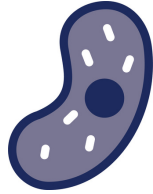

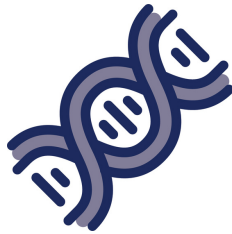
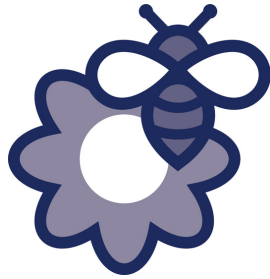



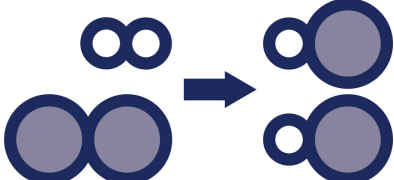








Big Idea	Year 7	Year 8	Year 9	Year 10	Year 11
	The fundamental knowledge underpinning each of the three science disciplines is introduced in Y7 and Y8			Pilot testing in schools '22-'23	
All knowledge required to be successful at GCSE is explicitly taught in Y9-11, building in depth if previously introduced at KS3					
Cells are Alive 	B1.1 Cells <ul style="list-style-type: none"> Cell structure Cell specialisation Using microscopes Principles of organisation 		B3.1 Growth and differentiation <ul style="list-style-type: none"> Eukaryotic and prokaryotic cell structure Microscopes Cell transport Cell division (mitosis) Stem cells and cell differentiation 		
Bodies are Systems 		B2.1 Tissues and Organs <ul style="list-style-type: none"> The musculoskeletal system The breathing system Drugs Plant structure B2.4 Nutrition <ul style="list-style-type: none"> Digestion Digestive enzymes Food tests A balanced diet Plant nutrition 		B4.1 The Digestive System <ul style="list-style-type: none"> The digestive system Mechanical and chemical digestion Food tests Digestive enzymes Factors affecting enzyme activity B4.2 Circulation and Respiration <ul style="list-style-type: none"> Structure of the lungs The circulatory system Blood vessels Coronary heart disease Aerobic and anaerobic respiration Metabolism and response to exercise B4.4 Health and Disease <ul style="list-style-type: none"> Correlation, causation and risk factors Communicable disease Human defence systems Microorganisms Monoclonal antibodies 	B5.1 Feedback and Control <ul style="list-style-type: none"> Structure of the nervous system The Reflex Arc Reaction Time The Brain The Eye Homeostasis and the endocrine system Blood glucose and osmosis Water and nitrogen balance Plant hormones
Characteristics are Inherited 	B1.2 Reproduction <ul style="list-style-type: none"> Sexual and asexual reproduction Puberty The menstrual cycle Embryo development Plant reproduction 		B3.3 Genetics <ul style="list-style-type: none"> Sexual and asexual reproduction Cell division (meiosis) DNA, genes and chromosomes Inheritance Coding for proteins 		B5.2 Controlling Reproduction <ul style="list-style-type: none"> Sexual and Asexual reproduction Reproductive hormones Hormonal control of the menstrual cycle Contraception Fertility treatment
Organisms are Interdependent 	B1.3 Interdependence <ul style="list-style-type: none"> Ecosystems Sampling Food chains and webs Competition for resources 		B3.2 Human Interaction <ul style="list-style-type: none"> Biodiversity Pollution Pyramids of biomass Food security 	B4.5 Ecology <ul style="list-style-type: none"> Organisation of an Ecosystem Biotic and abiotic factors Food chains and webs Predator-prey relationships Investigating species distribution Impact of environmental change Farming, biotech and food security 	
Ecosystems Cycle Resources 		B2.2 Respiration and Photosynthesis <ul style="list-style-type: none"> Respiration and exercise Fermentation Photosynthesis Plant adaptations Biomes 		B4.3 Plants and Material Cycling <ul style="list-style-type: none"> Transpiration Translocation Plant structure Photosynthesis Limiting factors Material cycling 	
Species Show Variation 		B2.3 Life Diversity <ul style="list-style-type: none"> Variation Selective breeding Adaptation 			B5.3 Controlling Nature <ul style="list-style-type: none"> Genetic engineering Cloning Inherited diseases Therapeutic cloning B5.4 Evolution <ul style="list-style-type: none"> DNA and proteins Natural selection and evolution Fossils and extinction Classification

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Structure determines properties 	C1.1 Particles <ul style="list-style-type: none"> States of matter The particle model Changing states Diffusion Gas pressure Density C1.2 Elements, Atoms and Compounds <ul style="list-style-type: none"> Atoms and elements The periodic table Metals and non-metals Compounds and mixtures Hazards in the lab C1.3 Mixtures <ul style="list-style-type: none"> Pure substances and mixtures Solutions Separation techniques 		C3.1 The Periodic Table <ul style="list-style-type: none"> Atoms, elements and compounds Atomic structure Electronic configuration Isotopes The atomic model The periodic table 	C4.1 Structure and Bonding <ul style="list-style-type: none"> Types of bonding Properties of ionic, covalent and metallic substances Diamond and Graphite Graphene and Fullerenes Nanotubes Polymers 	C5.1 Carbon Chemistry <ul style="list-style-type: none"> Crude oil and hydrocarbons Fractional distillation Combustion of hydrocarbons Cracking Alkenes Alcohols Carboxylic acids Addition polymerisation Condensation polymerisation Naturally occurring polymers
Reactions rearrange matter 		C2.2 Changing Substances <ul style="list-style-type: none"> Chemical and physical changes Chemical equations and the law of conservation of mass Chemical reactions Tests for gases C2.1 Acids and Alkalis <ul style="list-style-type: none"> Acids and alkalis Indicators Word equations Reactions of acids and alkalis 	C3.2 Introduction to Quantitative Chemistry <ul style="list-style-type: none"> Chemical reactions and equations Relative atomic and formula mass Introducing concentration Making soluble salts 	C4.2 Extraction of Metals <ul style="list-style-type: none"> The reactivity series Ionic equations Writing half equations Extraction of metals Electrolysis Corrosion and its prevention Recycling metals C4.3 Quantitative Chemistry <ul style="list-style-type: none"> Atom economy and % yield Calculating moles Concentration Amounts of substances in equations Acids, alkalis and neutralisation Titrations Strong and weak acids Volumes of gases C4.4 Energy Changes <ul style="list-style-type: none"> Energy in chemical reactions Exothermic and endothermic reactions Bond energies Investigating temperature changes Cells and batteries 	C5.2 Controlling Reactions <ul style="list-style-type: none"> Collision theory and activation energy The effect of changing temperature, concentration, surface area and pressure Catalysts Measuring rate of reaction Reversible reactions Le Chatelier's Principle C5.4 Chemical Analysis <ul style="list-style-type: none"> Pure substance and formulations Distillation Chromatography Tests for gases Identifying metal ions Instrumental methods of analysis
Earth systems interact 		C2.3 Earth Systems <ul style="list-style-type: none"> The structure and composition of the Earth Types of rock The water cycle Burning fuels 	C3.3 Using Resources <ul style="list-style-type: none"> Potable water Testing water Using Earth's resources Reduce, reuse, recycle Life Cycle Assessment Evaluating impact Sources of information 		C5.3 Our Atmosphere <ul style="list-style-type: none"> Earth's early atmosphere The greenhouse effect and climate change Carbon footprints Combustion and atmospheric pollution Reducing pollution and renewable energy

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Forces predict motion 	P1.1 Contact Forces <ul style="list-style-type: none"> Forces Resultant forces Effects of forces 	P2.1 Movement and Pressure <ul style="list-style-type: none"> Speed Distance-time graphs Pressure 	P3.1 Acceleration <ul style="list-style-type: none"> Speed Scalars and vectors Newton's First and Third Laws Acceleration Velocity-Time graphs 	P4.3 Movement <ul style="list-style-type: none"> Work done Moments, levers and gears Newton's Second Law Stopping distances Momentum 	
Fields produce forces 	P1.2 Space <ul style="list-style-type: none"> Gravitational force Weight The Solar System 	P2.2 Magnetism <ul style="list-style-type: none"> Magnetism Electromagnets 			P5.2 Force Fields <ul style="list-style-type: none"> Magnetism Electromagnetism Space physics Electric fields
Energy is conserved 	P1.3 Energy Transfers <ul style="list-style-type: none"> Energy stores Energy transfers Thermal energy and transfers 		P3.2 Heating <ul style="list-style-type: none"> Internal energy Thermal transfer Specific heat capacity Specific latent heat 	P4.1 Matter <ul style="list-style-type: none"> Density Pressure P4.2 Energy Conservation <ul style="list-style-type: none"> Energy in systems Specific heat capacity Power Energy resources 	
Electricity transfers energy 	P1.4 Electric Circuits: Current and Voltage <ul style="list-style-type: none"> Electric circuits Current Voltage 	P2.3 Electric Circuits: Resistance <ul style="list-style-type: none"> Resistance Ohm's Law Resistance in series and parallel circuits 	P3.4 Home Electricity <ul style="list-style-type: none"> Mains electricity Power in appliances The National Grid Energy resources Static electricity 	P4.4 Electric Circuits and Energy <ul style="list-style-type: none"> Current, voltage and resistance Circuit components Induced potential and transformers 	
Radiation transfers energy 		P2.4 Light <ul style="list-style-type: none"> Properties of light Reflection Refraction Light and colour 	P3.3 Sound and Waves <ul style="list-style-type: none"> Properties of waves Sound and ultrasound Reflection and refraction Technological use of waves 	P4.5 Radioactivity <ul style="list-style-type: none"> Radioactive decay Contamination and irradiation Background radiation Nuclear fission and fusion 	P5.1 Electromagnetic Radiation <ul style="list-style-type: none"> Electromagnetic waves Lenses Visible light Black-body radiation Red shift