

## Overview:

This guide is intended for use with *Babbling Brook Society* to facilitate student inquiry. To complement student learning, a field trip to Polar Caves Park and Quincy Bog Natural Area is ideal. However, it is *not* required, as literature is capable of “transporting” a reader. Imaginations are free to travel, and fantasy fiction is a creative way to spark engaged learning.

## Procedure:

When students complete the reading of *Babbling Brook Society*, begin a session with a wrap-up of the book. Invite the students to talk about the story elements which relate to geology, the water cycle, energy and conservation. Board these story elements and post around the room.

Tell students they should pick a topic they would like to learn more about, or assign groups and topics. Students will conduct a short research project using several sources to build knowledge. They will develop the topic with definitions, facts, and examples related to the topic. If taking a field trip, incorporate this piece: what new observations emerge?

## Topics:

1. Geology
  - a. Rocks are classified according to their method of formation. Identify and describe the types. What type is found at Polar Caves Park?
  - b. A variety of caves exist on Earth. Identify and describe the types. How are talus caves formed?
  - c. Erosion is the gradual removal and transportation of material from the Earth's surface. What are the types of erosion? How did erosion create Polar Caves Park as it exists now?
2. Water Cycle
  - a. The water cycle is the existence and movement of water around Earth. Explain how the cycle works in nature. How do humans affect the water cycle?
  - b. There are four basic types of wetlands. Identify and describe them. Why are wetlands important? How might the water in Quincy Bog have become polluted?
  - c. The Earth's climate health is monitored with the use of key indicators, some of which include arctic sea ice and land ice. Explain how these are monitored. How are ice and climate change linked?
3. Energy
  - a. Electric current is the flow of electric charge. What are the sources and properties of electric current? How is it possible for an electric charge to damage electronics?
  - b. There are two categories of energy: kinetic and potential. How do they differ? Apply your understanding of energy transformation to a working trebuchet and sling shot.
  - c. Renewable energy is energy that is not depleted when used. How does a windmill convert wind into usable energy? Traditionally, windmills were used to mill grains. Explain the mechanics of such an arrangement.
4. Conservation
  - a. Plastics don't biodegrade. How does plastic pollution effect the environment? Brainstorm options to reduce plastic sandwich bag use.
  - b. Compare the carbon footprint and plastic waste of a single-use plastic water bottle versus a refillable water bottle. Which is better: the reuse of a refillable water bottle or a single-use bottle?
  - c. Water can be recycled and reused. What practices and applications could help us conserve water? How are healthy, sustainable water supplies threatened?
  - d. Recycled materials can be repurposed to alter or create things. Repurpose an object that would otherwise be thrown away to create something beneficial for wildlife.