

OUTDOOR LEARNING LESSON PLAN

GEOCACHING FOR CLIMATE CHANGE

Objective: Students will learn about and use GPS technology to find and answer climate change-related questions and discuss nature-based solutions.

Curriculum: this exercise can be adapted for grades 7, 10 and 12. See www.cpawsemb.org/curriculum-connections for Manitoba curriculum connections.

Learning Goals:

- Students learn how to use GPS technology
- Students will be able to use scientific vocabulary to describe natural observations
- Students understand the consequences of human-caused climate change
- Students understand nature-based and other solutions to climate change

Resources:

- [GPS Scavenger Hunt](#)
- [Geocaching Class - Learning Geocaching in School](#)
- [The beginner's guide to GPS](#)
- [NASA Climate Change Resources for Educators](#)
- [WWF: Nature-based Solutions for Climate Change](#)

Materials:

- Clipboards
- Lined paper
- Pencils
- Five GPS units ([example here](#))

Time: 60 minutes

Activate:

1. Introduce the boreal forest in the context of science and/or social studies curriculum; see cpawsemb.org/outdoor-learning-program/boreal-forest/ for resources
2. Introduce the basics on climate change and nature-based solutions for climate action
3. Prepare your GPS waypoints in advance, hiding 10 boxes with climate change-related questions inside (*see list of questions below*)
4. Introduce students to GPS technology and how to use the GPS units for their activity (geocaching)

Acquire:

5. Break students into five groups and provide them with clipboards, lined paper, pencils, and one GPS unit/group
6. Have students work together to use the GPS units to find way points in the local environment; upon arrival they must find a hidden box with questions inside to answer together; here are example questions you could use:
 - What is the greenhouse effect?
 - What are four greenhouse gases?
 - Why is it a problem if the Earth's average temperature gets a little warmer?
 - Historically, the earth's climate has changed before. What's different about climate change today?
 - What is the difference between weather and climate?
 - Is climate change the same thing as global warming? Why or why not?
 - Where have some of the strongest and earliest impacts of global warming occurred?
 - In your opinion, what are the most visible signs of climate change?
 - Why is deforestation contributing to climate change?
 - How are our food systems contributing to climate change?
 - What are three ways Manitoba's boreal forest is mitigating climate change?
 - How does climate change impact plants and animals?
 - In your opinion, what are three ways we can mitigate climate change?
 - How does the conservation of natural areas mitigate climate change?
 - How has climate change impacted biodiversity?
 - Are people experiencing climate change equally around the world? Explain.
 - How is climate change impacting the boreal forest?
 - How is climate change impacting indigenous peoples?

Apply:

7. Go over and discuss the answers to the questions as an entire class; Have students share their experiences using GPS for this exercise and discuss how GPS is used in research.

Conclusion: Evaluate individual students based on their participation and collaboration, or have peers evaluate the members in their group on their contributions to the group. For extended engagement, start a climate change action project for your class to conduct at their school (school community clean-up, set-up a compost bin, tree planting, plant a pollinator garden, litterless lunches, plastic-free classrooms, etc.). For continued learning, introduce students to mapping with [ArcGIS](#).