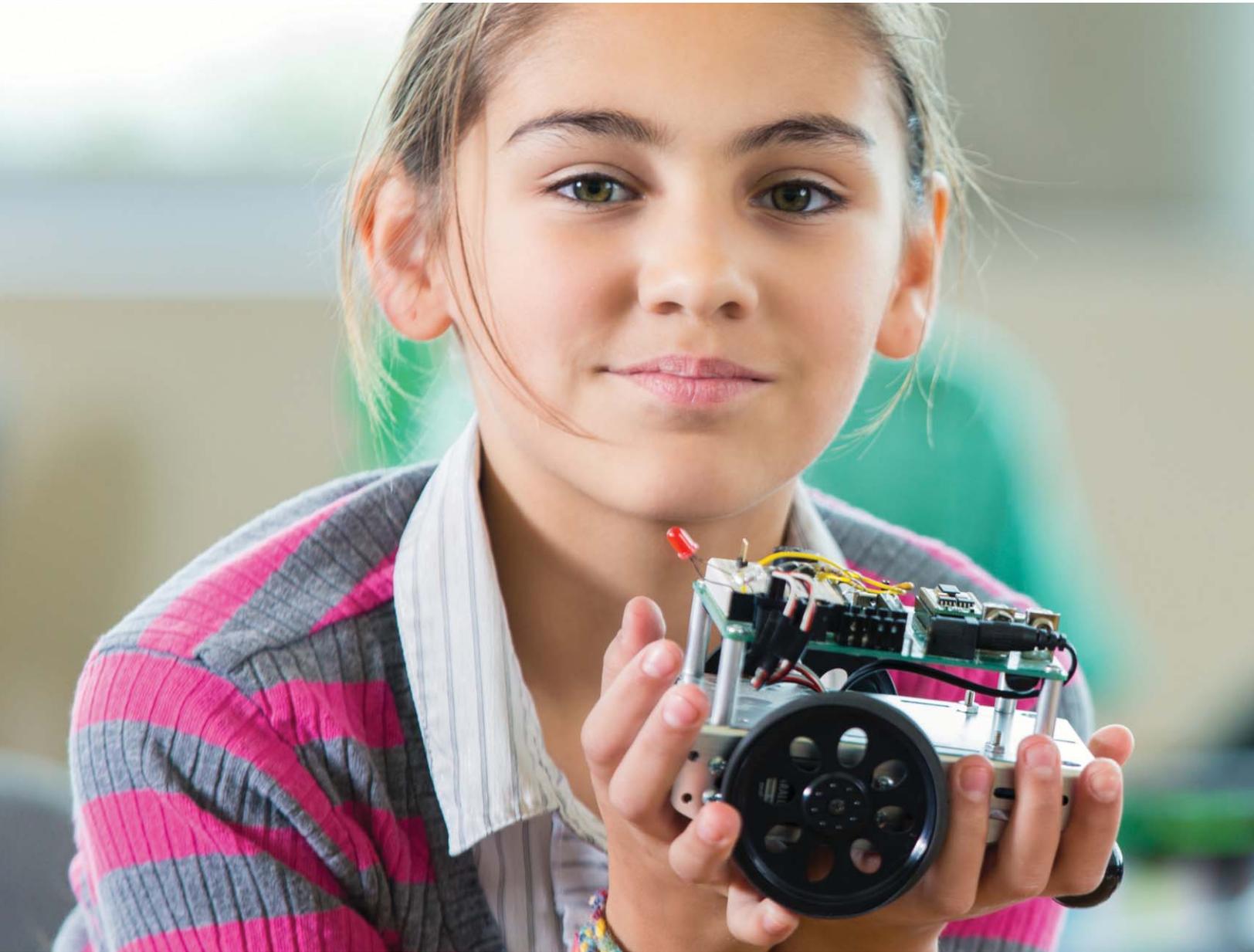


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***Pompeii:***  
***Discovering Interdisciplinary Perspectives***



**Disseminator Contact Information:**  
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# Goals and Objectives

**Project Description:** An interdisciplinary collaboration between three teachers to design and implement curriculum on the topic of Pompeii as a geological, archaeological, and art historically significant site for teaching about earth science, Ancient Roman history, and Ancient Roman art.

**Objectives:** The student will know and be able to

**Science:**

- Understand the scientific theory of plate tectonics by describing how the movement of Earth's crustal plates cause changes in Earth's surface. This includes understanding the basis of volcanic eruptions, earthquakes, and mountain building.
- Relate tectonic activity to the events that took place in Pompeii as a result of the eruption of Mt Vesuvius and the earthquake that occurred a few years before.
- Understand and identify the nature of the rock cycle, be able to identify rock types and be able to discuss how these cycles relate to surface and sub- surface events
- Recognize that earthquakes and volcanic eruptions are due to the flow of heat and material movement within Earth. The heat flow also creates mountains and ocean basins.

**Social Studies:**

- Understand and describe the culture, history and volcanology of ancient Rome.
- Understand and describe the various cultural influences of the Mediterranean world on Pompeian society.

- Understand and describe the role and purposes of research regarding the perspective of a survivor/eyewitness, archeologist, and geologist of a historical catastrophic geological event.
- Understand, describe, and apply the skills and processes of gathering and presenting evidence in historical research.

#### Art:

- Understand, describe and analyze the significance of the impact of natural disaster as a theme of art historical images
- Describe and compare the visual characteristics of art images that portray historical natural disasters, such as Pompeii, and local and contemporary natural disasters including hurricanes, and storm surges.
- Understand, describe, and apply the skills and processes of gathering and presenting evidence in art historical research.
- Understand, describe, and apply art skills, techniques, and processes in the communication of the characteristics of Ancient Roman culture and history

#### Florida Standards:

##### Science Standards

SC.7.E.6.5 Explore the scientific theory of plate tectonics by describing how the movement of Earth's crustal plates causes both slow and rapid changes in Earth's surface, including volcanic eruptions, earthquakes, and mountain building.

SC.7.E.6.1 Describe the layers of the solid Earth, including the lithosphere, the hot convecting mantle, and the dense metallic liquid and solid cores.

SC.7.E.6.7 Recognize that heat flow and movement of material within Earth causes earthquakes and volcanic eruptions, and creates mountains and ocean basins.

SC.7.E.6.2 Identify the patterns within the rock cycle and relate them to surface events (weathering and erosion) and sub-surface events (plate tectonics and mountain building)

### Social Studies Standards

SS.6.G.2.6 Explain the concept of cultural diffusion, and identify the influences of different ancient cultures on one another.

SS.6.G.3.1 Explain how the physical landscape has affected the development of agriculture and industry in the ancient world.

SS.6.G.2.1 Explain how major physical characteristics, natural resources, climate, and absolute and relative locations have influenced settlement, interactions, and the economies of ancient civilizations of the world.

SS.6.G.2.4 Explain how the geographical location of ancient civilizations contributed to the culture and politics of those societies.

SS.6.G.6.2 Compare maps of the world in ancient times with current political maps.

SS.6.W.3.11 Explain the transition from Roman Republic to empire and Imperial Rome, and compare Roman life and culture under each one.

SS.6.G.5.3 Use geographic tools and terms to analyze how famine, drought, and natural disasters plagued many ancient civilizations.

### Math Standards:

MAFS.K12.MP.5.1: Use appropriate tools strategically.

MAFS.K12.MP.6.1: Attend to precision.

MAFS.K12.MP.7.1: Look for and make use of structure.

MAFS.6.G.1: Solve real-world and mathematical problems involving area, surface area, and volume.

MAFS.7.G.1: Draw, construct and describe geometrical figures and describe the relationships between them

Language Arts:

LAFS.6.SL.1.1: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6 topics, texts, and issues, building on others' ideas and expressing their own clearly.

### Visual Art Standards

VA.68.C.2.3 Examine artworks to form ideas and criteria by which to judge/assess and inspire personal works and artistic growth.

VA.68.H.3.3 Create imaginative works to include background knowledge or information from other subjects.

VA.68.O.3.1 Select and use the structural elements of art and organizational principles of design to document images in various formats for public audiences.

VA.68.S.2.3 Use visual-thinking and problem-solving skills in a sketchbook or journal to identify, practice, develop ideas, and resolve challenges in the creative process.

# Course Outline/Overview

## Science:

- The design and use of geologic maps
- The description and analysis of plate tectonics and related events/formations
- The description and analysis of rock samples in relation to the rock formation cycle
- Historical and humanistic perspectives of tectonic events
  - Ancient Roman tectonic events including Pompeii
  - Descriptive literature about the destruction of Pompeii
- The use of rock sampling data to predict and understand the threat of explosive volcanic activity

## Social Studies:

- The use of a historical time line
- The descriptive categories for understanding an ancient historical period
- Socio-cultural and political characteristics of Ancient Roman society
- The design and use of a geographical map of the Ancient Roman Empire.
- The characteristics and role of an Ancient Roman city
- Historical and humanistic perspectives of tectonic events on the Ancient Roman Empire
  - Pompeii tectonic events
  - Descriptive literature about the destruction of Pompeii
  - Archeological evidence of Pompeii

## Art: □

- Use of an art historical time line
- Socio-cultural and political significance of Ancient Roman

art

- Characteristics and types of visual art in Ancient Roman society
- Archeological and art historical perspectives about Pompeii and the aftermath of tectonic events
- Art skills, techniques, materials, and processes for communicating art historical concepts

# Lesson Plans: A step-by-step guide

## Science:

- The design and use of geologic maps
  - Students use the *Discovering Plate Boundary* activity from Rice University.
  - In this activity, students used 4 geological survey maps to observe, describe, and classify tectonic processes on the Earth.
  - The first map shows earthquake locations and depth data.
  - The second map shows the locations of recent volcanic or thermal features on the Earth.
  - The third map shows the age of the oceanic crust under most of the world's oceans. This map really highlights divergent plate boundaries, also known as mid-ocean ridges or spreading centers.
  - The fourth data map shows the topography/bathymetry of the Earth (elevation of the land surface and the depth of the oceans).
  - Students review a general geographic map of the world.
  - Then they were given a blank plate boundary map.
  - Randomly, each student was assigned a geologic specialty area (Seismology, Geochronology, Volcanology, or Geography) and a tectonic plate (Pacific Plate, North American Plate, African Plate, and etc.).
  - The goal was for each student to have a different combination of specialty and tectonic plate, and for all four scientific specialties to be covered for each plate used in the exercise.
  - Students were then asked to group into their specialty areas using the applicable map and area of specialty (e.g., Seismologists at the Earthquake map, Volcanologists at the Volcano map, Geochronologists at the Seafloor Age map, and Geographers at the Topography map).
  - Each group worked together to figure out what they were looking at.
  - Each group was asked to come up with a classification of the plate boundaries of the world - based on their data.
  - Using up to 5 plate boundary type classifications (boundary type 1, boundary type 2, etc.), students were asked to write a description of how they identified their plate boundary types and to mark these boundaries with a colored pencil that fit that description.

- The description and analysis of plate tectonics and related events/formations
- The description and analysis of rock samples in relation to the rock formation cycle
  - The rock cycle component asked students to first observe and describe various unlabeled rock specimens provided (sedimentary, igneous, and metamorphic)
  - Students completed a predictive worksheet to categorize the specimens - based on their observations and background knowledge of rock types.
  - Using the Internet to research the main processes of the rock cycle, students created a rock cycle diagram to demonstrate the mechanisms of these processes and identify the rocks associated with each cycle.
  - Following their research, students revisited the rock specimens and their predictive work sheet.
  - Based on their research, they made corrections to their original statements and re-categorized the rock samples accurately with explanations.
- Historical and humanistic perspectives of tectonic events
  - Ancient Roman tectonic events including Pompeii
  - Descriptive literature about the destruction of Pompeii
  - Students were given several primary and secondary resource documents that described life in Pompeii August 24, 79 AD – the day of the Vesuvius eruption. Given the history of a strong earthquake 17 years earlier, the city, the city was still recovering with many buildings under repair.
  - Using these historical documents, students were asked to describe
    - Daily life prior to and at the beginning of the eruption.
    - How people reacted to the eruption?
    - What happened to Pompeii and its people?

- What metaphors were used to describe the eruption.
  - Why many people thought the eruption was the end of the world.
- The use of rock sampling data to predict and understand the threat of explosive volcanic activity
  - Using activities from the National Association of Geoscience Teachers, students, acting as geologists, were asked to analyze several data tables to make predictions / determinations about the possible threat of explosive volcanic activity in certain geographic areas based on the composition of rock in those areas.

#### Social studies:

- Students research, examine, and use a historical time line
  - Students research, analyze, and discuss the relationship of the Ancient Roman Empire to other historical periods
- Students find and use a geographical map of the Ancient Roman Empire in order to find the location of Pompeii and discuss the geological significance of the geographical location
- Students learn research skills and techniques
  - Students use a variety of online and primary sources including podcasts, science, art, and archeology sites.
- Students describe and analyze from an historical and humanistic perspective Ancient Roman geological, geographical, physical, socio-cultural, political, and historical characteristics and events.
  - Student create a journal document whereupon the student writes a series of journal entries in the first person from the perspective of a Pompeii

survivor/eyewitness, archeologist or geologist in order to help synthesize the evidence they gathered through research.

- Students create a paper model of Pompeii
  - Student design, construct, and ornament individual architectural units (paper cubes), such as a Roman villa, that illustrate the cultural influences of the Mediterranean world on Pompeian society as well as the outcomes of research into the culture, history and volcanology as represented by Pompeian artifacts.
    - Student draw, paint, and assemble paper cubes
- Students create clay replica artifacts in order to illustrate their understanding of Pompeii's archeological significance.
  - Students place their artifact in and around their villas to recreate the preservation of Pompeii

## Art

- Students research, describe, and analyze images of natural disasters both orally and in writing
  - Internet images of natural disaster, including Mt. Vesuvius and South Florida hurricanes
- Students research, describe, and analyze the significance of the impact of natural disaster as a theme of art historical images both orally and in writing
  - Internet images of art historical art work of natural disasters including volcanoes and tropical storms
- Students create art images (sketches) reflecting research on natural disasters, such as Pompeii and local natural disasters including hurricanes, and storm surges
  - Internet images of natural disaster movie posters

- Students create research reports about Ancient Roman art objects that were from the time of Pompeii including writing and drawings.
  - Students identified art category for research including architecture, fashion, jewelry, painting, mosaic, and sculpture
- Students create a mural size fresco relating natural disaster possibility in South Florida to Pompeii disaster
  - Student's apply modeling paste texture on the canvas in order to imitate wall fresco texture of Ancient Roman villa wall
  - Student's design a large full size sketch (5'x10') integrating separate individual student drawing into a composition
    - Students copy their sketch on a full size paper in order to develop the composition
  - Student's sketch is copied onto a canvas (5'x10')
    - Final full size sketch copied to canvas
  - Students learn how to mix acrylic paint colors
  - Students mix acrylic paint colors and apply to canvas
  - Students learn how to shade objects
  - Students paint shading in order to enhance dimensionality of the image
  - Student complete foreground, middle ground, and background

# Resource List

Ambler, Jessica. "Roman wall painting styles." *Khan Academy*. Accessed March 2016.

<https://www.khanacademy.org/humanities/ancient-art-civilizations/roman/wall-painting/a/roman-wall-painting-styles>.

Bourbon, Fabio, and Ana Maria Liberati. *Ancient Rome: History of a Civilization That Ruled the World*. New York: Barnes and Noble, 2004.

Coarelli, Filippo, et al. *Pompeii*. New York: Barnes and Noble, 2006.

Deem, James. *Bodies From the Ash*. Boston: Houghton Mifflin, 2005.

Nappo, Salvatore. *Pompeii: A Guide to the Ancient City*. New York: Barnes and Noble, 1998.

*Pompeii: The Doomed City*. A and E Networks. 135 min. 2005-2007. DVD.

Stuff You Missed in History Class. *Pompeii: Lost and Found*. Podcast audio. 15:11. Accessed March 2016.

<http://www.missedinhistory.com/podcasts/pompeii-lost-and-found.htm>

[http://www.pbslearningmedia.org/resource/ess05.sci.ess.earthsys.lp\\_platetectonics/plate-tectonics/](http://www.pbslearningmedia.org/resource/ess05.sci.ess.earthsys.lp_platetectonics/plate-tectonics/)

<http://pubs.usgs.gov/gip/dynamic/understanding.html>

<http://www.kidsgeo.com/geology-for-kids/0049-volcanism.php>

<http://www.pbs.org/wgbh/aso/tryit/tectonics/intro.html>

<http://www.scientificamerican.com/article/how-do-volcanoes-affect-w/>

<http://www.theeventchronicle.com/news/europe/catastrophic-mount-vesuvius-eruptions-feared-threatening-millions-in-italy/#>

[http://mcg.ir/mcg\\_content/media/image/2010/10/211\\_orig.jpg](http://mcg.ir/mcg_content/media/image/2010/10/211_orig.jpg)

## Supplies and Supplemental materials

- Rock Collections: \$182.
  - Metamorphic Rock Collection
  - Sedimentary Rock Collection
  - Igneous Rock Collection
  - Supplier  
Ward's Science  
5100 West Henrietta Road  
P.O. Box 92912  
Rochester, NY 14692-9012  
Phone: 1-800-962-2660  
Fax: 1-800-635-8439  
Email: [wardscs@vwr.com](mailto:wardscs@vwr.com)
- Plate Tectonic Maps: \$90.
  - Discovering Plate Boundaries (Teacher's Kit)
  - Supplier  
Dale S. Sawyer Department of Earth Science  
MS-126  
Rice University  
6100 Main St.  
Houston, TX 77005  
Phone: 713-348-5106  
Fax: 713-348-5214  
Email: [Dale@Rice.Edu](mailto:Dale@Rice.Edu)
- Art Supplies: \$690.
  - White Railroad Board (For cubes) 100 pkg
  - White Clay (For figures) 50#
  - Acrylic Paint (For cubes and mural)
    - Primary colors, black, white
  - Modeling paste (Canvas texture)
  - Mural Canvas (5'x10')
  - Supplier  
School Specialty

P.O. Box 8030  
Appleton, WI 54912-8030  
Phone: 888-388-3224  
Fax: 888-388-6344

# Student Work Samples









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**For more information, contact:**

Edwina Lau, Program Director

305.558.4544, ext. 113

[elau@educationfund.org](mailto:elau@educationfund.org)



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