

LESSON 4: INTRODUCTION TO GEOCACHING

Grade-Level Outcomes

Primary Outcome

Outdoor pursuits: Demonstrates correct technique for basic skills in 1 self-selected outdoor activity. (S1.M22.6)

Embedded Outcomes

Challenge: Generates positive strategies such as offering suggestions or assistance, leading or following others and providing possible solutions when faced with a group challenge. (S5.M3.7)

Personal responsibility: Exhibits responsible social behaviors by cooperating with classmates, demonstrating inclusive behaviors and supporting classmates. (S4.M1.7)

Lesson Objectives

The learner will:

- describe the components of a GPS used in geocaching.
- use the GPS to find caches.

Equipment and Materials

- GPS trackers or handheld devices with GPS apps
- Worksheets and pencils
- Caches to hide

Introduction

Ask students to share their homework activity.

In the previous three lessons, we have used the compass to find our way. Today, we will add the handheld GPS tracker to our lesson. You will learn about geocaching and the adventures that exist in the sport of caching.

Instructional Task: Rules of Geocaching

■ PRACTICE TASK

What is a cache?

- A cache is a group of items that have been hidden for others to find. It usually is placed in a waterproof container.
- It contains a logbook, a trinket, or both.
- It usually is camouflaged to prevent it from being discovered by someone before the geocacher finds it.

Rules

1. Keep safe!
 - Stay away from traffic.
 - Use the buddy system.
 - Stay away from strangers.
2. Respect the environment.
 - Never bury a cache.
 - Don't deface any object.
 - Don't litter (trash in, trash out).
 - Tread carefully, and avoid things such as sprinkler heads, landscaping lights, and signs.

3. Respect boundaries.
 - Stay off private property.
 - It is unlawful to cache in a national park or wildlife refuge.
4. Respect the game.
 - If you find a cache, keep quiet so that others playing the game can enjoy finding it.
 - If you take something from a cache, you must leave something of equal value.
 - Record in your logbook where you found the cache.
 - Sign the log inside of the cache.
 - Hide the cache in the same way you found it.

Hide a cache for students to find using their GPS skills, and ask them to help others struggling with the task.

Extension

Have students conduct research to find local caches.

Guiding questions for students:

- Why is it important to leave caches as you found them?
- Name three things that you should avoid while geocaching.
- Which type of orienteering do you like better, compass or GPS? Why?
- Do you think geocaching could be a sport?

Student Choices/Differentiation

- Students may use a variety of devices to find geocaches, including a handheld GPS unit or a cell phone or tablet app.
- Have caches hidden as well as placed in open space, to accommodate a range of skill levels.

What to Look For

Students understand the principles and ethical rules of the geocaching activity.

Instructional Task: Students Create Caches With Groups

■ PRACTICE TASK

Play cache hide and seek in small groups.

Provide each group with a treasure to stash and a GPS device. Each group must find a hiding spot for its treasure.

Once its cache is hidden, each group enters the cache's waypoint (its latitude and longitude) into its GPS.

Students return to the class and swap GPS devices to see whether other groups can find their objects. If enough GPS devices are not available, have groups fill out and exchange the Treasure Hide and Seek handout, instead.

EMBEDDED OUTCOME: S4.M1.7. Discuss with students the importance of exhibiting responsible social behaviors by cooperating with classmates, demonstrating inclusive behaviors and supporting classmates during this activity.

Extension

Have students start in the gym, where they can see the caches. Students must figure out how to follow the coordinates in another group's GPS to find the correct cache.

Student Choices/Differentiation

Students can create their own caches or use teacher-created ones.

What to Look For

- Students understand the concept of geocaching.
- Students are supporting one another and are providing feedback.
- Students can use the GPS tracking devices effectively.

Instructional Task: Captain on Deck

■ PRACTICE TASK

Students practice their compass points by playing a nautical game.
Learn the movements:

- Captain on deck: Each student must salute the captain (you) and stand still until you say, “At ease” (much like Simon says).
- Captain’s ball: Two students join together and dance.
- Row your boat: Three students line up single file and row their boat (canoe style).
- Octopus four: Teammates put their rear ends together and wiggle their arms to create an eight-legged octopus.
- Starfish five: Teammates put their hands together in the air to create a starfish with five arms.
- Beached whale: Students lie down and make whale noises until you call the next action.

Show students the north, south, east, and west points of a compass. Then, repeat the game but change your commands to include the compass points. For example: “octopus to the north” (groups of four must gather in the north) or “starfish to the west” (groups of five must gather in the west). This prompts students to multitask by moving in the compass directions and finding teammates.

Each game action requires a specified number of people, so a few students will be eliminated in each round. Any student who does not make it into a group will have to walk the plank. Eliminated players may re-enter the game after stating compass or geocaching terminology.

Refinement

After the first round, discuss strategies with students.

EMBEDDED OUTCOME: S5.M3.7. Have students discuss positive strategies such as offering suggestions or assistance, leading or following others, and providing possible solutions to help generate success during this activity.

Extension

Teach and use nautical directions: bow (front), stern (rear), port (left), starboard (right). Let students know that using nautical directions can be a little more challenging.

Student Choices/Differentiation

Students can sit down and connect feet for starfish or sit to be in a boat.

What to Look For

- Students are working together.
- Students are following directions.
- Students who are eliminated are listing a wide range of terminology to get back into the game.

Formal and Informal Assessments

Exit slip: Draw and label the GPS device that you used today. Describe what each button does and when you would use it.

Closure

- Had anyone heard of geocaching before today?
- Today, you learned how to use a handheld GPS device instead of relying on the compass. Which do you like better so far?

In our next class, we will set up caches around the school for others to find, so start thinking about a spot. What are some of the basic rules you must follow when you place your caches?

Reflection

- Did students use the rules for geocaching during the activities today?
- Were students comfortable using the GPS devices?
- Were students using correct terms (directions) in the captain on deck activity?
- Were they able to come up with successful strategies during the activity?

Homework

Try to find a neat free application online that could help you geocache outside of school. There are several free apps, so find one that works best for you.

Resources

Geocaching: www.geocaching.com

Internet keyword search: “science spot GPS hide and seek”

TREASURE HIDE AND SEEK

Team members: _____

Steps

1. Find a good place to hide your treasure within the area that your teacher has identified. Place your item in a safe spot, but where it can be seen without having to dig or move objects.
2. Use your GPS receiver to mark the location (waypoint) of your item. Record the waypoint, and the other information called for on this worksheet.
3. Complete the "Find Our Secret Treasure!" slip below and tear it off.
4. Return to home base. Give the teacher your completed slip, as well as your GPS receiver.

Our Hiding Spot

Receiver # _____

Waypoint # _____

Latitude _____

Longitude _____

Location description _____

Tear off this slip and hand it to the teacher after you've filled it out. It will be given to another team, who will try to find your treasure.

Find Our Secret Treasure!

Team members: _____

Receiver # _____

Find waypoint # _____