



Curriculum Overview: Science

Year group 8

What your child will learn each half term

This overview shows the key topics, skills, and knowledge your child will be learning in Science across each year group. It helps families understand what's being taught, how it builds on previous learning, and how you can support your child at home.

- **What we are learning:** The topic or focus for the half term.
- **Key knowledge & skills:** What students should understand and be able to do.
- **How we assess learning:** knowledge checks, practical tasks, written responses and formal assessments.
- **Key words to know:** Vocabulary students will learn and use.

Half term	What we are learning	Key knowledge Key skills	How we will assess learning in this unit	Homework	Key vocabulary for this unit
HT 1	<ul style="list-style-type: none">• Atoms, Elements, Compounds• Moving and Breathing	<ul style="list-style-type: none">• The structure of an atom: protons, neutrons, and electrons• How atomic number and mass number define elements• The difference between elements, compounds, and mixtures• Chemical symbols and formulas• Interpreting and using chemical symbols and formulas• Drawing and modelling atomic structures• Classifying materials as elements, compounds, or mixtures• Writing and balancing simple chemical equations• The structure and function of muscles, bones, joints, and tendons• How these systems work together to allow movement• The structure and role of the lungs, diaphragm, and airways• The process of gas exchange in the lungs	<p>Multiple choice knowledge check applied a few lessons into the topic. This will be out of 10 marks. Testing recall of facts, comprehension and the ability to apply knowledge – this allows for a quick evaluation of understanding of the topic so far.</p> <p>Extended writing task – a 6-mark question on a particular aspect of the topic. Requiring pupils to provide more detailed and structured responses, assessing a pupil's ability to organise their ideas clearly, apply scientific vocabulary accurately and encourage a deeper understanding.</p> <p>An end of unit feedback task – composed of a variety of tasks. Assessing pupils understanding of key concepts and skills covered throughout the topic; testing both recall and application of scientific knowledge.</p>	<p>Homework is set on a Monday and is due the following Monday.</p> <p>Retrieval quizzes set online using 'Educake' with multiple choice and longer style response questions.</p>	<p>Atoms, Elements and Compounds</p> <p>Element</p> <p>Compound</p> <p>Molecule</p> <p>Proton</p> <p>Neutron</p> <p>Electron</p> <p>Moving and Breathing</p> <p>Skeleton</p> <p>Muscle</p> <p>Joint</p> <p>Tendon</p> <p>Ligament</p> <p>Diaphragm</p> <p>Trachea</p> <p>Bronchi</p> <p>Alveoli</p> <p>Oxygen</p> <p>Inhalation</p> <p>Exhalation</p>

			Helping to identify strengths and topics that may need further reinforcement or focus for pupils.		
HT 2	<ul style="list-style-type: none"> Periodic Table Heat Transfer 	<ul style="list-style-type: none"> How elements are arranged in order of increasing atomic number The significance of groups (vertical columns) and periods (horizontal rows) Shared chemical properties within element groups The difference between metals and non-metals Interpreting and using the periodic table to find information Predicting properties of elements based on their group and period The three methods of heat transfer. How materials act as thermal conductors or insulators Real-life applications of heat transfer in design and safety Conducting and observing experiments on heat transfer Measuring temperature changes accurately 	<p>Multiple choice knowledge check</p> <p>Extended writing task</p> <p>An end of unit feedback task</p>	<p>Homework is set on a Monday and is due the following Monday.</p> <p>Retrieval quizzes set online using 'Educake' with multiple choice and longer style response questions.</p>	<p>Periodic Table</p> <p>Periodic table</p> <p>Element</p> <p>Alkali metals</p> <p>Transition metals</p> <p>Halogens</p> <p>Noble gases</p> <p>Heat Transfer</p> <p>Temperature</p> <p>Conduction</p> <p>Convection</p> <p>Radiation</p> <p>Insulator</p> <p>Conductor</p>
HT 3	<ul style="list-style-type: none"> Light Digestion 	<ul style="list-style-type: none"> Know that light travels in straight lines and understand how reflection, refraction, and absorption occur. Understand how we see objects, the difference between luminous and non-luminous sources, and how colour and filters work. Use scientific skills to draw accurate ray diagrams showing reflection and refraction. Apply key vocabulary such as incident ray, normal, angle of reflection, refraction, 	<p>Multiple choice knowledge check applied a few lessons into the topic. This will be out of 10 marks. Testing recall of facts, comprehension and the ability to apply knowledge – this allows for a quick evaluation of understanding of the topic so far.</p>	<p>Homework is set on a Monday and is due the following Monday.</p> <p>Retrieval quizzes set online using 'Educake' with multiple</p>	<p>Light</p> <ul style="list-style-type: none"> Reflection Refraction Light ray Normal Angle of incidence Angle of reflection Transparent Translucent Opaque

		<p>spectrum, and opaque/translucent/transparent.</p> <ul style="list-style-type: none"> • Know the organs of the human digestive system and their functions. • Understand the roles of enzymes, mechanical and chemical digestion, and the importance of nutrients for health. • Use practical skills to test for nutrients (e.g., starch, sugar, protein, fats) and interpret results. • Apply scientific skills by explaining food breakdown, absorption, and transport using correct vocabulary (enzyme, substrate, villi). • 	<p>Extended writing task – a 6-mark question on a particular aspect of the topic. Requiring pupils to provide more detailed and structured responses, assessing a pupil's ability to organise their ideas clearly, apply scientific vocabulary accurately and encourage a deeper understanding.</p> <p>An end of unit feedback task – composed of a variety of tasks. Assessing pupils understanding of key concepts and skills covered throughout the topic; testing both recall and application of scientific knowledge. Helping to identify strengths and topics that may need further reinforcement or focus for pupils.</p>	<p>choice and longer style response questions.</p>	<ul style="list-style-type: none"> • Lens <p>Digestion</p> <ul style="list-style-type: none"> • Mouth • Oesophagus • Stomach • Small intestine • Large intestine • Enzyme • Bile • Absorption • Digestive system • Nutrients
HT 4	<ul style="list-style-type: none"> • Electricity • Rocks 	<ul style="list-style-type: none"> • Know the components of electrical circuits and understand current, voltage, and resistance. • Understand the difference between series and parallel circuits and how they affect current and voltage. • Use scientific skills to build circuits, draw circuit diagrams with correct symbols, and take accurate meter readings. • Apply key vocabulary such as ammeter, voltmeter, resistance, potential difference, conductor, and insulator. • Know the three types of rocks—igneous, sedimentary, metamorphic—and how they form. 	<p>Multiple choice knowledge check</p> <p>Extended writing task</p> <p>An end of unit feedback task</p>	<p>Homework is set on a Monday and is due the following Monday.</p> <p>Retrieval quizzes set online using 'Educake' with multiple choice and longer style response questions.</p>	<p>Electricity</p> <ul style="list-style-type: none"> • Current • Voltage • Resistance • Circuit • Series circuit • Parallel circuit • Conductor • Insulator • Cell (battery) • Switch <p> Rocks</p> <ul style="list-style-type: none"> • Igneous • Sedimentary • Metamorphic

		<ul style="list-style-type: none"> • Understand the rock cycle, weathering, erosion, and formation of fossils. • Use practical skills to test rock properties (hardness, permeability) and classify samples. • Apply scientific vocabulary such as magma, lava, sediment, crystals, fossilisation, and compaction. • 			<ul style="list-style-type: none"> • Magma • Lava • Erosion • Weathering • Fossil • Mineral • Rock cycle
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