Curriculum Map Year 8 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
Biology 1: Movement **Chemistry 1: Fuels, Combustion and Energy Changes** **Physics 1: Energy**	*Autumn HT1* *Autumn HT2*	Biology 1: Movement ● Role of skeleton and bone structure. ● Types of joints. ● Skeletal problems ● Muscle functions. ● Aerobic and anaerobic respiration in animals. ● Effect of exercise and sports injuries. Chemistry 1: Fuels, Combustion and Energy Changes ● Fire Triangle ● Complete and Incomplete combustion ● global warming ● acid rain ● Exothermic and Endothermic ● Energy Changes during combustion ● Applications of exothermic and endothermic reactions Physics 1: Energy ● What is energy? ● Work done and energy transferred ● Gravitational Potential energy (Ep) ● Energy stores ● Kinetic energy (Ek) ● Ep to Ek transfers ● Ep=mgh, W=Fs and Ek=0.5mv2 mathematical skills ● Practical skill development. Recording and calculating data.	Year 7: Forces ● Mathematical skills - three term equations use ● Work done in springs ● Speed, weight and mass Year 6: Animals including humans ● Recognise the impact that diet exercise and lifestyle have on the body. Year 3: Animals including humans ● Understand the role of the skeleton and muscles ● Understand the need for healthy nutrition for the body to function properly. Year 5 ● changes of materials - burning	Yr 10 GCSE Biology: ● Cell specialisation and differentiation. ● Aerobic and anaerobic respiration ● Circulatory system, including heart, cardiac cycle blood and heart disease. ● Ventilatory system. Structure of lungs and gas exchange adaptations. ● Metabolism and effect of exercise GCSE Chemistry: ● Complete and incomplete combustion ● bond energy calculations ● calorimetry ● evolution of the atmosphere ● climate change ● carbon footprints ● pollutants from fuels GCSE Physics: Energy ● Gravitational potential, kinetic and elastic potential energy ● Work done and energy transfers ● Power ● Energy dissipation & efficiency ● Reducing unwanted energy transfers in a system ● Energy resources and global energy supplies
Chemistry 2: Reactivity Series **Physics 2: Waves** **Biology 2: Photosynthesis**	*Spring HT3* *Spring HT4*	Chemistry 2: Reactivity Series ● How can we tell a chemical reaction has taken place? ● Placing metals in order of reactivity ● carbon reduction ● electroplating ● alkali metals ● noble gases ● displacement reactions Physics 2: Waves ● What is a wave? ● Sound and longitudinal waves ● Light and transverse waves ● Reflection and refraction (wave properties)	Year 6: Light ● Light travels in straight lines. ● Some objects are seen because they give out. ● Some objects are seen because light reflects into the eye. ● Shadows. Year 3: Animals including humans ● Identify/describe functions of different parts of flowering plants; ● explore requirements for life & growth (air, light, water, nutrients from soil and room to grow) and identify how they vary from plant to plant.	GCSE Chemistry: ● Reactivity Series ● ELectrolysis ● Periodic Trends ● metal extraction GCSE Physics: Waves ● Describing and labelling waves ● Longitudinal and transverse waves ● Measuring wave speeds ● Reflection and refraction, including wave fronts ● The electromagnetic spectrum

		• Electromagnetic spectrum • How do we see colour • Wave equation - mathematical skills Biology 2: Photosynthesis • Structure of a leaf and a leaf cell • Different types of leaf (adaptations) • Photosynthesis reaction and associated investigation • Limiting factors of photosynthesis • Stomata role and associated investigation • Transpiration • Plant diseases and deficiency	• Investigate the way in which water is transported within plants. • Explore the part that flowers play in the life cycle of flowering plants, incl. pollination, seed formation and seed dispersal.	• Explaining the parts of the electromagnetic spectrum • Sound waves and ultrasound • Seismic waves • Colour • Lenses and magnification • Emission and absorption of IR Yr 10 GCSE Biology: • Leaf structure and adaptations • photosynthesis equation • Limiting factors of photosynthesis • Uses of glucose by plants • Increasing photosynthesis • Pondweed required practical • Transpiration • Translocation
Physics 3: Electromagnetism **Biology 3: Ecology** **Chemistry 3: Earth's Resources**	*Summer HT5* *Summer HT6*	Physics 3: Electromagnetism • Permanent magnets and their magnetic field • Magnetic interactions and Earth's magnetic field • Magnetic effect of a current • Electromagnets • Application of electromagnets • Kicking wire • Motors • F=BIL mathematical equation skills • Practical skills of complex practicals Biology 3: Ecology • Adaptations and classification • food chains and webs • Role of insects in pollination and food security • Interdependence • The carbon cycle • Effects of diseases and toxins on food webs • Effect of modern farming methods on diversity • The future of food production in a growing population world. Chemistry 3: Earth's Resources • structure of the earth • plants and fertilisers • fossil fuels • polymers • problems with plastics • metal extraction • water • Life Cycle Assessments	Year 3: Magnets • Attract or repel each other • Attract some materials and not others • Having two poles Year 7: Electromagnetism • Current and potential difference • Charges Year 8: Energy & waves • mathematical skills - equation manipulation <u>Ecology:</u> Year 6: • Describe how organisms are classified into groups based upon observable characteristics and based on similarities and differences. Year 4: • Use classification keys to help group, identify and name living things. • Recognise how changing environment can pose dangers to living things. • Food chains, producers, consumers, predators and prey. Year 4 • Water cycle	GCSE Chemistry: • Life Cycle assessments • Metal extraction • Atmosphere • Life Cycle assessments • Disposal of polymers • Condensation and Addition polymers GCSE Physics: Magnetism and electromagnetism • Magnetic fields and forces • Plotting magnetic field lines • Solenoids and electromagnets • Uses of electromagnets • Calculating the force on a conductor • The motor effect and loudspeakers • The generator effect and it's uses • Transformers Yr 11 GCSE Biology: • Maintaining biodiversity • Maintaining food security • Using biotechnology • Ecosystems, biotic and abiotic factors • Food chains, webs and feeding relationships • Biomass and pyramids • The carbon cycle • Decay • Land use