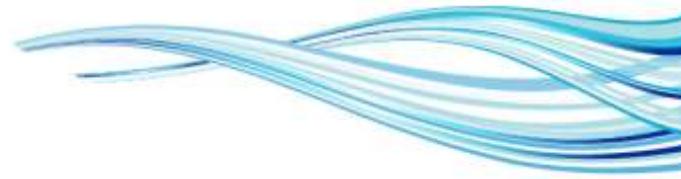




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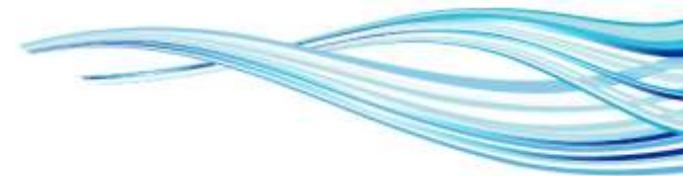
Long term overview document for Science department

NB: Ongoing Assessments are to be graded and SIR marked.

Year	Autumn term 1	Autumn term 2	Spring term 1	Spring term 2	Summer term 1	Summer term 2
Year 7	<p>Topic: Crazy scientist Particle Theory</p> <p>Overall aims:</p> <p>How particles make up the universe.</p> <p>What makes a lab safe.</p> <p>9-1 subject specific areas/skills covered across topic: Making salts The particle model States of matter Melting and Freezing Boiling Changes of state – solid to gas and gas to solid Diffusion Gas pressure Understanding experiments Knowing how to be safe in the lab.</p>	<p>Topic: Cell theory At the Dentist</p> <p>Overall aims:</p> <p>What all life is made from and how those things use substance.</p> <p>Acids and alkalis in day to day use.</p> <p>9-1 subject specific areas/skills covered across topic:</p> <p>Observing cells Plant and animal cells Specialised Cells Movement of substances (diffusion) Unicellular organisms Acids and alkali Indicators of pH Neutralisation</p>	<p>Topic: Ramsay electric Reproduction part 1</p> <p>Overall aims:</p> <p>Circuits components and how they are used.</p> <p>The process of reproduction in both plants and animals.</p> <p>9-1 subject specific areas/skills covered across topic: Circuits Parallel and series Current Circuit symbols Adolescence, reproductive systems Fertilisation and implantation Developing foetus Menstrual cycle</p>	<p>Topic: Reproduction part 2 Reactions</p> <p>Overall aims:</p> <p>Reproduction focus on plants and seed dispersal.</p> <p>Reaction representation and how to break down different chemicals.</p> <p>9-1 subject specific areas/skills covered across topic: Flowers and pollination Fertilisation and germination Seed dispersal Chemical reactions Word equations Burning fuels Thermal decomposition Conservation of mass Exothermic and endothermic Ongoing Assessments (9-1</p>	<p>Topic: Life on mars Bill and Ted Part 1</p> <p>Overall aims:</p> <p>The processes that rocks go through over millions of years.</p> <p>The concept of speed.</p> <p>9-1 subject specific areas/skills covered across topic: Rock cycles Weathering Earth and the atmosphere Sedimentary rocks Igneous and metamorphic rocks Carbon cycle Climate change Forces Bungee Speed Speed time graphs</p>	<p>Topic: Bill and ted part 2 Ecology</p> <p>Overall aims:</p> <p>Basic physics looking at objects and particles.</p> <p>Animals interdependence and all living things dependence on plants.</p> <p>9-1 subject specific areas/skills covered across topic: Volume and Density Floating and sinking</p>



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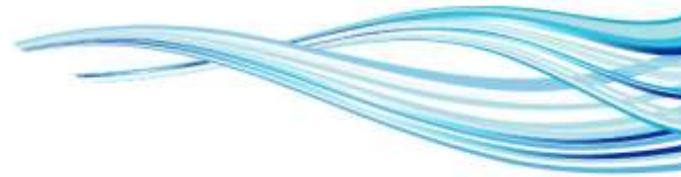
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	<p>Ongoing Assessments (9-1 specific): 12/09/2016 Baseline assessment.</p> <p>HW: Describe and explain the arrangement of particles in the three states of matter</p>	<p>Making salts The particle model</p> <p>Ongoing Assessments (9-1 specific): 12/12/2016 whole school assessment</p> <p>HW: Picture of a root hair cell and a palisade cell: describe and explain the similarities and differences.</p>	<p>Ongoing Assessments (9-1 specific):</p> <p>Investigating the effect of smoking on birth weight. (7B)</p> <p>Investigating variation in the class (7D)</p>	<p>specific): 20/03/2017 Whole school assessment</p> <p>HW: Diagram of a flower and insect; explain how plants produce and disperse seeds.</p>	<p>Balanced forces</p> <p>Ongoing Assessments (9-1 specific): 01/05/2017 Core exams</p> <p>HW: Explain how rocks move in a cycle – students given a diagram</p>	<p>Forces to move Deformation Pressure Air Resistance Habitats Animal Adaptations Respiration Food Chains Food Webs Photosynthesis</p> <p>Ongoing Assessments (9-1 specific):</p> <p>HW: Diagram of 2 cars: one has more streamlined shape: which car would go faster? Use the forces model and particle model to help you.</p> <p>HW: Food web: describe and explain what would happen to the population of x if Y decreased.</p>
Year 8	<p>Topic: Health Ramsay chemical</p>	<p>Topic: History of life on earth Plight of the bumblebee</p>	<p>Topic: Joule Island Water</p>	<p>Topic: Joule island Water Mad professor part 1</p>	<p>Topic: Mad professor part 2 Agents of S.C.I.E.N.C.E.</p>	<p>Topic: ECM Ice cream factory</p>



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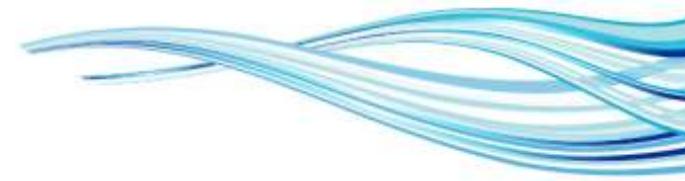
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	<p>Overall aims: The factors that contribute to a healthy diet and the processes involved in digestion.</p> <p>What a chemical reaction is and how they occur. 9-1 subject specific areas/skills covered across topic: Nutrients Food Tests Unhealthy diets Digestive system Bacteria and enzymes in digestion Drugs Alcohol Smoking Collision theory Conservation of mass Rate of reactions Speeding up the rate of reactions</p> <p>Ongoing Assessments (9-1 specific):</p> <p>Planning investigation of digestive enzymes (8a)</p> <p>Assessment 26/09/2016</p>	<p>Overall aims: How the planet has changed and is changing.</p> <p>How all life is linked therefore how the actions of others affect them.</p> <p>9-1 subject specific areas/skills covered across topic:</p> <p>Insects Fat glucose and minerals Pyramid of numbers Sampling using quadrats Pests and pesticides Food webs Energy flow How life began Variation Adaptations Human impact on the environment Extinction of animals Extinction of the dinosaurs</p> <p>Ongoing Assessments (9-1 specific): Investigating the number of dandelions (8d)</p>	<p>Overall aims: How power is generated and the impact that has on the environment.</p> <p>How to separate substances depending on how they are combined.</p> <p>9-1 subject specific areas/skills covered across topic:</p> <p>Carbon cycle Fuels and combustion Global warming Fossil fuel formation Energy transfer Energy Efficiency Power stations Series and parallel circuits Different energy sources Mixtures Solutions Solubility Filtration Evaporation Distillation Chromatography</p> <p>Ongoing Assessments (9-1 specific):</p>	<p>Agents of S.C.I.E.N.C.E. part 2</p> <p>Overall aims: How power is generated and the impact that has on the environment.</p> <p>How to separate substances depending on how they are combined.</p> <p>How we produce static electricity</p> <p>9-1 subject specific areas/skills covered across topic:</p> <p>Carbon cycle Fuels and combustion Global warming Fossil fuel formation Energy transfer Energy Efficiency Power stations Series and parallel circuits Different energy sources Mixtures Solutions Solubility Filtration Evaporation Distillation Chromatography Static electricity Magnetism</p>	<p>Part 2 ECM Ice cream factory Overall aims: Laws regarding movement and gravity.</p> <p>How temperature and heat are different and how we can control heat transfer. 9-1 subject specific areas/skills covered across topic:</p> <p>Moments Levers Weight Gravity Periodic table Atoms Elements Compounds Chemical formulae Heat Vs Temperature Changes of state Temp time graphs Conduction and Radiation Convection Heat transfer by design</p> <p>Ongoing Assessments (9-1 specific):</p> <p>Assessment 01/05/2017</p>	<p>Overall aims: What the periodic table is used for.</p> <p>Changes of state and their energy. 9-1 subject specific areas/skills covered across topic:</p> <p>Periodic table Atoms Elements Compounds Chemical formulae Heat Vs Temperature Changes of state Temp time graphs Conduction and Radiation Convection Heat transfer by design</p> <p>Ongoing Assessments (9-1 specific):</p> <p>Questions Explain how heat</p>
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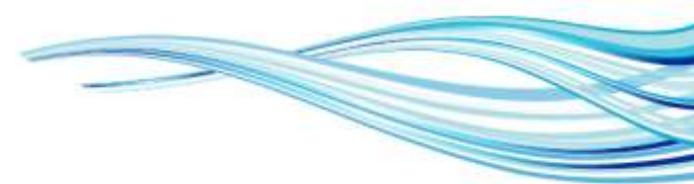


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		<p>Assessment 31/10/2016</p>	<p>Investigating which fuel is best (7i)</p> <p>Assessment 09/01/2017</p>	<p>Ongoing Assessments (9-1 specific):</p> <p>Investigating climate change (9g)</p> <p>Open ended question: Explain how fossil fuels are made and where the energy comes from</p>	<p>Investigating variation in beans (9a)</p>	<p>is transferred through fluids.</p> <p>CO and Co describe and explain the differences between these 2 substances</p>
Year 9	<p>Topic: B1 C1 P1</p> <p>Overall aims: The movement into and out of different types of cells.</p> <p>The atomic model and the periodic table.</p> <p>The conservation of energy.</p> <p>9-1 subject specific areas/skills covered across topic: B1 Animal and plant cells Cell specialisation Stem Cells Eukaryotic and Prokaryotic</p>	<p>Topic: B1 C1 P1</p> <p>Overall aims: The movement into and out of different types of cells.</p> <p>The atomic model and the periodic table.</p> <p>The conservation of energy.</p> <p>9-1 subject specific areas/skills covered across topic: B1 Animal and plant cells Cell specialisation Stem Cells Eukaryotic and Prokaryotic</p>	<p>Topic: C2 B2 P4</p> <p>Overall aims: The organ systems and processes in the human body.</p> <p>The way atoms form larger compounds</p> <p>Properties of atoms - Radioactive decay</p> <p>9-1 subject specific areas/skills covered across topic: P4 Structure of an atom Radiation Alpha Beta Gamma</p>	<p>Topic: C2 B2 P4</p> <p>Overall aims: The organ systems and processes in the human body.</p> <p>The way atoms form larger compounds</p> <p>Properties of atoms - Radioactive decay</p> <p>9-1 subject specific areas/skills covered across topic: P4 Structure of an atom Radiation Alpha Beta Gamma</p>	<p>Topic: P2 B3 C3</p> <p>Overall aims: Generating electricity</p> <p>The different types of infection and prevention techniques</p> <p>Chemical calculations for reactions</p> <p>9-1 subject specific areas/skills covered across topic: C3 Conservation of mass Relative formula mass The mole Reacting masses Chemical Calculations Chemical Reactions</p>	<p>Topic: P2 B3 C3</p> <p>Overall aims: Generating electricity</p> <p>The different types of infection and prevention techniques</p> <p>Chemical calculations for reactions</p> <p>9-1 subject specific areas/skills covered across topic: C3 Conservation of</p>



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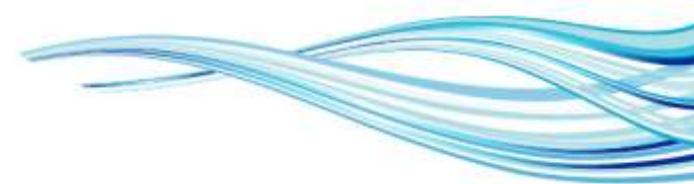


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<p>Microscopy Chromosomes Mitosis Diffusion Osmosis Active transport</p> <p>C1 Atoms Separation B1Atomic Model Sub atomic particles Scale of the atom Relative atomic mass Electrons Periodic table Early periodic table Metals Non metals Alkali Metals Halogens</p> <p>P1 Energy storage Calculating energy Specific heat capacity Work done Power rating Conservation of energy Calculating efficiency Renewable energy Non-renewable energy</p> <p>Ongoing Assessments (9-</p>	<p>Microscopy Chromosomes Mitosis Diffusion Osmosis Active transport</p> <p>C1 Atoms Separation B1Atomic Model Sub atomic particles Scale of the atom Relative atomic mass Electrons Periodic table Early periodic table Metals Non metals Alkali Metals Halogens</p> <p>P1 Energy storage Calculating energy Specific heat capacity Work done Power rating Conservation of energy Calculating efficiency Renewable energy Non-renewable energy</p> <p>Ongoing Assessments (</p>	<p>Half life Radioactive sources Irradiation</p> <p>C2 Ionic Covalent Metallic States of matter Chemical Equations Regular structures Covalent Structures Polymers Giant Covalent Diamond Graphite Carbon Allotropes</p> <p>B2 Organisation Digestion Enzymes Blood Heart Lungs Arteries Veins Heart Disease Blood Health Plant organs Plant transport Active transport</p>	<p>Half life Radioactive sources Irradiation</p> <p>C2 Ionic Covalent Metallic States of matter Chemical Equations Regular structures Covalent Structures Polymers Giant Covalent Diamond Graphite Carbon Allotropes</p> <p>B2 Organisation Digestion Enzymes Blood Heart Lungs Arteries Veins Heart Disease Blood Health Plant organs Plant transport Active transport</p>	<p>B3 Communicable disease Viral disease Fungal disease Bacterial disease Malaria Human defence system Vaccination Antibiotics Antibodies Painkillers Plant disease Vaccines</p> <p>P2 Circuit symbols Flowing current Series circuit Parallel circuit Resistance Potential difference Ohm's law AC DC Plugs Electric shock Electric Power Electrical stores Work Done Charge</p> <p>Ongoing Assessments (9-1 specific):</p>	<p>mass Relative formula mass The mole Reacting masses Chemical Calculations Chemical Reactions</p> <p>B3 Communicable disease Viral disease Fungal disease Bacterial disease Malaria Human defence system Vaccination Antibiotics Antibodies Painkillers Plant disease Vaccines</p> <p>P2 Circuit symbols Flowing current Series circuit Parallel circuit Resistance Potential difference</p>
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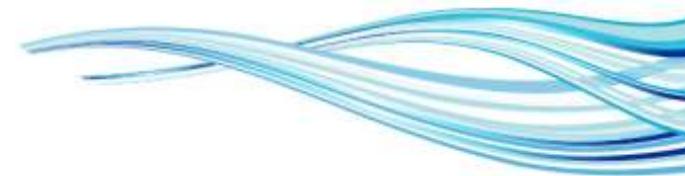


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	<p>1 specific):</p> <p>Marking points – 6 mark open ended questions.</p> <p>Mid topic assessments; B1 lesson 6, C1 lesson 7 and P1 lesson 4</p> <p>End of topic tests. To be done when a whole topic has been completed.</p>	<p>9-1 specific):</p> <p>Marking points – 6 mark open ended questions.</p> <p>Mid topic assessments; B1 lesson 6, C1 lesson 7 and P1 lesson 4</p> <p>End of topic tests. To be done when a whole topic has been completed.</p>	<p>Ongoing Assessments (9-1 specific):</p> <p>Marking points – 6 mark open ended questions</p> <p>Mid topic assessments; B2 lesson 8 and C2 lesson 7</p> <p>End of topic test to be completed when a whole topic has been completed</p>	<p>Ongoing Assessments (9-1 specific):</p> <p>Marking points – 6 mark open ended questions</p> <p>Mid topic assessments; B2 lesson 8 and C2 lesson 7</p> <p>End of topic test to be completed when a whole topic has been completed</p>	<p>Marking points – 6 mark open ended questions</p> <p>Mid topic assessments; P2 lesson 10</p> <p>End of topic test to be completed when a whole topic has been completed</p>	<p>Ohm's law AC DC Plugs Electric shock Electric Power Electrical stores Work Done Charge</p> <p>Ongoing Assessments (9-1 specific):</p> <p>Marking points – 6 mark open ended questions</p> <p>Mid topic assessments; P2 lesson 10</p> <p>End of topic test to be completed when a whole topic has been completed</p>
Year 10	<p>Topic: P3 C4 B4</p> <p>Overall aims: The particle model application</p> <p>Photosynthesis and</p>	<p>Topic: P3 C4 B4</p> <p>Overall aims: The particle model application</p> <p>Photosynthesis and</p>	<p>Topic: P5 C5 B5</p> <p>Overall aims: Forces and Newton's Laws</p> <p>Collision theory</p>	<p>Topic: P5 C5 B5</p> <p>Overall aims: Forces and Newton's Laws</p> <p>Collision theory</p>	<p>Topic: P6 P7 C7 C8 B6 C6</p> <p>Overall aims: Properties of waves Movement of magnets</p> <p>Rates and collisions</p>	<p>Topic: P6 P7 C7 C8 B6 C6</p> <p>Overall aims: Properties of waves Movement of magnets</p>



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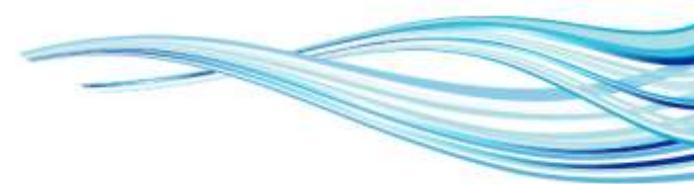


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	<p>human respiration</p> <p>Oxidation and reduction reactions</p> <p>9-1 subject specific areas/skills covered across topic:</p> <p>C4</p> <p>Metal oxides</p> <p>Reactions or metals</p> <p>Unreactive metals</p> <p>Oxidation</p> <p>Reduction</p> <p>Acids</p> <p>Metals</p> <p>Alkali</p> <p>Soluble salts</p> <p>pH Scale</p> <p>Strong Acids</p> <p>Weak Acids</p> <p>Electrolysis</p> <p>B4</p> <p>Photosynthesis</p> <p>Rate of photosynthesis</p> <p>Limiting factors</p> <p>Uses of Glucose</p> <p>Aerobic Respiration</p> <p>Anaerobic Respiration</p> <p>Response to exercise</p> <p>Metabolism</p> <p>P3</p>	<p>human respiration</p> <p>Oxidation and reduction reactions</p> <p>9-1 subject specific areas/skills covered across topic:</p> <p>C4</p> <p>Metal oxides</p> <p>Reactions or metals</p> <p>Unreactive metals</p> <p>Oxidation</p> <p>Reduction</p> <p>Acids</p> <p>Metals</p> <p>Alkali</p> <p>Soluble salts</p> <p>pH Scale</p> <p>Strong Acids</p> <p>Weak Acids</p> <p>Electrolysis</p> <p>B4</p> <p>Photosynthesis</p> <p>Rate of photosynthesis</p> <p>Limiting factors</p> <p>Uses of Glucose</p> <p>Aerobic Respiration</p> <p>Anaerobic Respiration</p> <p>Response to exercise</p> <p>Metabolism</p> <p>P3</p>	<p>Conditions within the body</p> <p>9-1 subject specific areas/skills covered across topic:</p> <p>B5</p> <p>Homeostasis</p> <p>Structure of the nervous system</p> <p>Function of the nervous system</p> <p>Relax actions</p> <p>The brain</p> <p>Endocrine system</p> <p>Blood glucose</p> <p>Nitrogen Balance</p> <p>Kidney function</p> <p>ADH</p> <p>Kidney Failure</p> <p>Hormones</p> <p>Reproduction</p> <p>Contraception</p> <p>Uses of hormones</p> <p>Negative feedback</p> <p>P5</p> <p>Vectors</p> <p>Contact forces</p> <p>Non contact forces</p> <p>Weight</p> <p>Gravity</p>	<p>Conditions within the body</p> <p>9-1 subject specific areas/skills covered across topic:</p> <p>B5</p> <p>Homeostasis</p> <p>Structure of the nervous system</p> <p>Function of the nervous system</p> <p>Relax actions</p> <p>The brain</p> <p>Endocrine system</p> <p>Blood glucose</p> <p>Nitrogen Balance</p> <p>Kidney function</p> <p>ADH</p> <p>Kidney Failure</p> <p>Hormones</p> <p>Reproduction</p> <p>Contraception</p> <p>Uses of hormones</p> <p>Negative feedback</p> <p>P5</p> <p>Vectors</p> <p>Contact forces</p> <p>Non contact forces</p> <p>Weight</p> <p>Gravity</p>	<p>Crude oil properties</p> <p>Testing for chemicals</p> <p>Reproduction the process of inheritance and evolution</p> <p>9-1 subject specific areas/skills covered across topic:</p> <p>P6</p> <p>Transverse Waves</p> <p>Longitudinal waves</p> <p>Electromagnetic waves</p> <p>Properties of waves</p> <p>Uses of Electromagnetic waves.</p> <p>P7</p> <p>Magnets</p> <p>Permanent magnets</p> <p>Magnetic materials</p> <p>Magnetic fields</p> <p>Compasses</p> <p>Wires</p> <p>Fields</p> <p>Motors</p> <p>Conductors</p> <p>C6</p> <p>Measuring the rate</p> <p>Factors effecting the rate</p> <p>Collision theory</p>	<p>Rates and collisions</p> <p>Crude oil properties</p> <p>Testing for chemicals</p> <p>Reproduction the process of inheritance and evolution</p> <p>9-1 subject specific areas/skills covered across topic:</p> <p>P6</p> <p>Transverse Waves</p> <p>Longitudinal waves</p> <p>Electromagnetic waves</p> <p>Properties of waves</p> <p>Uses of Electromagnetic waves.</p> <p>P7</p> <p>Magnets</p>
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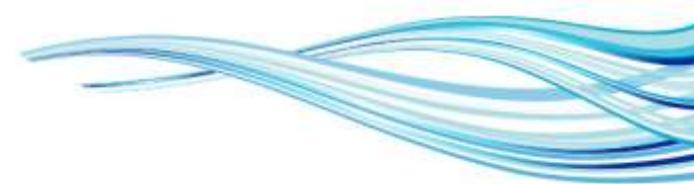


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<p>Density Particle model Chemical Changes Physical Changes Energy of materials Specific heat capacity Specific latent heat Gas particles</p> <p>Ongoing Assessments (9-1 specific): Marking points – 6 mark open ended questions.</p> <p>Mid topic assessments; B4 lesson 5 and C4 Lesson 7</p> <p>End of topic tests. To be done when a whole topic has been completed.</p>	<p>Density Particle model Chemical Changes Physical Changes Energy of materials Specific heat capacity Specific latent heat Gas particles</p> <p>Ongoing Assessments (9-1 specific): Marking points – 6 mark open ended questions.</p> <p>Mid topic assessments; B4 lesson 5 and C4 Lesson 7</p> <p>End of topic tests. To be done when a whole topic has been completed.</p>	<p>Resolving forces Free body diagrams Joules Elastic deformation Hooke's Law Work done Distance Speed Speed of sound Calculating distance Velocity DT graphs Acceleration Deceleration Motion equations Falling Newton's 3 laws Internal mass Stopping distance Energy changes</p> <p>C5 Conservation of energy Collisions Breaking bonds</p> <p>Ongoing Assessments (9-1 specific):</p> <p>Marking points – 6 mark open ended questions.</p> <p>Mid topic assessments; B5 lesson 7 and P5</p>	<p>Resolving forces Free body diagrams Joules Elastic deformation Hooke's Law Work done Distance Speed Speed of sound Calculating distance Velocity DT graphs Acceleration Deceleration Motion equations Falling Newton's 3 laws Internal mass Stopping distance Energy changes</p> <p>C5 Conservation of energy Collisions Breaking bonds</p> <p>Ongoing Assessments (9-1 specific):</p> <p>Marking points – 6 mark open ended questions.</p> <p>Mid topic assessments; B5 lesson 7 and P5 lesson</p>	<p>Catalysts Reversible reactions Equilibrium Changing equilibrium</p> <p>C7 Crude oil Fractional Distillation Hydrocarbon properties Cracking</p> <p>C8 Pure Substances Complex mixtures Chromatography Gas tests</p> <p>B6 Sexual and asexual reproduction Meiosis Sex determination DNA Genetic inheritance Genetic engineering Variation Selective breeding Evolution Fossils Extinction</p> <p>Ongoing Assessments (9-1 specific):</p>	<p>Permanent magnets Magnetic materials Magnetic fields Compasses Wires Fields Motors Conductors</p> <p>C6 Measuring the rate Factors effecting the rate Collision theory Catalysts Reversible reactions Equilibrium Changing equilibrium</p> <p>C7 Crude oil Fractional Distillation Hydrocarbon properties Cracking</p> <p>C8 Pure Substances</p>
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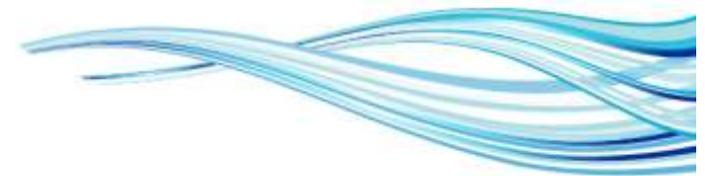
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			<p>lesson 8, 16, 24 and 32</p> <p>End of topic tests. To be done when a whole topic has been completed.</p>	<p>8, 16, 24 and 32</p> <p>End of topic tests. To be done when a whole topic has been completed.</p>	<p>Marking points – 6 mark open ended questions.</p> <p>Mid topic assessments; B6 lesson 7, C6 lesson 4 and p7 lesson 4</p> <p>End of topic tests. To be done when a whole topic has been completed.</p>	<p>Complex mixtures Chromatography Gas tests</p> <p>B6 Sexual and asexual reproduction Meiosis Sex determination DNA Genetic inheritance Genetic engineering Variation Selective breeding Evolution Fossils Extinction</p> <p>Ongoing Assessments (9-1 specific): Marking points – 6 mark open ended questions.</p> <p>Mid topic assessments; B6</p>
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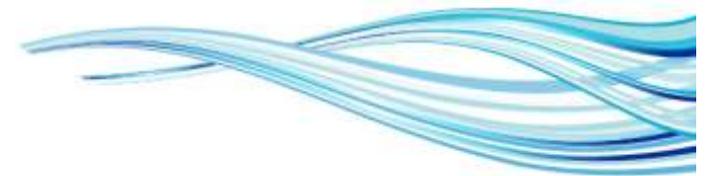
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						<p>lesson 7, C6 lesson 4 and p7 lesson 4</p> <p>End of topic tests. To be done when a whole topic has been completed.</p>
Year 11	<p>Topic: B7 C9 C10</p> <p>Overall aims: How animals have changed over time to suit their environment</p> <p>The earths resources</p> <p>The earths atmosphere composition.</p> <p>9-1 subject specific areas/skills covered across topic: C10 Earths resources Water for life Producing waste Using materials</p> <p>C9 Gases in the atmosphere The early atmosphere</p>	<p>Topic: B7 C9 C10</p> <p>Overall aims: How animals have changed over time to suit their environment</p> <p>The earths resources</p> <p>The earths atmosphere composition.</p> <p>9-1 subject specific areas/skills covered across topic: C10 Earths resources Water for life Producing waste Using materials</p> <p>C9 Gases in the atmosphere</p>	<p>Topic:</p> <p>Overall aims:</p> <p>9-1 subject specific areas/skills covered across topic:</p> <p>Ongoing Assessments (<i>9-1 specific</i>):</p>	<p>Topic:</p> <p>Overall aims:</p> <p>9-1 subject specific areas/skills covered across topic:</p> <p>Ongoing Assessments (<i>9-1 specific</i>):</p>	<p>Topic:</p> <p>Overall aims:</p> <p>9-1 subject specific areas/skills covered across topic:</p> <p>Ongoing Assessments (<i>9-1 specific</i>):</p>	<p>Topic:</p> <p>Overall aims:</p> <p>9-1 subject specific areas/skills covered across topic:</p> <p>Ongoing Assessments (<i>9-1 specific</i>):</p>



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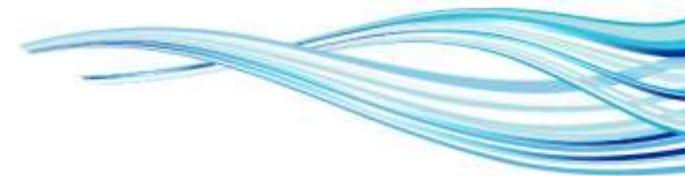


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	<p>Algae and plants Greenhouse gases Human's impact Climate change Carbon footprint Combustion of fuels Carbon monoxide</p> <p>B7 Classification Communities Biotic factors Abiotic factors Distribution or organisms Adaptations Levels of organisation How materials are cycled Biodiversity Waste management Land and deforestation Global warming Maintaining biodiversity</p> <p>Ongoing Assessments (9-1 specific): Marking points – 6 mark open ended questions.</p> <p>Mid topic assessments; B7 lesson 7 and C9 lesson 5</p> <p>End of topic tests. To be done when a whole topic</p>	<p>The early atmosphere Algae and plants Greenhouse gases Human's impact Climate change Carbon footprint Combustion of fuels Carbon monoxide</p> <p>B7 Classification Communities Biotic factors Abiotic factors Distribution or organisms Adaptations Levels of organisation How materials are cycled Biodiversity Waste management Land and deforestation Global warming Maintaining biodiversity</p> <p>Ongoing Assessments (9-1 specific): Marking points – 6 mark open ended questions.</p> <p>Mid topic assessments; B7 lesson 7 and C9 lesson 5</p>				
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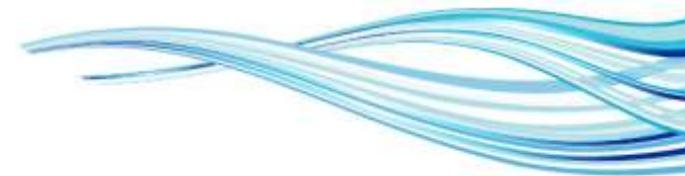


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	has been completed.	End of topic tests. To be done when a whole topic has been completed.				
Year 12 Physics	<p>Topic: Managing Units and Quantities Understanding Quantities in Electricity</p> <p>Overall aims: - Foundation of Physics - Charge and Current - Energy Power and Resistance</p> <p>Exam specification specific areas/skills:</p> <p>Quantities and units Derived units Scalar and Vector quantities Adding Vectors Resolving vectors More on vectors</p> <p>Current and charge Moving charges Kirchoff's first law Mean Drift Velocity</p>	<p>Topic: Forces and Motion Electrical circuits</p> <p>Overall aims: - to apply SUVAT equations - to construct Electrical circuits and know components</p> <p>Exam specification specific areas/skills:</p> <p>Distance and speed Displacement and Velocity Acceleration More on Velocity-time graphs Equations of motion Car stopping distance Free fall and g Projectile Motion</p> <p>Kirchoff's Law and circuits</p>	<p>Topic: - Forces in action - Waves 1</p> <p>Overall aims: -To calculate forces using equations -To describe and calculate wave properties</p> <p>Exam specification specific areas/skills:</p> <p>Force, Mass and Weight Centre of Mass Free-body diagrams Drag and terminal velocity Moments and Equilibrium Couples and Torques Triangle of Forces Density and Pressure $p = h\rho g$ and Archimedes principle</p>	<p>Topic: - Work, Energy and Power - Materials - Waves 2</p> <p>Overall aims: -To calculate work, energy and power -To describe and calculate the deformation of materials -To explain how waves interact</p> <p>Exam specification specific areas/skills:</p> <p>Work done and Energy Conservation of Energy Kinetic Energy and Gravitational Potential Energy Power and Efficiency</p> <p>Springs and Hooke's Law Elastic Potential Energy Deforming Materials Stress-Strain, and the</p>	<p>Topic: -Laws of motion and momentum - Quantum Physics</p> <p>Overall aims: -Apply and calculate using conservation of momentum/Newton's 2nd law -Calculate using deBroglie and $E = mc^2$</p> <p>Exam specification specific areas/skills:</p> <p>Newton's first and third laws of motion Linear momentum Newton's second law of motion Impulse</p> <p>The photon model The photoelectric effect Einstein's photoelectric effect equation</p>	<p>Topic: - Overview</p> <p>Overall aims: See those for Exam specification specific areas/skills:</p> <p>Ongoing Assessments: End of Year Assessment</p>



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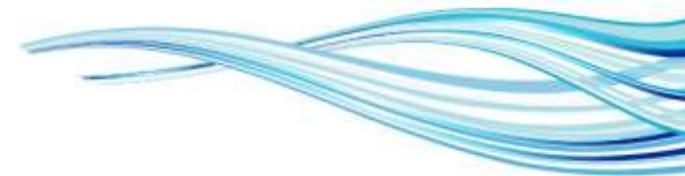


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	<p>Circuit Symbols Potential difference and electromotive force The electron gun Resistance IV characteristics Diodes Resistance and Resistivity The thermistor The LDR Electrical energy and power Paying for electricity</p> <p>Ongoing Assessments: -Foundation of Physics -Charge, Current, -Energy, power and Resistance</p>	<p>Combining Resistors Analysing Circuits Internal Resistance Potential Divider Circuits Sensing Circuits</p> <p>Ongoing Assessments: -Motion -Electrical Circuits</p>	<p>Progressive Waves Wave Properties Reflection and Refraction Diffraction and Polarisation Intensity Electromagnetic Waves Polarisation of Electromagnetic Waves Refractive Index Total Internal Reflection</p> <p>Ongoing Assessments: -Forces in Action -Waves 1</p>	<p>Young Modulus Superposition of Waves Interference The Young Double Slit experiment Stationary Waves Harmonics Stationary Waves in Air Columns</p> <p>Ongoing Assessments: -Work, Energy and Power & Materials - Waves 2</p>	<p>Wave –particle duality</p> <p>Ongoing Assessments: -Laws of motion and momentum - Quantum Physics</p>	
Year 13 Physics	<p>Topic: Thermal Physics Ideal Gases Circular Motion Oscillations Gravitational Fields</p> <p>Overall aims: To calculate using specific heat capacity and ideal gas equations To describe and calculate m, F and v for objects moving in circles</p>	<p>Topic: Stars Cosmology Capacitance Electric Fields Magnetic Fields</p> <p>Overall aims: To explain the Big Bang To calculate capacitance To describe and calculate field strength, Force, flux density</p> <p>Exam specification</p>	<p>Topic: Particle Physics Radioactivity Nuclear Physics</p> <p>Overall aims: Understand quarks composition To write decay equations and calculate half life Explain fission and fusion</p> <p>Exam specification</p>	<p>Topic: Medical Imaging</p> <p>Overall aims: To describe how Xrays, Gamma cameras, ultrasound and PET scanners work</p> <p>Exam specification specific areas/skills: Xrays Interactions of Xrays and matter</p>	<p>Topic: Overview</p> <p>Overall aims: See first four terms</p> <p>Exam specification specific areas/skills:</p> <p>Ongoing Assessments: All of Year 13 Assessment</p>	<p>Topic: Overview</p> <p>Overall aims:</p> <p>Exam specification specific areas/skills:</p> <p>Ongoing Assessments:</p>



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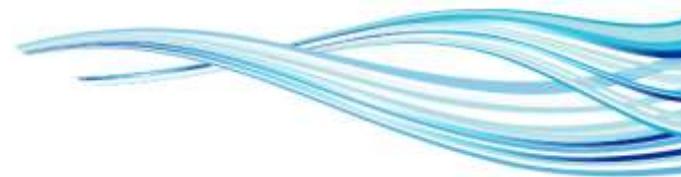
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	<p>Exam specification specific areas/skills:</p> <p>Temperature Solids, Liquids and gases Internal Energy Specific Heat Capacity Specific latent heat</p> <p>The kinetic theory of gases Gas laws Root mean square speed The Boltzmann constant</p> <p>Angular velocity Angular acceleration Exploring centripetal force</p> <p>Oscillations and simple harmonic motion Analysing simple harmonic motion Simple harmonic motion and energy Damping and driving Resonance</p> <p>Ongoing Assessments: -Thermal Physics and Ideal Gases -Circular Motion and oscillations</p>	<p>specific areas/skills:</p> <p>Objects in the universe The life cycle of stars Hertzsprung Russell diagrams Energy Levels in Atoms Spectra Analysing starlight Stellar luminosity</p> <p>Astronomical Distances The Doppler effect Hubble's Law The big bang theory Evolution of the universe</p> <p>Capacitors Capacitors and circuits Energy stored by capacitors Discharging capacitors Charging capacitors Uses of capacitors</p> <p>Electric laws Coulombs law Uniform electric fields and capacitance Charged particles in uniform electric fields Electric potential energy</p>	<p>specific areas/skills:</p> <p>Alpha-particle scattering Experiment The nucleus Antiparticles, hadrons and Leptons Quarks Beta decay</p> <p>Radioactivity Nuclear decay equations Half-life activity Radioactive decay calculations Modelling radioactive decay Radioactive dating</p> <p>Ongoing Assessments: -Particle Physics -Radioactivity and nuclear Physics</p>	<p>CAT scans The gamma camera PET scans Ultrasound</p> <p>Ongoing Assessments: Medical imaging</p>		
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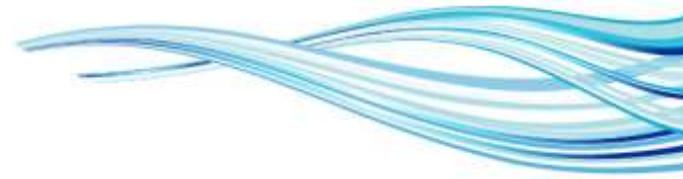


	-Oscillations	<p>Magnetic fields Understanding magnetic fields Charged particles in magnetic fields Electromagnetic induction Fardays's law and Lenz's law Transformers</p> <p>Ongoing Assessments: -Stars, Gravitational Fields, Cosmology - Electric and Magnetic Fields</p>				
Year 12 Chemistry	<p>Topic: Atomic Structure Introduction to organic chemistry Periodicity Group 2 Group 7</p> <p>Overall aims: To understand the features and chemistry of an atom To explain the arrangement of an atom To describe and explain the trends of the periodic table</p>	<p>Topic: Amount of substances Alkanes Halogenoalkanes</p> <p>Overall aims: To calculate the atomic and molecular masses To use Avogadro constant in a calculation To calculate ideal gas equation To identify an alkane Describe and explain fractional distillation To describe nucleophilic substitution and</p>	<p>Topic: Bonding Alkenes</p> <p>Overall aims: To describe and explain ionic, covalent and metallic bonding To identify shapes of molecules and ions To identify an alkene Describe reactions of alkenes Explain addition polymers</p> <p>Exam specification</p>	<p>Topic: Energetics Kinetics Alcohols</p> <p>Overall aims: To calculate the enthalpy of a reaction To construct thermochemical cycles To describe and explain collision theory Identify and alcohol Describe the mechanism to produce alcohol</p> <p>Exam specification</p>	<p>Topic: Equilibrium REDOX Organic analysis</p> <p>Overall aims: To understand the idea of equilibrium To calculate the equilibrium constant To describe the effects of equilibrium To calculate oxidation states To describe experiments that test for organic compounds</p>	<p>Topic: Revision Overall aims: Revision of AS chemistry</p> <p>Exam specification areas/skills:</p> <p>Ongoing Assessments: PAST PAPERS</p>



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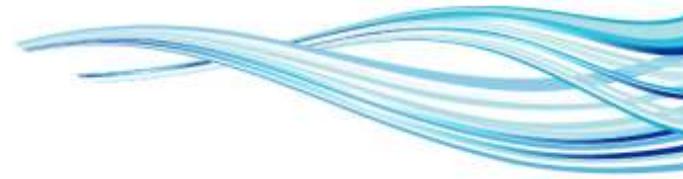


	<p>To identify and name specific organic compounds</p> <p>Exam specification specific areas/skills: Atomic structure Arrangement of electrons Mass spectrometer Ionisation energy The periodic table Atomic radii Solubility Electronegativity Halide ions Nomenclature Isomerism Carbon compounds Use of chlorine</p> <p>Ongoing Assessments: Fortnightly assessment from both teachers End of term assessment on all topics learned</p>	<p>elimination reactions</p> <p>Exam specification specific areas/skills: Relative atomic mass Molecular mass Avogadro's constant Ideal gas equation Empirical formula Balancing equations Percentage yield Alkanes Fractional distillation Industrial cracking Combustion of alkanes Halogenoalkanes Nucleophilic reactions Elimination reactions</p> <p>Ongoing Assessments: Fortnightly assessment from both teachers End of term assessment on all topics learned</p>	<p>specific areas/skills: Ionic bonding Covalent bonding Metallic bonding Electronegativity Intermolecular forces Shapes of molecules Bonding and physical properties Alkenes Reaction of alkenes Addition polymers</p> <p>Ongoing Assessments: Fortnightly assessment from both teachers End of term assessment on all topics learned</p>	<p>specific areas/skills: Exothermic and endothermic Enthalpy Hess's law Enthalpy changes Bond enthalpies Collision theory Maxwell-boltzmann distribution Catalysts Introduction to alcohols Ethanol production Reaction of alcohols</p> <p>Ongoing Assessments: Fortnightly assessment from both teachers End of term assessment on all topics learned</p>	<p>To analyse data</p> <p>Exam specification specific areas/skills: Idea of equilibrium Changing conditions of equilibrium Equilibrium constant K_c Equilibrium reactions in industry Calculations using K_c Oxidation and reduction Oxidation states Redox equations</p> <p>Ongoing Assessments: Fortnightly assessment from both teachers End of term assessment on all topics learned</p>	
Year 13 Chemistry	<p>Topic: Thermodynamics Nomenclature and isomerism Carbonyl groups</p> <p>Overall aims: To identify and name organic compounds</p>	<p>Topic: Kinetics Equilibrium constant K_p Aromatic chemistry Amines</p> <p>Overall aims: To calculate the K_p for homogeneous systems</p>	<p>Topic: Polymerisation Amino acids, proteins and DNA Electrode potential and electrochemical cells Acids, bases and buffers</p> <p>Overall aims:</p>	<p>Topic: Organic synthesis and analysis Structure determination Chromatography Periodicity</p> <p>Overall aims: To identify the different</p>	<p>Topic: Transition metals Reactions of inorganic compounds in aqueous solutions REVISION</p> <p>Overall aims: To describe the general</p>	<p>Topic: Overall aims: Exam specification specific areas/skills:</p>



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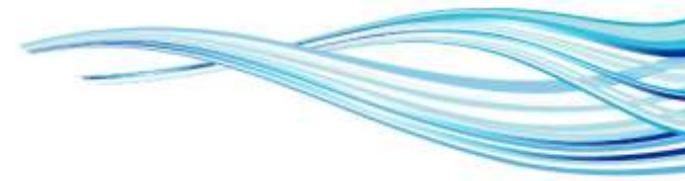


<p>To describe the reaction of organic compounds Explain reaction mechanisms To calculate enthalpy changes To construct born-haber cycles</p> <p>Exam specification specific areas/skills: Enthalpy changes Born-haber cycle Why chemical reactions take place Entropy Naming organic compounds Aldehydes and ketones Optically active compounds Reactions of carbonyl group compounds Reactions of carboxylic acids and esters Acylation</p> <p>Ongoing Assessments: Fortnightly assessment from both teachers End of term assessment on all topics learned</p>	<p>To calculate the rate of a reaction Construct rate expressions Describe the rate determining step To identify an arene Describe reactions of arenes Identify an amine Describe and explain nucleophiles</p> <p>Exam specification specific areas/skills: Rate of reactions Rate expression Order of reaction Rate determining step Equilibrium constant K_p Arenes and their properties Reactions of arenes Amines and their properties Reaction of amines Amines as nucleophiles</p> <p>Ongoing Assessments: Fortnightly assessment from both teachers End of term assessment on all topics learned</p>	<p>To explain the condensation of polymers To identify an amino acid To describe peptides and proteins To explain the chemistry of enzymes and DNA To construct electrochemical cells Define and acid and base To explain acid-base titrations</p> <p>Exam specification specific areas/skills: Condensation polymers Introduction to amino acids Peptides, polypeptides and proteins Enzymes DNA Action of anti-cancer drugs Electrochemical series Predicting the direction of redox reactions Electrochemical cells Defining an acid pH scale</p>	<p>synthetic routes of reactions To memorise conditions of all reactions To describe and explain NMR To analyse NMR To describe chromatography To identify and describe trends in period 3 elements To explain the oxides of period 3</p> <p>Exam specification specific areas/skills: Synthetic routes Organic analysis Nuclear magnetic resonance Proton NMR Chromatography Reactions of period 3 elements Oxides of elements in period 3 Acidic/basic nature of period 3 oxides</p> <p>Ongoing Assessments: Fortnightly assessment from both teachers End of term assessment</p>	<p>properties of transition metals To draw complex ions To calculate variable oxidations of transition metals Catalysts To describe acid-base chemistry of aqueous solutions To describe the mechanism of ligand substitutions REVISION</p> <p>Exam specification specific areas/skills: General properties of transition metals Complex formation and the shape of complex ions Coloured ions Variable oxidation states of transition elements Catalysts Acid-base chemistry of aqueous transition metal ions Ligand substitution reactions</p> <p>Ongoing Assessments: Fortnightly assessment</p>	<p>Ongoing Assessments:</p>
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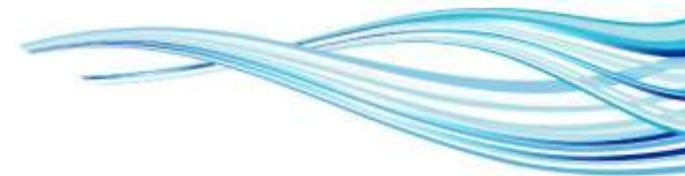
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			<p>Acid-base titrations Weak acid and bases Buffer solutions Indicators</p> <p>Ongoing Assessments: Fortnightly assessment from both teachers End of term assessment on all topics learned</p>	on all topics learned	from both teachers End of term assessment on all topics learned	
Year 12 Biology	<p>Topic 1: Biological Molecules Topic 2: Cell structure (Two teachers) Overall aims:</p> <ul style="list-style-type: none"> - Recall the structure and function of different molecules - Explain the mode of enzyme action and factors affecting enzymes - Compare different microscopes - Perform magnification calculations - Identify cell structures and their functions - Describe the events of mitosis and the cell cycle <p>Exam specification specific</p>	<p>Topic 1: Nucleic acids Topic 2: Transport across membranes Overall aims:</p> <ul style="list-style-type: none"> -Recall the structure of DNA and RNA -Describe DNA replication -Describe the structure and functions of ATP -Describe the structure and functions of water -Describe the structure of cell membranes -Explain how substances are transported across membranes <p>Exam specification specific areas/skills:</p>	<p>Topic 1: Cell recognition and immune system Topic 2: Exchange Overall aims:</p> <ul style="list-style-type: none"> -Describe cell mediated immune responses -Describe humoral responses -Describe the structure of antibodies -Explain how vaccination works -Describe the structure of HIV -Describe gas exchange in different organisms - Describe and explain digestion and absorption <p>Exam specification specific areas/skills: Defence mechanisms; phagocytes; cell</p>	<p>Topic 1: Genes and protein synthesis Topic 2: Mass transport Overall aims:</p> <ul style="list-style-type: none"> -Explain the triplet code -Describe DNA, RNA and protein structures -Describe and explain the stages of protein synthesis -Describe the structure and function of haemoglobin -Describe the structure and functions of the heart and blood vessels -Explain how substances are transported in plants <p>Exam specification specific areas/skills: Triplet code; DNA and chromosomes; RNA</p>	<p>Topic 1: Genetic diversity Topic 2: Biodiversity Overall aims:</p> <ul style="list-style-type: none"> - Explain how meiosis produces variation - Describe the different types of mutation - Define diversity and explain how to calculate it - Explain the different types of selection - Explain the concept of species and how to classify organisms 	<p>Revision of Y12 topics as required through assessment analysis; exam technique and extra help with maths topics</p> <p>Overall aims: To identify areas of weakness and intervene; to develop exam technique; to focus on Maths skills required for Biology exams</p> <p>Exam specification specific areas/skills: See above</p>



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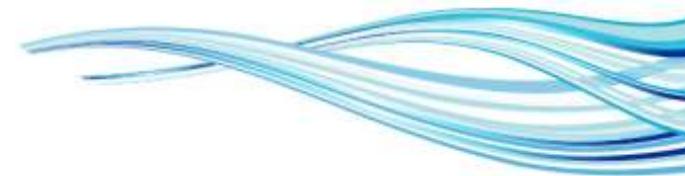


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	<p>areas/skills: Carbohydrates – mono, di and polysaccharides; lipids; proteins; enzymes; factors affecting enzymes and inhibitors</p> <p>Methods of studying cells; microscopes and measurements; eukaryotic cells; cell specialisation; prokaryotic cells; viruses; mitosis; cell cycle</p> <p>Ongoing Assessments:</p> <ul style="list-style-type: none"> - Carbohydrates and lipids - Proteins and enzymes - Prokaryotic and eukaryotic cells and microscopes - Mitosis and cell cycle 	<p>RNA and DNA structure; DNA replication; energy and ATP; water</p> <p>Membrane structure; diffusion, osmosis, active transport; cotransport and glucose absorption</p> <p>Ongoing Assessments:</p> <ul style="list-style-type: none"> - Nucleic acid structure and replication - Energy ,ATP and water - Membrane structure - Transport across membranes 	<p>mediated immunity; humoral immunity; antibodies; vaccination; HIV</p> <p>Gas exchange in single cells and insects; gas exchange in fish; gas exchange in leaves; limiting water loss; human gas exchange system; mechanism of breathing; gas exchange in lungs; enzymes and digestion; absorption in the gut</p> <p>Ongoing Assessments:</p> <ul style="list-style-type: none"> - Phagocytosis and cell mediated - Humoral and antibodies - Vaccination and HIV - Enzymes and digestion - Gas exchange 	<p>structure; protein synthesis</p> <p>Haemoglobin structure and function; circulatory system; heart structure and cardiac cycle; Blood vessels; xylem and water transport; phloem and transport</p> <p>Ongoing Assessments:</p> <ul style="list-style-type: none"> - DNA, RNA, triplet code - Protein synthesis - Haemoglobin, heart and vessels - Plant transport 	<p>Exam specification specific areas/skills: Mutations; Meiosis and variation; genetic diversity and adaptation; types of selection</p> <p>Species and taxonomy; diversity within a community; human effects on diversity; investigating diversity; quantitative investigations of variation</p> <p>Ongoing Assessments:</p> <ul style="list-style-type: none"> - Meiosis and mutation - Diversity, adaptation and selection - Taxonomy and diversity - Investigations of diversity and variation 	<p>Ongoing Assessments:</p> <ul style="list-style-type: none"> - Past paper 1 - Past paper 2 - Past paper 3 - Maths skills
Year 13 Biology	<p>Topic 1: Inherited change, populations and evolution</p> <p>Topic 2: Photosynthesis and respiration</p>	<p>Topic 1: Populations in ecosystems</p> <p>Topic 2: Energy and ecosystems</p>	<p>Topic 1: Gene expression</p> <p>Topic 2: Responses, nervous coordination and muscles</p>	<p>Topic 1: Recombinant DNA technology</p> <p>Topic 2: Homeostasis</p> <p>Overall aims:</p>	<p>Topic: To be determined by analysis of exams; exam technique</p>	



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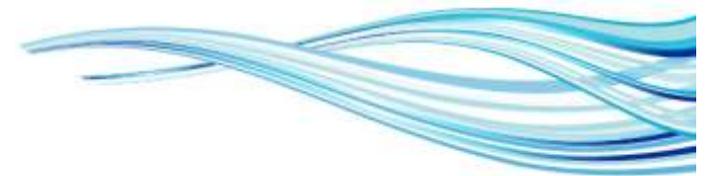


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<p>Overall aims:</p> <ul style="list-style-type: none"> -To construct and interpret genetic crosses - to carry our chi squared calculations -to explain variation, natural selection, isolation and speciation - to carry out Hardy Weinberg calculations - to describe the reactions of photosynthesis and respiration <p>Exam specification specific areas/skills:</p> <p>Monohybrid and dihybrid inheritance; codominance and multiple alleles; sex and autosomal linkage; epistasis; chi squared; population genetics; variation; natural selection; isolation; speciation.</p> <p>Overview of photosynthesis; light dependent and independent reactions; glycolysis; link reaction; krebs cycle; oxidative phosphorylation; anaerobic;</p>	<p>Overall aims:</p> <ul style="list-style-type: none"> -To investigate populations and variation in populations -To explain competition, predation and successions - To evaluate conservation methods -To describe energy transfers through ecosystems -To describe nutrient cycles -To evaluate different fertiliser use and the effects on the environment <p>Exam specification specific areas/skills:</p> <p>Populations in ecosystems; variation in populations; competition; predation; succession; conservation; investigating populations</p> <p>Food chains; energy transfer and productivity; nutrient cycles; fertiliser use;</p>	<p>Overall aims:</p> <ul style="list-style-type: none"> -To describe mutations and their effects -To explain the importance of stem cells -To describe the control of gene expression -To describe the action of plant growth factors -To describe the structure and functioning of the nervous sytem -To describe the structure and contraction of skeletal muscle <p>Exam specification specific areas/skills:</p> <p>Mutations; stem cells and totipotency; regulation of transcription and translation; epigenetic control; gene expression and cancer; genome projects</p> <p>Plant growth factors; reflex arc; receptors; control of heart rate; neurones and nervous</p>	<ul style="list-style-type: none"> -To describe the techniques of gene technology -To describe and evaluate the applications of gene technology -To describe the principles of homeostasis -To describe and explain the control of blood glucose -To describe the role of hormones in the control of blood water potential <p>Exam specification specific areas/skills:</p> <p>Producing DNA fragments; IV gene cloning – using vectors and PCR; locating genes, genetic screening and counselling; genetic fingerprinting</p> <p>Principles of homeostasis; feedback; hormones and blood glucose; diabetes; nephron structure and control of blood water potential; osmoregulation – the role of hormones and the nephron</p>	<p>Overall aims:</p> <p>To identify areas of weakness and review these in lessons</p> <p>Exam specification specific areas/skills:</p> <p>To be determined by analysis of exams; exam technique</p> <p>Ongoing Assessments:</p> <p>Past paper 1 Past paper 2 Assessments depending on areas identified from exam analysis</p>	
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	<p>Ongoing Assessments:</p> <ul style="list-style-type: none">- Inheritance- Chi squared calculations- Variation, selection, isolation and speciation- Photosynthesis- Respiration	<p>environmental issues</p> <p>Ongoing Assessments:</p> <ul style="list-style-type: none">- Populations and variation- Competition, predation and succession- Conservation- Food chains and productivity- Nutrient cycles- Fertiliser use and the environment	<p>communication; nerve impulse; action potential; synapses; skeletal muscle structure and contraction</p> <p>Ongoing Assessments:</p> <ul style="list-style-type: none">- Mutations and stem cells- Control of gene expression- Cancer and genome projects- Plant growth factors- Nervous system- Muscles	<p>Ongoing Assessments:</p> <ul style="list-style-type: none">- DNA technology- Screening and counselling- Homeostasis and hormonal control of blood glucose- Nephron and control of water potential		
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