

# Knowledge Organiser – Year 8 Acids & Alkalis

## Key words

Term	Definition
Acids	Substance which has a pH lower than 7. Acidity is caused by a high concentration of hydrogen ions.
Alkalis	A base which is soluble in water. pH higher than 7.
Base	A substance that reacts with an acid to neutralise it and produce a salt.
Corrosive	Able to damage metal, stonework, clothes and skin. Strong acids and alkalis are corrosive.
Neutralise	To be made neutral by removing a acidic or alkaline nature.
pH scale	Scale of acidity or alkalinity. A pH value below 7 is acidic, a pH above 7 is alkaline and a pH of 7 is neutral.

### New symbol



It is also important to recognise hazard symbols. The ! symbol the substance is an irritant and can cause skin to blister. The bottom symbol shows a substance is corrosive meaning they can destroy skin.

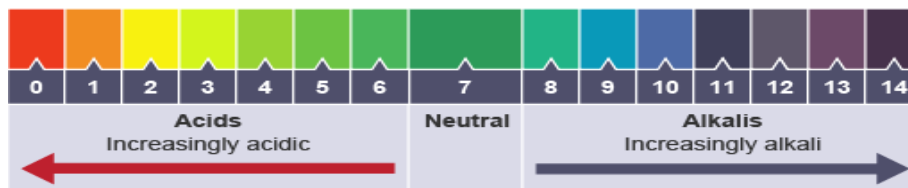
### Concentrated vs dilute

Dilute acids are those that have been mixed with a lot of water. The concentration of the water is higher than the concentration of the acid itself.

A concentrated acid are mixed with very little water. Concentrated acids are corrosive.

## Acids, alkalis and the pH scale.

We can get acidic solutions when acids are dissolved in water. We can get an alkaline solution when an alkali is dissolved in water. Solutions that are neither acidic nor alkaline are neutral. An indicator is a substance that changes colour when it is added to acidic or alkaline solutions. Universal indicator is a solution mixed with lots of indicators that can show how strongly acidic or alkaline a solution is. It is measured on the pH scale which runs from 0 to pH 14.



### Neutralisation

A chemical reaction happens if you mix together an acid and a base. The reaction is called neutralisation. There are some general word equations for mixing acid with different substances.

Metal oxide + acid → a salt + water

Metal hydroxides + acid → a salt + water

Metal carbonates + acid → a salt + water + carbon dioxide

Acid + alkali → salt + water

Neutralisation can be useful, for example farmers use lime (a metal oxide) to neutralise acidic soils to help plant growth.

### Naming and making salts

The name of a salt has two parts. The first comes from the metal in the base used. For example if the base is copper oxide, the salt will begin copper. If the base was sodium hydroxide, the first part of the name of the salt would be sodium.

The second part comes from the name of the acid that was used. For example a salt reacted with the following acid will always have the following as the second part of its name.

- Hydrochloric acid – chloride salt
- Nitric acid – nitrate salt
- Sulfuric acid – sulfate salt

Putting these together gives you the two word name of the salt.

### Acids and alkalis

How different chemicals react in water will determine if they are acids or alkalis.

When acids dissolve in water they produce hydrogen ions (H<sup>+</sup>).

When an alkali dissolves in water, they will produce hydroxide ions (OH<sup>-</sup>). A base is a non-soluble alkali.