Ascot High School
Science Department
Grade 11 Integrated Science
Course Outline September – December 2025

Jamaicans are empowered are to achieve their fullest potential.

Duration	Unit	Topic	Specific Objective	Assignment/ Project & Due Dates	School Based Assessments/Materials Required (S.B.A.)
Revision of Grade 10 Script & Diagnostic Test					
3 Weeks **Sept. 15-Oct. 3**	**Transport System**	**Transport In Humans and Plants**	**Students should be able to:** **1.** Justify the need for transport systems within a living organisms (plants and animals) a. Surface area/volume ratio. b. Movement of nutrients, gases, excretory products, metabolic products. c. Role of transpiration in plants. **2.** Relate the structures in transport systems to their functions. a. Composition of blood b. Types of blood cells and their functions. c. Internal Structures of the Heart.	**Draw the blood cells** **Practice Labelling the Heart:** **Link:**	

			d. Heartbeat (diastole, atrial systole, ventricular systole) e. Names of major blood vessels (aorta, vena cava, pulmonary artery, and vein). f. Function of stem-xylem and phloem **(simple explanation)** **3.** Distinguish among the different blood groups. a. Blood groups (A, B, AB, O) b. Antigen and antibody for each group c. Precaution in transfusion and handling. Include the term agglutination. d. Rh factor – risk in pregnancy and precautions. Mention that blood type is an inheritable trait.	**https://www.sciencelearn.org.nz/labelling_interactives/1-label-the-heart** **Transport System in Humans** **Activity 1** Heart rate and exercise **Objective**: Investigate the effect of exercise on heart rate. **Transport system in Plants** **Activity 1** Observe water uptake in plants. **Objective**: Demonstrate how water is transported through xylem in plants. **Activity 2** Investigate factors which affect rate of transpiration.	Stopwatch, Electronic blood pressure machine. Fresh celery stalks, food colouring, clear jars, water, knife.

				Research on the Rhesus Factor and the Risks involved during pregnancy and precautions. (Class Discussion/Presentations) **Worksheet on Transport System (10%) Due Date: September 26, 2025**	

2 Weeks **Oct. 6-17**	**Excretion**	**Excretion in Humans**	**Students should be able to:** 1. Distinguish between excretion and egestion. a. Definition of terms excretion and egestion. b. Difference between excretion and egestion. 2. Explain the mechanism of excretion by the lungs, skin and kidneys in humans. a. Relationship to metabolism, excretory organs and products: i. Lungs (carbon dioxide and water vapour) ii. Skin (water and salt) iii. Kidneys (water, salt and urea) b. Kidney-structure of tubule related to ultra-filtration and re-absorption. c. Osmoregulatory function of kidneys (role of anti diuretic hormone (ADH). d. Dialysis for malfunctioning kidneys.	**Draw an annotated diagram of a kidney tubule.** **Worksheet on Excretion (10%) Due Date: October 13, 2025**	

		Excretion in Flowering Plants	e. Label the diagram of the skin and relate the structure of the skin to its functions-excretion, temperature control. f. Relate structure of skin to its function). g. Identify the methods of excretion in flowering - Waste products of respiration and photosynthesis only.	**Draw an annotated diagram of the skin.**	

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2 Weeks Oct. 20-31	**Sense organs and Co-ordination**	**The Eye**	**Students should be able to:** 1. Describe the sense organs and their functions. (Stimulus associated with sense organs). 2. Relate the structures of the mammalian eye to their functions. a. Functions of the following structures as it relates to sight **(retina, lens, iris, cornea, pupil, choroid, fovea, sclera, optic nerve, ciliary body (ciliary muscles and suspensory ligaments). Annotated diagrams are required.** b. Formation of an image on the retina. c. Accommodation and control of amount of light entering the eye. 3.Analyse sight defects a. Causes and correction/treatment for the following defects: i. Long and short sightedness ii. glaucoma	**Draw an annotated diagram of the human eye.** **Group Presentations on Eye Defects (10%)** **October 31, 2025**	

			iii. cataracts iv.astigmatism (mention colour blindness) b. Function of convex and concave lenses. Mention the effects of bright light and physical injury.		
NATIONAL HEROES DAY & MID TERM BREAK OCTOBER 16-20 **SESSIONAL TEST 1**					
2 Weeks **Nov. 3-14**		**The Ear**	1. Relate the structures of the mammalian ears to their functions Functions of the following structures of the Ear: -Pinna -Ear Canal -Ear Drum -Ear Bones -Eustachian tubes -Semicircular canals -Cochlea -Auditory Nerve 2. Functions: hearing and balance. 3. Mention should be made of: i. the approximate audio frequency spectrum of the human ear. ii. The effects of loudness and pitch on human beings.	**Draw an annotated diagram of the ear.** **Conduct simple investigations on pitch and loudness.**	

			(**Annotated diagrams are required)**		
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2 Weeks **Nov. 17-28**	**Sense organs and Co-ordination**	**Nervous System**	**Students should be able to:** 1. Relate the structures of the nervous system to their functions. -Structures of the central nervous system: a. Functions of the brain with specific reference to: i. Cerebrum ii. Cerebellum iii. Medulla Oblongata iv. Pituitary gland v. Hypothalamus (Brief description only). -Include simplified diagrams of the brain. b. Function of the spinal cord (brief description only) c. Function of neurones (sensory, relay and motor). **Adaptations to function that required.** d. Examples of voluntary and involuntary actions. **Mention malfunctiong of system, for example paralysis; physical disabilities.**	**Activity 1** Testing reaction time and sensory coordination. **Objective:** To investigate how the sense organs (eyes, ears and skin) and nervous system coordinate to respond to stimuli and measure reaction time. **Practical Activity (20%)** **Activity 1** **Model of The Brain** **Objective:** learn the structure and function of different brain regions**.** **Activity 2** **Model of a Neurone** **Objective:** understand the structure of a neuron **Due Date: November 21, 2025**	Ruler, stopwatch, blindfold, buzzer, Partner Playdough, newspaper, paper clue and any other material that can be used to illustrate the brain.

1 Week **Dec. 1-5**		**The Endocrine System**	**Students should be able to:** 1. Label a diagram -identify the location of the endocrine glands, hormones produced, and their uses and effects. 2. Endocrine -hormones as messengers: -thyroid (thyroxine) -pancreas (insulin) -sex organs (oestrogen and testosterone) -adrenal glands (adrenaline) -pituitary glands (antidiuretic hormone ADH)	**Worksheet on Endocrine System (10%)** **Due Date: December 5, 2025**	
END OF YEAR EXAMINATION					