

CHEMICAL PROCESSES 3

Chemical Equations: Balancing

CONSERVATION OF MASS

This law states that as atoms are neither created or destroyed in a chemical reaction, then the total mass of the products is always equal to the total mass of the reactants.

So, we can use this property to write and balance chemical equations.

- **Paper clip activity**

THINGS TO REMEMBER

- Special 7 + 2

Activity- Make your own mnemonic to remember the above

WRITING AND BALANCING CHEMICAL EQUATIONS

Steps:

1. Write a **word equation**. This provides the names of **reactants** and **products** and is the starting point for writing and balancing chemical equations.

Example. Word equation: methane + oxygen → water + carbon dioxide

2. Write a **skeleton equation** : write the formulas, although this does not show the correct proportions which we will do in the next step.

Example. Skeleton equation: $\text{CH}_4 + \text{O}_2 \rightarrow \text{H}_2\text{O} + \text{CO}_2$

3. Write a **balanced chemical equation**: shows the true proportions of reactants and products involved in the reaction.

Chemical equations are balanced using the lowest whole number **coefficients** and are placed in front of the formula or chemical symbol for each product or reactant.

Example. Balanced chemical equation: $CH_4 + 2O_2 \rightarrow 2H_2O + CO_2$

R	P
C -	C -
H -	H -
O -	O -

Must always write a table!!

Assignment:

- 1. Practice together - chalk**
- 2. Balancing Chemical Equations H/O (3a)**
- 3. Checking your understanding of Balancing Chemical equations (every other letter on #3, 4) (3b)**