

The Nottingham Emmanuel School – Science Curriculum Map (2019-2020)



| | AUT 1 | AUT 2 | SPR 1 | SPR 2 | SUM 1 | SUM 2 |
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| Year 7 | <p>Introduction to science Safety rules Scientific equipment Following methods Writing a risk assessment Defining variables Drawing tables Making observations Identifying patterns Writing a conclusion</p> <p>Cells – Cells Animal and plant cells Specialised cells Microscopes Organs and organ systems The respiratory system Breathing</p> | <p>Cells – Respiration Life processes Gas exchange Aerobic respiration Anaerobic respiration Anaerobic respiration in yeast</p> <p>Particles – States of matter Solids, liquids and gases Changes of state Diffusion Conservation of mass Pressure Density Melting and boiling points</p> | <p>Developing theories Scientific theories Limitations and applications Why models change</p> <p>Energy stores and transfers Stores of energy Energy transfers Energy efficiency</p> <p>Energy resources Energy from the sun Fossil fuels Generating electricity Renewable energy Energy in food</p> | <p>Food and nutrition Nutrients in food Balanced diets Deficiency diseases Diabetes</p> <p>Digestion and circulation The digestive system Enzymes Digested food The circulatory system Blood Gas exchange</p> | <p>Metals and the Periodic table Development of the periodic table Structure of the periodic table Metals and non-metals</p> <p>Atomic structure, elements and compounds Elements, compounds and mixtures Making compounds Atomic structure</p> | <p>Space Day, nights and years Artificial satellites and orbits Phases of the moon and eclipses The solar system Size of the solar system Life cycle of stars Radiation from the sun Structure of the Earth and seismic waves</p> <p>Working Scientifically projects Investigation skills Practical skills Evaluating methods</p> |
| Year 8 | <p>Electrical circuits Circuit symbols and diagrams Electricity Conductors and insulators Measuring current Measuring potential difference Series circuits Parallel circuits Resistance</p> <p>Electricity in the home and magnetism Power Plugs Magnets Magnetic fields Electromagnets Permanent and induced magnets</p> | <p>Inheritance – Reproduction Sex cells Reproductive systems Puberty Fertilisation Pregnancy</p> <p>Inheritance - Variation Classification Variation Theory of evolution Fossils Evidence of evolution</p> | <p>Materials – Solutions Particles Chemical symbols Properties of materials Separating techniques Empirical formula Relative atomic mass</p> <p>Forces introduction Contact and non-contact forces Measuring forces Weight and mass Friction Stationary and moving objects Resultant forces Balanced forces</p> | <p>Forces – Motion and speed Speed Distance-time graphs Breaking, thinking and stopping distances Pressure</p> <p>Plants – Plants as organisms Parts of a plant Structure of a leaf Respiration in plants Photosynthesis Plant tissues (xylem and phloem)</p> <p>Farming Advances in farming Plant hormones Pesticides and fertilisers Battery farming</p> | <p>Chemical reactions – Reactions Defining reactions Chemical changes Fire Exothermic and endothermic reactions Types of reactions Reactivity series</p> <p>Chemical reactions – Acids and alkalis Acids around us Testing for acids and alkalis Indicators Measuring pH Neutralisation reactions</p> | <p>Heat transfers Conduction Convection Radiation</p> <p>Working Scientifically projects Investigation skills Practical skills Evaluating methods</p> |

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| Year 9 | <p>Cell biology - Cells and Transport Animal and plant cells Prokaryotes and eukaryotes Microscopy Specialised cells Diffusion Osmosis Active transport Exchanging materials</p> | <p>Cell biology - Cellular division and stem cells The cell cycle and mitosis Stem cells Cell specialisation and differentiation Treatments using stem cells</p> | <p>Bonding – Bonding and structures States of matter Changing states Formation of ions Ionic bonding Ionic compounds Covalent bonding</p> | <p>Bonding – Bonding and structures continued Simple molecular substances Polymers and giant covalent structures Allotropes of carbon Metallic bonding Triple only content Giant metallic structures Nanoparticles Application of nanoparticles</p> | <p>Electricity – Domestic uses and safety Mains electricity ACDC Electrical power The national grid Triple only content Static electricity Electric fields</p> | <p>Targeted programme of in class intervention based on students' needs.</p> <p>Working scientifically focus and assessment review to build on and consolidate skills for Year 10.</p> |
| | <p>Energy – Conservation and dissipation of energy Changes in energy stores Conservation and dissipation of energy Energy and work Power Gravitational potential energy Kinetic energy GPE to KE Elastic potential energy Power stations and energy resources</p> | <p>Atomic structure and the Periodic table Atoms, elements and compounds Chemical equations Separating techniques Atomic structure History of the atom Metals and non-metals Groups of the periodic table Transition elements (Triple)</p> | <p>Electricity – Current, PD and resistance, series and parallel circuits Symbols and current Current and charge Potential difference Resistance Length and resistance Ohm's law Non-Ohmic conductors LDRs and thermistors Series and parallel circuits Resistors in circuits</p> | <p>Organisation – Digestive system Organisation hierarchy The digestive system Enzymes Factors affecting enzymes Human digestive enzymes Food tests</p> | <p>Organisation – Human and plant systems Blood Blood vessels Heart structure Problems with the heart Risk factors for non-communicable diseases Lungs and gas exchange Tissues and organs in plants Plant transport systems</p> | |

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| Year 10 Biology | <p>Infection and response – Communicable diseases Health issues Communicable diseases Preventing transmission Viral, bacterial, fungal and Protista diseases Human defence systems</p> <p>Triple only Growing bacteria Plant diseases Plant disease detection Plant defences</p> | <p>Preventing and treating diseases Vaccination Antibiotics and painkillers Discovery and development of drugs Non-Communicable diseases Risk factors Cancer</p> <p>Triple only Production and use of monoclonal antibodies</p> | <p>Bioenergetics – Photosynthesis Photosynthesis Plant uses of glucose Rate of photosynthesis Maximising the rate of photosynthesis</p> | <p>Bioenergetics – Respiration Aerobic respiration Anaerobic respiration in animals Anaerobic respiration in plants and yeast Responding to exercise Metabolism</p> | <p>Biological responses – Homeostasis Homeostasis and the endocrine system Negative feedback (HT) Control of blood glucose Diabetes</p> <p>Triple only Control of body temperature Maintaining water, ion and nitrogen balance Kidney problems and treatments</p> | <p>Biological responses – Reflexes Hormones in reproduction Contraception Infertility treatments The human nervous system Reaction rates</p> <p>Triple only The brain The eye Problems with the eye Treatments with the eye Plant hormones</p> |
| Year 10 Chemistry | <p>Quantitative chemistry Conservation of mass Relative formula mass</p> <p>Higher Moles Amount of substances in equations Masses to balances equations Limiting reactants Equations and calculations</p> | <p>Quantitative chemistry Continued Concentration of solutions</p> <p>Triple only Percentage yield Atom economy Using concentrations Volume of gases</p> | <p>Chemical changes Acids and alkalis Reactions of acids Making soluble salts Reactivity series Displacement reactions Extracting metals</p> <p>Higher Redox reactions Strong and weak acids</p> <p>Triple only Titrations Titration calculations</p> | <p>Electrolysis and Energy changes Electrolysis of metal ores Electrolysis of aqueous solutions Exothermic and endothermic reactions Reaction profiles</p> <p>Higher Representation of reactions at electrodes as half equations Bond energy calculations</p> <p>Triple only Chemical cells and batteries Fuel Cells</p> | <p>Rate and extent of chemical change Rate of reaction Factors affecting rates Surface area Temperature Concentration Catalyst Measuring rates from graphs Reversible reactions</p> <p>Higher Calculating rates using tangents Equilibrium Le Chatelier’s principle</p> | <p>Organic chemistry Alkanes and their properties Combustion and fractional distillation Cracking crude oil</p> <p>Triple only Alkenes Reactions of Alkenes Alcohols Carboxylic acids</p> <p>Triple Higher Condensation polymers Naturally occurring polymers</p> |

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| Year 10 Physics | <p>Particle model Changes of state and internal energy Thermal conductivity Specific heat capacity Specific latent heat Density Pressure and temperature in gasses</p> <p>Triple only Pressure and volume in gases</p> | <p>Atomic Structure The history of the atom Alpha, beta and gamma radiation Nuclear equations Half life Dangers of nuclear radiation</p> <p>Triple only Dangers of radiation Uses of radiation Background Radiation Nuclear fission Nuclear fusion</p> | <p>Waves and space Waves Transverse and longitudinal waves Electromagnetic spectrum Uses and dangers of electromagnetic waves Black body radiators Light reflection Light refraction</p> <p>Triple only Seeing coloured light Lenses Sound Ultrasound Earthquake P and S waves Our place in the universe Stellar evolution Red shift The expanding universe</p> | <p>Forces and interactions Scalar and vectors Mass and weight Resultant forces Resolving forces – Higher Hook’s law Work done Energy transfers</p> | <p>Forces and interactions Triple only Moments Levers and gears Pressure Pressure in liquids Atmospheric pressure</p> | <p>Targeted programme of in class intervention based on students’ needs.</p> |
| Year 11 Biology | <p>Genetics, evolution and variation Types of reproduction Meiosis Inheritance DNA and the genome Inheritance of diseases Genetic screening</p> <p>Triple only Reproduction further DNA structure Protein synthesis Gene expression and mutation</p> | <p>Genetics, evolution and variation Variation Evolution by natural selection Evidence of evolution Fossils and extinction Selective breeding Genetic engineering Ethics of genetic technology Antibiotic resistance and MRSA</p> <p>Triple only The history of genetics Theories of evolution Accepting Darwin’s ideas Evolution and speciation Cloning</p> | <p>Ecology – Ecology, adapting and cycles Importance of communities Biotic and abiotic factors Distribution and abundance Competition in plants and animals Adapting to survive Plant and animal adaptations Feeding relationships Materials cycling The carbon cycle Feeding relationships Material cycling The carbon cycle</p> <p>Triple only Rates of decomposition</p> | <p>Ecology – Biodiversity Human population Land and water pollution Air pollution Deforestation and peat destruction Global warming</p> <p>Triple only The impact of changes Trophic levels and biomass Biomass transfers Factors affecting food security Making food production efficient Sustainable food production</p> | <p>Bespoke personalised revision plan or Year 11 exams</p> | |

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| <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Year 11 Chemistry</p> | <p>Chemical analysis Pure substances Formulations Chromatography Identification of common gases</p> <p>Triple only Identification of ions Flame emission spectroscopy</p> | <p>Chemistry of the atmosphere The composition of the early atmosphere The evolution of the atmosphere Greenhouse gases Human activity Climate change Carbon footprint Atmospheric pollutants</p> | <p>Using resources Finite and renewable resources Reduce, reuse and recycle Life cycle assessments Potable water Waste water treatment</p> <p>Higher Extraction of metals from ores</p> <p>Triple only Corrosion Alloys Properties and uses of materials Haber process Fertilisers</p> | <p>Bespoke personalised revision plan or Year 11 exams</p> | <p>Bespoke personalised revision plan or Year 11 exams</p> | |
| <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Year 11 Physics</p> | <p>Forces and Motion Distance time graphs Stopping distance Velocity time graphs Terminal velocity Velocity and acceleration</p> <p>Higher Momentum Conservation of momentum</p> <p>Triple only Changes in momentum</p> | <p>Magnetism and electromagnetism Magnetic fields Magnetic fields of electrical currents The motor effect</p> <p>Triple only Electromagnets in devices The generator effect The alternating-current generator Transformers Transformers in action</p> | <p>Bespoke personalised revision plan or Year 11 exams</p> | <p>Bespoke personalised revision plan or Year 11 exams</p> | <p>Bespoke personalised revision plan or Year 11 exams</p> | |

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| Year 12 Biology | <p>Cells Structure of eukaryotic cells Structure of prokaryotic cells and viruses Methods of studying cells Optical microscopes Transmission electron Microscopes Scanning electron microscopes Magnification The cell cycle Mitosis</p> <p>Biological molecules Monomers and polymers Condensation and hydrolysis Reactions Carbohydrates Alpha and beta glucose The structure and function of Cellulose, glycogen, starch and lipids The structure and function of triglycerides and phospholipids</p> | <p>Transport across membranes Structure of the cell membrane Fluid mosaic model Transport across cell membranes Diffusion Facilitated diffusion Osmosis Active transport Co-transport</p> <p>Cell recognition and the immune system Defence Antibodies Vaccinations HIV</p> <p>Biological molecules Amino acids, protein and enzymes The induced fit model Competitive and non-Competitive Inhibitors Factors affecting enzyme rates The structure and functions of water Uses of ions The structure and function of ATP</p> | <p>Organisms exchanging substances Surface area to volume ratio Single celled organisms The tracheal system of insects Gills of fish The leaves of dicotyledonous plants Mammalian lungs Digestion and Absorption in Mammals</p> <p>DNA, genes and protein synthesis Nucleic acids DNA RNA Genes Chromosomes DNA semi-conservative replication Watson and Crick model Transcription Translation</p> | <p>Mass transport in mammals Haemoglobin and red blood cells Oxyhaemoglobin dissociation curves Blood circulation in a mammals The human heart The cardiac cycle Blood vessels and functions</p> <p>Genetic diversity Meiosis Allele Mutations and Effects Genetic Diversity</p> <p>Biodiversity Species and taxonomy Diversity within communities Species diversity and human activity Investigating diversity Quantitative investigations of variation</p> | <p>Mass transport in plants Xylem and transpiration Phloem and translocation Investigating mass transport</p> <p>Focused revision Exam practice Exam skills and techniques</p> | <p>Populations in ecosystems Ecosystems Variation in population size Competition Predation Investigating populations Succession Conservation of habitats</p> |

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| <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Year 13 Biology</p> | <p>Photosynthesis Site of photosynthesis Light dependent reaction Light independent reactions Investigating photosynthesis</p> <p>Respiration Glycolysis Link reaction Krebs cycle Oxidative phosphorylation Anaerobic respiration</p> <p>Inheritance Monohybrid inheritance Genetic crosses Dihybrid inheritance Codominance and multiple alleles Sex-linkage Autosomal linkage Epistasis Chi-squared test</p> | <p>Energy and ecosystems Food chains Energy transfer Productivity Nitrogen cycle Phosphorus cycle Use of fertilisers Environmental issues</p> <p>Populations and evolution Population genetics Variation in phenotypes Natural selection Effects of selection on evolution Isolation and speciation</p> <p>Mutations and gene expression Gene mutations Stem cells and totipotency Regulation of transcription Regulation of translation</p> | <p>Response to stimuli Survival and response Plant growth factors Reflex arcs Receptors Control of heart rate</p> <p>Nervous coordination Neurones Nerve impulse Action potential Speed of an impulse</p> <p>Mutations and gene expression continued Epigenetic control of gene expression Gene expression and cancer Genome projects</p> | <p>Synapses and Muscles Structure of synapses Transmission across synapses Structure of skeletal muscle Contraction of skeletal muscle</p> <p>Homeostasis Principles of homeostasis Feedback mechanisms Regulation of blood glucose Diabetes and control</p> <p>Gene projects and gene technology Producing DNA fragments <i>in vivo</i> cloning <i>in vitro</i> cloning Locating genes Genetic screening and counselling Genetic fingerprinting</p> | <p>Homeostasis - Osmoregulation Control of blood water potential Role of nephron Osmoregulation Role of hormones in osmoregulation</p> <p>Essay skills Writing synoptic essays in Biology</p> <p>Bespoke personalised revision plan for exams</p> | <p>Bespoke personalised revision plan for exams</p> |
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| Year 12 Chemistry | <p>Lab skills Health and safety Measuring/recording/reading Analysis of graphs Percentage uncertainty</p> <p>Atomic structure The Atom Atomic models Relative mass The mass spectrometer Using mass spectra Electronic structure Ionisation energies</p> <p>Bonding Ionic bonding Covalent bonding Charge clouds Shapes of molecules Polarisation Intermolecular forces Metallic bonding Properties of metals</p> | <p>Amount of substance The Mole Chemical equations Equations and calculations Ideal gas equation Formulas Titrations Water of crystallisation Chemical Yield Atom economy</p> <p>Energetics Enthalpy Bond enthalpies</p> <p>Introduction Formulas Functional groups Nomenclature Isomers E/Z isomers</p> <p>Alkanes Alkanes and petroleum Alkanes as fuels</p> | <p>Energetics Measuring enthalpy changes Hess's Law</p> <p>Kinetics Reactions Rates Catalysts Measuring reaction rates</p> <p>Halogenoalkanes Synthesis of chloroalkanes Halogenoalkanes Nucleophilic substitution Elimination reactions Alkenes Alkenes Reactions of alkenes Addition polymers</p> | <p>Equilibria and Redox reactions Reversible reactions Industrial processes The equilibrium constant Factors affecting the equilibrium constant Redox reactions Redox equations</p> <p>Periodicity The Periodic table Periodicity</p> <p>Alcohols Dehydrating alcohols Ethanol production Oxidising alcohols</p> <p>Organic analysis Tests for functional groups</p> | <p>Bespoke personalised revision plan for Exams</p> <p>Group 2 and 7 elements Group 2 – the alkaline earth metals Group 2 compounds Group 7 – the halogens Halide ions Test for ions</p> <p>Organic analysis Mass Spectrometry Infrared Spectroscopy</p> | <p>Thermodynamics Enthalpy changes Born-Haber Cycles Enthalpies of solution Entropy Free-energy change</p> <p>Analysis NMR spectroscopy ¹³C NMR spectroscopy ¹H NMR spectroscopy</p> |
| Year 13 Chemistry | <p>Rate Equations and K_p Monitoring reactions Reaction rates and graphs Rate equations The initial rate method Clock reactions Rate-concentration graphs The rate-determining step The Arrhenius Equation</p> <p>Isomerism and carbonyl compounds Optical isomerism Aldehydes and Ketones Hydroxynitriles Carboxylic acids and esters Reactions and Uses of Esters Acyl chlorides Acid anhydrides purifying organic compounds</p> | <p>Rate Equations and K_p Gas Equilibria Changing gas equilibria</p> <p>Electrode potentials Standard electrode potentials Electrochemical series Electrochemical Cells</p> <p>Aromatics compounds and amines Aromatic compounds Reactions of aromatics Amines and Amides Reactions of Amines</p> <p>Polymers Condensation polymerisation Monomers and repeating units Disposing of polymers</p> | <p>Acids, Bases and pH Acids, Bases and K_w pH Calculations The Acid Dissociation Constant Titrations and pH curves Titration calculations Buffer action Calculating the pH of buffers</p> <p>Amino Acids, Proteins & DNA Amino Acids Proteins Enzymes DNA Cisplatin</p> <p>Further Synthesis & Analysis Organic synthesis Chromatography Gas Chromatography</p> | <p>Inorganic Chemistry Period 3 elements Period 3 oxides</p> <p>Transition Metals Complex ions Isomerism in Complex ions Formation of Coloured ions Ligand Substitution Reactions Variable Oxidation States Transition Metal Titrations Transition Metal Catalysts Metal-Aqua ions</p> | <p>Bespoke personalised revision plan for exams</p> | <p>Bespoke personalised revision plan for exams</p> |

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| Year 12 Physics | <p>Particle Physics Atomic structure and nuclear stability Matter, antimatter and photons The particle Zoo Conservation Rules Quarks and anti quarks</p> <p>Waves progressive waves and wave speed transverse and longitudinal waves Superposition and interference Stationary waves Resonance</p> | <p>Quantum Phenomena The photo electric effect Energy levels in atoms Wave particle duality</p> <p>Mechanics Scalars and vectors Resultant forces Resolving forces Forces in equilibrium</p> <p>Waves Diffraction Young's slits experiment and two source interference Diffraction gratings Refractive index Critical angle and TIR</p> | <p>Mechanics Moments Uniform acceleration Displacement time graphs Velocity time graphs Acceleration time graphs SUVAT equations</p> <p>Materials Density Hook's law Stress and strain The Young's modulus Stress- strain and force extension graphs</p> <p>Electricity Circuit diagrams Current and potential difference IV graphs Resistivity Determining the resistivity of a wire</p> | <p>Mechanics Acceleration due to gravity and terminal velocity Projectile Motion – horizontally and at an angle Newton's Laws Conservation of momentum Force, momentum and Impulse Work and power Conservation of energy</p> <p>Electricity EMF and internal resistance The potential divider Power and electrical energy Conservations of energy and charge in circuits</p> | Bespoke personalised revision plan for exams | <p>Astrophysics Units and quantities used in astrophysics Stellar Magnitudes Stars as black body radiators Stellar spectral classes The Hertzsprung Russell Diagram and stellar evolution Supernovae, neutron stars and black holes Lenses Optical telescopes Non optical telescopes Comparing telescopes The Doppler effect and red shift The Big Bang Theory Detection of Binary stars, quasars and exoplanets</p> |
| Year 13 Physics | <p>Gravitational Fields Newton's Law of Gravitation Gravitational field strength Gravitational potential Orbits of planets and satellites</p> <p>Further Mechanics Circular Motion Centripetal force and acceleration Simple Harmonic Motion SHM in a mass – spring system SHM in a simple pendulum Free and forced vibrations and resonance</p> | <p>Electric Fields Coulomb's Law Electric field strength Electric potential</p> <p>Capacitors Capacitance Energy stored in a capacitor Dielectrics Charging and discharging capacitors</p> <p>Thermal Physics Thermal energy transfer Gas Laws Ideal Gas Equation Kinetic Theory of Gases</p> | <p>Magnetic Fields Magnetic flux density Moving charges in a magnetic field</p> <p>Electromagnetic Induction Electromagnetic induction Magnetic flux and flux linkage Faraday's law and Lenz's law</p> <p>Nuclear Physics Rutherford Scattering Measuring nuclear radii Alpha, beta and gamma radiation Radioactive decay</p> | <p>Electromagnetic Induction Alternating current Transformers</p> <p>Nuclear Physics Nuclear instability Mass defect and binding energy Energy in nuclear fission and nuclear fusion reactions Thermal Nuclear Reactors</p> | Bespoke personalised revision plan for exams | Bespoke personalised revision plan for Exams |

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| <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Year 12 BTEC L3 Applied Science</p> | <p>Structure and Bonding Electronic structure of atoms Ionic bonding Covalent bonding Metallic bonding Intermolecular forces Balanced equations Quantitative chemistry Reacting quantities Percentage yield</p> <p>Uses of Substances and their properties</p> <p>The periodic table Physical properties of elements Chemical properties of elements Oxidation and reduction Uses and applications of substances</p> | <p>Cell structure and function Ultrastructure of cells Function of organelles Plant and animal cells Gram positive and negative bacteria Magnification</p> <p>Cell specialisation Epithelial tissue Endothelial tissue Muscular tissue Nervous tissue</p> <p>Waves in communication Features of waves Wave concepts Wave equations Application of stationary waves Musical instruments Calculating wave speed Fibre optics Electromagnetic waves</p> | <p>Titration and colorimetry pH meters and probes Using balances and weighing Using volumetric glassware Preparation of solutions Calculating concentrations Using colorimeters</p> <p>Chromatography Chromatography techniques Applications of chromatography Interpreting chromatograms</p> | <p>Personal development Personal responsibility Interpersonal skills Professional practice</p> <p>Calorimetry Thermometers Cooling curves</p> | <p>Preparation for examinations, revision and completion of coursework</p> | <p>Practical skills Planning a scientific investigation Selecting appropriate equipment Health and safety Variables Collecting data Analysing data Qualitative and quantitative data Processing data Drawing conclusions Evaluating data Evaluations</p> |
| <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Year 13 BTEC L3 Applied Science</p> | <p>Enzymes in action Protein structure Biological catalysts in reactions Factors affecting activity</p> <p>Diffusion of molecules Factors affecting activity rate of diffusion Arrangement of molecules Movement of molecules</p> <p>Plants and their environment Factors affecting growth Sampling techniques Sampling sizes</p> | <p>Energy contents of fuels Fuels Hazards with fuels Units of energy</p> <p>Electrical circuits Electrical symbols Equations Energy usage Calculating heat energy</p> | <p>Principles of inheritance Principles of classical genetics Mendel's law of inheritance Phenotypic ratios Punnett squares Genetic diagrams Chi squared tests Gene disorders Incomplete dominance Sex linkage</p> <p>Gene expression and protein synthesis Nucleic acids DNA replication mRNA, tRNA, sRNA and siRNA</p> | <p>DNA Technologies DNA extractions Gel electrophoresis DNA amplification Transformation of cells Uses of genetic engineering</p> <p>Gene expression and protein synthesis continued The genetic code Transcription Translation Mutations</p> | <p>Cell division Human chromosomes Formation of chromosomes Structure of chromosomes Cell cycle Mitosis Production of gametes Sex determination</p> <p>Preparation for examinations, revision and completion of coursework</p> | <p>Preparation for examinations, revision and completion of coursework</p> |