Floating a Bergy Bit

materials

Per group:

- Frozen Ice Block *(rectangular container to freeze ice chunk)*
- Cold tap water
- Salt
- Tablespoon
- Clear container *(large enough to hold ice block and water for it to float without touching sides of container)*
- Blue food coloring

background

Icebergs in the Antarctic are often tabular (shaped like a table top) and can be several miles long but are generally around 600 feet. In the Antarctic, the icebergs are larger and more numerous than in the Arctic. Icebergs the size of a small house are called bergy bits. Smaller icebergs with little ice above water are called growlers. Icebergs float because as water freezes, it expands and becomes less dense than the water it sits in. Only one eighth of an iceberg is above the surface.

activity time:
20 minutes

directions

1. Add a few drops of blue food coloring to tap water for freezing.
2. Freeze ice in rectangular shaped containers, 2 inches or more deep.
3. Fill a container three-fourths full with cold water.
4. Add 1 tablespoon salt to the container and stir.
5. Remove the ice block from the freezer.
6. Place the ice in the container with water and observe how much ice is above and below the surface.

discussion

- Why did we put salt in the water? (We are simulating sea water-35 grams of salt in 1000 grams of sea water)
- Why does the ice float? (It's less dense- ice .92, water 1.0)
- Where do you find icebergs? (The largest and highest number in Antarctica)
- Is more of the ice above or below the surface? (one-ninth above surface)
- How could you find out how much ice is above or below in your experiment?

vocabulary

Bergy bit - a term for iceberg size, this is a smaller iceberg about the size of a small house.
Growler - a term for size of an iceberg about the size of a piano.
Iceberg - a piece of ice that has broken off from a glacier and floats in the sea, with a greater part of its bulk underwater, 17 feet above the water and 50 feet long.

related activities

"Floating Ice Volume"

alignment to national science standards

Unifying Concepts and Processes, Standards A, B, E, F

alignment to kansas science standards

Science as Inquiry: K-2: 1.1.1, 1.1.3, 1.1.4, 1.1.5; 3-4: 1.1.1, 1.1.3, 1.1.4; 5-7: 1.1.1, 1.1.2, 1.1.3, 1.1.4, 1.2.2, 1.3.1
Physical Science: K-2: 2.1.1,2.1.3; 3-4: 2.1.1, 2.1.2, 2.1.3, 2.1.4; 5-7: 2.3.
Earth Science: K-2: 4.1.1; 3-4: 4.1.1; 5-7: 4.1.1, 4.1.2, 4.2.1
History and Nature of Science: K-2: 7.1.1; 3-4: 7.1.1