

Science Year 7 Curriculum Maps

Year 7	Theme	Key themes	I will be able to ...	I will also be developing my investigative skills
Term 1	Introduction to science	Safety and the lab Scientific apparatus Using a Bunsen burner	Identify how to work safely in a lab and to create some basic risk assessments Know the function of some basic equipment and know where it is kept.	Drawing accurate scientific diagrams and naming key scientific apparatus Practical skills by identifying key variables
	Biology – Cells microscopes and life processes	Animal Cells Plant cells Viewing cells	Explain why multi-cellular organisms need organ systems to keep their cells alive. Suggest what kind of tissue or organism a cell is part of, based on its features.	Explain how to use a microscope to identify and compare different types of cells. Identify the principal features of an onion cell and describe their functions
	Chemistry – basics of particles atoms and elements	States of matter Changes of state Atoms Elements Compounds	Explain the properties of solids, liquids and gases based on the arrangement and movement of their particles. Explain changes in states in terms of changes to the energy of particles. Represent atoms, molecules and elements, mixtures and compounds using particle diagrams.	Relate the features of the particle model to the properties of materials in different states Draw before and after diagrams of particles to explain observations. Compare the properties of elements with the properties of a compound formed from them
	Physics – Energy	Energy types power Energy resource Non-renewable Renewable	Compare the amounts of energy transferred by different foods and activities. Compare the energy usage and cost of running different home devices.	Compare the amounts of energy transferred by different foods and activities. Investigate energy transfers in a range of devices

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		Fossil fuels	Explain the advantages and disadvantages of different energy resources.	
Term 2	Biology – The skeletal and muscular systems	Musculoskeletal system and blood.	Explain how a physical property of part of the skeleton relates to its function. Explain why some organs contain muscle tissue. Explain how antagonistic muscles produce movement around a joint. Use a diagram to predict the result of a muscle contraction or relaxation. Know where blood is made and the components of the blood.	Explore how the skeletal system and muscular system in a chicken wing work together to cause movement.
	Chemistry – Acids and Alkalis	Acids and Alkalis Neutralisations	Identify the best indicator to distinguish between solutions of different pH, using data provided. Use data and observations to determine the pH of a solution and explain what this shows. Explain how neutralisation reactions are used in a range of situations. Describe a method for how to make a neutral solution from an acid and alkali	Devise an enquiry to compare how well indigestion remedies work
	Physics – Motion and Space	Forces Speeds and Graphs Weight and Mass Solar System The moon Stars	Know if the overall, resultant force on an object is non-zero, its motion changes and it slows down, speeds up or changes direction. Illustrate a journey with changing speed on a distance-time graph, and label changes in motion. Draw a force diagram for a problem involving gravity.	speed = distance (m)/time (s) or distance-time graphs, to calculate speed. weight (N) = mass (kg) x gravitational field strength (N/kg).

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		Origins of The Universe	Deduce how gravity varies for different masses and distances. Compare weight on Earth with weight on different planets using the formula. Describe the appearance of planets showing their position in relation to the Earth and Sun. Explain why places on the Earth experience different daylight hours and amounts of sunlight during the year. Describe how space exploration and observations of stars are affected by the scale of the universe. Explain the choice of particular units for measuring distance.	Explain the way in which an astronaut's weight varies on a journey to the moon
Term 3	Biology – Reproduction in humans and plants	Human reproductive systems Fertilisation Gestation Puberty Plant reproduction	Use a diagram to show stages in development of a foetus from the production of sex cells to birth. Explain whether substances are passed from the mother to the foetus or not. Identify key events on a diagram of the menstrual cycle Describe the main steps that take place when a plant reproduces successfully. Identify parts of the flower and link their structure to their function. Suggest how a plant carried out seed dispersal based on the features of its fruit or seed. Explain why seed dispersal is important to survival of the parent plant and its offspring.	Relate advice to pregnant women to ideas about transfer of substances to the embryo Use models to evaluate the features of various types of seed dispersal

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	Chemistry – Pure and Impure substances	Dissolving Separating techniques	Explain how substances dissolve using the particle model. Choose the most suitable technique to separate out a mixture of substances. Use evidence from chromatography to identify unknown substances in mixtures. Use the solubility curve of a solute to explain observations about solutions.	Devise ways to separate mixtures, based on their properties
	Physics – Electrical circuits	Circuit diagrams Electric circuits Parallel circuits Resistance	Draw a circuit diagram to show how voltage can be measured in a simple circuit. Describe how current changes in series and parallel circuits when components are changed. Use the idea of energy to explain how voltage and resistance affect the way components work. Use the ratio of voltage to current to determine the resistance. Use an analogy like water in pipes to explain why part of a circuit has higher resistance.	Compare the voltage drop across resistors connected in series in a circuit. Investigate current and voltage in series and parallel circuits