3.1 CHEMICAL MEASUREMENTS, CONSERVATION OF MASS AND THE QUANTITATIVE INTERPRETATION OF CHEMICAL EQUATIONS

Conservation of mass

- Calculations
  - Relative formula mass of reactants = relative formula mass of products
- Mass of products = mass of reactants
  - No atoms are lost or made during a reaction
- Balanced equations
  - Equal number of atoms of each element on each side of the equation
- Change in mass of reaction indicates gas involved
  - Mass increases implies gaseous reactant
  - Mass decreases implies gaseous product
- Unsealed reaction container

Relative formula mass, Mr

- Relative atomic mass is the larger number found on the periodic table (mass number)
  - Add together the relative atomic masses of all the atoms in the molecular formula
- Percentage mass of an element in a compound

$$\frac{Ar \times \text{number of atoms of that element}}{Mr \text{ of the compound}} \times 100$$

Uncertainty

- Uncertainty = Range / 2
  - Shown using ± symbol
- Amount of error a measurement may have
  - Random errors
  - Errors in measuring equipment

AQA