Curriculum Overview

Curriculum Leader: Mr. Smith Subject: Science - Biology Year: 7

Year 7 Curriculum:

Spring Term:

Cells & Transport: Fundamentals

All pupils will develop their core substantive knowledge focusing on cells as the fundamental unit of living organisms, including how to observe, interpret and record cell structure using a light microscope. They will identify key organelles found within both animal and plant cells and describe their functions, successfully making comparisons. All pupils will learn about the structural adaptions of cells of both unicellular and multicellular organisms, linked to their specific functions. They will learn about the role of diffusion in the movement of specific materials in and between cells. All pupils will also develop a fundamental understanding of the structure and function of the human gas exchange system, and of the human digestive system.

All pupils will develop core disciplinary knowledge in scientific numeracy, using simple equations and carrying out appropriate calculations.

Summer Term

Reproduction

All pupils will build on prior and further develop their core substantive knowledge learning about reproduction in humans (as an example of a mammal). They will learn about the structure and function of the male and female reproductive systems, menstrual cycle, gametes, fertilisation, gestation, and birth, including the effect of maternal lifestyle on the foetus through the placenta. All pupils will additionally learn about reproduction in plants, including flower structure, wind and insect pollination, fertilisation, seed and fruit formation and dispersal, including a quantitative investigation of some dispersal mechanisms. They will also develop an understanding of the importance of plant reproduction through insect pollination. All pupils will learn that there is variation between individuals within a species, which can be continuous or discrete (discontinuous), including some measurement and graphical representation of variation.

All pupils will develop their core disciplinary knowledge in analysis and concluding, through interpreting data presented in the form of graphs.

Links to National Curriculum

Our Year 7 science Biology curriculum is carefully sequenced to build on the KS2 knowledge of **animals including humans**, **living things and their habitats** and **plants** by describing the biological world through the KS3 concept of **Cells and organisation.** This fundamental concept is continually used and built upon throughout the year to allow all pupils to develop their core knowledge of **the digestive system, and gas exchange systems** in humans. Additionally, the fundamental concept allows all pupils to further develop their core knowledge of **reproduction**.

Our Year 7 science curriculum ensures that over the year in all three sciences all pupils will learn the fundamentals of each core disciplinary knowledge skills for full coverage of **working scientifically**.

In the Year 7 Biology curriculum all pupils will learn the **measurement** skills of using simple equations, **experimental and investigation** skills of carrying out a practical, and **analysis and evaluation** skills of drawing bar charts and interpreting graphical data.

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 of cells and organisation will allow our pupils to understand key biological processes. By learning about cells, they will come to understand key life processes, how we can protect cells to prevent infection and other harmful effects, diagnose disease, treat cells to heal illnesses and stop harming cells through our choices and actions.

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 deploy appropriate numeracy strategies, plan investigations, as well as collect, present and analyse evidence is vital to take their seat at the table of science-based society.