



TOPIC: GLACIER MOVEMENT

PROJECT PERSONNEL: DAVID BRAATEN

GENERAL BACKGROUND INFORMATION ON THE SUBJECT:

Glaciers are slow-moving masses of ice that exist where more snow falls than melts. They occupy about 10% of the Earth's land, mostly in Greenland and Antarctica. Here, glaciers can be as much as 2 miles thick and weigh millions of tons. As they move, glaciers can widen and deepen valleys, flatten forests and grind boulders into pebbles.

Gravity drives glaciers in 2 ways: by sliding over the bedrock with melt water and by ice building up in the middle, forcing the edges to expand. In the Polar Regions, glaciers are frozen to the bedrock and move very slowly, or slide on a film of liquid water and move much more rapidly. A slowly moving glacier flows from about 30 feet to a half mile each year. A sliding glacier can move several miles each year.

TERMS YOU SHOULD KNOW (VOCABULARY):

Glacier- *large masses of ice that move due to gravity, friction and melting*

Regelation- *the melting of the ice due to pressure and its refreezing*

Ice sheet- *ice that covers land that is more than 50,000 kilometers (12 million acres) and is very thick*

WHY ARE WE STUDYING THIS IN THE POLAR REGIONS?

Glacier movement is accelerating in the polar regions and this is contributing to the increase in global sea level.

HOW DOES THIS AFFECT US HERE IN THE UNITED STATES?

Global sea level rise will adversely affect people living in coastal areas of the United States.

TO LEARN MORE ABOUT THIS TOPIC: VISIT WWW.CRESIS.KU.EDU

ACTIVITY YOU CAN TRY:

Directions for completing the Education template Directions:

1. Remove the glacier goo from the bag and place it on the PVC pipe at the higher end. You can use a plastic shoe box or a cookie sheet with something under one end to make a slant instead of the PVC pipe.
2. Observe the movement of your glacier.
3. Design your own experiment. Try it!

Discussion:

1. When the goo initially flowed, what shape did the front take?
2. What part of the goo flows the fastest? Why?
3. How did you design your experiment to show this?
4. How can you make this glacier flow faster?
5. What happens to the flow of a glacier when it hits obstructions in the valley?
Does the surface of the glacier change?
6. What did you use for a dam and how effective was it?
7. In Antarctica, what would dam up a glacier flow?
8. What did you learn about glacier flow?

Glacier Goo Recipe:

Mix#1:

One 20 oz cup

1 stirring stick

3/4 cup warm water

1 cup Elmers white glue

Mix#2:

one 8 oz cup

1/2 cup warm water

one stirring stick (for the 8 oz cup)

2 tsp. Borax powder

1 qt plastic zip lock bag

Mix # 1:

In the large cup, add $\frac{3}{4}$ cup warm water and 1 cup glue. Stir until well mixed.

Mix # 2:

In the smaller cup, measure $\frac{1}{2}$ cup warm water. Add 2 tsp. of Borax powder.

Stir

until the powder is dissolved.

Pour Mix 2 (the powder mix) into the glue mix. Stir until a glob forms and most of the water is mixed in. This happens quickly! Knead and work the mix for 2 – 3 minutes. Most, if not all, of the water will be incorporated into the mixture.

Place the glacier goo in the zip lock bag.

The mixture will store for a few months.

Dear Polar Fair Participant:

Thank you for participating in this year's Polar Fair. This year we are working with *Urban Advantage*, a program designed to promote scientific learning and understanding for inner city Middle School age (6-8th grade) students and their families. In order to better support this education initiative, and to improve our outreach from the Polar Weekend, we would like to develop a summary education piece for each fair participant. The intent of this piece is to provide a 'take home' summary of the information and important concepts of your interactive exhibit. This template is designed to provide a consistent overview of the projects, as well as providing a structure that should be easy to complete for each participant.

Step By Step Completion:

1. The Topic – This should be your table title or the main concept being demonstrated at your table.
2. Project Personnel – Your name as either the scientist, teacher or host of the table.
3. General Background on the Project – A brief statement of 3 to 4 sentences providing an overview of the topic – what would be important for them to know about this topic. This can be listed as bulleted facts or as sentences.
4. Terms/Vocabulary – Any words that might be new or unique to students and their definitions.
5. Why are scientists studying this in the polar regions – What does your topic have to do with the poles?
6. How does this affect us here in the US – Why should these students care about this topic? What is the local impact or solution?
7. To learn more – suggestion of websites or other resources they can use
8. Activity you can try – If there is an activity that the students could do to demonstrate this concept it would be great to include it here, or a link to where they could find it already written up. This is not an obligation to come up with an activity – just an opportunity to include one if it is available,

PLEASE RETURN NO LATER THAN 1/21/08.

THANK YOU
Margie Turrin