Atoms and Molecules

It must be stressed that atoms are extraordinarily small, and although they join to form larger particles called molecules, even the molecules are so small that we still cannot see them unless we use a very special microscope. There are about 20,000,000,000,000,000,000,000,000 atoms in a glass of water.

What you will need:

- different coloured gum drops (Coloured marshmallows also will do.)
- toothpicks

A. Making Molecules

What to do:

1. Designate each colour to be a certain atom. Either write a legend on the blackboard, or have each child make an individual legend.

   Example:
   Yellow = hydrogen
   Blue = oxygen
   Green = carbon

2. Encourage the children to use the gum drops and toothpicks to create molecules. They may create molecules that do not exist, but that is fine.

   Example:

   The gum drops are the atoms

   Hydrogen:

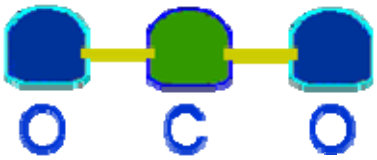
   Oxygen:

   Carbon:

When the atoms (gumdrops) are put together, molecules are created. Below are some examples of molecules children may be familiar with.

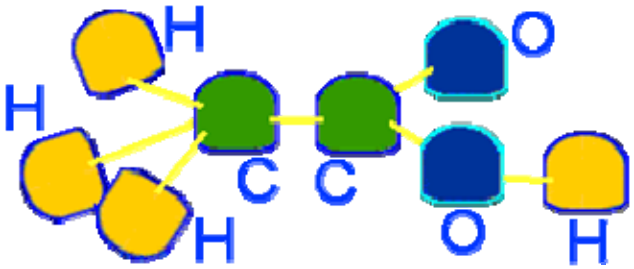
H_2O: water

CO_2: carbon dioxide



O_2: oxygen

CH_3COOH: acetic acid



B. Making Crystals:

To make a cubic crystal such as salt (sodium chloride), you need 27 gum drops. There should be 13 of one colour and 14 of another colour. You will also need toothpicks.

Make a model of a cubic crystal as shown. Notice that there is a particular pattern in the crystal. Each side is the same shape and the same size and each side also contains the same number of atoms.

In the salt shown, each blue (sodium) atom has yellow (chlorine) atoms for neighbours, and each yellow atom has blue atoms for neighbours.