

## Arctic Lesson 3 - Researching in the Arctic

### Objectives

- Students will learn citizen science
- Students will participate in a citizen science project

### Vocabulary

- Arctic
- Citizen Science
- Climate Change
- Glaciers
- Greenland
- Historical data
- Inuit
- Polar bears
- Sheet Ice
- Whaling

### Materials

Classroom computer with Internet, student tablets or computers with Internet. For the experiments: beaker or microwavable container, permanent marker, heat source (microwave preferable), ice cubes, funnel

### Warm Up

Two experiments to introduce the impact of climate change:

1. Heat and Water: Determine the impact of warming water on sea level. Using a beaker or microwavable container, fill the container with cold or room-temperature water. Use a sharpie to measure where the water hits the container. Heat up the water and notice that warmer water takes up more space. Ask students: *What happens if all the water in the oceans begins to warm up?*
2. Melting Ice: Determine the impact of melting glaciers on sea level.
  - Step 1: Fill one container with five large ice cubes and add water (simulating sheet ice floating in the Arctic ocean)
  - Step 2: Fill an identical second container with water to the exact same level. Then place a funnel on top of the container and add five ice cubes. This simulates land ice or glaciers typically found on Greenland.



- Step 3: Wait until all ice is melted and measure the amount of water in each cup
- Discuss: *What would happen if all of the ice on Greenland and in the Arctic melted?*

### Lesson

Watch Disappearing Ice's videos "Researching in the Arctic: Matt, Climate Scientist."

### Assignment

Find a citizen science project online. If you want to contribute to the research on climate in the Arctic using old logging information, sign up for: <http://www.weatherdetective.net.au/> or <https://www.oldweather.org/>. Or find a valid project using your own research, or <https://www.nationalgeographic.org/idea/citizen-science-projects/>. Make sure to get it approved first.

Answer the following the questions in a report:

- What citizen science project did you participate in? (Provide the website link)
- What is the goal of the project?
- What are the tasks that you did?
- Why is it important to contribute to the project?
- How did you feel being part of the project?
- Provide a screenshot, photo, link, or document from your work.

### Wrap Up

Have students present their citizen science projects to the class and encourage keen students to involve the school in the projects.

### Resources

Citizen Science: <http://www.weatherdetective.net.au/>

Citizen Science: <https://www.oldweather.org/>

Citizen Science: <https://www.nationalgeographic.org/idea/citizen-science-projects/>

Arctic Map: <http://kids.britannica.com/students/assembly/view/100342>

