



YEAR 9 – BIOLOGY CURRICULUM MAP

| Autumn Term (12 weeks) | Spring Term (10 weeks) | Summer Term (14 weeks) |
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| <p>Themes covered: B1: Cell structure and transport Key Concepts: microscopy, cell Structure, cell Differentiation, animal and plant Cells, eukaryotic and prokaryotic cells, specialised animal and plant cells, transport in cells by diffusion, osmosis, and active transport. Required practical activities: (KS4 NC: Working Scientifically, Scientific attitudes, Experimental skills and strategies, Analysis and evaluation, Vocabulary, units, symbols and nomenclature) <ul style="list-style-type: none"> B1.2. Looking at cells B1.8 Investigating osmosis in plant cells KS3 NC Content links: <ul style="list-style-type: none"> B8 Organisms Part 1 – Cells (KS3 NC: Structure and function of living organisms) Assessments: <ul style="list-style-type: none"> Assessment based on KS4 Topic 1: Cell Biology content which students have been taught up to this point SIMS Data drop: Year 9 Baseline Test Homework: <ul style="list-style-type: none"> Assigned tasks as per topics on Doodle, Sam Learning. End of Topic exam h.w. questions. End of topic exam style questions Revisiting, revising, remembering opportunities <ul style="list-style-type: none"> Assigned tasks on Doodle Exam practice questions Literacy Foci: <ul style="list-style-type: none"> Working scientifically and topic specific Key Vocabulary and nomenclature Key exam command words 6 mark extended writing questions Numeracy Foci: <ul style="list-style-type: none"> Graphical skills – Drawing and Interpretation using an appropriate number of significant figures in calculations SI units and IUPAC chemical nomenclature using prefixes and powers of ten for orders of magnitude (e.g. tera, giga, mega, kilo, centi, milli, micro and nano) Unit conversions </p> | <p>Themes covered: Topic 2 and 3: Cell Division / Organisation and digestive system Key Concepts: <ul style="list-style-type: none"> cell division growth and differentiation, potential uses of stem cells, as well as the disadvantages and objections to the use of stem cells principles of organisation: tissue, organ, and organ system, Enrichment/life and work skills: Group work/Collaboration / Practical Work, Research skills, Public speaking , Empathy <i>Group work not being done or practical work.</i> <ul style="list-style-type: none"> Science trip :Target Mars Science trip will not be running this year. We will be looking at online alternative to target MARS. Science week Content links: <ul style="list-style-type: none"> B1 Cell structure and transport -cell differentiation, specialised cells and adaptations, diffusion and exchange surfaces Assessments: <ul style="list-style-type: none"> Exam h.w. Questions End of topic Exam based Topic 1 and part of 2 (Cell Biology and Cell Division) which students have been taught up to this point with focus on literacy and a cross curricular link with Maths. Homework: <ul style="list-style-type: none"> Assigned tasks as per topics on Doodle, Sam Learning. End of Topic exam h.w. questions. End of topic exam style questions Revisiting, revising, remembering opportunities <ul style="list-style-type: none"> Assigned tasks on kerboodle Exam practice questions Literacy Foci: <ul style="list-style-type: none"> Working scientifically and topic specific Key Vocabulary and nomenclature Key exam command words 6 mark extended writing questions Numeracy Foci: <ul style="list-style-type: none"> Graphical skills – Drawing and Interpretation using an appropriate number of significant figures in calculations SI units and IUPAC chemical nomenclature using prefixes and powers of ten for orders of magnitude (e.g. tera, giga, mega, kilo, centi, milli, micro and nano) Unit conversions </p> | <p>Summer 1 -Theme covered: Topic 3: Organisation and digestive system Key Concepts: Chemistry of food, Catalysts and Enzymes, Factors Affecting enzyme action, How the digestive system works, Making Digestion Efficient. Enrichment/life and work skills: Group work/Collaboration / Practical Work, Research skills, Public speaking , Empathy <ul style="list-style-type: none"> Science trip :Big Bang Science Fair Look into online alternatives / resources made available by Big Bang KS3 NC Content links: <ul style="list-style-type: none"> B8 Organisms Part 2 – Breathing, Digestion (KS3 NC: Nutrition and digestion, Gas exchange systems, Health) Required practical activities: <ul style="list-style-type: none"> B3.3 Use standard food tests to identify food groups Experiments are not being carried out in class and are shown by video. Skills are then assessed using given results. Summer 2 -Theme covered: Topic 3: Organising animals and plants Key concepts: The blood, Blood Vessels, Heart, Helping the heart, Breathing and gas exchange KS3 NC Content links: <ul style="list-style-type: none"> B9 Ecosystems Part 2 – Respiration, Photosynthesis (KS3 NC: Photosynthesis and cellular respiration) Required practical activities: <ul style="list-style-type: none"> B3.6 Investigate the effect of pH on the rate of reaction of amylase enzyme Assessment-Summer 1 <ul style="list-style-type: none"> Exam h.w. Questions End of topic Exam based Topic 1 and part of 2 (Cell Biology and Cell Division) which students have been taught up to this point with focus on literacy and a cross curricular link with Maths. Assessment-Summer 2 <ul style="list-style-type: none"> Exam h.w. Questions End of topic Test on Chapter 3 Organisation which students have been taught up to this point with focus on literacy and a cross curricular link with Maths. </p> |



YEAR 9 – CHEMISTRY CURRICULUM MAP

| Autumn Term (12 weeks) | Spring Term (10 weeks) | Summer Term (14 weeks) |
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| <p>Themes covered: Topic 1: Atomic structure Key Concepts: separation and purification techniques for mixtures (filtration, crystallisation, and simple distillation), structure of the atom, atoms, ions, and isotopes, electronic structure, symbol equations including state symbols.</p> <p>KS3 NC Content links: -C5 Matter Part 1 – Particle model, separating mixtures (KS3 NC: The particulate nature of matter and Pure and impure substances) -KS3 knowledge of the law of the conservation of mass</p> <p>Enrichment/life and work skills: Group work/Collaboration/Practical Work, Research skills, Public speaking , Empathy</p> <p>•Assessment based on KS4 content Topic 1: Atomic Structure which students have been taught up to this point.</p> <p>SIMS Data drop: Year 9 Baseline Test Homework:</p> <ul style="list-style-type: none"> Assigned tasks as per topics on Doodle, Sam Learning. End of Topic exam h.w. questions. End of topic exam style questions <p>Revisiting, revising, remembering opportunities</p> <ul style="list-style-type: none"> Assigned tasks on Doodle Exam practice questions <p>Literacy Foci:</p> <ul style="list-style-type: none"> Working scientifically and topic specific Key Vocabulary and nomenclature Key exam command words 6 mark extended writing questions <p>Numeracy Foci:</p> <ul style="list-style-type: none"> Graphical skills – Drawing and Interpretation using an appropriate number of significant figures in calculations SI units and IUPAC chemical nomenclature Unit conversions | <p>Themes covered: Topic 2 Periodic Table Key Concepts: Development of the periodic table, Electronic structures and the periodic table, Group 0, Group 1, and Group 7 elements, Group 7-the halogens, Explaining trends.</p> <p>Higher-tier students should also be able to identify trends in properties and reactivity in terms of the electronic structure of the elements.</p> <p>GCSE chemistry students should be able to compare the properties and reactions of the transition elements with the elements of Group 1, identify that some transition elements can form many different ions, and recognise that they are used as catalysts.</p> <p>KS3 Content links: C5 Matter Part 2 – Periodic table, Elements (KS3 NC: Atoms, elements and compounds, The periodic table)</p> <p>Enrichment/life and work skills: Group work/Collaboration / Practical Work, Research skills, Public speaking , Empathy</p> <ul style="list-style-type: none"> Science trip :Target Mars <p>Assessments:</p> <ul style="list-style-type: none"> Exam h.w. Questions End of topic Exam based on KS4 content from Topic 1 and part of 2 which students have been taught up to this point with focus on literacy and a cross curricular link with Maths. <p>Assessment-Summer 1 Homework:</p> <ul style="list-style-type: none"> Assigned tasks as per topics on Doodle, Sam Learning. End of Topic exam h.w. questions. End of topic exam style questions <p>Literacy Foci:</p> <ul style="list-style-type: none"> Working scientifically and topic specific Key Vocabulary and nomenclature, Key exam command words, 6 mark extended writing questions <p>Numeracy Foci:</p> <ul style="list-style-type: none"> Graphical skills – Drawing and Interpretation using an appropriate number of significant figures in calculations | <p>Summer 1 -Theme covered: Topic 3: Structure and Bonding Key Concepts: States of matter, Atoms into ions, Ionic Bonding, Giant ionic structures, Covalent Bonding, Structure of simple molecules.</p> <p>Summer 1 -Theme covered: Topic 3: Structure and Bonding Key concepts: Giant covalent structures, Fullerenes and graphene, bonding in metals, Giant metallic structures</p> <p>KS3 Content links: KS3 knowledge of the law of the states of matter</p> <p>C6 Reactions Part 2 – Types of reaction, Chemical energy (KS3 NC: Chemical reactions and Energetics, Materials)</p> <p>GCSE chemistry students only : Nanoparticles.</p> <p>Enrichment/life and work skills: Group work/Collaboration / Practical Work, Research skills, Public speaking , Empathy</p> <ul style="list-style-type: none"> Science trip :Big Bang Science Fair Look into online alternatives / resources made available by Big Bang <p>Assessment-Summer 1 Exam h.w. Questions End of topic Exam based on KS4 content Topic 1 and 2 which students have been taught up to this point with focus on literacy and a cross curricular link with Maths.</p> <p>Assessment-Summer 2 Exam h.w. Questions End of topic Exam based on Topic 3: Structure and Bonding which students have been taught up to this point with focus on literacy and a cross curricular link with Maths.</p> <p>Homework: practice papers and revision tasks</p> <p>Literacy/ numeracy foci:</p> <ul style="list-style-type: none"> Reading skills/ Terminology and vocabulary /Writing skills /Analytical Skills |



YEAR 9 – PHYSICS CURRICULUM MAP

| Autumn Term (12 weeks) | Spring Term (10 weeks) | Summer Term (14 weeks) |
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| <p>Themes covered: Topic 1: Conservation and Dissipation of Energy Key Concepts: Changes in energy stores, Conservation of energy, Energy and work, Gravitational potential energy stores, Kinetic energy and elastic energy stores, Energy dissipation, Energy and efficiency, Energy and Power KS3 Content links: energy transfer in Key Stage 3 P3 Energy Part 2– Work, Heating and cooling (KS3 NC: Energy and changes in systems) Enrichment/life and work skills: Group work/collaboration/Practical Work, , Research skills, Public speaking , Empathy Science trip : Master classes (Engineering) at Brunel University TBC Assessments: •Assessment based on all KS4 content which students have been taught up to this point. Homework: • Assigned tasks as per topics on Doodle, Sam Learning. •End of Topic exam h.w. questions. •End of topic exam style questions Revisiting, revising, remembering opportunities •Assigned tasks on Doodle • Exam practice questions Literacy Foci: • Working scientifically and topic specific Key Vocabulary • Scientific Writing: Writing a plan, drawing a conclusion, evaluating method and presenting findings. Numeracy Foci: • Graphical skills – Drawing and Interpretation • using an appropriate number of significant figures in calculations • SI units/Unit conversions • Use of formulae: • work done = force × distance (moved along the line of action of the force) • g.p.e. = mass × gravitational field strength × height [$E_p = m g h$] • kinetic energy = $0.5 \times \text{mass} \times (\text{speed})^2$ [$E_k = \frac{1}{2} m v^2$] • elastic potential energy = $0.5 \times \text{spring constant} \times (\text{extension})^2$ • [$E_e = \frac{1}{2} k e$] • efficiency = useful output energy transfer ÷ total input energy transfer • power = energy transferred ÷ time • power = work done ÷ time</p> | <p>Themes covered: Topic 2: Energy transfer by heating Key Concepts: Energy transfer by conduction, Infrared Radiation, Specific Heat capacity, Heating and insulating buildings. Higher-tier only: More about infrared radiation Higher-tier GCSE Physics students : will need to apply the concept of the Greenhouse Effect and its relationship to the wavelength of the radiation penetrating or being absorbed by Earth’s atmosphere Required practical activities: (KS4 NC: Working Scientifically, Scientific attitudes, Experimental skills and strategies, Analysis and evaluation, Vocabulary, units, symbols and nomenclature) • P2.1 Investigating thermal insulators • P2.4 Determining specific heat capacity of one or more materials Enrichment/life and work skills: Group work/collaboration/Practical Work, , Research skills, Public speaking , Empathy • Science trip :Target Mars TBC •Science week – online resources provided for this Assessments: •Exam h.w. Questions •End of topic Exam based on KS4 content from Topic 1 and 2 Which students have been taught up to this point with focus on literacy and a cross curricular link with Maths. Homework: • Assigned tasks as per topics on Doodle, Sam Learning. •End of Topic exam h.w. questions. •End of topic exam style questions Literacy Foci: • Working scientifically and topic specific Key Vocabulary and nomenclature, Key exam command words, • 6 mark extended writing questions Numeracy Foci: • Graphical skills – Drawing and Interpretation • using an appropriate number of significant figures in calculations • Use of formulae: • change in thermal energy = mass × specific heat capacity × temperature change [$\Delta E = m c \Delta\theta$]</p> | <p>Summer 1 -Theme covered: Topic 3/4: Energy Resources and Electric Circuits Key Concepts: Energy demands, Energy from wind and water, Power from the sun and Earth, Energy and the environment, Big energy issues Required practical activities: (KS4 NC: Working Scientifically, Scientific attitudes, Experimental skills and strategies, Analysis and evaluation, Vocabulary, units, symbols and nomenclature) • P4.3: Investigating resistance Summer 2 -Theme covered: Topic 3/4: Energy Resources and Electric Circuits Key Concepts: Current and charge, Potential Difference and Resistance, Component Characteristics, Series Circuits, Parallel Circuits Required practical activities: P4.4: Investigating electrical components P4.6 Investigating resistance <i>Experiments are not being carried out in class and are shown by video. Skills are then assessed using given results.</i> Enrichment/life and work skills: Group work/collaboration/Practical Work, Research skills, Public speaking , Empathy •Science trip :Big Bang Science Fair Assessment-Summer 1 Exam h.w. Questions End of topic Exam based on KS4 content from Topic 1,2,3 which students have been taught up to this point with focus on literacy and a cross curricular link with Maths. Assessment-Summer 2 Exam h.w. Questions End of topic Test based on Chapter 4: Electric Circuits content which students have been taught up to this point with focus on literacy and a cross curricular link with Maths. Homework: practice papers and revision tasks Literacy/ numeracy foci: •Reading/ Writing/ Analytical skills Skills •charge flow = current × time [$Q = I t$] •potential difference = current × resistance [$V = I R$]</p> |