

Chemical Equations

Reactants: The elements or compounds that go into a chemical reaction.

Products: The results of a chemical reaction.

Example: $\text{Na} + \text{Cl} = \text{NaCl}$
(reactants) (product)

Conservation of mass means that substances may change in a chemical reaction, but matter is not created or destroyed.

mass of reactants = mass of products

In some chemical reactions, it is difficult to measure the mass of the product. The products of chemical reactions are gas, light and/or heat and odour, which are hard to collect or measure, e.g., a campfire.

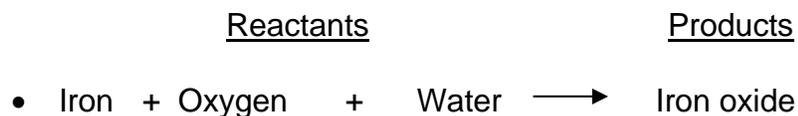


1. With classmates, discuss conservation of mass in a variety of reactions. In each case, identify the products (gas, light, heat and/or odour).

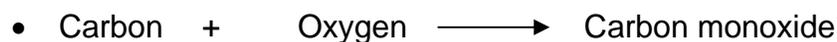
Reactants	Products (gas, light or heat and/or odour)
Frying an egg	
Human breathing	
Rusting metal	
Cleaning grease with vinegar	
Burning a candle	
Burning a mosquito coil	

2. Examine a variety of chemical reactions that result in familiar compounds. Identify reactants and products, and write word equations.

Examples:



Iron reacts with oxygen and water to produce rust.



Carbon reacts with oxygen to produce carbon monoxide. Carbon monoxide reacts more easily with iron in the blood than oxygen does, and is transported throughout the body, which can result in carbon monoxide poisoning.

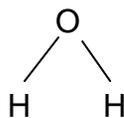
Create and complete a chart like the following.

Reactants	Products	Harmful	Beneficial	Explain

3. Water molecules are made of two atoms of hydrogen and one atom of oxygen, and resemble a triangle.

The formula for a molecule of water is H₂O

Sketch of a water molecule:



Write a word equation and a chemical formula for the chemical reaction between hydrogen and oxygen that produces water. Identify the reactants and product.

4. Carbon dioxide is made of two atoms of oxygen and one atom of carbon.

The formula for a molecule of carbon dioxide is CO₂

Sketch of a carbon dioxide molecule: O — C — O

Write a word equation and a chemical formula for the chemical reaction between carbon and oxygen that produces carbon dioxide. Identify the reactants and product.

5. Describe another chemical reaction by using a word equation and chemical formulas. Indicate the reactant(s) and product(s) in the reaction.

