

Week beginning 5th March 2018

Session 1	Session 2	Session 3	Session 4	Session 5																														
<p>Bio Paper 1- Key concepts:</p> <p>Explain how the cell parts in eukaryotic and prokaryotic cells are related to their functions, including: animal, plant & bacteria. Page 11</p> <p>Explain how sperm, egg and ciliated epithelial cells are adapted to their function. Page 12</p> <p>Explain how changes in microscope technology, including electron microscopy, have enabled us to see cell structures with more clarity and detail than in the past Page 13</p> <p>Demonstrate an understanding of units including: milli, micro, nano & pico Page 8</p> <table border="1"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!				<p>Bio Paper 1- Key concepts:</p> <p>HT ONLY: Complete calculations with numbers written in standard form Pg 14</p> <p>Explain the mechanism of enzyme action including the active site and enzyme specificity Pg15</p> <p>Explain how enzymes can be denatured due to changes in the shape of the active site Pg 15</p> <p>Explain the effects of temperature, substrate concentration and pH on enzyme activity Pg 15</p> <p>Demonstrate an understanding of rate calculations for enzyme activity Pg 16</p> <table border="1"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!				<p>Bio Paper 1- Key concepts:</p> <p>Explain the importance of enzymes as biological catalysts in the synthesis and breakdown of carbohydrates, fats and proteins Pg 17</p> <p>Explain how substances are transported into and out of cells, including by diffusion, osmosis and active transport Pg 18</p> <p>Calculate percentage gain and loss of mass in osmosis Pg 19</p> <table border="1"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!				<p>Chem Paper 1- Key concepts</p> <p>Describe how the Dalton model of an atom has changed over time because of the discovery of subatomic particles</p> <p>Describe the structure of an atom</p> <p>Recall the relative charge and relative mass of: a proton, a neutron and an electron</p> <p>Explain why the overall charge of an atom is 0</p> <p>Describe the nucleus of an atom as very small compared to the overall size of the atom</p> <p>Recall that most of the mass of an atom is concentrated in the nucleus</p> <p>Recall the meaning of the term mass number of an atom</p> <table border="1"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!				<p>Chem Paper 1- Key concepts</p> <p>Describe what isotopes are</p> <p>Calculate the numbers of protons, neutrons and electrons in atoms given the atomic number and mass number</p> <p>Explain how the existence of isotopes results in relative atomic masses of some elements not being whole numbers</p> <p>HT ONLY: Calculate the relative atomic mass of an element from the relative masses and abundances of its isotopes</p> <table border="1"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!			
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<p>Chem Paper 1- Key concepts</p> <p>Describe how Mendeleev arranged the elements known at that time,</p> <p>Describe how Mendeleev used his table to predict the existence and properties of some elements not discovered by then</p> <p>Explain that Mendeleev thought he had arranged elements in order of increasing relative atomic mass but this was not always true</p> <p>Explain the meaning of atomic number of an element in terms of position in the periodic table and number of protons in the nucleus</p> <p>Describe how elements are arranged in the groups and periods of the periodic table</p> <p>Identify elements as metals or non-metals with position in the periodic table,</p> <table border="1"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!				<p>Chem Paper 1- Key concepts</p> <p>Predict the electronic configurations of the first 20 elements in the periodic table as diagrams and in the form 2.8.1 etc</p> <p>Explain how the electronic configuration of an element is related to its position in the periodic table</p> <p>Explain how ionic bonds are formed to produce cations and anions, including the use of dot and cross diagrams</p> <p>Recall that an ion is an atom or group of atoms with a positive or negative charge</p> <table border="1"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!				<p>Chem Paper 1- Key concepts</p> <p>Calculate the numbers of protons, neutrons and electrons in simple ions given the atomic number and mass number</p> <p>Explain the formation of ions in ionic compounds from their atoms, limited to compounds of elements in groups 1, 2, 6 and 7</p> <p>Explain the use of the endings -ide and -ate in the names of compounds</p> <p>Deduce the formulae of ionic compounds given the formulae of the constituent ions</p> <p>Explain the structure of an ionic compound including a description of the lattice and electrostatic forces</p> <table border="1"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!				<p>Phys Paper 1 - Key concepts</p> <p>Recall and use the SI unit for physical quantities, as listed in the spec. Pg 8</p> <p>Recall and use multiples and sub-multiples of units, including giga (G), mega (M), kilo (k), centi (c), milli (m), micro (μ) and nano (n) Pg 8</p> <p>Be able to convert between different units, including hours to seconds Pg 8</p> <p>Use significant figures and standard form where appropriate</p> <table border="1"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!				<p>Phys Paper 1 - Topic 2 Motion & forces</p> <p>Describe what scalar and vector means Pg 145</p> <p>categorise displacement/distance, velocity/speed, acceleration, force, weight/mass, momentum and energy as scalar or vector Pg 145</p> <p>Define what velocity is Pg 145</p> <p>Recall and use the equation linking speed (m/s) distance (m) time (s) Pg 145</p> <p>Analyse distance/time graphs including determination of speed from the gradient Pg 147</p> <table border="1"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!			
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<p><u>Phys Paper 1 - Topic 2 Motion & forces</u></p> <p>Recall and use the equation: $a=(v-u)/t$ Pg 146 Use the equation: $v^2 - u^2 = 2 \times a \times s$ Pg 146 Analyse velocity/time graphs to: (Pg 148)</p> <ul style="list-style-type: none"> compare acceleration from gradients calculate the acceleration from the gradient determine distance travelled using area between the graph line and the axis <p>Describe a range of methods for determining the speeds of objects such as the use of light gates Pg 151 Recall some typical speeds encountered in everyday experience for wind and sound, and for walking, running, cycling and other transportation systems Pg 145</p> <table border="1"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!				<p><u>Phys Paper 1 - Topic 2 Motion & forces</u></p> <p>Recall Newton's first law and use it where the resultant force on a body is zero and not zero Pg 149 Recall and use Newton's second law as: $F = m \times a$ Pg 149 Define weight, recall and use the equation: $W = m \times g$ Pg 150 Describe the relationship between the weight of a body and the gravitational field strength Pg 150 Recall and apply Newton's third law both to equilibrium situations Pg 152</p> <table border="1"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!				<p><u>Phys Paper 1 - Topic 2 Motion & forces</u></p> <p>HT ONLY: Explain that an object moving in a circular orbit at constant speed has a changing velocity Pg 150 HT ONLY: Explain that for motion in a circle there must be a resultant force known as a centripetal force that acts towards the centre of the circle Pg 150 HT ONLY: Explain that inertial mass is a measure of how difficult it is to change the velocity of an object Pg 152 HT ONLY: Recall and apply Newton's third law collision interactions and relate it to the conservation of momentum in collisions Pg 152 HT ONLY: Define momentum, recall and use the equation: $p = m \times v$ Pg 153 HT ONLY: Describe examples of momentum in collisions Pg 153 HT ONLY: Use Newton's second law as: $F = (mv - mu)/t$ Pg 154</p> <table border="1"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!				<p><u>Phys Paper 1 - Topic 2 Motion & forces</u></p> <p>Explain methods of measuring human reaction times and recall typical results Pg 155 Recall what the stopping distance of a vehicle is the sum of Pg 155 Explain factors that affect the stopping distance Pg 155 Describe the factors that could affect a driver's reaction time Pg 155 Explain the dangers caused by large decelerations HT ONLY: Estimate the forces involved in typical situations on a public road due to decelerations Estimate how the distance required for a road vehicle to stop in an emergency varies over a range of typical speeds Carry out calculations on work done to show the dependence of braking distance for a vehicle on initial velocity squared</p> <table border="1"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!				<p><u>Bio Paper 1 - Topic 2 Cells and Control</u></p> <p>Describe mitosis as part of the cell cycle, including the stages interphase, prophase, metaphase, anaphase and telophase and cytokinesis Pg 20 Describe the importance of mitosis in growth, repair and asexual reproduction Pg 21 Describe how many cells are formed in mitosis and the number of chromosomes in each Pg 20 Describe cancer as the result of changes in cells that lead to uncontrolled cell division Pg 21</p> <table border="1"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!			
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<p><u>Bio Paper 1 - Topic 2 Cells and Control</u></p> <p>Describe growth in plants and animals including: cell division, differentiation and elongation (plants only) Pg 21 Explain the importance of cell differentiation in the development of specialised cell Pg 21 Demonstrate an understanding of the use of percentiles charts to monitor growth Pg 21 Describe the function of embryonic stem cells in animals and meristems in plants Pg 22 Discuss the potential benefits and risks associated with the use of stem cells in medicine Pg 22</p> <table border="1"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!				<p><u>Bio Paper 1 - Topic 2 Cells and Control</u></p> <p>Explain the structure and function of the nervous system including neurones, synapses and neurotransmitters Pg 23 Explain the structure and function of a reflex arc including sensory, relay and motor neurones Pg 24</p> <table border="1"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!				<p><u>Chem Paper 1- Core Concepts</u></p> <p>Explain a covalent bond as a shared pair of electrons between two atoms Explain the formation of simple molecular, covalent substances, using dot and cross diagrams, including: H, HCl, H₂O, CH₄, O₂, CO₂ Explain why elements and compounds can be classified as: ionic, simple molecular (covalent), giant covalent and metallic Explain how the structure and bonding of substances results in different physical properties</p> <table border="1"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!				<p><u>Chem Paper 1- Core Concepts</u></p> <p>Explain the melting/boiling points, forces between ions and conductivity for typical ionic and covalent compounds Recall that graphite and diamond are examples of giant covalent substances Describe the structures of graphite and diamond and why they have different uses Explain the properties of fullerenes including C₆₀ and graphene in terms of their structures and bonding</p> <table border="1"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!				<p><u>Chem Paper 1- Core Concepts</u></p> <p>Explain the properties of metals, including malleability and conductivity Describe the limitations of particular representations and models, to include dot & cross, ball & stick models & 2/3D Describe the properties of most metals Calculate relative formula mass given relative atomic masses Calculate the formulae of simple compounds from reacting masses and understand that these are empirical formulae</p> <table border="1"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!			
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<p><u>Chem Paper 1 - Core Concepts</u></p> <p>Deduce: empirical formula of a compound from the formula of its molecule Deduce: molecular formula of a compound from its empirical formula and its relative molecular mass Describe an experiment to determine the empirical formula of a simple compound such as magnesium oxide Explain the law of conservation of mass applied to: a closed system and a non-enclosed system Calculate masses of reactants and products from balanced equations, given the mass of one substance Calculate the concentration of solutions in g dm⁻³</p> <p>HT ONLY: Recall what one mole of particles of a substance is defined as HT ONLY: Calculate the number of: moles of particles of a substance in a given mass of that substance and vice versa HT ONLY: Calculate the number of: particles of a substance in a given number of moles of that substance and vice versa HT ONLY: Calculate the number of: particles of a substance in a given mass of that substance and vice versa HT ONLY: Explain why, in a reaction, the mass of product formed is controlled by the mass of the reactant which is not in excess HT ONLY: Deduce the stoichiometry of a reaction from the masses of the reactants and products</p> <table border="1" data-bbox="69 1254 443 1345"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!							<p><u>Phys Paper 1 - Topic 3 Conservation of energy</u></p> <p>Recall and use the equation to calculate the change in gravitational PE when an object is raised above the ground: $\Delta GPE = m \times g \times \Delta h$ Pg 156 Recall and use the equation to calculate the amounts of energy associated with a moving object: $KE = \frac{1}{2} \times m \times v^2$ Pg 156 Draw and interpret diagrams to represent energy transfers Pg 157 Explain what is meant by conservation of energy Pg 157 Analyse the energy changes when: Pg 157 •an object moves upwards or up a slope •when a moving object hits an obstacle •object is being accelerated by a constant force •a vehicle is slowing down •water boiling in a kettle Explain that mechanical processes become wasteful when energy is wasted as heat Pg 158 Explain ways of reducing unwanted energy transfer including through lubrication, thermal insulation Pg 159 Describe the effects of the thickness and thermal conductivity of the walls of a building on its rate of cooling Pg 159 Recall and use the equation: efficiency = useful energy transferred / total energy supplied Pg 158 HT ONLY: Explain how efficiency can be increased Pg 158 Describe the main energy sources available for use on Earth and compare the ways in which both renewable and non-renewable sources are used Pg 160-161 Explain patterns and trends in the use of energy resources Pg 162</p> <table border="1" data-bbox="495 1254 869 1315"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!							<p><u>Bio Paper 1 - Topic 3 Genetics</u></p> <p>Explain the role of meiosis in terms of cells formed and chromosome numbers Pg 26 Describe the structure of DNA in terms of bases and bonding Pg 27 Describe what a genome and gene are and describe the role of a gene Pg 27 Explain how DNA can be extracted from fruit Pg 27 Explain why there are differences in the inherited characteristics as a result of alleles Pg 30 Explain the terms: chromosome, gene, allele, dominant, recessive, homozygous, heterozygous, genotype, phenotype, gamete and zygote Pg 28</p> <table border="1" data-bbox="920 778 1294 839"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!							<p><u>Bio Paper 1 - Topic 3 Genetics</u></p> <p>Explain inheritance Punnett squares and family pedigrees Pg 28 and 29 Describe how the sex determined at fertilisation, using genetic diagrams Pg 29 Calculate and analyse outcomes (using probabilities, ratios and percentages) from crosses and pedigree analysis for dominant and recessive traits Pg 29 State that most phenotypic features are the result of multiple genes Pg 30 Describe the causes of variation that influence phenotype as genetic/environmental variation and mutations Pg 30 Discuss the outcomes of the Human Genome Project and its potential applications within medicine Pg 31 State that there is usually extensive genetic variation within a population of a species and that these arise through mutations Pg 30</p> <table border="1" data-bbox="1346 751 1720 812"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!							<p><u>Chem Paper 1 - Topic 2 States of matter</u></p> <p>Describe the arrangement, movement and the relative energy of particles in each of the three states of matter Recall the names used for the conversions between the three states of matter Compare physical changes with chemical reactions Explain the changes in arrangement, movement and energy of particles during these interconversions Predict the physical state of a substance given suitable data Explain the difference between a pure substance and a mixture Interpret melting point data to distinguish between pure substances and mixtures Explain the techniques for separation of mixtures by: simple & fractional distillation, filtration, crystallisation and paper chromatography Describe what paper chromatography is and explain how it can be used to separate a mixture</p> <ul style="list-style-type: none"> • Interpret a paper chromatogram to: distinguish between pure and impure substances • identify substances by comparison with known substances • identify substances by calculation and use of R_f values <p>Describe how:</p> <ul style="list-style-type: none"> • waste and ground water can be made potable, including the need for sedimentation, filtration and chlorination • sea water can be made potable by using distillation • water used in analysis must not contain any dissolved salts <table border="1" data-bbox="1771 1369 2145 1430"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!						
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<p>Phys Paper 1 - Topic 4 - Waves</p> <p>Recall that waves transfer energy and information without transferring matter Pg 164</p> <p>Describe evidence that with water and sound waves it is the wave and not the water or air itself that travels Pg 164-165</p> <p>Define and use the terms frequency, wavelength, amplitude, period, wave velocity and wavefront as applied to waves Pg 164-166</p> <p>Describe the difference between longitudinal and transverse waves by referring to sound, electromagnetic, seismic and water waves Pg 164</p> <p>Recall and use both the equations for all waves: $v = f \times \lambda$ and $v = x/t$ Pg 164</p> <p>Describe how to measure the velocity of sound in air and ripples on water surfaces Pg 165</p> <p>HT ONLY: Calculate depth or distance from time and wave velocity Pg 165</p> <p>Describe the effects of reflection, refraction, transmission, absorption of waves at material interfaces Pg 166</p> <p>Explain how waves will be refracted at a boundary in terms of the change of direction Pg 166</p> <table border="1" data-bbox="69 1074 441 1131"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>	Not sure	OK	Great!				<p>Phys Paper 1 - Topic 4 - Waves</p> <p>HT ONLY: Explain how waves will be refracted at a boundary in terms of the change of speed Pg166</p> <p>HT ONLY: Recall that different substances may absorb, transmit, refract or reflect waves in ways that vary with wavelength Pg166</p> <p>HT ONLY: Describe the processes which convert wave disturbances between sound waves and vibrations in solids Pg 166</p> <p>HT ONLY: Explain why processes that convert wave disturbances only work over a limited frequency range Pg166</p> <p>HT ONLY: Recall the frequency of ultrasound and state its units</p> <p>HT ONLY: Explain uses of ultrasound and infrasound</p> <p>Describe how changes, if any, in velocity, frequency and wavelength, in the transmission of sound waves from one medium to another are inter-related Pg 166</p> <table border="1" data-bbox="495 962 866 1019"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>	Not sure	OK	Great!				<p>Bio Paper 1 - Topic 4 - Natural selection and genetic modification</p> <p>Explain Darwin's theory of evolution by natural selection Pg 32</p> <p>Explain how the emergence of resistant organisms supports Darwin's theory of evolution including antibiotic resistance in bacteria Pg 32</p> <p>Describe the evidence for human evolution, based on fossils, including: Ardi, Lucy and Leakey's discovery of fossils Pg 33</p> <p>Describe the evidence for human evolution based on stone tools, including: a) the development of stone tools over time b) how these can be dated from their environment Pg 34</p> <p>Describe how genetic analysis has led to the suggestion of the three domains rather than the five kingdoms classification method Pg 35</p> <p>Explain selective breeding and its impact on food plants and domesticated animals Pg 36</p> <p>Describe genetic engineering as a process which involves modifying the genome of an organism to introduce desirable characteristics Pg 37</p> <p>HT ONLY: Describe the main stages of genetic engineering including the use of: restriction enzymes, ligase, sticky ends and vectors Pg 37</p> <p>Evaluate the benefits and risks of genetic engineering and selective breeding in modern agriculture and medicine, including practical and ethical implications Pg 37</p> <table border="1" data-bbox="920 1270 1292 1327"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>	Not sure	OK	Great!				<p>Chem Paper 1 - Topic 3 - Chemical changes</p> <p>Recall that acids are sources of H⁺ alkalis are sources of OH⁻.</p> <p>Recall the pH values of acids, alkalis and neutral</p> <p>Recall the effect of acids and alkalis on indicators, including litmus, methyl orange and phenolphthalein</p> <p>HT ONLY: Recall what the higher the concentration of hydrogen ions and hydroxide ions in a solution does to the pH of a solution</p> <p>HT ONLY: Recall that as hydrogen ion concentration in a solution increases by a factor of 10, the pH of the solution decreases by 1</p> <p>HT ONLY: Explain the terms dilute and concentrated, with respect to amount of substances in solution</p> <p>HT ONLY: Explain the terms weak and strong acids, with respect to the degree of dissociation into ions</p> <p>Recall what is formed when a base of any substance reacts with an acid</p> <p>Explain the general reactions of acids with: metals, metal oxides, metal hydroxides and metal carbonates</p> <p>Describe the chemical test for hydrogen and carbon dioxide</p> <p>Describe a neutralisation reaction as a reaction between an acid and a base</p> <p>Explain why, when soluble salts are prepared from an acid and an insoluble reactant: excess reactant is added and excess insoluble reactant is removed</p> <p>Explain why, if soluble salts are prepared from an acid and a soluble reactant: titration must be used and what is left after the reaction is only salt and water</p> <table border="1" data-bbox="1346 1382 1718 1439"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>	Not sure	OK	Great!				<p>Chem Paper 1 - Topic 3 - Chemical changes</p> <p>Describe how to carry out an acid-alkali titration, using burette, pipette and a suitable indicator, to prepare a pure, dry salt</p> <p>Recall the solubility rules</p> <p>Predict, using solubility rules, whether or not a precipitate will be formed when named solutions are mixed together, naming the precipitate if any is formed</p> <p>Describe the method used to prepare a pure, dry sample of an insoluble salt</p> <p>Recall that electrolytes are ionic compounds in the molten state or dissolved in water</p> <p>Describe electrolysis as a process in which electrical energy, from a direct current supply, decomposes electrolytes</p> <p>Explain the movement of ions during electrolysis</p> <p>Explain the formation of the products in the electrolysis, using inert electrodes, for copper & sodium chloride solution, sodium sulfate, acidified water & molten lead bromide</p> <p>Predict the products of electrolysis of other binary, ionic compounds in the molten state</p> <p>HT ONLY: Write half equations for reactions occurring at the anode and cathode in electrolysis</p> <p>HT ONLY: Explain oxidation and reduction in terms of loss or gain of electrons</p> <p>HT ONLY: Recall that reduction occurs at the cathode and that oxidation occurs at the anode in electrolysis reactions</p> <p>Explain the formation of the products in the electrolysis of copper sulfate solution, using copper electrodes, and how this can be used to purify copper</p> <table border="1" data-bbox="1771 1437 2143 1495"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>	Not sure	OK	Great!			
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Week beginning 16th April 2018

Session 1	Session 2	Session 3	Session 4	Session 5																														
<p>Bio Paper 1 - Topic 5 - Health & Disease Describe health as defined by the World Health Organization (WHO) Pg 39 Describe the difference between communicable and non-communicable diseases Pg 39 Explain why the presence of one disease can lead to a higher susceptibility to other diseases Pg 39 Describe a pathogen as a disease-causing organism, Pg 39 Describe the pathogen and symptoms of cholera, tuberculosis, Chalaria ash dieback, malaria, HIV, stomach ulcers, and Ebola Pg 39 Explain how pathogens are spread and how this spread can be reduced or prevented, including: cholera, tuberculosis, Chalaria ash dieback, malaria, HIV, stomach ulcers, Ebola Pg 39</p> <table border="1"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!				<p>Bio Paper 1 - Topic 5 - Health & Disease Explain how sexually transmitted infections (STIs) are spread and how this spread can be reduced or prevented, including: Chlamydia and HIV Pg 40 Describe how the physical barriers and chemical defences of the human body provide protection from pathogens Pg 41 Explain the role of the specific immune system of the human body in defence against disease, including ideas on antigens and lymphocytes Pg 41 Explain the body's response to immunisation using an inactive form of a pathogen Pg 42 Explain why antibiotics can only be used to treat bacterial infections Pg 43</p> <table border="1"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!				<p>Bio Paper 1 - Topic 5 - Health & Disease Describe that the process of developing new medicines, including antibiotics, has many stages, including discovery, development, preclinical and clinical testing Pg 43 Describe that many non-communicable human diseases are caused by the interaction of a number of factors Pg 44 Explain the effect of lifestyle factors on non-communicable diseases at local, national and global levels including BMI, alcohol and smoking Pg 44, 45 Evaluate some different treatments for cardiovascular disease, including: life-long medication, surgical procedures and lifestyle changes Pg 46</p> <table border="1"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!				<p>Chem Paper 1 - Topic 4 - Extracting metals Deduce the relative reactivity of some metals, by their reactions with water, acids and salt solutions HT ONLY: Explain displacement reactions as redox reactions, in terms of gain or loss of electrons Explain the reactivity series of with water and dilute acids Recall what ores and native metals are Describe what oxidation and reduction are Explain why the method used to extract a metal from its ore is related to its position in the reactivity series and the cost of the extraction process (electrolysis and smelting)</p> <table border="1"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!				<p>Chem Paper 1 - Topic 4 - Extracting metals HT ONLY: Evaluate alternative biological methods of metal extraction (bacterial and phytoextraction) Explain how a metal's relative resistance to oxidation is related to its position in the reactivity series Evaluate the advantages of recycling metals Describe what a life time assessment for a product involves and what it needs to consider Evaluate data from a life cycle assessment of a product</p> <table border="1"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!			
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Week beginning 23rd April 2018

Session 1	Session 2	Session 3	Session 4	Session 5																														
<p>Chem Paper 1 - Topic 4 - Extracting metals Recall that chemical reactions are reversible, the use of the symbol \rightleftharpoons in equations and how the direction of some reversible reactions can be altered Explain what is meant by dynamic equilibrium Describe the formation of ammonia as a reversible reaction in the Haber process Recall the conditions for the Haber process HT ONLY: Predict how the position of a dynamic equilibrium is affected by changes in temperature, pressure and concentration</p> <table border="1"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!				<p>Phys Paper 1 Topic 5 - Light and the electromagnetic spectrum Explain, with the aid of ray diagrams, reflection, refraction and total internal reflection (TIR), including the law of reflection and critical angle Pg 166 Explain the difference between specular and diffuse reflection Explain how colour of light is related to differential absorption at surfaces and transmission of light through filters Pg 168 Relate the power of a lens to its focal length and shape Use ray diagrams to show the similarities and differences in the refraction of light by converging and diverging lenses</p> <table border="1"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!				<p>Phys Paper 1 Topic 5 - Light and the electromagnetic spectrum Explain the effects of different types of lens in producing real and virtual images Describe the electromagnetic spectrum Recall that our eyes can only detect a limited range of frequencies HT ONLY: Recall that different substances may absorb, transmit, refract or reflect electromagnetic waves in ways that vary with wavelength Pg 168 Explain the differences in the velocities of electromagnetic waves in different substances</p> <table border="1"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!				<p>Phys Paper 1 Topic 5 - Light and the electromagnetic spectrum HT ONLY: Explain what happens to our body if the average power it radiates is less, more or the same than the average power that it absorbs Recall that the potential danger associated with an electromagnetic wave increases with increasing frequency Describe the harmful effects on people of exposure to electromagnetic radiation Describe some uses of electromagnetic radiation HT ONLY: Recall that radio waves can be produced by, or can themselves induce, oscillations in electrical circuits</p> <table border="1"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!				<p>Physics Paper 1 Topic 6 - Radioactivity Define the term isotope Pg 174 Recall the relative masses and relative electric charges of protons, neutrons, electrons and positrons Pg 174 Explain that electrons change orbit when there is absorption or emission of electromagnetic radiation Pg 173 Recall that alpha, β^-, β^+, gamma rays and neutron radiation are emitted from unstable nuclei in a random process Pg 174 Recall that alpha, β^-, β^+ and gamma rays are ionising radiation Pg 174 Explain what is meant by background radiation Pg 177 Describe the origins of background radiation from Earth and space Pg 177</p> <table border="1"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!			
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Week beginning 30 th April 2018																
Session 1	Session 2	Session 3	Session 4	Session 5												
<p><u>Physics Paper 1 Topic 6 - Radioactivity</u></p> <p>Recall what alpha, beta and gamma radiation are made up of Pg 174 Compare alpha, beta and gamma radiations in terms of their abilities to penetrate and ionise Pg 174 Describe the process of β^- and β^+ decay Pg 174 Explain the effects on the atomic (proton) number and mass (nucleon) number of radioactive decays (α, β, γ and neutron emission) Pg 175 Recall that nuclei that have undergone radioactive decay often undergo nuclear rearrangement with a loss of energy as gamma radiation Pg 176 Recall that the unit of activity of a radioactive isotope is the Becquerel, Bq Pg 176 Explain what half life of a radioactive isotope is Pg 176 Explain that it cannot be predicted when a particular nucleus will decay but half-life enables the activity of a very large number of nuclei to be predicted Pg 176</p> <table border="1"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!				<p><u>Physics Paper 1 Topic 6 - Radioactivity</u></p> <p>Use the concept of half-life to carry out simple calculations on the decay of a radioactive isotope, including graphs Pg 176 Describe uses of radioactivity in: the home, industry and medicine Pg 177 Describe the dangers of ionising radiation in terms of tissue damage and possible mutations and relate this to the precautions needed Pg 177 Explain how the dangers of ionising radiation depend on half-life and relate this to the precautions needed Pg177 Explain the precautions taken to ensure the safety of people exposed to radiation, including limiting the dose Pg 177 Describe the differences between contamination and irradiation effects and compare the hazards associated with these two Pg 177</p> <table border="1"> <tr> <td>Not sure</td> <td>OK</td> <td>Great!</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Not sure	OK	Great!				<p>Buffer before Paper 2 revision starts</p>		
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Notes

- Five sessions per week are expected – you are able to manage your own time around this providing you keep up with doing 5. Remember Science is worth TWO GCSEs and has therefore double the content of single GCSEs.
- Extra revision is expected during Easter holidays
- Core Practicals are not included as we will cover these in class.
- You will need to produce flash cards, notes, concept maps, knowledge organisers to ensure revision is active – Reading the page will not embed the information into your long term memory.
- **Work in lessons will depend on you completing this revision work ahead of lessons.**
- Exam practice books are available for each section of the course.

