Long Term Plan: Applied Human Biology Year 13 (Teacher Two)

ARCHBISHOP SENTAMU ACADEMY
Church of England

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

Half term	Unit title	Key knowledge/ Content to learn and retain	Essential skills to acquire (subject & generic)	Anticipated misconceptions	Links to previous KS	Opportunity for stretch for high prior attainers
One	Haematology (This is a continuation of the topic from the end of Y12)	Structure and function of blood components Blood Grouping The cause, symptoms, biological effects, diagnosis and treatment of: Leukemia Hepatitis Anaemia (Iron deficiency and sickle cell) HIV Haemophilia The role, use and methodology of: Haemocytometers Full Blood Smears Blood Group analysis Iron deficiency testing Clotting Time	Level three technical and practical skills, including use of advanced glassware to carry out synthesis and purification Accurate measurement of substances using a variety of equipment including titration Safe handling of corrosive and toxic chemicals Presenting and interpreting data in graphical and tabular form Extended writing, including producing formal lab write ups with references and citations Following written methods Mathematical skills, including changing the subject of an equation, multi step problem solving, percentages, graph drawing, drawing tangents to a curve, ratios, using standard form, fractions and working with powers.	The intercompatibility of different blood types Confusion between different types of anaemia	This unit builds directly on from work done earlier in the year, combining knowledge from across the course so far to focus on blood pathology	Comparison and evaluation of different haematological tests
SMSC & British Values	Safe working in a lab and respecting each other's working space. Ethical issues surrounding the use of biological samples, including the use of live samples.					
Cultural	The ubiquity of biology allows for examples to be taught in a wide variety of familiar and unfamiliar contexts					

Capital						
Career Link	A BTEC in Applied Human Biology opens to doors to a wide range of STEM field careers. The topics covered in this unit would build the foundations for students to study a range of biomedical and healthcare courses or to enter these fields through employment					
Two	Histology (This topic spans across 2 half terms)	Removal and Storage of biological samples Bowel Cancer Screening Analysis of Aspirates Tissue typing for transplants Skin Testing for Allergies Histological determination of cause of death Using information storage systems	Level three technical and practical skills, including use of advanced glassware to carry out synthesis and purification Accurate measurement of substances using a variety of equipment including titration Safe handling of corrosive and toxic chemicals Presenting and interpreting data in graphical and tabular form Extended writing, including producing formal lab write ups with references and citations Following written methods Mathematical skills, including changing the subject of an equation, multi step problem solving, percentages, graph drawing, drawing tangents to a curve, ratios, using standard form, fractions and working with powers.	The difference between screening and active biopsy Different methods of information storage and retrieval	This unit builds directly on from work done in year 12. combining knowledge from across the course so far to focus on how the tissues previously studied can be used for diagnostic purposes.	Comparison and evaluation of different diagnostic tests
SMSC & British Values	Safe working in a lab and respecting each other's working space. Ethical issues surrounding the use of biological samples, including the use of live samples.					
Cultural Capital	The ubiquity of biology allows for examples to be taught in a wide variety of familiar and unfamiliar contexts					
Career Link	A BTEC in Applied Human Biology opens to doors to a wide range of STEM field careers. The topics covered in this unit would build the foundations for students to study a range of biomedical and healthcare courses or to enter these fields through employment					

Three	Histology (This topic spans across 2 half terms)	Removal and Storage of biological samples Bowel Cancer Screening Analysis of Aspirates Tissue typing for transplants Skin Testing for Allergies Histological determination of cause of death Using information storage systems	Level three technical and practical skills, including use of advanced glassware to carry out synthesis and purification Accurate measurement of substances using a variety of equipment including titration Safe handling of corrosive and toxic chemicals Presenting and interpreting data in graphical and tabular form Extended writing, including producing formal lab write ups with references and citations Following written methods Mathematical skills, including changing the subject of an equation, multi-step problem solving, percentages, graph drawing, drawing tangents to a curve, ratios, using standard form, fractions and working with powers.	The difference between screening and active biopsy Different methods of information storage and retrieval	This unit builds directly on from work done in year 12. combining knowledge from across the course so far to focus on how the tissues previously studied can be used for diagnostic purposes.	Comparison and evaluation of different diagnostic tests
Four	Urinalysis (This topic spans across 2 half terms)	Components and chemical makeup of urine including their biochemical sources Collection of urine samples Methodology of urine testing, including importance of automation Urinalysis for disease, including implications of changes suggested	Level three technical and practical skills, including use of advanced glassware to carry out synthesis and purification Accurate measurement of substances using a variety of equipment including titration Safe handling of corrosive and toxic chemicals Presenting and interpreting data in graphical and tabular form Extended writing, including producing formal lab write ups with references and citations	Students may confuse the various biological markers in urine and their biochemical sources so this will need careful teaching	This unit builds directly on from work done earlier year 12, particularly previous study of the urinary system and control of bodily water potential, combining knowledge from across the course so far to focus on how urine can be used for diagnostic purposes	Comparison and evaluation of different diagnostic tests

		Analysing: Colour and turbidity pH Presence of Blood Presence of Glucose Other biological markers Analysis of urine under the microscope	Following written methods Mathematical skills, including changing the subject of an equation, multi-step problem solving, percentages, graph drawing, drawing tangents to a curve, ratios, using standard form, fractions and working with powers.			
SMSC & British Values	Safe working in a lab and respecting each other's working space. Ethical issues surrounding the use of biological samples, including the use of live samples.					
Cultural Capital	The ubiquity of biology allows for examples to be taught in a wide variety of familiar and unfamiliar contexts					
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Five	Urinalysis	Components and chemical makeup of urine including their biochemical sources Collection of urine samples Methodology of urine testing, including importance of automation Urinalysis for disease, including implications of changes suggested Analysing: Colour and turbidity	Level three technical and practical skills, including use of advanced glassware to carry out synthesis and purification Accurate measurement of substances using a variety of equipment including titration Safe handling of corrosive and toxic chemicals Presenting and interpreting data in graphical and tabular form Extended writing, including producing formal lab write ups with references and citations Following written methods	Students may confuse the various biological markers in urine and their biochemical sources so this will need careful teaching	This unit builds directly on from work done earlier year 12, particularly previous study of the urinary system and control of bodily water potential, combining knowledge from across the course so far to focus on how urine can be used for diagnostic purposes	Comparison and evaluation of different diagnostic tests

		pH Presence of Blood Presence of Glucose Other biological markers Analysis of urine under the microscope	Mathematical skills, including changing the subject of an equation, multi step problem solving, percentages, graph drawing, drawing tangents to a curve, ratios, using standard form, fractions and working with powers.			
SMSC & British Values	Safe working in a lab and respecting each other's working space. Ethical issues surrounding the use of biological samples, including the use of live samples.					
Cultural Capital	The ubiquity of biology allows for examples to be taught in a wide variety of familiar and unfamiliar contexts					
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Six	**Support with the Revision and preparation for Unit Three Exam** 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 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 Review the wider reading that students have been doing to support their preparation for the essay questions of unit 3 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 Specific focus on the format and structure of the 5 essay questions that are on unit 3 Timed completion of questions to support with pace through the exam paper Timed analysis of a range of journal articles to support with accuracy of information and pace through the exam paper.					