

TERM: Sept – Dec 2020

DEPARTMENT: Science

SUBJECT/ FORM : Biology / Form 4S/4BS

TEACHERS: S. Ogeerally , K. Roopnarine

Topics aligned with CSEC Syllabus objectives . Syllabus can be downloaded for free from CXC website .

WEEK	Topics
1	Introduction to new Biology syllabus, content, SBA component and structure of exams -Heterotrophic, autotrophic and saprophytic nutrition -Photosynthesis in green plants – Word and chemical equations / Light and dark reactions - The external features and the internal structure of a dicotyledonous leaf as seen in cross section under the light microscope and their role in photosynthesis
WEEK	Topics
2	-Adaptations for photosynthesis -Test for evolution of oxygen using water plant. - Experiments to demonstrate that light and chlorophyll are necessary for photosynthesis; -Tests for end products, starch or reducing sugar. -Environmental factors that affect the rate of photosynthesis -The importance of minerals in plant nutrition Emphasis on nitrogen in the formation of proteins and magnesium to form chlorophyll.
WEEK	Topics
3	NUTRITION -Chemical and Physical Properties of Carbohydrates, proteins, lipids -Processes of hydrolysis and condensation (dehydration synthesis) -Importance of and rich sources of carbohydrates, proteins and lipids -Food tests for carbohydrates , proteins and lipids

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4	NUTRITION -Food tests for carbohydrates , proteins and lipids -Basis of food tests - The importance and components of a balanced diet in - Roles of vitamins and minerals and deficiency diseases
5	NUTRITION -Results of deficiency or surplus of components of a balanced diet (malnutrition) -Effects of age, sex and occupation on dietary needs - Vegetarianism and advantages and disadvantages . -Dietary recommendations for treating and preventing named deficiency and physiological diseases – diabetes and hypertension.
6	NUTRITION -Structure and function of the human alimentary canal -Mastication and the role of teeth in mechanical breakdown of food -Types of teeth and their functions related to structure -Diagram of internal structure of a tooth and functions of the parts

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7	NUTRITION -Role of the stomach and small intestines in digestion -Roles and importance of enzymes in mouth, stomach and small intestine
8	NUTRITION -Importance and Properties of enzymes -Effect of temperature and pH on the activity of the enzymes catalase and amylase
WEEK	Topics
9	NUTRITION -Absorption in the small intestines/structure and function of the villi -Assimilation in the liver and how products are used and what happens to the excess (role of the liver)
WEEK	Topics
10	RESPIRATION -Difference between respiration and breathing -Process of respiration. Reactants and products/Chemical Equations for aerobic respiration -Formation of ATP/ Importance of ATP
WEEK	Topics
11	RESPIRATION - Distinguish between aerobic and anaerobic respiration - Products of aerobic respiration to include the production of lactic acid in muscle, alcohol and carbon dioxide in plants,

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	<p>production of bio-gas from organic matter. -Commercial importance of anaerobic respiration -Effect of exercise on heart rate and breathing rate</p>
12	<p>RESPIRATION</p> <p>-Structure and function of the human respiratory system -Importance of breathing -Mechanisms of breathing (inhalation and exhalation)</p>
13	<p>RESPIRATION</p> <p>-Importance of gaseous exchange (The necessity for a continuous supply of oxygen and the removal of waste products)</p> <p>-Identify characteristics common to gaseous exchange surfaces; Emphasis on mechanisms for increasing surface area in humans, fish and plants. -Structure and function of the fish's gill</p>