**Curriculum Plan - Overview**

The science curriculum is designed to be fully inclusive and specific to the students of Kingstone High School. The curriculum aims to stimulate, curiosity, interest and enjoyment in science for all learners. Learners are encouraged to engage with a wide range of scientific concepts, facts, theories and principals in order to understand their relevance to the world around them.

We want to enable our students to communicate their ideas about science by developing literacy in science and equip our students to use science to solve challenging problems. The curriculum will encourage the development of our students’ understanding of what it means to work scientifically by ensuring disciplinary content is carefully embedded within the framework of substantive knowledge. Practical work is considered prior to its execution, ensuring students have a robust understanding of the theory that underpins each practical, allowing them to maximise their learning. We want the curriculum to be dynamic so that it engages all of our learners ensuring it can prepare our students for the wider world of further study and careers.

To broaden and deepen scientific understanding at GCSE, the GCSE course begins in Year 9. The student gain early exposure to the disciplinary language used at GCSE and gain valuable experience and insight into science at this level. This supports and drives engagement in science in later years. In addition, the three-year GCSE provides students with an early opportunity to truly engage with the wonders of science and supports them in making a more informed decision regarding the triple science course, one of several options available for selection during the Year 9 options process.

As part of our curriculum offer the science department provides an entry level course which supports students to access the full GCSE course at a later date. The course is specifically designed to build confidence in science by completing units of work which will lead to a certificate.

**Assessment Opportunities**

Students in Year 7-10, will undertake Key Assessments at three points during the year, one per term. The Key Assessment will assess on more than one topic and are designed to support a deeper understanding and embedding of key knowledge. In addition to Key Assessments, all students will complete extended writing tasks and additional assessments between Key Assessments. Students in Year 11 students will complete end of module assessments. These assessments will assess students’ ability to apply the knowledge and understanding they have learnt. The papers will also include questions based on previous units to test how deeply embedded the learning and understanding. The assessments include questions to assess their numeracy skills and their ability to work scientifically. In addition to end of module assessments, students in Year 11 will complete two mock examinations during the year. These exams are complete exam papers.

The curriculum overview provides broad timings of the learning sequences throughout the year. Rotations of topics occur, across the different disciplines, to maximise practical work, ensuring all students have opportunities to engage will science fully.

**Autumn 1 (8 weeks)**

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|  | **Term** | **Duration/wks.** | **Topic** | **Key Skills, Content or Knowledge** | **Summative Assessment** | **Blended Learning** | **Links** |
| **Year 7** | **A1** | **2** | **7A Biology**  Cells Tissues, Organs and Systems. | * 7Aa Doctors Past and Present * 7Aa Life Processes * 7Ab WS Conventions in writing (L&C) * 7Ab Organs * 7Ac Tissues * 7Ac WS Microscopes * 7Ad Cells * 7Ae Organ Systems * 7Ae Transplants | **Key Assessment 1 Year 7.**  Interleaved topics linking KS2 and current Year 7 topics designed to assess a deeper breadth of knowledge and skills.  **Extended writing activity** designed to support literacy development in science. | * Educake online learning platform. * Seneca Learning | **SMSC**  *Spiritual:* Appreciation of life’s complexity.  **British Values**  *Individual Liberty:* Medical choices and treatments.  **Careers**  Medicine, Biomedical Science, Physiology  **GCSE/ Topics**  GCSE B1, B2.  **Topic Misconceptions:**  All cells are the same, organs work independently, not as a system. |
|  | **A1** | **2** | **7E Chemistry**  Mixtures & Separation | * 7Ea Mixtures and Separation |  | * Educake online learning platform.   Seneca Learning | **SMSC**  *Social:* Importance in water purification and industry.  **British Values**  *Rule of Law:* Safety in chemical processes.  **Careers**  Chemistry, Environmental Science, Engineering  **GCSE/ Topics**  GCSE C2, 9G  **Topic Misconceptions:**  Separation changes the substance rather than just isolating it. |
| * 7Ea WS Writing a Method (L&C) * 7Eb Solutions * 7Ec WS Safety when heating * 7Ed Chromatography * 7Ee Distillation * 7Ee Safe Drinking Water |
| **A1** | **2** | **7I Physics**  Energy |  |  | * Educake online learning platform.   Seneca Learning | **SMSC**  *Moral:* Ethical concerns of energy production and climate impact.  **British Values**  *Democracy:* Decision-making on renewable vs. non-renewable energy.  **Careers**  Physics, Engineering, Environmental Science  **GCSE/ Topics**  GCSE P3  **Topic Misconceptions:**  Energy is used up rather than transferred. |
| * 7Ia Energy & Changes * 7Ia Energy From Food * 7Ia WS Fair Comparisons & Ratios * 7Ib Energy Transfers & Stores * 7Ic Fuels * 7Ic WS Summarising * 7Id Other Energy Resources |
| **Year 8** | **A1** | **2** | **8B Biology**  Plants and their reproduction |  | **Key Assessment 1 Year 8.**  Interleaved topics linking Year 7 topics and current Year 8 topics designed to assess a deeper breadth of knowledge and skills.  **Extended writing activity** designed to support literacy development in science. | * Educake online learning platform.   Seneca Learning | **SMSC**  *Cultural:* Importance of plants in different cultures.  **British Values**  Democracy: GMO debates.  **Careers**  Botany, Horticulture, Agriculture  **GCSE/ Topics**  GCSE CB2  **Topic Misconceptions:**  All plants reproduce the same way, pollination is the same as fertilization. |
| * 8Ba Useful Plants * 8Ba Classification & Biodiversity * 8Ba WS Accuracy & Estimates * 8Bb Types of Reproduction * 8Bc Pollination * 8Bd Fertilisation & Dispersal * **8Bd WS Structuring Paragraphs** |
| **A1** | **2** | **8E Chemistry**  **C**ombustion |  |  | * Educake online learning platform.   Seneca Learning | **SMSC**  *Social:* Role of combustion in transport and industry.  **British Values**  *Rule of Law:* Environmental regulations on burning fuels.  **Careers**  Chemical Engineering, Environmental Science  **GCSE/ Topics**  GCSE C16  **Topic Misconceptions:**  Fire needs oxygen but not fuel, all fuels burn in the same way. |
| * 8Eb Oxidation * 8Ec Fire Safety * 8Ec WS Fair Testing * 8Ed Air Pollution * 8Ee Global Warming * 8Ee WS Info & Explanation text (L&C) * 8Ee Reducing Pollution |
| **A1** | **2** | **8I Physics**  Fluids |  |  | * Educake online learning platform. * Seneca Learning | **SMSC**  *Social:* Understanding applications in engineering and medicine.  **British Values**  *Rule of Law:* Safety standards in fluid mechanics.  **Careers**  Engineering, Physics, Medicine  **GCSE/ Topics**  GCSE C12  **Topic Misconceptions:**  Liquids cannot be compressed; all fluids flow the same way. |
| * **8Ia WS Calculations with Density** * **8Ib Changing State** * **8Ic Pressure in Fluids** * **8Ic WS Presenting Information (L&C)** * **8Id Floating & Sinking** * **8Ie Drag** * **8Ie Humans at Extremes** |
| **Year 9** | **A1** | **8** | **CB1/ SB1 Biology**  Overarching concepts in Biology |  | **Key Assessment 1 Year 9.**  Interleaved topics linking Year 8 topics and current Year 9, GCSE, topics designed to assess a deeper breadth of knowledge and skills.  **Extended writing 6- mark** question activity designed to develop literacy in science. | * Educake online learning platform. * Seneca Learning | **SMSC**  *Moral:* Responsibility in genetic research and conservation.  **British Values**  Democracy: Decision-making in healthcare and conservation  **Careers**  Medicine, Genetics, Ecology  **GCSE/ Topics**  7A, 8A  **Topic Misconceptions:**  Enzymes provide energy; enzymes work on all substances; all enzymes function at the same temperature and pH. |
| * CB1a Microscopes * CB1b Plant & Animal Cells * CB1b CP Using Microscopes * CB1c Specialised Cells * CB1d Inside Bacteria * CB1e Enzymes & Nutrition * CB1f Enzyme Action * CB1g Enzyme Activity * CB1g CP pH & Enzymes * CB1h Transporting Substances * CB1g CP Osmosis in Potato Slices |
| **A1** | **8** | **CC1/ SC1 Chemistry**  States of Matter  **CC2/ SC2 Chemistry**  Methods of separation and purifying substances |  |  | * Educake online learning platform. * Seneca Learning | **SMSC**  **CC1/SC1**  *Cultural:* Historical discoveries of matter theories.  **CC2/SC2**  *Social:* Importance in water purification and industry.  **British Values**  CC1/SC1  *Rule of Law:* Regulations in chemical industries.  **CC2/SC2**  *Rule of Law:* Safety in chemical processing.  **Careers**  **CC1/SC1**  Chemistry, Material Science, Physics  **CC2/SC2**  Chemistry, Environmental Science, Engineering  **GCSE/ Topics**  8I, 7E  **Topic Misconceptions:**  **CC1/SC1**  Solids don’t move, gases have no mass.  **CC2/SC2**  Separation creates new substances rather than isolating existing ones. |
| * CC1a States of Matter * CC2a Mixtures * CC2b Filtration & Crystallisation * CC2c Paper Chromatography * CC2d Distillation * CC2e CP Investigate Inks * CC2f Drinking Water |
| **A1** | **8** | **CP3/ SP3 Physics**  Conservation of Energy |  |  | * Educake online learning platform. * Seneca Learning | **SMSC**  *Moral:* Ethical use of renewable vs. non-renewable energy.  **British Values**  *Democracy:* Energy policy debates.  **Careers**  Physics, Engineering, Environmental Science  **GCSE/ Topics**  7I  **Topic Misconceptions:**  Energy is destroyed rather than transferred. |
| * CP3a Energy Stores & Transfers * CP3b Energy Efficiency * CP3c Keeping Warm * CP3d Stored Energies * CP3e Non-Renewable Resources * CP3f Renewable Resources |
| **Year 10** | **A1** | **7**  **14** | **CB4/ SB4 Biology**  Natural Selection and Genetic Modification  **Entry Level**  **Y10 only.**  **B2**  Health, disease and the development of medicines. |  | **Key Assessment 1 Year 10.**  Interleaved topics linking Year 9, GCSE, topics and current Year 10, GCSE, topics designed to assess a deeper breadth of knowledge and skills.  **Extended writing 6- mark** question activity designed to develop literacy in science. | * Educake online learning platform. * Seneca Learning | **SMSC**  *Moral:* Ethics of genetic modification.  **British Values**  Democracy: Debates on GMOs and medical genetics.  **Careers**  Medicine, Agriculture, Biotechnology  **GCSE/ Topics**  7D, 9A  **Topic Misconceptions:**  Evolution happens within an individual's lifetime. |
| * CB4a Evidence for Human Evolution * CB4b Darwin’s Theory * CB4c Classification * CB4d Breeds & Varieties * CB4e Genes in Agriculture & Medicine * B2a Health and disease * B2b Lifestyle diseases * B2c Pathogens and disease * B2d Spread and control of pathogen * B2e Sexually transmitted infections * B2f Protection against infection * B2g Medicines |
| **A1** | **7**  **11** | **CC5/ CC6/ CC7 SC5/SC6/SC7 Chemistry**  Ionic Bonding  Covalent Bonding  Types of Substance  **Entry Level**  **Y10 only.**  **C1**  C1 Atoms, compounds and states of matter | * C5a Ionic Bonds * C5b Ionic Lattices * C5c Props of Ionic Compounds * C6a Covalent Bonds * C7a Molecular Compounds * C7b Allotropes of Carbon * C7c Properties of Metals * C7d Bonding Models   C1a States of matter  C1b Atomic structure  C1c The periodic table  C1d Metals and the periodic table  C1e Ionic bonding  C1f Covalent bonding  C1g Giant covalent compounds  C1h Metallic bonding and bonding summary |  | * Educake online learning platform. * Seneca Learning | **SMSC**  **CC5/SC5**  *Cultural:* Contributions of scientists to bonding theories.  **CC6/SC6**  *Social:* Applications in drugs and materials.  **CC7/SC7**  *Cultural:* Contributions from different civilizations.  **British Values**  **CC5/SC5**  *Rule of Law:* Safety in handling ionic substances.  **CC6/SC6**  *Rule of Law:* Safety in material handling.  **CC7/SC7**  *Rule of Law:* Regulations on chemical use.  **Careers**  **CC5/SC5**  Chemistry, Material Science, Engineering  **CC6/SC6**  Chemistry, Pharmaceuticals, Material Science  **CC7/SC7**  Chemistry, Material Science  **GCSE/ Topics**  8F  **Topic Misconceptions:**  **CC5/SC5**  Ionic bonds involve sharing electrons rather than transferring.  **CC6/SC6**  Covalent bonds are weak like intermolecular forces.  **CC7/SC7**  All substances dissolve in water. |
| **A1** | **7** | **CP1/ SP1 Physics**  Motion |  | End of module assessment- interleaved topics | * Educake online learning platform. * Seneca Learning | **SMSC**  *Spiritual:* Understanding forces that shape the universe.  **British Values**  Rule of Law: Traffic safety regulations.  **Careers**  Physics, Aerospace, Mechanical Engineering  **GCSE/ Topics**  9I  **Topic Misconceptions:**  Heavier objects fall faster, motion always requires force. |
| * CP1a Vectors & Scalars * CP1b Distance/ Time Graphs * CP1c Acceleration * CP1d Velocity/ Time Graphs |
| **Year 11** | **A1** | **7** | **CB7/SB7 Biology**  Animal Coordination, Control and Homeostasis |  | **End of module assessments**- interleaved topics.  **Extended writing 6- mark** question activity designed to develop literacy in science. | * Educake online learning platform. * Seneca Learning | **SMSC**  *Moral:* Ethical concerns around medicine and drugs.  **British Values**  Rule of Law: Healthcare laws on medicine and treatment.  **Careers**  Medicine, Veterinary Science, Biology  **GCSE/ Topics**  7C, 9D  **Topic Misconceptions:**  The body always maintains perfect balance, reflexes don’t involve the brain. |
| * CB7a Hormones * CB7b Hormonal Control of Metabolic Rate * CB7c The Menstrual Cycle * CB7d Hormones & The Menstrual Cycle * CB7e Control of Blood Glucose * CB7f Type 2 Diabetes |
| **A1** | **7** | **CC8/SC8 Chemistry**  Acids |  |  | * Educake online learning platform. * Seneca Learning | **SMSC**  *Cultural:* Historical use in medicine and industry.  **British Values**  *Rule of Law:* Safety regulations in chemical handling.  **Careers**  Chemistry, Pharmaceuticals, Manufacturing  **GCSE/ Topics**  7F  **Topic Misconceptions:**  All acids are dangerous, acids only burn. |
| * CC8a Acids, Alkalis & indicators * CC8b Looking at acids * CC8c Bases & Salts * CC8c CP Preparing Copper Sulphate * CCC8d Alkalis & Balancing Eqns * CC8e Alkalis & Neutralisation   CC8f Reactions of acids with metals and carbonates |
| **A1** | **7** | **CP9/ SP10 Physics**  Electricity  **SP11 Physics**  Static Electricity (Phys) | * CP9a Electric Circuits * CP9b Current and Potential Difference * CP9c Current, Charge & Energy * CP9d Resistance * CP9e More About Resistance * CP9e CP Investigating Resistance * CP9f Transferring Energy * CP9g Power * CP9h Transferring Energy by Electricity * CP9i Electrical Safety |  | * Educake online learning platform. * Seneca Learning | **SMSC**  **CP9/SP10**  *Social:* Role in modern technology and quality of life.  **SP11**  *Cultural:* Historical studies on electricity.  **British Values**  **CP9/SP10**  *Democracy:* Discussions on renewable electricity sources  **SP11**  *Rule of Law:* Safety regulations in electricity handling.  **Careers**  **CP9/SP10**  Electrical Engineering, Renewable Energy  **SP11**  Physics, Engineering, Meteorology  **GCSE/ Topics**  7J, 9J  **Topic Misconceptions:**  **CP9/SP10**  Electricity moves at different speeds in wires.  **SP11**  Static electricity flows like current electricity. |
| * SP11a Charges and Static Electricity * SP11b Electric Fields * SP11c Transformers and Energy |

**Autumn 2 (7 weeks)**

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| **Year 7** | **A2** | **2** | **7B Biology**  Sexual Reproduction in Animals |  | **End of term assessment** focussing on interleaved topics from A1 and A2.  **Extended writing** question activity designed to develop literacy in science. | * Educake online learning platform * Seneca Learning | **SMSC**  *Social:* Understanding different reproductive strategies.  **British Values**  *Individual Liberty:* Personal choices in reproduction.  **Careers**  Medicine, Veterinary Science, Genetics  **GCSE/ Topics**  GCSE CB3, 9C  **Topic Misconceptions:**  Offspring are always identical to parents; humans choose the gender of offspring. |
| * 7Ba Escaped Zoo Animals * 7Ba WS The scientific method * 7Ba Animal sexual reproduction * 7Bb Reproductive organs * 7Bc Becoming pregnant * 7Bc WS Making notes (L&C) * 7Bd Gestation & birth * 7Be Growing up * 7Be the work of zoos |
| **A2** | **2** | **7F Chemistry**  Acids & Alkalis |  |  | * Educake online learning platform * Seneca Learning | **SMSC**  *Cultural:* Historical use of acids/alkalis in industry.  **British Values**  Rule of Law: Safety regulations on chemical handling.  **Careers**  Chemistry, Chemical Engineering, Pharmaceuticals  **GCSE/ Topics**  GCSE CC8, 8G  **Topic Misconceptions:**  Acids only burn, all acids are dangerous |
| * 7Fa WS Controlling Risk * 7Fb Indicators * 7Fc Acidity Alkalinity * 7Fc WS Writing Titles * 7Fd Neutralisation * 7Fe Neutralisation in daily life |
| **A2** | **2** | **7J Physics**  Current & Electricity |  |  | * Educake online learning platform. * Seneca Learning | **SMSC**  *Social:* Role of electricity in society and technology.  **British Values**  *Democracy:* Energy policies and sustainability debates.  **Careers**  Electrical Engineering, Renewable Energy, Physics  **GCSE/ Topics**  GCSE CC9, 9J  **Topic Misconceptions:**  Current is used up, voltage and current are the same. |
| * 7Ja Discovering Electricity * 7Ja Switches & Current * 7Jb WS Models in Science * 7Jb Models for Circuits * 7Jc Series & Parallel Circuits * 7Jc WS Using Tables (L&C) * 7Jd Changing the Current * 7Je Using Electricity * 7Je A World Without Electricity |
| **Year 8** | **A2** | **2** | **8C Biology**  Breathing & Respiration |  | **End of term assessment** focussing on interleaved topics from A1 and A2.  **Extended writing** question activity designed to develop literacy in science. | * Educake online learning platform. * Seneca Learning | **SMSC**  *Spiritual:* Awe at the efficiency of the human body.  **British Values**  Individual Liberty: Right to clean air and public health.  **Careers**  Medicine, Sports Science, Environmental Health  **GCSE/ Topics**  GCSE CB8, 9C  **Topic Misconceptions:**  Breathing is the same as respiration. |
| * 8Ca Water Sports & Breathing * 8Ca Aerobic Respiration * 8Cb Gas Exchange * 8Cb WS Means & Ranges * 8Cc Getting Oxygen * 8Cc WS Cause & Effect (L&C) * 8Cd Comparing Gas Exchange * 8Ce Anaerobic Respiration   8Ce Fitness Training |
| **A2** | **2** | **8G Chemistry**  Metals and their uses |  |  | * Educake online learning platform. * Seneca Learning | **SMSC**  *Cultural:* Historical impact of metal discovery.  **British Values**  Rule of Law: Regulations on mining and recycling.  **Careers**  Metallurgy, Engineering, Material Science  **GCSE/ Topics**  GCSE CC10, CC11, 9E  **Topic Misconceptions:**  All metals are magnetic, metals are unbreakable. |
| * 8G Corrosion * 8Gb WS Describing Materials * 8Gc Metals & Water * 8Gd WS Quality Evidence * 8Gd Metals & Acids * 8Ge Pure Metals & Alloys * 8Ge Metals in Art |
| **A2** | **2** | **8J Physics**  Light |  |  | * Educake online learning platform. * Seneca Learning | **SMSC**  *Cultural:* Historical discoveries about light.  **British Values**  Rule of Law: Safety regulations on radiation exposure.  **Careers**  Optics, Photography, Physics  **GCSE/ Topics**  CP4, CP5  **Topic Misconceptions:**  Light needs a medium to travel, light slows down in air. |
| * 8Jb WS Drawing & Conventions * 8Jb Reflection * 8Jc Refraction * 8Jd Cameras & Eyes * 8Jd WS 8Jd Preparing a Presentation * 8Je Colour   8Je Invisibility Cloaks |

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| **Year 9** | **A2** | **7** | **CB1/ SB1 Biology**  Overarching concepts in Biology 2 |  | **End of module assessment** focussing on the current module  **Extended writing 6- mark** question activity designed to develop literacy in science. | * Educake online learning platform. * Seneca Learning |  |
| **CONTINUED FROM Au1.** |
| **A2** | **7** | **CC1/ SC1 Chemistry**  States of Matter  **CC2/ SC2 Chemistry**  Methods of separation and purifying substances  **CONTINUED FROM Au1.** | * CC1a States of Matter * CC2a Mixtures * CC2b Filtration & Crystallisation * CC2c Paper Chromatography * CC2d Distillation * CC2e CP Investigate Inks * CC2f Drinking Water |  | * Educake online learning platform. * Seneca Learning | **SMSC**  **CC1/SC1**  *Cultural:* Historical discoveries of matter theories.  **CC2/SC2**  *Social:* Importance in water purification and industry.  **British Values**  CC1/SC1  *Rule of Law:* Regulations in chemical industries.  **CC2/SC2**  *Rule of Law:* Safety in chemical processing.  **Careers**  **CC1/SC1**  Chemistry, Material Science, Physics  **CC2/SC2**  Chemistry, Environmental Science, Engineering  **GCSE/ Topics**  8I, 7E  **Topic Misconceptions:**  **CC1/SC1**  Solids don’t move, gases have no mass.  **CC2/SC2**  Separation creates new substances rather than isolating existing ones. |
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| **A2** | **7** | **CP3/ SP3 Physics**  Conservation of Energy |  |  | * Educake online learning platform. * Seneca Learning | **SMSC**  *Moral:* Ethical use of renewable vs. non-renewable energy.  **British Values**  *Democracy:* Energy policy debates.  **Careers**  Physics, Engineering, Environmental Science  **GCSE/ Topics**  7I & 8K  **Topic Misconceptions:**  Energy is ‘used up’ rather than transformed. |
| * CP3a Energy Stores & Transfers * CP3b Energy Efficiency * CP3c Keeping Warm * CP3d Stored Energies * CP3e Non-Renewable Resources * CP3f Renewable Resources |
| **Year 10** | **A2** | **7**  **14** | **CB4/ SB4 Biology**  Natural Selection and Genetic Modification  **CONTINUED FROM Au1.**  **Entry Level**  **Y10 only.**  **B2**  Health, disease and the development of medicines. |  | **End of module assessment** focussing on the current module  **Extended writing 6- mark** question activity designed to develop literacy in science. | * Educake online learning platform. * Seneca Learning | **SMSC**  *Moral:* Ethics of genetic modification.  **British Values**  Democracy: Debates on GMOs and medical genetics.  **Careers**  Medicine, Agriculture, Biotechnology  **GCSE/ Topics**  7D, 9A  **Topic Misconceptions:**  Evolution happens within an individual's lifetime. |
| * CB4a Evidence for Human Evolution * CB4b Darwin’s Theory * CB4c Classification * CB4d Breeds & Varieties * CB4e Genes in Agriculture & Medicine   Continued from A1. |
| **A2** | **7**  **8** | **CC5/ CC6/ CC7 SC5/SC6/SC7 Chemistry**  Ionic Bonding  Covalent  Bonding  Types of Substance  **Entry Level**  **Y10 only.**  **C1**  C1 Atoms, compounds and states of matter  **Entry Level**  **Y10 only.**  **C4**  Elements and chemical reactions |  |  | * Educake online learning platform. * Seneca Learning | **SMSC**  **CC5/SC5**  *Cultural:* Contributions of scientists to bonding theories.  **CC6/SC6**  *Social:* Applications in drugs and materials.  **CC7/SC7**  *Cultural:* Contributions from different civilizations.  **British Values**  **CC5/SC5**  *Rule of Law:* Safety in handling ionic substances.  **CC6/SC6**  *Rule of Law:* Safety in material handling.  **CC7/SC7**  *Rule of Law:* Regulations on chemical use.  **Careers**  **CC5/SC5**  Chemistry, Material Science, Engineering  **CC6/SC6**  Chemistry, Pharmaceuticals, Material Science  **CC7/SC7**  Chemistry, Material Science  **GCSE/ Topics**  8F  **Topic Misconceptions:**  **CC5/SC5**  Ionic bonds involve sharing electrons rather than transferring.  **CC6/SC6**  Covalent bonds are weak like intermolecular forces.  **CC7/SC7**  All substances dissolve in water. |
| * C5a Ionic Bonds * C5b Ionic Lattices * C5c Props of Ionic Compounds * C6a Covalent Bonds * C7a Molecular Compounds * C7b Allotropes of Carbon * C7c Properties of Metals * C7d Bonding Models   Continued from A1.   * C4a Group 1 * C4b Group 7 * C4c Group 0 * C4d Energy changes * C4e Rates of reaction * C4f Reversible reactions |
| **A2** | **7** | **CP2/ SP2 Physics**  Forces & Motion |  |  | * Educake online learning platform. * Seneca Learning | **SMSC**  *Social:* Applications in transport and sports.  **British Values**  Rule of Law: Traffic safety regulations.  **Careers**  Physics, Aerospace, Mechanical Engineering  **GCSE/ Topics**  7K, 9I  **Topic Misconceptions:**  Heavier objects fall faster, motion always requires force. |
| * CP2a Resultant Forces * CP2b Newton’s First Law * CP2c Mass & Weight * CP2d Newton’s Second Law * CP2d CP Investigating Acceleration * CPe Newton’s Third Law * CPf Momentum * CPg Stopping Distances * CP2h Crash Hazards |
| **Year 11** | **A2** | **7** | **CB8/SB8 Biology**  Exchange & transport in animals |  | **End of module assessment**- interleaved topics.  **Extended writing 6- mark** question activity designed to develop literacy in science.  **Mock Examinations** Paper 1 Biology, Chemistry and Physics. | * Educake online learning platform. * Seneca Learning | **SMSC**  *Moral:* Organ donation and medical ethics.  **British Values**  Rule of Law: Healthcare laws on blood donation and transplants.  **Careers**  Medicine, Veterinary Science, Biology  **GCSE/ Topics**  8C,8A, 9C  **Topic Misconceptions:**  Blood is blue inside the body; diffusion only happens in the lungs. |
| * CB8a Efficient Transport & Exchange * CB8b The Circulatory System * CB8c The Heart * CB8d Cellular Respiration * CB8d CP Respiration Rates |
|  | **A2** | **7** | **CC13/ SC17 Chemistry**  Groups of the periodic table  **CC14/ SC18 Chemistry**  Rates of reaction | * CC13a Group 1 * CC13b Group 7 * CC13c Group 0 * CC14a Rates of reaction * CC14b Factors affecting the reaction rate * CC14b CP Investigating reaction rates * CC14c Catalysts & activation energy |  | * Educake online learning platform. * Seneca Learning | **SMSC**  **CC13**  *Cultural:* Historical discoveries of elements.  **SC17**  *Social:* Importance in industry (e.g., food preservation, medicine).  **British Values**  **CC13**  *Rule of Law:* Regulations on element handling.  **SC17**  *Rule of Law:* Safety in chemical reactions.  **Careers**  **CC13**  Chemistry, Pharmaceuticals, Engineering  **SC17**  Chemistry, Pharmaceuticals, Engineering.  **GCSE/ Topics**  8F, 9G  **Topic Misconceptions:**  **CC13**  The periodic table is just arranged randomly.  **SC17**  Catalysts create energy rather than lowering activation energy. |
| **A2** | **7** | **CP9/ SP10 Physics**  Electricity  **SP11 Physics**  Static Electricity (Phys)  **CP10/ SC12 Physics**  Magnetism & the motor effect  **CP11/ SP13 Physics**  Electromagnetic induction | **CONTINUED FROM Au1. See Au.1 for details** |  | * Educake online learning platform. * Seneca Learning | **SMSC**  CP10/SC12  *Social:* Importance in motors, transport, and technology.  CP11/ SP13  **Cultural**: The role of electromagnetic induction in technological advancements across cultures (e.g., electric grids, global communication).  **British Values**  CP10/SC12  *Rule of Law:* Safety regulations on electromagnetic devices.  CP11/ SP13  **Democracy**: The role of public understanding and policy in regulating technology that uses electromagnetic induction.  **Careers**  CP10/SC12  Engineering, Physics, Robotics  CP11/ SP13  Electrical engineer, physicist, power systems engineer, technician, renewable energy specialist, inventor.  **GCSE/ Topics**  7J, 9J, 7L  **Topic Misconceptions:**  CP10/SC12  Only iron is magnetic, magnets always attract.  CP11/ SP13  Electromagnetic induction only occurs with magnetic fields; induction can only be used in large-scale applications like power stations; electricity can flow without the need for a conductor or a magnetic field. |
| * CP10a Magnets & Magnetic Fields * CP10b Electromagnetism * CP10c Magnetic Forces * CP11a Transformers * CP11b Transformers & Energy |
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**Spring 1 (6 weeks)**

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| **Year 7** | **Sp1** | **2** | **7C Biology**  Muscles & Bones |  | E**nd of half term assessment-** interleaved topics from A1 and A2  **Extended writing** question activity designed to develop literacy in science. | * Educake online learning platform. * Seneca Learning | **SMSC**  **Moral**: Ethical considerations around healthcare, prosthetics, and performance-enhancing drugs.  **British Values**  **Mutual Respect**: Recognizing different abilities and promoting inclusivity (e.g., disabilities, rehabilitation).  **Careers**  Physiotherapist, doctor, sports scientist, orthopaedic surgeon, biomedical engineer, personal trainer.  **GCSE/ Topics**  GCSE CB1  **Topic Misconceptions:**  Muscles turn into fat if not used; bones are not living tissue; exercise only strengthens muscles, not bones. |
| * 7Cb Muscles and blood * 7Cb WS Scientific questions * 7Cc The skeleton * 7Cc WS Sentences (L&C) * 7Cd Muscles & moving * 7Ce Drugs * 7Ce Drugs & sport |
| **Sp1** | **2** | **7G Chemistry**  The Particle Model | * 7Gb WS Hypothesis & theories * 7Gb Particles * 7Gc Brownian motion * 7Gd Diffusion * 7Ge Air pressure * 7Ge Waste |  | * Educake online learning platform. * Seneca Learning | **SMSC**  *Spiritual:* Appreciation of how all matter is connected.  **British Values**  Rule of Law: Safe handling of materials in laboratories and industry.  **Careers**  Chemistry, Engineering, Material Science  **GCSE/ Topics**  GCSE CB1  **Topic Misconceptions:**  Particles expand instead of spaces increasing.  Solids don’t move at all. |
| **Sp1** | **2** | **7K Physics**  Forces | * 7Ka Forces * 7Ka Different Forces * 7Kb Springs * 7Kb WS Making Notes (L&C) * 7Kc Friction * 7Kd Pressure * 7Kd WS SI Units * 7Kd Pressure * 7Ke Balanced & Unbalanced * 7Ke Safety Measures |  | * Educake online learning platform. * Seneca Learning | **SMSC**  *Spiritual:* Understanding the forces that shape the universe.  **British Values**  Rule of Law: Traffic laws ensuring safety.  **Careers**  Aerospace, Mechanical Engineering, Physics  **GCSE/ Topics**  GCSE CP2  **Topic Misconceptions:**  Motion always requires force; heavier objects fall faster. |
| **Year 8** | **Sp1** | **2** | **8D Biology**  Unicellular organisms | * 8Da The Black Death * 8Da Unicellular or Multicellular * 8Db Microscopic Fungi * 8Db WS Model Verbs (L&C) * 8Dc Bacteria * 8Dc WS Pie charts * 8Dd Protoctists * 8De Decomposers & Carbon * 8De Black Death Hypotheses | E**nd of half term assessment-** interleaved topics from A1 and A2  **Extended writing** question activity designed to develop literacy in science. | * Educake online learning platform. * Seneca Learning | **SMSC**  *Moral:* Ethics of genetic modification and antibiotic resistance.  **British Values**  Rule of Law: Regulations on microbial use in medicine.  **Careers**  Microbiology, Medicine, Biotechnology  **GCSE/ Topics**  7A, GCSE CB1  **Topic Misconceptions:**  All bacteria are harmful; viruses are living. |
| **Sp1** | **2** | **8H Chemistry**  Rocks | * 8Ha Disaster * 8Ha Rocks and their uses * 8Hb Igneous & metamorphic * 8Hb WS Assessing sources * 8Hc Weathering & Erosion * 8Hd Sedimentary Rocks * 8Hd WS Theories in geology |  | * Educake online learning platform. * Seneca Learning | **SMSC**  *Cultural:* Understanding how geological discoveries shaped history.  **British Values**  *Rule of Law:* Laws on mining and environmental conservation.  **Careers**  Geology, Mining, Environmental Science  **GCSE/ Topics**  GCSE CC10, CC11, CC17, 9G  **Topic Misconceptions:**  Rocks do not change over time (misunderstanding of rock cycle). |
| **Sp1** | **2** | **8K Physics**  **Energy Transfers.** | 8Kb WS Choosing Language (L&C)   * 8Kb Transferring Energy * 8Kc Controlling Transfers * 8Kc Accuracy & Precision * 8Kd Power & Efficiency * 8Ke Paying for Energy * 8Ke Keeping Warm |  | * Educake online learning platform. * Seneca Learning | **SMSC**  *Social:* Importance of energy efficiency in society.  **British Values**  Democracy: Public choice in energy policies.  **Careers**  Renewable Energy, Engineering, Environmental Science  **GCSE/ Topics**  GCSE CP3  **Topic Misconceptions:**  Energy is ‘used up’ rather than transferred or conserved. |
| **Year 9** | **Sp1** | **7** | **CB2/ SB2 Biology**  Cells & Control | * CB2a Mitosis * CB2b Growth in Animals * CB2c Growth in Plants * CB2d Stem Cells * CB2e The Nervous System * CB2f Neurotransmission Speeds | **End of module assessment**- interleaved topics.  **Extended writing 6- mark** question activity designed to develop literacy in science. | * Educake online learning platform. * Seneca Learning | **SMSC**  Moral: Ethical issues in cloning and stem cell research.  **British Values**  Rule of Law: Ethical guidelines for medical advancements.  **Careers**  Medicine, Genetics, Biotechnology  **GCSE/ Topics**  7A  **Topic Misconceptions:**  Cells "decide" their function rather than being programmed by DNA. |
| **Sp1** | **7** | **CC3/ SC3 Chemistry**  Atomic Structure | * CC3a Structure of the atom * CC3b At. Structure & Mass Number * CC3c Isotopes |  | * Educake online learning platform. * Seneca Learning | **SMSC**  Cultural: Contributions of different civilizations to atomic theory.  **British Values**  Rule of Law: Regulations on handling radioactive materials.  **Careers**  Chemistry, Nuclear Science, Engineering  **GCSE/ Topics**  GCSE CP6, 8F, 7H  **Topic Misconceptions:**  Electrons orbit like planets; atoms are solid spheres. |
| **Sp1** | **7** | **CP4/ SP4 Physics**  Waves | * CP4a Describing Waves * CP4b Wave Speeds * CP4b CP Investigating Waves * CP4c Refraction |  | * Educake online learning platform. * Seneca Learning | **SMSC**  Social: Use of waves in medical imaging and communications.  **British Values**  Rule of Law: Regulations on radiation exposure.  **Careers**  Telecommunications, Radiography, Physics  **GCSE/ Topics**  9K, 8J, 7L  **Topic Misconceptions:**  Sound waves travel through space like light. |
| **Year 10** | **Sp1** | **7** | **CB5/ SB5 Biology**  Health, disease and the development of medicines. | * CB5a Health & Disease * CB5b Non- communicable Diseases * CB5c Cardiovascular Disease * CB5d Pathogens * CB5e Spreading Pathogens * CB5f Physical & Chemical Barriers * CB5g The Immune System * CB5h Antibiotics | **End of module assessment**- interleaved topics.  **Extended writing 6- mark** question activity designed to develop literacy in science. | * Educake online learning platform. * Seneca Learning | **SMSC**  Moral: Ethics of drug trials and vaccine development.  **British Values**  Individual Liberty: Personal choice in medical treatments.  **Careers**  Medicine, Pharmacy, Public Health  **GCSE/ Topics**  8D, 8A, 9D  **Topic Misconceptions:**  Antibiotics kill viruses; all bacteria are harmful. |
| **Sp1** | **7**  **11** | **CC9/ SC9 Chemistry**  Calculations involving masses  **CC10/ SC10 Chemistry**  Electrolytic processes 1  **Entry Level**  **Y10 only.**  **C4**  Elements and chemical reactions | * CC9a Masses & Empirical Formulae * CC9b Conservation of Mass   CC9c Moles   * CC10a Electrolysis * CC10a CP Electrolysis of Copper Sulphate * CC10b Products from electrolysis   Continued from A2. |  | * Educake online learning platform. * Seneca Learning | **SMSC**  **CC9/SC9**  Cultural: Global contributions to chemical measurements.  **CC10**  Social: Industrial importance of electrolysis./SC10  **British Values**  **CC9/SC9**  Rule of Law: Regulations ensuring chemical accuracy.  **CC10/SC10**  Rule of Law: Safety regulations in chemical industries.  **Careers**  **CC9/SC9**  Chemistry, Pharmacy, Industrial Science  **CC10/SC10**  Chemical Engineering, Electrochemistry, Manufacturing  **GCSE/ Topics**  9H, 7H  **Topic Misconceptions:**  **CC9/SC9**  Mass and weight are the same.  **CC10/SC10**  Electrolysis creates new elements rather than separating existing ones. |
| **Sp1** | **7**  **18** | **CP6/ SP6 Physics**  Radioactivity  **Entry Level**  **Y10 only.**  **P3**  Electricity and magnets | * CP6 Atomic Models * CP6b Inside Atoms * CP6c Electrons & Orbits * CP6d Background Radiation * CP6e Types OF Radiation * CP6f Radioactive Decay * CP6g Half- life * CP6h Dangers of Radioactivity * P3a Electrical circuits * P3b Resistance * P3c More about resistance * P3d Electrical power * P3e Magnets and electromagnets * P3f Electricity in the home |  | * Educake online learning platform. * Seneca Learning | **SMSC**  Social: Use of radioactivity in medicine and energy.  **British Values**  Rule of Law: Regulations on nuclear **safety.**  **Careers**  Nuclear Physics, Radiology, Environmental Science  **GCSE/ Topics**  GCSE CC3, CP5, 8F  **Topic Misconceptions:**  Radiation always causes harm; all radioactive materials glow. |
| **Year 11** | **Sp1** | **7** | **CB9/ SB9 Biology**  Ecosystems & material cycles | * CB9a Ecosystems * CB9b Abiotic Factors & Communities * CB9b CP Quadrats & Transects * CB9c Biotic Factors & Communities * CB9d Parasitism & Mutalism * CB9e Biodiversity & Humans * CB9f Preserving Biodiversity * CB9g The Water Cycle * CB9h The Carbon Cycle * CB9i The Nitrogen Cycle | **End of module assessment**- interleaved topics.  **Extended writing 6- mark** question activity designed to develop literacy in science. | * Educake online learning platform. * Seneca Learning | **SMSC**  Spiritual: The balance and beauty of nature.  **British Values**  Democracy: Climate change policies and conservation.  **Careers**  Ecology, Conservation, Environmental Sciences  **GCSE/ Topics**  7D, 8B, 9D  **Topic Misconceptions:**  Plants get food from soil; carbon cycle stops when animals die. |
| **Sp1** | **7** | **CC16/ SC20 Chemistry**  Fuels | * CC16a Hydrocarbons in crude oil and natural gas * CC16b Fractional distillation of crude oil * CC16c The alkane homologous series * CC16d Complete and incomplete combustion * CC16e Combustible fuels and pollution * CC16f Breaking down hydrocarbons | End of module assessment- interleaved topics | * Educake online learning platform. * Seneca Learning | **SMSC**  Social: Economic impact of energy resources.  **British Values**  Rule of Law: Environmental regulations on emissions.  **Careers**  Petroleum Engineering, Renewable Energy  **GCSE/ Topics**  GCSE CP3, 8E,  **Topic Misconceptions:**  Burning fuels makes energy instead of releasing stored energy. |
| **Sp1** | **7** | **CP12/ SC14 Physics**  The particle models  **CP13/ SP15**  Forces & Matter | * CP12a Particles & Density * CP12a CP Investigating Densities * CP12b Energy & Changes of State * CP12c Energy Calculations * CP12d Gas, Temperature & Pressure * CP13a Bonding & Stretching * P13a CP Investigating Springs * CP13b Extension & Energy Transfers |  | * Educake online learning platform. * Seneca Learning | **SMSC**  **CP12/SP14**  Cultural: Different cultural contributions to atomic theory and scientific development.  **CP13/SP15**  Social: Role of forces in engineering and transport.  **British Values**  **CP12/SP14**  Mutual Respect: Recognizing international collaboration in particle physics research.  **CP13/SP15**  Rule of Law: Safety regulations in transportation  **Careers**  **CP12/SP14**  Physicist, materials scientist, nuclear engineer, medical physicist, chemical engineer.  **CP13/SP15**  Automotive Engineering, Aerospace, Physics  **GCSE/ Topics**  7G, 8I  **Topic Misconceptions:**  **CP12/SP14**  Particles in solids do not move; gases have no mass; there is no space between particles in different state  **CP13/SP15**  Objects move only when force is applied; gravity doesn’t act in space. |

**Spring 2 (7 weeks)**

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| **Year 7** | **Sp2** | **2** | **7D Biology**  Ecosystems | * 7Da Exploring the world * 7Da Variation * 7Da WS Charts & graphs * 7Db Adaptations * 7Dc Effects of the environment * 7Dc WS Paragraphs (L&C) * 7Dd Effects on the environment * 7De Transfer in food chains * 7De Nomads | **Key Assessment 2 Year 7.**  Interleaved topics linking Year 7 topics from A1 and current Year 7 topics designed to assess a deeper breadth of knowledge and skills.  **Extended writing activity** designed to support literacy development in science. | * Educake online learning platform. * Seneca Learning | **SMSC**  Spiritual: Appreciating the balance and interdependence of living organisms in nature.  **British Values**  Democracy: The role of public opinion and policies in environmental conservation.  **Careers**  Ecologist, environmental scientist, conservationist, marine biologist, agricultural scientist, park ranger.  **GCSE/ Topics**  GCSE CP3, CP4  **Topic Misconceptions:**  Predators always control prey populations; plants do not compete with each other; humans are separate from ecosystems and do not affect them significantly. |
|  | **2** | **7H Chemistry**  Atoms, Elements & Molecules | * 7Ha Our Material World * 7Ha WS Sorting resource data * 7Ha The air we breathe * 7Hb Earth’s elements * 7Hc Metals & non-metals * 7Hc WS Facts & opinions * 7Hd Making compounds * 7He Chemical Reactions * 7He Problems with elements |  | * Educake online learning platform. * Seneca Learning | **SMSC**  Cultural: Contributions of different scientists to atomic theory.  **British Values**  Rule of Law: Regulations in chemical industries**.**  **Careers**  Chemistry, Material Science, Nanotechnology  **GCSE/ Topics**  GCSE CB4, 9D  **Topic Misconceptions:**  Atoms are the smallest indivisible units; molecules are just mixtures of atoms. |
| **Sp2** | **2** | **7L Physics**  Sound | * 7b Moving Sounds * 7Lb WS Line & S * scatter Graphs) * 7Lc Detecting Sounds * 7Ld Using Sounds * 7Lc WS Remembering (L&C) * 7Le Comparing Waves * 7Le Animals & Noise. |  | * Educake online learning platform. * Seneca Learning | **SMSC**  Social: Impact of noise pollution.  **British Values**  Individual Liberty: Freedom in music and speech.  **Careers**  Acoustics, Engineering, Music Technology  **GCSE/ Topics**  GCSE CP3, CP4  **Topic Misconceptions:**  Sound travels in space, sound and noise are the same. |
| **Year 8** | **Sp2** | **2** | **8L Physics**  Earth & Space | * 8La WS Scientific Arguments   (L&C)   * 8Lb Seasons * 8Lc Magnetic Earth * 8Ld Gravity in Space * 8Ld WS Making Comparisons * 8Le Beyond the Solar System * 8Le Studying Space | **Key Assessment 2 Year 8.**  Interleaved topics linking Year 7 topics and current Year 8 topics designed to assess a deeper breadth of knowledge and skills.  **Extended writing activity** designed to support literacy development in science. | * Educake online learning platform. * Seneca Learning | **SMSC**  Spiritual: Awe of the universe.  **British Values**  Democracy: Space exploration funding debates.  **Careers**  Astronomy, Astrophysics, Aerospace Engineering  **GCSE/ Topics**  7H, GCSE CC17  **Topic Misconceptions:**  The Sun moves around the Earth, seasons are caused by distance from the Sun. |
| **Sp2** | **2** | **9A Biology**  Genetics & Evolution | * 9Ac DNA * 9Ad Genes & Extinction * 9Ae Natural Selection * 9Ae WS Convincing Arguments (L&C) * 9Ae Recreating Animals |  | * Educake online learning platform. * Seneca Learning | **SMSC**  Moral: Ethical issues around genetic modification and cloning.  **British Values**  Democracy: Public discussions on genetic research.  **Careers**  Genetics, Biotechnology, Medicine  **GCSE/ Topics**  GCSE CB3, 9A  **Topic Misconceptions:**  Evolution means individual organisms change in their lifetime. |
| **Sp2** | **2** | **9E Chemistry**  Making Materials | * 9Ea Materials of the future * 9Ea About Ceramics * 9Eb Polymers * 9Eb WS Peer Review * 9Ec Composite Materials |  | * Educake online learning platform. * Seneca Learning | **SMSC**  Social: Impact of materials on sustainability and economy.  **British Values**  Rule of Law: Safety in material usage.  **Careers**  Material Science, Chemical Engineering  **GCSE/ Topics**  GCSE CC16  **Topic Misconceptions:**  All materials are man-made, natural materials are always safe. |
| **Year 9** | **Sp2** | **6** | **CB3/ SB3 Biology**  Genetics 1 | * CB3a Meiosis * CB3bi DNA * CB3bii DNA Extraction * CB3c Alleles * CB3d Inheritance * CB3e Gene Mutation * CB3f Variation | **Key Assessment 2 Year 9.**  Interleaved topics linking Year 8 topics from A1 and current Year 9, GCSE, topics designed to assess a deeper breadth of knowledge and skills.  **Extended writing activity** designed to support literacy development in science. | * Educake online learning platform. * Seneca Learning | **SMSC**  Moral: Ethical implications of genetic engineering and cloning.  **British Values**  Rule of Law: Regulations around genetic research and cloning.  **Careers**  Geneticist, doctor, biotechnologist, forensic scientist.  **GCSE/ Topics**  8F  **Topic Misconceptions:**  Genes are deterministic (e.g., "your genes decide everything"); dominant genes are always the most common. |
| **Sp2** | **6** | **CC4/SC4 Chemistry**  The periodic table | * CC4a Elements & The Periodic Table * CC4b At. number and the p. table * CC4c Electronic config & the p.table |  | * Educake online learning platform. * Seneca Learning | **SMSC**  Cultural: Contributions from different countries and scientists.  **British Values**  Rule of Law: Chemical safety regulations.  **Careers**  Chemistry, Material Science  **GCSE/ Topics**  8F  **Topic Misconceptions:**  Elements are arranged randomly; new elements cannot be discovered. |
| **Sp2** | **6** | **CP4/ SP4**  Waves | * CP4a Describing Waves * CP4b Wave Speeds * CP4b CP Investigating Waves * CP4c Refraction |  | * Educake online learning platform. * Seneca Learning | **SMSC**  Spiritual: The invisible forces that shape our world.  **British Values**  Democracy: Public discussions on radiation safety.  **Careers**  Physics, Communications, Engineering  **GCSE/ Topics**  7L, 8J  **Topic Misconceptions:**  Waves carry matter, all waves need a medium to travel. |
| **Year 10** | **Sp2** | **6**  **18** | **CB5/ SB5 Biology**  **Entry Level**  **Y10 only.**  **B3**  Plants and ecosystems | * Health, disease and the development of medicines. * B3a Photosynthesis * B3b Movement of substances * B3c Transpiration and translocation * B3d Ecosystems * B3e Biotic factors in ecosystems * B3f Biodiversity * B3g Natural cycles | **Key Assessment 2 Year 10.**  Interleaved topics linking Year 9, GCSE, topics from A1 and current Year 10, GCSE, topics designed to assess a deeper breadth of knowledge and skills.  **Extended writing activity** designed to support literacy development in science. | * Educake online learning platform. * Seneca Learning | **SMSC**  Moral: Ethical dilemmas in drug testing and access to medicines.  **British Values**  Rule of Law: Regulations in pharmaceuticals.  **Careers**  Medicine, Pharmacy, Epidemiology  **GCSE/ Topics**  8D, 8A, 9D  **Topic Misconceptions:**  All bacteria are harmful, antibiotics cure all diseases. |
| **Sp2** | **6** | **CC10/ SC10 Chemistry**  Electrolytic processes 2  **SC16 Chemistry**  Chemical cells and fuel cells (Chem) | **Continued from Sp.1. See Year 10 Sp.1 for details**  **SC16a Chemical Cells and Fuel Cells.** |  | * Educake online learning platform. * Seneca Learning | **SC16**  **SMSC**  Moral: Ethical concerns about environmental impact of energy sources.  **British Values**  Democracy: Energy policy decisions.  **Careers**  Chemical Engineering, Renewable Energy  **GCSE/ Topics**  7H, 7J  **Topic Misconceptions:**  Fuel cells store energy rather than converting it. |
| **Sp2** | **6**  **18** | **CP7/ SP8 Physics**  Energy – Forces doing work  **SP7 Physics**  Astronomy (Phys)  **Entry Level**  **Y10 only.**  **P3**  Electricity and magnets | * CP7a Work & Power * SP7a The Solar System * SP7b Gravity & Orbits * SP7c Life Cycles of Stars * SP7d Red-shift * SP7e Origin of the Universe   Continued from Sp1. |  | * Educake online learning platform. * Seneca Learning | **SMSC**  **CP7/SP8**  Social: Applications in transport, industry, and daily life.  SP7  Cultural: Historical views on astronomy.  **British Values**  **CP7/SP8**  Democracy: Government policies on energy use.  SP7  Democracy: Space exploration debates.  **Careers**  **CP7/SP8**  Engineering, Physics, Environmental Science  SP7  Astrophysics, Aerospace Engineering  **GCSE/ Topics**  GCSE CP3, 7K  8L  **Topic Misconceptions:**  **CP7/SP8**  Energy is used up rather than transferred, work is always visible movement**.**  **SP7**  The Moon produces its own light, planets don’t rotate. |
| **Year 11** | **Sp2** | **5** | **CB9/ SB9 Biology**  Ecosystems & material cycles | * Continued from Sp1. |  | * Educake online learning platform. * Seneca Learning |  |
| **Sp2** | **5** | **CC16/ SC20 Chemistry**  Fuels | * Continued from Sp1. |  | * Educake online learning platform. * Seneca Learning |  |
|  | **5** | **CP12/ SC14 Physics**  The particle models  **CP13/ SP15**  Forces & Matter | * Continued from Sp1. |  |  |  |
|  | **Sp2** |  | **GCSE exam revision programme Physics** | * Paper 1 topics * Paper 2 topics | GCSE EXAMS | * Educake online learning platform. * Seneca Learning |  |

**Summer 1 (4 weeks)**

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| **Year 7** | **Su1** | **2** | **8A Biology**  Food & Nutrition | * 8Aa Food and advertising * 8Aa Nutrients * 8Ab Use of nutrients * 8Ab WS Weighting & bias * 8Ac Balanced diets * 8Ad Digestion * 8Ae WS Surface Area * 8Ae Absorption * 8Ae Packaging and the law | End of half term assessment- interleaved topics | * Educake online learning platform. * Seneca Learning | **SMSC**  Moral: Ethical concerns around food production, food waste, and access to nutrition globally.  **British Values**  Rule of Law: Regulations on food hygiene, advertising, and nutritional labelling.  **Careers**  Nutritionist, dietitian, food scientist, chef, agricultural scientist, public health advisor.  **GCSE/ Topics**  GCSE CP2  **Topic Misconceptions:**  All fats are unhealthy; eating more protein always leads to more muscle growth; vitamins provide energy; fresh food is always healthier than frozen. |
| **Su1** | **2** | **8E Chemistry**  Combustion | * 8Eb Oxidation * 8Ec Fire Safety * 8Ec WS Fair Testing * 8Ed Air Pollution * 8Ee Global Warming * 8Ee WS Info & Explanation text (L&C) * 8Ee Reducing Pollution | End of half term assessment- interleaved topics | * Educake online learning platform. * Seneca Learning | **SMSC**  Cultural: Understanding global energy needs.  **British Values**  Democracy: Role of laws in regulating combustion (e.g., emissions laws).  **Careers**  Environmental scientist, firefighter, chemical engineer, energy consultant.  **GCSE/ Topics**  GCSE CB1  **Topic Misconceptions:**  Combustion only occurs with oxygen; combustion cannot happen in a vacuum. |
| **Year 8** | **Su1** | **2** | **9I Physics**  Forces & Motion | * 9Ic Speed * 9Ic Equations & Graphs * 9Id Turning Forces * 9Ie More Machines * 9Ie Supplying the Energy | End of half term assessment- interleaved topics | * Educake online learning platform. * Seneca Learning | **SMSC**  Cultural: Different cultural perspectives on movement and speed.  **British Values**  Mutual Respect: Respecting the role of forces in the environment**.**  **Careers**  Mechanical engineer, physicist, sports scientist, technician.  **GCSE/ Topics**  GCSE CP2  **Topic Misconceptions:**  Force and motion are only related to moving objects, not to static objects with forces applied. |
| **Su1** | **2** | **9B Biology**  Plant Growth | * 9Bc Plant Products * 9Bc Clarity & Emphasis WS * 9Bd Growing Crops | End of module assessment- interleaved topics | * Educake online learning platform. * Seneca Learning | **SMSC**  Spiritual: Reflecting on the importance of plants for survival.  Social: How plant growth affects society (food, economy).  **British Values**  Tolerance: Respecting different farming techniques globally.  **Careers**  Botanist, horticulturist, agricultural scientist, ecologist.  **GCSE/ Topics**  8B, GCSE CB6  **Topic Misconceptions:**  Plants grow in soil with water; they can survive without sunlight in all conditions. |
|  | **Su1** | **2** | **9J Physics**  Force field & electromagnets | * 9Jb Static Electricity * 9Jc Current Electricity * 9Jd Resistance * 9Jd WS Rounding Numbers * 9Je Electromagnets * 9Je Humans in Space | End of module assessment- interleaved topics | * Educake online learning platform. * Seneca Learning | **SMSC**  Social: How electromagnets impact society (motors, technology).  **British Values**  Individual Liberty: Freedom to use electromagnets in various technologies.  **Careers**  Electrical engineer, physicist, materials scientist.  **GCSE/ Topics**  GCSE CP10  **Topic Misconceptions:**  Electromagnets work like permanent magnets; there is no difference between electric and magnetic fields  . |
| **Year 9** | **Su1** | **5** | **CB3/SB3 Biology**  Genetics 2 | **Continued from Sp2. See Sp2 for details** | End of module assessment- interleaved topics | * Educake online learning platform. * Seneca Learning |  |
| **Su1** | **5** | **CC15/SC19 Chemistry**  Heat changes in chemical reactions  **CC17/ SC21 Chemistry**  Earth & atmospheric sciences | * CC15a Exothermic & Endothermic Reactions * CC15b Energy Changes in Reactions * CC17a The early atmosphere * CC17b The changing atmosphere * CC17c The atmosphere today * CC17d The atmosphere today | End of module assessment- interleaved topics | * Educake online learning platform. * Seneca Learning | **SMSC**  **CC15/SC19**  Cultural: Different methods of using heat in cooking and industry.  **CC17/SC21**  Moral: Understanding the impact of human actions on the environment.  **British Values**  CC15/SC19  Mutual Respect: Understanding how chemical processes affect the environment and society.  CC17/SC21  Mutual Respect: Respecting global efforts to protect the atmosphere.  **Careers**  CC15/SC19  Chemist, environmental scientist, materials scientist.  CC17/SC21  Environmental scientist, meteorologist, geologist.  **GCSE/ Topics**  GCSE CC16, 8E  **Topic Misconceptions:**  CC15/SC19  Heat always increases the speed of reactions; exothermic reactions are always dangerous  CC17/SC21  The atmosphere is the same everywhere on Earth; humans cannot impact the atmosphere significantly. |
| **Su1** | **5** | **CP5/ SP5 Physics**  Light & the electromagnetic spectrum | * CP5a Electromagnetic Waves * CP5a CP Investigating Refraction * CP5b The Electromagnetic Spectrum * CP5c Using the Long Wavelengths * CP5d Using the Short Wavelengths * CP5e EM Radiation Dangers | End of module assessment- interleaved topics | * Educake online learning platform. * Seneca Learning | **SMSC**  Spiritual: Awe at the vastness of the spectrum and its role in the universe.  **British Values**  Democracy: Influence of public policy on light regulation (e.g., street lighting).  **Careers**  Optician, physicist, communications engineer, lighting designer.  **GCSE/ Topics**  8J  **Topic Misconceptions:**  Light only travels in straight lines; the spectrum is only visible light. |
| **Year 10** | **Su1** | **55** | **CB6 Biology**  Plant structures & their functions | * CB6a Photosynthesis * CB6b Factors Affecting Photosynthesis * CB6b CP Light Intensity & Photosynthesis * CB6c Absorbing Water & Mineral Ions * CB6d Transpiration & Translocation | End of module assessment- interleaved topics | * Educake online learning platform. * Seneca Learning | **SMSC**  Social: Plants' role in society (food, medicine).  **British Values**  Tolerance: Respect for different agricultural practices globally**.**  **Careers**  Botanist, ecologist, agriculture technician.  **GCSE/ Topics**  8B, 9B  **Topic Misconceptions:**  All plants have the same basic structures and functions; plant structures are only for support. |
| **Su1** |  | **CC11/ SC11 Chemistry**  Obtaining & using metals | * C11a Reactivity * CC11b Ores * CC11c Oxidation & Reduction * CC11d Life Cycle Assessment | End of module assessment- interleaved topics | * Educake online learning platform. * Seneca Learning | **SMSC**  Moral: Environmental impact of metal extraction.  **British Values**  Democracy: Influence of public opinion on metal use and sustainability.  **Careers**  Metallurgist, mining engineer, materials scientist.  **GCSE/ Topics**  7H, 8G  **Topic Misconceptions:**  All metals are extracted in the same way; metal extraction has no impact on the environment. |
| **Su1** | **5** | **CP7/ SP7 Physics**  Energy – Forces doing work | * CP7a Work & Power | End of module assessment- interleaved topics | * Educake online learning platform. * Seneca Learning | **SMSC**  Cultural: Different energy solutions globally.  **British Values**  Rule of Law: Regulations on energy use and conservation.  **Careers**  Engineer, energy consultant, physicist, technician.  **GCSE/ Topics**  GCSE CP3, 7K  **Topic Misconceptions:**  Energy can be created and destroyed; work done is always efficient. |
| **Year 11** | **Su1** |  | **GCSE exam revision programme Biology** | * Paper 1 topics * Paper 2 topics | GCSE Exams | * Educake online learning platform. * Seneca Learning |  |
| **Su1** |  | **GCSE exam revision programme Chemistry** | * Paper 1 topics * Paper 2 topics | GCSE Exams | * Educake online learning platform. * Seneca Learning |  |
| **Su1** |  | **GCSE exam revision programme Physics** | * Paper 1 topics * Paper 2 topics | GCSE Exams | * Educake online learning platform. * Seneca Learning |  |

**Summer 2 (7 weeks)**

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| **Year 7** | **Su2** | **2** | **8I Physics**  Fluids  **Summer exam revision** | * 8Ia WS Calculations with Density * 8Ib Changing State * 8Ic Pressure in Fluids * 8Ic WS Presenting Information (L&C) * 8Id Floating & Sinking * 8Ie Drag * 8Ie Humans at Extremes | **Key Assessment 3 Year 7.**  Interleaved topics linking Year 7 topics from across the whole year, designed to assess a deeper breadth of knowledge and skills.  **Extended writing activity** designed to support literacy development in science. | * Educake online learning platform. * Seneca Learning | **SMSC**  Moral: Ethical considerations in the use of fluids in industry, such as pollution and water conservation.  **British Values**  Mutual Respect: Recognizing the importance of water resources across different cultures.  **Careers**  Mechanical engineer, aerospace engineer, meteorologist, marine biologist, hydrologist, civil engineer.  **GCSE/ Topics**  GCSE C12  **Topic Misconceptions:**  Liquids are incompressible in all situations; heavier objects sink regardless of shape; gases have no weight or mass. |

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| **Year 8** | **Su2** | **2** | **9F Chemistry**  Reactivity  **Summer Exam Revision** | * 9Fc Energy & Reactions * 9Fc WS % loss/ gain * 9Fd Displacement * 9Fe Extracting metals * 9Fe Alfred Nobel | **Key Assessment 3 Year 8.**  Interleaved topics linking Year 8 topics from across the whole year, designed to assess a deeper breadth of knowledge and skills.  **Extended writing activity** designed to support literacy development in science | * Educake online learning platform * Seneca Learning | **SMSC**  Moral: Ethical considerations in the use of reactive materials.  **British Values**  Rule of Law: Laws on the handling and use of reactive substances.  **Careers**  Chemist, chemical engineer, materials scientist.  **GCSE/ Topics**  GCSE CC10, CC11, 8G  **Topic Misconceptions**  More reactive substances are always more dangerous; reactivity always increases with temperature. |
| **Year 9** | **Su2** | **6** | **CB3/SB3 Biology**  Genetics 3  **Summer exam revision** | **CB3 Continued from Su1.** |  | * Educake online learning platform. * Seneca Learning |  |
| **Su2** | **6** | **CC17/ SC21 Chemistry**  Earth & atmospheric science 2  **Summer exam revision** | **Continued from Su.1.** | **Key Assessment 3 Year 9.**  Interleaved topics linking Year 9, GCSE, topics from across the whole year, designed to assess a deeper breadth of knowledge and skills.  **Extended writing activity** designed to support literacy development in science. | * Educake online learning platform. * Seneca Learning |  |
| **Su2** | **6** | **CP5/ SP5 Physics**  Light & the electromagnetic spectrum 2  **Summer exam revision** | **Continued from Su.1.** |  | * Educake online learning platform. * Seneca Learning |  |
| **Year 10** | **Su2** | **6** | **CB6 Biology**  Plant structures & their functions **2**  **Summer exam revision** | **Continued from Su.1.** | **Key Assessment 3 Year 10.**  Interleaved topics linking GCSE topics from Year 9 and Year 10, designed to assess a deeper breadth of knowledge and skills.  **Extended writing activity** designed to support literacy development in science. | * Educake online learning platform. * Seneca Learning |  |
| **Su2** | **6** | **CC12/SC12 Chemistry**  Reversible reactions  **SC15 Chemistry**  Dynamic Equilibria Calcs (Chem)  **SC13 Chemistry**  Transition Metals (CHEM)  **SC14 Chemistry**  Quantitative Analysis (Chem)  **Summer exam revision** | * C12a Dynamic Equilibrium * SC15a Fertilisers & The Haber Process. * SC15b Factors affecting equilibrium. * SC13a Transition Metals * SC13b Corrosion * SC13d Alloying * SC13e Use of metals and their alloys * SC14a Yields * SC14b Atom Economy * SC14c Concentrations * SC14d Titrations * Core Practical- Acid-alkali titration * SC14e Molar volume of gases. |  | * Educake online learning platform. * Seneca Learning | **SMSC**  **CC12/SC12**  Moral: Ethical implications of controlling reversible reactions in industry.  **SC15**  Cultural: Equilibrium in various cultural chemical processes (e.g., fermentation).  **SC13**  Moral: Considering the ethical implications of mining and using transition metals.  **SC14**  Moral: The importance of honesty and accuracy in scientific measurements.  **British Values**  **CC12/SC12**  Democracy: Public understanding of reversible reactions in sustainability efforts.  **SC15**  Individual Liberty: Freedom to experiment with chemical equilibrium in safe, regulated environments.  **SC13**  Individual Liberty: Freedom to experiment with chemical equilibrium in safe, regulated environments.  **SC14**  Rule of Law: Regulations for safe and accurate scientific analysis.  **Careers**  **CC12/SC12**  Chemist, environmental scientist, industrial engineer.  **SC15**  Chemist, chemical engineer, environmental consultant, industrial scientist.  **SC13**  Materials scientist, metallurgist, chemical engineer, technician.  **SC14**  Chemist, environmental analyst, laboratory technician, data scientist.  **GCSE/ Topics**  GCSE CP4, 8F  **Topic Misconceptions:**  **CC12/SC12**  Reversible reactions always go in one direction; once a reaction reaches equilibrium, no changes occur.  **SC15**  At equilibrium, the reaction stops; changing the conditions always shifts equilibrium in one direction.  **SC13**  Transition metals are all similar; they are only used in industrial processes and not in biological functions**.**  **SC14**  Quantitative analysis is always accurate without human error; all errors are due to faulty equipment, not process. |
| **Su2** | **6** | **CP8/ SP8 Physics**  Energy – Forces & matter.  **Summer exam revision** | * CP8a Objects Affecting Each other * CP8b Vector Diagrams |  | * Educake online learning platform. * Seneca Learning | **SMSC**  Moral: The ethical use of energy in society (e.g., renewable energy).  **British Values**  Individual Liberty: Right to access energy and knowledge about energy sources.  **Careers**  Engineer, physicist, environmental consultant, energy analyst.  **GCSE/ Topics**  7K, 7I7  **Topic Misconceptions:**  Energy is only involved in motion; forces and energy are always related to work or mechanical motion. |