

Topic Outline	Students should know and understand	Students should be able to
Biology A - Cells and movement	<ul style="list-style-type: none"> • The structure and function of animal and plant cells • The process of diffusion in cells • The function of the human skeleton and muscles 	<ul style="list-style-type: none"> • Prepare mounted slides and using microscopes • Investigate diffusion • Assess experimental risks • Draw conclusions from experiments
Biology B - Ecological relationships	<ul style="list-style-type: none"> • Classification and adaptations of organisms • Feeding relationships • Plant reproduction and population sampling • Human reproduction, pregnancy and giving birth 	<ul style="list-style-type: none"> • Investigate seed dispersal • Present data in tables • Evaluate experiments
Chemistry A - Acids and alkalis	<ul style="list-style-type: none"> • How to determine chemical and physical changes • Acids, alkalis and using indicators • Reactions between acids and metals & carbonates 	<ul style="list-style-type: none"> • Use a range of indicators • Plan an investigation • Risk assess an investigation
Chemistry B - Particles and solutions	<ul style="list-style-type: none"> • States of matter and changing states • Density • Solutes, solvents and solutions • Separation techniques 	<ul style="list-style-type: none"> • Investigate the effects of temperature on solubility • Graphically represent data • Present data in tables • Use ray boxes and produce ray diagrams
Physics A - Waves	<ul style="list-style-type: none"> • Wave form and measurements • Light waves and properties • Lenses and the human eye • Sound waves and the ear 	<ul style="list-style-type: none"> • Draw scientific diagrams accurately • Use protractors
Physics B - Space and the Earth	<ul style="list-style-type: none"> • The solar system, stars, galaxies and the universe • The cause of days and seasons • The structure of the Earth and the rock cycle 	<ul style="list-style-type: none"> • Investigate model meteor craters • Plan an investigation • Graphically represent data
Physics C - Forces and their effects	<ul style="list-style-type: none"> • Contact and non-contact forces • The behaviour of springs and Hooke's law • Effects and causes of air and water resistance (streamlining) • How to draw and use speed and motion graphs 	<ul style="list-style-type: none"> • Draw force diagrams • Investigate spring constants and friction • Draw conclusions from experiments • Evaluate experiments

Year 8

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Biology C - Food and digestion	<ul style="list-style-type: none"> • Essential nutrients and a balanced Diet • The digestive system • Enzyme action 	<ul style="list-style-type: none"> • Test energy in food • Record data accurately • Graphically represent data
Biology D - Photosynthesis and respiration	<ul style="list-style-type: none"> • Breathing and gas exchange • The heart and the circulatory system • Types of respiration • Photosynthesis and adaptations of leaves 	<ul style="list-style-type: none"> • Investigate respiration • Risk assess an investigation • Write conclusions
Biology E - Inheritance and reproduction	<ul style="list-style-type: none"> • DNA, inheritance and variation in plants and animals • Selective breeding & genetic engineering • Natural selection and biodiversity 	<ul style="list-style-type: none"> • Evaluate sources/information • Write a formal letter
Chemistry C - Elements, compounds and reactions	<ul style="list-style-type: none"> • Elements, compounds and mixtures • The Periodic table • Reactivity and displacement reactions • Exo/endothermic reactions and catalysts 	<ul style="list-style-type: none"> • Identify unknown compounds • Risk assess an investigation • Write conclusions
Chemistry D - Resources from the Earth	<ul style="list-style-type: none"> • Use and issues of limestone • Extracting metals from ores • Fossil fuels, combustion and environmental impacts 	<ul style="list-style-type: none"> • Making and testing mortar and concrete • Plan an investigation • Evaluate experiments
Physics D - Energy changes, heat and magnetism	<ul style="list-style-type: none"> • Energy stores and transfers • Thermal energy transfers • Magnetic properties • Electromagnetics 	<ul style="list-style-type: none"> • Investigate insulation • Plan an investigation • Record data accurately
Phys E - Electricity	<ul style="list-style-type: none"> • Current, potential difference and resistance • Series and parallel circuits • Static electricity • Generation and cost of electricity 	<ul style="list-style-type: none"> • Investigate resistance in circuits • Evaluate experiments • Graphically represent data

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B1 Cell structure and Transport (CGP revision guide topic B1)	<ul style="list-style-type: none"> • The structure and function of prokaryotic and eukaryotic cells. • The movement of materials in and between cells; using diffusion, osmosis and active transport. 	<ul style="list-style-type: none"> • Use a light microscope to observe, draw and label a selection of plant and animal cells. • Investigate the effect of a range of concentrations of salt and sugar solutions on the mass of plant tissue.
B2 Cell Division (CGP revision guide topic B1)	<ul style="list-style-type: none"> • The importance of the cell cycle including mitosis. • The difference between stem cells, body cells and plant stem cells. 	<ul style="list-style-type: none"> • Use models and analogies to develop explanations of how cells divide. • Evaluate the social and ethical issues of the use of stem cells.
B3 Tissues and organs (CGP revision guide topic B2)	<ul style="list-style-type: none"> • The structure and function of the human digestive system. • How enzymes work as biological catalysts. 	<ul style="list-style-type: none"> • Use qualitative reagents to test for a range or carbohydrates, lipids and proteins. • Investigate the effect of pH on the rate of reaction of amylase.
C8 Rates and equilibrium and working scientifically (CGP revision guide C6 and practical skills)	<ul style="list-style-type: none"> • The factors that can affect the rate of a chemical reaction. • The collision theory. • What a reversible reaction is. 	<ul style="list-style-type: none"> • Investigation into how changes in concentration affect the rates of reactions. • Plot graphs of two variables from experimental data. • Plan an investigation in a given hypothesis and analyse the results from an investigation.
C11 The Earth's atmosphere (CGP revision guide C9)	<ul style="list-style-type: none"> • The theory of how the Earth's atmosphere developed. • Causes of global climate change. • Ways of reducing carbon emissions. 	<ul style="list-style-type: none"> • Use ratios, fractions and percentages. • Evaluate different theories about the Earth's early atmosphere.
P12 S (P11 C) Wave Properties and maths skills (CGP revision guide P6)	<ul style="list-style-type: none"> • How the wavelength of a wave depends on its speed and its frequency • The properties of transverse and longitudinal waves. • How to use significant figures, standard form, prefixes and units in science. • How to substitute into and rearrange equations in science. 	<ul style="list-style-type: none"> • Make observations to identify the suitability of apparatus to measure the frequency, wavelength and speed of waves in a ripple tank and waves in a solid and take appropriate measurements. • Measure the speed of sound in air and solids. • Draw ray diagrams and wave front diagrams to show the reflection and refraction of waves.

<p>P13 S (P12 C) Electromagnetic Waves (CGP revision guide P6)</p>	<ul style="list-style-type: none"> • The uses and properties of each of the electromagnetic waves. • The dangers of high energy electromagnetic waves and precautions that should be taken. 	<ul style="list-style-type: none"> • Investigate how the amount of infrared radiation absorbed or radiated by a surface depends on the nature of that surface.
<p>P3 Energy Resources (CGP revision guide P1)</p>	<ul style="list-style-type: none"> • The advantages and disadvantages of renewable and non-renewable energy resources. • How the environment is affected by the use of different energy resources. 	<ul style="list-style-type: none"> • Compare different renewable and non-renewable energy resources