

Keep Bobbing Along
Discrepant Event Activity
Teacher Resource

Grade Level **K-12**

Objectives

1. The student will investigate density of water and other products.
2. The student will employ simple equipment and tools to gather data.
3. The student will demonstrate the use of 21st century technology with a document camera.

National Standards

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| NS.K-4.1 ; NS.5-8.1 ; NS.9-12.1 | Science as Inquiry |
| NS.K-4.2 ; NS.5-8.2 ; NS.9-12.2 | Physical Science |
| NS.K-4.5 ; NS.5-8.5 ; NS.9-12.5 | Science & Technology |
| NT.K-12.1 | Basic Operations and Concepts |
| NT.K-12.3 | Technology Productivity Tools |
| NT.K-12.6 | Technology Problem-Solving & Decision-Making Tools |

Teacher Background Information

The ice floating in water demonstration is an activity for teachers to introduce the concept of density. Any substance will float in a liquid if it is less dense than the liquid it is placed in. Water has a density of 1.0. Ice floats because it is less dense than water. Before each activity, have students state a hypothesis.

MATERIALS

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|-----------------------------------|-----------------|
| Document Camera | Distilled Water |
| Personal Computer | Ethyl Alcohol |
| Interactive White Board/Projector | Salt Water |
| 3--250 ml Beakers | Ice Cubes |

PROCEDURE

1. Fill Beaker #1 with 200 ml of distilled water.
2. Fill Beaker #2 with 200 ml of ethyl alcohol.
3. Fill Beaker #3 with 200 ml of salt water
4. Place an ice cube in each unlabeled beaker...making sure each are displayed for the students on the interactive white board.
5. Have students make observations and predictions about what solution is in each beaker by observing each ice cube.

QUESTIONS

1. Have the students state the:
 - a. Independent variable
 - b. Dependent variable
 - c. Constants
2. Can you explain why the ice floats in Beaker #1?
3. Can you explain why the ice sinks in Beaker #2?
4. Can you explain why the ice floats halfway in Beaker #3?

EXTENSION

- Oil floats on top of water and ice floats on top of oil. What will happen when the ice begins to melt? As the ice begins to melt, a drop of water hanging from the bottom of the ice cube will allow the ice cube to float lower, as it is being weighted down by the denser water. Finally, the drop gets large enough to release itself from the ice and it slowly sinks to the bottom of the glass.