



Curriculum Overview

Curriculum Leader: Mr. Smith

Subject: Science – Physics Year: 7

Year 7 Curriculum:

Autumn Term:

Forces (Forces and motion 1)

All pupils will develop their core substantive knowledge focusing on contact and non-contact forces and examples including Friction, Tension, Compression and Weight. All pupils will know the idea of resultant force and equilibrium and state how they move in each situation. All pupils will be able to describe what happens to springs when force is added to them. All pupils will be able to distinguish between mass and weight and calculate the weight of an object from its mass on Earth.

All pupils will develop core disciplinary knowledge in carrying out an experiment, recording data and presenting observations and data using Line Graphs.

Spring Term:

Space fundamentals

All pupils will build on prior and further develop their core substantive knowledge of weight and gravity from the Forces topic and develop their core substantive knowledge in Space Physics. They will be focusing on the concept of weight force on different planets and the moon.

All pupils will develop their core substantive knowledge of our solar system and how the tilt of the Earth plays a role in seasons and changing day length. Developing their core substantive knowledge pupils will know units we can use to measure astronomical scale distances.

All pupils will develop core disciplinary knowledge presenting observations in a bar chart, analysing data from a results table and using numeracy to calculate values.

Summer Term:

Sound waves (Waves A)

All pupils will develop their core substantive knowledge to learn about sound waves. They will develop a knowledge of the properties of waves including amplitude, frequency wavelength and speed. All pupils develop their knowledge of the wave properties by applying them to sound waves and therefore linking properties of sound such as pitch and volume to the wave property. They will be able to describe the auditory range of human hearing and the function of a microphone, loudspeaker and the parts of a human ear.

All pupils will develop their understanding of longitudinal and transverse waves and the general behaviour of waves.

All pupils will develop core disciplinary knowledge in analysing data from a results table and evaluating an investigation.

Links to National Curriculum

Our Year 7 Science Physics curriculum is carefully sequenced to build on the KS2 knowledge of **Earth and space, Forces and Sound** by addressing the KS3 concepts of **Motion and Forces, Waves and Space physics**.

The fundamental concepts are continually used and built upon throughout the year.

The concept of **waves** allows all pupils to learn about **Observed waves, Sound waves and Light**

The concept of **Forces and motion** allows all pupils to learn about **Forces, Balanced forces and Space Physics**.

Our Year 7 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 7 Physics curriculum all pupils will learn the **experimental and investigation** skills of carrying out a practical and recording data and the **analysis and evaluation** skills of drawing line graphs and bar charts, analysing data tables and evaluating 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 the Forces and Space Physics will allow our pupils to understand everyday phenomenon such as the seasons, day length and gravity's role on this planet. The powerful knowledge of waves will allow our pupils to know the structure of our eyes and ears and how pitch and loudness of sound are linked to their wave.

To ensure pupils are curious and questioning about the world around them we equip pupils to make informed decisions and their ability to plan investigations, collect and analyse evidence is vital to take their seat at the table of science-based society.