

Roman Artifact Geometry

Subjects: Math

Suggested Grade Levels: 6–8

Time Frame: 2 classes

*Michelle Shanahan,
St. Francis de Sales School*

Overview

Students will use Roman Artifacts to further develop their understanding of plane figures and transformations. These cultural artifacts will represent mathematics in multiple ways. (Can be applied using various artifacts depending on what culture the focus is on.)

Connection to Philadelphia World Heritage Tool Kit's Goal

Through this lesson, students will strengthen their appreciation and respect for the Roman people's cultural and natural heritage.

Core Curriculum Standards

- 7.G.E: Draw, construct and describe geometrical figures and describe the relationships between them.
- 7.G.2: Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.

Objectives

Students will be able to determine and use lines of symmetry; investigate rotational symmetry, including degree of rotation; create and use representations to organize, record, and communicate mathematical ideas; use representations to model and interpret physical, social, and mathematical phenomena; find evidence of geometry in artifacts and apply that to everyday objects.

Essential Question

How is geometry evident in Roman artifacts?

Materials Needed

Printed pictures of Roman artifacts with description, should be one for each student (link to website with artifacts in additional resources), a protractor, a ruler

Procedure

Step One: Ask students what an artifact is.

Step Two: Teacher will facilitate a discussion about the characteristics of an example image. Holding up a picture of a Roman Artifact, teacher will describe what it is and what it was used for. Then the teacher will ask students to describe the artifact and its distinguishing features. Ex: Lines of symmetry, angles, evidence of rotation, shapes used, etc. Write them on the board.

Step Three: Students will each be given an image of a Roman Artifact. That night for homework, they are to read about the artifact and then list properties and create a list of at least 5 distinguishing features unique to that artifact.

Step Four: The next day, students will share with a partner their artifact and the characteristics they found. Students will examine each other's artifact and add features that they additionally notice.

Step Five: Teacher will then give lesson on symmetry, and angles, which are important in order to create such intricate artifacts.

Step Six: After the lesson, students will find a different artifact from their classmate. They can either write a journal entry comparing the artifacts geometrically, or write a report on their findings (see link below for artifact recorder).

Step Seven: If time allows, volunteers can present a summary of their artifact to the class. Students can first try and guess what the object is and how it was used.

Outcome/Assessment

Students are asked to go home and find another example of geometry in a family heirloom and write a summary/report on their findings using what they learned in class today.

Special Education and English Language Learners Accommodations

Students who need a little extra help could be given a key of geometric features and properties so that they can reference this when examining their artifact.

For gifted students, once finished with activity, they could draw an image found on the artifact on graph paper using their protractor and determine the axis(es) of reflections and the degree of rotational symmetry.

Additional Resources

Web:

<http://www.roman-artifacts.com/>

<https://www.teacherspayteachers.com/Product/Artifact-Recorder-1414680>