SUBJECT: Science

UNIT: Y7 Acids and Alkalis

SANDHILL VIEW
EST. 1953
ACHIEVE · ASPIRE · ENJOY

While you were away

Lesson 1: Chemical Reactions

- Give an example of a chemical change
- Give an example of a physical change
- How might you know that a chemical reaction has happened?

Lesson 2: Acids and Alkalis

- What is the definition of an acid?
- Name one acid
- What is the definition of an alkali
- Name one alkali

Lesson 3: Indicators and pH

- What are indicators used for?
- Give an example of an indicator
- What would be the pH of a strong acid?
- What would be the pH of a weak alkali?

Lesson 4 Neutralisation

- What is a neutralisation reaction?
- What would be the pH of a neutral solution?
- Give an example of where a neutralisation reaction would be useful?

SUBJECT: Science

UNIT: Y7 Acids and Alkalis

SANDHILL VIEW
EST. 1953
ACHIEVE · ASPIRE · ENJOY

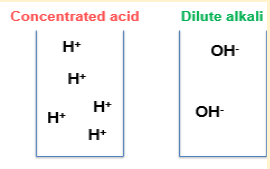
Acids and **alkalis** can react together chemically.
They make two **products**.
1. **water** (H_2O) and a
2. **salt**.

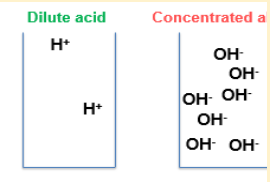
Ambitious Vocabulary

Neutralisation, Concentrated, formula

Concentrated and dilute

Acids contain **hydrogen ions (H+)** and alkalis contain **hydroxide ions (OH^-).**
Dissolving acid or alkalis in **water** will change their concentration.
A **concentrated** acid will have **more hydrogen ions** and **less water** than a **dilute** acid. Whereas, a **concentrated** alkali will have **more hydroxide** ions and **less water** than a **dilute** alkali.





Indicators

Universal indicator (solution or paper) is a mixture of different indicators. It can show us whether a solution is acid or alkali AND how strongly acidic or alkaline a solution is. This is measured using the pH scale.

Neutralisation

A chemical reaction happens if you mix together an acid and an alkali. The reaction is called neutralisation. A neutral solution is made if you add just the right amount of acid and base together. The products formed are salt and water.

acid + alkali → salt + water

Hydrochloric acid + sodium hydroxide → sodium chloride + water

Uses:

- Soil for crops: Can add base (alkali) to the soil to neutralise some of the soil acid. This makes it suitable to grow crops, like tea.
- Acidic lakes: Acid rain falls in lakes and makes it more acidic. Some animals and plants cannot live there. Base is added to increase the pH.

neutral solutions = pH 7 exactly
acidic solutions have pH values < 7
alkaline solutions have pH values > 7

Hazard symbols

It is safe to eat the acid in lemons and vinegar, and to use alkaline soap and toothpaste.
There are hazards linked to some acids and alkalis.
The dangers of acids and alkalis are clearly labelled using international hazard warning symbols.
They are the same in any language.

KEYWORD	DEFINITION
Acid	Solution with a pH value less than 7.
Alkali	A soluble base with a pH value more than 7
Chemical reaction	A change in which atoms are rearranged to create new substances.
Concentrated	A solution is concentrated if it has a large number of solute particles per unit volume.
Concentration	A measure of the number of particles in a given volume.
Dilute	A solution is dilute if it has a small number of solute particles per unit volume.
Indicator	Substances used to identify whether unknown solutions are acidic or alkaline.
pH scale	Shows whether a substance is acid, alkali or neutral. It ranges from 0 – 14.
Physical change	A change that is reversible, in which new substances are not made. E.g. ice → water.
Reversible	A change in which it is possible to get back to the original substance.
Salt	A compound in which the hydrogen atoms of an acid are replaced by atoms of a metal element.

Salt names

The first part of the name comes from the type of metal atoms in the reactants.
The second part of a salt's name comes from the type of acid that reacts.

The second part of any salt name made from using hydrochloric acid is called a chloride.
The second part of any salt name made from using sulfuric acid is called a sulphate.
The second part of any salt name made from using nitric acid is called a nitrate.