The Programme of Study for Science is derived from the National Curriculum for Science in England, which provides a coherent and structured framework for the progression of scientific knowledge and skills from the Early Years Foundation Stage (EYFS) through to Key Stage 4 (KS4). It outlines a carefully sequenced body of knowledge and key concepts, ensuring continuity and progression across all key stages. Many of these concepts are revisited and developed in greater depth throughout the primary and secondary phases, supporting cumulative learning and mastery over time.

	SCIENCE – PROGRAMME OF STUDY – KS3		
Prior learning:	**Biology**	**Chemistry**	**Physics**
KS2 (upper) year 5 and *year 6*	**Living things and their habitats** • describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird • describe the life process of reproduction in some plants and animals. • *describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro* • *organisms, plants and animals* • *give reasons for classifying plants and animals based on specific characteristics.* **Animals including humans** • describe the changes as humans develop to old age. • identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood	**Properties and changes of materials** • compare and group together everyday materials based on their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets • know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution • use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating • give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic • demonstrate that dissolving, mixing and changes of state are reversible changes • explain that some changes result in the formation of new materials, and that this kind of change is not usually	**Earth and Space** • describe the movement of the Earth, and other planets, relative to the Sun in the solar system • describe the movement of the Moon relative to the Earth • describe the Sun, Earth and Moon as approximately spherical bodies • use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. **Forces** • explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object • identify the effects of air resistance, water resistance and friction, that act between moving surfaces • recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

	• recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function • describe the ways in which nutrients and water are transported within animals, including humans. **Evolution and Inheritance** • recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago • recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents • identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution	reversible, including changes associated with burning and the action of acid on bicarbonate of soda.	**Light** • recognise that light appears to travel in straight lines • use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye • explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes • use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them **Electricity** • associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit • compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches • use recognised symbols when representing a simple circuit in a diagram.
	Working Scientifically - Upper Key stage 2 - Pupils should: • encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates		

<table>
<tr><td></td><td colspan="3">begin to recognise that scientific ideas change and develop over time
select the most appropriate ways to answer science questions using different types of scientific enquiry
draw conclusions based on their data and observations
use evidence to justify their ideas, and
working scientifically is now introduced explicitly, but woven through the substantive content</td></tr>
<tr><td rowspan="2">Taught content: Knowledge/ Skills</td><td colspan="3">Teaching Science in key stage 4 continues with the process of building upon and deepening scientific knowledge and the understanding of ideas developed in earlier key stages in the subject disciplines of biology, chemistry and physics.</td></tr>
<tr><td>Biology</td><td>Chemistry</td><td>Physics</td></tr>
<tr><td></td><td>At KS3, pupils should be taught about:
Structure & function of living organisms
Cells & organisation
The skeletal & muscular systems
Nutrition & digestion
Gas exchange systems
Reproduction
Health - The effects of recreational drugs
Material cycles & energy
Photosynthesis
Cellular respiration
Interactions & interdependencies
Relationships in an ecosystem
Genetics & Evolution
Inheritance, chromosomes, DNA & genes</td><td>At KS3, pupils should be taught about:
The particulate state of matter
Properties of states of matters
Changes of state
Atoms, elements & compounds
A simple atomic model
Atoms, elements and compounds
Conservation of mass
Pure & impure substances
Pure substance
Mixtures, including dissolving
Filtration, evaporation, distillation & chromatography
Chemical reactions
Atoms
Chemical reactions
Combustion, decomposition, oxidation and displacement reactions
Acids and alkalines
PH scales and indicators
Reactions of acids with metals/ alkalis
catalysts</td><td>At KS3, pupils should be taught about:
Energy
Calculation of fuel uses & costs in the domestic context
Energy changes & transfers
Changes in systems
Motion & forces
Describing motion
Forces
Pressure in fluids
Balanced forces
Forces & motion
Waves
Observed waves
Sound waves
Energy & waves
Light waves
Electricity & electromagnetism
Current electricity
Static electricity
Magnetism
Matter</td></tr>
</table>

<table>
<tr><td></td><td></td><td>Energetics
Energy changes
Chemical reactions
The Periodic Table
Materials
Metals and carbons
Metal oxides
Ceramics, polymers and composites
Earth & atmosphere
Composition
Structure
Rock cycle
Recycling
Carbon cycle
Composition of atmosphere
Human activity and impact on climate</td><td>Physical changes
Particle model
Energy in matter
Space physics</td></tr>
<tr><td></td><td colspan="3">Working Scientifically
Through the content outlined above, students should be taught so that they develop understanding and first-hand experience of:
Scientific attitudes
Experimental skills & investigations
Analysis & evaluation
Measurement</td></tr>
<tr><td>Subsequent learning:</td><td colspan="3">Studying Science at Key Stage 4 provides the platform for more advanced studies at Post-16, establishing the basis for a wide range of careers. As a subject, it provides the foundations for understanding the natural world and will support students into adulthood as they live in an increasingly technological society.</td></tr>
</table>