

MODULE: *Matter 1*

Activity Sheet 1.9: Combining atoms to make compounds

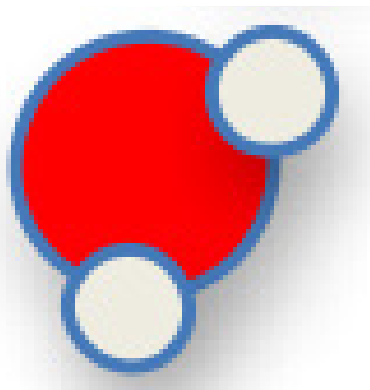


You've seen the list of all the elements; but there are a lot of substances that are NOT on that list.

That is because most substances are COMPOUNDS.

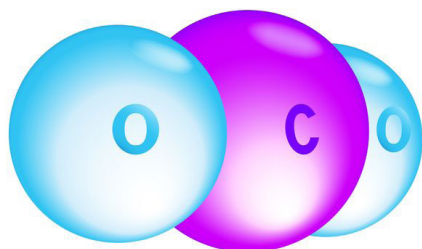
Compounds are made from two or more elements combined; two or more different sorts of atoms join up into groups called molecules. Each of the molecules in a compound is identical to all the others in it.

Here are some examples:



Water is a compound, made of hydrogen and oxygen.

Two hydrogen atoms and one oxygen atom join together, making a water molecule. All water molecules are the same as each other.

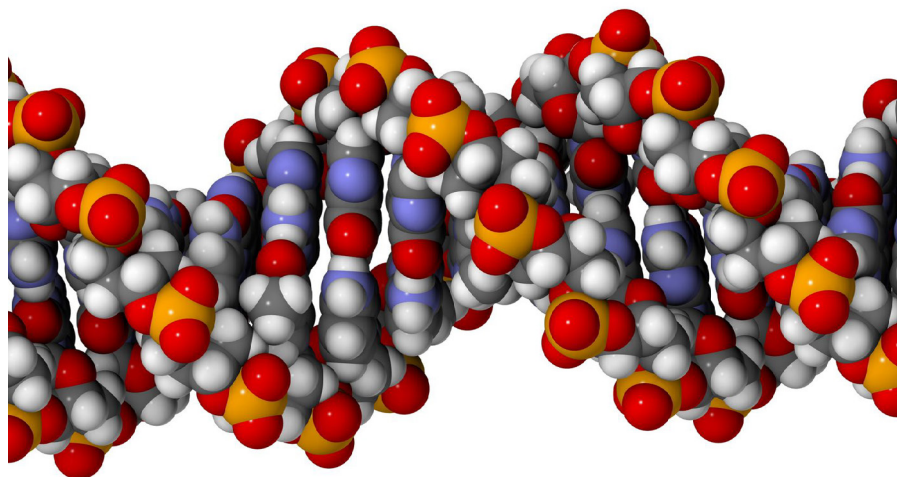


Carbon dioxide is a compound.

'Di-' means 'two', and so the name tells us that two oxygen atoms and one carbon atom have joined together in each molecule.

All carbon dioxide molecules are the same as each other.

Most common compounds are made of small molecules. But some molecules, such as DNA, can be enormous!



Rules for making compounds


All atoms have a 'combining power' that decides how they link with other atoms. The combining power is decided by the outer shell of electrons in an atom. This is the only part of an atom that can come into contact with another atom. The combining power is how many chemical bonds an atom makes with another atom.

From the diagrams of water and carbon dioxide molecules, you can see that carbon has a 'combining power' of 4, oxygen 2 and hydrogen 1. Here is a list of combining powers of common elements:

Chlorine	1
Hydrogen	1
Sodium	1
Calcium	2
Magnesium	2
Oxygen	2
Carbon	4

Your task

Copy the table and draw diagrams to represent compounds between these atoms. The first one has been done for you.

Sodium	Chlorine	
Hydrogen	Chlorine	
Hydrogen (the simplest is methane)	Carbon	
Sodium	Oxygen	
Chlorine	Carbon	
Calcium	Chlorine	
Magnesium	Chlorine	