

Compounds and Mixtures

A compound is a substance made when two or more elements are chemically bonded together.

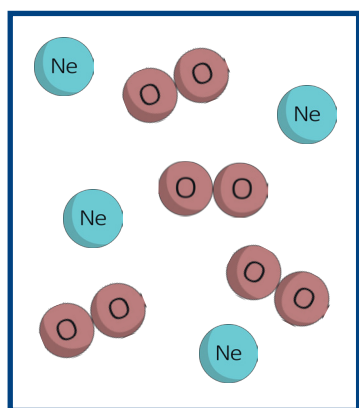
A compound can be represented by a diagram. The atoms are shown touching each other or joined by a stick that represents a bond.



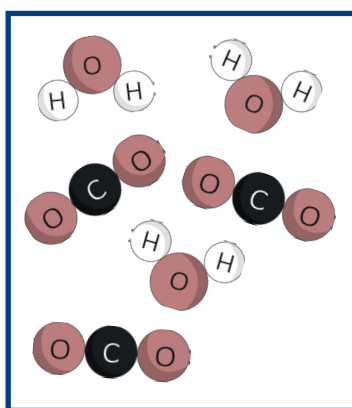
A mixture is a substance consisting of two or more substances not chemically combined together.

In a diagram of a mixture, not all of the molecules shown will be touching each other or be joined by sticks representing the bonds.

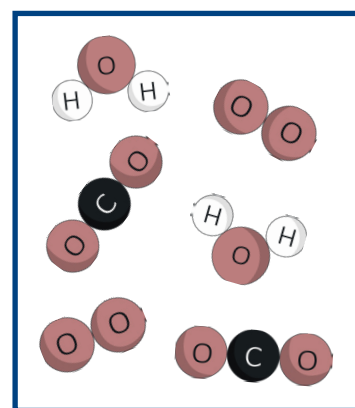
You can have mixtures of elements, mixtures of compounds or mixtures containing both.



mixture of elements



mixture of compounds

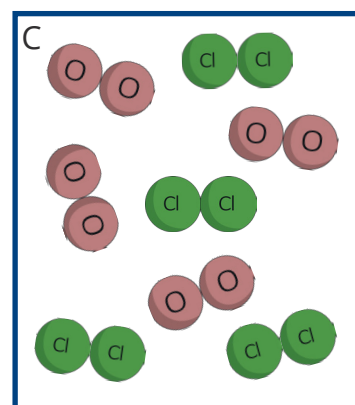
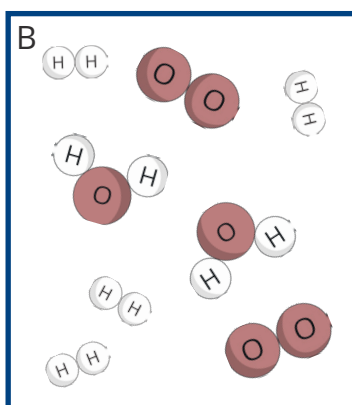
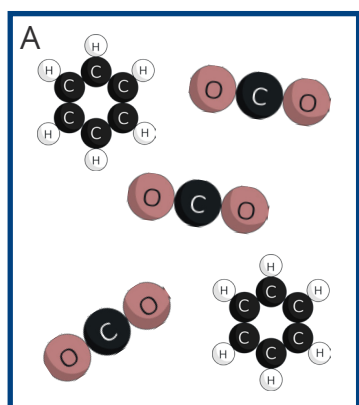


mixture of elements and compounds

1. Three mixtures are shown in the diagram below. Which mixtures contain compounds?

A ☐ B ☐ C ☐

2. Underneath each diagram, say whether each mixture is made of elements, compounds or both.



There are differences between compounds and mixtures.

Compound	Mixture
The different elements are chemically joined together.	The different substances are not chemically joined together.
The substance has different properties to the elements it is made from.	Each substance keeps its own properties.
The elements can only be separated using chemical reactions.	Each substance can be separated easily using separating techniques like filtration, distillation, evaporation and chromatography.
You cannot vary the amount of each element. So, the compound water always has one oxygen atom and two hydrogen atoms per molecule.	You can vary the amount of each substance. So, you can add a teaspoon of salt to water, or a cup of salt to water and it would still be a mixture of salt water.

A teacher carries out the following demonstration:

- They fill a beaker with 100ml water.
- They add 4 teaspoons of sugar to the water and stir until the sugar has dissolved.
- They add one more teaspoon of sugar and stir until it has dissolved.
- They heat the beaker of water over a Bunsen burner until all of the water has evaporated.
- They show students the sugar crystals left in the bottom of the beaker.

3. Give **two** pieces of evidence from the demonstration that the sugar and water is a **mixture**.

1. _____

2. _____

A teacher carries out the following demonstration:

- They test a strip of magnesium ribbon in a circuit and a bulb lights up.
- They heat the strip of magnesium ribbon in oxygen.
- The magnesium burns with a bright white flame and when the reaction is finished a white powder is left.
- They test the white powder in the circuit, and it does not conduct electricity.

4. Give **two** pieces of evidence from the demonstration that the magnesium and oxygen form a **compound**.

1. _____

2. _____
