

YEAR 8 SCIENCE CURRICULUM PROGRESSION OVERVIEW

Subject Curriculum Intent

The Science curriculum is underpinned by five key elements: factual & conceptual understanding; mathematics; practical & enquiry skills; language & communication; application of knowledge & skills. These elements are used to sequence learning of the fundamental and substantive knowledge specified by the National Curriculum. The curriculum in Year 7 and 8 is very knowledge-rich, with a series of shorter units allowing pupils to learn the fundamental knowledge and begin to develop their skills in thinking like a scientist. The curriculum empowers pupils to be able to apply this knowledge, whilst engaging pupils in practical science and discussion, such that they are equipped with the knowledge and skills required to complete further study, be responsible citizens and make informed decisions in their lives.

	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Topic	Science skills Movement & Pressure Tissues & Organs	Acids & Alkalis Respiration & Photosynthesis	Changing Substances	Magnetism Life Diversity	Earth Systems Electric Circuits: Resistance	Nutrition Light
Core Knowledge/ Threshold Concept	Science skills – Patterns in data, basic conclusions, choosing a graph, risk assessments Movement & Pressure – Speed, acceleration, pressure: BIG IDEA = forces predict motion Tissues & Organs – Movement, breathing & effects of drugs: BIG IDEA = bodies are systems	Acids & Alkalis – Common acids & alkalis, neutralisation, reactions of acids: BIG IDEA = reactions rearrange matter Respiration & Photosynthesis – Aerobic & anaerobic respiration, photosynthesis: BIG IDEA = ecosystems recycle resources	Changing Substances – Chemical reactions & chemical equations, conservation of mass: BIG IDEA = reactions rearrange matter	Magnetism – Attraction & repulsion, magnetic fields, electromagnets: BIG IDEA = fields produce forces Life Diversity – Variation, adaptations, selective breeding, evolution & extinction: BIG IDEA = species show variation	Earth Systems – Structure of the Earth, rock cycle, water cycle: BIG IDEA = Earth systems interact Electric Circuits: Resistance – The relationship between current, voltage and resistance, Ohm's law, factors that affect resistance: BIG IDEA = electricity transfers energy	Nutrition – Digestive system, enzymes, balanced diet: BIG IDEA = bodies are systems Light – Properties of light, how we see, reflection & refraction: BIG IDEA = radiation transfers energy
Why this learning now?	Movement & Pressure – Application of forces learning; learning underpins	Acids & Alkalis – Application of learning about the particle model; introduction to	Changing Substances – Application of learning on word equations; learning crucial for future learning on	Magnetism – Application of learning on contact and non-contact forces; learning underpins	Earth Systems – Application of learning on states of matter and changing state; learning crucial for	Nutrition – Learning underpins understanding of how enzymes are affected by different factors

	understanding of Newton's Laws Tissues & Organs – Application of learning about pressure; knowledge of systems covered required for respiration & circulation	chemical reactions & word equations Respiration & Photosynthesis – Application of learning about cells & breathing system; learning forms basis of understanding that all materials cycle in nature	quantitative chemistry, electrolysis & reactivity series	understanding of electromagnetic induction and the motor effect Life Diversity – Application of learning about reproduction; learning supports understanding of human impact on biodiversity and prepares students for future learning on natural selection & speciation	further learning about the carbon and nitrogen cycle, Earth's early atmosphere and life cycle assessments Electric Circuits: Resistance – Application of learning on electric circuits; forms basis for learning about how electricity is generated, transported and used in domestic settings	Light – Knowledge from this unit leads to a more complex understanding of how waves transfer energy
Assessment Opportunities:	<p>Every lesson has:</p> <ul style="list-style-type: none"> - A recall starter - An exit ticket to assess progress - A 'fix it' section to address gaps identified in previous lesson's exit ticket - Embedded AfL tasks for whole class feedback <p>Each end of unit assessment has:</p> <ul style="list-style-type: none"> - 10 marks based on recall questions & answers (given at the start of the unit) - 15 marks of multiple-choice questions <p>Students will be assessed formally three times a year – these assessments will be longer answer exam questions.</p>					
Learning at Home	<p>Homework will be set and teacher assessed once per topic (minimum). Homework will be recall based and will be a mixture of:</p> <ul style="list-style-type: none"> - Exam style questions - Quizzes, e.g. Microsoft forms, Seneca 					
Key Vocabulary	Prescribe Speed Pressure	Indicator Neutral Fatigue	Conservation	Attract North pole Fertile Mutation Evolution	Resistance	Light Medium

Spiritual, Moral, Social and Cultural concepts covered	<p>The Science curriculum provides students with the opportunity to learn about and discuss current issues in science, whilst developing their skills of enquiry and research. Students will be supported to be critical consumers of information, and will learn how to consider the relevance of where scientific information comes from, in order to assess its reliability and usefulness.</p> <p>More specifically, concepts covered are:</p> <p>Spiritual – Life Diversity (theory of evolution)</p> <p>Moral - Ethics in Science (our impact on our environment, medical treatments)</p> <p>Social - Impact of science on our lives (healthy diet, selective breeding) respecting opinions, science in the news</p> <p>Cultural - Role of Scientists & their discoveries in our society</p>
Links to careers and the world of work	<p>Each topic has a spotlight on a particular STEM role or career. This will be explored, using a guided reading approach. In Year 8, the students will learn about:</p> <p>Biotechnology, Planetary science, Data science, Accident & emergency medicine, Anthropology and Astronomy.</p>

