

Why study Chemistry A-level?



What do chemists do?

- Chemists conduct experiments to study how elements work in different conditions, test how they mix, and work out what they are made up of right down to the tiniest particle.
- The results can be groundbreaking, colourful, explosive, or almost impossible to see.
- Chemists use their experiments and knowledge to develop medicines, foods, fabrics and other materials, from neon lights to shatterproof glass.
- They also use it to understand the world around us, from why leaves change colour to discovering invisible pollutants in the air.



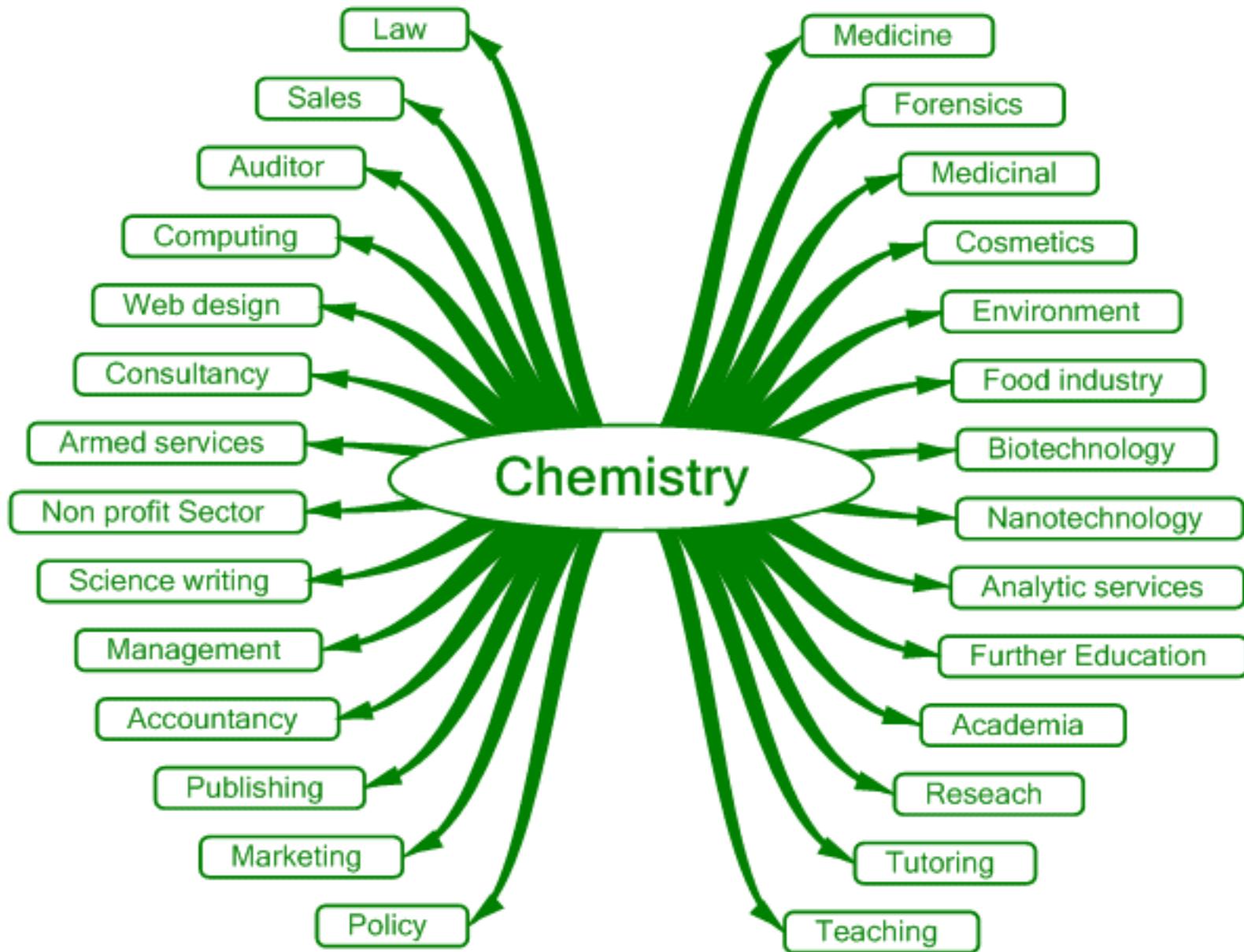
Chemistry is everywhere!

- Pick up a can of soft drink and you'll find chemistry everywhere, from the metal can you're holding, to the paint used to cover it and the liquid inside.
- Just breathe in and out and you're performing a chemical reaction, which is a little scary, but pretty great too...
- Chemistry is sometimes known as the "central science" because it helps to connect physical sciences, like maths and physics, with applied sciences, like biology, medicine and engineering.

What skills will I get from studying chemistry?

- All that questioning and experimentation can be really handy when it comes to building a whole range of skills for work.
- Chemistry helps you to develop research, problem solving and analytical skills. It helps you challenge ideas and show how you worked things out through logic and step-by-step reasoning.
- Chemistry often requires teamwork and communication skills too, which is great for project management.

What careers is chemistry good for?



**The specification is divided into a total of 5 units,
2 AS units and 3 A2 units.**

AS (2 units)

AS Unit 1

The Language of Chemistry, Structure of Matter and Simple Reactions

Written examination: 1 hour 30 minutes (80 marks)

20% of qualification

A range of short answer, structured and extended response questions.

AS Unit 2

Energy, Rate and Chemistry of Carbon Compounds

Written examination: 1 hour 30 minutes (80 marks)

20% of qualification

A range of short answer, structured and extended response questions.

A Level (the above plus a further 3 units)

A2 Unit 3

Physical and Inorganic Chemistry

Written examination: 1 hour 45 minutes (80 marks)

25% of qualification

A range of short answer, structured and extended response questions.

A2 Unit 4

Organic Chemistry and Analysis

Written examination: 1 hour 45 minutes (80 marks)

25% of qualification

A range of short answer, structured and extended response questions.

A2 Unit 5

Practical (60 marks)

10% of qualification

This unit comprises two tasks:

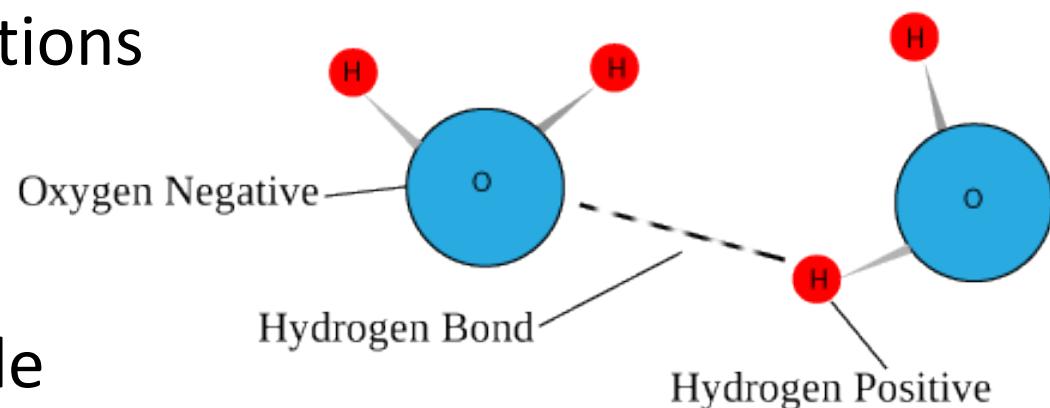
- Experimental Task (30 marks)
- Practical Methods and Analysis Task (30 marks)

AS UNIT 1

The language of chemistry, structure of matter and simple reactions

- This unit covers the following areas of study:
 - Formulae and equations
 - Basic ideas about atoms
 - Chemical calculations
 - Bonding
 - Solid structures
 - The Periodic Table
 - Simple equilibria and acid-base reactions

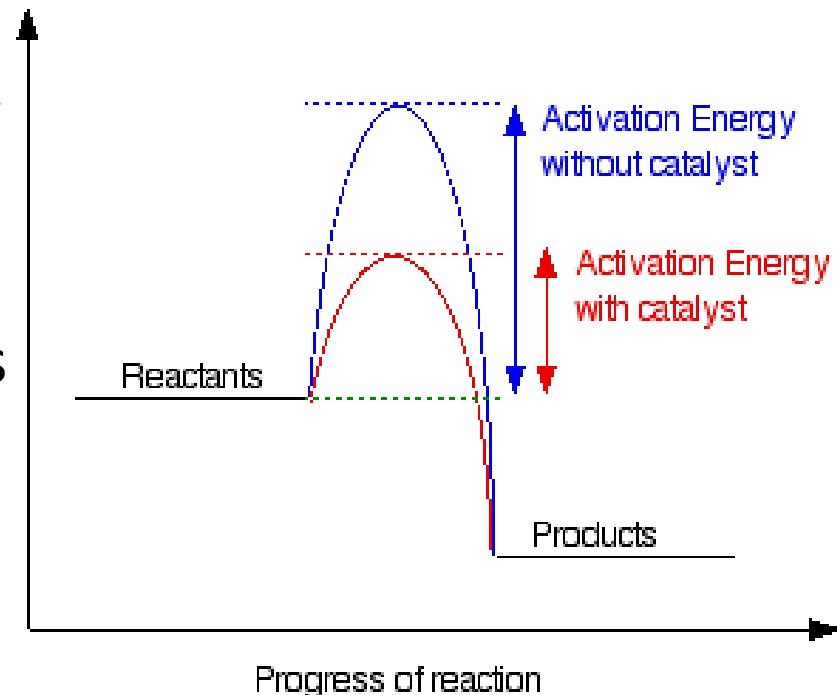
Hydrogen Bonding



AS UNIT 2

energy, rate and chemistry of carbon compounds

- This unit covers the following areas of study:
 - Thermochemistry
 - Rates of reaction
 - The wider impact of chemistry
 - Organic compounds
 - Hydrocarbons
 - Halogenoalkanes
 - Alcohols and carboxylic acids
 - Instrumental analysis



A2 UNIT 3

Physical and inorganic chemistry

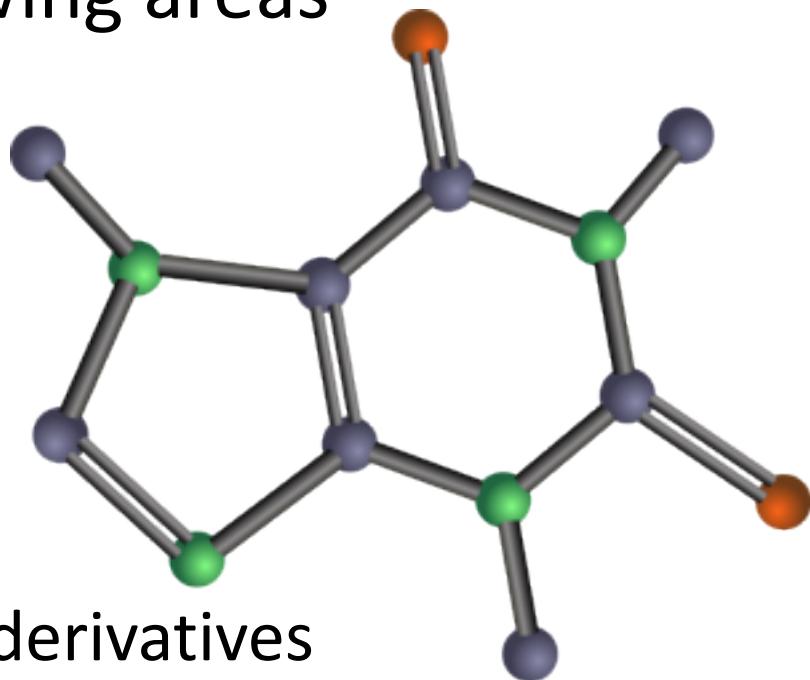
- This unit covers the following areas of study:
 - Redox and standard electrode potential
 - Redox reactions
 - Chemistry of the p-block
 - Chemistry of the d-block transition metals
 - Chemical kinetics
 - Enthalpy changes for solids and solutions
 - Entropy and feasibility of reactions
 - Equilibrium constants
 - Acid-base equilibria



A2 UNIT 4

Organic chemistry and analysis

- This unit covers the following areas of study:
 - Stereoisomerism
 - Aromaticity
 - Alcohols and phenols
 - Aldehydes and ketones
 - Carboxylic acids and their derivatives
 - Amines
 - Amino acids, peptides and proteins
 - Organic synthesis and analysis



A2 UNIT 5

Practical

- 10% of qualification:
 - Experimental Task (30 marks)
 - Practical Methods and Analysis Task (30 marks)

