on plan.

Human Expression

Lesson plan based on **Cycladic Figure**

Compare figurative works of art to determine what they say about the cultures that created them.

Skills and Focus: Cultural Comparisons, Writing, Analysis

Subject Area: Social Science

Thematic Connection: Connecting Past and Present

Grade Level: Middle School

Time Needed: 40 minutes

Objectives

- Describe elements that all ancient cultures share regardless of their diversity.

Instructional Materials Needed

- Stories: *The Human Form in Cycladic Art* and *Portraits of Roman Emperors*
- Worksheet

- Cycladic Figure
- Hadrian
- American Gothic

Activity

Human beings have created images of themselves for thousands of years. Have students study the works of art and compare them on the worksheet to analyze what they reveal about their respective cultures.

Goals

This activity meets **Illinois State Goal 18**: Understand, analyze, and compare social systems with an emphasis on the United States.

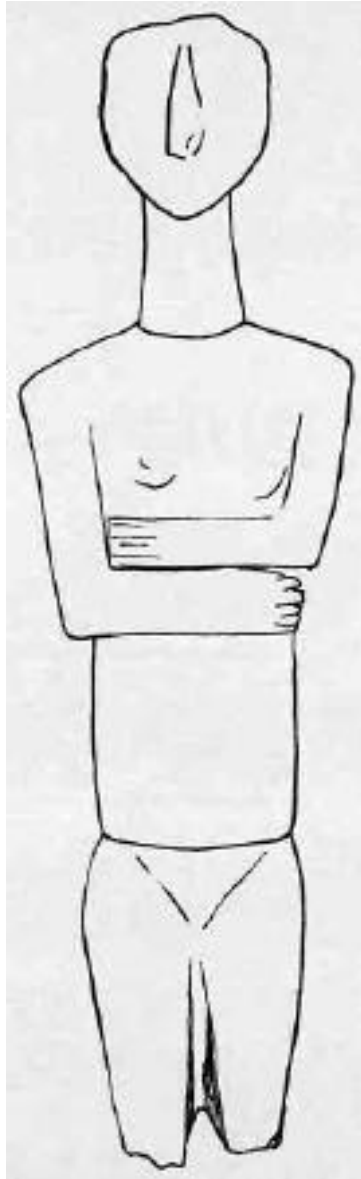
For each work of art, answer these five questions:

1. Is the work naturalistic or abstract?
2. What emotions are represented?
3. What details make this work interesting and informative?
4. What did the culture that produced this work think was important?
5. What does this work have in common with the others?

Cycladic Figure

Hadrian

American Gothic



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Portrait of a Ruler

Lesson plan based on **Hadrian**

Create a full-length portrait of the Emperor Hadrian that conveys his role through attributes.

Skills and Focus: Art History, Hands-on

Subject Area: Fine Arts

Thematic Connection: Signs and Symbols

Grade Level: Middle School

Time Needed: 60 minutes

Objectives

- Identify and define an attribute in a portrait.
- Determine which attributes in a full-length portrait might identify Hadrian as an ancient Roman emperor.
- Paint or draw a portrait of Hadrian that depicts these attributes.

- Understand how this bust of Hadrian conveys a story about life as an emperor in ancient Rome.

Instructional Materials Needed

Story: *Portraits of Roman Emperors*

Hadrian

Tempera paints or colored pencils

Brushes and small containers of water for rinsing brushes

Activity

Step 1: Artists of ancient Rome were admired in their own time and still are today for the realism of their portraiture. Elements that tell us about the subject of a portrait are called attributes. This sculpture is recognizable as Hadrian because he was known to have worn ringlets and a beard in the style of the Greek philosophers. Because his body is missing, we must imagine the other attributes that signify his role as a powerful emperor. Discuss as a class what these attributes might be.

Step 2: For each student (or team of students), print out a reproduction of the Art Institute's portrait head of Hadrian. Cut out the head around the edges and attach it with glue or tape to one of the short sides of a large rectangular sheet of white paper. Have students draw or paint the emperor's body in full length on the large paper, showing it in proper proportion to the cut-out of the head pasted onto the sheet. Working in either tempera paint or with colored pencils, students should complete their full-length portraits, which should include a number of appropriate attributes. When students have completed their portraits, ask them to discuss the attributes they included and why.

Goals

This activity meets **Illinois State Goal 26:** Through creating and performing, understand how works of art are produced.

This activity meets **Illinois State Goal 27:** Understand the role of the arts in civilizations, past and present.



Vocabulary of Ancient Rome

Lesson plan based on Hadrian

Define ancient Roman vocabulary using the dictionary writing sentences.

Skills and Focus: Vocabulary, Research

Subject Area: English Language Arts

Thematic Connection Connecting Past and Present

Grade Level: Middle School

Time Needed: 75 minutes

Objectives

- Define eight words that relate to ancient Roman cultural life.
- Use the dictionary to discover definitions that match the context in which each word was used.
- Write sentences for each word that use the words in their original and contemporary contexts.

Instructional Materials Needed

Stories: *Who Was Hadrian?* and *How Was This Made?*

Dictionaries for each student

Transcripts

Activity

Step 1: Write the following words on the chalkboard, asking students to copy them onto a sheet of paper: successor, villa, excavate, cult, accession, pockmarks, boss, punch.

Show the stories *Who Was Hadrian?* and *How Was This Made?* and ask students to listen for these words and look for the images that accompany them.

Step 2: Ask students to use the dictionaries to find and copy the definition of each of these words. Students should look critically at all of the given definitions to find the one that matches the ancient Roman context. *Punch*, for example, is used in a very specific way in the stories. Encourage students to refer to the transcripts of the movies to determine context.

Step 3: When students have finished writing the definitions, ask them to write two sentences for each word. One sentence should use the word in its ancient Roman context, and the other should use the word in a contemporary context. Emphasize that sentences should illustrate the definition of the words without actually defining them. Ask students to share their sentences.

Goals

This activity meets **Illinois State Goal 1:** Read with understanding and fluency.

This activity meets **Illinois State Goal 5:** Use the language arts for inquiry and research to acquire, organize, analyze, evaluate, and communicate information.

HADRIAN:Who was Hadrian?

Hadrian was born in A.D. 76 to a Roman family living in southern Spain. He was a cousin of the childless emperor Trajan, who on his deathbed adopted Hadrian as his son and successor.

Hadrian spent most of his early career in the army, serving under Trajan in Germany and Dacia, which is in modern Hungary and Romania. Hadrian's portrait appears on Trajan's column in Rome, which commemorates the conquest of Dacia. As emperor, Hadrian travelled widely in the empire, visiting most of the provinces over the twenty years of his reign.

He paid to have buildings, aqueducts, and roads built in many cities, like the Temple of Olympian Zeus in Athens, the ruins of which are seen here.

Hadrian was also a talented architect. He designed and built magnificent structures in

Rome, including the Pantheon, a great domed temple dedicated to the twelve Olympian gods. The vast dome of Hadrian's Pantheon is as impressive today as it was nearly two thousand years ago, soaring 150 feet over visitors' heads.

Citizens from around the empire responded to Hadrian's interest and generosity by erecting statues in Hadrian's honor, like this statue recently excavated in the odeon, a small theater in the Roman city of Troy in northwestern Turkey.

Given the fine quality of the Art Institute's portrait of Hadrian, it probably came from a public dedication or cult statue. After Hadrian's death he was honored as a god by the Roman people.

HADRIAN:How was this made?

The Romans made hundreds of copies of statues of the emperors, spreading them around the whole Empire, from Britain to Jordan. Artists made new portraits of the emperors to celebrate important moments of their careers, like accession to the throne or important military victories.

Copies of the original portrait were sent to major centers around the empire, from which additional copies were produced for distribution to smaller cities and towns. Greek and Roman sculptors carved stone using very simple tools.

First, the sculptor used a hammer and pointed punch to shape the marble block, chipping large flakes of stone away. The head of this unfinished Roman copy of a Greek warrior still bears the pockmarks made by a point chisel. The sculptor then used a claw chisel to refine the shape. The teeth of the claw chisel have left parallel scars on the torso of the same statue.

To make a copy of an original statue, the artist took very careful measurements of key points on the surface of the original. When transferred to the copy, he marked these points with raised bosses, not yet removed from this one.

After marking the key points on the copy, the sculptor carved the marble with more delicate tools, like flat chisels, files, and rasps. Fleshy surfaces could be smoothed and polished using abrasives, like powdered emery.

Drills were used to cut lines of tiny starter holes where the sculptor wished to carve curves and deep grooves. The bits of marble between the holes could then be chiseled away carefully to create sweeping curves. Using these simple techniques, Roman sculptors were able to produce some of the most sophisticated portraits ever carved.

Geometric Design

Lesson plan based on **Hadrian**

Determine which geometric shapes were used to design the Pantheon and estimate its interior volume.

Skills and Focus: Geometry, Problem Solving

Subject Area: Mathematics

Thematic Connection: Counting and Calculating

Grade Level: Middle School

Time Needed: 60 minutes

Objectives

- Analyze a building based on different views and plans.
- Estimate the volume of a building.

Instructional Materials Needed

- Story: *Who Was Hadrian?*
- Printouts of various views of the Pantheon (found at <http://harpy.uccs.edu/roman/html/pantheonslides.html>)

Activity

Step 1: After watching *Who Was Hadrian?*, emphasize that Hadrian was not only the emperor of Rome, but also the designer of the Pantheon and other important buildings.

Step 2: Look at images and plans of the Pantheon with the class. Discuss with the students the basic two-dimensional and three-dimensional shapes used in designing the Pantheon.

Step 3: Lead a class discussion on methods that can be used to estimate the volume of the interior of the Pantheon. Have students estimate the volume by combining the volume of the lower (drum) section and the volume of the hemisphere (dome) section.

Goals

This activity meets **Illinois State Goal 9:** Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space.

Carving Stone the Ancient Way

Lesson plan based on **Hadrian**

Construct an ancient bow drill and demonstrate its effectiveness in carving stone.

Skills and Focus: Scientific Inquiry

Subject Area: Science

Thematic Connection: Connecting Past and Present

Grade Level: Middle School

Time Needed: 90 minutes

Objectives

- Replicate an ancient bow drill.

Instructional Materials Needed

Story: *How Was This Made?*

Bow and Drill Diagram

Dowels, 8” in length

Handles (a wooden doorknob–like handle will suffice)

Wood files

String

Bow-like curved piece of wood

Emery powder or other abrasive (such as fine sand)

Soft stone (such as slate or soapstone)

Activity

Step 1: Lead the class in making a bow drill according to the diagram. The drill consists of a slender dowel that is smoothed at one end to fit into a socket–like handle. The handle can be fashioned from the wooden doorknob handles by hollowing out a smooth socket in the center of the underside bottom of the handle. The socket needs to be loose and its interior smooth to allow the drill to rotate.

Step 2: The bow can be made from a curved piece of wood with a slightly loose string which can be wound around the drill shaft to make it rotate. Powdered emery or fine sand provides an abrasive.

Step 3: Help students use the drill to cut into soft stones (e.g., slate). Compare the effectiveness of wet versus dry abrasives.

Goals

This activity meets **Illinois State Goal 11:** Have a working knowledge of the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.



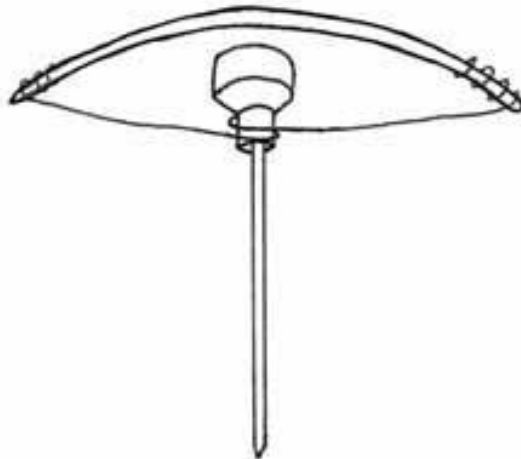
dowel



doorknob
(with hollowed-out
section on bottom)



bow-like curved wood with string attached to one end



drill with string wrapped around handle and attached to other end of bow

Public Presence: Rulers and Leaders in Our Lives

Lesson plan based on **Hadrian**

Compare the presence of Roman rulers with that of U.S. presidents in the lives of the people they led.

Skills and Focus: Cultural Comparisons, Writing

Subject Area: Social Science

Thematic Connection: Comparing Cultures

Grade Level: Middle School

Time Needed: 40-60 minutes

Objectives

- Compare the presence of Roman rulers with that of U.S. presidents in the lives of their respective constituencies.

Instructional Materials Needed

Story: *Portraits of Roman Emperors*

Worksheet

Activity

Long before the age of mass media, sculpted portraits of Roman emperors were on display in buildings, on coins, and in public squares throughout the Roman empire. Today, we see images of the American president on television, in print media, and on the Internet.

Using the attached worksheet, have students compare the presence of Roman emperors in the lives of ancient Romans to the presence of the U.S. president in their lives.

Goals

This activity meets **Illinois State Goal 16:** Understand and analyze events, trends, individuals, and movements shaping the history of Illinois, the United States, and other nations.

Where are images of this leader often seen?

Roman Emperor

U.S. President

How are these images alike? How are they different?

Alike

Different

How do these displays of leadership affect the people?

Roman People

U.S. Citizens

Modern Mosaics

Lesson plan based on **Mosaic Floor**

Construct individual mosaics that simulate ancient Roman techniques of manipulating tesserae to create three-dimensional illusions.

Skills and Focus: Studio, Art Appreciation

Subject Area: Fine Arts

Thematic Connection: Identifying Patterns

Grade Level: Middle School

Time Needed: 80 minutes

Objectives

- Explore the elements of contrast, emphasis, pattern, and color schemes by identifying how the artist manipulated tesserae in the mosaic.
- Explain how the use of tesserae creates specific effects, such as a sense of volume or shadowing.
- Create original mosaics by manipulating torn paper to depict different textures and details.

Instructional Materials Needed

- Stories: *What Animal Is This?* and *How Were Mosaics Made?*
- Pencils
- 11 x 17" construction paper or cardstock
- Construction paper in a variety of colors, torn into small pieces of uniform size (approximately 1/2" square)
- Glue sticks
- Foil, ribbon, fabric remnants, or other materials as desired

Activity

Step 1: Explain to students that mosaics like this one were used to decorate private homes in ancient Rome. Discuss how mosaic artists created decorative patterns by making different shapes or lines with tesserae. Have students produce line drawings and experiment with patterns by manipulating paper tesserae on the drawings to create textures and details.

Step 2: Next have students produce a line drawing for an original mosaic design on 11 x 17" construction paper or cardstock, making notations for patterns and textures.

Step 3: Instruct students to fill in the drawings with tiny pieces of colored paper, foil, ribbon, or other materials. Discuss the process with students.

Critical Thinking Ask students to

- **describe** the techniques they use to produce the desired effects.
- **explain** how they manipulate the materials.

Goals

This activity meets **Illinois State Goal 25:** Know the language of the arts.

This activity meets **Illinois State Goal 26:** Through creating and performing, understand how works of art are produced.

Animals in Ancient Rome

Lesson plan based on **Mosaic Floor**

Explore the role of animals in ancient Rome through the interpretation of a fictional account.

Skills and Focus: Reading, Discussion, Critical Analysis

Subject Area: English Language Arts

Thematic Connection: Animals

Grade Level: Middle School

Time Needed: 90 minutes

Objectives

- Understand the role of animals in ancient Rome.
- Comprehend a fictional account of a criminal pitted against an animal in a public display similar to those that took place in the ancient Roman amphitheaters.
- Discuss this account and students' reactions to its inconclusive ending.

Instructional Materials Needed

- Story: *What Animal Is This?*
- Chart
- Print Resources:
 - Stockton, Frank R. "The Lady or the Tiger?" in *Prentice Hall Literature: Gold*. New York: Prentice Hall Books. pp. 49–53.
 - Corbishley, Mike. *The Roman World*. New York: Warwick Press, 1986.
 - James, Simon. *Eyewitness Books: Ancient Rome*. New York: Alfred A. Knopf, 1979. Pp. 24–25, 28–35.
- Online Resources:
 - Images of the colosseum: Encyclopaedia Britannica Online:
 - <http://www.eb.com> (search for Colosseum)

Activity

Step 1: After showing the story *What Animal Is This?*, introduce students to the role of animals in ancient Rome. Animals served many purposes. Some were used in sporting events, others were sacrificed to the gods in religious ceremonies, and many served as symbols for gods or geographic areas. If possible, show some of the images in the James book. Also, distribute the chart.

Step 2: Have students read Stockton's short story, "The Lady or the Tiger?". Explain to students that the story demonstrates the popularity of public games and combat involving animals among ancient Roman people.

Step 3: After students have read the story, encourage them to discuss the conclusion. The inconclusive ending is certain to inspire some discussion about whether the lady or the tiger came out of the chosen door, as well as some criticism of the story and perhaps of the author, who left his work open to interpretation. Encourage the students to support their arguments with evidence from the text.

Step 4: In conclusion, refer back to the factual information presented, especially in James's text on pages 30–33, pointing out differences and similarities between Stockton's text and ancient history.

Goals

- This activity meets **Illinois State Goal 1:** Read for understanding and fluency.
- This activity meets **Illinois State Goal 4:** Listen and speak in a variety of situations.
- This activity meets **Illinois State Goal 5:** Use the language arts for inquiry and research to acquire, organize, analyze, evaluate, and communicate information.

| The Place of Animals in Ancient Rome | |
|--|--|
| Sports and Personal Use | Religious or Symbolic Use |
| <p><u>lions, tigers</u></p> <ul style="list-style-type: none"> • gladiatorial combat • capital punishment <p><u>horses</u></p> <ul style="list-style-type: none"> • contests • races <p><u>bears, giraffes, elephants</u></p> <ul style="list-style-type: none"> • parades • park displays <p><u>wild boars, fish, fowl</u></p> <ul style="list-style-type: none"> • hunting <p><u>cats, dogs, insects</u></p> <ul style="list-style-type: none"> • personal pets | <p><u>Venus and dove, Jupiter and eagle</u></p> <ul style="list-style-type: none"> • association with gods <p><u>she-wolf</u></p> <ul style="list-style-type: none"> • founding of Rome <p><u>goats, boars, small birds</u></p> <ul style="list-style-type: none"> • sacrificial offerings to gods |

A Matter of Proportion

Lesson plan based on **Mosaic Floor**

Measure the relative heights of the mosaic giraffe and its trainer and compare their proportions to an actual giraffe and zoo trainer.

Skills and Focus: Measuring, Calculation

Subject Area: Mathematics

Thematic Connection: Counting and Calculating

Grade Level: Middle School

Time Needed: 90 minutes

Objectives

- Measure the relative heights of the mosaic giraffe and its trainer and compare their proportions to an actual giraffe and zoo trainer.

Instructional Materials Needed

- Giraffe
 - (found at: http://www.lpzoo.com/animals/mammals/facts/b_giraffe.html)
 - See also: <http://www.fonz.org/zoogoer/zg1996/zggiraf.htm>
- Mosaic
- Rulers

Activity

Step 1: Distribute copies of the mosaic floor. Ask students to measure its height and width along with the height of the trainer and giraffe. Have students calculate the ration of the trainer's height to that of the giraffe.

Step 2: Distribute the Lincoln Park Zoo Giraffe Fact Sheet. Ask students the following questions:

- According to the fact sheet, how tall is an average giraffe?
- How tall is an average person?
- What is the ratio of a person's height to that of a giraffe?
- Are the mosaic giraffe and trainer represented in their proper proportions? How should the mosaic figures be changed?

Goals

This activity meets **Illinois State Goal 6:** Demonstrate and apply a knowledge and sense of numbers, including basic arithmetic operations, number patterns, ratios, and proportions.

This activity meets **Illinois State Goal 7:** Estimate, make, and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.



Animal Invasion

Lesson plan based on **Mosaic Floor**

Research and illustrate the natural habitats and evolution of giraffes and other animals imported into ancient Rome.

Skills and Focus: Earth Sciences

Subject Area: Science

Thematic Connection: Animals, Geography

Grade Level: Middle School

Time Needed: 60 minutes

Objectives

- Understand the natural habitat of giraffes and other animals.

Instructional Materials Needed

- Story: *What Animal Is This?*
- [Pliny Text](#)
- Online Resources:
 - [Hunting African species on a Roman mosaic from Piazza Armerina, Sicily](#)

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- <http://www.lib.uwaterloo.ca/tour/boar/Art14.GIF>
- Lincoln Park Zoo Animal Species Data Sheet: Giraffe:
 - http://www.lpzoo.com/animals/mammals/facts/b_giraffe.html
- Large sheets of construction paper to draw maps and make animals
- Wall-size world map

Activity

Step 1: Have students watch the story, *What Animal Is This?* Pose the following questions:

- What animals are shown in the story?
- Where do they come from?

Have students draw a map of Europe, North Africa, and West Asia and draw the animals that come from each region in their proper places.

Step 2: Have students research the natural habitats for each of these animals and report their findings.

Step 3: Direct the class to read Pliny, *Natural History* VIII.69 on giraffes. Several Roman authors thought that giraffes were a hybrid of leopards and camels. Ask students the following questions:

- What features of the animal does this theory help to explain?
- What is wrong with this theory?

Goals

This activity meets **Illinois State Goal 12:** Have a working knowledge of the fundamental concepts and principles of the life, physical, and earth/space sciences and their connections.

From: Pliny the Elder, *Natural History* VIII.69

The Ethiopians give the name of **nabun** to one (animal) that has a neck like a horse, feet and legs like an ox, and a head like a camel, and is of a ruddy color picked out with white spots, owing to which it is called a **camelopardalis**; it was first seen at Rome at the games in the circus given by Caesar when dictator. From this it has subsequently been recognized to be more remarkable for appearance than for ferocity, and consequently it has received the name of **ovis ferae** (wild sheep).

An Animal's Role: Then and Now

Lesson plan based on **Mosaic Floor**

Illustrate the geographic origins of various animals imported into the Roman empire and compare their roles to those of animals in the world today.

Skills and Focus: Geography, Hands-on, Cultural Comparisons, Studio, Writing

Subject Area: Social Science

Thematic Connection: Animals, Geography

Grade Level: Middle School

Time Needed: 60-90 minutes

Objectives

- Understand the scope of the Roman empire by learning how exotic animals were imported into Rome from the farthest regions of the empire.

Instructional Materials Needed

- Story: *What Animal is This?*
- World Map
- Worksheet
- Images of assorted animals—photocopies, pages cut out of *National Geographic* or other magazines, pictures drawn by the students themselves, or printouts from the internet site:
 - <http://www.lpzoo.com/animals>
- Graph paper

Activity

Step 1: Tell students that many Roman mosaics show images of animals that were imported from the far reaches of the empire for parades, private parks, and public games.

Have students plot images (either drawn, photocopied, or cut from magazines) of the following imported animals on a map in order to see the extent of the vast Roman empire.

- lions: Africa
- ostriches: Africa
- elephants: Africa
- giraffes: Africa
- bears: Scotland
- bears: Persia (Iran)
- camels: western Asia

Step 2: Distribute the chart and ask students to fill it out to consider the role that domestic and exotic animals play in today's society.

Step 3: Ask students to describe a contemporary mosaic of animals important to their community. Discuss the student mosaics.

Critical Thinking Ask students to

- **compare** the animals featured in their modern mosaic to those included in ancient Roman mosaics?
- **explain** how today's world is different from that of the ancient Romans and how those differences help to explain the different ways animals are treated now than they were in ancient Rome.

Goals

This activity meets **Illinois State Goal 17:** Demonstrate a knowledge of world geography, as well as an understanding of the effects of geography on society, with an emphasis on the United States.

| Animal | Domestic or Exotic? | What role does it play in our lives? |
|---------------|----------------------------|---|
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Household Decoration

Lesson plan based on **Fallen Warrior**

Compare two ancient artworks to determine how they originally functioned in private Roman homes.

Skills and Focus: Art History, Discussion

Subject Area: Fine Arts

Thematic Connection: Signs and Symbols

Grade Level: Middle School

Time Needed: 30 minutes

Objective

- **Compare and contrast the Fallen Warrior fragment and the Mosaic Floor to determine how each functioned in a private Roman residence.**

Instructional Materials Needed

- Stories: *Why Was This Sculpture Made?*, *What Animal Is This?*, and *How Were Mosaics Made?* (Instructor may want to view the story *How Were Roman Houses Decorated?* for background information.)
- [Worksheet](#)
- Pencils or pens

Activity

Both the Fallen Warrior fragment and the Mosaic Floor were probably commissioned to decorate private Roman residences. Have students complete the attached worksheet to compare these two objects. Discuss the students' findings.

Goals

This activity meets **Illinois State Goal 27:** Understand the role of the arts in civilizations, past and present.

| | |
|---|---------------|
| What medium did each artist use? | |
| <u>Warrior</u> | <u>Mosaic</u> |
| What techniques did each artist use? | |
| <u>Warrior</u> | <u>Mosaic</u> |
| What is the subject of each artwork? | |
| <u>Warrior</u> | <u>Mosaic</u> |
| What is unique about each subject? | |

| | |
|----------------|---------------|
| <u>Warrior</u> | <u>Mosaic</u> |
|----------------|---------------|

| What does each subject tell you about the artist? | |
|--|---------------|
| <u>Warrior</u> | <u>Mosaic</u> |
| What does each subject tell you about the owners of the artwork? | |
| <u>Warrior</u> | <u>Mosaic</u> |
| Where in the home was each artwork placed? Why? | |
| <u>Warrior</u> | <u>Mosaic</u> |

Scaling Down Art

Lesson plan based on **Fallen Warrior**

Change the scale of a work of art using ratios, percentages, and proportions.

Skills and Focus: Measuring, Calculation

Subject Area: Mathematics

Thematic Connection: Counting and Calculating

Grade Level: Middle School

Time Needed: 90 minutes

Objectives

- **Construct scale drawings from a given image.**
- Convert a simple drawing from one scale to another using ratios and proportions.
- Use percentages as a means of comparing different sizes.

Instructional Materials Needed

Warrior

Butcher paper

Rulers or tape measures

Pencils and markers

Activity

Step 1: Have students measure the printout of the Fallen Warrior. Explain that the size of the original sculpture is 21" high by 31" wide. Using ratios and proportions, have students convert the prior measurements to (a). life-size (dimensions of a real man), and (b). wall size (large enough to fill a portion of a classroom wall, so that the outline approximates the scale of a figure in a mural painting).

Step 2: Using butcher paper, have students make outline drawings based on the printout in three different sizes: the original sculpture size (21" x 31"), life-size and the wall-size. The original sculpture panel was designed for the walls of a colonnade or courtyard. Have students discuss where the images of the two enlarged sizes might be, or could have been, displayed.

Step 3: Finally, tell students to use percentages as a means of comparing the different sizes of all four images (printout size, actual sculpture size, life-size, and wall size). For example, if the printout of the Fallen Warrior is 10 x 15 inches, then it is approximately 50% the size of the actual sculpture.

Goals

This activity meets **Illinois State Goal 6:** Demonstrate and apply a knowledge and sense of numbers, including basic arithmetic operations, number patterns, ratios, and proportions.

This activity meets **Illinois State Goal 7:** Estimate, make, and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.



The Iliad

Lesson plan based on Fallen Warrior

Explore ancient warfare through a dramatic reading of select portions of *The Iliad*.

Skills and Focus: Reading, Discussion, Oral Presentation

Subject Area: English Language Arts

Thematic Connection: Myths and Legends, Literature

Grade Level: Middle School

Time Needed: Two to four 50-minute class periods

Objectives

- Identify the major characters in Homer's epic *The Iliad*.
- Understand the strategies, external forces, and alliances of the Trojan War.
- Comprehend the kind of warfare celebrated in the Fallen Warrior relief.

Instructional Materials Needed

- Stories: *The Shield of Athena* and *Why Was This Sculpture Made?*
- Props for dramatic reading (two plastic swords, a baby doll)
- Print Resources:
 - Hamilton, Edith. "The Trojan War," in *Mythology*. Boston: Little, Brown & Company, 1942. pp. 255-276.
 - Picard, Barbara Leonie. "The Iliad," in *Adventures for Readers*, Book Two. Orlando: Harcourt Brace Jovanovich, 1989. pp. 624-643.

Activity

Step 1: After students watch the stories *The Shield of Athena* and *Why Was This Sculpture Made?*, introduce them to *The Iliad* and the factors that contributed to the Trojan War. Although the warrior on the shield of Athena is known to be fighting in the Greek war against the Amazons, the principles of valor, loyalty to one's country, and heroism are also applicable to the war against Troy.

Step 2: The Picard text is divided into four sections that trace one battle of the Trojan War from the quarrel that initiated it to the final outcome. If there is enough class time, the entire text should be read so that students will understand the scope of the battle and the characters in it. However, the first three sections will provide a complete picture, and if there is even less time to spend with the text, the second and third passages will provide a more narrow, but still complete, overview.

Step 3: Assign students to each of the following parts (listed below by section). The classroom can be arranged to provide a set for a dramatic reading of the text incorporating limited movement. In this way, students (those who read and those who participate as non-speaking Greeks or Trojans) can physically get an idea of the words and movements of battle.

The Quarrel (set in an assembly hall):

- Speaking: Narrator, Achilles, Calchas, Agamemnon, Nestor
- Non-speaking: Patroclus, Athena, members of the assembly

Hector and Andromache (set outside Hector's home):

- Speaking: Narrator, Hector, Andromache, nurse

The Vengeance (set in a battlefield just outside the physical walls of Troy):

- Speaking: Narrator, Priam, Achilles, Hector, Hecuba, Andromache
- Non-speaking: Athena, Trojans

The Ransom (set in the hut of Achilles):

- Speaking: Priam, Achilles, Hermes, Cassandra, Andromache, Hecuba, Helen
- Non-speaking: Automedon, captive women, Achilles's men

Step 4: After reading each section, allow students to change roles so that most of them are able to read and act out a speaking role during the class period. Discuss the ways in which each section reveals events and situations that explain the continuation of the war.

Goals

This activity meets **Illinois State Goal 1:** Read for understanding and fluency.

This activity meets **Illinois State Goal 2:** Understand explicit and implicit meaning in literature representing individual, community, national, world, and historical perspectives.

This activity meets **Illinois State Goal 4:** Listen and speak in a variety of situations.

Medicine: Then and Now

Lesson plan based on **Fallen Warrior**

Read ancient Greek texts to explore ancient healing practices and compare them to modern-day medicine.

Skills and Focus: Biology

Subject Area: Science

Thematic Connection: Comparing Cultures

Grade Level: Middle School

Time Needed: 100 minutes

Objectives

- Understand Greek healing practices for wounds.
- Compare ancient healing practices to those of modern times.

Instructional Materials Needed

Story: *Who Is the Fallen Warrior?*

Warrior Text

Patroclusbandage

(found at

<http://www.perseus.tufts.edu/cgibin/image?lookup=1992.07.0327&type=vas>
e)

Activity

Step 1: Have the class read the passages provided. Then ask the following questions:

- What are the main techniques of healing wounds?
- How did the Greeks treat problems like infection, wounds, and bleeding?
- Was a special doctor needed to perform medical procedures in ancient Greece?

Step 2: Direct the class to study the image of Achilles binding the wound of Patroclus. Ask the following questions:

- How different do ancient Greek medical practices seem to be from today's?
- Is this a surprising scene for a 2,500 year-old vase? Why?

Step 3: Have students conduct research into modern first-aid practices, using a standard medical reference. Ask students to compare and contrast today's approach to emergency medicine with the techniques used in the ancient world.

Goals

This activity meets **Illinois State Goal 12:** Have a working knowledge of the fundamental concepts and principles of the life, physical, and earth/space sciences and their connections.

This activity meets **Illinois State Goal 13:** Have a working knowledge of the relationships among science, technology, and society in historical and contemporary contexts.

Pseudo-Apollodorus *Library* e.3.20 (Loeb)

[E.3.20] But Telephus, because his wound was unhealed, and Apollo had told him that he could be cured when the one who wounded him should turn physician, came from Mysia to Argos, clad in rags, and begged the help of Achilles, promising to show the course to steer for Troy. So Achilles healed him by scraping off the rust of his Pelian spear.

Aristotle *Posterior Analytics* 1.13 (Loeb)

To know the fact of the rainbow's existence is for the natural scientist; to know the reason is for the optician, either simply as such or as a mathematical optician. Many of the sciences which are not strictly subordinate stand in this relation; e.g., medicine to geometry. It is for the doctor to know the fact that circular wounds heal more slowly, but it is for the geometrician to know the reason for the fact.*

** Philoponus offers two explanations: (1) because such wounds have the greatest area in relation to their perimeter, (2) because the healing surfaces are farther apart and nature has difficulty in joining them.*

Homer, *Iliad*, XI.963 ff. (Fagles 1990 trans.)

“Sprinting close to king Odysseus’ fleet
where the Argives (Greeks) met and handed down their laws,
the grounds where they built their altars to the gods,
there he met Eurypylus, Euaemon’s gallant son,
wounded, the arrow planted deep in his thigh,
and limping out of battle...
“Save me at least. Take me back to my black ship.
Cut this shaft from my thigh. And the dark blood—
wash it out of the wound with clean warm water.
And spread the soothing, healing salves across it,
the powerful drugs that they say you learned from Achilles
and Chiron, most humane of Centaurs taught your friend...
“... Patroclus stretched him out,
knelt with a knife and cut the sharp, stabbing arrow
out of Eurypylus’ thigh and washed the wound clean
of the dark running blood with clear warm water.
Pounding it in his palms, he crushed a bitter root
and covered over the gash to kill his comrade’s pain,
a cure that fought off every kind of pain...
and the wound dried and the flowing blood stopped.

Homer, *Iliad* XVI.26 ff. (Fagles 1990 trans.)

“Our former champions, all laid up in the ships,
are all hit by arrows or run through with spears.
There’s powerful Diomedes, brought down by an archer,
Odysseus wounded, and Agamemnon too, the famous spearman,
and Eurypylus took an arrow-shot in the thigh...
Healers are working over them, using all their drugs,
trying to bind the wounds...”

Euripides *Trojan Women* 1232

Hecuba: Your wounds in part I will bind up with bandages, a wretched healer in name alone, without reality; but for the rest your father must look to that among the dead.

Military Memorials

Lesson plan based on **Fallen Warrior**

Analyze ancient sculpture and determine its success in conveying aspects of war and military sacrifice through the ages.

Skills and Focus: Discussion, Cultural Comparisons, Research

Subject Area: Social Science

Thematic Connection: Comparing Cultures

Grade Level: Middle School

Time Needed: 60-90 minutes

Objectives

- Evaluate the roles of social institutions like the military.

Instructional Materials Needed

- Story: *The Shield of Athena*
- Online Resources:
 - <http://home.earthlink.net/~gfeldmeth/lectures.html>
- Print Resources:
 - Chang, Ina. *A Separate Battle: Women and the Civil War*. Puffin Books, 1996.
 - Murphy, Jim. *Boys War: Confederate and Union Soldiers Talk About the Civil War*. Clarion Books, 1993.
 - Ray, Delia. *Behind the Blue and Gray: The Soldier's Life in the Civil War (Young Readers' History of the Civil War)*. Puffin Books, 1996.

- Banks, Sara Harrell. *Under the Shadow of the Wings*. Simon & Schuster, 1997.
- Cormier, Robert. *Other Bells for Us to Ring*. Dell/Yearling, 1992.

Activity

Step 1: Remind students that Athena's shield reveals a soldier wounded in battle. Even though the battle resulted in a victory, this warrior collapsed from a wound to his back. Ask students what the fallen warrior's expression and pose convey about warfare and the military in ancient Greece?

Step 2: Have students research battles in which Americans have been involved (e.g., Gettysburg or Iwo Jima). Discuss their findings, and ask whether they think the Fallen Warrior sculpture realistically conveys the reality of battle and why.

Goals

This activity meets **Illinois State Goal 18:** Understand, analyze, and compare social systems with an emphasis on the United States.