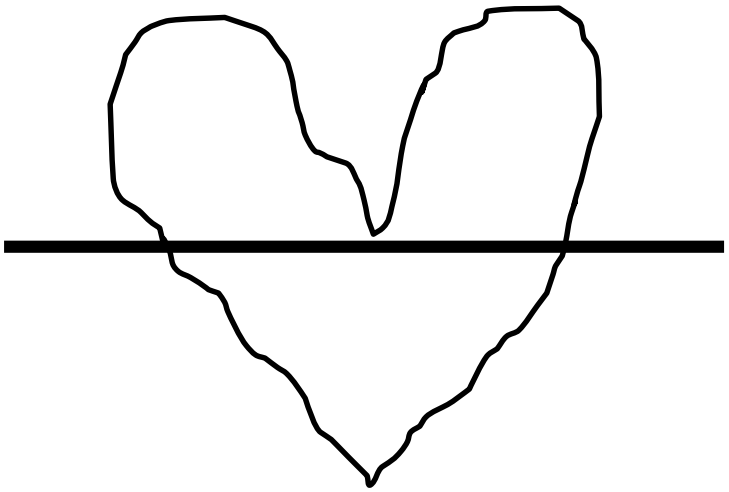
Properties of Water Lab Instructions

Density of Water

Given the following materials, calculate the density of fresh water, salt water, rubbing alcohol, and determine the relative density of ice.

Ice Cubes
Water
Alcohol
Electronic Balance
Graduated Dispenser

D = M/V



1. What is the density of freshwater?
2. What is the density of salt water?
3. Is ice more or less dense than fresh and salt water

Heat Capacity

Materials: Light Bulb, 3 Beakers, 3 Thermometers, Water, Sand

1. Record the temperature of the water, air, and sand
2. Turn on the light bulb with the three beakers centered below it
3. Record the temperature of each beaker at 3 minute intervals for 15 minutes

You've collected some information. Now write a hypothesis – a prediction and explanation – that addresses how temperatures change here in the Poconos in the Spring and Fall

The Universal Solvent – Part I

Because of its high polarity, water is called the universal solvent. A solvent is a substance that dissolves, or breaks apart, another substance (known as a solute). A general rule that determines whether a substance will dissolve in a solvent depends upon its polarity. Polar solvents dissolve polar solutes and nonpolar solvents dissolve nonpolar solutes.

In this activity, you will compare the ability of water, alcohol, and vegetable oil to dissolve certain solids.

CAUTION: Rubbing alcohol is flammable, an eye irritant, and has fumes.

The Universal Solvent – Part II

Materials: graduated cylinder, 9 test tubes, test-tube rack, water, alcohol, vegetable oil, sugar, salt, and margarine

Procedure:

1. Number your test tubes (TT) 1-9.
2. Pour 10 mL of water into TT marked 1-3.
3. Pour 10 mL of alcohol into TT marked 4-6.
4. Pour 10 mL of vegetable oil into TT marked 7-9.
5. Place a teaspoon of sugar in TT 1, 4, & 7.
6. Place a teaspoon of salt in 2, 5, & 8.
7. Place a **small** piece of margarine in TT 3, 6, & 9.
8. Cover each TT with your thumb and shake. How well does each solvent dissolve the solute?
9. Observe and record the results in your handout.
10. What conclusions can you make about water as a solvent?

How Do Roots Work

Add about one (1") inch of water to the bottom of a mason jar.

Hang a strip of paper towel to the rim of the glass so just the edge of the towel touches the water.

Every minute for five minutes, measure how far the water has traveled.

Explain why this process is important to plants

Drowning Mr. Lincoln

Materials: Penny, Water, Paper Towel, Pipette

1. Predict how many drops of water you can get on a penny
2. Slowly add drops of water to the Lincoln side of a penny, counting until the water spills off the penny
3. Record your results.
4. Turn the coin over and repeat the experiment.
5. Write a conclusion that addresses your results and explains your observations.