

# Glaciologist: Exploring Ice

**NGSS Standard: 2-ESS2-3**



## Adventure Description:

In this adventure, you will think like a glaciologist and measure a glacier to see if it is melting.



## Activity

**Teacher Prep:** You will need to freeze small blocks of ice in advance. We suggest freezing water in dixie cups, plastic cups, or empty sour cream/cottage cheese containers. You will need 1 block of ice for each pair of students.

### Step 1: Background on Glaciologists and Ice (10 minutes)

- Show [Video: Exploring Ice](#).
- Explain to students that glaciologists are scientists who learn about ice!
- As a class, discuss how liquid water freezes and then turns into ice. Next, discuss how ice can turn back into liquid water. When ice starts to melt, it turns back into liquid water.
- Explain to students that glaciologists are solving a problem: glaciers are melting and turning into liquid water. Glaciologists measure how tall glaciers are to see if they have melted. Show [Handout: Melting Glaciers](#).

### Step 2: Set Up (5 minutes)

- Explain to students that they will measure a glacier and see how much it melts.
- Show [Handout: Steps to Measure a Glacier](#). As a class, read through the steps.
- Divide students into pairs.
- Provide each pair with the following materials: 1 block of ice, 1 ruler, 1 cup of grape juice, 1 plastic bowl (or tub), and [Handout: Glacier Measurements](#).

Please contact Allison Bischoff, Director of Customer Service, at [allison@rozzylearningcompany.com](mailto:allison@rozzylearningcompany.com) or 314-272-2560 with questions.

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## Step 3: Measuring Glaciers (20 minutes)

- Explain to the class that everyone will first complete Step 1. They should put their block of ice in their bowl.
- Next, everyone should complete Step 2. They should measure the glacier using a ruler and write down how tall the glacier is on their handout.
- Next, everyone should complete Step 3. Pairs should decide how much grape juice they want to pour onto the glacier. The more juice they pour, the more it will melt! This is because the sugar will melt the ice. Each group will decide if they want their glacier to melt a little bit or a lot. Have groups pour grape juice onto their glacier.
- Set a time for between 2-4 minutes. After the time goes off, have pairs measure their glacier again and record how tall the glacier is.
  - Note: Larger pieces of ice will take longer to melt. Depending on how large the ice is, you will want to adjust the amount of time the timer is set for.

## Step 4: Discussion (5 minutes)

- Discuss how the glaciers started off as solid water. Once glaciers started to melt, they turn into liquid water.
- Next, discuss how groups' glaciers melted differently. Because real glaciers also melt differently, glaciologists have to carefully look at each glacier and see which ones are melting more than others!
- If time permits, discuss which pairs' glaciers melted the most. You can create a chart on the board that shows how tall the glaciers were for each group after they melted!

## Materials List

### Provided online:

- Video: Learning about Ice
- Handout: Melting Glaciers
- Handout: Steps to Measure a Glacier
- Handout: Glacier Measurements

### Not provided (each pair of students needs):

- Frozen water in a dixie cup (you can also freeze water in a plastic cup or container)
- 1 dixie-sized cup of grape juice
- Plastic bowl or tub (for ice to melt in)
- Ruler

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