

LessonTitle: Assessment How Big Was the Roman Empire Pre 4.8	
Utah State Core Pre-Algebra Content Standards 4.2 Process Standards 1-5	
Summary	
In this activity, students use proportions to examine the distance to the outposts of the Roman Empire, the percentage of the Roman Empire covering Europe, Asia, and Africa, and the question of what happened to the Roman Empire considering the number of soldiers as related to the area.	
Enduring Understanding	Essential Questions
Mathematics can help us answer questions in all aspects of life and history.	How can we use mathematics to help us figure out what happened to the Roman Empire?
Skill Focus	Vocabulary Focus
<ul style="list-style-type: none"> • Measurement • Irregular Area • Percentages • Ratio and Proportion 	
Assessment	
Materials: Calculators, globes, string, measurement tools, map (see below), tracing paper, graph paper, ¼ inch or ½ cm graph paper transparencies (1 per group)	
Launch	
Explore	
Summarize	
Apply	

Directions:

Cover the scale on the globes. The students will need to develop their own scales using string and the knowledge that the earth has a 25,000 mile circumference.

Assess prior knowledge and discuss what the Roman Empire was. Then discuss the essential question without giving away that the students will be using the concepts of ratio and proportion to help them. Discuss what an outpost is and help students locate the outposts on the globe.

Examine the rubric to be used for assessment. Then let the problem solving begin. Do not give away how to solve the problems—just ask questions that will help lead students to figure out a way to think about the questions.

The teacher may need to suggest the use of graph paper transparencies as a way to examine area. Estimating area can be as simple as holding your thumb over the Roman Empire and then finding how many times it fits into Europe etc. Usually students like to count squares on the graph paper.

To find the area of the Roman Empire, students will need to use the scales on the map and find how many square miles are in a graph transparency square.

Roman Empire Assessment Rubric

Group Names _____

Correct Answers

- 4 Correct answers, work shown, strategies legitimate, from individual
- 3 Correct answers, work shown, after prompt
- 2 Close
- 1 Not close
- 0 No response or totally incorrect.

Problem Solving

- 4 Shows sophistication in strategies, generalization, representations, & extension
- 3 Good strategies. Some good generalization and representation
- 2 Some strategizing. Weak generalization and representation
- 1 Tries
- 0 No response

Communication

- 4 Exemplary, Clearly describes process and solution
- 3 Adequate, Some reasoning and detail, not clear
- 2 Minimal response
- 1 Tries
- 0 No response

Pre 4.8 How Big Was the Roman Empire

Record all your answers on separate paper. This way you'll have plenty of room to answer completely and show your work and thinking.

Prior knowledge questions:

- What was the Roman Empire?
- What is an outpost?

Part I. Use a piece of string, a globe, and the knowledge that the circumference of the earth is about 25,000 miles. Find the approximate distance from Rome to the outposts of the Roman Empire. (These locations are present day names.)

Show all your work and explain your thinking below. Part of your grade will be assessment of strategies and evidence of thinking.

- | | |
|----------------------|---------------------|
| 1) Northern outpost: | Edinburgh, Scotland |
| 2) Southern outpost: | Aswan, Egypt |
| 3) Eastern outpost: | Yazd, Iran |
| 4) Western outpost: | Casablanca, Morocco |

Part II. Use the map of the Roman Empire to help you estimate the following: (Hint: Use some tracing paper and graph paper to help you.)

Keep all your work, maps, tracing paper, graph paper etc. Part of your grade will be assessment of strategies used in problem solving

- 5) About what % of present day Europe did the Roman Empire cover?
- 6) About what % of present day Africa did the Roman Empire cover??
- 7) About what % of present day Asia did the Roman Empire cover?
- 8) About what % of the entire world did the Roman Empire cover?

Part III. Estimate the area of the Roman Empire.

Part IV. Research the size of the Roman army at the height of the empire.

How might you describe the relationship between the size of the empire and the size of the army.

Considering this relationship, what conclusions might be drawn about the fate of the Roman Empire?

