ASCOT HIGH SCHOOL

DEPARTMENT OF SCIENCE

GRADE 11

BIOLOGY

TERM 1: SEPTEMBER-DECEMBER 2025

National Goal:
Jamaicans are empowered are to achieve their fullest potential.

UNIT	DURATION	TOPIC	SPECIFIC OBJECTIVES	SUGGESTED TEACHING/LEARNING ACTIVITIES	ASSESSMENTS
Diagnostic Test/ Revision -September 1-12th, 2025					
Life Processes and Diseases	2 weeks Sept 15-26th	Respiration	1. Describe the process of aerobic respiration; 2. Distinguish between aerobic and anaerobic respiration; 3. Describe the mechanism of breathing in humans and gaseous exchange in flowering plants; 4. Identify characteristics common to gaseous exchange surfaces; 5. Discuss the effects of smoking.	✓ Watch and listen to GCSE Biology - Respiration ✓ Construct table comparing the process of anaerobic and anaerobic respiration ✓ Examine lungs of a mammal, gills of fish and various types of leaves ✓ Students will be engaged using discussion and observe of a mammalian exchange surface ✓ Students will be engaged in discussion on the effects of smoking	✓ Label a blank diagram of the respiratory system and provide the function of each structure. ✓ Complete a table that compares aerobic and anaerobic respiration ✓ Draw and label the lungs of a mammal and gills of fish
Life Processes and Diseases	2 Weeks Sept 29 - Oct 10th	Transport Systems in Mammals	1. Explain the need for transport systems in multi-cellular organisms; 2. Identify the materials which need to be transported in animals and plants; 3. Describe the structure and function of the circulatory system in humans; 4. Relate the structure of the components of blood to their function;	1. Class Discussion ✓ Introduce the need for transport systems in multi-cellular organisms. ✓ Prompt questions: *"Why can't cells rely only on diffusion?"* 2. Diagram Drawing and Labeling ✓ Students draw arteries, veins, and capillaries, labeling structure differences.	✓ Draw and label external and internal features of mammalian hearts. ✓ Students draw and label the heart, major blood vessels, and indicate the flow of blood. ✓ Students compare diagrams of arteries, veins, and capillaries, describing structural differences. ✓ Students will create a comic book/TikTok video showcasing how immunization works inside the human body.

			5. Describe the role of blood in defending the body against disease; 6. Explain how the principles of immunisation are used in the control of communicable diseases;	✓ Draw and label the external and internal features of the mammalian heart. 3. Blood Component Activity ✓ Students match functions to each component in a group activity. 4. Case Study / Scenario ✓ Present a scenario involving disease or infection. ✓ Students identify how blood components respond and discuss how immunization could help prevent it. 5. Video / Simulation ✓ Show short animations of blood flow through the heart, arteries, veins, and capillaries. ✓ Pause and ask questions to reinforce understanding.	
Life Processes and Diseases	2 weeks Oct 13-24th	Transport Systems in Plants	7. Explain how the structure of xylem vessels is suited for their function; 8. Discuss the role of the process of transpiration in plants; 9. Describe the effect of external factors on transpiration; 10. Discuss adaption in plants to conserve water; 11. Explain how the structure of the phloem is suited to its function;	1. PowerPoint Presentation & Discussion ✓ Introduce xylem and phloem structure and function. ✓ Explain transpiration and its significance. ✓ Discuss plant adaptations for water conservation (e.g., thick cuticles, sunken stomata).	✓ Labelling Diagrams: Xylem and phloem structure, germinating seed stages, storage organ buds. ✓ Create a poster showing transport in plants, adaptations to conserve water, or storage organs and their products. ✓ Complete a table comparing xylem vs phloem, including structure, function, transported materials and direction of transport.

			12. Identify the products stored in plants and animals and the sites of storage; 13. Discuss the importance of food storage in living organisms.	2. Diagram Drawing & Annotation ✓ Draw and label stages in germinating seeds. ✓ Draw buds from plant storage organs (stems, tubers). ✓ Annotate xylem vessels and phloem sieve tubes to show how structure relates to function. 3. Practical / Demonstration ✓ Demonstrate transpiration using a simple experiment: place a leafy branch in colored water and observe movement of water.	
SESSIONAL TEST 1- Oct 27th – 31st					
Life Processes and Diseases	2 Weeks Nov 3-14th	Excretion	1. distinguish between egestion and excretion; 2. discuss the importance of excretion in living organisms; 3. state how metabolic wastes are excreted from plants and animals; 4. relate the kidney to its osmoregulatory and excretory functions.	1. Class Discussion / Brainstorming ✓ Discuss differences between egestion (removal of undigested food) and excretion (removal of metabolic wastes). ✓ Highlight examples from plants (e.g., oxygen, carbon dioxide, resins) and animals (e.g., urea, carbon dioxide). 2. PowerPoint / Video	✓ Students draw detailed nephron diagrams and annotate the stages of filtration, reabsorption, and urine formation. ✓ Case Study with a short case: *"A patient has kidney damage."* Students explain which excretory functions are affected and why. ✓ Students create a flow chart showing the path of urine formation from blood to excretion. Crossword or Matching Activity

				✓ Show the human urinary system and nephron structure. ✓ Explain how urine is formed and how the kidney regulates water and salts (osmoregulation). 3. Diagram Drawing & Annotation ✓ Draw and label the structures of: ✓ Urinary system (kidneys, ureters, bladder, urethra) ✓ Kidney (cortex, medulla, pelvis) ✓ Nephron (Bowman's capsule, glomerulus, tubules, collecting duct) ✓ Annotate diagrams to show the production of urine.	✓ Include key terms (e.g., urethra, cortex, medulla, osmolarity, Bowman's capsule) to reinforce vocabulary.
	2 Weeks Nov 17-28th	Movement	1. distinguish between growth movements in plants and movement in animals; 2. relate the structure of the skeleton to its function in humans; 3. discuss the importance of locomotion in animals; 4. describe the mechanism of movement in a human fore limb.	1. Germination simulation & discussion ✓ Show a simulation or video of germinating seedlings (e.g. kidney beans, red peas) demonstrating growth movements ✓ Facilitate a class discussion comparing plant growth movements with movement in animals.	✓ Worksheet activities on skeletal system, joints, and types of movement. ✓ Students will construct a skeletal system model (using clay, cardboard, or other materials) to show bones and joints. ✓ Demonstrate joint movement using the model.

				✓ Record observations in a notebook and discuss differences from animal movement. 2. Examination of Human Skeleton ✓ Use a model or skeleton replica to identify bones, joints, and their functions. ✓ Discuss how the skeletal system supports locomotion and protects organs. ✓ Show how muscles contract to move bones at joints. 3. Joints Jingle / Poem ✓ Students create a short poem or rhyme summarizing types of joints (ball-and-socket, hinge, pivot) and their movements.	
REVISION & END OF YEAR EXAMINATION-December 1-16, 2025					