

Science Year 8 Curriculum Map

Year 8	Theme	Key themes	I will be able to	I will also be developing my investigative skills
HT1	Variations	Continuous and discontinuous variation	Explain whether characteristics are inherited, environmental or both. Plot bar charts or line graphs to show discontinuous or continuous variation data.	Graph data relating to variation and explain how it may lead to the survival of a species
	Elements and Compounds	Atoms Atomic Structure Elements Periodic Table Compounds Periodic Patterns	Name compounds using their chemical formulae. Given chemical formulae, name the elements present and their relative proportions. Represent atoms, molecules and elements, mixtures and compounds using particle diagrams. Use data to describe a trend in physical properties. Describe the reaction of an unfamiliar Group 1 element. Use data showing a pattern in physical properties to estimate a missing value for an element. Use observations of a pattern in chemical reactions to predict the behaviour of an element in a group.	Compare the properties of elements with the properties of a compound formed from them Sort elements using chemical data and relate this to their position in the periodic table
Assessment: Variations/Elements and Compounds				
HT2	Waves	Longitudinal waves Sound waves Transverse waves Light waves Reflection Refraction	Explain observations where sound is reflected, transmitted or absorbed by different media. Describe the amplitude and frequency of a wave from a diagram or oscilloscope picture. Use drawings of waves to describe how sound waves change with volume or pitch. Explain observations of how sound travels using the idea of a longitudinal wave. Use ray diagrams to describe how light passes through lenses and transparent materials.	Relate changes in the shape of an oscilloscope trace to changes in pitch and volume Use ray diagrams to model how light passes through transparent materials and lenses

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			Explain observations where coloured lights are mixed or objects are viewed in different lights.	
	Chemical energy	Combustion Thermal Decomposition Endothermic reactions Exothermic reactions	Write word equations for combustion or thermal decomposition reactions. Explain why a reaction is an example of combustion or thermal decomposition. Predict the products of the combustion or thermal decomposition of a given reactant and show the reaction as a word equation. Use experimental observations to distinguish exothermic and endothermic reactions.	Investigation into the change in mass during reactions. Select a reaction for a chemical hand warmer or cool pack
Assessment: Waves/Chemical energy				
HT3	Body systems	Diet and food Digestive system Gas Exchange Respiration	Explain how the parts of the gas exchange system are adapted to their function. Explain observations about changes to breathing rate and volume. Explain how changes in volume and pressure inside the chest move gases in and out of the lungs Describe possible health effects of unbalanced diets from data provided. Describe how organs and tissues involved in digestion are adapted for their role. Describe the events that take place in order to turn a meal into simple food molecules inside a cell. Use word equations to describe aerobic and anaerobic respiration. Explain how specific activities involve aerobic or anaerobic respiration.	Evaluate how well a model represents key features of the digestive system

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** Assessment: Variations/Elements and Compounds/ Sound and Light/Chemical energy/Body systems**				
HT4	Earth and its resources	Structure of the Earth Types of Rock Rock Cycle Oxidation and Reduction Reactivity Displacement Extracting Metals Recycling	Explain why a rock has a particular property based on how it was formed. Identify the causes of weathering and erosion and describe how they occur. Construct a labelled diagram to identify the processes of the rock cycle. Describe an oxidation, displacement, or metal acid reaction with a word equation. Place an unfamiliar metal into the reactivity series based on information about its reactions Explain why recycling of some materials is particularly important. Describe how Earth's resources are turned into useful materials or recycled.	Model the processes that are responsible for rock formation and link these to the rock features Use experimental results to suggest an order of reactivity of various metals Predict the method used for extracting a metal based on its position in the reactivity series
Assessment: Earth and its Resources				
HT5	Plants and Photosynthesis	Plant structure Photosynthesis Factors affecting the rate of photosynthesis	Describe ways in which plants obtain resources for photosynthesis. Explain why other organisms are dependent on photosynthesis. Sketch a line graph to show how the rate of photosynthesis is affected by changing conditions. Use a word equation to describe photosynthesis in plants and algae.	Use lab tests on variegated leaves to show that chlorophyll is essential for photosynthesis
	Assessment: Plants and Photosynthesis			
	Earth's atmosphere	Composition of the atmosphere Carbon cycle The greenhouse effect Climate change Carbon footprint	Know the composition of our atmosphere today and how it has changed over time Know how Carbon is recycled in the environment Interpret the effect of Greenhouse gases on Global Warming Describe the work of Scientists and the evidence being gathered to show how human activity is causing changes in climate	Investigate the contribution that natural and human chemical processes make to our carbon dioxide emissions

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** Assessment: **				
HT6	Magnetism	Magnetic poles Magnetic fields Earth's Magnetism Electromagnets Electromagnetic devices Electric motors	Use the idea of field lines to show how the direction or strength of the field around a magnet varies. Explain observations about navigation using Earth's magnetic field Use a diagram to explain how an electromagnet can be made and how to change its strength. Explain the choice of electromagnets or permanent magnets for a device in terms of their properties.	Explore the magnetic field pattern around different types or combinations of magnets Investigate ways of varying strength of an electromagnet