KNOWLEDGE ORGANISER
BIG IDEA: REACTIONS
TOPIC: ACIDS AND ALKALIS

Common **indicators** that are used include **litmus blue**, **litmus red** and **universal indicator**.

Litmus blue changes to red in acids. Litmus red changes to blue in alkalis. Universal indicator is red-yellow in acids, green in neutral solutions and blue-purple in alkalis.

Strong acid				Weak acid			Neutral	Weak alkali			Strong alkali			
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14

Key Word	Definition
corrosive	A substance that can burn skin or eyes.
irritant	A substance that can make skin itch or swell a little.
acid	A solution that has a pH of less than 7. Examples of acids are vinegar and stomach acid.
pH	A scale that measures how acids or alkaline a substance is. It measures from 0 to 14.
indicators	A substance used to identify whether an unknown solution is acidic or alkaline.
base	A substance that neutralises and acid.
alkali	A base that dissolves in water. These solutions have a pH of 8 to 14.
neutralisation	A reaction where an acid and base react to form a neutral substance.
concentration	A measure of the number of particles in a given volume.

The **pH scale** is used to measure the acidity or alkalinity of a solution. It tells us if a substance is a **strong** or **weak acid**. Strong acids have lower pH values. A **strong alkali** has a high pH value. A **neutral** substance has a pH of **7.**

Examples of **strong acids** are **hydrochloric acid, sulfuric acid** and **nitric acid.**

Examples of **weak acids** are **acetic acid** and **citric acid.**

The general word equation for a neutralisation reaction is:

acid + base → salt + water

This is called a **neutralisation** reaction as the **products** made are **neutral.**

Examples of **neutralisation** reactions:

potassium hydroxide + nitric acid → potassium nitrate + water

calcium oxide + hydrochloric acid → calcium chloride + water

copper oxide + sulfuric acid → copper sulfate + water

A **salt** is a substance formed in a chemical reaction between an acid and a base. It is a **neutral** substance.

To name a salt, the **first** part of the **name** comes from the **metal** used in the **base** and the **second** part of the **name** comes from the **acid**.

Sulfuric acid makes **sulfate salts.**
Nitric acid makes **nitrate salts**.
Hydrochloric acid makes **chloride salts.**