



# CURRICULUM PLAN

TRIPLE SCIENCE BIOLOGY  
(EDEXCEL 9-1)  
BRAMHALL HIGH SCHOOL

## **Curriculum Intent**

It is our intention as Science Department to provide all children, regardless of their prior learning, background, or special needs, with a broad and balanced science curriculum. We aim to promote positive attitudes to science as an interesting and enjoyable subject. To develop pupils` awareness of how science impacts on their everyday life.

Pupils are encouraged to develop their practical skills, to work collaboratively and to query and evaluate scientific evidence.

We aim to cultivate an environment conducive to learning. We encourage and value our pupils` opinions, ideas, and contributions. Similarly, we expect pupils to strive for excellence and respect the contributions of other adults and their peers. Our intention is for pupils to enjoy their learning, to be resilient, make progress and achieve at an appropriate level.

**Academic Year: 2026-2027**

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| YEAR 10        |                                                                                                                                                                                                                                                                                                                         |                                                                 |                                             |                                                                                                                                                              |                                                                                                              |
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| Term           | Programme of Learning                                                                                                                                                                                                                                                                                                   | Links to the National Curriculum / Specification / Additional   | Assessments                                 | What extra learning opportunities are planned?                                                                                                               | Disciplinary Literacy                                                                                        |
| <b>Term 1a</b> | <b>SB2 Cells and control</b> <ul style="list-style-type: none"> <li>- Mitosis</li> <li>- Growth in animals</li> <li>- Growth in plants</li> <li>- Stem cells</li> <li>-The brain</li> <li>- Brain and spinal cord problems</li> <li>- The nervous system</li> <li>-The eye</li> <li>-Neurotransmitter speeds</li> </ul> | Coordination and control<br>Experimental skills and strategies  | SB2 Biology CPR<br><br>B2 End of topic test | <ul style="list-style-type: none"> <li>• Research the effects of different drugs on neurotransmitters.</li> </ul>                                            | <b>Tier 1:</b> Growth, cancer.<br><b>Tier 2:</b> *tumours, malignant,<br><b>Tier 3:</b> Cell cycle, mitosis, |
| <b>Term 1b</b> | <b>SB3 Genetics</b> <ul style="list-style-type: none"> <li>- Sexual reproduction</li> <li>- Asexual reproduction</li> <li>- Meiosis</li> <li>- DNA</li> <li>- Protein synthesis</li> <li>- Genetic variants and phenotypes</li> </ul>                                                                                   | Evolution, inheritance and variation<br>Analysis and evaluation | SB3 Biology CPR 1<br><br>SB3 Biology CPR 2  | Investigate correlations between different variation features, e.g. arm length and height.<br><br>Research the methods involved in the human genome project. | <b>Tier 1:</b> DNA, gene.<br><b>Tier 2:</b> Embryo, mutation.<br><b>Tier 3:</b> *Meiosis, gametes.           |

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| <b>Term 2a</b> | <b>SB3 Genetics</b> <ul style="list-style-type: none"> <li>- Mendel</li> <li>- Alleles</li> <li>- Inheritance</li> <li>- Multiple &amp; missing alleles</li> <li>- Gene mutations</li> <li>- Variation</li> </ul>                                        | Evolution, inheritance and variation<br>Analysis and evaluation                | SB3 Biology CPR 3<br>SB3 Biology CPR 4<br>B3 End of topic test                    | Research the ABO blood groups.                                                             | <b>Tier 1:</b> Sexual, gene.<br><b>Tier 2:</b> dominant, recessive.<br><b>Tier 3:</b><br>*Homozygous, heterozygous.                                                                          |
| <b>Term 2b</b> | <b>SB4 Natural selection and genetic modification</b> <ul style="list-style-type: none"> <li>- Human evolution</li> <li>- Darwin's theory</li> <li>- Development of Darwin's theory</li> <li>- Classification</li> <li>- Breeds and varieties</li> </ul> | Evolution, inheritance and variation<br>The development of scientific thinking | CPR – Fertilisers and biological control related question<br>B4 End of topic test | Contrast the theory of natural selection from Darwin and Wallace with the work of Lamarck. | <b>Tier 1:</b> Handy man, survival of the fittest.<br><b>Tier 2:</b> *Evolution, natural selection, species, common ancestor.<br><b>Tier 3:</b> Human genome project, antibiotic resistance. |

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| <b>Term 2b</b> | <b>SB4 Natural selection and genetic modification</b> <ul style="list-style-type: none"> <li>- Tissue culture</li> <li>- Genes in agriculture and medicine</li> <li>- GM and agriculture</li> <li>- Fertilisers and biological control</li> </ul><br><b>SB5 Health, disease and the development of medicines</b> <ul style="list-style-type: none"> <li>- Health and disease</li> <li>- Non-communicable diseases</li> <li>- Cardiovascular disease</li> </ul> | Evolution, inheritance and variation<br>The development of scientific thinking | SB5 Biology CPR 1                                                                                                                                    | Research the current status of growing genetically modified crops in the UK and other countries.                             | <b>Tier 1:</b> Disease.<br><b>Tier 2:</b> Artificial, extinction, *differentiation.<br><b>Tier 3:</b> Selective breeding, genetic engineering, restriction enzymes. |
| <b>Term 3a</b> | <b>SB5 Health, disease and the development of medicines</b> <ul style="list-style-type: none"> <li>- Pathogens</li> <li>- Spreading pathogens</li> <li>- Virus lifecycles</li> <li>- Immune system</li> <li>- Monoclonal antibodies</li> </ul>                                                                                                                                                                                                                 | Health, disease and the development of medicines<br>Analysis and evaluation    | Year 10 Exams CPR – Virus related question<br><br>SB5 Biology CPR 2<br><br>5.18B Investigate the effects of antiseptics,<br><br>B5 End of topic test | Research recommended levels of exercise, dietary and alcohol intake.<br><br>Research values for high and low blood pressure. | <b>Tier 1:</b> Health, disease.<br><b>Tier 2:</b> Infection, virus, bacteria.<br><b>Tier 3:</b> Ebola, *communicable, malaria, vectors.                             |

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| <b>Term 3b</b> | <b>SB6 Plant structure and their function</b> <ul style="list-style-type: none"><li>- Photosynthesis</li><li>- Photosynthesis factors</li><li>- Absorbing water</li><li>- Absorbing minerals</li><li>- Transpiration</li><li>- Translocation</li><li>- Plant adaptations</li><li>- Plant hormones</li><li>- Uses of plant hormones</li></ul> | Photosynthesis | SB6 Biology CPR 1<br>SB6 Biology CPR 2<br>B6 End of topic test | Investigate the effect of different coloured light on the rate of photosynthesis. | <b>Tier 1:</b> Light, carbon dioxide,<br><b>Tier 2:</b> Optimum.<br><b>Tier 3:</b><br>*Photosynthesis, chloroplasts, chlorophyll, palisade cells. |
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## YEAR 11

| Term           | Programme of Learning                                                                                                                                                                                                                                                            | Links to the National Curriculum / Specification / Additional | Assessments                                | What extra learning opportunities are planned?                                                                                                                                                 | Disciplinary Literacy                                                                                                                                                   |
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| <b>Term 1a</b> | <b>SB7 Animal coordination, control and homeostasis</b> <ul style="list-style-type: none"> <li>- Hormones</li> <li>-Hormonal control of metabolic rate</li> <li>- The menstrual cycle</li> <li>- Hormones and the menstrual cycle</li> <li>- Control of blood glucose</li> </ul> | Coordination and control                                      | SB7 Biology CPR 1<br><br>SB7 Biology CPR 2 | Research the effects on the body if the hormones are not produced at the correct level.<br><br>Calculate sugar intakes of different foods and how starchy foods increase blood glucose levels. | <b>Tier 1:</b> Puberty, period, contraception.<br><b>Tier 2:</b> Menstruation, ovulation, *fertilisation.<br><b>Tier 3:</b> Oestrogen, progesterone, negative feedback. |
| <b>Term 1b</b> | <b>SB7 Animal coordination, control and homeostasis</b> <ul style="list-style-type: none"> <li>- Type 2 diabetes</li> <li>- Thermoregulation</li> <li>- Osmoregulation</li> <li>- The kidneys</li> </ul>                                                                         | Coordination and control                                      | CPR – Kidney system related question       | Research the long-term side effects of diabetes type 1 and type 2.                                                                                                                             | <b>Tier 1:</b><br><b>Tier 2:</b> Hormone.<br><b>Tier 3:</b> *Endocrine glands, pancreas, insulin, glucagon, metabolic rate, glycogen.                                   |

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| <b>Term 2a</b> | <b>SB8 Exchange and transport in animals</b> <ul style="list-style-type: none"> <li>- Efficient transport and exchange</li> <li>- Factors affecting diffusion</li> <li>- The circulatory system</li> <li>- The heart</li> <li>- Cellular respiration</li> </ul> | Transport systems<br>Analysis and evaluation | SB8 Biology CPR 1<br><br>SB8 Biology CPR 2<br><br>8.11 Investigate the rate of respiration<br><br>B8 End of topic test | Interpret heart traces under different conditions.<br><br>Explain why specific cell types have more mitochondria than others. | <b>Tier 1:</b> Glucose, oxygen, carbon dioxide.<br><b>Tier 2:</b> Heart rate, <b>*respiration</b><br><b>Tier 3:</b> Exothermic, aerobic, anaerobic, mitochondria, lactic acid. |
| <b>Term 2b</b> | <b>SB9 Ecosystems and material cycles</b> <ul style="list-style-type: none"> <li>- Ecosystems</li> <li>- Energy transfer</li> <li>- Abiotic factors and communities</li> <li>- Biotic factors and communities</li> <li>- Assessing pollution</li> </ul>         | Transport systems<br>Analysis and evaluation | Year 11 Mocks<br><br>9.5 Investigate the relationship between organisms                                                | Show examples, e.g. chicken / fish farming, to show ways to limit energy loss at trophic levels.                              | <b>Tier 1:</b> Disease, fossil fuels.<br><b>Tier 2:</b> Ecosystem, community, populations.<br><b>Tier 3:</b> <b>*Biotic</b> , abiotic, quadrat.                                |



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| <b>Term 3a</b> | <b>SB9 Ecosystems and material cycles</b> <ul style="list-style-type: none"> <li>- Parasitism &amp; mutualism</li> <li>- Biodiversity &amp; humans</li> <li>- Preserving biodiversity</li> <li>- Food security</li> <li>- The water cycle</li> <li>- The carbon cycle</li> <li>- The nitrogen cycle</li> <li>- Rates of decomposition</li> </ul> | Ecosystems<br>Vocabulary, units, symbols and nomenclature | B9 End of topic test | Study a specific endangered animal to explain the cause of its population decrease. | <b>Tier 1:</b> Conservation.<br><b>Tier 2:</b> Indigenous, reforestation, captivity.<br><b>Tier 3:</b> Food security, biofuels, biodiversity, <b>*eutrophication</b> , decomposition, |
| <b>Term 3b</b> | Consolidation activities<br>Core Practical Review                                                                                                                                                                                                                                                                                                |                                                           |                      |                                                                                     |                                                                                                                                                                                       |