

# Living the Pirate's Life: Geocaching to Discover Hidden Treasures

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**Grade Level** 6-High School  
**Duration** 3 class periods

## National Standards

### GEOGRAPHY

#### Element 1: The World in Spatial Terms

1. How to use maps and other geographic representations, geospatial technologies, and spatial thinking to understand and communicate information

#### Element Three:

#### Physical Systems

7. The physical processes that shape the patterns of Earth's surface

## AZ Standards

### ELA

#### Reading

#### Integration of Knowledge and Ideas

6.RI.7 Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.

#### Production and Distribution of Writing

6.W.4, 7.W.4, 8.W.4 and 9-10.W.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

### TECHNOLOGY

#### Standard 1. Empowered Learner

**6-8.1.d.** Students navigate a variety of technologies and transfer their skills to troubleshoot and learn how to use new technologies.

**9-12.1.d.** Students understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies, and are able to transfer their knowledge to explore emerging technologies.

## Arizona Social Science Standards

### GEOGRAPHY

#### The use of geographic representations and tools helps individuals understand their world.

6.G1.1 Use and construct maps, graphs, and other representations to explain relationships between locations of places and regions. Key concepts include major landforms and water bodies, countries, cities, ecosystems, climate, languages, religion, economic systems, governmental systems, population patterns, disease, trade routes, and settlement patterns

7.G1.1 Use and construct maps and other geographic representations to explain the spatial patterns of cultural and environmental characteristics. • Key tools and representations such as maps, globes, aerial, and other photos, remotely sensed images, tables, graphs, and geospatial technology

8.G1.1 Use geographic tools and representations to analyze historical and modern political and economic issues and events. Key tools and representations such as maps, globes, aerial and other photos, remotely sensed images, tables, graphs, and geospatial technology

HS.G1.2 Use geospatial tools and related technologies to construct relevant geographic data to explain spatial patterns and relationships. Key tools and representations such as Google Earth, story mapping, wayfaring apps, and other geospatial technologies

## Overview

Developing the skills needed to navigate around our world has become a daily necessity. Understanding how our navigation systems work

in conjunction with modern technology opens the world to new discoveries.

## Purpose

# Living the Pirate's Life: Geocaching to Discover Hidden Treasures

In this lesson students will learn how the Global Positioning System (GPS) works by using a geocache application on a digital device and physically locating geocaches in their community.

## Key Vocabulary

**latitude:** horizontal line system on a map or globe to measure how far north and south a place is from the Equator

**longitude:** vertical line system on a map or globe to measure how far east or west a place is from the Prime Meridian

**scale:** the relationship between distance on the map and distance in real life

**compass:** a tool for finding direction

**cardinal direction:** one of the four main compass directions - north, east, south, or west

**Global Positioning System (GPS):** a navigation system of satellites and computers that can figure out the exact latitude and longitude of a location on Earth

**map:** a flat representation of a region or area

**terrain:** the physical features of a piece of land (hill, valley, cliff, river, etc.)

## Materials

- YouTube video How GPS Works Today? [https://www.youtube.com/watch?v=wCcARVbL\\_Dk](https://www.youtube.com/watch?v=wCcARVbL_Dk) (10 min)
- Computer, projection device, internet
- Vocabulary Cards
- At least one cell phone or computer per group
- Internet/cell service
- Living the Pirate's Life PowerPoint
- Geocaching app
- Google Earth app
- 5x7 index cards
- Vocabulary Test and Answer Key
- Living the Pirate's Life Worksheet Actual Geocaching
- Living the Pirate's Life Worksheet Online Geocaching
- Example of a Campus Hunt (Patagonia School area)
- Measuring devices (app or tape measures)
- Compasses (app or actual ones)
- Living the Pirate's Life Learning Experience essay (Actual Geocaching)
- Living the Pirate's Life Learning Experience essay (Online Geocaching)

## Objectives

The student will be able to:

1. Use the Global Positioning System through a Geocaching app.
2. Measure distance on a map or in the environment.
3. Explain how human interactions in the environment impacts an area.

## Procedures

*Prerequisite Skills: Students can use Google Earth and can identify latitude and longitude.*

### SESSION ONE:

1. Introduce the lesson by asking students how their phones (computers) locate their position. If a student gives the response of GPS. Ask the student how does GPS work. Project the YouTube video How GPS Works Today? [https://www.youtube.com/watch?v=wCcARVbL\\_Dk](https://www.youtube.com/watch?v=wCcARVbL_Dk) (10 min)
2. Project the Vocabulary Cards and discuss the terms that will be part of the lesson.
3. Project slide 1 of the PowerPoint presentation titled Living the Pirate's Life and pass out 2 index cards to groups of 2-3 students. Explain that today they will be learning about GPS and applying it by doing something called geocaching.
4. Project slides 2-3 and explain the directions. Project the geocaching website found at (<https://www.geocaching.com/play>) and guide the students through the sign up and validation of their accounts. Instruct students to enter the school's zip code. They will choose two or three locations and record as much information about the locations as they find on the website.
5. Project slides 4-7 and demonstrate how to find a location. Have students click on a title of the geocache and write down information on ONE index card.
6. Project slide 8 and have the groups use their SECOND index card to create or research a latitude and longitude address for two places in the world. Have students access Google Earth and put the coordinates in the search bar and determine the location. Have the groups write their answers on the back of the SECOND index card.
7. Once completed, collect the index cards and exchange them with other groups in the class.

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having them use Google Earth to find the locations.

10. Closure: Have groups identify locations chosen on Google Earth or the Geocaching app and have them explain why they chose those specific locations.

### SESSION TWO

*Prior to this Session: Decide if you can take your students outside to do actual geocaching or if you will only do online practice. It is highly encouraged to do the field study (geocaching) in the real environment, but the teacher/classroom volunteer will need to prepare for the hunt. Look at the Example of a Campus Hunt done for Patagonia School. You will need to create such a hunt and bury/hide the geocaches around the area to be explored.*

1. Review Session One by distributing the Vocabulary Test and having students take the assessment.
2. Review how to use Geocaching app on students' computers/cell phones.
3. **Option One:** Project slide 9. Distribute the Living the Pirate's Life Worksheet Actual Geocaching and your campus/community hunt. Divide students into small groups and give each group a measuring device (tape measure or directions for a cell phone measuring app). Give each group a compass or directions for a compass app on their cell phones. Explain what is required to complete the worksheet. Take students into the area to be explored. Return to the classroom when the worksheet is completed. **Option Two:** Project slide 10. Distribute the Living the Pirate's Life Worksheet Online Geocaching. Divide students into small groups. Explain what is required to complete the worksheet. Allow time for students to work.

### SESSION THREE:

*Prior to this Session: Select the essay assessment for the type of experience students had in SESSION TWO.*

**Option One:** Distribute the Living the Pirate's Life Learning Experience essay (Actual Geocaching) and explain the directions and scoring guide.

**Option Two:** Distribute the Living the Pirate's Life Learning Experience essay (Online Geocaching) and explain the directions and scoring guide.

## Assessment

The Vocabulary Test can be graded to measure language acquisition. Mastery will be considered a score of 80% or higher.

Living the Pirate's Life Worksheet (both versions) will be scored for completeness and accuracy. Mastery will be considered having correct information for 7 of the 10 geocache locations.

Living the Pirate's Life Learning Experience essay (both versions) will be scored with the scoring guide. Mastery will be considered a score of 80% or higher.

## Extensions

Have students discuss the assignment with parent and explain that extra credit for the assignment can be achieved by going out with an adult, after school, and locating geocaches around the city they have not discovered. You may want to put a limit on how much extra credit you are giving.

## Sources

Geocache: <https://www.geocaching.com/play>

Google Earth: <https://earth.google.com/web>