Polar STEAM iCored Student Activity

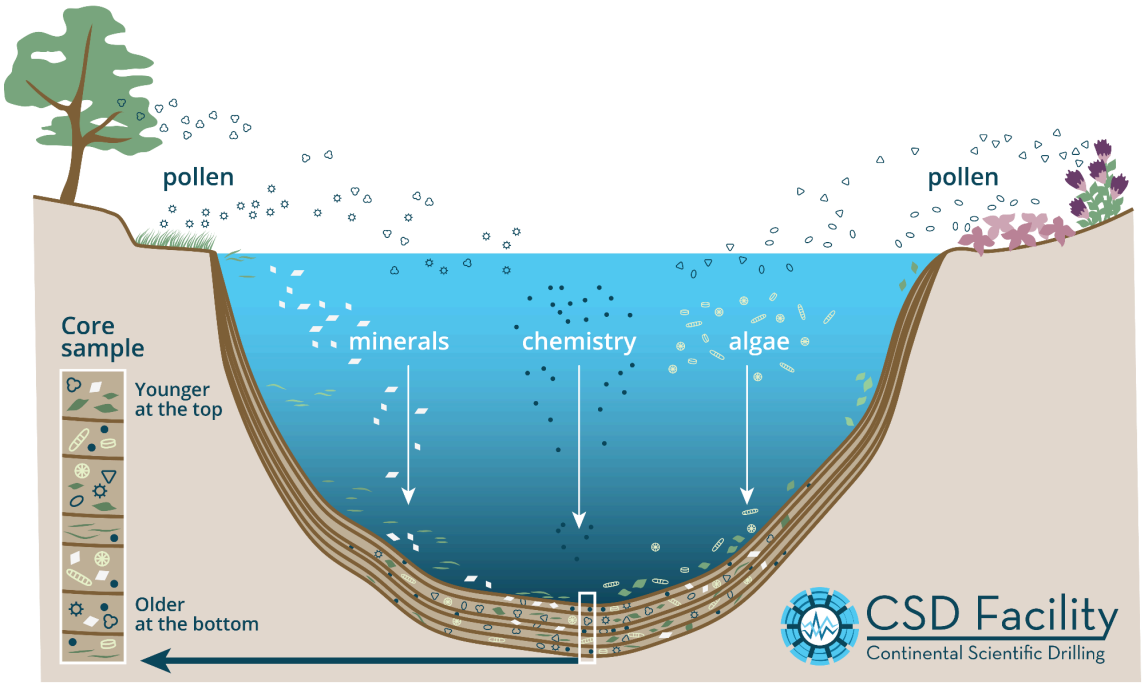
Materials

- Lake Model: Tube of layered “sediments”
- Large bubble-tea-sized straw (regular straws work, but there is more material to dissect with larger straws)
- White paper for extrusion

Introduction

Lakes hold memories. They store a record of the environment around them in the mud, or sediment on the lake floor. Material that washes into a lake or is blown in by the wind settles through the water to land on the bottom of the lake. This could be leaves, minerals, volcanic ash, charcoal from wildfires, plant pollen - anything! The lake floor holds the physical remains of everything in the surrounding environment. Additionally, when organisms like plants and animals that live in the lake die, their bodies are buried in the sediment.

Over time, more material is added to the lake bottom, burying the sediment beneath it. Layers of sediment build up over time, capturing evidence of anything that happens around and within the lake. By examining the layers of sediment at the bottom of lakes, scientists can reconstruct the past and learn how things have changed over time.



Core samples are taken by inserting cylindrical tubes into the bottom of a lake bed. When a stopper caps the top of the tube, the sediment is trapped inside the tube and can be pulled out of the lake bottom. This is similar to what happens if you use your thumb to cover the top of a straw in a drink - you can lift the liquid out of the glass due to the suction.

Collecting and Extruding Your Core Sample

You will need both hands for this process. Carefully insert the bubble tea straw into your lake sediment model as far as you can reach while still holding on to the top of the straw. Use your finger or thumb to plug the top of the straw and create suction. Pull up on the straw, removing your core sample in the process.

Hold the straw horizontally - parallel to the table on a white piece of paper. Pinch the straw just above where you see the sediment in the tube. Holding your pinched fingers stationary, pull back on the end of the straw to extrude your core onto the white paper.

Interpreting Your Core

Red = volcanic ash: material erupted from a nearby volcano that settled onto the lake
Yellow = minerals high in silica: washed into the lake from the surrounding area
Blue = organic material: the remains of organisms that once lived in and around the lake

- Which layer of your core is oldest? Which is the youngest?
- How many volcanic eruptions does your core record?
- When might there have been more organisms living in the lake?
- What could the green layers represent?
- How did the sediment change over time?