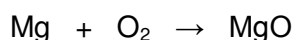


Balancing Chemical Equations**STEP 1**

List the elements on the reactant side of the equation. The same elements must appear on the product side.

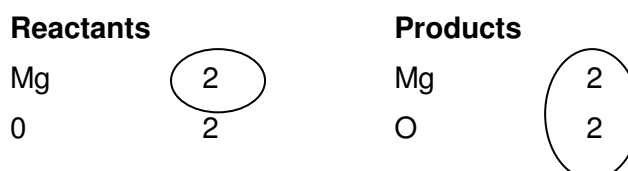
**STEP 2**

Count the number of atoms of each element on the reactant side and product side respectively.

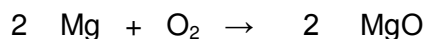
The reaction is **not** balanced if the number of each atom on the reactant side does not correspond with the number of the respective atom on the product side.

STEP 3

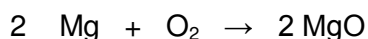
Do not change the formula of the substance, only adjust the number of molecules by referring to the equation:

**STEP 4**

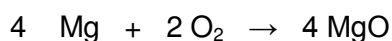
Write down the chemical equation with the correct balancing co-efficients:

**Remember**

- Numbers may ONLY be added before the symbols or formulae
- The formula of a substance may not be changed in order to balance the equation
- Use the simplest ratio in the balancing i.e.



and not



Radio Broadcast 26 Sept 18:00 -19:00

Questions for discussion**Question 1:**

For each of the following say whether a chemical or a physical change occurs.

- a) Melting candle wax.
- b) Mixing sodium chloride (NaCl) and silver nitrate (AgNO₃) to form silver chloride (AgCl).

- c) Mixing hydrochloric acid (HCl) and magnesium ribbon (Mg) to form magnesium chloride (MgCl₂).
- d) Dissolving sugar in water.
- e) Tearing a piece of magnesium ribbon.

Question 2

The chemical equations below represent some physical and chemical changes. For each equation draw a diagram showing the reactant molecules and a second diagram showing the products. Use the diagrams to identify what type of change has taken place.

- a. $C_6H_{12}(l) \rightarrow C_6H_{12}(l)$
- b. $N_2(g) + 3H_2(g) \rightarrow 2NH_3(g)$
- c. $CaCO_3(s) \rightarrow CaO(s) + CO_2(g)$
- d. $H_2O(l) \rightarrow H_2O(g)$
- e. $Na^+(aq) + Cl^-(aq) \rightarrow NaCl(s) + H_2O(g)$

Radio Broadcast 27 Sept 18:00 -19:00

Questions for discussion**Question 1**

Write down the correct chemical formula of the following compounds:

- a) magnesium hydroxide
- b) calcium nitrate
- c) ammonium phosphate
- d) Iron (III) sulphite
- e) sulphur trioxide

Question 2

Write balanced chemical equations for the following chemical changes:

- a) Barium chloride reacts with sulphuric acid to produce barium sulphate and hydrochloric acid.
- b) Ethane (C₂H₆) reacts with oxygen to form carbon dioxide and steam.
- c) Ammonium carbonate is often used as a smelling salt. It decomposes at room temperature to form ammonia, carbon dioxide and water