Chemical Equations

C. equations: Are made of the symbols of the elements or compounds that are involved in a chemical reaction.

**Example:**

**2H2O 🡪 2H2 + O2**

**Reactants Products**

The reactants are on the left side of the arrow and the products are on the right.

There are also coefficients (big numbers) and subscripts (small numbers) in all chemical equations.

Example:

Mg + 2HCl 🡪 H2 + MgCl2

Coefficient Subscript

All chemical equations must balance (according to the conservation of mass).

When you are balancing chemical equations you need to add or change the coefficients not subscripts.

Example:

H2 + O2 🡪 H2O

**H2 + O2 🡪 H2O2**

**You can’t add a subscript because this changes the whole compound (H2O2:hydrogen peroxide not water).**

**When you are balancing chemical equations follow these steps:**

1. **Balance hydrogens and oxygens first.**

**Example: 2H2 +O2 🡪 2H2O**

1. **Add or change coefficients until you have the same number of atoms on both sides of the arrow.**
2. **Multiply the coefficients by the subscripts to count all of the atoms.**
3. **Treat polyatomic ions like elements.**
4. **Draw circles underneath each symbol in the equation (called atom inventory).**

**Na + O2🡪 Na2O**

**AlCl3 + MgO🡪 Al2O3 + MgCl2**