

Year 9 SCIENCE Curriculum Map 2022-2023

	Autumn 1		Autumn 2		Spring 1		Spring 2		Summer 1		Summer 2	
Topic Overview	Genetics and Evolution	Plant Growth	Making materials	Reactivity	Forces and Motion	Force fields and Electromagnets	Key Concepts in Biology	Motion and Forces	States of Matter / Separating and Purifying			
Focus	Identify different types of environmental and inherited variation. Discover the story of how DNA was discovered, and explain its importance. Explain how organisms become extinct, and how adaptations can affect the survival of organisms. Recall that individuals in population vary genetically, explain how natural selection works on these variations.	Explain what happens when plants photosynthesize. Describe how leaves, roots and stem are adapted to their functions. Discover how and why plants make different substances, explain the importance of nitrates. Describe how pests and human populations alter food supply. Explain ways in which farmers boost food production. Use models to explain changes in an ecosystem.	Name some examples of ceramics and polymers and their uses. Explain some of the properties of ceramics and polymers. Discover what composite materials are and give examples. Describe the problems with making and using materials and how to reduce them. Explain the advantages of recycling materials and describe how some materials are recycled.	Identify the differences between physical and chemical changes. Use particle theory to explain them. Describe the reactions of metals with water, explain the reactivity series. Discover the test for oxygen, and explain how combustion reactions can be speeded up. Explain what a displacement reaction is. Explain the different methods to extract metals from their ores.	Recall the different types of forces. Explain the effects of balanced and unbalanced forces. Recall ways in which energy can be stored, and explain the law of conservation of energy. Describe what speed and mean speed are. Use the formula to calculate speed. Describe how a simple lever works, and how to calculate a moment. Describe how simple machines can magnify forces.	State what a force field is. Investigate the shape of magnetic fields. Discover how static charges can be made, and explain why they become charged. Explain how switches work, and how the current behaves in series and parallel. Describe how factors that affect resistance. Describe an electromagnet and its magnetic field. Describe how the strength of the field can be changed. List some applications of electromagnets.	Discover how a microscope works and calculate the magnification. Compare plant and animal cells, discuss the use of specialised cells in the body. Investigate the structure of bacterial cells, and how enzymes work in the body. Investigate the factors that affect enzyme action. Recall diffusion across cells, and learn about active transport.	Identify vector and scalar quantities of measurements. Investigate distance/time graphs and what they explain about speed. Calculate acceleration and explain how velocity/time graphs work. Learn about Newton's three laws of motion, calculate weight of objects, and investigate terminal velocity. Discover what factors affect the stopping distance of a car, and how forces during collisions can be reduced.	Recall states of matter, and discuss how the particle model works to describe the states. Identify pure elements and mixtures of substances using temperature time graphs. Investigate filtration and crystallisation in the lab. Recall chromatography and discuss how it can be used. Recall how distillation can be used to separate liquids from each other. Discover how to purify water to make it potable.			
Assessment	30 Minute end of topic knowledge question assessment (20 Marks), 10 Mark exam questions on the topic.						<p>60 Minute end of topic examination containing general knowledge questions and past paper questions.</p>					
	<p>End of term assessment 2 x 60 Mark written assessment covering topics</p>			<p>End of KS3 assessment 3 x 60 Mark written assessment covering all topics from KS3 (Year 7, 8 and 9).</p>								