Curriculum Overview

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

Year 8 Curriculum:

Autumn Term:

Light and sound

All pupils will build upon and develop their core substantive knowledge of waves to learn about light waves. They will develop a knowledge of the transfer of energy via waves and how waves can be transmitted, reflected or absorbed. The behaviour of light through different substances will be described by all pupils through transparency, reflection, refraction and scattering ray diagrams. All pupils develop their knowledge of light through lenses and the structure of the eye.

They will develop their understanding of the nature of sound, be able to describe the parts of a sound wave, and describe the properties of the sound based on the shape of the wave.

All pupils will develop core disciplinary knowledge in evaluating an investigation.

Space

All pupils will develop their core substantive knowledge of space, the Earth as a planet, its place in the solar system and the universe. They will also be able to describe the formation of the solar system and stars.

All pupils will develop core disciplinary knowledge in presenting observations and data using line graphs, numeracy of calculations and evaluation of an investigation.

Spring Term:

Matter

All pupils will develop their core substantive knowledge of the three states of matter and their properties. They will be able to explain the properties of solids, liquids and gases in terms of intermolecular forces and the energy and movement of the particles.

All pupils will further develop their knowledge of change of state, buoyancy, density and pressure in gases and liquids.

All pupils will develop core disciplinary knowledge in carrying out an experiment, writing a plan and recording data using tables.

Summer Term:

Forces and motion

All pupils will build on prior and further develop their core substantive knowledge of forces and motion by scientifically describing motion using words such as speed, acceleration and relative motion and using motion graphs.

All pupils will further develop their core substantive knowledge of energy changes and transfers by understanding moments and how levers make a job easier.

They will be able to describe and calculate work done, elastic potential energy and gravitational potential energy.

All pupils will develop core disciplinary knowledge in presenting observations and data using line graphs, numeracy of calculations and evaluation of an investigation.

Links to National Curriculum

Our Year 8 Science Physics curriculum is carefully sequenced to build on KS2 knowledge of **light and sound** by describing the physical world with a particular concentration on **the properties of light and sound waves.**

Our Year 8 Science Physics curriculum carefully builds Year 7 knowledge of **Motion and Forces** and **Energy** by developing the KS3 concept of **Describing motion, Pressure in fluids, Forces and motion** and **Energy changes and transfers.**

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 Physics curriculum all pupils will learn the **experimental and investigation** skills of carrying out an investigation, writing a plan and recording data and the **analysis and evaluation** skills of drawing line, numeracy of calculations and evaluation of an investigation.

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 matter will enable pupils to draw conclusions about the states of matter and allow them to apply their knowledge to everyday substances such as water as ice or steam.

The powerful knowledge of space will allow pupils to see the Earth as a very small part of a changing universe, and appreciate the effects that modern lifestyles are having on our planet.

The powerful knowledge of motion and pressure will allow all pupils to understand speed and acceleration in vehicles, how levers make life easier and why things float or sink.