

Last modified: 30.10.21 (SP)

	Autumn term 1	Autumn term 2	Spring term 1	Spring term 2	Summer term 1	Summer term 2
<b>Year 10</b>	<b>Component 1: <i>Human Body</i></b>	<b>Component 3: <i>Atoms, elements and compounds</i></b>	<b>Component 5: <i>Energy, forces and structure of matter</i></b>	<b>Component 2: <i>Environment, evolution and inheritance</i></b>	<b>Component 4: <i>Chemistry in our World</i></b>	<b>Component 6: <i>Electricity, magnetism and waves</i></b>
<b>Knowledge</b>	Cell structure. Specialised cells; shape/function. Tissues, Organs, Organ systems: structures and functions. Human digestive system and enzyme action. Human circulatory system. Respiration, lifestyle choices, health and disease. Communicable diseases and the immune system. Vaccinations.	Atoms and elements, their symbols in the periodic table. Patterns in the periodic table. Compounds, formation and word equations. States of matter. Diamond and graphite structure and properties. Separating mixtures; filtration, distillation, evaporation, chromatography.	Energy changes in systems. Useful and wasted energy transfers. Efficiency. Improving efficiency. Thermal conductivity of materials. Thermal insulation. Renewable and non-renewable energy resources. Contact and non-contact forces. Work done by forces.	Green plants and photosynthesis. Adaptations of animals and plants. Ecosystems, food chains and food webs. Natural recycling of materials, e.g. carbon cycle. Plant and animal competition. Environmental factors affecting living organisms. Charles Darwin and evolution. Natural selection. Artificial selection. Asexual and sexual reproduction. Genetic basis of inheritance. Genetic engineering.	Reactions of acids with; metals, alkalis, bases, carbonates. Tests for hydrogen and carbon dioxide. Crystallisation of salts. Exothermic and endothermic reactions. Factors affecting rates of reactions. Earth's atmosphere. Crude oil and fractional distillation. Complete and incomplete combustion of fuels. Greenhouse effect and climate change. Drinking water and its production.	Current, resistance and voltage in circuits. Direct current, Alternating current, mains electricity. Domestic electricity; plugs and fuses, insulation and safety. Domestic appliances and calculating energy transfers. Magnets and magnetic fields. Electromagnetic induction. Solenoids and electromagnets. Properties of waves and the wave equation. Electromagnetic radiation and its uses.
<b>Skills</b>	Scientific modelling. Safe lab practice. Microscopy. Applying formulae. Scientific reasoning. Scientific communication	Planning and recording experiments Investigating changes of state Lab techniques: distillation, evaporation, filtration, measuring temperature Applying formulae Scientific reasoning	Safe lab practice. Scientific modelling Accurate measurements Applying formulae Evaluating procedures	Applying formulae Scientific reasoning Scientific communication	Identifying acids and alkalis. Safety. Recording data. Drawing conclusions and evaluating procedures Applying formulae Scientific reasoning	Planning investigations Designing and building circuits Evaluating circuits Electrical safety Investigating energy transfers Calculating energy costs



Year 11	Component 1: <i>Human Body</i>	Component 3: <i>Atoms, elements and compounds</i>	Component 5: <i>Energy, forces and structure of matter</i>	Revision and exam preparation		
<b>Knowledge</b>	Drug development and clinical trials. Drug dependence and withdrawal. Antibiotics and their use. Automatic control systems: nerves and hormones. Menstrual cycle. Hormonal control of fertility, benefits and problems.	Mining and extracting metals from ores. Social economic and environmental impact of recycling. Bonding in metals. Properties and uses of metals. Properties and uses of alloys. Polymers; manufacture, properties and uses.	Measuring and calculating speed. Stopping distance and factors affecting. Measuring human reaction times. Factors affecting reaction time. Braking distance and factors affecting. Atomic nuclei and radioactive decay. Properties of ionising radiation.			
<b>Skills</b>	Collaborative working Using scientific models Designing fair studies Reading graphs	Safe lab practice Collaborative working Using formulae Reading graphs	Collaborative working Laboratory safety Designing fair studies Analysing and evaluating data			
<b>Assessment opportunities</b>	Live assessment & feedback in class 1 x Formative assessment (skills) 1 x Formative assessment (knowledge) 1 x Summative skills and knowledge assessment	Live assessment & feedback in class 1 x Formative assessment (skills) 1 x Formative assessment (knowledge) 1 x Summative skills and knowledge assessment	Live assessment & feedback in class 1 x Formative assessment (skills) 1 x Formative assessment (knowledge) 1 x Summative skills and knowledge assessment			