Year 7: Science Overview

	Theme	Topic	Knowledge
Autumn 1	Biology	Cells and microscopes	Living or dead. Using a light microscope. Plant and animal cells. Subcellular structures in plant and animal cells
	Chemistry	Properties and materials	Composite materials and their properties. Metals and non-metals. Properties of metals and their uses. Properties of ceramics and their uses.
	Physics	Force and Motion	What forces are. Forces affect objects. How objects affect each other when one applies a force top the other. Interaction pairs of forces.
Autumn 2	Biology	Genome	The nucleus and DNA. Variation within species. Heritable characteristics. Characteristic caused by the environment.
	Chemistry	Particle model	What particles are. Particle model for solids, liquids and gases. General properties of solids, liquids and gases. Using the particle model to explain properties. Introduction to state changes.
	Physics	Energy stores and transfers	Energy store types. Energy transfer types. Role of forces in transferring energy. Friction and mechanical energy transfer.
Spring 1	Biology	Cell shape and size	Specialised cells, their structure and function.
	Chemistry	Particles and solutions	Solutions and conservation of mass. Describe properties of solutions using the particle model.

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	Physics	Light	Luminous and non-luminous objects. Properties of light. Drawing light rays. Reflection of light at even surfaces. Reflection of light at uneven surfaces.
Spring 2	Biology	Diffusion and the cell membrane	Diffusion of particles. Selectively permeable membranes. Effect of concentration gradient on rate of diffusion.
	Chemistry	Separating solutions	Separating mixtures using changes of state Separating solutions using solubility.
	Physics	Sound	Vibrations as the source of sound. Sound through different media. Effects of media on pitch and volume.
Summer 1	Biology	Organ systems	Cells, tissues, organs, organ systems. How organ systems work together for the organism; Circulatory system. Digestive system. Gas exchange system.
	Chemistry	Elements and compounds	Symbols and formulae What elements and compounds are. Making compounds from elements. Evidence for chemical reactions. Further particle diagrams (elements and compounds)
	Physics	Particle model and temperature	Temperature as a measure of mean particle speed. State changes caused by heating State changes caused by cooling
Summer 2	Biology	Growth and life cycles	Single celled and multi-celled organisms. Growth in multicellular organisms. Simple cell division – growth in bacteria Life cycle features of multicellular organisms
	Chemistry	Designing materials	Polymers.

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			Polymer properties and functions. Use of plasticisers.
	Physics	Forces and motion	Our solar system. Features of planets. Gravity and its effects. Gravitational potential energy as a store of energy.