



## Science

|                       | Year 7  | Year 8   | Year 9  | Year 10  | Year 11   |
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| Autumn 1 and Autumn 2 | <p><b>B1.1 Cells:</b><br/>Cells as the fundamental unit of living organisms which forms basics for KS4 topic B1 along with RP 1.</p> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>• General animal and plant cells.</li> <li>• Specialised animal and plant cells.</li> <li>• Movement of substances into and out of cells.</li> <li>• Unicellular organisms.</li> </ul> <p><b>Practical skills:</b> light microscopes.</p> <p><b>Key words:</b> Magnification, diffusion, mitochondria, organism, specialisation</p> <p><b>C1.1 Particles and their behaviour:</b><br/>States of matter and the properties of solids, liquids and gases. The particle model is widely used to predict the behaviour of solids, liquids and gases.</p> | <p><b>B8.2 - Ecosystem Processes:</b><br/>Students learn how photosynthesis is an important process for both plants and animals, progressing to focus on the process of respiration in living organisms. This precedes the introduction of food chains/webs and ecosystems.</p> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>→ Photosynthesis and plant structure</li> <li>→ Respiration and Chemosynthesis</li> <li>→ Food chains/webs and ecosystems</li> </ul> <p><b>Practical Skills:</b><br/>Observation of leaves under a microscope / measuring the effect of exercise on breathing rate and sampling techniques using quadrats</p> <p><b>Key Terms:</b></p> | <p><b>B1: Cell biology</b><br/>Cell structure inc. relative sizes of objects, microscopy, cell division, stem cells, cell transport.</p> <p><b>Maths link:</b> calculating surface area and volumes and the ratio between them. SA:V.</p> <p><b>Key vocabulary:</b> transport, exchange and multicellular.</p> <p><b>Mini tests</b> on cell structure, cell division and transport in cells.</p> <p><b>Required Practical</b> on using a light microscope and observing plant and animal cells.</p> <p><b>Required Practical</b> on Osmosis in plant cells.</p> <p><b>C1: Elements and the Periodic Table</b><br/>Chemical reactions, equations, separation techniques, atomic structure and history, Groups 1, 7 and 0 (structure of Periodic Table). <i>Sep Sci: transition metals.</i></p> | <p><b>B4: Bioenergetics.</b><br/>How plants harness the Sun's energy and how animals use plant glucose to stay alive.</p> <p><b>Key vocabulary:</b> Anaerobic, Metabolism, Oxidation and Synthesis</p> <p><b>Mini tests:</b> Photosynthesis and Respiration</p> <p><b>Required Practical:</b> on the effect of light on the rate of photosynthesis.</p> <p><b>We ask these key questions this term (discussion, debate, stimulate):</b> What happens when I exercise? If we lived in a spaceship would we need plants?</p> <p><b>C5: Energy changes.</b><br/>Why chemical reactions can feel hot or cold and how to predict which it will be.</p> <p><b>Key vocabulary:</b> Exothermic and Endothermic</p> | <p><b>B7: Ecology.</b><br/>How we measure the abundance of life around us so we can monitor and protect it.</p> <p><b>Key vocabulary:</b> ecosystems, adaptation, interdependence, abiotic, biodiversity.</p> <p><b>Mini tests:</b> adaptation, interdependence, ecosystems and biodiversity.</p> <p><b>Required practical</b> on population sizes of common species in a habitat.</p> <p><b>We ask these key questions this term (discussion, debate, stimulate):</b> is it right to fish or hunt a species to extinction?</p> <p><b>STEM careers link:</b> ecologist, geneticist.</p> <p><b>C9: Atmosphere.</b></p> |



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| <p>This chapter form the basis of KS4; P3 and C2.</p> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>• Properties of a substance in its three states.</li> <li>• Particle model to explain why different materials have different properties.</li> <li>• Changes of states.</li> <li>• Diffusion.</li> <li>• Gas pressure.</li> </ul> <p><b>Practical skills:</b> using thermometers, temperature probes and data loggers to accurately record temperature.</p> <p><b>Key words:</b> Condensation, evaporation, freezing, particles, sublimation.</p> <p><b>P1.1 Introduction to forces:</b> Forces and how they can be measured and represented using arrows. Effects from forces, contact and non-contact forces along with balanced and unbalanced forces. Addressing misunderstanding of</p> | <p>Photosynthesis, Chlorophyll<br/>Aerobic/Anaerobic<br/>Respiration, Chemosynthesis, Interdependence, Habitat, Niche, Bioaccumulation</p> <p><b>C8.1 Periodic Table:</b><br/>Students learn how the use the periodic table and study specific elements and groups to learn about their physical and chemical properties.</p> <p><b>Content:</b><br/>→ Metals and Non Metals<br/>→ Groups and Periods<br/>→ Group 1/7/0 elements</p> <p><b>Practical Skills:</b><br/>Investigation of the physical and chemical properties of the elements from the same group of the periodic table.</p> <p><b>Key Terms:</b><br/>Chemical Property, Displacement, Group, Period, Reactive, Unreactive, Halogen, Alkali Metals, Noble Gasses</p> <p><b>P8.2 Energy:</b></p> | <p><b>Key vocabulary:</b> isotope, distillation, separation, halogens.</p> <p><b>Mini tests</b> on atomic structure and the Periodic Table. There are no <b>required practicals</b> in this unit.</p> <p><b>P1: Energy Stores and Transfers</b><br/>Energy stores with additional detail on gravitational, kinetic and elastic, thermal conductivity, energy and power, conservation and dissipation of energy, efficiency, energy demands and resources (and environmental impact).</p> <p><b>Maths link:</b> making x the subject of an equation.</p> <p><b>Key vocabulary:</b> geothermal renewable and kilogram.</p> <p><b>Mini tests</b> on energy transfers, national/global energy resources.</p> <p><i>Sep sci required practical on thermal conductivity.</i></p> | <p><b>Mini tests</b> : on Exothermic and Endothermic reactions.</p> <p><b>Required Practical:</b> on Endothermic and Exothermic reactions.</p> <p><b>We ask these key questions this term (discussion, debate, stimulate):</b><br/>Extracting elements using electricity is expensive. Should we do it?</p> <p><b>P4: Nuclear physics.</b><br/>Explores the tiniest particles but also dangerous radiation that can kill or produce the huge variation of life on the planet. <i>[Sep] Separate Science students also look at the dangers and uses of radioactive materials, nuclear fusion and Nuclear medicine.</i></p> <p><b>Key vocabulary:</b> Isotope, Irradiation and Contamination</p> <p><b>Mini tests:</b> Atoms &amp; Isotopes and Atoms, half-life and decay</p> | <p>How has it changed and how have humans made an impact on it.</p> <p><b>Key vocabulary:</b> atmosphere, speculation, pollutant, particulates.</p> <p><b>Mini tests</b> on evolution of the atmosphere, human impact on the environment.</p> <p><b>Required practical:</b> none.</p> <p><b>We ask these key questions this term (discussion, debate, stimulate):</b> It snowed today – is climate change even happening?</p> <p><b>STEM careers link:</b> climatologist, environmental health officer.</p> <p><b>P7: Electromagnetism.</b> how electricity can be used and generated. <i>[sep sci – induction, wireless charging, transformers].</i></p> <p><b>Key vocabulary:</b> induced magnetism, solenoid, electromagnet.</p> |
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|                       | <p>weight and mass. This chapter forms the basis of KS4; P5 and the required practical Hooke's Law.</p> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>• Intro to forces.</li> <li>• Predictions about pairs of forces acting in unfamiliar situations.</li> <li>• Squashing and stretching.</li> <li>• Drag forces and friction.</li> <li>• Forces at a distance.</li> <li>• Balanced and unbalanced forces.</li> </ul> <p><b>Practical skills:</b> using a Newtonmeter to measure force.</p> <p><b>Key words:</b> Balanced, compress, equilibrium, friction, newton.</p> <p><b>SMSC:</b> Group activities and discussions encouraging interpersonal skills to show respect for each other's opinions and viewpoints as well as for living organisms.</p> | <p>Students will be introduced to the equations required for KS4 Physics, especially relating to the idea of energy types and transfers.</p> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>→ Food and Fuels</li> <li>→ Energy Transfers (radiation, resources and particles)</li> <li>→ Work, Energy and Machines</li> </ul> <p><b>Practical Skills:</b><br/>Energy circus investigating how energy is transferred from one type to another.</p> <p><b>Key Terms:</b><br/>Conduction, Convection, Radiation, Jules, Kinetic, Thermal, Temperature, Dissipated, Conservation.</p> |   | <p><b>Required Practical:</b> no required practicals in P4.</p> <p><b>We ask these key questions this term (discussion, debate, stimulate):</b><br/>Radioactive substances are so dangerous, should they be banned?</p> | <p><b>Mini tests</b> on permanent and induced magnetism and the motor effect.</p> <p><b>Required practical:</b> none.</p> <p><b>We ask these key questions this term (discussion, debate, stimulate):</b> Is climate change my responsibility?</p> <p><b>STEM careers link:</b> engineer (electrical, civil), mechanic</p> <p>November: Paper 1 PPE / mock exam. Walking talking mock – an exam paper modelled by a teacher in class.</p> |
| Spring 1 and Spring 2 | <b>B1.2 Structure and function of body systems:</b>   | <b>B8.2 - Adaptation and Inheritance:</b>  | <b>B2: Organisation of organisms</b><br>Hierarchy of cellular structures, digestive/respiratory/circulatory | <b>B5: Homeostasis</b>  | <b>C10: Resources.</b>  |



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| <p>Organ systems and models to demonstrate breathing. The skeletal and muscular system is also covered in this chapter. This chapter forms the basis of KS4; B2.</p> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>Levels of organisation</li> <li>Gas exchange and breathing</li> <li>Skeleton</li> <li>Movement: joints and muscles</li> </ul> <p>Practical skills: Measuring lung volume. Measuring force exerted by different muscles.</p> <p><b>Keywords:</b> alveoli, antagonistic, multicellular, respiration, diaphragm.</p> <p><b>C1.2 Atoms, elements and compounds:</b><br/>Atoms, elements and compounds, and the Periodic Table. Comparisons between elements in the same groups. Properties of a compound compared to the elements that make up the compound. Chemical formula introduced. This</p> | <p>Students are introduced to ideas relating to genetics, evolution and how organisms are adapted to their environment and the mechanisms that drive this.</p> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>→ Competition and Adaptation</li> <li>→ Continuous and Discontinuous Variation</li> <li>→ Natural Selection and Extinction</li> </ul> <p><b>Practical Skills:</b><br/>Modelling of animal adaptations alongside investigating fossil records.</p> <p><b>Key Terms:</b><br/>Adaptation, DNA, Evolution, Natural Selection, Species, Variation</p> <p><b>C8.4 The Earth:</b><br/>Students learn about the composition of our Earth – The layers, Rocks and Atmosphere before studying the effect of climate change and our role in this process.</p> | <p>systems, health issues inc. heart disease and cancer, plant organisation and transport.</p> <p><b>Key vocabulary:</b> transpiration, carbohydrates, cardiovascular.</p> <p><b>Mini tests</b> on organisation, animal tissues, organs and systems, plant tissues and organs.</p> <p><b>Required practical</b> on food tests (reducing sugars, proteins, starch, lipids).</p> <p><b>Required practical</b> on enzyme activity (effect of pH on amylase).</p> <p><b>C2: Bonding</b><br/>Ionic, covalent and metallic bonding, properties of giant ionic lattices, simple vs giant covalent, properties of metallic structures. <i>Sep sci: nanoparticles inc. applications.</i></p> <p><b>Key vocabulary:</b> polymer, delocalised, electrostatic, <i>nanotubes.</i></p> <p><b>Mini tests</b> on bonding and properties of substances. There are no <b>required practicals</b> in this unit.</p> <p><b>P2: Electricity</b></p> | <p>How the body keeps control and responds to its environment, contraception and fertility.</p> <p><b>Key vocabulary:</b><br/>Homeostasis, endocrine, in-vitro fertilisation</p> <p><b>Mini tests</b> on Homeostasis and The Human Nervous System</p> <p><b>Required practical :</b><br/>Reaction time</p> <p><b>We ask these key questions this term (discussion, debate, stimulate):</b> Should people at risk of type 2 diabetes be told what to eat?<br/>Is contraception one of science’s greatest achievements?</p> <p><b>C6: Rate of Reaction</b><br/>How reactions can be fast or slow and how to speed up or slow down chemistry.</p> <p><b>Key vocabulary:</b> Equilibrium, reversible, tangent and turbidity</p> | <p>How to keep valuable resources like water from running out.</p> <p><b>Key vocabulary:</b> potable, desalination, unsustainable, phytomining*, bioleaching*.</p> <p><b>Mini tests:</b> using the earth’s resources, life cycle assessment and recycling.</p> <p><b>Required practical:</b> Analysis and purification of water samples from different sources.</p> <p><b>We ask these key questions this term (discussion, debate, stimulate):</b> why should we recycle? Is desalination the answer for all hot countries? Is desalination the answer for all hot countries?</p> <p><b>STEM careers link:</b><br/>climatologist, environmental health officer, environmental scientist, water treatment engineer, waste disposal.</p> |
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| <p>chapter forms the basis of KS4; C1 and C2.</p> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>• Atoms, elements, compounds.</li> <li>• Chemical formulae</li> <li>• Moving forward: Skills developed in this chapter form the basis of some elements of</li> </ul> <p><b>Key words:</b> Atom, element, compound, formulae, periodic table.</p> <p><b>P1.2 Sound:</b><br/>Properties and examples of longitudinal and transverse waves. How sound is detected including the human ear and ultrasound. This chapter form the basis of KS4; P6.</p> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>• Waves.</li> <li>• Sound and energy transfer.</li> <li>• Loudness and pitch.</li> <li>• Detecting sound.</li> <li>• Echoes and ultrasound.</li> </ul> <p><b>Practical skills:</b> oscilloscope.</p> <p><b>Key words:</b> Amplitude, hertz, oscillations, transverse, longitudinal.</p> | <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>→ Earth and it's Atmosphere</li> <li>→ Rock Types and Rock/Carbon Cycle</li> <li>→ Climate Change and Recycling</li> </ul> <p><b>Practical Skills:</b><br/>Observation of rock types and modelling the process of the rock cycle.</p> <p><b>Key Terms:</b><br/>Atmosphere, Cementation, Compaction, Deposition, Erosion, Metamorphic, Recycling, Deforestation, Climate Change.</p> <p><b>C8.2 Separation Techniques:</b><br/>Students learn the basic skills relating to chemical analysis and also the techniques used to separate substances.</p> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>→ Mixtures and Solutions</li> <li>→ Solubility</li> <li>→ Separation Techniques</li> </ul> | <p>Electric circuits, current, potential difference, resistance, series vs parallel circuits, mains electricity, power, energy transfers, the National Grid.</p> <p><b>Key vocabulary:</b> parallel, thermistor, transmission, transformers and thermostat.</p> <p><b>Mini tests</b> on current, potential difference and resistance; series vs parallel circuits; domestic uses of electricity.</p> <p><b>Required practical</b> on length and resistance of a wire, and resistors in series and parallel.</p> <p><b>Required practical</b> on IV graphs for filament lamp, diode and a fixed resistor.</p> | <p><b>Mini tests</b> on The Rate of Reaction and Reversible Reactions</p> <p><b>Required practical</b> The effect of concentration on the rate of reactio</p> <p><b>We ask these key questions this term (discussion, debate, stimulate):</b> Why should chemistry labs be warmer?</p> <p><b>P5: Forces.</b><br/>How and why anything moves anywhere and how to stop things moving and how to keep safe on the road and when driving. <i>[Sep] Separate science students also explore the idea of moments, pressure in fluids and the link between momentum and forces.</i></p> <p><b>Key vocabulary:</b> Vector, resultant, displacement, proportional</p> <p><b>Mini tests</b> on Forces/interactions, Work Done, Elasticity and Motion</p> | <p><b>P8: Space [sep sci only]</b><br/>How understanding the light from space can explain the birth, life and death of the universe.</p> <p><b>Key vocabulary:</b> electrostatic repulsion, recessional velocity, Doppler Shift.</p> <p><b>Mini tests:</b> Space</p> <p><b>Required practical:</b> none.</p> <p><b>We ask these key questions this term (discussion, debate, stimulate):</b> Are we alone in the universe?</p> <p><b>STEM careers link:</b> astronomer, astrophysicist, cosmologist, theoretical physicist.</p> <p><b>March: Paper 2 PPE / mock exam. Walking talking mock – an exam paper modelled by a teacher in class.</b></p> |
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|  | <p><b>P1.3 Light:</b><br/>Properties of light including reflection, refraction and colour. How the human eye 'sees' and how this compares to a camera. This chapter forms the basis of KS4; P6 and B5.</p> <p><b>Content covered:</b></p> <ul style="list-style-type: none"> <li>• Light.</li> <li>• Reflection.</li> <li>• Refraction.</li> <li>• The eye and the camera.</li> <li>• Colour.</li> </ul> <p><b>Practical skills:</b> Ray boxes and/or light meters, pinhole camera.</p> <p><b>Key words:</b> Magnification, diffusion, mitochondria, organism, specialisation</p> <p><b>SMSC:</b> How science changes. The development of the Periodic Table. Begin to develop understanding of 'how science works' and the importance of asking questions and listening to the ideas and suggestions put to them by others.</p> | <p><b>Practical Skills:</b><br/>Measuring melting points and separation techniques (Filtration, Evaporation, Distillation and Chromatography)</p> <p><b>Key Terms:</b><br/>Photosynthesis, Chlorophyll<br/>Aerobic/Anaerobic<br/>Respiration, Chemosynthesis, Interdependence, Habitat, Niche, Bioaccumulation</p> <p><b>P8.3 Motion and Pressure:</b><br/>Students investigate how motion and pressure are linked to the three states of matter and their related equations.</p> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>→ Speed and Motion</li> <li>→ Pressure in Solids, Liquids and Gases</li> <li>→ Turning Forces</li> <li>→</li> </ul> <p><b>Practical Skills:</b><br/>Investigating the relationship between speed/distance/ time and investigating the</p> |  | <p><b>Required practical</b> The relationship between force and extension.<br/>The relationship between acceleration, force and mass.</p> <p><b>We ask these key questions this term (discussion, debate, stimulate):</b> Should mobile phones be banned from cars?</p> |  |
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|                              |   | <p>density of different materials.</p> <p><b>Key Terms:</b><br/>Acceleration, Pressure, Moment, Newtons, Pivot, Relative Motion, Speed</p>   |  |  |  |
| <p>Summer 1 and Summer 2</p> | <p><b><u>B1.3 Reproduction:</u></b><br/>Reproduction in humans and plants including structure and function of the reproductive systems. A focus on the menstrual cycle through to birth including how maternal lifestyle can affect the foetus. Seed and fruit formation is covered with seed dispersal. This chapter forms the basis of KS4; B6.</p> <p><b><u>Content covered:</u></b></p> <ul style="list-style-type: none"> <li>• Adolescence</li> <li>• Reproductive systems and the menstrual cycle</li> <li>• Fertilisation and implantation through to development of a fetus</li> <li>• Flowers and pollination</li> <li>• Fertilisation and germination</li> </ul> | <p><b><u>B8.1 - Health and Lifestyle:</u></b><br/>Students learn about the concept of healthy/unhealthy diets alongside the role of the digestive system and the effects of drugs on the human body.</p> <p><b><u>Content:</u></b></p> <ul style="list-style-type: none"> <li>→ Nutrients/Diet</li> <li>→ Food groups/tests</li> <li>→ Digestive System</li> <li>→ Drugs/Alcohol/Smoking</li> </ul> <p><b><u>Practical Skills:</u></b><br/>Food tests for nutrients</p> <p><b><u>Key Terms:</u></b><br/>Nutrient, Carbohydrate, Protein, Lipid, Malnourished, Obese, Addiction, Withdrawal</p> <p><b><u>C8.3 Metals and Acids:</u></b></p> | <p><b><u>B3: Infection and disease</u></b><br/>Communicable vs non-communicable, types of pathogen, methods of transmission and reduction of this, examples of pathogens (measles, HIV, TMV, salmonella, gonorrhoea, malaria, rose black spot), vaccinations, drug development and testing. <i>Sep sci: monoclonal antibodies inc. applications.</i></p> <p><b><u>Key vocabulary:</u></b> antibiotics, pathogens, vaccination, photosynthesis.</p> <p><b><u>Mini tests</u></b> on communicable diseases; human defences; drug development.</p> <p><i>Sep sci required practical on culturing microorganisms.</i></p> <p><i>Maths link: calculating area of circle.</i></p> <p><b><u>C3: Quantitative chemistry</u></b></p> | <p><b><u>B6: Evolution and inheritance</u></b><br/>How life continues through reproduction and inheritance and yet subtle variations can lead to whole new species of living things by evolution</p> <p><b><u>Key vocabulary:</u></b><br/>Chromosomes, Characteristics, Variation, Binomial</p> <p><b><u>Mini tests</u></b> on Reproduction, Variation &amp; Evolution and Classification</p> <p>There are no required practicals in B6.</p> <p><b>We ask these key questions this term (discussion, debate, stimulate):</b></p> |  |

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|  | <p><b>Practical skills:</b> Flower dissection, seed dispersal.</p> <p><b>Key words:</b> adolescence, contraception, embryo, fertilisation, implantation.</p> <p><b>C1.3 Reactions:</b><br/>Skills from C1.2 carried forward. Using chemical formula of compounds and knowledge of the Periodic table. Differences in chemical and physical reactions. Introduction to word and symbol equations (balanced H). This chapter forms the basis of KS4; C3, C5 and C6.</p> <p><b>Content covered:</b></p> <ul style="list-style-type: none"> <li>• Chemical reactions</li> <li>• Word equations</li> <li>• Burning fuels</li> <li>• Thermal decomposition</li> <li>• Conservation of mass</li> <li>• Exothermic and endothermic</li> </ul> <p><b>Practical skills:</b> Combustion reactions, energy released from different fuels, decomposition reactions, conservation of mass (Mg ribbon).</p> | <p>Students learn about the reactions of metals and how we extract them from their ores and then introduces everyday materials such as polymers, ceramics and composites.</p> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>→ Metals and their reactions</li> <li>→ Extracting Metals</li> <li>→ Ceramics, Polymers and Composites</li> </ul> <p><b>Practical Skills:</b><br/>Investigating reactions of Metals with Acid, Oxygen and Water.</p> <p><b>Key Terms:</b><br/>Acid, Ceramic, Composite, Displacement, Synthetic/Natural Polymer, Ore, Reactivity Series.</p> <p><b>P2.1 Electricity and Magnetism:</b><br/>Students will use a variety of methods to investigate electricity before progressing to observe and investigate of</p> | <p>Ar vs Mr, calculating Mr, conservation of mass (inc. thermal decomposition), uncertainty, concentration. Higher tier students also study mols and masses, limiting reactants.</p> <p><b>Key vocabulary:</b> quantitative, conservation, decomposition.</p> <p><b>Mini tests</b> on quantitative chemistry and another one on mols for higher tier students. There are no <b>required practicals</b> for this unit.</p> <p><b>P3: Particles</b><br/>Density, changes of state, internal energy, specific latent heat, specific heat capacity (moved from P1), gas pressure. <i>Sep sci study gas pressure and volume.</i></p> <p><b>Key vocabulary:</b> energy, displacement, condense.</p> <p><b>Mini tests</b> on particles; internal energy.</p> <p><b>Required practical</b> on specific heat capacity (moved from P1).</p> <p><b>C4: Chemical changes</b><br/>The reactivity series, displacement, reduction with carbon, reactions of metals and</p> | <p>Should our genetic information be for sale?<br/>Is embryo screening good or bad?<br/>Is selective breeding good or bad?<br/>Is genetic modification a good idea?</p> <p><b>C7: Chemistry of oil</b><br/>What products can be made from oil such as plastic and feedstuff.</p> <p><b>Key vocabulary:</b> Fractional (distillation), petrochemical</p> <p><b>Mini test</b> on Hydrocarbons, Crude oil and Distillation; Alkenes, cracking and double bonds</p> <p>There are no required practicals in C7.</p> <p><b>We ask these key questions this term (discussion, debate, stimulate):</b><br/>Oil is a vital substance but should we use it?</p> <p><b>C8 :Chemical Analysis:</b></p> |  |
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| <p><b>Key words:</b> Catalyst, combustion, conservation, oxidation, thermal decomposition.</p> <p><b>C1.4 Acids and alkalis:</b><br/>Hazards of acids and alkalis. Introduction to the pH scale and use of indicators. What neutralisation is and how salts are formed. This chapter forms the basis of KS4; C4.</p> <p><b>Content covered:</b></p> <ul style="list-style-type: none"> <li>• Acids and alkalis</li> <li>• Indicators and pH</li> <li>• Neutralisation</li> <li>• Making salts</li> </ul> <p><b>Practical skills:</b> identifying an acid or alkali (pH), measuring pH, making salts, using a Bunsen burner with filtering and evaporation techniques.</p> <p><b>Key words:</b> Corrosive, neutralisation, acids, alkalis, indicator.</p> <p><b>P1.4 Space:</b><br/>What are the objects you can see in the night's sky? How the Universe is structured. What the</p> | <p>traditional and electromagnets.</p> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>→ Electrical Circuits</li> <li>→ Resistance</li> <li>→ Magnetism</li> </ul> <p><b>Practical Skills:</b><br/>Constructing electrical circuits to measure current and potential difference across series and parallel circuits. Plotting magnetic fields.</p> <p>Key Terms:<br/>Ammeter, Attract, Current, Conductor, Insulator, Magnetic Field, Ohms, Resistance, Voltage, Voltmeter</p> | <p>acids, formulae of salts, neutralisation and pH, electrolysis.</p> <p><b>Key vocabulary:</b> electrolysis, neutralisation, ionisation.</p> <p><b>Mini tests</b> on reactivity of metals; reactions of acids; electrolysis.</p> <p><b>Required practical</b> on the preparation of a pure, dry salt sample (copper sulphate).</p> <p><b>Required practical</b> investigating the electrolysis of aqueous solutions.</p> <p><i>Sep sci required practical on titrations.</i></p> | <p>How to use chemistry to solve crimes by analysis techniques</p> <p><b>Key vocabulary:</b><br/>Formulation and chromatography</p> <p><b>Mini tests</b> on Formulations and gas tests.</p> <p><b>Required practical</b> on chemical analysis using chromatography.</p> <p><b>We ask these key questions this term (discussion, debate, stimulate):</b><br/>Should a company be able to keep a formulation secret for ever?</p> <p><b>P6: Waves</b><br/>How waves are used for communicate but also knowing that some waves are not just extremely useful but also very dangerous.<br/><i>[Sep] Separate science students also look at the reflection, refraction of all types of waves. How lenses</i></p> |  |
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|  | <p>different types of eclipse are. This chapter forms the basis of KS4; P8.</p> <p><b>Content covered:</b></p> <ul style="list-style-type: none"> <li>• The night sky</li> <li>• The Solar System</li> <li>• The Earth</li> <li>• The Moon</li> </ul> <p><b>Key words:</b> Eclipse, galaxy, orbit, satellites, seasons.</p> <p><b>SMSC:</b> 'Should smoking and drinking alcohol during pregnancy be acceptable?' 'Should we still burn fossil fuels to produce electricity?' Be mindful of the spiritual and cultural beliefs of others. eg. when learning about contraception some people do not choose to use it. Also, the Big Bang theory is not recognised by everyone as an explanation for creation of the Universe.</p> |  |  | <p><i>work. The reflection of sound waves and finally the students will link the temperature of an object with the colour it glows when very hot.</i></p> <p><b>Key vocabulary:</b><br/>Longitudinal, Transverse, Frequency, Amplitude, Electromagnetic</p> <p><b>Mini tests</b> on Waves in air, water and solids;<br/>Electromagnetic Spectrum</p> <p><b>Required practical</b> on waves properties (wires and ripple tanks)</p> <p>Required practical on emission and absorption of IR</p> <p><i>[Sep] Separate science students are also required to investigate the reflection and refraction of light.</i></p> <p><b>We ask these key questions this term (discussion, debate, stimulate):</b></p> |  |
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|  |  |  |  | <p>Is gaining a suntan a good or bad thing?<br/>Are Xrays worth it?</p> <p><b>PPE:</b><br/><b>In the Summer Term in year 10 there will be a PPE. This is a test that covers Paper 1 and there will be a biology, chemistry and physics paper covering ALL the units in Yr9 and 10 in Paper 1</b></p> |  |
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