

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

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Grade Level 2
Duration 4 class periods

National Standards

GEOGRAPHY

Element 2: Places and Regions

4. The physical and human characteristics of places.

Element 4: Human Systems

9. The characteristics, distribution, and migration of human populations on Earth's surface.

AZ Standards

ELA Standards

Reading

Informational Text

Key Ideas and Details

2.RI.3 With prompting and support, describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.

Craft and Structure

2.RI.4 Determine the meaning of words and phrases in a text relevant to a grade 2 topic or subject area.

Writing

Text Types and Purposes

2.W.1. Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons, and provide a concluding statement or section.

Speaking and Listening

Presentation of Knowledge and Ideas

2.SL.4 Tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences.

SCIENCE

Core Ideas for Using Science

U1: Scientists explain phenomena using evidence obtained from observations and or scientific investigations. Evidence may lead to developing models and or theories to make sense of phenomena. As new evidence is discovered, models and theories can be revised.

U2: The knowledge produced by science is used in engineering and technologies to solve problems and/or create products.

U3: Applications of science often have both positive and negative ethical, social, economic, and/or political implications.

Arizona Social Science Standards

GEOGRAPHY

Examining human population and movement helps individuals

understand past, present, and future conditions on Earth's surface.

2.G3.1 Explain why and how people, goods, and ideas move from place to place. Key concepts include but are not limited to transportation, trade, immigration, migration, and communication

Global

interconnections and spatial patterns are a necessary part of geographic reasoning.

2.G4.1 Identify different physical and cultural regions in the world.

Disciplinary Skills and Processes

SP1: Chronological reasoning requires understanding processes of change and continuity over time, which means assessing similarities and differences between historical periods and between the past and present.



SP4: Thinking within the discipline involves the ability to analyze relationships among causes and effects and to create and support arguments using relevant evidence.

SIOP Elements		
Preparation Adapting content Linking to background Linking to past learning Strategies used	Scaffolding Modeling Guided practice Independent practice Comprehensible input	Grouping Option Whole class Small groups Partners Independent
Integrating Processes Reading Writing Speaking Listening	Application Hands on Meaningful Linked to objectives Promotes engagement	Assessment Individual Group Written Oral

Arizona English Language Proficiency Standards

Stage II

Reading

Comprehension of Oral Communications

Standard 1: The student will listen actively to the ideas of others in order to acquire new knowledge.

B-6: following multiple-step directions for classroom and other activities.

B-5: asking and responding to academic questions using complete sentences, with instructional support. (i.e., who, what, where, when, why, how) (e.g., *making comparisons and describing events, etc.*).

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-10: responding to stories by answering questions about cause and effect with instructional support.

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-3: completing a written summary of the key events or ideas of informational text using key words and phrases with instructional support.

B-4: creating expository text (e.g., *labels, lists observations, and journals*) using key words and phrases based on research, observation, and/or experience 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 resources to spell words (word walls, environmental print, picture dictionaries).

B-7: using periods, question marks and exclamation points with instructional support.

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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-1: participating in writing a class/small group generated text that expresses a main idea as modeled by the teacher.

Vocabulary

Standard 2: The student will acquire English language vocabulary and use it in relevant contexts.

B-5: determining the meaning of grade-level content area words 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 remain 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

- Roman Legion Introduction
<https://rome.mrdonn.org/romanlegion.html>
- Vocabulary cards



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- 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 Opinion Scoring Guide
- Oral Presentation Scoring Guide

Objectives

The student will be able to:

1. describe how some aspects of ancient civilizations are different from today.
2. analyze the data obtained from a forensic investigation to draw conclusions.
3. construct an opinion based on evidence.
4. formulate questions to gain information.

Procedures

*Prior to this lesson, the teacher should become familiar with the story of the Ninth Legion and its disappearance either through websites such as <https://www.historia.ro/sectiune/general/articol/the-enigma-of-the-ninth-legion> or from reading the book, *The Eagle of the Ninth*, by Rosemary Sutcliff. For Session Two, it would be helpful to have classroom volunteers (older students or adults) to help with*



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each of the groups conducting the forensic experiments.

SESSION ONE

Engage:

- Introduce the lesson by telling students that they are going to be forensic scientists and solving a mystery. Explain the word “forensics” and place it on the word wall. Then tell them the story of the Ninth Legend. After engaging them with the mysterious tale, project and read the introductory information about Roman legions from this website.
<https://rome.mrdonn.org/romanlegion.html>
- If time, let the students choose other links to project and read such as “Build a Roman Fort” or “The Roman Army.”
- Ask students to discuss their thoughts about what they learned with a partner. **(Grouping Options: Partners)**
- Reiterate the title of the 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.
- 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)
 - 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)

- End the session by having students work in groups complete the Ticket to Leave for Session One. **(Assessment: Group, Written)**

SESSION TWO

Explore:

- 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)**

- 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.
- Tell students that today they will be doing investigations in an attempt to solve the mystery of the Ninth Legion.
- 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)**
- Explain to students that in the next session they will analyze their data and present their findings to the whole class.
- Conclude the session by having students work in groups to complete Ticket to Leave for Session Two. **(Assessment: Group, Written)**

SESSION THREE

Explain:

- Ask students to define forensics based on what they learned in Session One and Two.
(Preparation: Linking to past learning)
- Explain that forensic scientists analyze evidence from crime scenes using the tools of science and technology. And today, they will work like forensic scientists.

Elaborate:

- Tell students that as forensic scientists, they are to analyze the data they collected in Session Two and then decide which of the 4 activities was the best way to solve the mystery. Then they will present their group’s opinion on what was the most helpful way to solve the mystery to the class.
(Grouping Options: Small group)
- Review what a written opinion would look like.
(Scaffolding: Modeling)
- Allow students time to work together to complete the task. Monitor progress to ensure that all students understand the assignment. **(Scaffolding: Comprehensible input)**

Evaluate:

- Distribute and discuss the Forensic Activities Written Opinion Scoring Guide.
- Have each group compare their draft versions of their written opinions to the Written Opinion Scoring Guide so they are sure they have included all requirements. Remind students that they should introduce their opinion with the mystery they are



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solving, then include the evidence from the data they gathered, and be sure the vocabulary words presented in this lesson are in the opinion.

(Assessment: Written) (Integrated Processes: Writing)

SESSION FOUR

c. When groups have their final copy of the written opinion completed, share the Oral Presentation Scoring Guide. Allow some time for groups to prepare their presentations. Remind students that each student must present an integral part of the report. Have each group present their opinions to the class. **(Assessment: Individual and Small Group) (Integrated Processes: Speaking and Listening)**

Assessment

Mastery will be considered:

Geography and social studies:

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

ELA grades:

- 80% or higher on the Forensic Activities Written Opinion Scoring Guide.
- 75% or higher on the 4 point Ticket to Leave for Session Two.
- 75% or higher on Vocabulary Test.
- 75% or higher on the Oral Presentation Scoring Guide.

Science grades:

- 80% or higher on the Interviews investigation worksheet.

- 100% on Fingerprinting, Teeth Impressions, and Footprints investigation worksheets.

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

Information about Roman Legions

<https://rome.mrdonn.org/romanlegion.html>

More information about Roman Army

http://www.bbc.co.uk/schools/primaryhistory/romans/the_roman_army/

Forensic Activities:

<http://www.cyberbee.com/whodunnit/crime.html>

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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<http://office.microsoft.com/en-us/images/>



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