

Science – Year 10



	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 10	<p>Topics: Photosynthesis, Respiration, Chemical changes, Electrolysis, Energy changes</p> <p>Knowledge: Photosynthesis The rate of photosynthesis RP: Light intensity and rate of photosynthesis How plants use glucose Making the most of photosynthesis Aerobic respiration The response to exercise Anaerobic respiration Metabolism and the liver The reactivity series Displacement reactions Extracting metals Salts from metals Salts from insoluble bases Making more salts RP: Making a salt from a metal carbonate Neutralisation and the pH scale Strong and weak acids Introduction to electrolysis</p>	<p>Topics: Molecules and matter, Radioactivity, The human nervous system</p> <p>Knowledge: Density RP: Density tests States of matter Changes of state Internal energy Specific latent heat Gas pressure and temperature Gas pressure and volume (Triple only) Atoms and radiation The discovery of the nucleus Changes in the nucleus More about alpha, beta and gamma radiation Activity and half-life Nuclear radiation in medicine (Triple only) Nuclear fission (Triple only) Nuclear fusion (Triple only) Nuclear issues (Triple only) Principles of homeostasis</p>	<p>Topics: Hormonal control in humans and plants, Reproduction, Homeostasis in action (Triple only), Energy changes</p> <p>Knowledge: Principles of hormonal control The control of blood glucose levels Treating diabetes The role of negative feedback Human reproduction Hormones and the menstrual cycle The artificial control of fertility Infertility treatments Plant hormones and responses (Triple only) RP: Investigating newly germinated shoots (Triple only) Types of reproduction Cell division in sexual reproduction DNA and the genome Inheritance in action More about genetics Inherited disorders</p>	<p>Topics: Rates and equilibrium, Forces in balance</p> <p>Knowledge: Rate of reaction Collision theory and surface area The effect of temperature The effect of concentration and pressure RP: The effect of concentration on rate of reaction The effect of catalysts Reversible reactions Energy and reversible reactions Dynamic equilibrium Altering conditions Vectors and scalars Forces between objects Resultant forces Moments at work (Triple only) More about levers and gears (Triple only) Centre of mass Moments and equilibrium (Triple only)</p>	<p>Topics: Motion, Force and motion, Crude oil and fuels, Organic reactions (Triple only), Polymers (Triple only)</p> <p>Knowledge: Speed and distance-time graphs Velocity and acceleration More about velocity-time graphs Analysing motion graphs Forces and acceleration RP: Investigating force and acceleration Weight and terminal velocity Forces and braking Momentum Using conservation of momentum (Triple only) Impact forces (Triple only) Safety first (Triple only) Forces and elasticity RP: Stretch tests Hydrocarbons Fractional distillation of oil Burning hydrocarbon fuels</p>	<p>Topics: Chemical analysis, Force and pressure (Triple only), Wave properties</p> <p>Knowledge: Pure substances and mixtures Analysing chromatograms RP: Calculating Rf values Testing for gases Tests for positive ions (Triple only) Tests for negative ions (Triple only) RP: Identifying unknown ionic compounds Instrumental analysis Pressure and surfaces (Triple only) Pressure in a liquid at rest (Triple only) Atmospheric pressure (Triple only) Upthrust and flotation (Triple only) The nature of waves The properties of waves Reflection and refraction More about waves RP: Investigating waves</p>

<p>Changes at the electrodes The extraction of aluminium Electrolysis of aqueous solutions RP: Investigating the electrolysis of solutions Exothermic and endothermic reactions (Triple only) RP: Investigating temperature changes (Triple only) Using energy transfers from reactions (Triple only) Reaction profiles (Triple only) Bond energy calculations (Triple only) Chemical cells and batteries (Triple only) Fuel cells (Triple only)</p> <p>Skills: Writing a method Reproducibility and repeatability Following a given method Following a given risk assessment Writing a risk assessment (hazards, risks, precautions) Spotting errors (random, systematic, zero errors)</p>	<p>The structure and function of the human nervous system RP: Measuring reaction times Reflex actions The brain (Triple only) The eye (Triple only) Common problems of the eye (Triple only)</p> <p>Skills: Comparing two different processes Spotting anomalies and reasons for them Spotting errors (random, systematic, zero errors) Reasons for random, systematic and zero errors) Using a manual or digital scale</p> <p>Assessments: Particle model Test Atomic structure Test</p>	<p>Screening for genetic disorders Controlling body temperature (Triple only) Removing waste products (Triple only) The human kidney (Triple only) Dialysis – an artificial kidney (Triple only) Kidney transplants (Triple only) Exothermic and endothermic reactions RP: Investigating temperature changes Using energy transfers from reactions Reaction profiles Bond energy calculations</p> <p>Skills: Writing instructions Creating own hypothesis Independent, dependent and control Reproducibility and repeatability Following a given method Following a given risk assessment Writing a risk assessment (hazards, risks, precautions) Spotting errors (random, systematic, zero errors)</p>	<p>The parallelogram of forces Resolution of forces</p> <p>Skills: Using a manual or digital scale Rearranging and using equations Stating the resolution Explaining why certain apparatus is used Sketch graph Using a manual or digital scale Making predictions from data Gradient Area under a graph Drawing lines of best fit Calculating rates of reaction Calculations involving moles, mass and Mr Tangents</p> <p>Assessments: Rates and equilibrium Test</p>	<p>Cracking hydrocarbons Reactions of alkenes (Triple only) Structures of alcohols, carboxylic acids, and esters (Triple only) Reactions and uses of alcohols (Triple only) Carboxylic acids and esters (Triple only) Addition of polymerisation (Triple only) Condensation polymerisation (Triple only) Natural polymers (Triple only) DNA (Triple only)</p> <p>Skills: Rearranging and using equations Stating the resolution Explaining why certain apparatus is used Sketch graph Using a manual or digital scale Making predictions from data Gradient Area under a graph Writing balanced symbol equations</p> <p>Assessments:</p>	<p>Sound waves (Triple only) The uses of ultrasound (Triple only) Seismic waves (Triple only)</p> <p>Skills: Writing a method Reproducibility and repeatability Following a given method Following a given risk assessment Writing a risk assessment (hazards, risks, precautions) Explaining properties of types of bonding Reproducibility and repeatability Explaining differences between waves</p> <p>Assessments: Chemical analysis Test Forces Test (Triple only) Mock Exam - AQA June Series (June/July): AQA Paper 1 June (of previous year) x 3 (separate or trilogy, no synergy) from previous year.</p>
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