Curriculum Overview 2026-onwards

Curriculum Leader: Mr. Smith Subject: Science - Biology Year: 9

Year 9 Curriculum:

Autumn Term:

Biological Systems

All pupils will develop further their core substantive knowledge of multicellular organisms and the organs systems needed to keep the cells alive. All pupils will learn about the structure of the breathing system and how it is adapted to get oxygen in and carbon dioxide out. All pupils will learn how this process is vital for respiration. All pupils will learn to apply their knowledge of the breathing system to explain the effects of smoking and exercise. All pupils will develop their core substantive knowledge of the parts of the musculoskeletal system and the processes needed to cause motion. All pupils will learn how features that cause variation are inherited, how these features give rise to adaptations (changes in DNA) that either help or hinder organisms in changing environments. All pupils will continue to develop explicit core disciplinary knowledge in evaluating data, using numeracy to analyse data, as well as presenting observations and data using a bar chart and line graph

Spring Term and Summer Term

B1 Cell Biology

All pupils will begin the fundamentals of their GCSE in Combined Science. All pupils will complete B1 Cell Biology. In this unit all pupils will develop their core substantive knowledge from KS3 that cells are the basic unit of all forms of life. In this unit all pupils will learn how structural differences between types of cells enables them to perform specific functions within the organism. These differences in cells are controlled by genes in the nucleus. Pupils will learn how for an organism to grow, cells must divide by mitosis producing two new identical cells. If cells are isolated at an early stage of growth before they have become too specialised, they can retain their ability to grow into a range of different types of cells. Pupils will learn that this phenomenon has led to the development of stem cell technology; a new branch of medicine that allows doctors to repair damaged organs by growing new tissue from stem cells.

Links to National Curriculum

Our Year 9 Science Biology curriculum is carefully sequenced to build on the KS2 knowledge of **Plants, Animals including Humans, Living Things and their Habitats** and the KS3 Year 7 and 8 curricula of **Cells** and **Reproduction & Variation, Digestion & Nutrition, Plants & Photosynthesis** and **Ecology**. This allows all pupils to learn the fundamental concepts of **Cellular Respiration, Inheritance, Health,** the **Breathing System and Skeletal System.**

Our Year 9 Science curriculum ensures that over the year and all three sciences all pupils will learn the fundamentals of each core disciplinary knowledge skills for full coverage of **working scientifically**.

In the Year 9 Biology curriculum all pupils will continue to learn the **experimental and investigation** skills of carrying out a practical, applying sampling techniques and recording data and the **analysis and evaluation** skills of drawing line graphs and bar charts, as well as showing awareness of potential sources of error and identify further questions arising through evaluation.

Knowledge and understanding of this curriculum will be assessed by:

Embedded within the curriculum, a range of high-quality assessment techniques will be deployed at the point of learning to ensure that all pupils are acquiring the core substantive knowledge, identifying gaps, and addressing misconceptions.
Sequentially throughout the year pupils will be assessed on their retention of the core substantive knowledge, further identifying gaps and misconceptions which will be addressed through a targeted intervention.
Pupils disciplinary core knowledge will be assessed systematically throughout the year, using a variety of bespoke practical scenarios to allow them to demonstrate fundamental core skills required within science and clear guidance of the next steps to progression in each area.

Powerful Knowledge/Cultural Capital Opportunities

The powerful knowledge obtained throughout Year 9, will allow all pupils to evaluate their relationship with a range of living organisms, to make informed choices that can impact of their own health and life and that of many more on a global scale, such as our dependence on bees as pollinators in the $30 billion dollar crop industry.
To ensure pupils are curious, inquisitive and questioning about the world around them we equip pupils with the skills to make informed decisions about our ever-changing world and their ability to carry out investigations, apply techniques, collect and analyse evidence and subsequently evaluate is vital to take their seat at the table of science-based society.