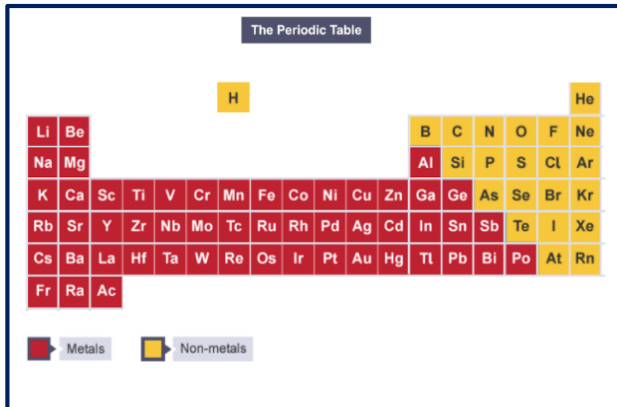
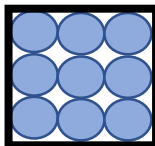


Keyword	Definition
Periodic Table	A table of all the known elements in order of their atomic number.
Group	Vertical columns on the periodic table
Period	Horizontal rows on the periodic table
Atom	The smallest piece of an element.
Element	A substance containing only one type of atom.
Compound	Two or more different elements which are chemically joined together.
Mixture	Two or more different elements or compounds which are not chemically joined together.
Chemical Reaction	A process in which one or more substances are changed into others, by their atoms being rearranged. Also known as irreversible reactions.
Physical Reaction	A process in which the physical properties are changed, but no new substances are made. Also known as reversible reactions.
Reactant	A substance that reacts together with another substance to form products during a chemical reaction.
Product	A substance formed in a chemical reaction.
Conservation of Mass	The total mass of the products in a chemical reaction will be the same as the total mass of the reactant.

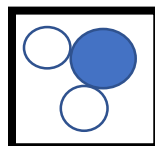


Metals	Non-Metals
Shiny in colour, solids at room temperature (except mercury), high density, strong, malleable, good conductor of heat and electricity.	Dull in colour, can be solids, liquids or gases at room temperature, low density, brittle, poor conductors of heat and electricity.

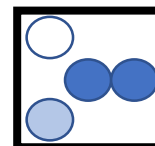
Atoms, Elements, Compounds & Mixtures



This models an element.
There is only one type of atom.



This models a compound.
There are two different elements chemically combined together.



This models a mixture.
There are two or more different elements which are not chemically combined.

Chemical & Physical Reaction

Chemical changes happen when chemical reactions occur. They involve the formation of new chemical elements or compounds.
E.g. Iron will react with oxygen to form Iron Oxide (rust).



Physical changes do not lead to new chemical substances forming. In a physical change, a substance simply changes physical state. E.g. A solid to a liquid.



Chemical Reactions & Equations

The changes in a chemical reaction can be modelled using equations. In general we write:



The reactants are shown to the left of the arrow, and the products are shown to the right of the arrow. The arrow tells us a chemical reaction has taken place.

E.g.
Iron + Oxygen \rightarrow Iron Oxide

The iron and oxygen react together (reactants) to produce Iron Oxide (product).

Naming Compounds

Metal + Non-Metal (which contain two elements)

- The **metal** always goes first.
- The ending of the **non-metal** changes to 'ide'.

E.g.
Copper + Oxygen \rightarrow Copper Oxide
Lithium + Fluorine \rightarrow Lithium Fluoride

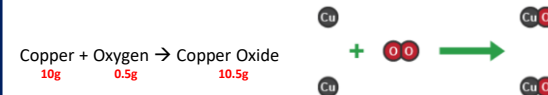
To name compounds which have a metal, non-metal and oxygen (three or more elements)

- The **metal** always goes first.
- The ending of the **non-metal** changes to 'ate'.

E.g.
Copper, Sulfur, Oxygen
Copper Sulfate

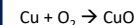
Conservation of Mass

No atoms are created or destroyed in a chemical reaction. Instead, they just join together in a different way than they were before the reaction, and form products. This means that the total mass of the products in a chemical reaction will be the same as the total mass of the reactants.



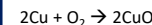
Balancing Equations

A balanced equation gives more information about a chemical reaction because it gives the symbols and formulae of the substances involved.



The above equation is not balanced because there is one copper atom on both sides of the arrow, but two oxygen atoms on the left hand side, and only one on the right.

You need to adjust the number of units of some substances until you have equal numbers of atoms on both sides of the arrow. You cannot change the formulae of a substance (you can't change the small number).



Further Reading:

<https://www.bbc.co.uk/bitesize/guides/zt2hpy4/revision/1>

<https://www.bbc.co.uk/bitesize/guides/z84wixs/revision/1>