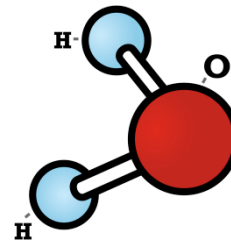


Common Molecules

Chemist _____



Atoms are the smallest individual units of matter. When atoms are combined they make **molecules**. If two (or more) different kinds of atoms combine they are called **compounds**.

Today you will construct molecules out of gumdrops and toothpicks. The paper will represent the atoms and the toothpick will represent the bonds (connections) that bind the atoms together.

Chemical Formula	What's in this Molecule?	Common Name
H ₂ O		
CO ₂		
C ₆ H ₁₂ O ₆		
O ₂		
H ₂ O ₂		

Look at the information about the molecules above to answer the following questions.

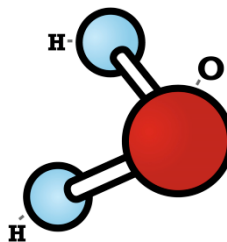
- Which of these molecules has the most atoms? _____
- Which type of atom is the most common element in this group of molecules?

3. What types of atoms do you breathe out? _____
4. If you split the bonds in a water molecule, what two types of atoms would you have?

Making Connections, Making Bonds

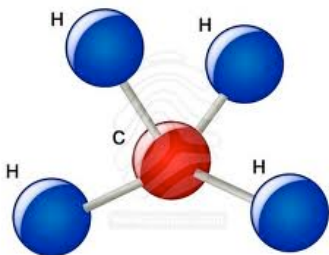
Atoms are limited in the number of connections they can make with other atoms. Scientists call the strong connection between atoms **bonds**. The most common atoms Hydrogen, Oxygen, Nitrogen, and Carbon have a “rule” that helps scientists remember how many bonds they can make. This is called the “HONC” rule. Here are the maximum number of bonds that these atoms can make: Hydrogen – 1 bond, Oxygen – 2 bonds, Nitrogen 3 – bonds, Carbon 4 – bonds. If you remember the acronym HONC, you’ll remember the number of bonds each element can make.

A water molecule looks like this:



Hydrogen can only make a single bond. In water, two hydrogen atoms each make a bond with an oxygen atom. Water molecules are compounds because they have two different types of atoms.

This is an ammonia molecule.



There are four hydrogen atoms bonding to one carbon atom. This is also a compound because it contains two different types of atoms.

Directions: Circle the molecules which are possible and put an X through the ones that aren't. Keep in mind the “HONC” rule as you examine these molecules.

