CURRICULUM PLAN

COMBINED SCIENCE BIOLOGY (EDEXCEL 9-1)

BRAMHALL HIGH SCHOOL

CURRICULUM PLAN – BIOLOGY
(COMBINED – EDEXCEL 9-1)

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.

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YEAR 10

Term	Programme of Learning	Links to the National Curriculum / Specification / Additional	Assessments	What extra learning opportunities are planned?	Disciplinary Literacy
Term 1a	**CB2 Cells and control** - Mitosis - Growth in animals - Growth in plants - Stem cells - The nervous system -Neurotransmitter speeds	Coordination and control Experimental skills and strategies	CB2 Biology CPR B2 End of topic test	Research the effects of different drugs on neurotransmitters.	**Tier 1:** Growth, cancer. **Tier 2:** *tumours, malignant, **Tier 3:** Cell cycle, mitosis,
Term 1b	**CB3 Genetics** - Meiosis - DNA - Alleles - Inheritance - Gene mutations - Variation	Evolution, inheritance and variation Analysis and evaluation	CB3 Biology CPR B3 end of topic test	Investigate correlations between different variation features, e.g. arm length and height. Research the methods involved in the human genome project.	**Tier 1:** DNA, gene. **Tier 2:** Embryo, mutation. **Tier 3:** *Meiosis, gametes.

Term 2a	**CB4 Natural selection and genetic modification** - Evidence for human evolution - Darwin's theory - Classification - Breeds and varieties - Genes in agriculture and medicine - GM and agriculture	Evolution, inheritance and variation The development of scientific thinking	CB4 Biology CPR B4 end of topic test	Contrast the theory of natural selection from Darwin and Wallace with the work of Lamarck.	**Tier 1:** Handy man, survival of the fittest. **Tier 2:** ***Evolution**, natural selection, species, common ancestor. **Tier 3:** Human genome project, antibiotic resistance.
Term 2b	**CB5 Health, disease and the development of medicines** - Health and disease - Non-communicable diseases - Cardiovascular disease - Pathogens	Health, disease and the development of medicines Analysis and evaluation	CB5 Biology CPR	Research recommended levels of exercise, dietary and alcohol intake.	**Tier 1:** Health, disease. **Tier 2:** Infection, virus, bacteria. **Tier 3:** Ebola, *communicable, malaria, vectors.

Term 2b	**CB5 Health, disease and the development of medicines** - Spreading pathogens - Physical and chemical barriers - The immune system - Antibiotics		B5 end of topic test	Research values for high and low blood pressure.	**Tier 1:** Health, disease. **Tier 2:** Infection, virus, bacteria. **Tier 3:** Ebola, communicable, malaria, *vectors.
Term 3a	**CB6 Plant structures and their functions** -Photosynthesis -Factors that affect photosynthesis	Photosynthesis	Year 10 exams CB6 Biology CPR 1	Investigate the effect of different coloured light on the rate of photosynthesis.	**Tier 1:** Light, **Tier 2:** Optimum. **Tier 3:** *Photosynthesis, chloroplasts.
Term 3b	**CB6 Plant structures and their functions** - Absorbing water - Absorbing mineral ions - Transpiration - Translocation	Photosynthesis	CB6 Biology CPR 2 B6 end of topic test		**Tier 1:** Carbon dioxide. **Tier 2:** ***Optimum. **Tier 3:** Chlorophyll, palisade cells.

YEAR 11

Term	Programme of Learning	Links to the National Curriculum / Specification / Additional	Assessments	What extra learning opportunities are planned?	Disciplinary Literacy
Term 1a	**CB7 Animal coordination, control and homeostasis** - Hormones - Hormonal control of metabolic rate - The menstrual cycle - Hormones and the menstrual cycle - Control of blood glucose - Type 2 diabetes	Coordination and control Vocabulary, units, symbols and nomenclature Transport systems Analysis and evaluation	CB7 Biology CPR B7 End of topic test 8.11 Investigate the rate of respiration in living organisms	Research the effects on the body if the hormones are not produced at the correct level. Calculate sugar intakes of different foods and how starchy foods increase blood glucose levels.	**Tier 1:** Puberty, period, contraception. **Tier 2:** Menstruation, ovulation, *fertilisation. **Tier 3:** Oestrogen, progesterone, negative feedback.
Term 1b	**CB8 Exchange and transport in animals** - Efficient transport and exchange - The circulatory system - The heart - Cellular respiration	Transport systems Analysis and evaluation	Year 11 Mocks CB8 Biology CPR B8 End of topic test	Interpret heart traces under different conditions. Explain why specific cell types have more mitochondria than others.	**Tier 1:** Glucose, oxygen, carbon dioxide. **Tier 2:** Heart rate, *respiration. **Tier 3:** exothermic, aerobic, anaerobic, mitochondria, lactic acid.

Term 2a	**CB9 Ecosystems and material cycles** - Ecosystems - Abiotic factors and communities - Biotic factors and communities - Parasitism & mutualism - Biodiversity & humans	Ecosystems Vocabulary, units, symbols and nomenclature	CB9 Biology CPR 9.5 Investigate the relationship between organisms	Show examples, e.g. chicken / fish farming, to show ways to limit energy loss at trophic levels.	**Tier 1:** Disease, fossil fuels. **Tier 2:** Ecosystem, community, populations. **Tier 3:** *Biotic, abiotic, quadrat.
Term 2b	**CB9 Ecosystems and material cycles** - Preserving biodiversity - The water cycle - The carbon cycle - The nitrogen cycle	Ecosystems Vocabulary, units, symbols and nomenclature	Yr 11 Mocks Paper 2 B9 End of topic test	Study a specific endangered animal to explain the cause of its population decrease.	**Tier 1:** Conservation. **Tier 2:** Indigenous, reforestation, captivity. **Tier 3:** Food security, biofuels, biodiversity, *eutrophication, decomposition.

Term 3a	Consolidation activities Core Practical Review				