# Chemistry

**States of matter** Studying kinetic theory and how we can use this theory to explain state change.

A

6

Liquid

8

Gas

800

Solid

#### Methods of separating and purifying substances

Solid and liquid

Substances can be separated using various techniques. In this topic, students learn why different techniques must be used to separate different substances.



Atomic structure The structure of an atom and how the ideas about atoms were developed over time. **Big picture thinking** The ability to work with big ideas and holistic concepts.

#### The periodic table

Year

During this subject, students learn about the modern periodic table, what the period table shows and how periodic tables have developed over time.

**Enquiring** Students will learn to be curious; think independently and be proactive. E<sub>a</sub> (no catalyst) E<sub>a</sub> (with catalyst) E<sub>a</sub> (with catalyst) Z ΔG Reaction Progress

#### **Rates of reaction**

Studying how we can determine the rate of reaction, and gaining an understanding of why different reactions occur at different rates.

Concerned

for society

**Earth and atmospheric change** This topic looks at the impact that humans are having on the atmosphere.





Bulk and surface properties of matter including nano particles In this topic, students learn about specialised materials and nano particles.

Universal indicator paper colour over the pH scale

Year

Acid and alkalis The reaction of acids and alkalis, and how these substances react with other chemicals.

#### REALISING

Automaticity The ability to use some skills with such ease as they no longer require active thinking.



**Electrolytic processes** In this topic, students will learn about electrolysis. They will learn what we use electrolysis for and what happens during the process.

### A + B = C

Calculations involving masses

In quantitative chemistry, students learn how to predict the mass of products in a chemical reaction. They also learn how to predict the formulae of compounds when you know the mass of those compounds.



Obtaining and using metals How we can obtain metals from their ores and alternative methods for extracting metals.



Connection finding

The ability to use connections from past experiences to seek possible generalisations.



Reversible reactions and equilibria In this topic, students learn what a

reversible reaction is and how different factors can effect reversible reactions.





### Transition metals, alloys and corrosion

Studying the unique properties of transition metals, the properties of metal alloys and how they can prevent corrosion.



### Critical or logical thinking

The ability to deduct, hypothesise, reason and seek supporting evidence.

#### Quantitative analysis

This topic aims to extend students ideas about quantitative chemistry and links this to titrations.

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Precision The ability to work effectively within the rules of a domain.



Dynamic equilibria, calculations involving volumes of gases Learning about dynamic equilibria in reversible reactions and will be able to calculate the volume/density of gasses.



**Chemical cells and fuel cells** How certain chemicals can be used as a chemical store, and how this energy can then transfer into electrical current.





#### REALISING

Automaticity The ability to use some skills with such ease as they no longer require active thinking.





Year

**Rates of reaction** The rates of a chemical reaction and the factors which ultimately effect those rates.

#### **Evolutionary thinking**

The ability to create new ideas through building on existing ideas or diverting from them.



Heat energy changes in chemical reactions Students will examine endothermic and exothermic reactions and how these reactions can be measured.





#### **Fuels** In this topic, students will learn about the components of oil, how these components can be separated and their uses.

#### HARD WORKING

The ability to train and prepare through repetition of the same processes in order to become more proficient.

Earth and atmospheric Science Our atmosphere, how it has changed over time and the impact of humans on the atmosphere.



#### **Hydrocarbons**

In this topic, students learn about the unique properties of different hydrocarbons.



Ambition Confidence Success Everyone Every Lesson Every Opportunity