Curriculum Overview

Curriculum Leader: Mr. Smith Subject: Science - Biology Year: 8

Year 8 Curriculum:

Autumn Term:

Digestion and nutrition

All pupils will build on prior and further develop their substantive core knowledge to identify the components of a healthy human diet and why each is needed. They will also learn about the energy requirements in a healthy daily diet and understand the consequences of imbalances in diet to include obesity, starvation, and deficiency diseases and how exercise can impact our health.

All pupils will learn about the tissues and organs of the human digestive system, including adaptations to function and how the digestive system digests food.

All pupils will learn the effects of drugs, smoking and alcohol on behaviour, health and life processes including fertilisation and pregnancy.

All pupils will continue to develop explicit core disciplinary knowledge in carrying out an experiment.

Spring Term

Plants and photosynthesis

All pupils will learn that almost all life on Earth is dependent on the ability of photosynthetic organisms, such as plants and algae, to use sunlight in photosynthesis to provide essential energy stores and maintain levels of oxygen and carbon dioxide in the Earth's atmosphere. They will also learn how plant organs, specifically leaves are adapted to carry out photosynthesis.

All pupils will also develop their substantive core knowledge of the key processes of aerobic and anaerobic respiration within humans and microorganisms, identifying reactants and products and summarising through word equations. They will also learn about how the process of anaerobic respiration (fermentation) is pivotal in the brewing and bread making industries.

Summer Term

Ecology

All pupils will build upon and further develop their core substantive knowledge through studying the interdependence of organisms in an ecosystem. They will identify and analyse food chains, which link to form food webs within specific ecosystems and describe how populations are affected by factors including predation, disease, pollution and competition for resources. They will also learn how organisms affect, and are affected by their specific environment.

All pupils will continue to develop explicit core disciplinary knowledge in Analysis and Concluding, through interpreting data presented in the form of graphs, as well as evaluating.

All pupils will develop explicit core disciplinary knowledge of how to apply sampling techniques appropriately.

Links to National Curriculum

Our Year 8 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 curriculum of **Cells and Organisation** and **Reproduction**. This allows all pupils to learn the fundamental concepts of **Nutrition and Digestion, Health, Photosynthesis** and **Cellular respiration**. All pupils will also learn the fundamental concepts of **Relationships in an ecosystem** as well as **interdependence**.

Our Year 8 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 8 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 8, 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.