**Science GSA KS4 Curriculum Map 2022-23**

**We aim to develop all students into scientists who:**

- have opportunities to indulge their natural curiosity for science leading to a lifelong passion;
- are scientifically confident and skilled learners with potential for embarking upon STEM-based careers;
- have a broad and deep knowledge of the sciences through immersion in our five-year spiral curriculum.

| | Autumn 1 (HT1) | Autumn 2 (HT2) | Spring 1 (HT3) | Spring 2 (HT4) | Summer 1 (HT5) | Summer 2 (HT6) |
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| **Year 10 Combined Science / Trilogy (Shared between two teachers)** | | | | | | |
| **Biology** | | | | | | |
| **Topic Covered** | Organisation<br>**B4** | Infection and Response<br>**B5**<br>**B6**<br>**B7** | Bioenergetics<br>**B8**<br>**B9**<br>Homeostasis and Response<br>**B10** | Homeostasis and Response<br>**B11** | | REVISION / PPE |
| **Knowledge Deepened** | Cell biology<br>Principles of organisation<br>Human digestive system<br>Transport systems<br>The heart and blood vessels<br>Blood<br>Plant tissues<br>Plant organ systems | Health, disease<br>The role of white blood cells<br>Drug trials and development of medicines | Cell biology, Process of Respiration and Photosynthesis | Coordination and control<br>Nervous system<br>Controlling blood sugar levels<br>Menstrual cycle and contraception | | |
| **Skills developed** | Making observations<br>Drawing conclusions<br>Dissection skills | Aseptic technique<br>Calculating bacterial populations<br>Evaluating scientific theories<br><br>Interpretation of data<br>History of drug | Calculating rate-straight line equations<br>Calculating percentage change<br>Investigate the effect of exercise on heart rate<br>Investigating limiting factors rate of | Testing reflex actions<br>Measuring reaction times<br>Investigating newly germinated shoots<br>Interpretation of graphical data | | |

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| | | development | photosynthesis | | | |
| **Specificiation Link** | AQA TRILOGY 4.2 | AQA TRILOGY 4.3 | AQA TRILOGY 4.4 | AQA TRILOGY 4.5 | | |
| **Flagship Link** | **GCSE PE and Biology** - Applied anatomy/cardiovascular and respiratory system | **History and Biology -** Development of the smallpox vaccination. | | | | |
| **Cross Curriculum Connections** | **Technology** - Term 1 Y10 Food and Nutrition<br><br>**Personal Development** - HT4 -Y10 Healthy Lifestyle | **Psychology** - HT1 Y10 -Introduction to psychology - placebo/blind trials<br><br>**Technology** - FPN Term 1 Y9 - Reasons for food choices<br><br>**Maths** - HT6 Y10 Scatter Diagrams | **Personal Development** - HT5 Y10 - Intimate Relationships<br><br>**Personal Development** - HT4 - Y11 - Communication in relationship<br><br>**Personal Development** - HT5 Y11 - Families | **Maths** - Graphs Y10 (HT4)<br>**Maths** - Correlation Y10 HT6<br><br>**Psychology** - HT3/4 Y10 -criminal psychology<br><br>**Personal Development** - HT5 Y10 - Intimate Relationships<br><br>**Personal Development** - HT4 - Y11 - Communication in relationship<br><br>**Personal Development** - HT5 Y11 - Families | | |
| **Resources to support learning** | Resources available at: BBC Bitesize / Seneca Learning / Google Classroom | | | | | |
| **Chemistry** | | | | | | |
| **Topics covered** | Bonding, Structure and Properties of | | Chemical Changes **C5** | Chemical Changes **C6** | Chemical Analysis **C12** | REVISION / PPE |

| | Matter **C3 /** Quantitative Chemistry C4 | | | **C7** | Chemistry of the atmosphere **C13** | |
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| **Knowledge Deepened** | The 3 types of boning - ionic, covalent and metallic<br><br>Properties of ionic, covalent and metallic bonding<br><br>Quantitative Chemistry: calculating formula mass, % of an element in a compound | | Reactions of Acids<br>The reactivity series and extracting metals<br>Reactions of metals | The reactivity series and extracting metals<br>Reactions of metals<br>Electrolysis<br>Electrolysis of Aqueous solutions<br><br>Exothermic and endothermic reactions<br>Reaction profiles<br>Measuring energy changes | Chemical Analysis - Purity and formulation, process of chromatography and analysis of chromatograms<br><br>Gas tests for Oxygen, Hydrogen, Chlorine and Carbon Dioxide<br><br>Evolution of the Earth's atmosphere,<br>Greenhouse gases and climate change<br>Carbon footprint | |
| **Skills developed** | The theories, properties, and technology about structures and materials.<br><br>Mathematicals skills in Chemistry. | | Required Practical skills - carrying out a practical safely.<br>Variables<br>Data analysis - graphs/tables | Practically separating ions using electricity.<br><br>How energy is gained and lost in reactions.<br><br>Required Practical skills - variables, data analysis | Practical analysis of metals and gases in Chemistry.<br><br>Using evidence to form conclusions<br><br>Extraction and use of the Earth's natural resources - evaluating impact | |
| **Specification Link** | AQA TRILOGY 5.2<br>AQA TRILOGY 5.3 | | AQA TRILOGY 5.4. | AQA TRILOGY 5.4<br>AQA TRILOGY 5.5 | AQA TRILOGY 5.8<br>AQA TRILOGY 5.9<br>AQA TRILOGY 5.10 | |
| **Flagship Link** | | | | | | |
| **Cross Curriculum Connections** | **Computer Science - HT1 Y10** Computer Hardware<br><br>**Maths -** HT3 Y10 Perimeter Area and Volume | | **Maths** - HT2 Y10 Solving Equation | | **Geography** - Y10 Term 1 Hot deserts<br><br>**Geography** - Y 11 Term 1 Natural Hazards | |
| **Resources to** | | | | | | |

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| **support learning** | Resources available at: BBC Bitesize / Seneca Learning / Google Classroom | | | | | |
| **Physics** | | | | | | |
| **Topics covered** | | Electricity **P4** **P5** | | | Particle Model of Matter **P6** Atomic Structure **P7** | REVISION / PPE |
| **Knowledge Deepened** | | What is Resistance?<br>Calculating resistance<br><br>Circuits: series and parallel, symbols.<br><br>National Grid<br><br>Electricity in the home<br><br>Power - what is it and how do we calculate it? | | | The Particle model and motion in gases<br>Density of materials<br>Internal Energy and Changes of state<br>Specific latent heat<br><br>The current model of an atom<br>Isotopes and nuclear radiation<br>Nuclear equations<br>Half Life<br>Irradiation and contamination | |
| **Skills developed** | | Development of scientific ideas<br>Extended writing<br>Building simple circuits<br>Recall and use of equations<br>Required practicals resistance and I-V characteristics, Density<br>Complete electric circuits<br><br>Using equations | | | Describing particle model and atomic structure<br><br>Graph analysis and interpretation<br><br>Application of knowledge | |
| **Specification Link** | | AQA TRILOGY 6.4 | | | AQA TRILOGY 6.3<br>AQA TRILOGY 6.4 | |

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| **Flagship Link** | | | | | | |
| **Cross Curriculum Connections** | | **Technology** (simple circuits) Year 10 HT3 | | | **Maths** - HT5 Y10 Probability | |
| **Resources to support learning** | Resources available at: BBC Bitesize / Seneca Learning / Google Classroom | | | | | |

# Year 10 Separate Science

## Biology

| **Topics covered** | Organisation **B4** | Infection and Response **B5 B6 B7** | Bioenergetics **B8 B9** | Homeostasis and Response **B10 B11** | Homeostasis and response **B12** | Ecology **B16**<br><br>REVISION / PPE |
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| **Knowledge Deepened** | The heart and blood vessels and cardiovascular disease<br><br>Digestive System and Enzymes<br><br>Respiratory System<br><br>Plant tissues and plant organ systems | Health and disease<br>The role of White blood cells<br>Drug trials and development of medicines<br>Monoclonal antibodies<br>Plant disease | Cell biology<br>Photosynthesis<br>Respiration<br>Health and Fitness | Coordination and control<br>Nervous system<br>Controlling blood sugar levels, water levels.<br>The Brain - how we analyse the structure and function<br>The Eye<br>Menstrual cycle and contraception<br>Control of water levels<br>Control of Nitrogen | | Ecosystems<br>Competition<br>Adaptations<br>Food chains<br>How to use a Quadrat/Transect<br><br>Retrieval of prior knowledge |
| **Skills developed** | Making observations<br>Drawing conclusions<br>Dissection skills | Aseptic technique<br>Calculating bacterial populations<br>Evaluating scientific theories<br>Interpretation of data<br>History of drug development | Calculating rate-straight line equations<br>Calculating percentage change<br>Investigate the effect of exercise on heart rate<br>Investigating limiting factors rate of | Testing reflex actions<br>Measuring reaction times<br><br>Comparing and contrasting nervous to hormonal control | Investigating newly germinated shoots<br>Interpretation of graphical data | Required Practical Skills - Field work |

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| | | | photosynthesis | | | |
| **Specification Link** | AQA BIOLOGY 4.3 | AQA BIOLOGY 4.3 | AQA BIOLOGY 4.4 | AQA BIOLOGY 4.5 | AQA BIOLOGY 4.5 | AQA BIOLOGY 4.7 |
| **Flagship Link** | **GCSE PE and Biology** - Applied anatomy/cardiovascular and respiratory system | **History and Biology -** Development of the smallpox vaccination. | | | | |
| **Cross Curriculum Connections** | **Technology** - Term 1 Y10 Food and Nutrition<br><br>**Personal Development** - HT4 -Y10 Healthy Lifestyle | **Psychology** - HT1 Y10 -Introduction to psychology - placebo/blind trials<br><br>**Technology** - FPN Term 1 Y9 - Reasons for food choices<br><br>**Maths** - HT6 Y10 Scatter Diagrams | | **Psychology** - HT3/4 Y10 -criminal psychology<br><br>**Maths** - Graphs Y10 (HT4)<br>**Maths** - Correlation Y10 HT6<br><br>**Personal Development** - HT5 Y10 - Intimate Relationships<br><br>**Personal Development** - HT4 - Y11 - Communication in relationship<br><br>**Personal Development** - HT5 Y11 - Families | **Personal Development** - HT5 Y10 - Intimate Relationships<br><br>**Personal Development** - HT4 - Y11 - Communication in relationship<br><br>**Personal Development** - HT5 Y11 - Families | **Geography -** Term 1 Y10 Ecosystem |
| **Resources to support learning** | Resources available at: BBC Bitesize / Seneca Learning / Google Classroom | | | | | |
| **Chemistry** | | | | | | |
| **Topics covered** | **C3**<br>Bonding, structure and properties of matter<br>**C4**<br>Quantitative | **C4**<br>Quantitative chemistry<br>**C5**<br>Chemical Changes | **C6**<br>Chemical Changes<br>**C7**<br>Energy changes | **C8**<br>The rate and extent of chemical change | **C9**<br>**C10**<br>Organic Chemistry | **C11**<br>Organic Chemistry<br>REVISION / PPE |

| | chemistry | | | | | |
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| **Knowledge Deepened** | The 3 types of boning - ionic, covalent and metallic<br><br>Properties of ionic, covalent and metallic bonding<br><br>Quantitative Chemistry: calculating formula mass, % of an element in a compound<br><br>Limiting reactants<br><br>Reacting Masses<br><br>The Mole | Reactions of Acids<br>The reactivity series and extracting metals<br>Reactions of metals | Reactions of Acids<br>The reactivity series and extracting metals<br>Reactions of metals<br>Electrolysis<br>Electrolysis of Aqueous solutions<br><br>Exothermic and endothermic reactions<br>Reaction profiles<br>Measuring energy changes<br>Bond energy calculations<br>Chemical cells and Fuel Cells | Factors that affect the rate of reaction e.g. concentration, surface areas, temperature and a catalyst<br><br>Reversible reactions<br><br>What is meant by a dynamic equilibrium and factors that can affect the equilibrium. | Carbon compounds as fuels and feedstock<br><br>Reactions of Alkenes, Alcohols and other organic compounds.<br><br>Synthetic and naturally occurring polymers<br><br>Organic Chemistry | Reactions of Alkenes, Alcohols and other organic compounds.<br><br>Synthetic and naturally occurring polymers<br><br>Organic Chemistry<br><br>Retrieval of prior knowledge |
| **Skills developed** | Using and evaluating models for bonding in substances<br>Evaluating how structure relates to properties<br>Recalling and applying equations<br>Rearranging equations<br>Converting units | Recalling and applying equations<br>Rearranging equations<br>Converting units<br>Making observations<br>Writing a scientific method | Making observations<br>Constructing electrical circuits<br>Recording data<br>Plotting points on a line graph<br>Drawing lines of best fit<br>Calculating a mean | Making accurate observations<br>Identify hazards in a practical<br>Calculating rate of reaction<br>Comparing data | Drawing the displayed formula of compounds<br>Identifying features of organic molecules | Evaluating the use of polymers<br>Exam technique<br>Revision study skills |
| **Specification Link** | AQA CHEMISTRY 4.2<br>AQA CHEMISTRY 4.3 | AQA CHEMISTRY 4.4 | AQA CHEMISTRY 4.4<br>AQA CHEMISTRY 4.5 | AQA CHEMISTRY 4.6 | AQA CHEMISTRY 4.7 | AQA CHEMISTRY 4.7 |
| **Flagship Link** | | | | | | |
| **Cross Curriculum Connections** | **Computer Science - HT1 Y10** Computer Hardware<br><br>**Maths -** HT3 Y10 Perimeter Area and Volume | **Maths** - HT2 Y10 Solving Equation | | **Psychology** - HT2 Y10 Graphs and charts<br><br>**Maths** - HT3 Y11 Gradients and Rates of change | **Technology** - Term 1 Y10 Structures and forces (Polymers) | |
| **Resources to support** | Resources available at: BBC Bitesize / Seneca Learning / Google Classroom | | | | | |

| learning | | | | | | |
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| **Physics** | | | | | | |
| **Topics covered** | Electricity **P4** | Electricity **P5**<br>Particle Model of Matter **P6**<br>Atomic Structure **P7** | Atomic Structure **P7**<br>Forces **P8** | Forces<br>**P8**<br>**P9**<br>**P10** | Forces **P10** | Pressure **P11**<br><br>REVISION / PPE |
| **Knowledge Deepened** | What is Resistance?<br>Calculating resistance<br><br>Circuits: series and parallel, symbols.<br><br>National Grid<br><br>Electricity in the home | Power - what is it and how do we calculate it?<br><br>Density of materials<br>Internal Energy and changes of state<br>Specific Latent Heat<br>Particle motion in gases<br><br>The current model of an atom<br>Isotopes and nuclear radiation<br>Nuclear equations<br>Half Life<br>Background radiation and contamination<br>Fission & Fusion | The current model of an atom<br>Isotopes and nuclear radiation<br>Nuclear equations<br>Half Life<br>Background radiation and contamination<br>Fission & Fusion<br><br>Contact and noncontact forces<br>Weight, Mass and Gravity<br>Calculating force<br>Force and Elasticity<br>Moments<br>Fluid Pressure<br>Upthrust and atmospheric pressure<br>Acceleration<br>DT and VT Graphs<br>Terminal Velocity<br>Newton's Laws of Motion<br>Momentum and Change in momentum | Contact and noncontact forces<br>Weight, Mass and Gravity<br>Calculating force<br>Force and Elasticity<br>Moments<br>Acceleration<br>DT and VT Graphs<br>Terminal Velocity<br>Newton's Laws of Motion<br>Momentum and Change in momentum | Contact and noncontact forces<br>Weight, Mass and Gravity<br>Calculating force<br>Force and Elasticity<br>Moments<br>Acceleration<br>DT and VT Graphs<br>Terminal Velocity<br>Newton's Laws of Motion<br>Momentum and Change in momentum | Fluid Pressure<br>Upthrust and atmospheric pressure<br><br>Retrieval of prior knowledge |
| **Skills developed** | Describing particle model and atomic structure<br>Construct electric circuits<br>Problem solving<br>Recalling and applying equations<br>Rearranging equations | Planning a practical<br>Obtaining data<br>Plotting line graphs + determining the gradient of the line of best fit<br>Development of scientific ideas<br>Extended writing<br>Building simple circuits<br>Recall and use of equations<br>Required practicals | Using and evaluating models<br>Recalling and applying equations<br>Rearranging equations | Recalling and applying equations<br>Rearranging equations<br>Describing the gradient of a line graph<br>Calculating the area underneath a motion graph<br>Evaluating factors affecting braking distance | Recalling and applying equations<br>Rearranging equations<br>Describe the shape of a curve on a graph | Making observations<br>Collecting data<br>Recalling and applying equations<br>Rearranging equations<br>Exam technique<br>Revision study skills |

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| | | resistance and I-V characteristics, Density | | | | |
| **Specifical Link** | AQA PHYSICS 4.2 | AQA PHYSICS 4.2<br><br>AQA PHYSICS 4.3<br><br>AQA PHYSICS 4.4 | AQA PHYSICS 4.4<br><br>AQA PHYSICS 4.5 | AQA PHYSICS 4.5 | AQA PHYSICS 4.5 | AQA PHYSICS 4.5 |
| **Flagship Link** | | | | | | |
| **Cross Curriculum Connections** | **Technology** - Term 2 Y10 Mini NEA | **Maths** - HT5 Y10 Probability | **Maths** / graph interpretation and calculation of speed Year 9 HT2 / Yr 10 HT3<br><br>**Maths** / Vectors, forces and motion Year 12 HT2 | **Maths** / graph interpretation and calculation of speed Year 9 HT2 / Yr 10 HT3<br><br>**Maths** / Vectors, forces and motion Year 12 HT2<br><br>**Technology** - Term 2 Y10 Mini NEA | **Maths** / graph interpretation and calculation of speed Year 9 HT2 / Yr 10 HT3<br><br>**Maths** / Vectors, forces and motion Year 12 HT2<br><br>**Technology** - Term 2 Y10 Mini NEA | |
| **Resources to support learning** | Resources available at: BBC Bitesize / Seneca Learning / Google Classroom | | | | | |

# Year 11 Combined Science / Trilogy (Shared between two teachers)

## Biology

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| **Topics covered** | Ecology<br>**B16**<br>**B17**<br>Inheritance variation and evolution<br>**B13**<br>**B14** | Inheritance, variation and evolution **B15** | | Revision<br>& Exam Preparation | |
| **Knowledge Deepened** | Ecosystems<br>Competition<br>Adaptations | Variation and Evolution<br>Selective Breeding<br>Genetic Engineering | | Retrieval of prior knowledge | |

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| | Food chains<br>How to use a Quadrat/Transect<br>The water and carbon cycle<br>Decomposition<br>DNA - structure<br>Reproduction - sexual and asexual<br>Meiosis<br>X & Y chromosomes<br>Genetic diagrams<br>Embryo screening | Fossils and Classification | | | | |
| **Skills developed** | Discussing viewpoints<br>Weighing evidence<br>Investigation- Field work<br>Modelling natural selection<br>Use of qualitative data | Discussing viewpoints<br>Weighing evidence<br>Evaluating use of GM<br>Ethics of cloning | | Exam technique<br>Revision study skills<br>Application of mathematical, practical and analysis skills to different contexts. | | |
| **Specification link** | AQA TRILOGY 4.6<br>AQA TRILOGY 4.7 | AQA TRILOGY 4.7 | | | | |
| **Flagship Link** | | | | | | |
| **Cross Curriculum Connections** | **Geography** - Y10 Term 1 Ecosystem<br><br>**Philosophy** - Y8 HT6 Science and Religion | **Personal Development** - HT5 Y11 - Families<br><br>**Philosophy** - Y8 HT6 Science and Religion | | | | |
| **Resources to support learning** | Resources available at: BBC Bitesize / Seneca Learning / Google Classroom | | | | | |
| **Chemistry** | | | | | | |
| **Topics covered** | | Chemistry of the atmosphere **C13** | Using Resources **C14**<br>Organic Chemistry | Revision<br>& Exam Preparation | | |

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| | | | **C9** | | |
| **Knowledge Deepened** | | Evolution of the Earth's atmosphere,<br>Greenhouse gases and climate change<br>Carbon footprint<br>Combustion and pollution<br>Biodiversity and waste management<br>Global Warming<br>Deforestation and Land Use<br><br>Impact of environmental change | Using Resources - Finite and renewable resources, Reuse and recycling, Life Cycle Assessments, Potable water and desalination, wastewater treatment<br><br>Hydrocarbon families: alkanes and alkenes<br>Crude oil and Fractional Distillation<br>The process of cracking | Retrieval of prior knowledge | |
| **Skills developed** | | Data analysis:<br>Graphs and tables<br>Evaluation of theories<br>Mathematical skills e.g. calculating mean | Analytical skills - data interpretation<br>Evaluation of resources | Exam technique<br>Revision study skills<br>Application of mathematical, practical and analysis skills to different contexts. | |
| **Specification Link** | | AQA TRILOGY 5.9<br><br>AQA TRILOGY 5.10 | AQA TRILOGY 5.7 | | |
| **Flagship Link** | | **Science & Geography** - Y 11 Term 2 Natural Hazards | | | |
| **Cross Curriculum Connections** | | **Geography** - Y10 Term 1 Hot deserts | **Biology** (environment / global warming) Year 11 HT1<br><br>**Technology -** Y11 NEA | | |
| **Resources to support learning** | Resources available at: BBC Bitesize / Seneca Learning / Google Classroom | | | | |
| **Physics** | | | | | |
| | Forces | Waves **P12** | E.M Spectrum | Revision | |

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| **Topics covered** | **P8**<br>**P9**<br>**P10** | | **P13**<br>Electricity and Magnetism<br>**P15** | & Exam Preparation | |
| **Knowledge Deepened** | Weight, mass gravity<br>Resultant forces and work done<br>Distance and velocity time graphs<br>Forces, acceleration and Newton's Laws of Motion<br>Forces and elasticity | Transverse and Longitudinal waves<br>Frequency, Period and Wave speed<br>Refraction | EM Spectrum - properties, uses and dangers<br>Investigating Infrared radiation<br><br>Permanent and Induced Magnets<br>Electromagnetism | Retrieval of Prior Knowledge | |
| **Skills developed** | Mathematical reasoning<br>Use of scalars and vectors<br>Required Practical skills: graphs, data collection and interpretation | Extended writing linkage of ideas and concepts<br>Application and manipulation of mathematical equations<br>Required practicals radiation and absorption, [thermal insulation and light (Physics only)] | Extended writing linkage of ideas and concepts<br>Application and manipulation of mathematical equations | Exam technique<br>Revision study skills<br>Application of mathematical, practical and analysis skills to different contexts. . | |
| **Specification Link** | AQA TRILOGY 6.5 | AQA TRILOGY 6.6 | AQA TRILOGY 6.6<br><br>AQA TRILOGY 6.7 | | |
| **Flagship Link** | | | | | |
| **Cross Curriculum Connections** | **Maths** / graph interpretation and calculation of speed Year 9 HT2 / Yr 10 HT3<br><br>**Maths /** Vectors, forces and motion Year 12 HT2 | | **Computer Science::** Electromagnetics with focus on WiFi (data) | | |
| **Resources to support learning** | Resources available at: BBC Bitesize / Seneca Learning / Google Classroom | | | | |

# Year 11 Separate Science

## Biology

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|---|---|---|---|---|---|
| **Topics covered** | Ecology<br>**B16**<br>**B17**<br>**B18** | Inheritance, variation and evolution **B13** | Inheritance, variation and evolution<br>**B14**<br>**B15** | Revision<br>& Exam Preparation | |
| **Knowledge Deepened** | Ecosystems<br>Competition<br>Adaptations<br>Food chains<br>How to use a Quadrat/Transect<br>The water and carbon cycle<br>Trophic Levels<br>Food security and Biotechnology | DNA - structure<br>Reproduction - sexual and asexual<br>Meiosis<br>X & Y chromosomes<br>Genetic diagrams<br>Embryo screening | Embryo screening<br>Variation and Evolution<br>Selective Breeding<br>Genetic Engineering<br>Fossils and Classification and Extinction<br>Speciation | Retrieval of Prior Knowledge | |
| **Skills developed** | Weighing evidence<br>Investigation- Field work | Modelling natural selection<br>Use of qualitative data<br>Evaluating use of GM<br>Ethics of cloning | Modelling natural selection<br>Use of qualitative data<br>Evaluating use of GM<br>Ethics of cloning<br><br>Discussing viewpoints | Exam technique<br>Revision study skills<br>Application of mathematical, practical and analysis skills to different contexts. | |
| **Specification Link** | AQA BIOLOGY 4.7 | AQA BIOLOGY 4.6 | AQA BIOLOGY 4.6 | | |
| **Flagship Link** | | | | | |
| **Cross Curriculum Connections** | **Geography** - Y10 Term 1 Ecosystem | **Personal Development** - HT5 Y11 - Families<br><br>**Philosophy** - Y8 HT6 Science and Religion | **Personal Development** - HT5 Y11 - Families<br><br>**Philosophy** - Y8 HT6 Science and Religion | | |
| **Resources to support** | Resources available at: BBC Bitesize / Seneca Learning / Google Classroom | | | | |

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| **learning** | | | | |
| **Chemistry** | | | | |
| **Topics covered** | **C12**<br>Chemical Analysis<br>**C13**<br>Chemistry of the atmosphere | **C14**<br>**C15**<br>Using Resources | Revision & Exam Preparation | |
| **Knowledge Deepened** | Chemical Analysis - Purity and formulation, process of chromatography and analysis of chromatograms<br><br>Testing for positive metal ion<br><br>Testing for negative ion<br><br>Gas tests for Oxygen, Hydrogen, Chlorine and Carbon Dioxide<br><br>Instrumental Analysis<br><br>Evolution of the Earth's atmosphere, Greenhouse gases and climate change<br>Carbon footprint<br>Combustion and pollution<br>Biodiversity and waste management<br>Global Warming<br>Deforestation and Land Use<br><br>Impact of environmental change | Using Resources - Finite and renewable resources, Reuse and recycling, Life Cycle Assessments, Potable water and desalination, wastewater treatment | Retrieval of prior knowledge | |
| **Skills developed** | Making observations<br>Recording data<br>Problem solving<br>Evaluating evidence to | Writing a scientific method<br>Collecting data<br>Making observations | Exam technique<br>Revision study skills<br>Application of mathematical, practical and analysis skills to different contexts. | |

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| | support theories | Writing conclusions | | | | |
| **Specification Link** | AQA CHEMISTRY 4.8<br><br>AQA CHEMISTRY 4.9 | AQA CHEMISTRY 4.9<br><br>AQA CHEMISTRY 4.10 | | | | |
| **Flagship Link** | | | | | | |
| **Cross Curriculum Connections** | **Psychology** - HT4 Y11 Research Methods<br><br>**Technology** - Term 1 - Factors to consider when designing a menu - Global Warming | **Technology** - (Core theory) Year 11 HT1 | | | | |
| **Resources to support learning** | Resources available at: BBC Bitesize / Seneca Learning / Google Classroom | | | | | |
| **Physics** | | | | | | |
| **Topics covered** | Pressure **P11**<br>Waves **P12** | Electromagnetic spectrum **P13**<br>Light **P14** | Magnetism **P15**<br>Space **P16** | Revision & Exam Preparation | | |
| **Knowledge Deepened** | Fluid Pressure<br>Upthrust and atmospheric pressure<br>Transverse and Longitudinal waves<br>Frequency, Period and Wave speed<br>Reflection | EM Spectrum - properties, uses and dangers<br>Infrared Radiation and Temperature<br>Black Body Radiation<br>Sound Waves and Ultrasound<br>Lenses<br>Images and Ray Diagrams<br>Concave lenses and Magnification<br>Visible Light | Permanent and Induces Magnets<br>Electromagnetism<br>The Motor Effect<br>Electric Motors and Loudspeakers<br>The Generator Effect<br>Generators and Microphones<br>Transformers<br><br>The Life Cycle of a star<br>The solar system and orbits<br>Red-shift and The Big Bang | Retrieval of prior knowledge | | |
| **Skills** | Extended writing linkage of | Extended writing linkage | Development of models | Exam technique | | |

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|---|---|---|---|---|---|---|
| **developed** | ideas and concepts<br>Application and manipulation of mathematical equations | of ideas and concepts<br>Application and manipulation of mathematical equations | and ideas of our universe throughout history<br>A sense of scale and use of significant figures<br>The importance of peer review when analysing and interpreting data | Revision study skills<br>Application of mathematical, practical and analysis skills to different contexts. | | |
| **Specification Link** | AQA PHYSICS 4.5<br>AQA PHYSICS 4.6 | AQA PHYSICS 4.6 | AQA PHYSICS 4.7<br>AQA PHYSICS 4.8 | | | |
| **Flagship Link** | | | | | | |
| **Cross Curriculum Connections** | | | **Computer Science::**<br>Electromagnetics with focus on WiFi (data) | | | |
| **Resources to support learning** | Resources available at: BBC Bitesize / Seneca Learning / Google Classroom | | | | | |