FRIENDS of *Great Salt Lake*

# Sink or Float?

## Background:

**Density** is measurement of the quantity (weight) of matters contained in a given volume of space. It is usually expressed as grams per cubic centimeter. The density of pure water is one gram per cubic centimeter. If salt is dissolved in the water, the volume of water does not change, but the density of the solution increases because the density of salt is much greater that of water. If gas is dissolved in water, the density of the water may decrease because the density of the gas is less then that of water. Therefore, the density of a given volume of water is a result of the total amount of dissolved salts and gases, and the temperature of water.

**Buoyancy** is a function of density. Buoyancy is the ability for an object to be lifted up, or to float, because of the greater density of the water. The greater the density of the water in comparison to the density of the floating object, the higher the object will float. A hydrometer uses this principle to measure water densities.

The density of the water in the Great Salt Lake is high because of the high concentrations of dissolved minerals. These minerals were dissolved from rocks and soil, and are carried into the lake by streams. Because the lake has no outlet, the dissolved minerals in the lake are concentrated as water evaporates from the lake. This gives the lake its famous "float like a cork" quality.

## Materials:

- 2 wide-mouth pint jars
- raw egg
- large serving spoon or salad tongs
- 1/2 cup salt
- measuring cup
- water
- masking tape
- felt tip pen
- other materials to test for ability to sink or float

## Activity:

Talk with your students about why some objects float and others sink. Ask them if they think they would float more easily in the Great Salt Lake or in a freshwater lake. Why?

Tell them they are going to conduct an experiment to determine the effect salt water has on buoyancy (the ability to float).

Fill both pint jars with water. Dissolve the 1/2 cup of salt into one of the pint jars. You may have to heat the water in the jar to get all the salt to dissolve in the water, but try to get as much dissolved as possible.

Using the salad tongs, first test to see whether the raw egg floats in the non-salty water. Then, see if a raw egg floats in the salty water. Continue this with the other objects that have been chosen to test their density. Talk about what it means if the object floats or sinks in both jars, one jar, or neither.