Big Idea	Curriculum Checkpoints: What do students know and what can they do?			
	Establishing	Securing	Flourishing	Excelling
Forces 1	Complete basic calculations for speed. Describe how to measure forces. Give some examples of contact and non-contact forces.	Describe the difference between mass and weight. Describe the difference between a contact and a non-contact forces and give a range of examples of each. Calculate resultant forces from force diagrams.	Construct a distance time-graph. Describe how the speed of an object depends on the movement of an observer. Describe how gravitational force varies with mass and distance and calculate weight of objects on different plants.	Convert units and apply to rearranged equations to calculate missing variables. Evaluate the relationships between a non-contact force and the distance within the field. Plan investigations relating to speed and forces.
Electromagnets 1	Draw and build a simple circuit with support. Identify circuit symbols such as cell, bulb, ammeter and voltmeter. List examples of static electricity.	Recognise and use terms such as potential difference, current and resistance. Draw and build a simple circuit using circuit symbols. Describe the process that leads to producing a charged object.	Calculate potential difference from information about current and resistance. Draw and build a circuit that can measure the current, potential difference and resistance of a component. Infer the polarity of charged objects by whether they attract or repel.	Can calculate any of potential difference, current and resistance by rearranging equations. Draw and build series and parallel circuits and predict changes to current and potential difference if more components are added. Explain why an object becomes charged in terms of electrons and how this leads to static electricity.
Matter 1	Know that matter exists as solids, liquids and gases and be familiar with the words used for transitions between states. Know that matter exists as different arrangements of particles and how this differs between states. Have a basic understanding of how mixtures can be separated.	Describe the factors that affect the states of matter and how they relate to transitioning between them. Identify the characteristics of the states of matter and begin to make comparisons. Apply different separation techniques to different types of mixture by identifying the key properties of the mixture.	Explain how environmental effects cause a substance to change state and apply these to everyday examples. Begin to challenge characteristics of the states of matter and generate cases where the rules don't apply. Confidently discuss mechanisms of particle movement and the factors that enhance them.	Make predictions about what will happen during unfamiliar physical processes, in terms of particles and their energy. Be able to explain how observations can be used to confirm the existence of particles. Critique particle models and discuss their pros and cons.
Reactions 1	Know how to categorise materials as metals or non-metals. Describe simple chemical reactions involving metals, acids and alkalis. Know how, and why, the pH scale is used.	Describe the uses of some common metals and link this to their properties. Begin to write simple chemical equations for e.g. the reaction between metals and oxygen. Describe the use of indicators and link common acids and alkalis with the pH scale.	Explain why common metals are used for different functions depending on their properties. Describe a reaction between metals, acids and alkali and state the products produced. Explain how acids and alkalis interact including the concept of neutralisation with link to the pH scale.	Deduce the use of an uncommon metal based on its properties. Predict products of an untaught chemical reaction based on prior knowledge of reactions of the same type. Predict the name of a salt based on the acids and alkalis that react.
Earth 1	Name some different types of rocks. Describe what happens to rocks when they are weathered. Name the planets in the solar system	Give some properties of igneous, sedimentary and metamorphic rock. Describe some examples of how rocks are weathered. Explain why a day is 24 hours long and why a year is 365.25 days longs.	Describe how the different rock types are made. Explain what erosion is and how it changes the appearance of rocks. Explain how the solar system, milky way, galaxies and the universe are related.	Explain why different igneous rocks have different sized crystals Explain how weathering, deposition, compaction and cementation lead to the formation of sedimentary rocks. Explain how the Earth's tilted axis causes different seasons and why we see different phases of the moon.
Organisms 1	Name some structures within cells. Name some specialised cells. Describe some components of the musculoskeletal system.	Name all structures within cells. Describe some specialised cells. Describe all the components of the musculoskeletal system.	Explain the function of structures within cells. Explain how specialised cells are adapted for their function. Explain the roles of the components of the musculoskeletal system.	Compare and contrast different types of cells. Apply knowledge on specialised cells to unfamiliar cells and explain adaptations. Explain how the different components of the musculoskeletal system work together to allow for movement.
Genes 1	Know examples of variation in humans Name key parts of the reproductive system of humans Know what terms such as menstruation, fertilisation and gestation mean.	Know whether characteristics are genetic, environmental of both. Know the functions of the main parts of the human reproductive system. Know some events in the menstrual cycle and human pregnancy.	Explain how characteristics are genetic, environmental of both. Know the functions of the parts of the human reproductive system. Outline the events in the menstrual cycle and human pregnancy.	Critique a claim/hypothesis, for example, that a particular characteristic is inherited or environmental. Explain how the needs of a developing fetus are met. Make deductions from information, for example predict when an egg is most likely to be fertilised using knowledge of the menstrual cycle.