

	Biology	Chemistry	Physics
Y10 Half Term 1	Organisation & Blood Vessels Introduction to biology Required Practical 4 - amylase x 2 Cells tissues & organs The heart Blood vessels Non communicable diseases Blood Coronary heart disease x2 Coronary heart disease Health issues Lifestyle and non-communicable diseases	5.3.1 Chemical measurements, conservation of mass and the quantitative interpretation of chemical equations 5.3.1.1 Conservation of mass and balanced chemical equations 5.3.1.2 Relative formula mass 5.3.1.3 Mass changes when a reactant or product is a gas 5.3.1.4 Chemical measurements 5.2.2 How Bonding & Structure are Related to Properties of Substances 5.2.2.1 The three states of matter 5.2.2.2 State symbols 5.2.2.3 Ionic bonding & Compounds 5.2.2.4 Covalent bonding & properties of small molecules 5.2.2.5 Polymers 5.2.2.6 Giant covalent structures 5.2.2.7 Metallic bonding & properties of metals & alloys 5.2.2.8 Metals as conductors 5.2.3 Structure and Bonding of Carbon 5.2.3.1 Diamond 5.2.3.2 Graphite 5.2.3.3 Graphene & Fullerenes 5.5.1 Exothermic and endothermic reactions 5.5.1.1 Energy transfer during exothermic and endothermic reactions 5.5.1.2 Reaction profiles 5.5.1.3 The energy change of reactions Required practical 10: investigate the variables that affect temperature changes in reacting solutions	Energy Changes in energy stores Conservation of energy Energy and efficiency Gravitational potential energy and kinetic energy Energy transfer by heating/thermal conductivity/insulation of buildings Specific heat capacity Required practical 1 – determining the specific heat capacity of a metal
Y10 Half Term 2	Communicable diseases Lifestyle and non-communicable diseases Cancer Viral & Bacterial diseases Fungal & Protist diseases Human defence systems Immune system (x2)		Particle nature of matter Density of regular /irregular objects. Density of liquids Required practical 5 – calculating densities States of matter Changes of state – specific latent heat of vaporisation and fusion Gas pressure and temperature
Y10 Half Term 3	Defence mechanisms Vaccinations Antibiotics and painkillers Drug development	5.3.2 Use of amount of substance in relation to masses of pure substances	Atomic structure Discovery of radioactivity Atoms and radiation Alpha decay and beta decay

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	Plant tissue (leaf) Plant organs	5.3.2.1 Moles 5.3.2.2 Amounts of substances in equations 5.3.2.3 Using moles to balance equations 5.3.2.4 Limiting reactants 5.3.2.5 Concentration of solutions	Activity and half life Modelling radioactive decay using dice The discovery of the nucleus
Y10 Half Term 4	Bioenergetics Photosynthesis & uses of glucose Rates of photosynthesis Required practical 6 photosynthesis Aerobic and anaerobic respiration Responses to exercise Metabolism Homeostasis Homeostasis Overview & Negative feedback	5.4.2 Reactions of acids 5.4.2.1 Reactions of acids with metals 5.4.2.2 Neutralisation of acids and salt production 5.4.2.3 Soluble salts 5.4.2.4 The pH scale and neutralisation 5.4.2.6 Strong and weak acids (HT only) Required practical 8: preparation of a pure, dry sample of a soluble salt 5.4.3 Electrolysis 5.4.3.1 The process of electrolysis 5.4.3.2 Electrolysis of molten ionic compounds 5.4.3.3 Using electrolysis to extract metals 5.4.3.4 Electrolysis of aqueous solutions 5.4.3.5 Representation of reactions at electrodes as half equations Required practical 9: investigate what happens when aqueous solutions are electrolysed using inert electrodes.	Electricity Current and charge Potential difference Series and parallel circuit rules Resistance Ohms Law Required practical 3 – investigating the resistance of a wire and of resistors in series and parallel Thermistors and LDRs Required practical 4 - investigating the current P.d. characteristics of circuit components
Y10 Half Term 5	Homeostasis Structure & function nerves Required practical 7 – reaction times Human endocrine system Control of glucose concentration	5.6.1 Rate of reaction 5.6.1.1 Calculating rates of reactions 5.6.1.2 Factors which affect the rates of chemical reactions 5.6.1.3 Collision theory and activation energy 5.6.1.4 Catalysts	Electricity in the home Alternating current Electrical safety – fuses/earth wire/double insulation Wiring a plug Electrical power Calculating electrical power and energy
Y10 Half Term 6	Homeostasis Diabetes Diabetes (treatment) Hormones in reproduction Contraception Hormones to treat fertility	Required practical 11: investigate how changes in concentration affect the rates of reactions 5.6.2 Reversible reactions and dynamic equilibrium 5.6.2.1 Reversible reactions 5.6.2.2 Energy changes and reversible reactions 5.6.2.3 Equilibrium	Forces in action Work and energy Power Work, energy and power experiments

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		5.6.2.4 The effect of changing conditions on equilibrium 5.6.2.5 The effect of changing concentration 5.6.2.6 The effect of temperature changes 5.6.2.7 The effect of pressure changes 5.7.1 Carbon compounds as fuels and feedstock 5.7.1.1 Crude oil, hydrocarbons and alkanes 5.7.1.2 Fractional distillation and petrochemicals 5.7.1.3 Properties of hydrocarbons 5.7.1.4 Cracking and alkenes	
Y11 Half Term 1	Reproduction Sexual and asexual reproduction Meiosis (x2) Advantages/disadvantages DNA & the genome Genetic inheritance & Sex determination Inherited disorders (x2)	5.8.1 Purity, formulations and chromatography 5.8.1.1 Pure substances 5.8.1.2 Formulations 5.8.1.3 Chromatography Required practical 12: Paper chromatography 5.8.2 Identification of common gases 5.8.2.1 Test for hydrogen 5.8.2.2 Test for oxygen 5.8.2.3 Test for carbon dioxide 5.8.2.4 Test for chlorine	Motion Speed, velocity and acceleration Motion graphs Calculating the resultant of forces acting along the same line Calculating the resultant of perpendicular forces using a scale diagram Resolving forces into perpendicular components using a scale diagram Mass and weight
Y11 Half Term 2	Variation Variation Natural selection & resistance Evidence for evolution Fossils & Extinction Revision	5.9.1.1 The proportions of different gases in the atmosphere 5.9.1.2 The Earth's early atmosphere 5.9.1.3 How oxygen increased 5.9.1.4 How carbon dioxide decreased 5.9.2 Carbon dioxide and methane as greenhouse gases 5.9.2.1 Greenhouse gases 5.9.2.2 Human activities which contribute to an increase in greenhouse gases 5.9.2.3 Global climate change 5.9.2.4 The carbon footprint and its reduction	Hooke's Law Required practical 6 – investigating the relationship between force and extension of a spring Newtons laws Required practical 7 – investigating the relationship between force and acceleration Car stopping distances Terminal velocity Momentum
Y11 Half Term 3	Adaptation & Ecology Classification & evolutionary trees	5.9.3 Common atmospheric pollutants and their sources	Waves Transverse and longitudinal waves

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	Selective breeding Genetic engineering (x2) Communities Abiotic factors & Biotic factors Adaptations & Levels of organisation Required practical 9 – measuring size of populations	5.9.3.1 Atmospheric pollutants from fuels 5.9.3.2 Properties and effects of atmospheric pollutants 5.10.1 Using the Earth's resources and obtaining potable water 5.10.1.1 Using the Earth's resources and sustainable development 5.10.1.2 Potable water 5.10.1.3 Waste water treatment 5.10.1.4 Alternative methods of extracting metals 4.10.2.2 Ways of reducing the use of resources Required practical 13: analysis and purification of water samples 5.10.2 Life cycle assessment and recycling 5.10.2.1 Life cycle assessment 5.10.2.2 Ways of reducing the use of resources	Frequency, wavelength and amplitude. The wave equation Required practical 8 – measuring the speed, frequency and wavelength of waves in a ripple tank and in a stretched string The electromagnetic spectrum Sources, uses and dangers of electromagnetic waves
Y11 Half Term 4	Biodiversity How materials are cycles Biodiversity Waste management Land use & Deforestation Global warming Maintaining biodiversity		Magnetism and electromagnetism Magnetic fields Observing magnetic fields using iron filings and plotting compasses. The magnetic field around a current carrying conductor Electromagnets and their uses The motor effect and Fleming's left-hand rule Calculating and investigating the force on a current carrying conductor in a magnetic field. Electric motors
Y11 Half Term 5	Revision	Preparation for final exam Consolidation of required practicals Approaches to extended response questions	Revision