

DIGITAL DISCOVERY WORKSHOPS

Teacher Toolkit: Polar Predictions | Grades 3–8



PROGRAM OVERVIEW

Get familiar with the program content.

Program Description

Join us on an icy expedition to Earth's polar regions to discover the role they play in regulating our planet's climate and how changes at the poles have a global effect on Earth. As budding climate scientists, practice using real climate data to investigate patterns at the poles and make predictions about future trends shaping weather around the world.



Program Objectives

Participants share their knowledge of the polar regions.

Participants practice making observations and predictions using climate data and different tools for visualization including graphs and the planetarium.

Program Key Words (English/Spanish)

Data/ un dato

Model/ un modelo

Prediction/ una predicción

Climate/ el clima

Weather/ el tiempo

Sea Ice/ el hielo marino

Glacial Ice/ los glaciares

Photo by Bill Henske (PolarTREC 2022), Courtesy of ARCUS



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Program Outline

Subject to change.

- Introduction of program and expectations.
- Introduction to the polar regions and the role they play in Earth's climate systems.
- Introduction to data and data collection.
- Using data visualization to learn more about the polar regions.
- Making predictions about the effects of climate change on the polar regions.
- Practice graphing real climate data to compare to our predictions.
- Program conclusion.

Required Materials

- Student Handout: [Click to download](#) and print double-sided, one per student.
- Pencil or writing utensil.
- Colored pencils in 2 colors (or other coloring utensils such as crayons, markers, etc.)

[View Supported NGSS](#)



Photo by Elaine Krebs (PolarTREC 2022), Courtesy of ARCUS

BEFORE THE PROGRAM

DISCUSSION PROMPTS

Use these prompts to lead an optional pre-program discussion and reflection in your class.

- How do you think the polar regions, the Arctic and Antarctica, are different from where you live?
- What are some extreme weather events that can happen in different parts of the world, and how do they affect people and the environment?
- Can you think of ways in which climate change might impact your own life or the lives of people in your community?
- Why might scientists from around the world be interested in studying remote, or faraway, places like the polar regions?



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DURING THE PROGRAM

Print the required worksheet for your students to follow along with during the live presentation.

PRINTABLE WORKSHEET

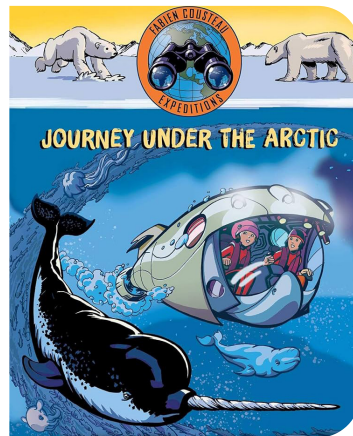
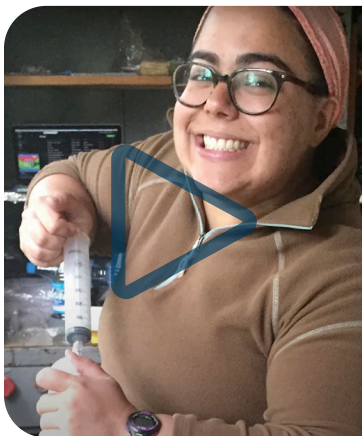
- Student Handout: [Click to download](#) and print double-sided, one per student.

AFTER THE PROGRAM

These optional extension resources can be used within the learning space, or shared with students to do at home with their families.

ACTIVITY GUIDES

- **Observing our Oceans:** Investigate the impact of ice melting due to climate change and how that affects sea levels. Activity Time: 1 hour
- **Cherry Blossom Climatology:** Conduct your own ecosystem survey at a park, yard, forest or beach near you to discover all the organisms that call a place home. Activity time: 30–60 minutes.



STEAM VIDEO

- Watch [this video from the Polar Literacy Project](#) featuring Biogeochemist, Bianca Rodriguez-Cardona, to discover how polar scientists use water sample data to better understand the impact of increasing fires on ecosystem health in the Arctic. Video Time: 3 minutes
- Learn how polar scientists collect ice samples from the field in Antarctica with [this video from the Polar Literacy Project](#) featuring Ice Core Scientist, Stacy Porter. Video Time: 4 minutes

ADDITIONAL RESOURCES

- Support climate data collection in your community as a community scientist with project [I See Change!](#)

READING LIST

- Check out the [Polar Predictions reading list](#) for STEAM books related to the program themes.

For more activities with simple materials, check out the [Curiosity at Home](#) / [Curiosidad en Casa](#) web page. Explore activity sheets by age group and topic in both English and Spanish.



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