Ancient Mediterranean Lands: Greece

Utah Social Studies

Materials

Activity 1—Archimedes Water Pump

- Paper
- Scissors
- Pencil
- Crayons
- Copy of Archimedes Screw article
- Instructions for a four-flap book

Activity 2—Olives and Olive Oil

- Garlic press
- Can of pitted olives
- Bowl or bottle to catch the oil
- Bowl or bottle for used olives
- A bottle of olive oil to show the students

Background

Greece, a peninsula country surrounded by many islands, lies on the northeastern shores of the Mediterranean Sea. It was a mountainous rocky land, where cities were built on the plains and in the valleys. The soil was thin and water was drawn from wells and small streams were dammed. In ancient times, it was made up of many city-states. A city-state usually consisted of a town and the villages and farmland that surrounded it. Irrigation allowed the land to grow enough food for its population. Two of the most famous city-states were Athens and Sparta. Greece was surrounded by water; the Aegean Sea to the east, the Ionian Sea to the west, and the Mediterranean Sea to the south. The ancient Greeks became great fishers. Fish and shellfish were an important part of their diet.

The ancient Greeks were also farmers. Greek farms were small. At first, Greek farmers harvested only wild olives and wild grapes to make oil and wine. Greek farmers developed domestic olive trees that yielded more oil than wild trees. They grew improved kinds of grapes and other fruit.

Activity 1—Procedures: Archimedes Water Pump Activity

1. Have students read the Archimedes Screw article and make a four-flap book.
2. After reading the lesson have students write a detail or fact on each of the four flaps, writing the main idea on the very center section.
3. Students can draw a picture to accompany each fact or detail on the reverse side of the flap.

Additional Resources

www.mcs.drexel.edu/%7Ecrorres/Archimedes/Screw/SourcesS-crew.html

Activity 2—Procedures: Olives and Olive Oil

Because you are working with oil, this lesson needs to be done in a place that is protected. Spatter from the olive oil can get on clothes, so it is best if clothes are also protected.

Time: Activity 1: 30-40 minutes
Activity 2: 50-60 minutes

Grade Level: 6

Social Studies, Standard 1

Students will understand how ancient civilizations developed and how they contributed to the current state of the world.

Objective 1

Explain why physical geography affected the development of early civilizations.

a. Identify the major physical features of the regions where ancient civilizations flourished.
b. Describe how these features influenced the success or decline of the civilizations.
c. Compare maps of these ancient civilizations to current political maps and make inferences about the continuing affects of physical geography on cultural development.

Objective 4

Analyze how the earliest civilizations created technologies and systems to meet community and personal needs.

a. Identify innovations in manmade structures over time (e.g. irrigation, roads, building materials) and their influence on meeting needs.

1. Have students read the Olive Oil Myth, and then discuss as a class the uses of olive oil.
2. Have each student press an olive in the garlic press to see how much oil can be obtained from a can of olives.
3. Discuss how much work is involved in obtaining olive oil.

Additional Activities, What's Next?
Have an olive tasting day when students can taste at least four different kinds of olives.

Additional Resources
www.oliveoilsource.com/history.htm

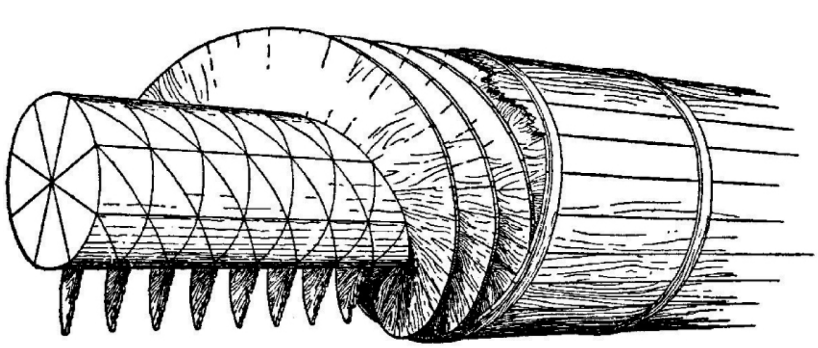
The Egyptian News
Grades 5-7
This book bring readers a wealth of information in colorful pictures, short articles, and witty "ads" that emphasize the social milieu of ancient Egypt and the world of the Aztecs. From the endpapers decorated with hieroglyphics (Egypt) and the Aztec calendar, to the parchment-colored pages bordered with appropriate symbols, the books exhibit designs and illustrations, costumes and colors based on archaeological findings from these cultures.
Author: Scott Steedman. Printed by: Candlewick Press
ISBN: 0763604232

Teacher Notes:

How to make an Archimedes' Screw

Vitruvius, in the first century, explained how to make a water screw in the book
De Architectura, Book X, Chapter VI, The Water Screw

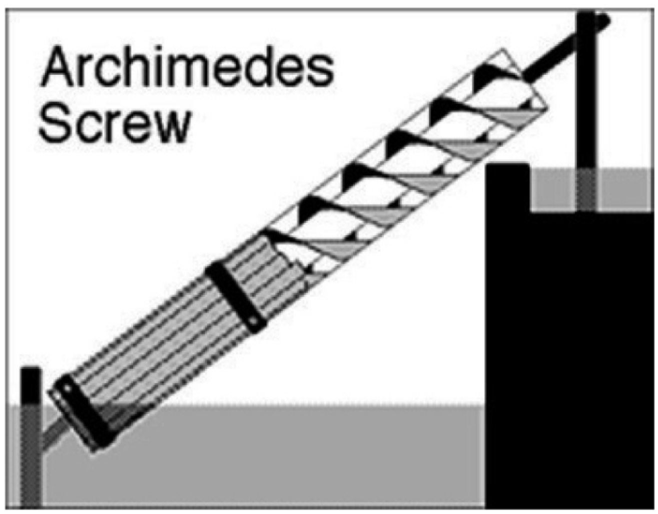
1. There is also the method of the screw, which raises a great quantity of water, but does not carry it as high as does the wheel. The method of constructing it is as follows. A beam is selected, the thickness of which in digits is equivalent to its length in feet (16 digits = 1 foot). This is made perfectly round. The ends are to be divided off on their circumference with the compass into eight parts, by quadrants and octants, and let the lines be so placed that, if the beam is laid in a horizontal position, let perfectly straight lines be drawn from one end to the other. So the intervals will be equal in the directions both of the periphery and of the length. Where the lines are drawn along the length, the cutting circles will make intersections, and definite points at the intersections.
2. When these lines have been correctly drawn, a slender with of willow, or a straight piece cu from the agnus castus tree, is taken, smeared with liquid pitch, and fastened at the first point of intersection. Then it is carried across obliquely to the succeeding intersections of longitudinal lines and circles, and as it advances, passing each of the points in due order and winding round, it is fastened at each intersection; and so, withdrawing from the first to the eighth point, it reaches and is fastened to the line to which its first part was fastened. Thus it makes as much progress in its longitudinal advance to the eight points as in its oblique advance over eight points. In the same manner, withes for the eight divisions of the diameter, fastened obliquely at the intersections on the entire longitudinal and peripheral surface, make spiral channels which naturally look just like those of a snail shell.
3. Other withes are fastened on the line of the first, and on these still others, all smeared with liquid pitch, and built up until the total diameter is equal to one eighth of the length. These are covered and surrounded with boards, fastened on to protect the spiral. Then these boards are soaked with pitch, and bound together with strips of iron, so that they may not be separated by the pressure of the water. The ends of the shaft are covered with iron. To the right and left of the screw are beams, with crosspieces fastening them together at both ends. In these crosspieces are holes sheathed with iron, and into them pivots are introduced, and thus the screw is turned by the treading of men.
4. It is to be set up at the inclination corresponding to that which is produced in drawing the Pythagorean right-angled triangle: that is, let its length be divided into five parts; let three of them denote the height of the head of the screw; thus the distance from the base of the pe pendicular to the nozzle of the screw at the bottom will be equal to four of those parts. A figure showing how this ought to be has been drawn at the end of the book, right on the back. I have now described as clearly as I could, to make them better known, the principles on which wooden engines for raising water are constructed, and how they get their motion so that they may be of unlimited usefulness through their revolutions.



Archimedes Screw

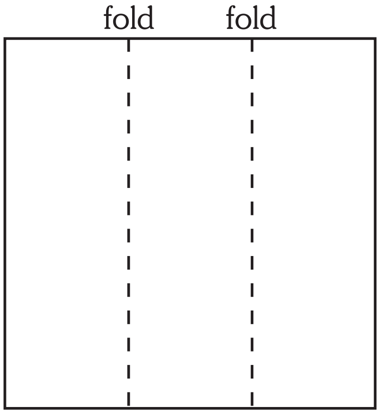
The Archimedes Screw is a simple machine that is used primarily to transfer water from a lower lying body of water into irrigation ditches. The screw was invented by Archimedes of Syracuse, a Greek mathematician, while he was visiting Egypt. This simple machine moves an enormous amount of water by means of a small amount of labor. It is used to irrigate fields, draw water from ships and prevent them from sinking, and to draw water from mines.

This machine consists of a screw inside a hollow pipe. The lower end of the device is put in the water, and the screw is then turned (usually by animal, human labor, or windmill labor). As the bottom end of the tube turns, it scoops up an amount of water. This puddle of water will slide up in the spiral tube as the shaft is turned, until finally it falls out from the top of the spiral tube and feeds the irrigation system.

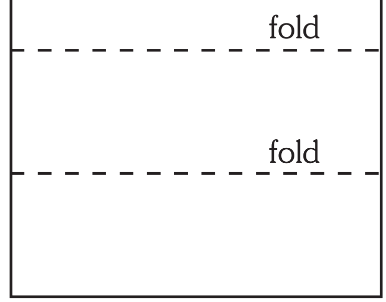


Four-Flap Book

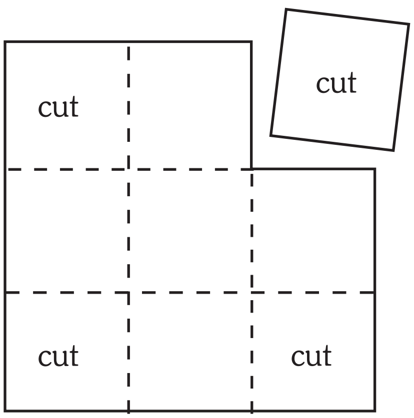
1. Fold paper in thirds the long way.



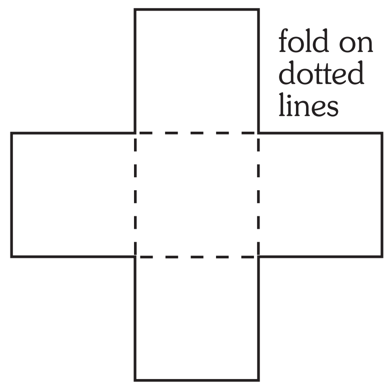
2. Open paper and fold in thirds in the opposite direction.



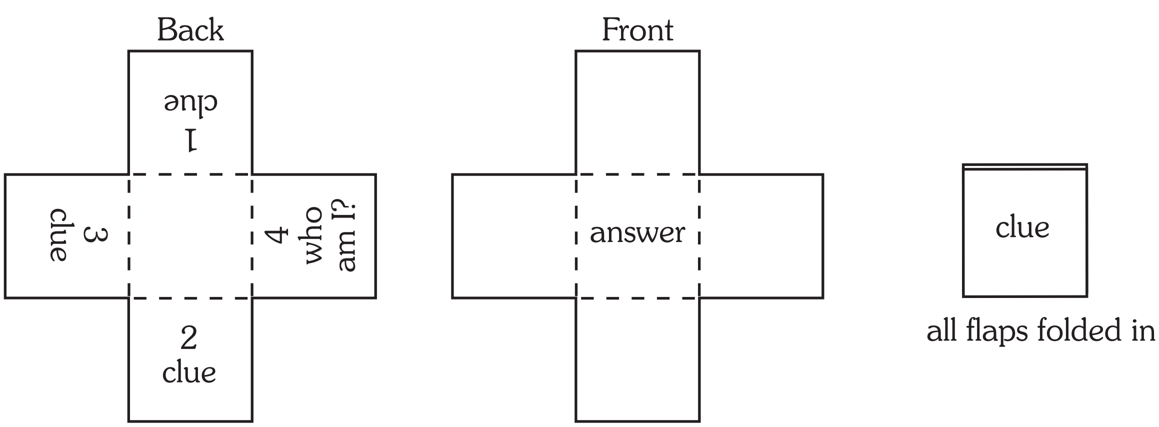
3. Open paper and cut off the four corner boxes.



4. Refold the four flaps.



5. Number each flap as the flap book is opened.



Olive Tree Myth

Athens is named for the Goddess Athena who brought the olive to the Greeks as a gift. Zeus had promised to give Attica to the god or goddess who made the most useful invention. Athena's gift of the olive, useful for light, heat, food, medicine, and perfume was picked as a more peaceful invention than Poseidon's horse – touted as a rapid and powerful instrument of war. Athena planted the original olive tree on a rocky hill, which we know today as the Acropolis. The olive tree, which grows there today is said to have come from the roots of the original tree.

Turning Olives into Olive Oil

Because you are working with oil, this lesson needs to be done in a place that is protected. Spatter from the olive oil can get on clothes, so it is best if clothes are also protected.

Materials

- Garlic press
- Can of pitted olives
- Bowl or bottle to catch the oil
- Bowl or bottle for holding used olives
- A bottle of olive oil to show the students

Each student will press an olive in the garlic press to see how much oil can be obtained from a can of olives. Discuss how much work is involved in obtaining olive oil.