Curriculum Overview 2023 - onwards

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

Year 9 Curriculum:

Autumn Term:

Energy Transfers and Energy Resources

All pupils will build on prior and further develop their core substantive knowledge of energy of fuel uses and costs, major energy stores, thermal transfers mechanisms and the concept of work to develop their core substantive knowledge to calculate the main energy stores, thermal energy transfers and power.

All pupils will learn to apply their knowledge of renewable and non-renewable fuels to explain and evaluate issues arising from energy usage and production and how power is used to work out how much we pay for energy.

All pupils will develop explicit core disciplinary knowledge in representing data in bar graphs and analysing and concluding from data tables and graphs.

Spring Term

Space

All pupils will develop further their core substantive knowledge of our solar system and Universe to make use observations and data to justify our knowledge of the solar system and universe and the history of the development of Astronomy.

All pupils will build on prior and further develop their core substantive knowledge of weight and gravity and use real life data to verify the "g" on our planet and beyond.

All pupils will build upon their core substantive knowledge of magnetism from previous learning of magnetic materials, permanent magnets, poles, and temporary magnets including electromagnets to describe and explain magnetic phenomenon using the concept of magnetic fields and field lines to the Earth's magnetic field and phenomenon.

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

Summer Term

Electrical Circuits and Resistance.

All pupils will build upon their core substantive knowledge of electrical charge from previous learning to describe and explain the interactions of two charged particles.

All pupils will build upon their core substantive knowledge of simple circuits from previous learning to develop more advanced descriptions and explanations of electric circuits using series and parallel circuits and the concept of resistance to describe and explain current flow.

All pupils will develop explicit core disciplinary knowledge in representing data in line graphs and writing a plan.

Links to National Curriculum

Our Year 9 Science Physics curriculum on Energy carefully builds Year 7 & 8 knowledge of **Calculation of fuel use and energy costs** and **Energy changes and transfers** to develop these concepts further and apply it to **changes in systems.**

Our Year 9 Science Physics curriculum on **Electricity** is carefully to build on the **Current electricity** and **Static electricity** to develop these concepts further in terms of Resistance and parallel and series circuits.

The year 9 **Space Physics** builds on the KS3 **Space physics** from Year 7 and the KS3 **Forces** and the KS3 **Magnetism** developed through Year 7 and 8 to extend their knowledge but more importantly enthuse pupils into some of the more cutting edge research and projects in relation to space and the development of our understanding of the universe.

Our Year 9 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 9 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 resistance in electricity and magnetism will allow all pupils to understand and evaluate the risk of electric shock in terms of relative resistances and to understand the magnetic field of planet Earth in its use as a navigation aid.

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.

To ensure pupils are curious and questioning about the world around them we equip pupils to make informed decisions on evidence is vital for today's science-based society.