Lesson Plan

Activity/Project Title

Roman Archy
(Archy-the-Arch Seeks Distant Relative in Ancient Rome)

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Subject Area

Multiple subjects – including Math and Geography

Grade Level

Third Grade

Content (Concept/Understanding or Skill/Ability)

Students will be time traveling, using the Ancient Rome layer in Google Earth and will be guided by ARCHY-the-Arch, as he searches for his ancestors from long ago. Applying math, map, and data collection skills, students will become investigators discovering which one of the 7 arch structures from Ancient Rome to which he is most closely related. Using Google Earth, Google Sketchup, and graphic organizers, students will first be directed by their teacher, and then will move into small groups in a project-based-learning activity. Later they will reconvene as a class to share their findings and find the best match for Archy.

Prerequisites

Read with your students: *If I Were a Kid in Ancient Rome* or *Who Were The Romans*

- Google Earth Experience – Students should be able to locate several major cities.
- Google SketchUp Experience – Students should be able to open a file in SketchUp
- Map and Globe Skills to identify and locate Rome both on a physical map and Google Earth (graphic organizers are listed in materials)
- Timeline http://www.bbc.co.uk/schools/romans/timeline.shtml
- Teacher Background Info: http://www.eduplace.com/kids/socsci/ca/books/bkf3/writing/06_romarch.pdf

Contents

Instructional Goals and Objectives

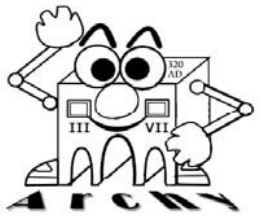
Student will be able:

- To locate and identify 7 structures in Ancient Rome
- To find the arches in each of the 7 structures
- To compare and contrast the similarities and difference of these 7 structures, including comparing, contrasting, sorting, and classifying two-dimensional shapes (within Google Earth) and three-dimensional objects (within Google SketchUp)
- Identify similar architectural structures which are in the present day (including Golden Arches)
- Create their own arch and journal who they would dedicate the arch to (and why)Description of Activity/Procedure

Description of Activity

Direct Instruction

Boys and Girls I would like to tell you about a good friend of mine. His name is Archy the Arch.



Archy the Arch spent all last summer researching his genealogy. He was able to trace his roots to Rome! That's right, Archy's great, great greats lived in Ancient Rome. The year was 320AD. Now he needs some help. He has a list of 7 possible relatives and he needs to determine which one has the most features in common with his own.

That's where you come in. Archy knows you are planning a virtual time-traveling field trip to Ancient Rome. After all it represents one of the cities noted for developing a working Democracy (Roots of Democracy). It also has a unique geography affording the city with enough protection from invaders to make it a thriving metropolis of it's time.

Archy's family thrived too. They were respected for their strength. They were built in a special way. The architects designed them using a new material called cement. This enabled them to create very strong load bearing arches.

Arches were used to honor people, military victories and also to create doorways in designing homes, coliseums and places of worship. Rome took the use of arches another step and used them to supply water to the city by creating aqueducts. They were like above ground streams.

Archy is made from marble and he is related to this arch (Marble Arch) which currently resides in London, England.

(http://upload.wikimedia.org/wikipedia/commons/d/d5/Marble.arch.london.arp.jpg

Based on this description record all of your observations. Make sure you include each of the features listed on the table.

Guided Practice – Here are the steps we will take. We will pull up Google Earth on the LCD and together we will look at the Ancient Rome layer and complete column 2. (Choose the coliseum)

1. Each team's first task is to study Archy's architecture.
2. Use the table provided to compare the features of the three arches.
3. Each team will have a chance to examine 1 of the other 6 Arches and make the same kinds of observations.
4. To help your team really capture every angle of the arch you will use a special program called Google SketchUp.
5. When your team completes the data recording you will circle similarities.
6. Complete a Venn Diagram using your data.
7. Next, each student writes a paragraph explaining whether or not you have enough data to draw any conclusions. In other words, have you discovered any of Archy's distant relatives? If you think so, explain and support your answer. Likewise if you think they are unrelated, explain the differences.

Independent Practice – Repeat the above steps as a student team. Teacher should assign each team a different arch.

Closure -

- Come back together whole group.
- Using the LCD teacher will explain that the display is a Master Table with space for all 8 arches including Archy.
- Together the class will help to fill in the data collected by their group until the table is complete.
- Highlight the similar features from each column.

Questions -

- Can the class come to any conclusions?
- Is there any consensus?
- What are the most important features to look for?
- How do arches in ancient Rome look compare to present day arches?

Materials/Equipment Needed

- Google Earth/Google Rome layer download and installation
- Google SketchUp download and installation
- Ancient Rome KMZ (modified for 3rd grade)
- Pencils or Crayons, Writing Paper or Word processor

Additional Resources

Graphic Organizers

- KWL: http://jlwagner.pbwiki.com/f/kwlworksheet.pdf
- Venn Diagram: http://jlwagner.pbwiki.com/f/venn.pdf
- World Map: http://www.eduplace.com/ss/maps/pdf/world_cont.pdf
- Map of Italy: http://abcteach.com/Maps/italy.htm
- Rubric: http://jlwagner.pbwiki.com/f/Archy_the_Arch_Rubric.pdf
- Table Worksheet: http://jlwagner.pbwiki.com/f/features_table_archy_rome.pdf

Links

http://www.historyforkids.org/learn/romans/index.htm

http://www.media.pearson.com.au/schools/cw/au_sch_kiem_ownw_1/im/rome.pdf

http://library.thinkquest.org/CR0210200/ancient_rome/rome.htm

http://www.bbc.co.uk/schools/romans/city.shtml

http://www.coker.edu/educationdept/arches_of_the_world.htm

http://www.eduplace.com/kids/socsci/ca/books/bkf3/writing/06_romarch.pdf

http://www.romaturismo.it/v2/allascopertadiroma/en/itinerari09.html

http://www.mariamilani.com/ancient_rome/rome_building_arches.htm

http://i77.photobucket.com/albums/j80/totallyuncool/image001.gif

http://www.hadrians.com/images/graphics/rome/architecture/roman_architecture_roman_arches.jpg

http://www.proteacher.com/090084.shtml

SketchUp Structures

These are SketchUp images of the seven structures included in the condensed Ancient Rome KMZ file.

Coliseum

http://sketchup.google.com/3dwarehouse/details?mid=2d1c3d338f8662df87ff49486a939c6f&prevstart=24

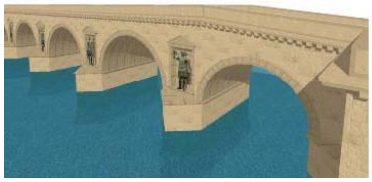
Arch of Titus

http://sketchup.google.com/3dwarehouse/details?mid=d8f8367301c1785bd1e28e1bb9f97b0d&prevstart=36

Arch of Constantine

http://sketchup.google.com/3dwarehouse/details?mid=f69c56e3f5b1a4a5b14d7b0aeb42e28&prevstart=0

Tiberus Bridge



http://sketchup.google.com/3dwarehouse/details?mid=6c6e441ab0df2ebf83b24f7d5f9fdad6&prevstart=0

Roman Aqueduct

http://sketchup.google.com/3dwarehouse/details?mid=853b0b9555ab0a3d876410e2bc73d527&prevstart=0

Arch of Septimius Serevus

http://sketchup.google.com/3dwarehouse/details?mid=459e3f8a3b19353ba68d32e412684d2&prevstart=60

Arch of Janus

http://sketchup.google.com/3dwarehouse/details?mid=a51e18e989cdbbb81e8699de84728497&prevstart=0

Standards Addressed

Math Standards

Principles and Standards for School Mathematics
http://www.nctm.org/standards/default.aspx?id=58

Algebra

Use mathematical models to represent and understand quantitative relationships

In grades 3–5 all students should

- model problem situations with objects and use representations such as graphs, tables, and equations to draw conclusions

Geometry Standard

Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships

In grades 3–5 all students should

- identify, compare, and analyze attributes of two- and three-dimensional shapes and develop vocabulary to describe the attributes.
- classify two- and three-dimensional shapes according to their properties and develop definitions of classes of shapes such as triangles and pyramids.

English Standards

National Council of Teachers of English
http://www.ncte.org/

NL-ENG.K-12.7 Evaluating Data

Students conduct research on issues and interests by generating ideas and questions, and by posing problems. They gather, evaluate, and synthesize data from a variety of sources to communicate their discoveries in ways that suite their purpose and audience.

NET Standards

National Educational Technology Standards (NETS•S) and Performance Indicators for Students

1. Creativity and Innovation

Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology. Students:

a. apply existing knowledge to generate new ideas, products, or processes.

b. create original works as a means of personal or group expression.

c. use models and simulations to explore complex systems and issues.

3. Research and Information Fluency

Students apply digital tools to gather, evaluate, and use information. Students:

a. plan strategies to guide inquiry.

b. locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.

4. Critical Thinking, Problem Solving, and Decision Making

Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. Students:

a. identify and define authentic problems and significant questions for investigation.

Assessment/Evaluation

1. Venn Diagram compare/contrast two of the 7 structures
2. Written paragraph of findings or Blog Post of group's conclusion about their findings
3. Post comment on another team's model

What's Next

Internet Activities:

1. Let your students explore polygons in the Polygon Playground by Math Cats
2. Go to PBS and use the java game of building a Roman Aqueduct
3. Watch the BrainPop video on the Origins of Democracy in Rome

Contributors

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