Department	SCIENCE
Key Stage	KEY STAGE 3 , YEAR 7
Course Level	YEAR 7 KS3 AQA 5 YEAR PROGRAMME
Exam Board	AQA

Dates Delivered	**Unit Title**	**End Points**	**Substantive Knowledge** **What will they learn about in this topic?**	**Disciplinary Knowledge** **What subject concepts will be developed through this topic?**	**Assessment Method**
Year 7 Autumn term 1	Lab skills Forces	Students will be able to use basic scientific equipment such as measuring cylinders, Bunsen burners, stopwatches, and glassware, safely and confidently. They will be able to identify hazards and begin to suggest precautions they should take to work safely. Pupils will be able to start to draw and begin to interpret force diagrams, deciding if forces are balanced or unbalanced. Pupils will be guided to make conclusions using force diagrams and predict what will happen to objects. Pupils will calculate speed and pressure with support and begin to apply their knowledge using their calculations, for example, why do snowshoes help you to not sink through snow?	Lab skills • To describe how different pieces of equipment should be used to take accurate measurements • To explain how safety can be managed • To justify the most suitable piece of equipment for each purpose Naming forces and force diagrams • Describe the forces acting on an object and their effects • Construct and interpret force diagrams • Use force diagrams to explain what will happen to an object Calculating pressure • Define the term pressure • Calculate pressure using an equation • Analyse a range of situations to determine the effects of pressure Calculating speed and distance time graphs • State how the speed of an object can be determined • Calculate speed • Analyse distance-time graphs Mass vs weight • Define the terms mass and weight • Calculate weight • Explain why weight will change on different planets but mass will not	• Identifying scientific equipment • Using basic scientific equipment safely and confidently • Recording data and observations • Drawing graphs from data	End of topic test

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Year 7 Autumn term 2	Systems	.Students will be able to: • Label plants and animal cells with their organelles • Describe the function of cell organelles • Begin to compare plant and animal cells • Prepare microscope slides using plant tissue with support and guidance • Begin to describe how animal and plant cells may be specialised • Identify parts of the digestive system	Plant and animal cells • Identify organelles in plant and animal cells • Describe the roles of parts of plant and animal cells • Compare plant and animal cells Using a microscope • Describe the role of the different parts of a microscope • Use a microscope safely to make and view an onion slide • Calculate magnification Specialised cells • Describe the role of specialised cells • Explain how each cell is suited to its role • Justify the identification of a cell using its features • Identify the main structures of the respiratory system • Describe the stages of inhalation and exhalation • Explore the relationship between exercise and breathing rate Digestive system • Identify organs in the digestive system • Describe the role of organs in the digestive system • Evaluate models of the digestive system	- Using basic scientific equipment safely and confidently - Application of knowledge - Analysis of data -	End of topic test Open ended extended writing task
		-	Enzymes • State different types of enzymes found within the digestive system • Describe factors that affect enzymes activity • Explain the lock and key model of enzymes activity		
		-	Human reproductive systems • Identify parts of the male and female reproductive systems • Describe the function of the parts of the male and female reproductive systems • Describe how oxygen and nutrients pass from the mother to the baby and how waste products pass from the baby to the mother		

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Year 7 Spring 1	Matter	Students will be able to define the following key terms; atom, particle, molecule, element, compound and mixture. Students will be able to use scientific diagrams to show solids, liquids, gases, elements, compounds and mixtures. They may be able to discuss limitations of these models. Students will be able to describe how to use separation techniques such as filtration and crystallisation Pupils will be able to start to use the periodic table to identify elements and begin to use correct element symbols	States of matter • Describe the structure and arrangement of particles in solids, liquids and gases • Model the movement and arrangement of particles • Explain why liquids and gases flow freely Changes of state • Identify changes of state using correct keywords • Describe changes in particle arrangement and kinetic energy during changes of state • Evaluate particle models Elements, compounds and mixtures • Define the terms element, compound & mixture • Draw and analyse particle diagrams to show elements, compounds and mixtures • Describe how compounds differ from the elements from which they are made Separation techniques • Describe a range of separation techniques • Determine if a substance is pure or impure • Suggest and justify which separation technique to use for given substances Using the periodic table • Use the Periodic table to find symbols of elements • Use the periodic table to determine what elements are in a compound and how many atoms of each element are in the compound • Use the periodic table to predict properties of elements	- Identifying scientific equipment - Using basic scientific equipment safely and confidently - Recording data and observations - Drawing graphs from data - Using and interpreting scientific diagrams	End of topic test Open ended extended writing task

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Year 7 Spring 2	Earth	Pupils will be able to: - Describe how igneous, sedimentary and metamorphic rocks are formed - Describe properties of igneous, sedimentary and metamorphic rocks - Begin to describe the processes of weathering, transportation, erosion, deposition and sedimentation - Describe the composition of the Earth's atmosphere - Begin to discuss the impact of human activities of the composition of the Earth's atmosphere and the wider world	Rock cycle • Describe how water, wind and temperature affect rocks. • Describe properties of igneous, sedimentary and metamorphic rocks • Describe how igneous, sedimentary and metamorphic rocks are made • Compare properties of the 3 types of rock and explain why they are different Earth's atmosphere and climate change • Identify the gases that cause climate change. • Describe how human activity can impact on climate change. • Describe ways we can reduce our impact on the Earth.	- Recording data and observations - Drawing graphs from data - Analysis and interpretation of data	Open ended extended writing task

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Year 7 Summer 1	Waves	. Pupils will be able to - Identify the wavelength, frequency and amplitude of waves on wave diagrams - Make some comparisons between light and sound waves - Begin to investigate wave properties including reflection and refraction - Describe some of the properties, uses and hazards of waves in the electromagnetic spectrum	Properties of waves • Identify and state amplitude, wavelength and frequency when given a wave diagram Calculate wave speed Reflection and refraction • Identify objects as luminous or non-luminous • Draw ray diagrams to show how objects can be seen • Draw ray diagrams to show the reflection of light and explain how light reflected when it hits an object • Describe the process of refraction • Draw ray diagrams to show refraction of light Light and sound • State how light travels • Describe the difference between materials which are transparent, translucent and opaque Electromagnetic spectrum • State the names of waves in the EM spectrum • Describe uses of waves in the EM spectrum • Suggest dangers of some of the waves in the EM spectrum	- Identifying scientific equipment - Using basic scientific equipment safely and confidently - Recording data and observations - Drawing graphs from data -	End of topic test Open ended extended writing task

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Year 7 Summer 2	Environment	Pupils will be able to - Begin to suggest how different plants and animals may be adapted for different habitats - Plan and conduct a basic investigation into factors that affect plant distribution - Identify herbivores and carnivores in food chains - Begin to describe how changing population levels of one living things will affect others in the same food web	Habitats • Define habitat, environment and adaptation • Describe the features of different types of habitats. • Describe and explain several features of familiar animals that help them to adapt to the habitat they live in. Adaptations • Define habitat, environment and adaptation • Describe the features of different types of habitats. • Describe and explain several features of familiar animals that help them to adapt to the habitat they live in. Food chains and food webs • Define the terms herbivore, carnivore, predator and prey • Draw and interpret food chain and wood web diagrams • Describe and explain the impact on population if an organism in the food chain becomes extinct	- Identifying scientific equipment - Using basic scientific equipment safely and confidently - Recording data and observations - Drawing graphs from data -	End of topic test Open ended extended writing task

Department	SCIENCE
Key Stage	KEY STAGE 3
Course Level	YEAR 8 KS3 AQA 5 YEAR PROGRAMME
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Year 8 Autumn term 1	Environment and ecosystem	Pupils will be able to write the word equation for photosynthesis and identify that carbon dioxide is taken in by plants and reacts with water to produce glucose and oxygen Pupils will be able to begin to describe how carbon is cycles through the environment and identify human actions that impact on carbon dioxide levels. Pupils will appreciate that the Earth's resources are finite and begin to evaluate the impact of recycle, reduce and reuse.	Photosynthesis ● State that photosynthesis is a chemical reaction that a plant uses to make glucose ● Write the word equation for photosynthesis ● Describe factors that affect the rate of photosynthesis Recycle-reduce-reuse • Define reduce, reuse and recycle. • Describe ways that people can use reduce, reuse and recycle to reduce their environmental impact • Evaluate the effect of reduce, reuse and recycle on environment. Carbon cycle • Identify stages in the carbon cycle • Describe how carbon is cycled between the atmosphere, plants, animals and decomposers. • Suggest how human activities affect the carbon cycle. Earth's resources • Identify the environmental issues currently facing the human race. • Describe ways we can reduce our impact on the Earth. • Explain why it is important for us to protect our Earth's resources.	1. Sunlight is the source of energy at the start of food chains 2. Water, carbon and nitrogen is cycled through environments 3. Earth's resources are finite 4. Human activities affect carbon dioxide levels	End of topic test Open ended extended writing task