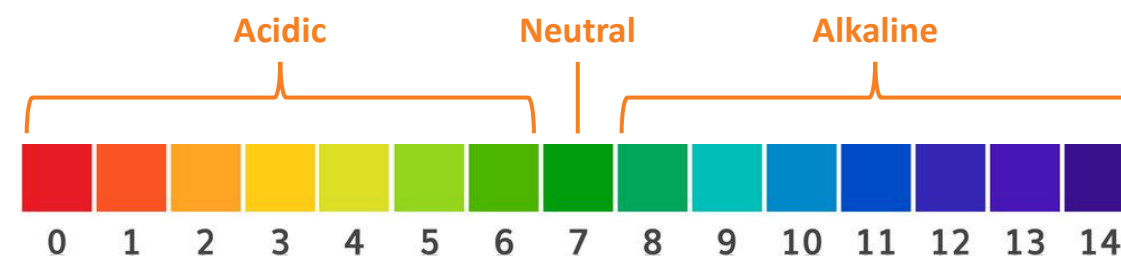


## Must Remember

- The pH scale shows how acidic or alkaline a solution is.
- Acids have pH values below 7. The lower the pH, the more acidic the solution.
- Alkaline solutions have pH values above 7. The higher the pH, the more alkaline the solution.
- Neutral solutions are neither acidic nor alkaline. Their pH is exactly 7.
- Indicators change colour to show whether a solution is acidic or alkaline.
- Universal indicator changes colour to show the pH of a solution.
- Litmus is an indicator. Blue litmus paper turns red on adding acid. Red litmus paper turns blue on adding an alkali.
- In a neutralization reaction, an acid cancels out a base, or a base cancels out an acid.
- A base is a substance that neutralizes an acid.
- An alkali is a soluble base.
- Adding a base or acid to another substance will change the pH of the other substance.
- If an acid reacts with a base, there are two products – a salt, and water.
- If an acid reacts with a metal, there are two products – a salt, and hydrogen.

## Nice to know that...

- Acids and alkalis can be concentrated (lots of acid/alkali particles for the amount of water) or dilute (small number of acid/alkali particles in the same amount of water).
- Acids and alkalis are corrosive, this means they can cause burns if they get on your skin.
- Indicators let you know if something is acidic or alkaline. Universal indicator can give a measure of how acidic or alkaline something is by giving a substance a pH value.



- When an acid reacts with a metal element or compound a salt and hydrogen is formed.  
**Acid + Metal → Metal Salt + Hydrogen**
- Neutralisation reactions produce water and a salt.  
**Acid + Base → Water + Salt**
- Adding bases or acids to soil can change its pH, making it more suitable for different crops.
- Adding a base to an acidic lake increases the pH, making it more suitable for different plants and animals.

## Maritime Futures – Ocean Acidification

Ocean acidification is the process of lowering the pH of the ocean. Ocean acidification results in the ocean becoming more acidic. Ocean acidification is caused by carbon dioxide dissolving in the ocean, the concentration of carbon dioxide dissolving in the ocean is increasing due to burning of fossil fuels. Ocean acidification results in the death of marine organisms and the loss of marine ecosystems. Acidification also damages boats as the acidic sea reacts with the metal hull of a boat.

## Further Study

[BBC Bitesize – The pH scale and neutralisation](#)

## Key Terms

**acid:**

**an acid is a solution with a pH value less than 7**

**alkali:**

**an alkali is a soluble base**

**base:**

**a base is a substance that neutralises an acid**

**neutralisation:**

**in a neutralization reaction, an acid cancels out a base or a base cancels out an acid**