

St. Mary's College
Form 4 Course Outline
Biology 2022-2023

Term	Topic	Subtopic	Week
1	Cells, Tissues and Organs		1-2
		Structure and function of plant and animal cells	
		Tissue, organs and systems	
		Cell specification in multicellular organisms	
		LAB: MM: Observing onion cells under the microscope	
	Cell Transport		3-4
	Diffusion, Osmosis and active transport in living systems		
	LAB: ORR: Osmosis in potato tissue		
	Plant Nutrition		5-6
	Photosynthesis- process, structure of leaf and environmental factors		
	LAB: DR: Drawing of a leaf		
	LAB: MM: Testing a leaf for starch LAB: P&D: Mineral and plant growth		
	Animal Nutrition		7-10
	Enzymes		
	Structure and function of the alimentary canal		
Fate of digested materials			
LAB: ORR: Food Tests			
LAB: AI: Effect of heat and surface area on catalase activity LAB: MM: Energy content of a peanut			
Respiration		11-13	
Aerobic and anaerobic processes			
Gaseous exchange in living organisms			
LAB: MM: Anaerobic respiration in yeast			
LAB: PD: Rising Dough LAB: DR: Fish Gill			
2	Transport in Man		

		Circulatory system, blood vessels, blood groups and hypertension	1 - 3
	Transport in Plants		
		Transport system, movement of water and minerals, transport and storage of food	4-6
		LAB: PD: Effect of mineral concentration on plant growth	
		LAB: PD: Effect of external factors on transpiration rate	
	Storage in Plants and Man		
		Manufacture and storage of food in plants, utilization of food in animals	7
	Classification		
		Classifying organisms into groups based on similarities and differences	8-9
		LAB: ORR: Constructing a dichotomous key	
3	Ecology		
		Abiotic and Biotic factors	1-2
		Feeding relationships	
		Growth and survival population	
		LAB: MM: Comparing sampling methods LAB: ORR: Field study of mangrove wetland	
	Human impact on the environment		
		Negative impact on the environment	3-5
		Conservation and restoration of the environment LAB: PD (to implement) and AI (for year 2): Litter Survey	
	Asexual Reproduction		
		Process by which identical offspring are made	6
	Sexual Reproduction	Reproduction in plants	7-9
		Mitosis and Meiosis	
		Pollination and fertilisation	
		Formation of fruit and seed dispersal	
		LAB: DR: Structure of a flower LAB: DR: Structure of fruits	

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