Our Great Lake

Glacial Activity Demonstration

Evanston Ecology Center

Overview

This demonstration lets students see glacial activity firsthand using a model landscape built from flour and ice. Instructors show how a moving "glacier" reshapes the land beneath it — carving basins, pushing till into moraines, and leaving meltwater behind as it melts. Students help build and observe the model, then sketch the resulting landscape and predict where rivers and lakes would form.

Materials

- Baking sheet or lunch tray
- Bag of flour
- Oil or cooking spray (like pam)
- Large ice cubes containing dirt and grass (use a small cup to make)
- Paper and pencil (if sketching moraines)

Setup

- Lightly coat the baking sheet or tray with oil/cooking spray. This will keep the flour from sticking.
- Pour an even layer of flour over the tray - this will create the landscape for this demonstration
- A day or two before, freeze several cups of water with some dirt or grass (to act as the sediment). These will be your “glaciers.”
- Have paper and pencils ready if your students will be sketching the “moraines”

Demonstration

- Begin by setting the scene. The tray and the flour on it represent the Illinois landscape before the Great Lakes existed. Encourage students to try to guess how the incoming glacier and meltwater will affect the landscape before them. Then…
- Introduce the glacier, make sure to point out the dirt and grass as the sediment and explain how this “massive glacier” picked up rock, soil, and other debris as it moved south across the landscape.
- Now slowly and firmly drag the ice across the surface of the flour in one direction. Make sure to press down slightly as you move to encourage a buildup of “till”. Have students raise their hands and describe what they are seeing as moraines form and basins are carved.
- At this point, hand out pencils and paper and have students sketch the landscape before them. Ask them to try to label areas that they think turn into rivers and lakes once the glacier melts.
    - Older students can try to identify and sketch the different types of moraines created by this demonstration. OurGreatLake_LessonOutline has information about moraine types at the bottom of page 2.
- Allow the glacier to begin to melt, filling the newly created basins with “meltwater”. Then clean up!

Discussion Questions

- What do we think would happen if these same glaciers continued to advance and retreat over and over again?
- Is the glacier pushing the flour, picking it up, or both? How can you tell?
- In one sentence, how would you describe the creation of the Great Lakes by glacial activity?