

Year 10 Combined Synergy /Entry					
Term	Unit	Big Idea	Course	Key Concepts	Required Practicals
AUT	1	Building Blocks	GCSE	States of matter, Atomic matter, Cells in animals and plants, Waves	1. Use appropriate apparatus to make and record the densities of regular and irregular solid objects and liquids. 2. An investigation to determine the specific heat capacity of one or more materials. 3. Use a light microscope to observe, draw and label a selection of plant and animal cells. 4. Investigate the effect of a range of concentrations of salt or sugar solutions on the mass of plant tissue. 5. Make observations to identify the suitability of apparatus to measure the frequency, wavelength and speed of waves 6. Investigate how the amount of infrared radiation absorbed or radiated by a surface depends on the nature of that surface.
			ENTRY	States of matter, Atoms and elements, Elements and compounds , Cells are the basic building blocks of living organisms, Longitudinal and transverse waves, Wave properties	
	5	Building Blocks	GCSE	The Periodic Table, Chemical quantities, Forces and energy changes	
			ENTRY	Mixtures Chromatography , Extraction of metals from their ores, Properties of metals/alloys, Changes in energy storage (RP2) Energy transfers and efficiency Types of forces, Effects of forces	
SPR	2	Transport over large distances	GCSE	Systems in the human body ,Plants and Photosynthesis	7. Use qualitative reagents to test for a range of carbohydrates, lipids and proteins 8. Plan and carry out an investigation into

					<p>the effect of a factor on human reaction time</p> <p>9. Investigate how paper chromatography can be used to separate and tell the difference between coloured substances.</p> <p>10. Investigate the effect of light intensity on the rate of photosynthesis</p>
			ENTRY	Tissue and organs exemplified by human circulatory system and the digestive system, Human digestive system, Respiration, Automatic control systems in the human body, Hormones, Photosynthesis	
	6	Interactions over small and large distances	GCSE	Forces and Energy changes, Structure and bonding, Magnetism and electromagnetism, Forces and motion	13. Investigate the relationship between force and extension for a spring.
			ENTRY	Polymers, Magnets, Electromagnets and solenoids, Speed, Stopping distances, Reaction times and stopping distances Weather conditions and braking distances	
SUM	3	Interactions with the Environment	GCSE	Lifestyle and health, Radiation and risk, Preventing and curing diseases	
			ENTRY	Infectious (communicable) diseases, White blood cells and vaccination, Medical drugs, The electromagnetic spectrum, Radioactivity	

Year 11 Combined Synergy /Entry					
Term	Unit	Big Idea	Course	Key Concepts	Required Practicals
AUT	7	Movement and interactions	GCSE	Forces and motion, Electricity, Acids and Alkalis, The rate and extent of chemical change, Atoms into ions and ions into atoms	14. Investigate the effect of varying the force on the acceleration of an object 15. Use circuit diagrams to construct appropriate circuits to investigate the I–V characteristics of a variety of circuit elements. 16. Use circuit diagrams to set up an appropriate circuit to investigate the factors affecting the resistance of an electrical component 17. Preparation of a pure, dry sample of a soluble salt from an insoluble oxide or carbonate 18. Investigate the variables that affect the temperature changes of a series of reactions in solutions. 19. Investigation of how changes in concentration affect the rates of reactions 20. Investigate the effect of pH on the rate of reaction of amylase enzymes 21. Investigate what happens when aqueous solutions are electrolysed using inert electrodes
			ENTRY	Current in a circuit d.c. and a.c. current, Wiring a plug, Energy transfer in electrical appliances, Acids and Metal reactions, Neutralisation	
	4	Explaining Change	GCSE	The Earth’s atmosphere, Ecosystems and biodiversity, Inheritance, Variation and evolution	11. Analysis and purification of water samples from different sources, including pH, dissolved solids and distillation.

					12. Measure the population size of a common species in a habitat
			ENTRY	Changes in the atmosphere, current atmosphere, adaptation, Food chains and food webs, Decay cycle, Competition, Environmental changes that affect animals and plants, Pollution of water, air and the land, Evolution, natural selection and artificial selection, Genes, chromosomes and DNA, Principles of genetic engineering, reproduction	
SPR	8	Guiding spaceship Earth to a sustainable future	GCSE	Carbon chemistry, Resources of materials and energy	
			ENTRY	Crude oil and fuels, burning fuels, Human influences on the atmosphere, Water for drinking	
				Revision / Completion of coursework	