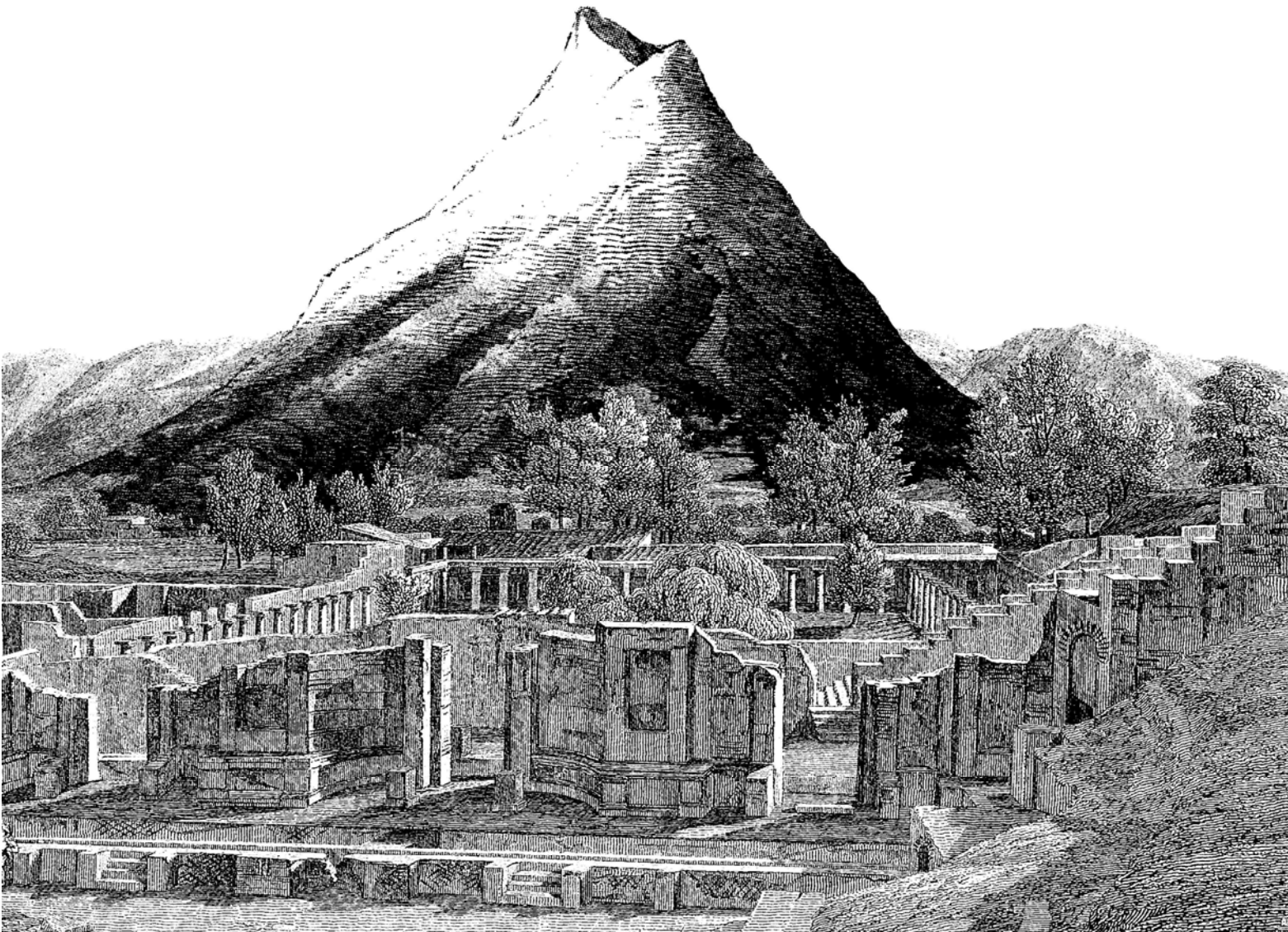


A DAY IN POMPEII

January 12—June 3, 2007

TEACHER'S GUIDE



ALL K-12 EDUCATION MATERIALS PRODUCED FOR THE
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GULF COAST
EXPLOREUM
SCIENCE CENTER



Thank you for booking a field trip to *A Day in Pompeii*! You and your students are about to have an extraordinary educational experience.

A Day in Pompeii takes your students back in time to the first century A.D. and to Pompeii, a cosmopolitan Imperial Roman city, situated about 200 miles south of Rome.

An audio tour (included with admission for grades 4+), a guided tour (also included with admission for grades K-3), information panels, photo murals, architectural features and hundreds of archeological artifacts bring history alive and provide your students with a snapshot look at daily life in a bustling Roman town.

More compelling, however, the exhibit tells the tragic story of Pompeii's destruction on August 24, 79 A.D., when nearby Mount Vesuvius violently erupted, and the monumental human toll of that event. Students learn how this ancient city and the surrounding region were buried under volcanic materials and sealed for over 17 centuries in a virtual time capsule.

***A Day in Pompeii* opens a time capsule for your students to explore.**

Use this guide to prepare your students for what they will see, hear and learn. Included are:

- interesting facts and background information;
- classroom and exhibit gallery activities;
- a glossary of terms and Latin words;
- reading lists for students; and,
- web resources for teachers.

Most are adaptable to a range of grade levels.

Most important is the crosswalk of the exhibit's learning objectives with Alabama Course of Study curriculum. A field trip to *A Day in Pompeii* is a value-added experience that will help you and your students achieve your classroom academic goals.

Don't miss these complimentary Exploreum offerings

GREECE: SECRETS OF THE PAST, IMAX® Dome Theater. This spectacular educational film explores another ancient civilization. Released to rave reviews in early 2006, GREECE takes students to 5th century Athens to view the Parthenon in all its glory and to Santorini in the beautiful Greek Isles to witness another catastrophic volcanic eruption in 1645 B.C.

Pompeii Specialty Gift Shop. Students will exit the Pompeii gallery through a "Pompeii" boutique, offering unique items that might have been found in Pompeii's own marketplaces.

A preview of the exhibition

Student guided tours

- Before entering the gallery, students, teachers and chaperones (grades 4+) will each be given audio tour equipment and operating instructions.
- Exploreum Education Staff and volunteers will lead grades K-3 on guided tours of the exhibit.

Students enter the exhibition through a reconstruction of one of Pompeii's main gates. Maps and information panels orient students in time and place. Perhaps, it is August 22 in that fateful year.

In the first two gallery rooms, Pompeii's businesses, favorite foods and dining habits are explored. Artifacts such as coins, fish hooks and bronze scales tell of the commercial activity in the town, a regional hub for trading, fishing, and agriculture. Wine jugs or amphora and a baker's oven are displayed along with a reconstructed *thermopolia* or restaurant.

In another room, mythical figures from both Greek and Roman legends, small household altars and large marble statues evoke the public and private religious beliefs of Pompeii's citizens as well as their burial customs.

Further on, Pompeii's private residences come to life.

Richly-colored, room-sized frescoes, garden statues, furniture, luxury personal items such as jewelry and hair combs, and everyday plates and bowls, tell of the Roman love for beauty.



Finally, students pass through a transition zone where they experience the darkening skies and the violent sounds of Vesuvius spewing its ash and debris onto the city.

They pass into the final room. Here all is quiet. Plaster casts of eight of the volcano's victims, frozen in their last moments, are displayed -- a couple embracing, a man holding a cloth to his mouth, a dog on its chain and others. Few exhibits connect visitors in such an emotional and personal way with individuals who lived over 2000 years ago.

More about Pompeii and volcanoes in Minds On Hall (included with Pompeii field trip)

- The Hearin-Chandler Virtual Journeys Digital Theater: take a 12-minute virtual stroll through the entertainment district of Pompeii, reconstructed digitally to appear as it might have been before the city's destruction.
- New exhibits near the Ciba Lab: explore the science behind the different types of volcanoes worldwide.
- The Cassiopeia Theater: Witness volcanic eruptions.

Preparing your students for Pompeii

Most of the exhibits at the Exploreum are hands-on. This exhibit is an exception. Many of the larger works of art and archeological objects in the exhibit, including wall frescos and marble and bronze statues, are displayed on the exhibit floor in the open and not under glass. It's only natural that students may want to reach out and touch these ancient objects. After all, the objects seem sturdy enough and impervious to damage from a light brush of the finger.

Before a visit to the Pompeii exhibit, help your students understand why they cannot touch any of the objects and how the cumulative effects of even light touches can damage the artifacts.

Try these pre-visit classroom activities:

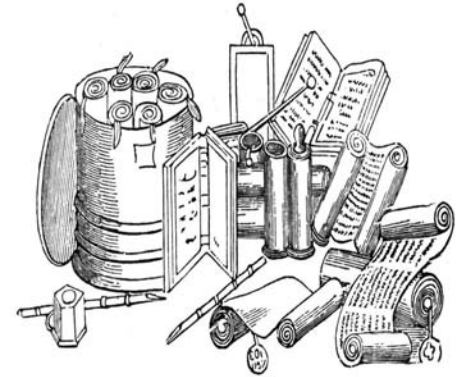
Hands Off!

Learning Objectives

- Understand how art can be damaged by touching
- Consider why it is important to preserve ancient objects.

Materials

- Two ordinary pieces of white paper 8.5 X 11"



Activity

1. Show the class two identical pieces of white paper.
2. Send one of them around the room, asking each student to handle the sheet and rub it once or twice for a moment before passing it to the next student.
3. After everyone has touched the paper, ask students to compare it to the sheet that had not been passed around.
4. Discuss how much dirt and oil is on the handled sheet versus the one that wasn't touched. *Ask the students to consider what would have happened if the sheet of paper had been a priceless object from Pompeii. Ask them to speculate how much more damage there would be if everyone who came to see the Pompeii exhibit touched an object. Note that while the paper may absorb dirt and oil more easily than a hard surface like marble, the impact could be the same if thousands and thousands of hands instead of just a few dozen, touched the marble. Up to one million people may see the exhibit on tour in the United States.*

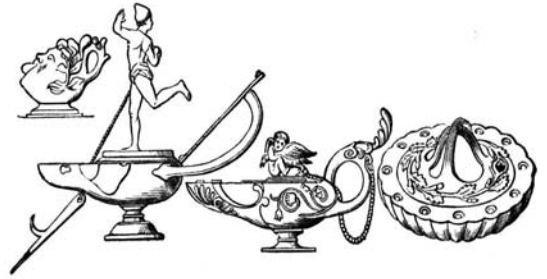
Ask students to explain why they think it is important to preserve ancient works of arts. Do they help us understand how people lived in ancient times and learn from their way of life? What objects in their home would they want to see preserved from damage?

Taking a Hard Look at Art

Learning Objectives

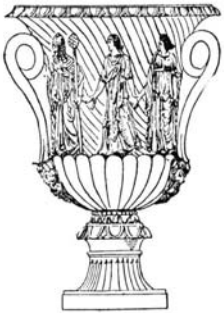
Students will be able to

- understand how much more they can learn from an art object by taking the time to look at it and observing its details.
- explain why discussing an object with others increases everyone's appreciation and understanding of the object.



Materials

- Select a poster image of a work of art, preferably something simple like a statue or a vase as opposed to a complicated painting. These can be found in art books or downloaded from the internet.



Activity

1. Start by asking students to discuss how long they think the average museum visitor spends looking at an object in an exhibit. Or based on their own experience, how long have they spent when going to an exhibit at a museum or seeing a sculpture or painting anywhere. Is it one minute, ten minutes or more? *Record their responses. Then tell them that research shows the average museum visitor spends about 30 second looking at any one work of art.*
2. Bring out the poster or photo of an art object (you may want to break your class into smaller groups, each with a different art object to examine). Give each student or group 30 seconds to look at the image, and then cover it up. Ask each student to describe the object. What did they see? *Go around the room asking students not to repeat observations that had already been given. List each description. Color, size, some details, what was depicted: animals, people etc. What were the most vivid observations? What did only one or two students notice? Comment on the variety of responses.*
3. The students now get to see the image again and compare their observations with the real object. Did they all miss something important about the object (its color, size), i.e. Do they see anything new on second look? Was there something observed that wasn't really there? *Ask students to reevaluate how much time they think they need to really observe an object. Ask them to discuss their observations among themselves. Did they learn more from the discussion? Ask them to remember the exercise when they are looking at objects in the Pompeii exhibit.*

The Music Connection

Listen to music of Synaulia, Ensemble DeOrganographia – *Music from Ancient Rome Volume I or II*. Ask your students to imagine the noises of an ancient Roman town. As a class, list everything they think they might hear and everything they might not hear. For example one may hear a cart with wooden wheels drive by on a stone road, but one would not hear an airplane fly overhead.

About Pompeii

Pompeii is one of the most famous cities of antiquity, in part because it was buried in 79 A.D. by a volcanic eruption and was rediscovered intact over 17 centuries later.

The entire urban landscape --- public buildings, private residences, shops, statues, frescoes, furniture, workman's tools and personal items -- was found as it was left. Even individual Pompeians, victims of the volcano, were preserved.

Few other archeological sites provide such a detailed and comprehensive record of an ancient townscape and its residents, unaltered over centuries by successive renovations and modernizations. The excavation of Pompeii and other area cities produced a wealth of information on ancient Roman history, architecture, art, customs, and lifestyles.

Pompeii is located on the shores of the Bay of Naples, in the fertile region of Campania. The area enjoys a typical Mediterranean climate, with long, hot, dry summers and relatively short, cool, and rainy winters. Summer temperatures average between a pleasant 77 and 88 degrees Fahrenheit and winter temperatures rarely fall below 50 degrees.

At the time of Pompeii's destruction, Rome ruled the whole of Western Europe, the Near East and North Africa.

Classroom Activities

1. On a map of Europe and North Africa, color in the regions ruled by Rome. Mark the location of the Imperial City, Rome, that ruled this vast empire.
2. Locate modern day Pompeii on a map of Italy. Identify the location of Mount Vesuvius and Naples as well as the nearby towns of Herculaneum, Oplontis, Boscoreale, all of which were destroyed by the eruption of Vesuvius.
3. On the same map, estimate the distance from the Imperial City Rome to Pompeii. Calculate how many days it would take to travel from Rome to Pompeii by chariot, assuming you could travel 50 miles a day. Estimate how long it would take you to walk the same distance – a mode of transportation used by slaves and poorer freemen and women.
4. Compare Pompeii's climate with your local weather. Visit <http://weather.noaa.gov/> to learn about the current weather conditions in modern Napoli, near ancient Pompeii.
5. Have students research the subject of Pompeii (see recommended readings and web sites) before visiting the exhibit. *Ask them to list what they learned about Pompeii and to identify any questions they might still have. After their tour of the exhibit, ask students to identify what new information about Pompeii they learned from the artifacts. Did the tour answer any of their earlier questions?*



The Eruption of Mt. Vesuvius

August 24, 79 A.D. began as any other warm summer day in Pompeii. Just after the lunch hour, however, the ground shook and a large explosion was heard. Mount Vesuvius had erupted, spewing volcanic materials over the city and surrounding region.



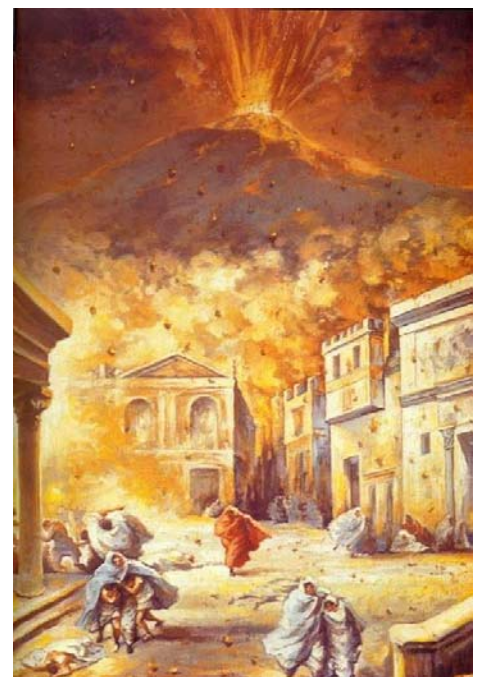
A column of ash rose high above the mountain and small pieces of solidified lava, lapilli, and ash fell all over the city. This onslaught continued through the night and into the next morning, by which time the city was covered in about 26 feet of ash, stone and volcanic materials. Those that fled early escaped. Most who stayed behind did not.

Archeologists and volcanologists have been able to piece together the events of this catastrophe from data collected on site. But one of the most valuable sources of information is the grim account of a teenager, Pliny the Younger, who witnessed the eruption from across the Bay of Naples. He detailed what he saw in two letters sent to the historian Tacitus. His uncle, Pliny the Elder, a noted Roman naturalist and scholar, was with his nephew when the eruption began but chose to cross the Bay for a closer inspection of this natural phenomenon. He did not survive.



Classroom Activities

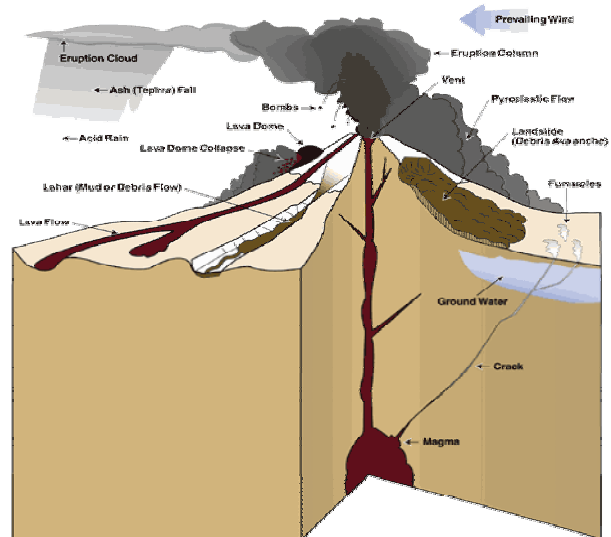
1. As a class, visit www.mcli.dist.maricopa.edu/tut/final/pliny.html. Listen to Pliny the Younger's eyewitness account of what happened that day in 79 A.D. Or download a copy of his letters from <http://eyewitnesstohistory.com/pompeii.htm> and share it with your students.
2. Ask students to develop a timeline or chronology of the eruption and a list of the key events based on Pliny's text.
3. What questions about the event are left unanswered by Pliny's account?
4. Ask students to write a chronological account, in the form of a letter, of some event they may have witnessed -- for example, a hurricane, a school gathering, a football game.



Vesuvius and other Volcanoes

Volcanic eruptions occur where the vast plates that make up the earth's surface collide and send heated material, in the form of magma, through weak spots in the earth's crust. Volcanoes come in many shapes, sizes and degrees of explosive force but most can be defined into three categories.

- *Cinder cones* have a single vent, a bowl-shaped crater and steep sides. They rise only about 1500 feet and emit largely lava flows
- *Shield volcanoes* are massive structures with broad sloping sides and are often built up from the sea floor. They are formed almost entirely by lava flows.
- *Stratovolcanoes* or composite volcanoes are usually tall, mountainous volcanoes whose steep sides have been formed over time by repeated deposits of ash, lapilli, lava, and pyroclastic flows. They may have one vent or a clustered group of vents.



Vesuvius sits on the edge of the Eurasian plate, which is in constant collision with the African plate, resulting in a great deal of volcanic activity. It is characterized as a *stratovolcano*.

A Photo Glossary of Volcano Terms is available from the U.S. Geological Service at volcanoes.usgs.gov/Products/Pglossary/pglossary.html

Classroom Activities

1. Check out the National Geographic Web site at www.nationalgeographic.com/forcesofnature/ and have students read and compare the case studies of various eruptions throughout history.
2. Use the Web site, <http://hsv.com/scitech/earthsci/quake.html> and have students plot recent seismic and volcanic activity on a world map. After plotting the data, ask students if there is a pattern to the location of earthquakes and volcanoes. Finally, compare the students' maps to a world map with plate boundaries.
3. Have students visit Vesuvius' Observatory at www.ov.ingv.it/eng_home/ to learn how researchers are currently monitoring Vesuvius.
4. Simulate volcanic eruptions using empty film canisters, water and Alka-Seltzer tablets. Talk with students about the similarities of pressure building up in the empty film canisters and gases building up in Vesuvius.
5. Watch the PBS Nova Special, *Deadly Shadows of Vesuvius*, to learn more about the efforts by the Italian government to evacuate the region in case of another eruption. Ask students to list procedures to evacuate the area.
6. Visit <http://ema.alabama.gov/> and create a list of procedures to evacuate your area in case of a hurricane. Compare the volcano evacuation list with the hurricane evacuation list.

Rediscovering Pompeii

Within a generation of the eruption of Vesuvius, Pompeii and the surrounding region were all but forgotten. Romans returned to the area and over centuries built new homes, farms and towns.

Underneath their feet, however, lay the remains of families, works of art, buildings and roads that were so suddenly buried by Vesuvius.

In 1709, a workman sinking a well in the town of Resina struck marble seats in what was Herculaneum's theatre. Herculaneum is situated 5 miles from Pompeii on the shores of the Bay of Naples. This discovery initiated the excavations which are still on going of the lost cities of Herculaneum, Pompeii and others.

By 1827 a street plan of uncovered areas of Pompeii was developed and the first tourist guide book was published. In the 1860s Professor Giuseppe Fiorelli became director of the excavations and published *Pompeianarum antiquitatum historia*, the first definitive history of the excavations.



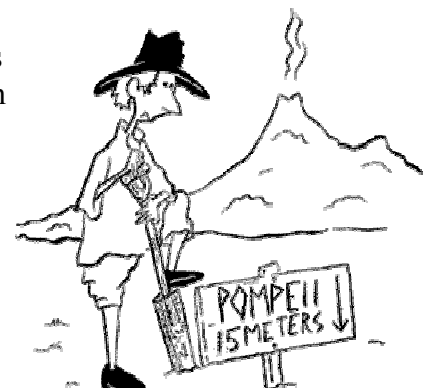
In 1863 Fiorelli or one of his assistants hit upon the idea of pouring plaster into the hollows formed in the hardened volcanic materials where human and animal bodies had decomposed. The first casts of Vesuvius's victims were made. This added to the fame of the archeological site and it became a very popular destination for tourists from all over the world.

The American author Samuel Clemens, or Mark Twain, visited the site and recorded his observations in his journal, later published in his book *Innocents Abroad*.

Today, hundreds of thousands of tourists annually visit the archeological site to walk Pompeii's rediscovered streets, enter the homes, shops, theaters and temples.

Classroom Activities

1. Ask students to read an excerpt of Mark Twain's *Innocents Abroad* where he describes what he saw and felt when visiting Pompeii. (www.mtwain.com/Innocents_Abroad/32.html). What were the famous author's most notable impressions of the site? Ask students to compare their impressions of Pompeii based on their visit to the exhibition with those of Mr. Clemens.
2. Read *Bodies from the Ash* by James M. Deem. Compare the process of preparing a cast using plaster and that of wax as was the Girl from Oplontis, a settlement near Pompeii.
3. Ask students to record their impressions and feelings in a journal or diary account of their visit to the exhibition.



Latin – the Language of the Romans

Latin was the official language used throughout the Roman Empire, including Pompeii. Although it is now considered a “dead” language, for example, it is not used anywhere in the world as a regular form of communication, it still survives. Latin is the foundation of many modern languages, including French, Spanish and Italian. Over half the words in the English language have a Latin origin.

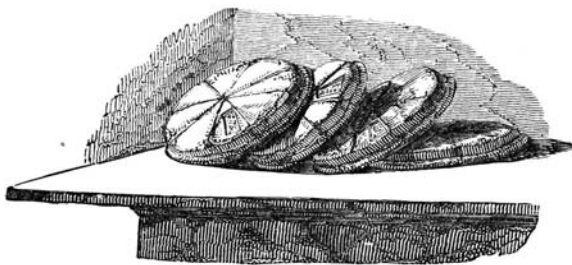
Activity in the exhibit gallery

Ask your students to note at least five Latin words and their meaning found in the exhibition. Ask them to identify one or two that are the root or source for modern day English words. Following is a list of Latin words that appear on signs in the exhibit galleries. Bold indicates those with modern day usage.

Fullones	launderers
Fullonicae	laundry

Libertus, liberta	freeman and woman
Negotiators	import-export merchants
Programmata	election graffiti, political campaign slogans

Libra	Roman measurement unit for weight
Pes	Roman measurement unit for length/distance



Cave Canem	Beware of the Dog
Ornatix	hairdresser
Calamister	curling iron for hair



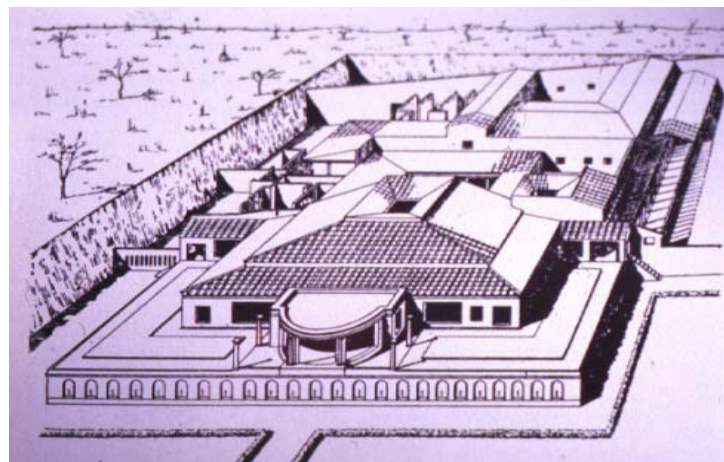
Jetaculum	breakfast
Pradium	lunch, midday meal
Cena	supper
Garum	fishy sauce
Thermopolia	restaurant

Domus	Pompeii home
Vestibulum	entrance hall of a house
Atrium	reception area of a home with overhead opening in the roof
Tablinum	library or private study of the house
Cubicula	bedroom, small windowless room

Triclinium	dining Room
Culina	kitchen
Peristylum	covered walkway around the household garden.
Hortus	vegetable garden
Lectus triclinaris	dining couch or lounge

Roman Homes

When Mount Vesuvius erupted it preserved people in time as well as homes in time. Archaeologists have been able to see what a typical home in Pompeii looked like. Houses were usually rectangular with rooms built around spaces that were open to the outside. As many of the rooms in a Roman house were small, this interior design was intended to give the impression of more space. The walls were covered in fresco paintings – scenes from mythology, landscapes, and imaginary gardens that appeared to expand the rooms.



Floors of the wealthy were often decorated with stone and glass mosaics. To create a mosaic smooth, wet mortar was first spread over the floor. Next tiny squares of colorful stones or glass were then pressed into the mortar to create a picture or design. Finally, gaps were then filled in with more mortar. Designs included a variety of subjects such as scenes from mythology or literature, landscapes, hunting scenes and geometric patterns.



Roman Homes

Classroom Activity

Mosaics

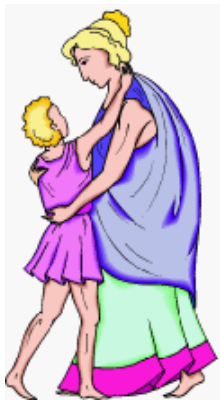
1. For younger students: Direct students to either color the mosaic template below or glue pieces of paper directly on the template.



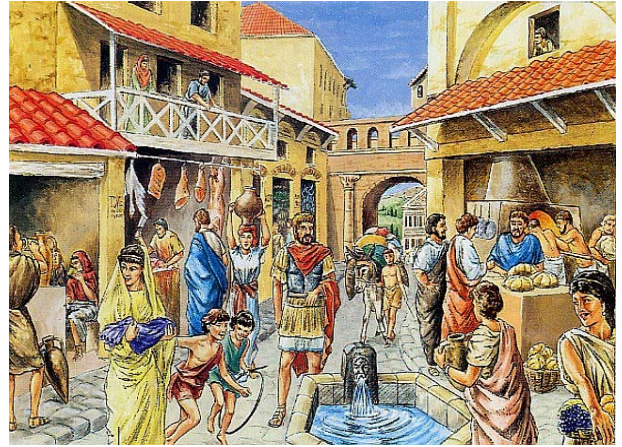
2. For older students: Ask students to create their own mosaics using magazines, colored paper, and other recycled papers depicting an object or story. First sketch an animal, landscape, portrait, or geometric design on cardstock. Next cut scrap paper into squares and glue onto design.

Roman Dress

Most people think of togas when they think of Roman clothing. In fact, the toga was worn by men only and was the ancient equivalent of a suit and tie today. Most citizens of Pompeii would have worn tunics, a kind of long shirt with a belt and short sleeves. If a man was doing heavy labor, he would wear a tunic with only one sleeve. Men wore either shoes with laces or sandals.



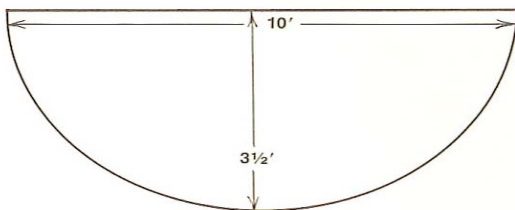
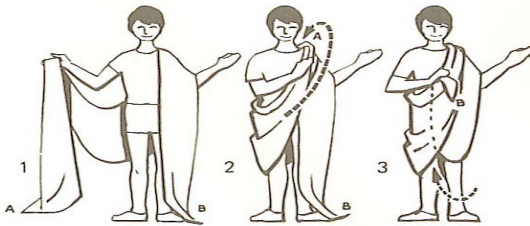
Women wore long, loose fitting dresses fastened at the shoulders with *fibulae* (versions of modern-day safety pins) and belted at the waist. Married women would wear an extra piece of fabric over their dress called a *stola*. That was not all; over their heads they would wear another piece of fabric called a *palla*, a combination shawl and veil.



Classroom Activities

Make a Toga

Design a Roman Toga



Make a toga. Here's a diagram to help you.
Cut the shape of the toga from an old white sheet.

You'll need a sheet or piece of material cut into a semi-circle.

1. Drape the left-hand end of the toga over your left shoulder.
2. Hold the other end in your right hand and bring it up under your arm.
3. Now throw the right end over your left shoulder.
4. Finally tuck the middle of your toga into your belt.

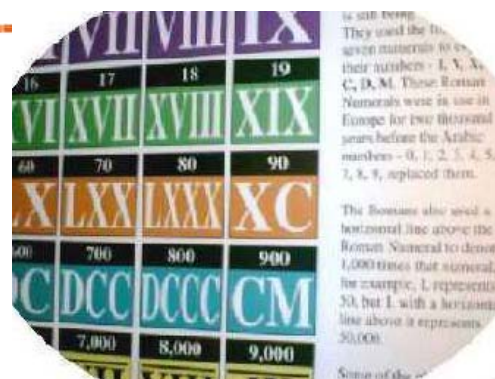
Make a Tunic

You'll need a pillowcase for the tunic.

1. Cut a hole in the center of the closed end of the pillowcase.
 2. Cut arm holes on each side of the pillowcase.
- Slip over your head.

Roman Numerals

The Romans used math for many practical purposes much like we use math today. They used it for building roads, bridges and temples out of stone, keeping accounts and supplying their armies. People even used Roman numerals long after the Roman Empire fell.



A numeral is a symbol used to represent a number. Our digits, 0-9, are often called Arabic numerals. Each letter used in Roman numerals stands for a different number:

Roman Numerals Chart											
Units			Tens			Hundreds			Thousands		
I	One	1	X	Ten	10	C	One Hundred	100	M	One Thousand	1000
II	Two	2	XX	Twenty	20	CC	Two Hundred	200	MM	Two Thousand	2000
III	Three	3	XXX	Thirty	30	CCC	Three Hundred	300	MMM	Three Thousand	3000
IV	Four	4	XL	Forty	40	CD	Four Hundred	400	MMMM	Four Thousand	4000
V	Five	5	L	Fifty	50	D	Five Hundred	500	MMMMM	Five Thousand	5000
VI	Six	6	LX	Sixty	60	DC	Six Hundred	600	etc.		
VII	Seven	7	LXX	Seventy	70	DCC	Seven Hundred	700			
VIII	Eight	8	LXXX	Eighty	80	DCCC	Eight Hundred	800			
IX	Nine	9	XC	Ninety	90	CM	Nine Hundred	900			

A string of letters means that their values should be added together. For example, VVV = 5 + 5 + 5 = 15 and LXI = 50 + 10 + 1 = 61. If a smaller numeral is placed before a larger one, subtract instead of add. For instance, IX = 10 – 1 = 9.

Class Activities

1. Present the chart above and a list of Arabic numbers to your class. Ask your students to convert the Arabic numbers to Roman numerals. This process can be reversed – Roman Numerals to Arabic.

Example:

967

900 + 60 + 7

CM + LX + VII

CMLXVII

2. Visit http://www.education-world.com/a_lesson/TM/WS-lp276-03.shtml to download Roman numeral math problems. Students can add and subtract given problems or create their own.

Teacher and Student Resources

Audio Visual

The History Channel – *In Search of History: Pompeii Secrets Revealed*

National Geographic – *In the Shadow of Vesuvius*

National Geographic – *Volcano: Nature's Inferno*

Online Resources (For quick links to these websites visit our website, www.exploreum.net)

www.volcanoes.com – volcanoes around the world, up-to-date news, photo gallery

www.learner.org/exhibits/volcanoes/ - predicting eruptions, coping with risk, activities and video clips

www.archaeological.org – the latest from the archaeological world

www.pbs.org/empires/romans - the Roman Empire: timeline, virtual library, and family tree

www.humanities-interactive.org – online, interactive Pompeii exhibit

Books for Students

Into the Volcano: A Researcher at Work, Donna O'Meara

Volcanoes, Seymour Simon

Volcano: Jump into Science, Ellen Prager and Nancy Woodman

Vacation Under the Volcano, Mary Pope Osborne and Natalie Pope Boyce

Ancient Rome and Pompeii, Pope Osborne and Natalie Pope Boyce (Teachers Guide to Vacation Under the Volcano)

Secrets of Vesuvius, Sara Louis Clark Bisel

In Search of Pompeii: Uncovering a Buried City, Giovanni Caselli

Pompeii: A Novel, Robert Harris

Pompeii: Buried Alive! Edith Kunhardt Davis

Curriculum Connections

It is the Exploreum's goal to provide a value-added field trip that supports the **Alabama Course of Study Curriculum**. Use of the materials in this guide in combination with a field trip to *A Day in Pompeii* will help you link learning experiences to the following content standards.

Science

Kindergarten: 1

First Grade: 7

Second Grade: 1, 7

Third Grade: 10, 11

Fourth Grade: 7

Fifth Grade: 10

Sixth Grade: 2, 4, 5, 6, 7

Geology Core: 1, 3, 5, 7, 8, 10, 11, 12

Social Studies

Kindergarten: 2, 9, 10

First Grade: 1, 2, 6

Second Grade: 1, 7

Third Grade: 2, 3, 4, 7, 9

Seventh Grade Geography: 2, 3, 4, 5, 8, 10, 12

Eighth Grade World History: 1, 2, 4, 6, 7

Science Content Addressed in the Ciba Lab during *A Day in Pompeii*

Volcanoes and earthquakes, volcanic pumice, Roman arches, columns, composite materials, tension and compression, density, minerals in paint

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