

Year 8 - Science

Curriculum intent	Throughout year 8 learners will build on the foundations of the Year 7 Science curriculum to develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics. Learners will further develop an understanding of the nature, processes and methods of science through different types of scientific enquiries that help them to answer scientific questions about the world around them. Through this, learners will continue to develop the scientific knowledge required to understand the uses and implications of science, today and for the future.					
Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Knowledge	<p>Breathing - Learners will learn about the respiratory system, its structure and function. They will also look at how asthma and smoking can affect the respiratory system.</p> <p>Digestion - Learners will learn about the different nutrients needed for a balanced diet, which foods contain which nutrients and how to test for them. They will also look at the side effects of having an unbalanced diet, and how it impacts the body.</p> <p>Periodic Table and Elements - Learners will look at the structure of the periodic table, and how an elements position in it can be used to work out its properties. They</p>	<p>Contact Forces and Pressure - Learners will be able to describe how materials behave in special ways when forces such as tension and compression are applied.</p> <p>Respiration - Learners will learn about aerobic and anaerobic respiration and the difference between them. They will also look at how anaerobic respiration is used in fermentation.</p> <p>Photosynthesis - Learners will use a range of</p>	<p>Chemical Energy and Types of Reaction - Learners will learn about the difference between chemical and physical changes. They will also learn how to construct chemical formula and both word and symbol equations for various reactions. Learners will also investigate different chemical reactions.</p> <p>Magnets -Learners will learn about magnetic fields, how they impact other objects and how the force naturally exists within the Earth</p>	<p>Evolution - Learners will explore Charles Darwin's theory of Natural Selection, selective breeding and the different theories that are used to explain the extinction of dinosaurs.</p> <p>Inheritance - Learners will use a range of investigative and modelling techniques to understand how DNA controls the structure and function of organisms.</p>	<p>Climate - Learners will learn about the Carbon cycle and the processes which remove it from the air and release it back into the air. They will also calculate their carbon footprint. Learners will look at how human activities have affected the Earth's atmosphere</p> <p>Earth's Resources – Learners will explore the damages to Earth's resources and learn about the importance of recycling and sustainability.</p>	<p>Heating & Cooling: Learners will use a range of investigative techniques to understand how the type of material influences the rate at which it heats and cools.</p> <p>Waves Effects and Wave Properties - Learners will use a range of investigative techniques to understand how to measure Waves on water and ropes and understand wave models.</p>



	will also develop their knowledge of constructing word and symbol equations.	investigative techniques to understand the effect of enzymes on photosynthesis and how a plant is adapted for this process.	Electromagnets: Learners will learn how to construct an electromagnet, and how to vary the strength of them. They will also learn how electromagnets are used in everyday life.			
Skills	The following skills will be developed throughout the whole of year 8 and will enable learners to build a deep understanding of science: Scientific attitudes: <ul style="list-style-type: none"><input type="checkbox"/> pay attention to objectivity and concern for accuracy, precision, repeatability and reproducibility<input type="checkbox"/> understand that scientific methods and theories develop as earlier explanations are modified to take account of new evidence and ideas, together with the importance of publishing results and peer review<input type="checkbox"/> evaluate risks. Experimental skills and investigations: <ul style="list-style-type: none"><input type="checkbox"/> ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience<input type="checkbox"/> make predictions using scientific knowledge and understanding<input type="checkbox"/> select, plan and carry out the most appropriate types of scientific enquiries to test predictions, including identifying independent, dependent and control variables, where appropriate<input type="checkbox"/> use appropriate techniques, apparatus, and materials during fieldwork and laboratory work, paying attention to health and safety<input type="checkbox"/> make and record observations and measurements using a range of methods for different investigations; and evaluate the reliability of methods and suggest possible improvements<input type="checkbox"/> apply sampling techniques.					



	Analysis and evaluation: <ul style="list-style-type: none"><input type="checkbox"/> apply mathematical concepts and calculate results<input type="checkbox"/> present observations and data using appropriate methods, including tables and graphs<input type="checkbox"/> interpret observations and data, including identifying patterns and using observations, measurements and data to draw conclusions<input type="checkbox"/> present reasoned explanations, including explaining data in relation to predictions and hypotheses<input type="checkbox"/> evaluate data, showing awareness of potential sources of random and systematic error<input type="checkbox"/> identify further questions arising from their results. Measurement: <ul style="list-style-type: none"><input type="checkbox"/> understand and use SI units and IUPAC (International Union of Pure and Applied Chemistry) chemical nomenclature<input type="checkbox"/> use and derive simple equations and carry out appropriate calculations<input type="checkbox"/> undertake basic data analysis including simple statistical techniques.					
Assessments	End of half term tests & HFL'S	End of half term tests & HFL'S	End of half term tests & HFL'S	End of half term tests & HFL'S	End of half term tests & HFL'S	End of half term tests & HFL'S
Enrichment	Science Trip to Chester ZOO Lab rats					



Rayner Stephens
HIGH SCHOOL