Long Term Plan: Combined Biology Year 10

ARCHBISHOP SENTAMU ACADEMY
Church of England

"Science is simply the word we use to describe a method of organising our curiosity."

The programme for Y10 and 11 differs in comparison to KS3. There are 5 sets in each population. X/Y 2, 3, 4 and 5 classes will be taught combined science content and will either see a subject specialist teacher three times a fortnight, or have a solo teacher 9 times a fortnight.

There are 2 data collection points for Y10

Staff use the **Curriculum Road Map** to ensure they teach the correct topic with enough time to cover the depth and breadth of our curriculum.

Topic	Unit title	Key knowledge/ Content to learn and retain	Essential skills to acquire (subject & generic)	Anticipated misconceptions	Links to previous KS	Links to future KS	Opportunity for stretch for high prior attainers
One	Infection and response	Pathogens and modes of transmission The function of key components of the immune system How vaccines work Antibiotics, painkillers and the development of new drugs	Interpreting data in graphical and tabular form Reading for comprehension Extended writing	That white blood cells "eat" invaders - students must refer to phagocytosis. Potential for confusion between antibody and antigen That bacteria "learn" rather than evolve to be resistant to antibiotics All bacteria are bad and cause infectious diseases.	Builds from unit 10. Health and Disease at KS3, which laid the foundations of disease transmission and immune system function	The immune system and immunity forms the entirety of learning aim B, in the first unit of the Applied Human Biology course. In A-Level biology students will study Cell recognition, T-Cell and B-Cell Function, HIV and the use of monoclonal antibodies	Students could consider ideas of herd immunity and why it is important for those that can be vaccinated to be vaccinated. Students could consider how a white blood cell can tell if a cell is self or non-self Students could look at the rise of antibiotic resistant bacteria

SMSC & British Values	British values in science Staying healthy and good infection control The importance of vaccines The spread of MRSA Testing on animals
Cultural Capital	A general awareness of pandemics and how they can be controlled, both in the UK and worldwide
Career Link	https://www.bbc.co.uk/bitesize/tags/zjb8f4j/jobs-that-use-science/1, https://www.bradfordacademy.co.uk/wp-content/uploads/2019/10/CEIAG-in-the-Curriculum-Science.pdf, https://www.pearson.com/uk/educators/schools/subject-area/science/why-science-matters/your-future-in-stem-a-z.html More information here. Any healthcare-based career Medical research Drugs research

Two	Inheritance variation and evolution	The structure of DNA Genes and alleles; including the concepts of recessive alleles, dominant alleles, homozygous and heterozygous Sexual vs asexual reproduction Inheritance and punnet squares Inheritance of sex and genetic disorders Evolution by natural selection Evidence for evolution, including fossils and genetic evidence Classification	Calculation of simple probability Writing and interpreting tree charts Extended writing Calculation of simple probability Writing and interpreting tree charts Extended writing	Alleles as different genes rather than different versions of a gene Confusion between genotype and phenotype	This unit builds on the study of heredity and evolution that is completed in year 8	Study of genetics forms the basis of an entire unit of study in both A-Level biology and Applied human Biology	Sex linked traits Advantages and disadvantages of sexual be asexual reproduction and why organisms capable of both would choose a strategy

		How human understanding of genetics has changed over time, Cloning and genetic engineering					
SMSC & British Values	British values in science Inherited disorders and issues around family planning						
Cultural Capital	Charles Darwin and the voyage of the beagle Historical debate around evolution						
Career Link	https://www.bbc.co.uk/bitesize/tags/zjb8f4j/jobs-that-use-science/1, https://www.bradfordacademy.co.uk/wp-content/uploads/2019/10/CEIAG-in-the-Curriculum-Science.pdf, https://www.pearson.com/uk/educators/schools/subject-area/science/why-science-matters/your-future-in-stem-a-z.html More information here. Medical research Family planning adviser Genealogist						
Three	Homoeostasis and response	The definition of Homeostasis The nervous system and reflex arcs Negative feedback and the control of glucose Control of the menstrual cycle, including fertility treatment and hormonal contraception	Drawing and labelling scientific diagrams Collecting recording accurate data Presenting and interpreting data in tabular and graphical form. Extended Writing Collecting recording accurate data Presenting and interpreting data in tabular and graphical form. Extended Writing	Blood sugar - students often don't identify this with glucose. Students often confuse the three different hormones that control the menstrual cycle	Builds from the study of nutrition and digestion in year 9, which explores how humans obtain the glucose they use for energy from their diet. Also builds from previous study of the circulatory system as a transport	Study of homeostasis and negative feedback loops is continued in greater depth in both A-Level biology and Applied Human Biology Study of homeostasis and negative feedback loops is continued in greater depth in	Treatment of diabetes and comparison of type one and type two. Students can consider why negative feedback loops are suited to control of homeostasis Treatment of diabetes and comparison of type

					mechanism Previous work at KS3 on the circulatory system as transport mechanism (Triple Only) Plant growth, and xylem and phloem.	both A-Level biology and Applied Human Biology	one and type two. Students can consider why negative feedback loops are suited to control of homeostasis
SMSC & British Values	British values in science Healthy diet and risk factors for diabetes How people with diabetes manage their condition Appropriate usage of contraception, particularly hormonal options						
Cultural Capital	Impact of a healthy V unhealthy lifestyle on the mental health & wellbeing of individuals and communities. How different communities feel about and use hormonal contraceptives						
Career Link	https://www.bbc.co.uk/bitesize/tags/zjb8f4j/jobs-that-use-science/1, https://www.bradfordacademy.co.uk/wp-content/uploads/2019/10/CEIAG-in-the-Curriculum-Science.pdf, https://www.pearson.com/uk/educators/schools/subject-area/science/why-science-matters/your-future-in-stem-a-z.html More information here. Dietitian Any number of careers in the medical field Fertility Adviser Family planning adviser Farmer Botanist						
Four	**Revision and preparation for GCSE exams**						
SMSC & British	Revisit to subject knowledge from across the course & use of PLC to ensure that students have a good grasp of all aspects of the specification						

Values	Use of retrieval quizzes and activities to identify gaps in SK and misconceptions Support students in developing summary notes, flash cards etc to aid retrieval of key facts Ensure that students have the necessary skills for effective revision Focus on past exam questions and papers – command words and application of knowledge Practice the application of knowledge that draws upon the practical aspects of the course Timed completion of questions to support with pace through the exam paper SLOP style activities to ensure that all are prepared for the aspects of maths that will be present on the exam papers
Cultural Capital	
Career Link	