

Making Molecular Models

A formula tells us 2 things: _____ & _____

But a formula doesn't tell us about 3-dimensional molecular shape. We will build some molecules today to give us an idea of molecular shape.



Most elements can form a set number of chemical bonds, no more & no less. Here is a chart of some common elements and the number of bonds they can form.

Element	Symbol	# of covalent bonds
Hydrogen		
Chlorine		
Oxygen		
Sulfur		
Nitrogen		
Carbon		

To determine the # of covalent bonds, count how many combining 'holes' the atom has.

*Note: the atoms are colour coordinated – check the key on the box lid!

1. Use the atoms and the bonds (wooden sticks for single bonds, springs for double bonds) to build a model of each combination of elements listed in the table. You may need to use more than one atom of each type. Check to make sure you have used all the bonding sites! (ie: no open holes).
2. Count the # of elements of each type and write the formula.
3. Draw the structural model.

Element 1	Element 2	Element 3	Chemical formula	Did I build it? (common name)	Structural diagram
O	O	-			
H	O	-			
N	H	-			
H	Cl	-			
C	O	-			
C	Cl	-			
C	H	-			
H	C	N			
			C ₂ H ₄ O ₂		