BENSHAM MANOR School

Year 10 GCSE Biology Curriculum Map 2026-27

The curriculum is designed for students to have fun and enjoy science lessons. The aim is for students to appreciate the value of science in their everyday lives. We want to help our young learners understand the world around them and make relevant connections. We encourage students to express their own thoughts and ideas, become curious learners; asking questions and developing independence and communication skills. We motivate students to reach their full potential by building on prior learning and skills, supporting and scaffolding their learning so they can achieve at all levels. Students are encouraged to address misconceptions, continue to develop and build upon the scientific skills and key scientific concepts they have developed from the KS3 curriculum and help them to prepare for the next steps after school and into adulthood.

Unit Title	Unit overview	Knowledge and Skills	Assessment	Key Words
Autumn Term - **1.Cell Biology**	This unit aims to give students an overview of cells: the basic building blocks which make up all living things. The lessons in this unit cover the use of microscopes to study cells, cell differentiation, the practical uses of stem cells as well as the cell cycle and mitosis. This unit includes three required practical activities: microscopy, culturing microorganisms and osmosis.	• Structure and function of animal and plant cells. • Prokaryotes and eukaryotes - similarities and differences. • Required Practical -Microscopy -To use a light microscope to observe, draw and label plant and animal cells. • Converting units • Standard form • Magnification calculations.	Teacher assessment through a variety of activities - quizzes, word wall, games, questioning, role play, speaking activities, modelling, card sorts, photographs of learners carrying out activities, storyboards, presentations/posters, evaluation sheets, past paper questions and testing.	nucleus cytoplasm cell membrane mitochondria ribosomes cell wall chloroplasts chlorophyll photosynthesis prokaryotes eukaryotes plasmids microscopy magnification micrometre nanometre
Spring Term **1. Cell Biology**	This unit aims to give students an overview of cells: the basic building blocks which make up all living things. The lessons in this unit cover the use of microscopes to study cells, cell differentiation, the practical uses of stem cells as well as the cell cycle and mitosis. This unit includes three required practical activities: microscopy, culturing microorganisms and osmosis.	• Cell differentiation and specialisation • Chromosomes • Cell division - mitosis • Binary Fission • Required practical - Investigating the effect of antiseptics on the growth of bacteria • Stem cells • Diffusion • Required practical - Investigating the effect of concentration of salt. • Active transport	Teacher assessment through a variety of activities - quizzes, word wall, games, questioning, role play, speaking activities, modelling, card sorts, photographs of learners carrying out activities, storyboards, presentations/posters, evaluation sheets, past paper questions and testing.	differentiation phloem xylem chromosomes DNA mitosis cell cycle binary fission mean division time evidence culture meristem zone of inhibition stem cell diffusion osmosis active transport data partially permeable membrane dependent variable anomalies independent variable control variable repeatable valid concentration gradient accurate

				reproducible anomalous predict range fair test precise
Unit Title	**Unit overview**	**Knowledge and Skills**	**Assessment**	**Key Words**
<u>Spring Term</u> **2. Tissues, Organs and Organ Systems**	In this unit students will learn about the level of organisation in organisms from the smallest parts to the largest. Students will learn how different organ systems work together to carry out key functions. They will look closely at the respiratory, circulatory and digestive systems. Students will be introduced to non-communicable diseases and the treatment of these disease	• Cell organisation • The Respiratory system • The circulatory system • Plant cell organisation • Transpiration and translocation • Transpiration and stomata • Health and disease - diseases • cardiovascular disease- What it is, how it affects health and how it can be treated • Risk factors for non-communicable disease • Cancer -What it is and risk factors	Teacher assessment through a variety of activities - quizzes, word wall, games, questioning, role play, speaking activities, modelling, card sorts, photographs of learners carrying out activities, storyboards, presentations/posters, evaluation sheets, past paper questions and testing.	cell organ tissue system organism trachea bronchus bronchiole alveoli diaphragm gas exchange right atrium left atrium right ventricle left ventricle valves aorta arteries pulmonary vein & artery pacemaker capillaries veins platelets plasma stomata epidermal tissue transpiration palisade mesophyll stents spongy mesophyll guard cells meristem tissue risk factor communicable disease statins cardiovascular disease cancer
<u>Summer Term</u> **2. Tissues, Organs and Organ Systems**	In this unit students will learn about the level of organisation in organisms from the smallest parts to the largest. Students will learn how different organ systems work together to carry out key functions. They will look closely at the respiratory, circulatory and digestive systems. Students will be introduced to non-communicable diseases and the treatment of these disease	• The digestive system -structure and function • Enzymes - what they are and what they do. • Required practical - Investigating the effect of pH on the rate of reaction of amylase. • Required Practical - Food Tests - Using qualitative reagents to test for carbohydrates, lipids and proteins. • Exchange surfaces and substances	Teacher assessment through a variety of activities - quizzes, word wall, games, questioning, role play, speaking activities, modelling, card sorts, photographs of learners carrying out activities, storyboards, presentations/posters, evaluation sheets, past paper questions and testing.	oesophagus stomach liver gallbladder pancreas small intestines large intestines digestion enzymes active site substrate optimum gills biological catalysts biuret lipids denatured carbohydrase starch amylase Benedicts protease amino acids iodine lipase fatty acids alveoli glycerol bile ratio villi anomalies
Unit Title	**Unit overview**	**Knowledge and Skills**	**Assessment**	**Key Words**

Summer Term **3. Infection and response**	This unit introduces students to different types of pathogens and disease in humans and plants. It will explore how we can avoid diseases by reducing contact with them, as well as how the body uses barriers against pathogens. Students will learn how humans and plants respond when they become infected with unwanted pathogens and how we can enhance the body's natural defence system.	• Viral disease • Fungal and protist diseases • Bacterial diseases • Preventing disease • Fighting disease - the body defences, vaccination and drugs. • Antibiotic resistance • Developing drugs • Plant diseases and defences	Teacher assessment through a variety of activities - quizzes, word wall, games, questioning, role play, speaking activities, modelling, card sorts, photographs of learners carrying out activities, storyboards, presentations/posters, evaluation sheets, past paper questions and testing.	communicable disease pathogen bacteria virus protist fungi vector measles HIV malaria tobacco mosaic virus salmonella Rose black spot gonorrhoea vaccination antitoxins immune system antibodies phagocytosis antigens MMR epidemic painkillers antibiotics mutate penicillin antibiotic resistance clinical trials preclinical trials placebo optimum dose blind trials double blind trials
Summer Term **4. Bioenergetics**	In this unit we will explore how plants harness the Sun's energy in photosynthesis in order to make food. Students then explore the relationship between photosynthesis and respiration. Students also learn about anaerobic respiration and metabolism.	• Photosynthesis • How plants use glucose • The rate of photosynthesis and limiting factors • Required practical - investigating the effect of light intensity on the rate of photosynthesis. • Aerobic respiration • Anaerobic respiration • Exercise • Metabolism	Teacher assessment through a variety of activities - quizzes, word wall, games, questioning, role play, speaking activities, modelling, card sorts, photographs of learners carrying out activities, storyboards, presentations/posters, evaluation sheets, past paper questions and testing.	bioenergetics chlorophyll photosynthesis chloroplasts endothermic exothermic word equation respiration symbol equation glucose cellulose amino acids lipids starch limiting factors mean random error range repeatable reproducible fair test precise independent variable accurate control variable respiration dependent variable anomalous aerobic predict valid precise precise anaerobic lactic acid oxygen debt metabolism recovery period fermentation