Kings College Science Department: Curriculum Overview 2026-27

Curriculum Intent:

Students studying science at Kings College Guildford work through a broad curriculum designed support students' acquisition of substantive and disciplinary knowledge. Students will be challenged by the curriculum material, but will be supported in achieving excellent outcomes through adaptive and responsive teaching. The science curriculum at Kings College is split into KS3 and KS4. KS3 is taught across years 7, 8 and 9 and KS4 is taught across years 10 and 11.

In years 7 and 8, students study science working through 11 themes that emphasis the links between different scientific fields. Each theme is composed of 15 lessons split into three 5 lesson topics, with the students across the year group working through a rotation of these topics. In year 7, the themes will build upon their primary education learning and will be introduced to concepts the form the foundation of the science curriculum going forward. In year 8, students will further develop the ideas encountered in year 7 within a variety of contexts. In year 9 there is an explicit shift to teaching science as the separate disciplines of biology, chemistry and physics. Students will return to and expand upon ideas encountered in years 7 and 8 within this new context. Year 9 students will also be introduced to some of the foundational ideas that they will encounter in their further studies at KS4.

Climate change and sustainability are the biggest scientific challenges that this generation of students are likely to face. Therefore, themes centred on these topics are incorporated into year 7, 8 and 9, and also feature prominently at KS4.

In years 10 and 11, students will begin studying GCSE science. Most students at Kings College will study AQA Combined Science: Trilogy, though increasing numbers are taking AQA separate science GCSEs. The department teaches the curriculum in an order designed to introduce ideas to students in the most effective way to develop their knowledge and skills.

Throughout their time at Kings College, students will undertake practical work that is purposeful and moves learning forwards, as well as providing context to scientific ideas and sparking their curiosity and interest. At KS4, these practicals include, but are not limited to, required practicals specified by the exam board. Students will develop practical lab skills in addition to the examinable content related to these practicals, so that those who go on to pursue science subjects after GCSEs will be properly equipped to do so.

Year 7	Term 1		Term 2		Term 3			End points
	Transition	**Structure & scale**	**Particles & properties**	**Cycles**	**Organisation**	**Resources**	**Welcome to My Planet**	
	3 Lessons	**18 lessons**	**18 Lessons**	**15 lessons**	**18 lessons**	**15 Lessons**	**9 Lessons**	
Theme		Big things are made of smaller things	Why materials behave the way they do	Patterns that repeat	How scientists group things together	The Earth provides everything we need	Speculative science in literature, film and art	
Content	The Science Lab The Bunsen Burner Chemical Hazards	<u>Particle Theory:</u> 1. Solids, liquids & gases & Changes of states 2. Solutions 3. Diffusion 4. Conservation of Mass 5. Pressure 6. Writing Extended Descriptions <u>Cells, organs, organ systems:</u> 1. Cells 2. Types of animal cell 3. Major animal organs 4. Types of plant cell 5. Plant organs 6. Unit Conversions <u>Earth and the solar system:</u> 1. Structure of the Earth 2. The Solar System 3. Inner planets 4. Outer planets 5. The Milky Way and beyond 6. Data Analysis: Bar Charts & Tables	<u>Properties:</u> 1. Investigating properties 2. Boiling & melting points 3. Density 4. Conductivity 5. Uses of Materials 6. Data analysis 2 <u>Pure and impure substances:</u> 1. Pure and impure 2. Cooling curves 3. Filtration & crystallisation 4. Distillation - using boiling points 5. Chromatography 6. Writing a method <u>Oxygen and the human body:</u> 1. Breathing and the lungs 2. The alveoli & gas exchange 3. The circulatory system 4. Effects of exercise 5. Effects of smoking 6. Writing extended descriptions 2	<u>Human reproduction:</u> 1. Life cycles & reproduction 2. Menstrual cycle 3. Fertilisation 4. Development of the foetus 5. Birth and growing up <u>Rocks and the rock cycle:</u> 1. Types of rock 2. Volcanoes 3. Weathering and erosion 4. Metamorphism 5. The rock cycle <u>Earth, Moon & Sun system:</u> 1. Day and night 2. Years and seasons 3. Phases of the Moon 4. Tides 5. Eclipses	<u>Classification of Living Things:</u> 1. Species 2. Vertebrates & invertebrates 3. Carnivore, herbivores, omnivores 4. Plants 5. Microorganisms 6. Data Analysis 3 <u>Types of energy store:</u> 1. Energy stores 2. Kinetic energy 3. Gravitational potential energy 4. Elastic potential energy 5. Thermal energy 6. Error & Accuracy <u>Classification of chemicals:</u> 1. Risk assessments 1 2. Metals and non-metals 3. Acids and bases 4. Elements, compounds & mixtures 5. Groups on the Periodic Table 6. Polymers, ceramics & composites	<u>Earth's Atmosphere</u> 1. What is the atmosphere? 2. The Water Cycle 3. The Nitrogen Cycle 4. The Carbon Cycle 5. The Greenhouse Effect <u>Ecosystems:</u> 1. Habitats 2. Competition 3. Food chains 4. Food webs 5. Pollination and crops <u>Energy resources:</u> 1. Changing Energy Resources 2. Fossil fuels 3. Biofuels 4. Wind and solar 5. Nuclear	<u>Part 1</u> 1.Why astronauts need to be super-fit 2.How to survive in space 3.Why we haven't found life on Mars <u>Part 2</u> 1. Designing a planet 2. The biosphere 3. Interdependence 4. Exploration 5. Story writing 6. Review	<u>Substantive Knowledge:</u> Students… • Can use the Particle Model to describe solids, liquids and gases, changes of state and diffusion. • Can describe cells, tissues and organs in humans and in plants. • Can state the 8 energy stores and can describe different energy resources. • Know that celestial objects are held in orbit by gravity and that objects of greater mass have higher gravity. • Can categorise organisms by according to anatomy, taxonomic relationship and diet. • Can describe energy resources as either renewable or non-renewable. <u>Disciplinary knowledge:</u> Students… • Can write a method for a simple practical. • Can use data in tables and can draw bar charts. • Can plot data on a line graph with pre-drawn axes. • Can identify common lab hazards and suggest simple counter measures. • Can identify variables in the context of a practical and describe them as independent, dependent or control variables.
Direct Vocab Instruction	Hazard, property, metamorphosis, orbit	Particle, dissolve, concentration, mass, pressure, cell, specialise, function, mineral, organism, structure, system, satellite, light-year	Material, property, substance, volume, conduct, ductile, malleable, pure, range, distil, component, respire, exchange, circulate, rate, addictive	Menstruate, fertilise, foetal, contraction, mineral, sediment, erupt, subduction, axis, luminous, lunar, eclipse.	Trait, species, vertebrate, devour, deciduous, microorganism, transfer, velocity, variable, deform, classify, conduct, indicate, bond, react.	Atmosphere, potable, adapt, produce, consume, predator, prey, pollination, finite, renewable, fossil, fuel, decay	Antagonise, respiration, aerobic, exoplanet, speculate, interdependence, plausible,	

Year 8	Term 1		Term 2		Term 3	End points
	Action & reaction	**Energy**	**Discoveries that changed the world**	**Sustainability**	**Sustainability**	
	18 Lessons	**18 Lessons**	**16 Lessons**	**15 Lessons**	**15 Lessons**	
Theme	How do things change?	What makes things work?	Discoveries that changed the world	How do humans impact the world?	How do humans impact the world?	
Content	<u>Forces:</u> 1. Types of forces 2. Weight, lift & upthrust 3. Thrust & friction 4. Air resistance 5. Travelling in Space 6. Making & Testing Predictions <u>Chemical reactions:</u> 1. Simple reactions 2. Neutralisation 3. Thermal decomposition 4. Combustion 5. Displacement 6. Risk assessment 2: equipment hazards <u>Inheritance, adaptation & natural selection:</u> 1. The Scientific Method 2. Inheritance & selective breeding 3. Variation 4. Adaptation 5. Natural selection 6. Evolution: fossil evidence	<u>Energy transfers:</u> 1. Types of energy transfer 2. Energy efficiency 3. Conduction 4. Convection 5. Radiation 6. Data analysis 4 <u>Energy changes during reactions:</u> 1. Measuring temperature changes 2. Exothermic or endothermic? 3. Using exothermic reactions 4. Using endothermic reactions 5. Reversible reactions 6. Improving investigation methods <u>Photosynthesis & respiration:</u> 1. Photosynthesis & chloroplasts 2. Factors affecting photosynthesis 3. Aerobic respiration & mitochondria 4. Exercise 5. Anaerobic respiration 6. Data plotting & calculating means	<u>DNA:</u> 1. Discovering DNA 2. The structure of DNA 3. Cell division 4. Gametes & reproduction 5. Genetics <u>The atom:</u> 1. Discovering the Periodic Table 2. Developing the atomic model 3. The structure of the atom 4. Molecules 5. Compounds <u>Electricity:</u> 1. Risk assessments 3: electrical hazards 2. How electricity changed the world 3. Circuits & electrical components 4. Current & resistance 5. Parallel v. Series circuits 6. Energy transfers in a circuit	<u>Global warming</u> 1. History of Earth's Climate 2. Global warming 3. Effects of global warming 4. Carbon footprints 5. Reducing carbon emissions <u>Impact on biodiversity</u> 1. What is biodiversity 2. Deforestation 3. Over-fishing 4. Agriculture & pesticides 5. Conservation & seed banks <u>Generating electricity</u> 1. Power stations 2. The National Grid 3. Large scale renewables 4. Small scale renewables 5. Insulating homes	<u>Global warming</u> 6. History of Earth's Climate 7. Global warming 8. Effects of global warming 9. Carbon footprints 10. Reducing carbon emissions <u>Impact on biodiversity</u> 6. What is biodiversity 7. Deforestation 8. Over-fishing 9. Agriculture & pesticides 10. Conservation & seed banks <u>Generating electricity</u> 6. Power stations 7. The National Grid 8. Large scale renewables 9. Small scale renewables 10. Insulating homes	<u>Substantive Knowledge:</u> Students… • Can describe substances as elements, compounds or mixtures. • Can describe simple chemical reactions using word equations. • Can explain in simple terms how the eye, the ear and the nervous system works. • Can describe simple transfers of energy seen in heating, electric currents and chemical reactions. • Can describe common forces and understand how balanced and unbalanced forces affect motion. • Can describe the structure of DNA and explain, in simple terms, its role in inheritance. • Can explain why biodiversity is important and describe ways that humans negatively affect biodiversity. • Understand that global warming is caused by the release of greenhouse gases and can describe renewable ways of generating power. <u>Disciplinary Knowledge:</u> Students… • Can evaluate a method and suggest improvements. • Can plot data on a line graph and draw a line of best fit. • Can calculate mean values unaided. • Can describe simple trends shown on a line graph. • Can identify hazards specific to particular pieces of lab equipment and can suggest counter measures. • Can make sensible predictions and can suggest ways to test these predictions.
Direct Vocab Instruction	Force, weight, friction, vacuum, reactant, neutral, thermal, decompose, combust, displace, inherit,	Transfer, dissipate, conduction, convection, radiation, infrared, reaction, reversible, chloroplast,	Hybrid, genetic, division, power, conduct, resist	Climate, effect, estimate, emission, diverse, deforest, keystone, agriculture, conservation, turbine,	Climate, effect, estimate, emission, diverse, deforest, keystone, agriculture, conservation, turbine,	

	hereditary, variation, adaptation, fossil	affect, respiration, exercise, anaerobic		transform, renewable, insulate.	transform, renewable, insulate.		

Year 9 Biology	Term 1		Term 2		Term 3		End points
	Cells Tissues and Organs	**Human Anatomy**	**Human Health**	**Genetics & Inheritance**	**Ecology**	**Introducing GCSE Biology: B1 Looking at Cells**	
	5 lessons	**5 lessons**	**5 lessons**	**5 lessons**	**5 lessons**	**5 Lessons**	
Content	1. Specialised cells 2. Animal tissues, organs, organs systems 3. Plant tissues, organs, organ systems 4. Stem cells and differentiation 5. Stem cell research	1. The heart & circulatory system 2. The lungs & gas exchange 3. The digestive system 4. Muscular skeletal system 5. Reproductive systems	1. Disease 2. Hygiene 3. Vaccines 4. Exercise & Fitness 5. Smoking and drugs	1. Mitosis & asexual reproduction 2. Meiosis & gametes 3. DNA and Genes 4. Family trees 5. Environmental vs Genetic variation	1. Communities 2. Intraspecies competition 3. Interspecies competition 4. Factors affecting population growth 5. Sampling techniques	1. Types of cells 2. Cells and Tissues 3. Microscopes 4. Microscopy Required Practical 5. Microscopy Review	<u>Substantive Knowledge:</u> Students… • Can state the function of specialised cells and describe their roles in human organ systems. • Can explain how organ systems are affected by positive and negative health effects. • Can describe mitosis and meiosis. • Can explain how genetic information is inherited. <u>Disciplinary Knowledge:</u> Students… • Can plan methods that give valid results. • Can construct axes with appropriate scales when plotting line graphs. • Can identify anomalous data points. • Can describe changes in trends shown in line graphs. • Understand the importance of repeatability and reproducibility of investigations.
Feedback Points	Specialised cells	November exam	Hygiene	DNA & Genes	End of Year Exam	Lesson 5	
Direct Vocab Instruction	Specialise, function, mineral, differentiate, evaluate	Circulate, ventilate, digest, antagonistic, reproduce,	Pathogen, contagious, exercise, diffuse, immune	Mitosis, haploid, genome, inherit, dominant	Biodiversity, natural selection, inter-, intra-, population,	Microscope	

Year 9 Chemistry	Term 1		Term 2		Term 3		End points
	Atoms, elements & compounds	**Reducing the carbon footprint**	**Trends on the Periodic Table**	**Reactions of Acids**	**Energetics**	**Introducing GCSE Chemistry: C1 Observing Reactions**	
	5 lessons	**5 lessons**	**5 lessons**	**5 lessons**	**5 lessons**	**5 lessons**	
Content	1. Atomic structure 2. Elements & compounds 3. Electronic structure 4. Atoms & the Periodic Table 5. Covalent bonds and molecules	1. Effects of global warming 2. Calculating carbon footprints 3. Reduce, reuse, recycle 4. Life cycle assessments 5. Evaluating products	1. Ions and ionic charge 2. Alkali metals 3. Halogens 4. Noble Gases 5. Boiling/melting points	1. Acids with metals 2. Making salts from metal oxides 3. Neutralisation reactions 4. Metal displacement 5. Extracting iron	1. Exothermic/ endothermic 2. Investigating temp changes 3. Calculating energy transfer 4. Energy change diagrams 5. Reversible reactions	1. Chemical Reactions 2. Gas tests 3. Exothermic & Endothermic Reactions 4. Temperature Change Required Prac 5. Temperature Change Review	<u>Substantive Knowledge:</u> Students… • Can describe the structure of the atom. • Understand that atomic structure determines how chemicals react. • Can describe energy changes in chemical reactions. • Can calculate a simple carbon footprint and suggest ways to reduce it. <u>Disciplinary Knowledge:</u> Students… • Can plan methods that give valid results. • Can construct axes with appropriate scales when plotting line graphs. • Can identify anomalous data points. • Can describe changes in trends shown in line graphs. • Understand the importance of repeatability and
Feedback Points	Electronic structure	November exam	Alkali metals	Acids with hydroxides	End of Year Exam	Lesson 5	
Direct Vocab Instruction	Atom, bond, electron, property, molecule	Scarcity, estimate, recycle, assess, environment	Ion, trend, halogen, inert, melting point.	Acid, base, neutralise, displace, extract.	Thermal, estimate, enthalpy, profile, activation.	Exothermic, endothermic	

							reproducibility of investigations.

Year 9 Physics	Term 1		Term 2		Term 3		End Points
	Waves	**Forces**	**Electric fields**	**Particle Model**	**Our place in the Universe**	**Introducing GCSE Physics: P1 Physical Properties**	
	5 lessons	**5 lessons**	**5 lessons**	**5 lessons**	**5 lessons**	**5 Lessons**	
Content	1. Waves in water 2. Sound waves 3. Light waves 4. Reflection 5. Refraction	1. Newton's Laws of Motion 2. Distance-time graphs 3. Acceleration 4. Deceleration 5. Stopping distance	1. Charge, currents & circuits 2. Current v potential difference 3. Resistance 4. Magnetism 5. Electromagnetism	1. Developing the atomic model 2. Forces between particles 3. Diffusion 4. Gas pressure 5. Hydraulic pressure	1. The Solar System 2. The speed of light 3. Doppler effect and red shift 4. The Big Bang Theory 5. Life cycle of a star	1. Mass & Density 2. Measuring Density Required Prac 1 3. Measuring Density Required Prac 2 4. Measuring Denisty Review 5. Changes of State	<u>Substantive Knowledge:</u> Students… • Can describe the properties of waves and explain the difference between longitudinal and transvers waves, using sound and light as examples. • Can describe the relationship between current and potential difference in circuits. • Can describe changes in the motion of objects and explain why these changes occur in terms of Newton's Laws of Motion. <u>Disciplinary Knowledge:</u> Students… • Can plan methods that give valid results. • Can construct axes with appropriate scales when plotting line graphs. • Can identify anomalous data points. • Can describe changes in trends shown in line graphs. • Understand the importance of repeatability and reproducibility of investigations.
Feedback Points	Angle of refraction	November exam	Current v potential difference	Diffusion	Doppler effect & red shift	Lesson 4	
Direct Vocab Instruction	Oscillate, medium, perpendicular, virtual, incidence	Velocity, accelerate, decelerate, brake.	Component, current, resistance, compass, induce.	Model, intermolecular, concentration, pressure, hydraulic	System, lightyear, frequency, fusion.	Mass, denisty	

GCSE Biology	Y10 Term 1	Y10 Term 2	Y10 Term 3	Y11 Term 1	Y11 Term 2	Y11 Term 3
	B2 Organisation in Humans **B3 Disease**	**B4 Cell division** **B5 Digestion**	**B6 Plants**	**B7 Ecology** **B8 Inheritance & Evolution**	**B9 Homeostasis**	**Revision and exam preparation**
	16 lessons	**13 lessons**	**9 lessons**	**18 lessons**	**14 lessons**	
Content	**B2 Organisation in Humans** 1. Metabolism 2. Aerobic Respiration 3. Anaerobic respiration 4. Blood 5. Blood & blood vessels 6. The Heart 7. Lungs & Gas Exchange 8. The body's response to exercise **B3 Disease** 1. Health & Disease 2. Non-communicable diseases 3. Pathogens & communicable diseases 4. Bacterial Growth & Antibiotics RP 1(set 1 only) 5. Bacterial Growth & Antibiotics RP 2(set 1 only) 6. The Immune System 7. Vaccines 8. Monoclonal Antibodies	**B4 Digestion** 1. Nutrient types 2. Food Tests Required Prac 3. Human Digestive system and Enzymes 4. Enzymes 5. Enzymes Required Practical 1 6. Enzymes required Practical 2 7. Villi **B5 Cell division** 1. DNA & Chromosomes 2. Mitosis and the cell cycle 3. Differentiation 4. Stem cells in humans 5. Stem cell therapy 6. Stem cells in plants	**B6 Plants** 1. Plant cells, tissues & organs 2. Photosynthesis 3. Limiting Factors (sets 1 & 2 only) 4. Photosynthesis Required Practical 5. Osmosis Required Practical 1 6. Osmosis Required Practical 2 7. Transpiration 8. Active Transport 9. Plant diseases & defenses	**B7 Ecology** 1. Species and Classification 2. Populations & Communities 3. Sampling techniques Required Prac 4. Sampling analysis 5. Feeding relationships 4. Materials cycling 6. Decomposition RP (set 1 only) 7. Biodiversity 8. Threats to biodiversity 9. Food Security **B8 Inheritance & evolution** 1. History of genetics (set 1 only) 2. Phenotypes & Genotypes 3. Meiosis 4. Inheritance & Inherited disorders 5. Competition & Adaptation 6. Natural selection 7. Evidence for Evolution 8. Selective Breeding 9.Genetic Engineering & Cloning	**B9 Homeostasis** 1. The nervous system 2. Reflex actions Required practical 3. The human eye (set 1 only) 4. The human brain (set 1 only) 5. The endocrine system 6. Controlling blood sugar 7. Diabetes 8. The kidneys (set 1 only) 9. Controlling body temperature (set 1 only) 10. Reproductive hormones 11. Contraception 12. Fertility treatments 13. Plant hormones RP 1 (set 1 only) 14. Plant hormones RP 2 (set 1 only)	Bespoke revision and exam preparation
Required Practicals	Microscopy Antibiotics (triple only)	Food tests Enzymes	Photosynthesis Osmosis	Field investigations	Reaction Time	
Direct Vocab Instruction	Eukaryotic, prokaryotic, tissue, component, metabolism, aerobic, anaerobic,	Pathogen, contagious, viral, immunity, cellular, synthesise, tuber, membrane, semi-	Differentiate, ethical, nutrients, enzymes	Variation, adaptation, predator, prey, peat, biodiversity, inherit, evolve, ethics	Secrete, hormone, menstruate, ovulate, fertile, optimal, stimulus, reflex	

		permeable, homologous				

GCSE Chemistry	Y10 Term 1	Y10 Term 2	Y10 Term 3	Y11 Term 1	Y11 Term 2	Y11 Term 3
	C2 Matter C3 Non-metals	**C4 Solutions C5 Metals**	**C6 Ionic compounds C7 Rates of Reaction**	**C8 Fuels C9 Chemical Analysis**	**Atmosphere Using Resources**	**Revision & exam prep**
	14 lessons	**15 lessons**	**11 lessons**	**15 lessons**	**12 lessons**	
Content	**<u>C2 Matter</u>** 1. Development of the Periodic Table 2. Atoms & Electronic Structure 3. Isotopes 4. Properties of Elements 5. Compounds & Mixtures 6. Relative Formula Mass 7. Separating Techniques 1 8. Separating Techniques 2 **<u>C3 Non-metals</u>** 1. Covalent bonding 2. Simple molecules 3. Bond Energies 4. intermolecular Forces 5. Giant Covalent Structures 6. Nanoparticles (set 1 only)	**<u>C4 Solutions</u>** 1. The Mole 2. Concentrations 3. pH & Neutralisation 4. Strong & Weak Acids 5. Neutralisation Required Practical 1 (Set 1 only) 6. Neutralisation RP 2 (Set 1 only) 7. Neutralisation RP 3 (Set 1 only) 8. Limiting reagents **<u>C5 Metals</u>** 1. Metallic bonding & Alloys 2. Metals & Acids 3. Making a Salt Required Prac 1 4. Making a Salt Required Prac 2 5. Reactivity Series & Displacement 6. Extraction of metals 7. Percentage mass, yield & atom economy (set 1 only)	**<u>C6 Ionic Compounds</u>** 1. Ionic bonding 2. Properties of ionic compounds 3. Electrolysis 4. Electrolysing solutions Required Practical 5. Extraction of Aluminium 6. Comparing different bonding structures 7. Chemical cells & Fuel cells (set 1 only) **<u>C7 Rates of Reaction</u>** 1. Rate of reaction 2. Calculating rates & collision theory 3. Investigating rate of reaction 4. Reversible reactions & Dynamic equilibrium	**<u>C8 fuels</u>** 1. Crude oil & Fractional distillation 2. Alkanes 3. Burning hydrocarbons 4. Cracking & alkenes 5. Reactions of alkenes (set 1 only) 6. Alcohols (set 1 only) 7. Carboxylic acids & esters (set 1 only) 8. Polymers 9. Polymerisation reactions (set 1 only). **<u>C9 Analysis</u>** 1. Purity, formulations & gas tests 2. Chromatography Required prac 3. Rf Values 4. Tests for positive & negative ions (set 1 only) 5. Identifying unknown compounds required Practical (set 1 only) 6. Instrumental analysis (set 1 only)	**<u>C10 Atmosphere</u>** 1. History of Earth's atmosphere 2. Greenhouse Effect 3. Effects of Climate Change 4. Atmospheric pollutants **<u>Earth's resources</u>** 1. Potable water 2. Water Purification Required prac 3. Treating waste water 4. Phytomining & bioleaching (sets 1 & 2 only) 5. Three Rs & LCAs 6. Rusting (set 1 only) 7. Glass, Ceramics & Composites (set 1 only) 8. The Haber Process & Fertilisers	Bespoke revision and exam preparation
Required practicals		Neutralisation (set 1 only) Making salts	Electrolysis of solutions Rate of reactions	Chromatography Identifying unknown compounds	Water purification	
Direct Vocab Instruction	Thermal, estimate, enthalpy, balance, property, electrostatic, aqueous, ionic	covalent, delocalised, concentration, neutralise, dissociate, reactivity,	Electrolyte, brine, solution	Interval, collision, dynamic, equilibrium, fractional, viscous, combustion,	Atmosphere, greenhouse gas, pollutant, finite, renewable, potable, phytomining,	

		extract		saturated, formulation, solubility,	bioleaching, assess	
GCSE Physics	**Y10 Term 1**	**Y10 Term 2**	**Y10 Term 3**	**Y11 Term 1**	**Y11 Term 2**	**Y11 Term 3**
	P2 Particles & energy **P3 The Atom**	**P4 Energy transfers** **P5 Circuits, current and potential difference**	**P6 Powering the home**	**P7 Forces** **P8 Motion**	**P9 Waves** **P10 electromagnetism** **P11 Space (set 1 only)**	**Revision & exam prep**
	16 lessons	**14 lessons**	**6 lessons**	**18 lessons**	**16 lessons**	
Content	**P2 Particles & Energy** 1. Internal energy and changes of state 2. Specific latent heat 3. Specific heat capacity 4. SHC required prac 5. Conduction of Heat 6. Thermal insulation Require prac (set 1 only) 7. Gas pressure & volume **P3 The Atom** 1. Development of the atomic model 2. Isotopes 3. Radioactive decay 4. Types of nuclear radiation 5. Half-lives 6. Nuclear fission (set 1 only) 7. Nuclear power (set 1 only) 8. Irradiation vs Contamination (set 1 only) 9. Fusion (set 1 only)	**P4 Energy transfers** 1. Energy stores & transfers 2. KE & GPE – Pendulums 3. Elastic Potential 4. Efficiency 5. Global Energy Resources 6. The National Grid 7. Power=work/time **P5 Circuits, current & potential difference** 1. Electrical charge, p.d. & Current 2. Potential difference in series & parallel 3. Resistance 4. I-V Characteristics Required prac 5. Resistance of a Wire Required Prac 6. Resistors in series & parallel Required Prac 7. Static electricity & electric fields	**P6 Powering the home** 1. Electrical power 2. Direct and alternating potential difference 3. Mains electricity & the plug 4. Earthing 5. Power of appliances 6. Efficiency of everyday appliances	**P7 Forces** 1. Vectors & scalars 2. Contact & nn-contact forces 3. Resultant forces 4. Moments (set 1 only) 5. Gravity and weight 6. Elasticity Required Prac 7. Centre of Mass 8. Parallelogram of forces **P8 Motion** 1. Speed, distance & time 2. Velocity & acceleration Required prac 1 3. Velocity & acceleration Required prac 1 4. Terminal velocity 5. Forces, braking & stopping distance 6. Momentum 7. Collisions & Safety (set 1 only) 8. Pressure & surfaces (set 1 only) 9. Pressure in liquids (set 1 only) 10. Atmospheric pressure (set 1 only)	**P9 Waves** 1. Properties of waves required prac 1 2. Properties of waves required prac 12 3. Reflection 4. Refraction 5. Sound waves & Seismic waves (set 1 only) 6. E-M Spectrum 7. IR absorption & emission Required prac 8. Lenses (set 1 only) **P10 Electromagnetism** 1. Magnetic fields 2. Magnetic fields & electric currents 3. The Motor Effect 4. Transformers (set 1 only) **P11 Space (set 1 only)** 1. Formation of the Solar system 2. Life Cycle of a Star 3. Orbits 4. Big Bang & Expansion of the Universe	Bespoke revision and exam preparation
Required Practicals	Specific heat capacity Thermal insulation (set 1 only)	I-V Characteristics Resistance of a wire Resistors in series & parallel		Force and extension Acceleration	Waves Radiation and absorption	
Direct Vocab Instruction	Density, internal, fusion, capacity, subatomic, isotope, radioactive, half-life,	Contaminate, transfer, conserve, variable, deform, efficient, dissipate, finite, potential, resistance,	Earthing, series, alternate	Magnitude, displacement, mass, resultant, parallelogram, accelerate, velocity, compare, terminal, brake, momentum,	Deformation, oscillate, perpendicular, frequency, refract, spectrum, emission, polar, induce, electromagnet	