In Search of the Ninth: Using Forensic Science to Investigate the Disappearance of Ancient Rome’s Ninth Legion

Author: Maria Salas Murphy
Grade Level: 3
Duration: 4 class periods

National Standards
GEOGRAPHY
STANDARDS
Element Two: Places and Regions
4. The physical and human characteristics of places.

Element Four: Human Systems
9. The characteristics, distribution, and migration of human populations on Earth’s surface.

Common Core Standards
(AZ College and Career Ready Standards)
ELA COMMON CORE
Reading
Informational Text
Key Ideas and Details
3.RI.3. Describe the relationship between a series of historical events, specific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.
Craft and Structure
3.RI.4 Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 3 topic or subject area.

Writing
Text Types and Purposes
3.W.1. Write opinion pieces on topics or text, supporting a point of view with reasons and information.

Speaking and Listening
Presentation of Knowledge and Ideas
3.SL.4 Report on a topic or text, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.

Other Arizona Standards
SOCIAL STUDIES
STANDARDS
Strand 2 World History
Concept 2: Early Civilizations
PO 3. Recognize how representative government, mythology, architecture (e.g., aqueducts), and language (e.g., Latin) in Ancient Rome contributed to the development of their own and later civilizations.

PO 4. Discuss the contributions of political and military leaders of Ancient Rome (e.g., Julius Caesar, Augustus, Constantine) whose actions influenced their own and later civilizations.

Strand 4 Geography
Concept 4: Human Systems
PO 5. Discuss that Ancient Civilizations have changed from past to present.

SCIENCE
Strand 1: Inquiry Process
PO 1. Formulate relevant questions about the properties of objects, organisms, and events of the environment using

ARIZONA GEOGRAPHIC ALLIANCE
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observations and prior knowledge.
PO 2. Predict the results of an investigation based on observed patterns, not random guessing

Concept 3: Analysis and Conclusions.
PO 4. Generate questions for future investigations based on the conclusions of the investigation.

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| **Integrating Processes** | **Application** | **Assessment** |
| Reading | Hands on | Individual |
| Writing | Meaningful | Group |
| Speaking | Linked to objectives | Written |
| Listening | Promotes engagement | Oral |

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<td>• following oral and written directions, implicit and explicit</td>
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<td>• participating in full class, group, and pair discussions</td>
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<td>• asking and answering question explaining actions</td>
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| Goal 2, Standard 2 |
| To use English to achieve academically in all content areas: Students will use English to obtain, process, construct, and provide subject matter information in spoken and written form |
| • comparing and contrasting information |
| • persuading, arguing, negotiating, evaluating, and justifying |
| • listening to, speaking, reading, and writing about subject matter information |
| • gathering information orally and in writing |
| • analyzing, synthesizing, and inferring from information |
| • formulating and asking questions |
| • understanding and producing technical vocabulary and text features according to content area |

Arizona English Language Proficiency Standards

Stage III
In Search of the Ninth

Reading

Comprehension of Oral Communications
Standard 2: The student will express orally his or her own thinking and ideas.
The student will communicate orally by:
B-8: presenting with a group, a variety of oral reports (e.g., expository, cause and effect, persuasive, etc.) containing an introduction, body, conclusion and transitions, with instructional support.

Comprehending Text
Standard 4: The student will analyze text for expression, enjoyment, and response to other related content areas. The student will demonstrate reading comprehension by:
B-12: identifying the cause and effect relationship of two related events in a literary selection.

Stage III
Writing

Standard 1: The student will express his or her thinking and ideas in a variety of writing genres. The students will express his or her thinking and ideas by using a variety of writing genres, as demonstrated by:
B-7: writing a persuasive statement with instructional support.

Standard 2: The student will identify and apply conventions of standard English in his or her communications. The student will identify and apply conventions of standard English in his or her written communications by:
B-4: using capitalization for proper nouns (i.e., names, days, months), titles (including book titles)
B-5: using punctuation for:
• sentence endings
• commas to punctuate items in a series and introductory words
• apostrophes to punctuate contractions and singular possessives.

Standard 4: The student will integrate elements of effective writing to develop engaging and focused text. The student will integrate elements of effective writing to develop engaging and focused text as demonstrated by:
B-3: choosing ideas, words, details and structure that reflect audience and purpose (pragmatics) with instructional support.

Overview

The ancient Roman army was composed of single men, over the age of 20, who were committed to serve in this army and remained unmarried for 25 years. These Roman soldiers were divided into approximately 30 legions. There were between 4,000 and 6,000 men in each legion. The legions fought together to defend and to expand the Roman Empire. Following Emperor Hadrian’s command, one of these legions, the Ninth Legion, set off to fight in the northern part of what we now know as Great Britain. The Ninth Legion was never seen or heard from again . . .

Purpose

In this lesson students will investigate a mystery: What happened to the Ninth Legion? What clues could help us to find the legion or know its fate? Students will learn how forensic scientists record observations and analyze data to solve mysteries.

This lesson includes strategies for diverse learners (ELLs).

Key Vocabulary

Legion: a group of 4,000 to 6,000 Roman soldiers
Legionary: a soldier who is a member of a legion
Empire: a large area of land and people ruled by an emperor
Emperor: the ruler of an empire.
Forensics: the use of science to investigate something after it has happened
Impression: a mark produced by pressure
Interview: a meeting where a writer or reporter asks questions of one or more people

Materials

• Video Clip of Rome’s Lost Legion
• Slides from Roman Army website
• Vocabulary cards
In Search of the Ninth

- Vocabulary Test and Answer Key
- Fingerprinting investigation worksheet
- Transparent tape
- Sharpened pencils
- Scratch paper
- White cardstock sheets
- Markers
- Magnifying glass
- Footprints investigation worksheet
- Plaster of Paris
- Water
- Hair spray
- Teeth impressions investigation worksheet
- Styrofoam plate
- Scissors
- Thick chocolate
- Interviews investigation worksheet
- Ticket to Leave for Session One and Two
- Forensic Activities Written Report Scoring Guide
- Oral Presentation Scoring Guide

Objectives

The student will be able to:

1. recognize some of the contributions of Rome.
2. describe how ancient civilizations are different from today.
3. analyze the data obtained from forensic investigations to draw conclusions.
4. construct an argument to defend the conclusions.
5. formulate questions.

Procedures

Prerequisite Knowledge: Students should have been introduced to the ancient Roman Empire. They should be familiar with ancient Rome’s mission to expand the empire.

SESSION ONE

Engage:

a. Show students the video clip of Rome’s Lost Legion. [Link to video] Ask students to discuss their thoughts about the video with a partner. (Grouping Options: Partners)

b. Explain the title of our lesson, In Search of the Ninth. Inform students that they will be doing some investigations in order to attempt to solve this mystery of what happened to the Ninth Roman Legion.

c. Review with students what they have learned about the ancient Roman Empire and its mission to expand. (Preparation: Linking to past learning) Record key points on the whiteboard. (Scaffolding: Comprehensible input)

d. Show students slides about the Roman army from this website: [Slide link] Emphasize the vocabulary pertinent to this lesson: empire, emperor, legion, and legionary. Share vocabulary cards with those students who would benefit from the visual images. (Scaffolding: Comprehensible input)

e. Ask the students if they were to travel to Rome this week, would they find the Roman army just like it was in ancient times? (No) Discuss what things would have changed.

Today’s soldiers:
- can be women
- can marry
- don’t have to be in the army for 25 years
- don’t use slingshots and bows and arrows
- don’t ride horses
- etc.

(Application: Linked to objectives)

f. End the session by having students complete the Ticket to Leave for Session One. (Assessment: Independent)

SESSION TWO

Explore:

a. Ask students if they have ever watched a police or detective show on TV. Have students name some of the ones they have seen. (Preparation: Linking to background) (Application: Meaningful)

b. Share the remaining vocabulary terms for this lesson (forensics, impression, and interview). Distribute vocabulary cards with those students who would benefit from the visual images.

c. Tell students that today they will be doing investigations in an attempt to solve the mystery of the Ninth Legion.

d. Divide students into 4 groups and have each group complete a forensic activity: fingerprinting, foot printing, teeth impressions and forensic interviewing. Rotate all four groups every 15 minutes until the 4 groups complete the 4 activities. (Application: Promotes engagement, Hands On) (Grouping Option: Small groups)

e. Explain to students that in the next session they will analyze their data and present their findings to the whole class.

f. Conclude the session by having students complete Ticket to Leave for Session Two. (Assessment: Independent)
SESSION THREE

Explain:

a. Ask students to define forensics based on what they learned in Session Two. **(Preparation: Linking to past learning)**

b. Explain that forensic scientists analyze evidence from crime scenes using the tools of science and technology. And today, they will working like forensic scientists.

Elaborate:

a. Tell students that as forensic scientists, they are to analyze the data they collected in Session Two. It is their job to work together to decide which of the 4 activities could have been used to solve the mystery of the lost legion. Tell students that for each activity they complete, they will need to present an oral argument as to why that forensic activity could or could not have been helpful in solving the mystery. **(Grouping Options: Small group)**

b. Review what an oral and written argument would look like. **(Scaffolding: Modeling)**

c. Allow students time to work together to complete the task. Monitor progress to ensure that all students understand the assignment. **(Scaffolding: Comprehensible input)**

SESSION FOUR

Evaluate:

a. Distribute and discuss the Forensic Activities Report Scoring Guide and the Presentation Rubric with students.

b. Have each group write its report explaining each of the 4 forensic activities and how useful they would be in solving the mystery. Remind students to use evidence from the data they gathered. The report should include the vocabulary presented in this lesson. **(Assessment: Written) (Integrated Processes: Writing)**

c. Have each group present their report to the class. Remind students that each student must present an integral part of the report. **(Assessment: Individual and Small Group) (Integrated Processes: Speaking and Listening)**

Assessment

Mastery will be considered:

For a geography and history grade:

- 75% or higher on the 4 point Ticket to Leave for Session One.

For Reading and Writing grades:

- 80% or higher on the Forensic Activities Written Argument Scoring Guide.
- 75% or higher on the 4 point Ticket to Leave for Session Two.
- 75% or higher on a test of key vocabulary terms.

For Science grades:

- 80% or higher on the Interviews investigation worksheet.
- 100% on Fingerprinting, Teeth Impressions, and Footprints investigation worksheets.

For Listening and Speaking grade:

- 80% or higher on the Oral Presentation Scoring Guide.

Extensions

1. Read The Eagle of the Ninth by Rosemary Sutcliff to the class and discuss the author’s perspective on what happened to the Ninth Legion.

2. Discuss Hadrian’s Wall and Hadrian’s reasons for having it built. Compare and contrast it to the Great Wall of China.

Sources

Video Clip of Rome’s Lost Legion
http://www.history.co.uk/shows/romes-lost-legions/videos/romes-lost-legion-introduction.html

Slides about Roman Army
http://www.bbc.co.uk/schools/primaryhistory/roman/people/hadrian/the_roman_army/

Forensic Activities:
http://www.cyberbee.com/whodunnit/crime.html

Forensics Vocabulary:
www.dictionary.com

Sutcliff, Rosemary. The Eagle of the Ninth. First Square Fish Edition: November 2010

Graphics

Foot Prints:
http://www.newtonsapple.tv/TeacherGuide.php?id=913

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