Time	Autumn Term			Spring Term			Summer Term		
Subject	Physics	Chemistry	Biology	Physics	Chemistry	Biology	Physics	Chemistry	Biology
Topics	Speed, gravity, energy costs and transfer	Particle model, separating mixtures	Cells and movement	Structure and the universe	Acids and alkalis	Balanced diet, digestion, plant tissues, interdependence and ecosystems	Sound, light, circuits, electricity and electrostatic fields	Metals and non-metals	Variation and human reproduction
Working scientifically	Investigating craters, calculating speed, investigating friciton	Cooling curves, filtration, crystallisation, chromatography,	Microscopes, dissecting a chicken wing	Models of the solar system, observing the size of crystals under the microscope	Universal indicator, making an indicator, litmus paper, exploring neutralisation	Energy in food, enzymes in food, seed dispersal, photosynthesis investigation, modelling food chains	Series and parallel circuits, van der graaf, properties of waves	Reacting metals with oxygen, reacting metals with acids, combustion	Variation data analysis and collection . Validity and reliability in research on factors affecting a developing foetus.
Key vocabulary	Force, energy, newtons, joules, gravity, speed, distance, time, balanced and unbalanced forces, mass, weight	Solid, liquid, gas, evaporation, filtration, crystallisation, distillation, mixture, diffusion, impure and pure substances, chromatography	Animal cell, plant cell, specialised cells, organs, tissues, antagonistic muscles, skeletal system, joints, ligaments	Earth, crust, mantle, core, igneous, sedimentary, metamorphic, lava, magma, rock cycle, space, moon, sun, planets, comets, asteroids, day, night, eclipse	Acids, alkalis, pH scale, litmus paper, universal indicator, hazard, risk, corrosive	Protein, lipids, carbohydrates, enzymes, stomach, mouth, chemical and physical digestion, photosynthesis, chloroplast, food chains, toxins, producer, consumer, decomposition	Transverse, longitudinal, wavelength, peak, trough, reflection, refraction, series, parallel, ammeter, voltmeter, current, voltage	Metals, non-metals, shiny, malleable, ductile, melting point, boiling point, conductivity, complete combustion, incomplete combustion, rusting, oxidation,	Species, variation, inheritance, environmental, biodiversity, fertilisation, reproduction, sperm, testes, egg, ovaries, hormones, foetus, embryo, birth
Numeracy	Calculating speed, distance time graphs, calculating gravity	Calculating RF value, measurements, cooling curve graphs	Size of cells, measurements,	Calculating the time of day on different planets, using different scales to compare size	Using the pH scale, writing word equations,	Graphs and tables, drawing and analysing food chains	Finding the current and voltage, measuring wavelength	Writing word equations, taking measurements, table and graph skills	Table and graph skills,
Assessment	End of topic tes (AO1,2 and 3)t Literacy task	End of topic test (AO1, 2 and 3) Literacy task	End of topic test (AO1, 2 and 3) Literacy task	End of topic test (AO1, 2 and 3) Literacy task	End of topic test (AO1, 2 and 3) Literacy task	End of topic test (AO 1, 2 and 3) Literacy task	End of topic test (AO1, 2 and 3) Literacy task	End of topic test (AO1, 2 and 3) Literacy task	End of topic test (AO1, 2 and 3) Literacy task

Time	Autumn Term			Spring Term			Summer Term		
Subject	Physics	Chemistry	Biology	Physics	Chemistry	Biology	Physics	Chemistry	Biology
Topics	Forces	Matter Reactions	Organisms	Electromagnets Energy	Earth's climate	Ecosystems Organisms	Waves	Earth's resources	Genes and inheritance Organisms (review)
Working scientifically	Hooke's law Motion	Exothermic reactions Endothermic reaction	Aerobic respiration and exercise	Investigating electromagnets Investigating the strength of electromagnets. Plotting magnetic fields.	Communicating the effects of global warming and our impact on the carbon cycle Greenhouse effect visual demonstration	Modelling the digestive system with visking tubing Exploring the effects of enzyme action	Laws of reflection and refraction. Exploring the use of "pinhole cameras"	Extracting metals from their ores Investigating reactivity	Modelling DNA extraction methods Field investigations for biodiversity
Key vocabulary	Equilibrium Fluid Streamlined Compression Tension Deformation Pressure Linear	Group Period Atomic number Alkali metals Halogens Exothermic Endothermic Catalyst Oxidation	Trachea Bronchi Hypothesis Alveoli Variable Diaphragm Asthma	Pole Attract Repel Compass Electromagnet Circuit breaker Armature Solenoid	Carbon cycl Combustion Carbon sink Minerals Fossil fuel Photosynthesis Greenhouse effect Global warming	Respiration Aerobic Anaerobic Lactic acid Glycogen Fermentation Mitochondria Digestion Balanced diet Unbalanced diet	Medium Frequency Hertz Wavelength Longitudinal Transverse Amplitude Superposition	Renewable Non renewable Sustainable Recycling Downcycle Extraction Electrolysis	Extinction Gene Genome DNA Chromosomes Double helix Gametes Karyotype Mutation Trisomy Biodiversity
Numeracy	Calculating pressure Linear relationships	Reaction profiles Bond energies Standard form	Calculating breathing rate Lung volume	Investigating strength of electromagnets Discrete and continuous variables	Analysing historical climate data. Extrapolating data	Calculating rate of photosynthesis Investigating fermentation	Comparing longitudinal and transverse waves Comparing sound frequencies	Data analysis for Earth's resources	Analysing extinction data Modelling inheritance
Assessment	End of topic test (AO1, 2 and 3) Literacy task	End of topic test (AO1, 2 and 3) Literacy task	End of topic test (AO1, 2 and 3) Literacy task	End of topic test (AO1, 2 and 3) Literacy task	End of topic test (AO1, 2 and 3) Literacy task	End of topic test (AO1, 2 and 3) Literacy task	End of topic test (AO1, 2 and 3) Literacy task	End of topic test (AO1, 2 and 3) Literacy task End of year assessment	End of topic test (AO1, 2 and 3) Literacy task End of year assessment

Time	Autumn Term			Spring Term			Summer Term	
Subject	Physics	Chemistry	Biology	Physics	Chemistry	Biology	Physics	Biology
Topics	Energy stores and transfers, Particles and density	Atomic structure and periodic table	Cells and transport	Energy (Circuits)	Chemical analysis and separating mixtures	Organisation	Waves	Photosynthesis Ecology
Working scientifically	Investigating energy stores Investigating energy transfers	Exploring the reactions of group 1 metals Analysing and comparing melting point data	Microscopy Calculating magnification	Series circuits Parallel circuits	Chromatography Evaporation Filtration Crystallisation Distillation Gas tests Separating mixtures	Enzymes Food tests	Investigating wave speed. Measuring the speed of sound in air. Investigating reflection and refraction of light.	Investigating the effect of light intensity on photosynthesis. Investigating the role of leaves in photosynthesis.
Key vocabulary	Elastic, inelastic, plastic, potential, energy, specific, capacity, energy store, energy transfer, energy system, internal energy, density, volume	Proton Neutron Electron Atomic number Atomic mass Nucleus Group Period Halogen Noble gas Alkali metal	Specialisation Differentiation Eukaryote Prokaryote Active transport	Series, parallel, circuit, potential difference, voltage, ohms, resistance, current, amperes	Filtration, filtrate, solvent, solute, solution, chromatography, solvent front, Rf value, reactivity, displacement, distillation	Optimum, denature, amino acids, lipids, proteins, enzyme, carbohydrate, glucose, lipase, protease, amylase, pH,	Wave Transverse Longitudinal Amplitude Wavelength Frequency Wave speed Trough Crest/peak	Photosynthesis Chlorophyll Chloroplast Glucose Oxygen Stomata Guard cells Limiting factor Respiration Transpiration
Numeracy	Graphing, Collecting data, mean average, accuracy, using and rearranging equations, measuring, calculating volume	Measuring, calculating Rf value of ink Decimals and place value	Calculating magnification, image size and actual size Converting between units of measurement	Calculating potential difference, current, power, charge flow and resistance Converting between units of measurement	Calculating Rf value Measuring volume, mass and distance	Drawing graphs, identifying optimum points on graphs, describing graphs, measuring volume	Using the wave speed equation. Measuring and calculating the speed of sound. Graphing waves.	Calculating the rate of photosynthesis. Interpreting graphs. Percentage change. Using ratios Surface area and volume calculations.
Assessment	End of topic test (AO1, 2 and 3) Literacy task	End of topic test (AO1, 2 and 3) Literacy task	End of topic test (AO1, 2 and 3) Literacy task	End of topic test (AO1, 2 and 3) Literacy task	End of topic test (AO1, 2 and 3) Literacy task	End of topic test (AO1, 2 and 3) Literacy task	End of topic test (AO1, 2 and 3) Literacy task	End of topic test (AO1, 2 and 3) Literacy task End of year assessment

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Curriculum Overview Science — YEAR 10

Time	Autumn Term			Spring Term			Summer Term	
Subject	Physics	Chemistry	Biology	Physics	Chemistry	Biology	Chemistry	Biology
Topics	Energy- mains electricity	Periodic table and atomic structure	Cells and transport	States of matter	Bonding	Infection, response and non communicable disease	Organic chemistry and pollutants. Quantitative chemistry and energy changes.	Homeostasis. Evolution.
Working scientifically	Wiring a plug Building circuits Resistance of a wire I/V characteristics	Separating mixtures: Modelling group 1 metals. Displacement reactions. Chromatography	Microscopy. Modelling mitosis. Investigating osmosis. Investigating diffusion and SA:vol. Food tests Enzymes	Density Particle models Exploring states of matter and changes of state	Exploring covalent, ionic and metallic bonding Modelling covalent, ionic and metallic bonding	Analysing data on the spread of disease Exploring data around vaccination	Exploring t the “cracking” process Temperature changes Endo and exothermic reactions	Investigating reaction times Exploring and explaining evidence for evolution
Key vocabulary	Current Potential difference Resistance Power Charge Alternating current Direct current	Group Period Plum pudding Nuclear Atom Neutron	Specialised cell Ribosome Mitochondria Nucleus Cell wall Vacuole	Solid Liquid Gas Melting Boiling Sublimate	Covalent Ionic Metallic Lattice Simple Giant	Communicable Non communicable Immunity Vaccination	Atomic number Atomic mass Proton Neutron Electron Orbital	Species Speciation Natural selection Evolution Extinction
Numeracy	V=IR calculations Current, charge, power calculations	Calculating RF values from chromatographs	Calculating magnification, percentage mass changes, and optimum pH for enzyme action	Calculating density Exploring melting and boiling points graphically	Calculating bond energies Exploring atomic symmetry	Exploring graphical trends in infection rates Analysing the effect of vaccinations on the immune response	Calculating relative masses and moles, concentrations and temperature changes.	Calculating reaction times based on distance to time conversions Comparing reaction times with/without nervous stimulants.
Assessment	End of topic test. (AO1, 2, 3) Summer term mock (Paper 1)	End of topic test. (AO1, 2, 3) Summer term mock (Paper 1)	End of topic test. (AO1, 2, 3) Summer term mock (Paper 1)	End of topic test. (AO1, 2, 3) Summer term mock (Paper 1)	End of topic test. (AO1, 2, 3) Summer term mock (Paper 1)	End of topic test. (AO1, 2, 3) Summer term mock (Paper 1)	End of topic test. (AO1, 2, 3) Summer term mock (Paper 1)	End of topic test. (AO1, 2, 3) Summer term mock (Paper 1)

Time	Autumn Term			Spring Term			Summer Term	
Subject	Physics	Chemistry	Biology	Physics	Chemistry	Biology	Chemistry	Review
Topics	States of matter, energy and radiation	Quantitative chemistry, acids and rates of reaction	Homeostasis and the endocrine system	Waves and magnets	Organic chemistry and pollutants	Genes, inheritance, evolution and interdependence	Using resources and electrolysis	Separation techniques, infection and response, forces and Hooke's law, circuits, bonding, photosynthesis and respiration, cells and organisation
Working scientifically	Density required practical, specific heat capacity required practical, specific latent heat practical	Conservation of mass practical with magnesium oxide, acids with metals, neutralisation, investigating rates required practical 1 and 2, elephant's toothpaste	Review reaction times required practical Graph reading.	Radiation and absorption required practical, magnets and iron filings, modelling a longitudinal and transverse wave with a slinky	Fractional distillation, modelling cracking, gas tests	Required practical for sampling within an ecosystem, modelling the water cycle, modelling the carbon cycle	Required practical for water purification, required practical electrolysis, extraction of metals	Chromatography, evaporation, filtration, required practical - ruler drop, Hooke's law, photosynthesis required practical
Key vocabulary	Density, volume, mass, specific heat capacity, specific latent heat, internal energy, potential energy, kinetic energy, evaporation, condensation, boiling, freezing, melting.	Metals, non-metals, acids, alkalis, pH scale, neutralisation, universal indicator, rates of reaction, surface area, concentration, catalysts, activation energy, equilibrium, collision theory, soluble salts	Homeostasis, endocrine, negative feedback, blood glucose, diabetes, oestrogen, progesterone, testosterone, uterus, ovaries, pituitary glands, glands,testes, infertility.	Transverse, longitudinal, wavelength, trough, peak, frequency, electromagnetic waves, radiation, absorption, radioactivity, half-life, mass, atomic number, isotopes, nuclear radiation	Crude oil, hydrocarbons, alkanes, fractional distillation, cracking, alkanes, gas tests, carbon dioxide, greenhouse gases, carbon monoxide, sulfur dioxide, nitrogen oxides, carbon footprint, climate change	Sexual and asexual reproduction, mitosis, meiosis, DNA, genome, punett squares, variation, evolution, selective breeding, genetic engineering, fossils, extinction, resistant bacteria, food chains, interdependence,	Ion, electrodes, anode, cathode, molten, aqueous, hydroxide. Reactivity, displacement, graphite. Pure, potable, distillation, sedimentation, sterilisation.	Chromatogram, soluble, solvent, retention factor. Extension, elasticity, limit of proportionality.
Numeracy	Calculating density Calculating specific heat capacity Calculating specific latent heat. Units for density, mass, energy, heat, SHC.	Calculating moles, mass, concentration. Working out molecular mass of substances. Calculating % abundance. Graphing rates, calculating gradients and tangents	Converting reaction times. Calculating the mean. Analysing data and using graphs.	Wave calculations: Amplitude, wavelength, wave speed. Units.	Calculating formula of hydrocarbons. Units.	Sampling calculations, estimating populations. Mean, median, mode.	Measuring mass, calculating purity.	Calculating Rf values. Measuring and converting units. Hooke's law measurements and calculations, rearranging equations.
Assessment	End of topic test (AO1, 2, 3) Autumn mock (Paper 1)	End of topic test (AO1, 2, 3) Autumn mock (Paper 1)	End of topic test (AO1, 2, 3) Autumn mock (Paper 1)	End of topic test (AO1, 2, 3) Spring mock (Paper 2)	End of topic test (AO1, 2, 3) Spring mock (Paper 2)	End of topic test (AO1, 2, 3) Spring mock (Paper 2)	Formal exams (AO1, 2, 3) (Papers 1 and 2)	Formal exams (AO1, 2, 3) (Papers 1 and 2)