

Biology

Paper 1

Topic	Content Learnt?	Review (/10)		
Cell Structure <ul style="list-style-type: none"> • Eukaryotes and Prokaryotes • Animal and Plant Cells • Cell Specialisation • Cell Differentiation • Microscopy • Binary Fission 				
<ul style="list-style-type: none"> • RP 1: Microscopy 				
Cell Division <ul style="list-style-type: none"> • Chromosomes • Mitosis and Cell Cycle • Stem Cells 				
Transport in Cells <ul style="list-style-type: none"> • Diffusion • Osmosis • Active Transport 				
<ul style="list-style-type: none"> • RP 3: Osmosis 				
Principles of Organisation <ul style="list-style-type: none"> • Cells, Tissues, Organs, Organ Systems 				
Animal Tissues, Organs and Organ Systems <ul style="list-style-type: none"> • Human Digestive System • Heart and Blood Vessels • Blood • Coronary Heart Disease • Health Issues • Lifestyle on Non-Communicable diseases • Cancer 				
<ul style="list-style-type: none"> • RP 4: Food Tests 				
Plant Tissues, Organs and Systems <ul style="list-style-type: none"> • Plant Tissues • Plant Organ System 				
Communicable Diseases <ul style="list-style-type: none"> • Viral, Bacterial, Fungal, Protist Diseases • Human Defence Systems • Vaccination • Antibiotics and Painkillers • Discovery and Development of Drugs 				
Monoclonal Antibodies <ul style="list-style-type: none"> • Producing Monoclonal Antibodies • Uses of Monoclonal Antibodies 				
Plant Disease <ul style="list-style-type: none"> • Detection and Identification of Plant Diseases • Plant Defence Responses 				
Photosynthesis <ul style="list-style-type: none"> • Rate of Photosynthesis • Uses of Glucose from Photosynthesis 				
Respiration <ul style="list-style-type: none"> • Aerobic and Anaerobic Respiration • Responses to Exercise • Metabolism 				

Topic	Content Learnt?	Review (/10)		
The Human Nervous System <ul style="list-style-type: none"> ● Structure and Function ● The Brain ● The Eye ● Control of Body Temperature 				
Hormonal Coordination in Humans <ul style="list-style-type: none"> ● Human Endocrine System ● Control of Blood Glucose Concentration ● Maintaining Water and Nitrogen Balance ● Hormones in Human Reproduction ● Contraception ● Use of Hormones to treat infertility ● Negative Feedback 				
Plant Hormones <ul style="list-style-type: none"> ● Control and Coordination ● Uses of Plant Hormones 				
<ul style="list-style-type: none"> ● RP 8: Effect of Light on Seedlings 				
Reproduction <ul style="list-style-type: none"> ● Sexual and Asexual Reproduction ● Meiosis ● Advantages and Disadvantages of sexual/asexual reproduction ● DNA and the Genome ● DNA Structure ● Genetic Inheritance ● Inherited Disorders ● Sex determination 				
Variation and Evolution				
The Development of Understanding of Genetics and Evolution				
Classification of Living Organisms				
Adaptations, Interdependence and Competition <ul style="list-style-type: none"> ● Communities ● Biotic and Abiotic Factors ● Adaptations 				
Organisation of an Ecosystem <ul style="list-style-type: none"> ● Levels of Organisation ● How Materials are Cycled ● Decomposition ● Impact of Environmental Change 				
<ul style="list-style-type: none"> ● RP 9: Measuring Population Size in a Habitat 				
Biodiversity and the Impact of Human Interaction on Ecosystems <ul style="list-style-type: none"> ● Waste Management ● Land Use ● Deforestation ● Global Warming 				
Trophic Levels in an Ecosystem <ul style="list-style-type: none"> ● Pyramids of Biomass ● Transfer of Biomass 				
Food Production <ul style="list-style-type: none"> ● Factors affecting Food security ● Farming Techniques ● Sustainable Fisheries ● Biotechnology 				

Chemistry

Paper 1

Topic	Content Learnt?	Review (/10)		
Atomic Structure <ul style="list-style-type: none"> • Atoms, Elements, Compounds and Mixtures • Development of the Model of the Atom • Relative Charges and Mass of Atoms • Relative Atomic Mass • Electronic Structure 				
The Periodic Table <ul style="list-style-type: none"> • Development of the Periodic Table • Metals and Non-metals • Groups 0,1,7 and their properties 				
Properties of Transition Metals <ul style="list-style-type: none"> • Comparison with Group 1 elements 				
Chemical Bonds and Properties <ul style="list-style-type: none"> • Ionic Bonding and properties of Ionic Compounds • Properties of Small Molecules • Covalent Bonding and Giant Structures • Metallic Bonding and their Conductivity • Properties of Metals and Alloys • Polymers 				
Structure and Bonding of Carbon <ul style="list-style-type: none"> • Diamond • Graphite • Graphene and Fullerenes 				
Nanoparticles				
Uses of Amount of Substance in Relation to Masses of Pure Substances <ul style="list-style-type: none"> • Moles and Relative Formula Mass • Amount of Substances in Equations • Limiting Reactants • Concentration of Solutions • Amount of Substances in relation to volume of Gases 				
Percentage Yield and Atom Economy				
Reactivity of Metals <ul style="list-style-type: none"> • Metal Oxides • Reactivity Series • Extraction of Metals, Reduction and Oxidation 				
Reactions of Acids <ul style="list-style-type: none"> • Reactions of Acids with Metals • Neutralisation of Acids and Salt Production • Soluble Salts • pH Scale • Titrations • Strong and Weak Acids 				
<ul style="list-style-type: none"> • RP 1: Soluble Salts 				
<ul style="list-style-type: none"> • RP 2: Titrations 				
Electrolysis <ul style="list-style-type: none"> • Electrolysis of Molten Ionic Compounds and Aqueous Solutions • Half Equations at the Electrodes 				
Exothermic and Endothermic Reactions <ul style="list-style-type: none"> • Reaction Profiles • Bond Energies 				
<ul style="list-style-type: none"> • RP 4: Temperature Changes 				
Chemical Cells and Fuel Cells				

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Rate of Reaction <ul style="list-style-type: none"> Calculating Rates of Reaction Factors affecting Rate of Reaction Collision Theory and Activation Energy Catalysts 				
<ul style="list-style-type: none"> RP 5: Change of Concentration Affecting Rate of Reaction 				
Reversible Reactions and Dynamic Equilibrium <ul style="list-style-type: none"> Energy Changes of Reversible Reactions Changing Conditions Affecting Equilibrium (concentration, temperature, pressure) 				
Carbon Compounds as Fuels and Feedstock <ul style="list-style-type: none"> Crude Oil, Hydrocarbons and Alkanes Fractional Distillation Properties of Hydrocarbons Cracking 				
Reactions of Alkenes and Alcohols <ul style="list-style-type: none"> Alkenes and Alcohols Carboxylic Acids 				
Synthetic and Naturally Occurring Polymers <ul style="list-style-type: none"> Addition Polymerisation Condensation Polymerisation Amino Acids DNA 				
Pure Substances, Formulations and Chromatography				
Identification of Common Gases <ul style="list-style-type: none"> Tests for Hydrogen, Oxygen, Carbon Dioxide and Chlorine 				
Identification of Ions <ul style="list-style-type: none"> Flame Tests (Lithium, Sodium, Potassium, Calcium, Copper) Metal Hydroxide Tests (Calcium, Magnesium, Aluminium, Copper(II), Iron(II), Iron(III)) Tests for Carbonates, Sulfates and Halides Instrumental Methods e.g. Flame Emission Spectroscopy 				
<ul style="list-style-type: none"> RP 7: Identifying Ions in Unknown Compounds 				
Composition and Evolution of the Earth's Atmosphere <ul style="list-style-type: none"> Gases in the atmosphere Earth's Early Atmosphere How Oxygen increased and Carbon Dioxide decreased 				
Carbon Dioxide and Methane as Greenhouse Gases				
Common Atmospheric Pollutants and their Sources <ul style="list-style-type: none"> Properties and Effects of Atmospheric Pollution 				
Using the Earth's Resources and Obtaining Potable Water <ul style="list-style-type: none"> Sustainable Development Potable Water and Waste Water Treatment Alternative Methods of Extracting Metals 				
Life Cycle Assessment and Recycling <ul style="list-style-type: none"> Ways of reducing the use of resources 				
Using Materials <ul style="list-style-type: none"> Corrosion and its prevention Alloys, Ceramics, Polymers and Composites 				
Haber Process and the Use of NPK Fertilisers				

Physics

Paper 1

Topic	Content Learnt?	Review (/10)		
Energy Changes in a System <ul style="list-style-type: none"> Energy Stores and Systems Power 				
Conservation and Dissipation of Energy <ul style="list-style-type: none"> Energy Transfers Efficiency 				
<ul style="list-style-type: none"> RP 2: Thermal Insulators 				
National and Global Energy Resources				
Current, Potential Difference and Resistance				
Series and Parallel Circuits				
Domestic Uses and Safety				
Energy Transfers <ul style="list-style-type: none"> National Grid 				
Static Electricity <ul style="list-style-type: none"> Electric Fields 				
Changes of State and the Particle Model <ul style="list-style-type: none"> Density 				
<ul style="list-style-type: none"> RP 5: Finding Densities of Objects 				
Internal Energy and Energy Transfers <ul style="list-style-type: none"> Specific Heat Capacity Specific Latent Heat 				
Particle Model and Pressure <ul style="list-style-type: none"> Pressure in Gases 				
Atoms and Isotopes				
Atoms and Nuclear Radiation <ul style="list-style-type: none"> Radioactive Decay Nuclear Equations Half-Lives Radioactive Contamination 				
Uses of Radioactive Materials and Background Radiation				
Nuclear Fission and Fusion				

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Forces and their interactions <ul style="list-style-type: none"> • Scalar and Vector Quantities • Contact and Non-contact forces • Gravity • Resultant Forces 				
Work Done and Energy Transfer				
Forces and Elasticity				
Moments, Levers and Gears				
Pressure and Pressure Differences in Fluids <ul style="list-style-type: none"> • Atmospheric Pressure 				
Describing Motion along a line <ul style="list-style-type: none"> • Distance and Displacement • Speed and Velocity • Distance-time graphs • Acceleration 				
Newton's Laws of Motion <ul style="list-style-type: none"> • Newton's first, second and third Law • Stopping Distance • Reaction Time • Factors affecting Braking Distance 				
Momentum <ul style="list-style-type: none"> • Conservation of Momentum • Changes in Momentum 				
Waves in Air, Fluids and Solids <ul style="list-style-type: none"> • Transverse and Longitudinal Waves • Properties of Waves • Reflection of Waves • Sound Waves • Waves for Detection and Exploration 				
<ul style="list-style-type: none"> • RP 9: Reflection and Refraction 				
Electromagnetic Waves				
Black Body Radiation				
The Motor Effect <ul style="list-style-type: none"> • Electromagnetism • Fleming's Left Hand Rule • Electric Motors and Loudspeakers 				
Induced Potential, Transformers and the National Grid <ul style="list-style-type: none"> • Induced Potential • Uses of the Generator Effect • Microphones • Transformers 				
Solar system; stability of orbital motions; satellites <ul style="list-style-type: none"> • Life Cycle of a Star • Orbital Motion, Natural and Artificial Satellites 				
Red-Shift				