Breaking the ice...

A global celebration of the polar regions through arts and sciences

Who:

Students, teachers, artists, and citizens of all ages

What:

A global community event in support of the launch of the International Polar Year (IPY)

Why:

The IPY 2007-2009 will involve tens of thousands of scientists from around the world studying the polar regions and their global linkages. ***Breaking the Ice*** is a hands-on, interactive way to launch this intensive international program of polar science and global impacts.

Where:

In schools, parks & communities around the world

When:

March 1, 2007

How:

Through a variety of science activities, art projects and other explorations of the role of ice and snow in our lives and on the planet. See the reverse side for specific ideas.

www.ipy.org

One of the main themes of the International Polar Year is the study of Earth's changing ice and snow, and its impact on our planet and our lives. On 1 March 2007, students and teachers around the world are invited to help launch the IPY in your classrooms.

To become part of this exciting international scientific effort:

1. Do the two ice investigations below (or go to www.ipy.org and click on 'Educators' for other activity ideas).
2. From the educators' page on the website, launch a virtual balloon representing your school on the map.
3. Check back frequently to see balloons go up around the world.
4. Continue to take part in IPY by learning about polar science in your classroom. More resources will be added to the educators' page throughout IPY.

Ice Investigation #1:

If icebergs melt, will sea level rise?

Materials (per pair or team): deep dish pie or cake pan, toothpick, modelling clay, 2-3 ice cubes, water, clear plastic wrap

1. Give each team of students a pan and a lump of clay.
2. Mould the shape of a continent, pressing the edges flat against the pan.
3. Pour in water to partially cover the clay continent.
4. Put 2-3 ice cubes in the water to represent icebergs.
5. Trace the water level into the clay with a toothpick or pencil.
6. Cover the pan with clear plastic wrap to prevent evaporation of the water.
7. Observe the marked water line as the ice melts. Does the water level rise? Why or why not?

Ice Investigation #2:

If glaciers and icecaps melt, will sea level rise?

1. Use the same pans and continents from investigation #1.
2. Place 2-3 new ice cubes on top of the clay continent to represent glaciers or icecaps.
3. Observe the marked water line as the ice melts. Does the water level rise? Why or why not?

Science Note: *Water contracts as it cools until it reaches about 4°C. It then expands by up to 10% as it freezes, making it less dense than liquid water. (You can check this out by freezing a carefully measured volume of water in a plastic measuring cup, then checking the volume again.) Melting icebergs will not raise sea level because the volume contracts again when the ice melts. Melting icecaps and glaciers raise sea level, however, by adding more water to the ocean from the land.*

Water also expands as it warms. Can warming the oceans as a result of global climate change affect sea level? Design an experiment to find out.