

## **Science**

In Science we aim for pupils to develop their knowledge and understanding of the natural and physical world through intellectual and practical pursuit. It is our vision to ensure pupils are able understand and engage with our ever-changing world. Pupils will have opportunity to study revolutionary scientific discoveries and processes which will underpin their broadening scientific knowledge. Pupils will develop skills such as mathematics, independent enquiry and problem solving that are essential to scientific discovery but also to prepare pupils to pursue careers and further education in a range of fields.

Our curriculum will empower pupils to:

- make their own scientific discoveries from space travel to the meaning of their own medical test results.
- be scientifically literate enabling them to challenge news stories and sensationalist reporting.
- to make scientifically informed choices about their lifestyle understanding that the choices they make today can having a damaging effect on the planet for future generations.
- to be able peruse further education at prestigious institution as well as careers in a range of different scientific fields from Forensic Science to Pharmacology to Engineering

### **Core Concepts**

Our tailored and in-depth curriculum focuses on a “core concepts” approach which builds over the course of the five-year curriculum. Core concepts are the key strands of scientific knowledge pupils will experience. The implementation of the curriculum has been designed so that pupils will study the essential knowledge of each core concept, moving towards synoptically linking core concepts together. The approach allows pupils to understand the fundamentals of the science curriculum whilst being prepared to apply this knowledge to a range of scientific phenomenon. Our core concepts are:

- Cells, tissues and organs
- Body processes
- Inheritance and variation
- Interdependence and ecosystems
- Particle model and behaviour
- Compounds and bonding
- Reactivity and chemical reactions
- Our Earth
- Energy
- Forces
- Waves
- Radioactivity

## Staffing

<b>Mrs Benson</b>	Lead Practitioner of Science
<b>Mrs Marsh</b>	Teacher of Science 2 <sup>nd</sup> in Dept
<b>Mrs Hamid</b>	Teacher of Science
<b>Miss Howard</b>	Teacher of Science
<b>Mrs Goldsmith</b>	Teacher of Science
<b>Mrs Silcock</b>	Teacher of Science
<b>Dr Tyrer</b>	Teacher of Science
<b>Mrs Lucas</b>	Science Technician

## Curriculum

Below is a guide of the topics studies in each year at key stage three

	<u>Autumn Term</u>	<u>Spring Term</u>	<u>Summer term</u>
<u>Year 7</u>	Cells and Microscopes Particles and Separating Techniques Energy and Energy Resources	Organs and Systems Balanced and Unbalanced Forces Acids and Alkalis Reproduction	Electricity Our Earth Ecosystems
<u>Year 8</u>	Photosynthesis Periodic Table Light and Sound	Chemical Reactions Breathing and Respiration Forces and Respiration	Health and Disease Magnetism Space
<u>Year 9</u>	Reactivity Variation Energy Stores and Transfers	Cell Structure Atomic Structure Forces – Motion Transport in Cells	Periodic Table Particle Model and Behaviour

Once pupils reach the end of year 9, they will choose which science pathway they wish to study into Year 10 and Year 11. Pupils can opt to study:

- Separate Science – GCSE Biology, GCSE Chemistry, GCSE Physics
- Combined Science – GCSE Combined Science Trilogy

Pupils have **5** lessons per week in year 10 and **4** lessons per week in year 11. Pupils that opt for separate science will have 2 hours additional science each week in year 10 and 3 hours additional science each week in year 11.

The following units are studied at KS4.

	<u>Autumn Term</u>	<u>Spring Term</u>	<u>Summer Term</u>
Year 10 Separate Science	Enzymes and Digestion Ionic Bonding Radioactivity Circulatory System Bonding and Properties Circuits Immunity	Reactivity of metals Domestic Electricity Photosynthesis and Plant Organisation Forces and Motion Reactions with Acids Respiration	Electrolysis Moments and Pressure Energy Changes Ecology Earth and its atmosphere Waves
Year 10 Combined	Radioactivity Ionic Bonding Enzymes and Digestion Circuits Bonding and Properties Circulatory System	Circulatory System Reactivity of metals Immunity Domestic Electricity Reactions with Acids Forces and Motion	Electrolysis Photosynthesis and Plant Organisation Energy Changes Respiration Analysis Forces and Momentum

	<u>Autumn Term</u>	<u>Spring Term</u>	<u>Summer Term</u>
Year 11 Separate Science	Inheritance Rates of Reaction Forces and Momentum Magnetism Organic Chemistry Magnetism Homeostasis	Analysis Resources Space	
Year 11 Combined	Rates of Reaction Inheritance Waves Organic Chemistry	Homeostasis Magnetism Resources Ecology	