

		Curriculum Checkpoints: What do students know and what can they do?			
Big Idea	Establishing	Securing	Flourishing	Excelling	
Electromagnets 2	Identify the north and south pole of a magnet and whether the poles will attract or repel. State the parts of an electromagnet. Know some uses of electromagnets.	Describe some uses of permeant magnets and electromagnets. Explain how to make an electromagnet. Draw the shape of a magnetic field around a magnet.	Experimentally identify the strength of a magnet and explain the term magnetic field. Explain how to change the strength of an electromagnet. Explain the advantages and disadvantages of using electromagnets.	Explain the terms solenoid and electromagnet and model magnetic fields using field lines that indicate strength and direction of the field. Explain how, and why, electromagnets are used for a range of different purposes.	
Energy 1	Know that electricity bills are based on the amount of energy used. Name some energy stores and say how energy is transferred State some ways electricity can be generated using renewable and non-renewable energy resources.	Give examples of things that increase or decrease electricity bills. Measure energy transfers in practical situations. Compare the different ways electricity can be generated and give an opinion about which is best in a real-life scenario.	Calculate the cost of energy usage at home. Calculate the size of energy stores and efficiency of energy transfers. Explain why some methods of electricity generation are not suitable for certain real-life situations.	Suggest ways to reduce costs by examining electricity bills. Explain why there are no perpetual energy machines. Suggest actions governments and communities could take in response to rising energy demand.	
Waves 1	Know that both light and sound are waves. Label a basic diagram of a wave with wavelength and amplitude. Name some luminous and non-luminous objects. List the types of electromagnetic wave.	Categorise waves as either longitudinal or transverse. Label a wave with amplitude, wavelength and understand what the frequency of a wave is Know that waves can be reflected and refracted. List the types of electromagnetic waves and some uses.	Categorise waves as longitudinal and transverse based on wave diagrams and know the difference between a rarefactions and compressions in a longitudinal wave. Describe what happens when light is reflected or refracted. List the types of electromagnetic wave in order of increasing frequency and state their uses.	Explain how a wave transfers energy and how this links with pressure in sound waves. Interpret reflection and refraction practical data using angles. Link the types of electromagnetic wave to frequency and explain how this relates to energy transfer, the uses and subsequent dangers of EM waves.	
Matter 2	Know the names of Group 1, 7 and 0 elements. Classify particle diagrams as an element, mixture or compound and as molecules or atoms. Identify a group and a period on the Periodic Table	Use data showing a pattern in physical properties to estimate a missing value for an element in Group 1, 7 or 0. Represent atoms, molecules and elements, mixtures and compounds using particle diagrams. Know that elements in a group all react in a similar way and sometimes show a pattern in reactivity.	Describe the reaction of an unfamiliar Group 1 or 7 element. Given chemical formulae, name the elements present and their relative proportions. Use data to describe a trend in physical properties within a group.	Use data about the properties of elements to find similarities, patterns and anomalies. Name compounds using their chemical formulae. Use observations of a pattern in chemical reactions to predict the behaviour of an element in a group	
Reactions 2	Describe what a chemical reaction is in terms of reactants and products. Describe some changes you may observe during a reaction. Know the 3 parts to the fire triangle	Give some examples of chemical reactions. Be able to give the formula of chemical compounds. Explain how to stop a fire using the reason from the fire triangle. Describe how to tell if an exothermic or endothermic reaction has occurred.	Explain why a reaction may be exothermic. Explain why a reaction may be endothermic. Describe how a thermal decomposition reaction occurs. Be able to balance a simple chemical equation. Give examples of where and exo- or endothermic reactions may be useful.	Be able to balance complex chemical equations. Explain why different fire extinguishers may be used in different scenarios. Plot and analyse a graph to show that an exo- or endothermic reaction has taken place.	
Organisms 2	Know some key features of the lungs. Name key organs in the digestive system. State the key functions of the gas exchange and digestive systems.	Describe which gasses are exchanged in breathing. Know some key nutrients in the diets. Explain why a balanced diet is important. Describe how to carry out food tests.	Explain the function of the different organs of the gas exchange system. Describe the importance of the nutrients in our diet. Describe how different parts of the respiratory and digestive system are adapted to their function.	Explain changes in the body during exercise. Explain how drugs and alcohol may affect the body. Describe the purpose of enzymes during digestion.	
Ecosystems 1	Draw simple food webs Know how to conduct a simple sampling investigation and record Data. Name the key structures of a plant anatomy and state which are involved in plant reproduction.	Draw and interpret food chains and webs Know how to conduct a simple sampling investigation, record data and complete simple calculations Describe how plant reproduction takes place.	Suggest the impact of disruption on a food web. Conduct a sampling investigation and draw graphs based on the data gathered. Describe how different plants are adapted to reproduce, for example, through utilising different methods of pollination and seed dispersal.	Predict and explain the consequences of food web disruption and link to predator-prey interactions. Plan a sampling investigation, interpret the data collected and suggest improvements to the method. Link plant adaptations to reproductive success and survival.	
Ecosystems 2	Know that photosynthesis produces food for plants. Know the products of respiration. Name the parts of a cell where photosynthesis and aerobic respiration take place.	State the word equations for aerobic and anaerobic respiration. State the word equation for photosynthesis. Give the word equation for fermentation and name foods produced using this process.	Describe how the reactants in aerobic respiration are transported around the body. Describe when and why anaerobic respiration takes place and explain why it can only take place for a short time. Explain how the reactants in photosynthesis are transported to the leaf.	Explain the changes in the body during high intensity, short duration exercise. Explain the changes in the body during low intensity, long duration exercise. Explain what the products of photosynthesis are used for.	