

SUBJECT CURRICULUM OUTLINE

Year 12

Term	Topic/Unit of work	Knowledge	Skills	Assessment
Autumn Term 1	Unit 1A	Fundamental development and function: Cells tissues and biological molecules	Prior knowledge: Cells, tissues and organs, biological molecules/ biochemistry. Practical: scientific modelling, use of scientific equipment. Handling biological material. Mathematical: Analysis of data from graphs and tables, Chemical formulae	GCSE prior knowledge check
	Unit 1A	Fundamental development and function: Cardiovascular system, digestive system	Prior knowledge: Cardiovascular system and the digestive system (GCSE) Cells tissues and organs. Non-communicable disease. Practical: Dissection, Handling biological material. Mathematical: Analysis of data from graphs and tables	GCSE prior knowledge check
	Unit 2A	Characteristics of Eukaryotic microorganisms (Fungi and protists). Replication, virulence and pathogenesis of eukaryotic pathogens	Prior knowledge: Cells, infection and response. Practical: Microscopy Mathematical: magnification, orders of magnitude, converting units. Knowledge of, and the ability to apply scientific terminology	GCSE prior knowledge check Unit 2A/B coursework
Autumn Term 2	Unit 1A	Fundamental development and function: Cells tissues and biological molecules, nervous system	Prior knowledge: Cells, tissues and organs, biological molecules/ biochemistry, the nervous system. Practical: scientific modelling, use of scientific equipment. Handling biological material, understanding	Progress check unit 1A

SUBJECT CURRICULUM OUTLINE

			<p>of ions, charge and electrostatic interactions.</p> <p>Mathematical: Analysis of data from graphs and tables, Chemical formulae</p> <p>Interpretation of scientific texts.</p>	
	Unit 1A	Fundamental development and function: Diagnostic techniques, Biotechnology and clinical/ lab practices	<p>Prior knowledge: Cardiovascular system and the digestive system Cells tissues and organs. Non-communicable disease.</p> <p>Practical: Dissection, Handling biological material, using simple diagnostic tools to measure values, antibody and blood type testing</p> <p>Mathematical: Analysis of data from graphs and tables, conversion of units, interpretation of numerical values in diagnostics. Interpretation of scientific texts.</p>	
	Unit 2A	Characteristics of Prokaryotic and acellular pathogens. Replication, virulence and pathogenesis of prokaryotic and acellular pathogens	<p>Prior knowledge: Cells, infection and response.</p> <p>Practical: Microscopy</p> <p>Mathematical: magnification, orders of magnitude, converting units</p> <p>Knowledge of, and the ability to apply scientific terminology</p>	Unit 2A/B coursework
Spring Term 1	Unit 1C	Fundamental development and function: Gene expression, genetic disorders	<p>Prior knowledge: Genetic inheritance, chromosomes and genes. Cells tissues and organs. Genetic disease.</p> <p>Mathematical: interpreting data from graphs and charts, reading pedigrees and genetic crosses.</p>	

SUBJECT CURRICULUM OUTLINE

			Interpretation of scientific texts.	
	Unit 1A/B	Fundamental development and function: Cellular injury and repair, Immune response	Prior knowledge: Infection, cells of the immune system and the innate/ adaptive immune response. Practical: Microscopy, handling biological samples, antibody testing Mathematical: enumeration techniques for cell count Interpretation of scientific texts.	
	Unit 2B	Methods of classification: Eukaryotic, prokaryotic and acellular pathogens	Prior knowledge: Cells, infection and response. Practical: Microscopy, Gram staining, aseptic technique. Mathematical: magnification, orders of magnitude, converting units. Knowledge of, and the ability to apply scientific terminology including referencing material	Unit 2A/B coursework
Spring Term 2	Unit 1B	Fundamental development and function: Immune response and Immune dysfunction	Prior knowledge: Immune response, cells of the immune system, infection, cell injury and repair. Practical: handling biological samples. Mathematical: conversion of units, interpreting data from graphs and tables, enumeration techniques for cell count Interpretation of scientific texts.	Unit 1 Mock

SUBJECT CURRICULUM OUTLINE

	Unit 1C	Fundamental development and function: Genetic disorders and diagnostics	<p>Prior knowledge: Inheritance, gene expression, reproduction, non-communicable disease, cellular structure and biochemical pathways.</p> <p>Mathematical: chemical formulae, interpreting graphs and charts, using data to establish inheritance, pedigree analysis and genetic crosses.</p> <p>Interpretation of scientific texts.</p>	Unit 1 Mock
	Unit 2 C	Culturing methods and technique for the growth of fungi and bacteria	<p>Prior knowledge: Cells, infection and response, characteristics of pathogens, classification of pathogens.</p> <p>Practical: Microscopy, Gram staining, aseptic technique, measuring mass and volume, Pour plating, plate streaking.</p> <p>Mathematical: magnification, orders of magnitude, converting units, graphical analysis, ZOI, standard deviation, enumeration and estimation of colony size/ number.</p> <p>Knowledge of, and the ability to apply scientific terminology including referencing material</p>	Unit 2C coursework
Summer Term 1	Unit 1 - Revision		Focus on data analysis and answering exam questions (command words)	
	Unit 1 - Revision		Focus on key content and linking diagnostic techniques to Cell injury/ immune dysfunction and genetic disorders	

SUBJECT CURRICULUM OUTLINE

	Unit 2C	Culturing methods and technique for the growth of fungi and bacteria	<p>Prior knowledge: Cells, infection and response, characteristics of pathogens, classification of pathogens</p> <p>Practical: Microscopy, Gram staining, aseptic technique, measuring mass and volume, Pour plating, plate streaking.</p> <p>Mathematical: magnification, orders of magnitude, converting units, graphical analysis, ZOI, standard deviation, enumeration and estimation of colony size/ number.</p> <p>Knowledge of, and the ability to apply scientific terminology including referencing material</p>	Unit 2C coursework
Summer Term 2	Unit 1 - Revision		Focus on data analysis and answering exam questions (command words)	External exam
	Unit 1 - Revision		Focus on key content and linking Biological molecules to non-communicable disease	External exam
	Unit 2 D	Independent investigation to determine the effects of antimicrobial products on the growth of Gram negative and Gram positive bacteria	<p>Prior knowledge: Cells, infection and response, Methods of culturing bacteria, Aseptic technique, effects of antibiotics and antibiotic resistance.</p> <p>Practical: Microscopy, Gram staining, aseptic technique, measuring mass and volume, plate inoculation/ lawn.</p> <p>Mathematical: converting units, plotting data in tables and graphs, graphical analysis, ZOI, standard deviation.</p>	Unit 2D coursework

SUBJECT CURRICULUM OUTLINE

			Knowledge of, and the ability to apply scientific terminology including referencing material	
--	--	--	--	--

Year 13

Term	Topic/Unit of work	Knowledge	Skills	Assessment
Autumn Term 1	Unit 3A	Understand health issues and associated initiative – Infection Reducing transmission and the role of vaccination programmes.	Prior knowledge: Cells, infection and response, antibiotic resistance Practical: Antibiotic susceptibility testing. Mathematical: magnification, orders of magnitude, converting units, graphical analysis, ZOI, standard deviation, enumeration and estimation of colony size/ number. Research skills Knowledge of, and the ability to apply scientific terminology including referencing material	
	Unit 3A	Understand health issues and associated initiative – Lifestyle. Cardiovascular initiatives Ageing, obesity, smoking, drug misuse.	Prior knowledge: Non-communicable disease. Health and lifestyle, NHS. Impacts of substance abuse. Mathematical: converting units, graphical analysis and statistical analysis of data. Research skills	

SUBJECT CURRICULUM OUTLINE

			Knowledge of, and the ability to apply scientific terminology including referencing material	
	Unit 4A	Functional physiology – Muscular and skeletal system	Prior knowledge: Basic anatomy and physiology in humans. Practical skills: Dissection and handling biological samples. Microscopy, chemical testing using reagents.	Unit 4 Coursework A
Autumn Term 2	Unit 3A	Understand health issues and associated initiative - Genetic disease, screening and diagnostics Medical prevention and treatment	Prior knowledge: Genetic inheritance, genes and genetic testing methods. Mathematical: converting units, graphical analysis and statistical analysis of data. Research skills Knowledge of, and the ability to apply scientific terminology including referencing material Presenting scientific data to an audience	Unit 3 Progress test
	Unit 3A	Understand the influence of organisations on health issues and initiatives - Governmental organisations (NHS, WHO, PHE, HEE)	Prior knowledge: Governmental organisations. Health and social governing bodies. Impacts of economy, media and social attitudes to governmental bodies. Mathematical: converting units, graphical analysis and statistical analysis of data. Research skills Knowledge of, and the ability to apply scientific terminology including referencing material Presenting scientific data to an audience	

SUBJECT CURRICULUM OUTLINE

	Unit 4A	Functional physiology – Muscular and skeletal system/ endocrine and nervous system.	Prior knowledge: Basic anatomy and physiology in humans. Practical skills: Dissection and handling biological samples. Microscopy, chemical testing using reagents.	Unit 4 coursework A/B
Spring Term 1	Unit 3B	Interpretation, analysis and evaluation of scientific information – Research methods, sources and data.		
	Unit 3A	Understand the influence of organisations on health issues and initiatives – Non- governmental organisations and individuals. (GMC, NMC, Pharmaceutical companies, charities and universities)	Prior knowledge: Non-governmental organisations. Impacts of economy, media and social attitudes to non-governmental bodies Mathematical: converting units, graphical analysis and statistical analysis of data. Research skills Knowledge of, and the ability to apply scientific terminology including referencing material Presenting scientific data to an audience	Unit 3 Mock
	Unit 4A	Functional physiology – Endocrine and nervous systems.	Prior knowledge: Basic anatomy and physiology in humans. Homeostasis and the endocrine system. Practical skills: Dissection and handling biological samples. Microscopy, chemical testing using reagents. Using simulations and modelling	Unit 4 Coursework B
Spring Term 2	Unit 3B	Interpretation, analysis and evaluation of scientific information – Research methods, sources and data.	Analyse and interpret text and data provided in tables and graphs. Improving validity of work and recalling the peer review process.	

SUBJECT CURRICULUM OUTLINE

			<p>Assessing sources of information based on various factors including date, reviews and validity.</p> <p>Assessing sources of information based on various factors including date, reviews and validity.</p> <p>Understand bias and the impacts it can have on the reliability of a text</p>	
	Unit 3C	<p>Understand how health issues and initiatives are reported.</p> <p>Reporting medium, Target audience</p>	<p>Analyse and interpret text and data provided in tables and graphs.</p> <p>Improving validity of work and recalling the peer review process.</p> <p>Assessing sources of information based on various factors including date, reviews and validity.</p> <p>Assessing sources of information based on various factors including date, reviews and validity.</p> <p>Understand bias and the impacts it can have on the reliability of a text</p>	
	Unit 4	<p>Functional physiology – Endocrine and nervous systems/ homeostasis and control</p>	<p>Prior knowledge: Basic anatomy and physiology in humans.</p> <p>Homeostasis and the endocrine system.</p> <p>Practical skills: Dissection and handling biological samples.</p> <p>Microscopy, chemical testing using reagents. Using simulations and modelling</p>	Unit 4 coursework B/C
Summer Term 1	Unit 3B	<p>Interpretation, analysis and evaluation of scientific information – Research methods, sources and data. Validity in research and peer review.</p>	<p>Analyse and interpret text and data provided in tables and graphs.</p> <p>Improving validity of work and recalling the peer review process.</p> <p>Assessing sources of information based on various factors including date, reviews and validity.</p>	

SUBJECT CURRICULUM OUTLINE

			Understand bias and the impacts it can have on the reliability of a text.	
	Unit 3C	Understand how health issues and initiatives are reported. Presentation and reporting	Analyse and interpret text and data provided in tables and graphs. Improving validity of work and recalling the peer review process. Assessing sources of information based on various factors including date, reviews and validity. Assessing sources of information based on various factors including date, reviews and validity. Understand bias and the impacts it can have on the reliability of a text	
	Unit 4	Functional physiology – Homeostasis and control.	Prior knowledge: Basic anatomy and physiology in humans. Practical skills: Dissection and handling biological samples. Microscopy, chemical testing using reagents. Using simulations and modelling	Unit 4 Coursework C
Summer Term 2	Unit 3 – Revision	Focus on methodology and research		Unit 3 External exam
	Unit 3 - Revision	Focus on data interpretation		
	Unit 3 - Revision	Focus on target audience and purpose of reporting		