



Try This at Home Science: Ice Erosion

Activity Overview:

See how glaciers can change the landscape as they move over the Earth's surface based on their shape!

Materials:

- 2 small containers that are identical
- Ice cubes
- Water
- Flour
- Cookie sheet
- Freezer
- Towels for clean up

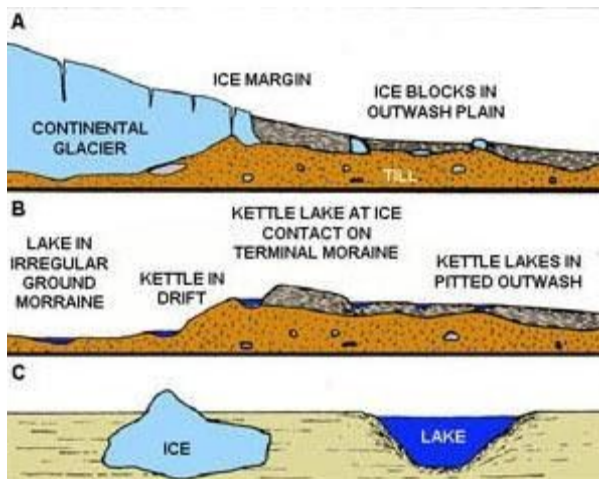
Try this!

1. Fill both of the small containers with ice cubes and top off with water.
2. Place both containers in the freezer until solid.
3. Once solid, remove one of the containers from the freezer and set it on the counter while preparing the next step.
4. Place the cookie sheet flat on a table and sprinkle an even layer of flour onto the cookie sheet.
5. Remove the ice from the container and place it flat side down in the flour on one end of the cookie sheet.
6. Slowly lift the end of the cookie sheet with the ice on it until the ice starts to move. Observe until the ice slows down.
7. Once the ice slows down, lift the cookie sheet slightly higher in the air until the ice starts to speed up. Observe.
8. Remove the second container from the freezer and set it on the counter while resetting the cookie sheet for the next trial.
 - a. ****Note:** if done carefully, both trials can be completed side by side on the same cookie sheet.
9. Repeat Steps 5-7, but place the uneven (bumpy) side down in the flour. Observe.
10. Compare your results and hypothesize which ice formation helped to form the lakes across Michigan.

What's happening?

We have replicated how glaciers change the landscape! Each of the ice blocks we made is a mini glacier reshaping the flour-covered landscape. The shapes on the bottom of each ice block determine how each will interact with the flour, and how differently shaped glaciers interact with the Earth. As each ice block moves through the flour it pushes the flour in different patterns.

The flat bottom ice block is the best example of glacial striations, or scratches on the surface made by the glacier moving rocks and sediment over the land which help geologists determine how and in what direction the ice moved. The uneven bottom ice is a good example of how glaciers can carve out grooves in the Earth, and even create lakes.



How does this relate to Michigan?

Michigan was once covered by glaciers, and the evidence is all over the state in the form of kettle lakes; tiny lakes made from the broken pieces of ice from glaciers. As the glaciers move and displace, or push, the earth out of the way, pieces of the bottom of the glacier can break off and get caught in the sediment. When this happens, the dirt and debris that is moved by the glacier covers up the broken chunks of “dead ice”, and layers upon layers of sediment are stacked on the dead ice. Over time, rainfall causes water to erode away the layers of sediment covering the dead ice until it has been exposed, at which point the depression left behind by the ice is now a lake.

Now try...

- Add sprinkles or small chunks of bread into the flour before releasing the “glaciers”. What do you notice happening to the sprinkles as the glaciers move through the flour?
- Add food coloring to the containers before freezing. Repeat the experiment using the colored ice. What do you notice happening to the flour? Was anything left behind?

Additional Information

Watch a how-to video for this experiment here [Simulation of Glacial Erosion and Deposition](#).

For more information about Michigan glacial activity visit [A Glacier Passed this Way, Michigan Conservation 1960](#).

Visit [Glacial Grooves State Memorial](#) on Kelly’s Island in Ohio to visit the largest glacial grooves in the world.

For more “Try This at Home Science” activities, visit www.mi-sci.org.