Curriculum Map Year 9 Science

Topic Name	Term	**Skills** developed with link to NC Subject content	Reflection on previous link in the curriculum	Progress to future link in the curriculum
Chemistry 1: Atomic Structure and the Periodic Table **Biology 1: Cell Biology** **Physics 1: Atomic Structure**	*Autumn HT1* *Autumn HT2*	Atomic Structure and the periodic table: ● Elements, Compounds and Mixtures. ● Atomic Structure ● Isotopes and RAM from isotopic abundance data ● Electronic Structure of the first 20 elements ● Development of the atom ● Development of the periodic table ● Groups 0, 1 and 7 ● Transition metals Cell biology: ● Eukaryotic and prokaryotic cell structure and function of organelles. ● Microscopy and observing cells, calculating magnification. ● Mitosis and cell cycle. ● Cell specialisation and differentiation. ● Cancer ● Embryonic and adult stem cells and their uses. Atomic structure: ● The development of the atom over time ● Atoms, isotopes and ions ● Alpha, beta and gamma radiation ● Background radiation ● Radioactive half-life	Year 7: Particles and Physical changes ● Atoms, elements, compounds and mixtures ● Periodic table Year 7: Cells ● What are cells and cell structure ● Using microscopes safely ● What are specialised cells and why do we need that for a multicellular organism? ● Diffusion and how cells get what they need. ● Organisation of cells, the digestive system.	Yr 10 GCSE Biology: ● Eukaryotic and prokaryotic cell structure and function of organelles. ● Microscopy and observing cells, calculating magnification. ● Mitosis and cell cycle. ● Cell specialisation and differentiation. ● Cancer ● Embryonic and adult stem cells and their uses. GCSE Chemistry: ● Atoms, elements and compounds ● Relative atomic mass ● Metals and non-metals ● The development of the model of the atom ● Properties of transition metals ● Comparison with Group 1 elements GCSE Physics: Atomic Structure ● The development of the model of the atom ● The structure of an atom ● Mass number, atomic number and isotopes ● Radioactive decay and nuclear radiation ● Background radiation ● Half-lives and the random nature of radioactive decay
Biology 2: Moving and Changing Materials **Chemistry 2: Atmospheric Chemistry** **Physics 2: Particle Model of Matter**	*Spring HT3* *Spring HT4*	Moving and changing materials: ● Aerobic and anaerobic respiration ● Diffusion, osmosis and active transport. ● Osmosis potato cell experiment. ● The heart and circulatory system, including blood. ● Heart disease ● Lung structure and function and gas exchange. Atmospheric chemistry: ● Evolution of earth's atmosphere ● Combustion Equations ● Greenhouse effect, atmospheric pollutants and carbon footprint Particle model of matter:	Year 7: Particles and Physical changes ● Solids, liquids and gases ● Cooling curves ● Changing State ● Density Year 8: Energy ● Work and Energy Year 8: Movement ● Respiration ● Diffusion	GCSE Biology: ● Movement of materials, diffusion, osmosis, Active Transport. ● Respiration ● Cardiovascular system ● Ventilatory system GCSE Chemistry: ● The composition and evolution of the Earth's atmosphere GCSE Physics: Particle model of matter ● Density of materials ● Changes of state

		• Density • Measuring density of regular shapes • Measuring density of irregular shapes • States of matter and changes in state • Cooling and heating graphs		• Temperature changes in a system, specific heat capacity and specific latent heat
Chemistry 3: Rates of Reaction **Physics 3: Fundamental Physics**	*Summer HT5* *Summer HT6*	Rates of reaction: • Factors which affect the rates of chemical reactions • Calculating rates of reactions • Collision theory, activation energy and catalysts • Reversible reactions Fundamental physics: • Using equations • Graph skills • Errors and repeating measurements • Electricity: measuring resistance • Forces: Resultant force, Newton's laws and Hooke's law • Waves: Explaining waves	Year 7: Forces • Resultant forces • F = ma • Hooke's law Year 7: Electricity • Current and potential difference in series and parallel circuits • V=IR Year 8: Waves • Transverse and longitudinal waves • Properties of waves	GCSE Chemistry: • Calculating rates of reactions • Factors which affect the rates of chemical reactions • Collision theory and activation energy • Catalysts • Reversible reactions GCSE Physics: Electricity • Current, resistance and potential difference GCSE Physics: Forces • Resultant force • Forces and elasticity GCSE Physics: Waves • Transverse and longitudinal waves