

Year 9

Year 9 science builds the bridge between previous KS3 content and the upcoming GCSE content. In term 2 of year 9 we begin to introduce the major building blocks of GCSE biology, chemistry and physics, focusing on cells and organisation in biology, substances and their properties in chemistry and energy and particles in physics.

In year 9 we introduce skills necessary for communicating ideas and solving problems. These skills further build upon the skills introduced, developed and mastered in years 7 and 8, providing students will a full skills toolkit as they move into their GCSE courses.

Knowledge overview	Topic 1	Topic 2	Topic 3	Topic 4	Topic 5
Topic	Working scientifically 3	Cells in depth	Atomic structure and the periodic table	Energy stores and systems	Organ systems
Theme	Working scientifically	Organisms 3	Matter and the periodic table 3	Energy and Particles 3	Organisms 4
Overview	In this topic we will introduce the skills required to communicate their ideas and solve problems that arise. The students will consider the ethical issues surrounding many aspects of scientific discoveries and innovations and will evaluate evidence for claims put forward.	In this topic students will take an in-depth look at cells and the transport of substances between them. Students will investigate the various factors which affect the transport of substances such as oxygen, water and ions in and out of cells.	In this topic students will take an in depth look at the building blocks of matter. Students will consider the relative sizes of particles and use data about elements to describe trends in the periodic table.	In this topic students will take an in depth look at energy stores and systems. Students will develop their numeracy skills by using standard form, rearranging algebraic equations as well as using SI units.	In this topic students will take an in depth look at the systems in the human body and apply scientific principles to explain how they are adapted to their function. Students will then relate how changes in diet and exercise can result in changes to the bodies health.

Knowledge overview	Topic 6	Topic 7	Topic 8
Topic	Bonding, structure, and the properties of matter	Particle model of matter	Bioenergetics
Theme	Matter and the periodic table 4	Energy and Particles 4	Ecosystems 3
Overview	In this topic students will look how atoms can bond together to form ionic substances, molecules and metallic substances. Students will use their understanding of bonding to relate them to the properties of particular materials.	In this topic students will consider the material world and use scientific models and algebraic equations to demonstrate how substances have the properties they have.	In this topic students will take a detailed look at respiration and photosynthesis and the factors which affect them. Students will consider the implication of changing these factors on real world contexts such as sport and farming