Year 9 Science

Year 9 provides a bridge between Key Stage 3 and GCSE Science. Students build on the foundations developed in Years 7 and 8, studying more challenging scientific concepts while developing the practical, mathematical and evaluative skills needed for success in the GCSE years. The course encourages curiosity, critical thinking and a deeper understanding of the biological, chemical and physical processes that shape our world.

Advent 1: Cells and Particle Model

Students begin GCSE Biology by exploring the structure and function of cells, before studying how substances are arranged and behave in different states of matter.

Key areas of study:

- Eukaryotic and prokaryotic cells
- Specialised animal and plant cells
- Microscopy and calculating magnification
- Stem cells and their applications
- States of matter
- Particle model of solids, liquids and gases
- Changes of state
- Internal energy and energy transfers

Advent 2: Cell Transport and Atomic Structure

Students investigate how substances move into and out of cells before beginning their study of Chemistry through atomic structure and the development of the periodic table.

Key areas of study:

- Diffusion
- Osmosis
- Active transport
- Surface area and exchange surfaces
- Structure of the atom
- Development of atomic theory
- Electronic structure
- The periodic table
- Elements, compounds and mixtures

Lent 1: The Atmosphere and Chemical Analysis

Students explore how Earth's atmosphere has changed over time and how chemists identify and separate substances.

Key areas of study:

- Evolution of Earth's atmosphere
- Greenhouse gases and climate change
- Atmospheric pollutants
- Sustainable development
- Pure substances and formulations
- Chromatography
- Gas tests

Lent 2: Using Resources and Energy

Students investigate how resources are managed sustainably while beginning their study of energy and energy transfers.

Key areas of study:

- Finite and renewable resources
- Life Cycle Assessments (LCAs)
- Reduce, Reuse, Recycle (RRR)
- Potable water
- Waste water treatment and sewage
- Energy stores and energy transfers
- Conservation of energy
- Efficiency and reducing energy waste

Trinity 1: Ecology and Energy

Students explore the interactions between organisms and their environment while completing their study of energy.

Key areas of study:

- Communities and ecosystems
- Biotic and abiotic factors
- Adaptations for survival
- Food chains and food webs
- Sampling techniques and biodiversity
- Energy resources
- Renewable and non-renewable energy
- Environmental impacts of energy production
- National and global energy demands

Year 9 provides the foundation for GCSE Science, introducing key concepts and practical skills that will be developed further throughout Years 10 and 11.