

# Science Curriculum Intent

## 23-24

### Curriculum Intent:

- At FreshSteps a high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry, and physics.
- Science will change the lives of the younger generation and it is vital to our world's future prosperity. All students should be taught essential aspects of knowledge, methods, processes, and use of science in everyday life.
- This aims to raise the curiosity of the students by asking questions, in addition to an increased understanding of what they already know. We aim to teach them to be able to collect and build data, ready for analysis as the next step, which will eventually lead to their own conclusions.
- As a result, this will be able to raise awareness through exposure to the above principles of scientific approach to problem solving.

### Implementation

- Students are given Progress Maps at the start of every unit of work which outline the different scientific knowledge and skills across the unit of work. Students complete a pre-teaching assessment to identify which aspects of the Progress Map they have already consolidated. In every lesson, there is a variety of activities that are taught using a range of teaching and learning styles (visual, kinesthetic and auditory). This helps them discover their passions, relating to real world experiences, in different ways to cater to the needs and uniqueness of all pupils. The course covers many areas of Biology, chemistry and physics including: Human, plant, atom, elements, force, momentum and genetics.
- Students are assessed at the end of this unit of work to establish how many steps of progress have been made since the beginning and are given an opportunity to respond to the assessment feedback to improve their grade.
- Our curriculum focuses on aspects of all three sciences. The topics are taught alongside practicals. The curriculum is designed to nurture creative thinking and problem-solving, applying to real-life situations. The course develops pupils' understanding of personal care and safety where applicable. We interleave learning to enhance the long-term memory of our students through retrieval practice, and we take a bespoke

approach to delivering the curriculum depending on students' individual needs and prior scientific knowledge.

- For those pupils who still need much support for the demands of the GCSE course, the AQA Unit Award is offered. The unit award scheme is a flexible, accessible way for all learners to have their achievements formally recognized by the AQA-accredited awarding body. To gain a unit award with AQA, candidates submit a portfolio of evidence to be assessed and receive a certificate to acknowledge their achievement. The AQA Unit Award Scheme is a scheme of work where students can study smaller units and create a portfolio of awards to demonstrate the skills achieved. In science, the awards cover various topics across Biology, Chemistry and Physics that follow the KS3/4 Programme of Study. Areas covered include Classification, States of Matter, Environment, The Heart, and Homeostasis.
- The AQA unit award is a subtopic of the National Curriculum, which is followed to prepare pupils for the KS4 curriculum. Performance at KS3 is used to determine the relevant course at KS4.

## Impact

Pupils are able to grasp the concepts of topics much easier.

More focus in lessons

Better progress in terms of classwork

Pride in class workbooks

Longer attention spans

Willingness to arrive to lessons prepared to work.

Improved engagement

# Curriculum Map: Science

	Autumn 1		Autumn 2			Spring 1			Spring 2			Summer 1		Summer 2
<b>Y11</b>	<b>Electricity and magnets</b> (Key knowledge from P2 Electricity and P7 Magnets and electromagnets)	<b>Animals as organisms</b> (Key knowledge from parts of B1, B2, B3, B4, B5)	<b>Energy and particle model</b> (Key knowledge from P1 energy (minus energy resources) and P3 particle model)	<b>Atoms, elements, and bonds</b> (Key knowledge from all of C1 Atomic structure and periodic table, C2 Bonding and structure, C3 RFM, moles (if HT) writing equations, and concentration, and C8 chemical analysis)	<b>Radioactivity</b> (Key knowledge from AQA P4 radioactivity – just radioactive decay – history of atom covered elsewhere)	<b>Plants and environment</b> (Key knowledge from AQA B7 Ecology, Photosynthesis from B4, and Plant biology sections of B2 )	<b>Chemical reactions</b>  (Key knowledge from AQA C4 chemical changes and C5 energy changes, and C6 rates)	<b>Humans and our environment</b> Combined Bio, Chem, Phys unit covering: Key knowledge from AQA C10 using resources, P1 energy resources, C9/C7/B7 atmospheric pollutants and global warming	<b>Forces</b> Key knowledge from AQA P5 Forces	<b>Inheritance and evolution</b> Key knowledge from AQA B6 Inheritance, variation and evolution + Cell division from B1	<b>Waves</b> Key knowledge from AQA P6 waves	<b>Organic Chemistry Followed by revision</b> Key knowledge from C7 Organic Chemistry	<b>Revision</b>  Exam dates:	
<b>Y10</b>	<b>Unit 1 Chemistry: Atomic structure and periodic table</b>		<b>Unit 1 and 2 Biology: Cell Biology and organisation</b>			<b>Unit 2 and 7 Physics: Electricity and Magnets</b>		<b>Unit 4 Physics: Radioactivity</b>	<b>Unit 2, 4 and 5 Chemistry: Bonding and structure, Chemical changes and Energy changes</b>			<b>Unit 1 and 3 Physics: Energy and Particle Model</b>		<b>Unit 4 and 7 Biology: Bioenergetics and Ecology</b>
<b>KS3</b>	<b>Chemistry fundamentals</b>		<b>Cells and organisms</b>	<b>Light and sound</b>		<b>Energy</b>		<b>Particle model (phys and chem)</b>	<b>Health and body</b>	<b>Acids and alkalis</b>	<b>Electricity and magnetism</b>	<b>Genetics and evolution</b>	<b>Forces and motion</b>	<b>Ecology, plants and photosynthesis</b>