Properties of Water

Glossary and Instructional Guide

Glossary

Cohesion – The tendency of like molecules to be attracted or group to each other is due to the structure of molecules. In the case of water, the hydrogen atom as part of the water molecule allows this to happen by attaching to an oxygen atom in an adjoining molecule of water.

Adhesion – The act of one substance being attracted to another. This attraction for example, allows drops of water to cling to a blade of grass or a pane of glass.

Surface Tension – Acting like the rubber skin of a balloon blown up with air creating a resistant layer, water molecules clinging together form a surface called "surface tension." This surface helps hold the surface of water together like air is held in a balloon.

Capillary Action – The forces of adhesion and cohesion that allows water to be draw through a plant or other object.

Gravity – The natural force that draws objects back down towards Earth's center.

Activities To Observe A few Of The Properties Of Water

Adhesion - Capillary Action
Fill a small clear container with a small amount of water. Add some food coloring. Place the end of a paper towel in the colored water and see the water climb up.

Cohesion – Surface Tension

Using a penny. Carefully place drops of water on top one at a time. The water holds together because cohesion bonds the water droplets to each other. The water builds up on the surface because of surface tension. It builds up until the power of gravity is greater and the water bursts off the coin.

Another illustration of this, fill a glass or bowl with water. Get a paper clip, toothpick and a fork. Place the paper clip on the tip of the fork tines. Carefully lower the paper clip onto the surface of the water. Do the same with the toothpick. Both should float due to the cohesive property of water and the surface tension holding the water together at the surface. This only works if the objects weight is spread out over enough area to be held by the greater force of the water pushing up. If it is too much then gravity takes over and the object will sink.