



	Throughout the key stage the following topics are covered					
PAPER 1	Topic: B1 Cells Using microscopes Animal and plant cells Diffusion Osmosis Topic: B2 Cell Division Cell Division Growth and differentiation Stem cells Topic: B3 (Organisation and the) Digestive System Tissues and organs Chemistry of food Human digestive system Catalysts and enzymes Topic: B4 Organising animals and Plants Heart and blood vessels Breathing and gas exchange Organ systems in plants Exchange of materials using transport systems in plants Topic: B5 Communicable Disease Health and disease Pathogens and disease Bacterial growth (T) Preventing infections Viral diseases Bacterial diseases Human defence responses Plant diseases (T)	Topic: B6 Preventing & Treating Disease Vaccination Antibiotics & painkillers Discovering drugs Developing drugs Making monoclonal antibodies (T) Use of monoclonal antibodies (T) Topic: B7 Non communicable diseases Cancer Smoking and the risk of disease Diet, exercise and disease Alcohol and other carcinogens Topic: B8 Photosynthesis Knowledge and skills Photosynthesis Rate of photosynthesis How plants use glucose Making the most of photosynthesis Topic: B9 Respiration Aerobic respiration The response to exercise Anaerobic respiration Metabolism and the liver	Topic: C1 Atomic Structure Chemical equations Separating mixtures Structure of the atom Ions and isotopes Topic: C2 The Periodic Table History of the periodic table Electronic structure Group 1 - Alkali Metals Group 7 – Halogens Topic: C3 Structure and Bonding Ionic Bonding Covalent bonding Ionic and covalent compounds Fullerenes and graphite Topic: C4 Chemical calculations Relative formula mass and moles Mass calculations and balanced equations Titration and titration calculations(T) Volumes of gases (T)	Topic: C5 Chemical changes Reactivity series Displacement reactions Extracting metals Salts from metals Making salts Acids/pH scale Topic: C6 Electrolysis Introduction to electrolysis Changes at the electrodes The extraction of aluminium Electrolysis of aqueous solutions Topic: C7 Energy changes Exothermic/endothermic reactions Energy profile diagrams Bond energy calculation Chemical cell, batteries and fuel cells (T)	Topic: P1 Energy Energy stores Energy and Work Gravitational Potential Energy Kinetic energy Energy and Power Topic: P2 Energy transfer Conduction, convection and infrared radiation Specific heat capacity Topic: P3 Energy resources Energy from Renewable resources Energy issues Topic: P4 Electricity Electric current, potential difference and resistance Series and parallel circuits	Topic: P5 Electricity Alternating current Electrical appliances and power Energy transfer and currents Topic: P6 Molecules and matter Density States of matter Changing state Specific latent heat Internal energy Topic: P7 Radioactivity Atoms and radiation Discovery and changes in the nucleus Alpha, beta and gamma radiation Activity and half life Nuclear radiation in medicine(T) Nuclear fission/fusion(T) Nuclear issues (T)
PAPER 2	Topic: B10 Human nervous system Principles of homeostasis Structure & function of the nervous system Reflex actions The brain (T) The eye (T) Topic: B11 Hormonal coordination Principles of hormonal control	Topic: B14 Variation and evolution Evolution by natural selection Selective breeding Genetic engineering Topic: B15 Genetics and evolution Extinction Antibiotic resistance bacteria Classification	Topic: C8 Rates and equilibrium Effect of temperature, concentration, surface area and catalyst Reversible reactions Dynamic equilibrium Altering conditions Topic: C9 Crude oil and fuels Hydrocarbons Fractional distillation	Topic: C13 The Earth's atmosphere History of our atmosphere Our evolving atmosphere Greenhouse gases Global climate change Atmospheric pollutants Topic: C14 The Earth's resources Finite and renewable resources	Topic: P8 Forces in balance Vectors & scalars Forces between objects Resultant forces Moments at work (T) Centre of mass Moments & equilibrium (T) Parallelogram of forces Resolution of forces Topic: P9 Motion	Topic: P12 Wave properties The nature and properties of waves Reflection and refraction Topic: P13 Electromagnetic waves The electromagnetic spectrum Light, infrared, microwaves and radio waves Communications UV waves, x-rays, and gamma rays

	Control of blood glucose levels Treating diabetes Human reproduction Hormones & the menstrual cycle Artificial control of fertility Plant hormones (T) <u>Topic:</u> B12 Homeostasis in action (T) Controlling body temperature (T) Removing waste products (T) The human kidney (T) Kidney transplants (T) <u>Topic:</u> B13 Reproduction Types of reproduction Cell division in reproduction DNA & the genome DNA structure & protein synthesis (T) Gene expression & mutation (T) Inheritance in action More about genetics Inherited disorders	<u>Topic:</u> B16 Adaptation, interdependence and competition The importance of communities Organisms in their environment Distribution and abundance Competition in plants and animals Adapt and survive Adaptation in plants and animals <u>Topic:</u> B17 Organising an ecosystem Feeding relationships Materials recycling The carbon cycle <u>Topic:</u> B18 Biodiversity and ecosystems The human population explosion Air, land and water pollution Deforestation and peat destruction Global warming Maintaining biodiversity	Combustion Cracking hydrocarbons <u>Topic:</u> C10 Organic reactions (T) Reactions of alkenes (T) Structures of alcohols, carboxylic acids & esters (T) Reactions and uses of alcohols (T) Carboxylic acids and esters (T) <u>Topic:</u> C11 Polymers (T) Addition polymerisation (T) Condensation polymerisation (T) Natural polymers (T) DNA (T) <u>Topic:</u> C12 Chemical analysis Pure substances and mixtures Analysing chromatograms Testing for gases	Water safe to drink Treating waste water Extracting metals from ores Life cycle assessments Reduce, reuse, recycle <u>Topic:</u> C15 Using our resources Rusting Alloys Composites The Haber process	Distance time graphs Velocity time graphs Acceleration Stopping distances <u>Topic:</u> P10 Force and motion Force and acceleration Weight & terminal velocity Forces & braking Momentum Using the conservation of momentum (T) Impact forces (T) Forces & elasticity <u>Topic:</u> P11 Force & pressure (T) Pressure & surfaces (T) Pressure in a liquid at rest (T) Atmospheric pressure (T) Upthrust & floatation (T)	X-rays in medicine <u>Topic:</u> P14 Light (T) Reflection of light (T) Refraction of light (T) Light & colour (T) Lenses (T) <u>Topic:</u> P15 Electromagnetism Magnetic fields of electric currents The motor effect Electromagnets in devices (T) The generator effect (T) The AC generator (T) Transformers (T) <u>Topic:</u> P16 Space (T) Formation of the Solar System (T) Life history of a star (T) Planets, satellites & orbits (T) The expanding universe (T) The beginning and end of the universe (T)
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