

Lesson Plan:

Building on the Past



Architect:

Stanford White (1853-1906) of McKim, Mead, and White

Site:

Gould Memorial Library, Bronx Community College, 1901

Curriculum Link:

High School Global History and Geography
Unit One: C:3:b: The Roman Republic—
Contributions

Project Aim:

Students compare the architectural sites of the Gould Memorial Library with its inspiration, the Pantheon in Rome, in order to gain insight into the civilizations in which these structures were built.

Vocabulary:

Neo-Classical: A style of art that was popular in the 19th Century that was a reaction to Baroque Art. This style was derived from the art and culture of ancient Greece and Rome and imitated this period's architecture and fascination for order and simplicity.

Beaux Arts: A style of art that borrowed heavily from a range of architectural styles of the past, including Imperial Roman architecture, Italian Renaissance, French and Italian Baroque models, even French late Gothic. Influenced by the Ecole des Beaux-Arts in Paris, American architects of the Beaux-Arts generation often returned to Greek models, which had a strong local history in the American Greek Revival of the early 19th century. Beaux-Arts style attempts an approach to a regenerated spirit within the grand traditions rather than a set of motifs.

Dome: A hemispherical or beehive-shaped vault or ceiling over a circular opening. May be elevated further by placement on a drum. If placed over a square opening, the transition to a round shape is made by use of pendentives in the four corners.

Coffer: A square, rectangular, or polygonal recess in a ceiling to reduce the weight of the structure.

Column: An upright post, bearing the load of the upper part of a building. It consists of a base, a shaft, and a capital. An engaged column is half a column, attached to a

wall, and non-weight bearing.

Colonnade: A series of columns, usually supporting lintels or arches.

Corinthian Column: slender fluted column and an elaborate capital decorated with acanthus leaves and scrolls

Capital: The top element of a column, pier or pilaster, usually ornamented with stylized leaves, volutes, animal or human forms. The entablature rests on capitals in Doric, Ionic, and Corinthian orders.

Oculus: A circular opening in a wall or in the top of a dome, from the Latin word for "eye".

Pantheon: Greek for "all the gods"; therefore, a temple dedicated to all the gods. Specifically, the round-domed building built in Rome in 25A.D.

Pilaster: A rectangular engaged column, sometimes decorative, but sometimes used to buttress a wall.

Portico: A porch with a roof, supported by columns and usually having an entablature and a pediment.



Gould Memorial Library columns

Stanford White looked to the architecture of the past for elements of classical style, such as the use of perfect symmetry, Roman columns, mosaic tile floors, and a domed ceiling. Although the original Pantheon was built as a temple for the gods and White's building is a library, he probably intended his creation to conjure classical ideals such as democracy and acceptance of different ideas.

The exterior of the library is yellow brick with limestone pilasters. Inside, the floor plan of the Gould Memorial Library is in the shape of a Greek cross, with a soaring dome overhead. 16 Corinthian columns made of rare green Connemara marble circle the rotunda. Tiffany stained glass windows infuse the interior with a multicolored glow from the area above the mezzanine and in the vestibule. Viewers look up to see statues of the Greek Muses placed around the balcony. Italian mosaic tiles in classical patterns line the floors.

The arcade outside the library houses the Hall of Fame for Great Americans, an open-air colonnade with space for 102 bronze portrait busts of authors, educators, theologians, physicians, lawyers, artists, musicians, actors, scientists, military leaders, social progressives, philosophers, and statesmen. Among those portrayed are Thomas Edison, Booker T. Washington, Harriet Beecher Stowe, Abraham Lincoln, Jane Addams, and Mark Twain. Carved in stone on pediments of The Hall of Fame are the words "By Wealth of

Description:

The Gould Memorial Library, originally built for New York University, is an important resource for studying the ideals and values of ancient Rome and the time period in which the Pantheon was built. Since the library is based on the Pantheon in Rome but was actually built at the turn of the 20th century, it serves as a tool to compare the values and ideas of ancient Rome with the interpretations that the architects of the Gilded Age attempted to revive.

A premier architect of his time,

thought, or else by mighty deed, They served mankind in noble character. In worldwide good they live forever more." The Hall of Fame thus connects the achievements of Americans to human accomplishments on a grand historical scale; while commemorating accomplished people in the same way that the Romans celebrated their gods.

The Gould Memorial Library was originally given to New York University by the daughter of Jay Gould, in his memory. He was one of the most well known financiers and speculators of the Gilded Age. New York University turned the library over to Bronx Community College in 1973.

The Architect firm McKim, Mead, and White designed some of the most renowned structures of the time. In addition to the Gould Memorial Library, Stanford White designed the second Madison Square Garden, The North and South Wings of the Metropolitan Museum of Art, The New York Herald Building, and the Washington Square Arch. By using the look of classical architecture for new uses, the architects built into their buildings a grandeur that aimed to infuse chaotic American cities with a sense of order and formality.

Historical Precedent:

The Pantheon is a Roman building that was originally built as a temple to the seven deities of the seven planets in the state religion of Ancient Rome. It has been converted to a Christian church since the 7th century, and has been in continuous use throughout history.



Interior of the Pantheon, Rome by Giovanni Paolo Pannini

The building is circular with a portico of three ranks of huge granite Corinthian columns (eight in the first rank and two groups of four behind) under a pediment opening into the rotunda, under a coffered, concrete dome, with a central opening called an oculus, or Great Eye, open to the sky. The weight of the dome is concentrated on a ring of voussoirs, which form the oculus. The dome is thin on top and thickens as it meets the walls. A rectangular structure links the portico with the rotunda. The walls of the building are over 20 feet thick so that they can support the tremendous weight of the dome. The height to the oculus and the diameter of the interior circle are the same (144 feet), so the dome would fit perfectly within a cube—or the interior could house a sphere 144 feet in diameter. The Pantheon has the largest surviving dome from antiquity.

The interior of the roof was probably intended to symbolize the arched vault of the heavens. The oculus, 27 feet across at the dome's apex, is the source of all light and is symbolic of the sun. The interior features coffers, which serve to reduce the weight of the dome.

The original Pantheon was built in 27 B.C. to 25 B.C. under the Roman Empire, during the third consulship of Marcus Vipsanius Agrippa, whose name is inscribed on the portico of the building. Agrippa's Pantheon was destroyed by fire in 80 A.D. It was rebuilt around 125 A.D., during the reign of the Emperor Hadrian. Hadrian was a cosmopolitan emperor who traveled widely in the east and was a great admirer of Greek culture. He may have intended the Pantheon, a temple to all the gods, to be an acknowledgement to varying beliefs and to promote unity among different churches for the subjects of the Roman Empire who did not worship the old gods of Rome—or who worshipped them under different names.

As the best-preserved monument of Roman architecture, the Pantheon has been enormously influential on European and American architects from the Renaissance through to the 19th Century. Included among buildings inspired by the Pantheon is the Gould Memorial Library housed at the Bronx Community College.

Why Use Architecture? What can it teach us?

Art is part of the complex structure of beliefs and rituals, social and political systems, and the stories of every human society. In architecture, the structure, function, and purpose of a building is fused seamlessly with the aesthetic, social, and political preferences of a particular time and place. The purpose for a building's use determines its size, its shape, and the materials chosen. The value that a society places on that purpose is reflected in the decoration, the scale, and the amount of time taken to create a building. Architects choose to borrow styles from the past as their interpretation of a particular philosophy or ideal. Buildings embody cultural values in every tile or stone.

This unit enables students to place architecture within a historical context. They will research and create models of the Pantheon in Rome. They will then visit the Gould Memorial library. While they are there, they will use visual literacy techniques to record what they observe. When they return to the classroom, the students will compare and contrast the Gould Memorial Library with its inspiration, the Pantheon in Rome. This will allow the students to sift out social, political, and cultural similarities and differences between ancient Rome and the Gilded Age in New York. Ultimately, the students will be able to bolster their studies of ancient Rome with actual experience, while developing their critical thinking skills by comparing the buildings and considering the cultural atmosphere within which each building was created.

Time Required:

Five class periods plus research that will be conducted as homework.

SESSION ONE:

Students will begin this unit through their study of the social, cultural, and political climate of ancient Rome.

Objective:

Students will be able to determine why the Pantheon was built, why it looks the way that it does, how it was funded, and what purpose it served in ancient Rome.

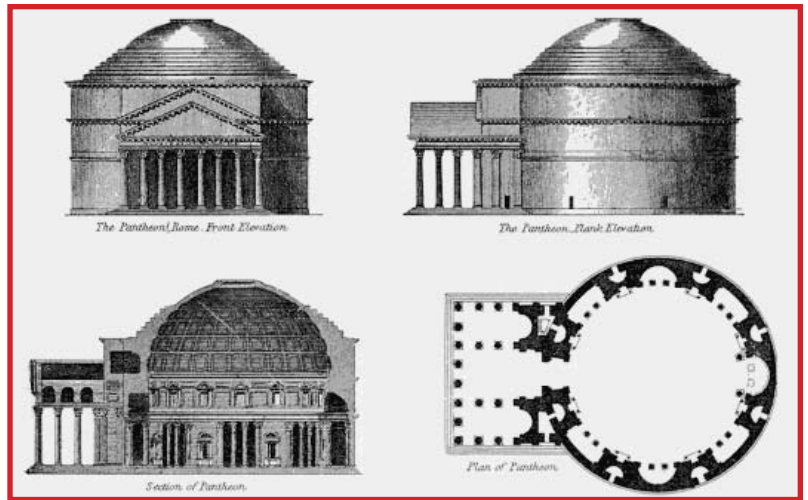
Do Now: Students respond to the following question, written on the board prior to class: "What can architecture teach us about the society in which it was built?"

Materials:

Packet with description and pictures of the Pantheon with interior and exterior views.

Activity:

After the students complete their reading on Ancient Rome in class, introduce the vocabulary necessary for them to conduct research on the site by creating a powerpoint presentation that gives examples of the vocabulary terms. See sources for a list of websites that reference the Pantheon. A photocopied set for students to take notes and make sketches can be used as a glossary of terms. They are then given a short reading on the Pantheon in Rome, taken from Historical Precedent above, and work in groups to answer a set of related questions. These may include:



Images of Pantheon in cross section and spherical mathematical modeling © Gert Sperling, "The Quadivium in the Pantheon of Rome", Fuldata, Germany

1. What does Pantheon mean? Why do you think Emperor Hadrian had a building created for this purpose? Who was it intended for?
2. What did the Pantheon borrow from Greek architecture and how is it different than most Greek buildings?
3. How did Roman culture differ from Greek society? Can you draw any conclusions by looking at the Pantheon?
4. What are some distinctive features to the structure of the Pantheon—why do you think it was built this way?
5. Have you seen these aspects of Roman architecture in other buildings? Which ones? What, if anything, have they come to symbolize?
6. There was a movement of American Architects from the time of Thomas Jefferson through the turn of the Twentieth Century that wished to revive Greek and Roman architecture in American buildings. What principles in classical culture and politics do you think the American architects were interested in bringing to life?

Homework:

Conduct research to gain structural information about the Pantheon. Find a floor plan of the Pantheon on the internet. Determine the dimensions of the dome, the oculus, and the portico. Try to find out the materials used, how thick the walls are, and what they did to alleviate some of the weight in the dome. Alternatively, this information could be provided to students to read for homework, if they do not have access to the internet.

SESSION TWO:

Students continue to work in groups and begin to problem solve ways to build a model of the Roman Pantheon.

Objective:

Students will be able to identify the challenges that were faced and accomplishments that

were achieved in the building of the Pantheon by building their own scale model.

Do Now:

Students respond to the following questions, written on the board prior to class: "If you had been the architect for the Pantheon, what would you have done differently? Why?"

Materials:

Foam core, Styrofoam, oak tag, scissors, tape, paper towel rolls, cardboard, rulers

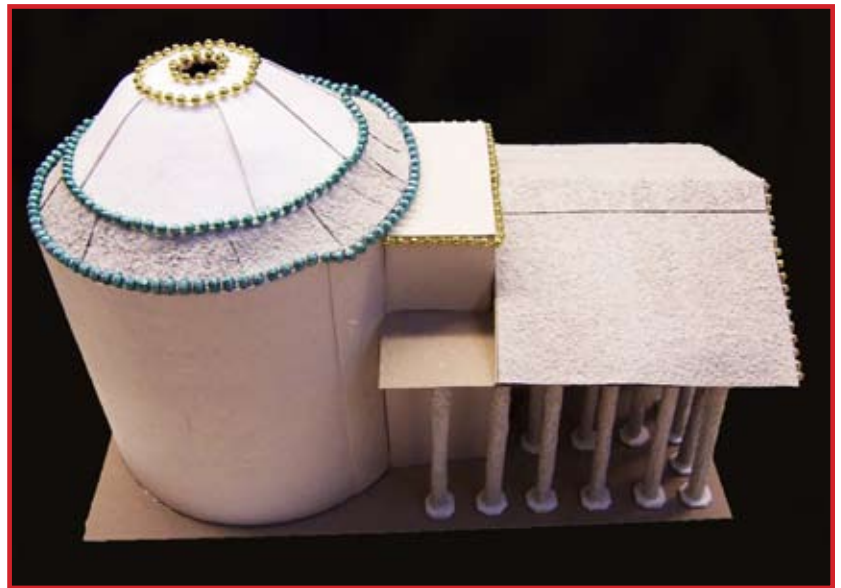
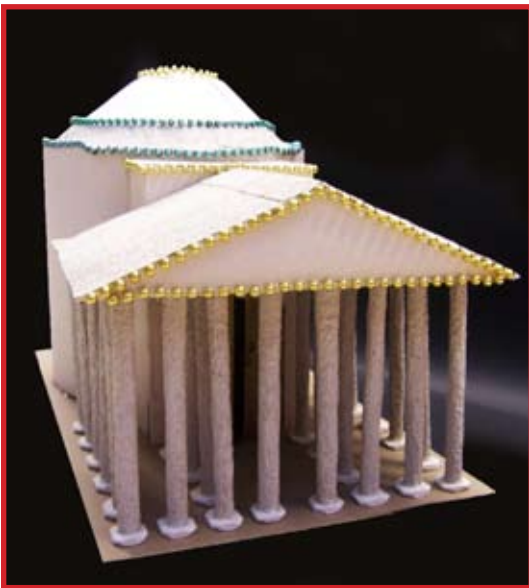
Activity:

Using the materials given, students are asked to work in groups of four to problem solve ways to create scale models of the Pantheon.

Homework:

One student from each group can study each of the following topics (if students have access to internet they can research online, otherwise information on each topic can be provided):

- Conduct research on the Gould Memorial Library and the Hall of Fame for Great Americans at the Bronx Community College Campus.
- Look up Stanford White. When did he practice architecture? What architectural style is he known for? Why was he interested in this style? Identify several buildings that he has designed.
- What was the Beaux Arts Movement? How did it come about? What did architects involved with this style borrow from Rome? Why?
- The Gould Memorial Library was built in the Gilded Age. How is this age characterized? What was happening socially, culturally, and politically?



Samples of finished model

SESSION THREE:

Students continue to work in groups on their models of the Pantheon. At the end of class, students share what they had learned from their homework research.

Objective:

Students will be able to begin to put the Pantheon into a broader context of history through

studying the way that architects later in history have borrowed from it.

Do Now:

Students respond to the following questions, written on the board prior to class: "Can you think of a building that you have seen, and or been inside of, that has had an impact on you? What type of building was it? Why do you think it had an effect on you? What does this tell us about the Pantheon? Would it be effective to us?"

Activity:

Students continue to work in groups on their models of the Pantheon. At the end of class, students share what they had learned from their homework research.

Wrap Up:

Ask students to make predictions on what they will see when they visit the Gould Memorial Library.

SESSION FOUR:

Students visit the Gould Memorial Library at the Bronx Community College Campus.

Objective:

Students will be able to experience the space of the library and will begin to compare their observations with their study of the Pantheon.

Materials:

Each student brings a pencil and an unlined notepad or a clipboard with sheets of printer paper.



Gould Memorial Library interior detail

Activity:

Students take a tour of the Gould Memorial Library. While on the tour, they take notes. After the tour, the students are required to create one interior space drawing, one exterior space drawing, and one detail drawing.

SESSION FIVE:

Students work together in groups to answer a series of questions that are intended to link their experience at the library with their study of the Roman Pantheon.

Objective:

Students will be able to compare and contrast the structure and purpose of the Roman Pantheon with the Gould Memorial Library.

Do Now:

Students respond to the following question, written on the board prior to class: "If you were to revive one aspect of Roman civilization, what would it be and why?"

Materials:

Students will use their own notes from the field trip, their models of the Pantheon, and notes from their research.

Activity:

Students work in groups to answer the following questions:

1. Compare and contrast the two buildings. What differences and/or similarities are there in scale? Decoration? Materials? Building technique? Purpose? Impact on community?
2. Consider the purpose for the buildings. Why would an architect build a library that is modeled after a temple? Are there guiding principles in common between the two buildings?
3. Why would an American Architect be interested in creating a building with Roman style? What is he saying to his own culture by borrowing from the past?
4. What do you think it would be like to be an immigrant living in the Bronx at the turn of the century and see the Gould Memorial Library? How would that compare to a Greek person living within the Roman Empire experiencing the Pantheon for the first time?
5. Stanford White was an architect working in the Gilded era. Compare the social and political climate of the Roman Empire with the turn of the twentieth century in America.

Homework:

Take your answer to one of these questions and turn it into an argumentative essay. Use references and cite them.

ASSESSMENT:

At the end of the workshop, students turn in their Pantheon models, the answers to the questions from sessions one and five, their notes and drawings, and their final papers. Develop a rubric that accounts for the different aspects of the project.

EXTENSIONS:

1. Students can create models of the Gould Memorial Library, paying attention to the relative scale, dimensions and décor of the two buildings.
2. Students can present oral reports of their findings to the class.
3. Students can design their own library that uses aspects from either of the buildings studied. This may include floor plans, sketches, and models.
4. Students can study the various ways in which the Pantheon has been used since it was built.
5. Students can explore the cultural biases implicit in both buildings. What class of people were these buildings intended for—if any in particular? Were these buildings designed to make their visitors feel empowered, small, or something else?
6. Students can read the New York Times article "Regilding a Bronx Landmark; Getty gives Community College a \$228,000 Architectural Grant" by Karen Arenson. They can then write a page on whether or not they think it is important to restore the building and why.

STANDARDS:

S.S. Standard 1—History of the United States and New York: Students will learn about Roman Society through a visit to the Gould Library in the Bronx. They will compare the historical, social, and intellectual structures in both classical Rome and the Gilded Age in the Bronx, NY at the turn of the 20th Century.

S.S. Standard 2—World History: Students will develop an understanding of the ideas, social and cultural values, beliefs, and history leading to the Roman Republic.

S.S. Standard 3—Geography: Students will study the physical and social environments and human systems of ancient Rome.

S.S. Standard 4—Economics: Students will consider the economic structures and controls in place in both ancient Rome and the Gilded Age.

S.S. Standard 5—Civics, Citizenship, and Government: Students will learn about the reigning political systems of both ancient Rome and the United States at the turn of the 20th Century; and the different assumptions on power, authority, governance, and law held by the people living during both of these times.

Blueprint Strand 1—Arts Making: Students create drawings and models of the Pantheon in Rome, and sketches of the Gould Memorial Library while on site.

Blueprint Strand 2—Literacy In the Arts: Students become familiar with the vocabulary and important considerations implicit in architecture.

Blueprint Strand 3—Making Connections: Students apply their understanding of both Roman and neo-classical architecture to interpret the history within which these structures were created.

Blueprint Strand 4—Community and Cultural Resources: Students take advantage of their access to Bronx Architectural Sites to better understand the purpose and power of architecture both historically and artistically.

Blueprint Strand 5—Careers and Lifelong Learning: Students will obtain exposure to architecture and art history as potential career paths.

RESOURCES FOR RESEARCH:

Web

American Memory Project, U.S. Library of Congress
<http://memory.loc.gov>

Bronx Community College, Hall of Fame for Great Americans
<http://www.bcc.cuny.edu/hallofFame>

Italy Guides, Virtual Panorama and Photo Gallery of Pantheon
<http://www.italyguides.it/us/roma/pantheon.htm>

Lehman College Art Gallery Public Art in the Bronx
<http://www.lehman.edu/publicart>

New York City Architecture
<http://www.nyc-architecture.com/ARCH/ARCH-McKimMeadandWhite.htm>

New York Times, "Regilding a Bronx Landmark; Getty gives Community College a \$228,000 Grant" by Karen Arenson
<http://www.nytimes.com/2004/07/30/nyregion/regilding-bronx-landmark-getty-gives-community-college-228000-architectural.html>

Pantheon, Article in Platner's Topographical Dictionary of Ancient Rome
http://penelope.uchicago.edu/Thayer/E/Gazetteer/Places/Europe/Italy/Lazio/Roma/Rome/_Texts/PLATOP*/Pantheon.html

Pantheon, Virtual Tour
<http://www.arounder.eu/pantheon/pantheon.html>

Metropolitan Museum of Art, Timeline of Art History
http://www.metmuseum.org/toah/splash.htm?HomePageLink=toah_l

Books

Honour, H. and Fleming, J. The Visual Arts: A History, New Jersey: Pearson Education, Inc., 2005.

Salvadori, M., Hooker, S. and Ragus, C. The Art of Construction: Projects and Principals for Beginning Engineers and Architects, Chicago: Chicago Review Press, 1990.

White, N. and Willensky, E. AIA Guide to New York City: The Classic Guide to New York's Architecture (4th Edition), NY: Three Rivers Press, 2000.