



Making molecules

Objective:

Students will learn about the structures of molecules through sculpture.

Introduction:

This activity describes how to build a model of a water molecule using Styrofoam balls and toothpicks. This activity is a good accompaniment to the Tie Dye Milk Experiment. Together, these two experiments illustrate the concept of surface tension in a tangible way for kids. Other related activities could include discussing why ice floats in a glass of water, or how insects can walk on water.

Materials:

- Styrofoam balls in two sizes: two small balls and one bigger ball, per model
- Standard toothpicks
- Markers

Protocol:

1. Label the smaller balls with a letter H. This represents hydrogen.
2. Label the larger ball with a letter O. The represents oxygen.
3. Use toothpicks to attach one H (hydrogen) ball on either side of the O (oxygen) ball. Be careful not to poke yourself with the toothpicks. The two hydrogen balls should be attached to the oxygen ball so that the final model has an angle, like a triangle (instead of all three balls being in a straight line). Real water molecules have an angle of about 105°.

Expected Results:

The final model should look similar to the image above (you can use white Styrofoam balls, or red and blue balls as shown here). Other possible variations include using food items, like gumdrops or marshmallows, instead of the Styrofoam balls.