

Lesson Plans: Ocean Currents

Objective

The objective of this activity is to demonstrate the effect of cooling and heating on currents in the ocean.

Materials

Each student or group of students will need the following:

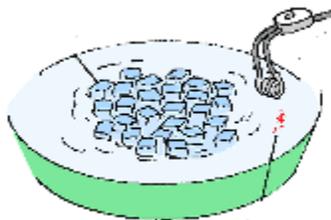


- Large beaker
- Ice cubes
- Water
- Drops of black ink (or colored dye)
- Bunsen burner (or stove or immersion heater) tripod stand
- Gauze mat

Important Points to Understand

The climate we have is influenced by ocean currents. These currents are driven by solar heating and global winds. Usually, surface water is warmer and bottom water is colder in the ocean. In other words, cold water has higher density and sits at the bottom of the ocean. Difference in densities cause the major circulation pattern and many local currents in the ocean.

Procedure



1. Fill the beaker with water and let it stand for a few minutes.
2. Put the ice cubes on top and heat the water very slowly from below with the bunsen burner (or from one side with the immersion heater).
3. Add a few drops of dye or black ink.

4. Watch what happens.
5. You may repeat the above procedure until the process is clear.

Questions

1. What happens to the bottom water when heating begins?
2. What happens to the dyed water at the surface when heating begins? Draw a diagram to illustrate the movement of the color.
3. Can you explain how water is circulating in the beaker?