Science

The areas of development are:	Solutions
Sc	
• BIOLOGY Paper 1: Cell biology - unspecialised plant cells, differentiation, cells structure and microscopes	• 4.1.1/Cell structure
• BIOLOGY Paper 1: Cell biology - cells, mitosis, stem cells, growth and multicellular organisms	• 4.1.2/Cell division
• BIOLOGY Paper 1: Cell biology - osmosis, diffusion and active transport, surface to volume ration and gas exchange	• 4.1.3/Transport in cells
• BIOLOGY Paper 1: Organisation - diet, health, disease, enzymes, blood and the circulatory system	• 4.2.2/Animal tissues, organs and organ systems
• BIOLOGY Paper 1: Organisation - transpiration, plant organs, plant structures and plant minerals	• 4.2.3/Plant tissues, organs and systems
• BIOLOGY Paper 1: Infection and response - immunisation, drugs trials, viruses, disease prevention, defences, immunity and resistance	• 4.3.1/Communicable diseases
• BIOLOGY Paper 1: Bioenergetics - photosynthesis, limiting factors, gas exchange and plant growth	• 4.4.1/Photosynthesis
• BIOLOGY Paper 1: Bioenergetics - metabolism, respiration both aerobic and anaerobic and energy	• 4.4.2/Respiration
• BIOLOGY Paper 2: Homeostasis and response - Homeostasis	• 4.5.1/Homeostasis

• BIOLOGY Paper 2: Homeostasis and response - Central nervous system, reflex arc, synapses, reflexes, receptors and effectors	• 4.5.2/The human nervous system
• BIOLOGY Paper 2: Homeostasis and response - Type 1 and type 2 diabetes, hormones, controlling fertility and human reproduction	• 4.5.3/Hormonal coordination in humans
• BIOLOGY Paper 2: Inheritance, variation and evolution - meiosis, genetics, inheritance, foetal screening, sperm and egg and reproduction in plants	• 4.6.1/Reproduction
• BIOLOGY Paper 2: Inheritance, variation and evolution -genetic engineering, GM, cloning, variation, selective breeding and speciation	• 4.6.2/Variation and evolution
• BIOLOGY Paper 2: Inheritance, variation and evolution - extinction, evolution, bacteria, Darwin and evolution, natural selection and fossil record	• 4.6.3/The development of understanding of genetics and evolution
• BIOLOGY Paper 2: Inheritance, variation and evolution - five kingdoms and classification	• 4.6.4/Classification of living organisms
• BIOLOGY Paper 2: Ecology - competition, adaptations, extreme conditions and ecosystems	• 4.7.1/Adaptations, interdependence and competition
• BIOLOGY Paper 2: Ecology - carbon cycle, fieldwork, water cycle, food chains and webs	• 4.7.2/Organisation of an ecosystem
• BIOLOGY Paper 2: Ecology - population change, biodiversity, human waste, deforestation and peat removal, global pollution and greenhouse effect	• 4.7.3/Biodiversity and the effect of human interaction on ecosystems
• CHEMISTRY Paper 1: Atomic structure and the periodic table - elements, structure of the atom, subatomic particles, RAM, reactions, elements and compounds	• 5.1.1/A simple model of the atom, symbols, relative atomic mass, electronic charge and isotopes
• CHEMISTRY Paper 1: Atomic structure and the periodic table - Group 1, Group 7, Noble Gases and Periodic table	• 5.1.2/The periodic table
• CHEMISTRY Paper 1: Bonding, structure and the properties of matter - Ionic bonding, covalent bonding, metallic bonding, simple and giant structures	• 5.2.1/Chemical bonds, ionic, covalent and metallic

• CHEMISTRY Paper 1: Bonding, structure, and the properties of matter - states of matter and properties of metals	• 5.2.2/How bonding and structure are related to the properties of substances
• CHEMISTRY Paper 1: Bonding, structure, and the properties of matter - allotropes of carbon	• 5.2.3/Structure and bonding of carbon
• CHEMISTRY Paper 1: Quantitative chemistry - atoms and formula, RFM, % mass, uncertainty and mass change	• 5.3.1/Chemical measurements, conservation of mass and the quantitative interpretation of chemical equations
• CHEMISTRY Paper 1: Quantitative chemistry - reactions, empirical formula, moles, concentration and reacting masses	• 5.3.2/Use of amount of substance in relation to masses of pure substances
• CHEMISTRY Paper 1: Chemical changes - metals and ores, transition metals, displacement, REDOX and Oxides	• 5.4.1/Reactivity of metals
• CHEMISTRY Paper 1: Chemical changes - salts, acids and bases, alkalis, neutralisation, strong and weak acids, acid and metal reactions	• 5.4.2/Reactions of acids
• CHEMISTRY Paper 1: Chemical changes - electrolysis, electrodes and the uses of electrolysis	• 5.4.3/Electrolysis
• CHEMISTRY Paper 1: Energy changes - exo and endothermic reactions, bond breaking and making, measuring energy changes and calculating bond energies	• 5.5.1/Exothermic and endothermic reactions
• CHEMISTRY Paper 2: The rate and extent of chemical change - reaction rate and collision theory, factors affecting rate, catalysts, rate of reaction graphs and measuring rate	• 5.6.1/Rate of reaction
• CHEMISTRY Paper 2: The rate and extent of chemical change - reversible reactions and choosing reaction conditions	• 5.6.2/Reversible reactions and dynamic equilibrium
• CHEMISTRY Paper 2: Organic chemistry - crude oil, alkanes, fuels and combustion	• 5.7.1/Carbon compounds as fuels and feedstock
• CHEMISTRY Paper 2: Chemical analysis - chromatography, formulations and pure substances	• 5.8.1/Purity, formulations and chromatography
• CHEMISTRY Paper 2: Chemical analysis - identification of common gases	• 5.8.2/Identification of common gases

• CHEMISTRY Paper 2: Chemistry of the atmosphere - atmosphere past and present	• 5.9.1/The composition and evolution of the Earth's atmosphere
• CHEMISTRY Paper 2: Chemistry of the atmosphere - climate changes and processes that change the atmosphere	• 5.9.2/Carbon dioxide and methane as greenhouse gases
• CHEMISTRY Paper 2: Chemistry of the atmosphere - impact of burning hydrocarbons and pollution	• 5.9.3/Common atmospheric pollutants and their sources
• CHEMISTRY Paper 2: Using resources - Purifying Water and testing for water	• 5.10.1/Using the Earth's resources and obtaining potable water
• CHEMISTRY Paper 2: Using resources - reducing pollution and recycling metals	• 5.10.2/Life cycle assessment and recycling
• PHYSICS Paper 1: Energy - Energy changes in a system and the ways energy is stored before and after such changes - EPE, GPE, Power, What is energy, Conservation, Efficiency and insulation	• 6.1.1/Energy changes in a system, and the ways energy is stored before and after such changes
• PHYSICS Paper 1: Energy - Conservation and dissipation of energy including Conservation of Energy, Efficiency and Insulation	• 6.1.2/Conservation and dissipation of energy
• PHYSICS Paper 1: Electricity - Current, potential difference and resistance including Ohm's law, IV graphs, Circuit symbols, resistors and LDR's	• 6.2.1/Current, potential difference and resistance
• PHYSICS Paper 1: Electricity - Series and parallel circuits including resistor combinations, series and parallel circuits	• 6.2.2/Series and parallel circuits
• PHYSICS Paper 1: Electricity - Domestic uses and safety including ac/dc, batteries/cells, insulation, fuses, plugs and RCD's	• 6.2.3/Domestic uses and safety
• PHYSICS Paper 1: Electricity - Energy transfers including transformers, national grid, electrical power and energy transfers in the home	• 6.2.4/Energy transfers
• PHYSICS Paper 1: Particle model of matter - Changes of state and the particle model including density, changes of state and states of matter	• 6.3.1/Changes of state and the particle model
• PHYSICS Paper 1: Particle model of matter - Internal energy and energy transfers including heat and temperature; SHC and latent heat	• 6.3.2/Internal energy and energy transfers

• PHYSICS Paper 1: Particle model of matter - Particle model and pressure including Kinetic Theory	• 6.3.3/Particle model and pressure
• PHYSICS Paper 1: Atomic Structure - Atoms and isotopes including history, isotopes and the PT, protons, neutrons and the atom	• 6.4.1/Atoms and isotopes
• PHYSICS Paper 1: Atomic Structure - Atoms and nuclear radiation including Alpha, Beta, Gamma ,the dangers of radioactivity, half-life, ionising and detecting, decay and transmutation and nuclear reactions	• 6.4.2/Atoms and nuclear radiation
• PHYSICS Paper 2: Forces - resultant forces, vectors and scalars	• 6.5.1/Forces and their interactions
• PHYSICS Paper 2: Forces - work done 1 and work done 2	• 6.5.2/Work done and energy transfer
• PHYSICS Paper 2: Forces - elastic potential energy and Hooke's Law	• 6.5.3/Forces and elasticity
• PHYSICS Paper 2: Forces - acceleration, distance time graphs, Newton's Laws, speed and stopping distances	• 6.5.6/Forces and motion
• PHYSICS Paper 2: Forces - momentum and collisions	• 6.5.5/Momentum
• PHYSICS Paper 2: Waves - wavelength, the wave equation and types of wave	• 6.6.1/Waves in air, fluids and solids
• PHYSICS Paper 2: Waves - wireless signals, the EMS, refraction, frequency and wavelength	• 6.6.2/Electromagnetic waves
• PHYSICS Paper 2: Magnetism and electromagnetism - magnetic fields	• 6.7.1/Permanent and induced magnetism, magnetic forces and fields
• PHYSICS Paper 2: Magnetism and electromagnetism - electromagnets, left hand and right hand rule	• 6.7.2/The motor effect
• presenting observations and other data using appropriate methods	• undertake the exercises on the AQA Making Sense of Graphical Data and Describing Patterns documents
• carrying out and representing mathematical and statistical analysis	• undertake the exercises on the AQA Describing Patterns document
• interpreting observations and other data (presented in verbal, diagrammatic, graphical, symbolic or numerical form), including identifying patterns and trends, making inferences and drawing conclusions	• undertake the exercises on the AQA The Earl of Abergavenny and Organising a mind map documents

• being objective, evaluating data in terms of accuracy, precision, repeatability and reproducibility and identifying potential sources of random and systematic error	• undertake the exercises on the AQA Describing Patterns document
• identifying trends on a graph and producing a conclusion	• undertake the exercises on the AQA Describing Patterns document
• plotting data and drawing a line of best fit	• undertake the exercises on the AQA Making Sense of Graphical Data document
• making conclusions from table data	• undertake the exercises on the AQA Making Sense of Graphical Data and Pineapple jelly documents
• evaluating information from a table and linking it to own knowledge	• undertake the exercises on the AQA Pineapple jelly document

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