

## SCIENCE

### FRESHWATER VS. SALTWATER

#### GRADES 3-8

#### INTRODUCTION

This lesson offers several demonstrations that reveal that freshwater is less dense than salt water.

#### OBJECTIVES

*Students will understand that:*

- saltwater has a higher density than freshwater.
- less dense matter will lie above more dense matter.

#### PROCEDURE:

- Ask students how freshwater differs from saltwater. Have them name examples of both.
- Define density and buoyancy. Explain that because saltwater contains salt it is more dense than freshwater. The density of the water will affect the buoyancy of objects in the water.
- Fill one container with freshwater and one with saltwater. Place an egg in freshwater and then in saltwater. The egg should sink in the freshwater and float in the salt water. Have students guess which water the egg sank in and which it floated in and discuss why.  
\*\* Note - Use a very high concentration of salt to ensure that your results will be obvious. You may also do this experiment by adding salt to the freshwater and watch how the egg will start to bob higher and higher as the salt concentration increases until it floats.
- Fill a container with freshwater. Mix some saltwater in with food coloring. Drip the saltwater off of an egg or ping pong ball into the container with the freshwater. The saltwater will sink to the bottom since it is denser than the freshwater.
- Predict whether an empty jar with a lid will sink or float in a container of freshwater. Have students give reasons why. Test it out. (The jar will float.) Explain that the jar floats because it is not very dense due to the air inside. Fill the jar with water and drop it in the water. (It will sink.) You can put various levels of water in the jar and watch how its location in the water column varies based on its density (amount of water inside).
- Ask students whether they think diet soda would be denser than regular soda and why. (Regular soda is denser because it contains a lot of sugar). Drop a can of each in a container of freshwater and observe what happens. (Diet soda should float, and regular soda should sink.)



***All Lesson Plans developed by the Intrepid Museum's Education Department***