

C. Tattersall

TOPIC	DATES	SKILLS / LEARNING	ASSESSMENT
Characteristic s of living things	Aug 30 th - 31st	Organisms made of cells. Nutrition, sensitivity, reproduction, excretion	crossword
Scientific method	Sept 4 th - 6th	The Scientific Method : Observation Made: Hypothesis Put Forward; Prediction Made: Hypothesis Tested: Conclusion Drawn on the Results: Further Testing ,Theory Principle Accepted Experimentation ;Controlled Experiments – a double test ,Avoiding Bias, Limitations of the Effectiveness of the Scientific Method	Worksheet on scientific method & experimentation
Cells - light microscope & electron microscope	Sept 6 th - 17th	Use of microscope Structures & functions in typical animal & plant cells	Write up practical on cheek cell and onion cell - staining and viewing under microscope Test on cells and use of microscope
Amoeba - structure & life cycle	Sept 17 th - 20th	Amoeba - Protoctista (Protista) :Amoeba Characteristics,Amoeba Structure, Diagram: typical structure of an Amoeba cell. Cytoplasm – Observe live amoebae down microscope .Ectoplasm:Endoplasm , Food Vacuoles, Contractile Vacuole,Pseudopods. Binary fission. Respiration, movement.	
Nutrition - The Chemistry of Food	Sept 20th - October4th	Metabolism, Anabolism: Catabolism: Protein: Structural Role of Protein, Metabolic Role of Protein, Carbohydrates: Elements: CHO. General Formula: (CH ₂ O) _n or C _x (H ₂ O) _y , Dietary Sources of Carbohydrates. Monosaccharides: Disaccharides: Sucrose. Lactose - Maltose ,Polysaccharides: cellulose: fruit, vegetables, wholegrain cereals, nuts.,Structural Role of Carbohydrate, Metabolic Role of Carbohydrate. Lipid. Structural Role of Lipid, Metabolic Role of Lipids. Hormones as Regulators of Metabolic Activity. Vitamins. Water-soluble Vitamin: Vitamin C (ascorbic acid), Fat-soluble Vitamin: Vitamin D (calciferol), Minerals: Plant Mineral Requirement (any two) , Animal Mineral Requirement (any two), General Role of Minerals in Living Organisms. Water: H ₂ O. Importance of Water for Organisms. Mandatory Food Tests: Starch, Reducing Sugar, Lipid, Protein Biuret Test	Write up practicals on food tests Test
Enzymes - properties and biochemistry	Oct 4 th - Oct 25th	Enzymes - General Properties :Catalysts Protein Specific Reversible –Denatured by high temperature and change in pH . Protein Nature of Enzymes. Folded Shape of Enzymes. Roles of Enzymes in Plants and Animals. Enzymes catalyse all metabolic reactions. Active Site Theory: "Lock and Key Hypothesis and Induced Fit"- <i>Textbook Diagram: Enzyme Action Sequence</i> .Denaturation . Factors Affecting Enzyme Action. (i) Temperature <i>Textbook Graph: Temperature-Enzyme Graph</i> (ii) pH . <i>Textbook Graph: pH-Enzyme Graph</i> . Optimum Enzyme Activity. Bioprocessing . <i>Textbook Diagram: Bioreactor Setup</i> .Bioprocessing Procedure. Advantages of Immobilised Enzymes Mandatory Activities : To Determine the Effect of pH on the Rate of Enzyme Action. To Determine the Effect of Temperature on the Rate of Enzyme Action. Investigate the Effect of Heat Denaturation on the Activity of an Enzyme Prepare an Enzyme Immobilisation and Examine its Application	Practical write up of 4 practicals Test
Osmosis	Oct 25 th - Nov 10th	Movement Through Cell Membranes – Diffusion, Osmosis, Turgor diffusion . Osmosis. Some major examples of osmosis. Osmoregulation. Osmosis and Plant Cells. Osmosis and Food Preservation. Active Transport.Mandatory Activity. Demonstration of Osmosis	Write up osmosis practical. Graphs. Exam Questions

Digestive System	Nov 10th – Nov 25th	<p>Major Functions. Five Stages of Human Nutrition. Structure of the: <i>Textbook Diagram: Human Digestive System</i>. Physical Digestion. Chemical Digestion. <i>Textbook Diagram: Shapes of Teeth</i>. General Tooth Human Digestive System Structure. <i>Textbook Diagrams: external and internal structure of a tooth</i>. Human Dentition: omnivorous —Dental Formula: I 2/2; C 1/1; PM 2/2; M 3/3</p> <p>Chemical Digestion in the Mouth. Pharynx (Throat). Oesophagus. Stomach. Small Intestine – duodenum, and ileum. Bile. Pancreatic Juice. Intestinal Juice. Absorption of Nutrients. Adaptations of Small Intestine for Absorption. <i>Textbook Diagrams: transverse and longitudinal of small intestine; villus diagram</i>. Large Intestine. Benefits of Dietary Fibre. The Liver. Functions of the Liver</p>	Test
Respiration	Nov 25th – Dec 2nd	<p>Definitions - Aerobic Respiration, Anaerobic Respiration, Fermentation, ATP, Fermentation, Aerobe: Anaerobe: obligate Anaerobe, Facultative Anaerobe: Aerobic Respiration of Glucose (6C), Stage 1: Glycolysis, Stage 2. Formation of acetyl co-enzyme A, Krebs Cycle, Electron Transport Chain, , NAD⁺, Fermentation, Bioprocessing With Immobilised Cells.</p> <p>Mandatory Activity – Prepare and Show the Production of Alcohol by Yeast.</p>	Write up practical – fermentation by yeast
Breathing	Dec 2nd – Dec 12th	<p>Functions, Structure, <i>Textbook Diagram: macrostructure of the breathing system functions of parts</i>. Ribs, Diaphragm, Intercostal Muscles, Inspired and Expired air .The Breathing Mechanism - Inspiration, Expiration, Carbon Dioxide and Breathing, Gas Exchange Adaptations, <i>Textbook Diagram: alveolus and its capillaries</i>. Asthma</p>	Test on respiration & breathing
Blood, Heart , blood vessels & circulation	Dec 12th – Dec 16th	<p>The Blood System , Functions of Blood System, Composition of Blood, =<i>Textbook Diagram: structure of suspended solids of blood</i>. Red Blood Cells, White Blood Cells (leucocytes), Platelets, Specialist White Blood Cells, Monocytes: T Lymphocytes (T cells) -Helper T Cells: stimulate the multiplication of other lymphocytes. Killer T Cells, Suppressor T Cells; Memory T Cells: B Lymphocytes (B cells): Blood Grouping. ABO Blood Grouping System, Rhesus Blood Grouping System. =Blood Vessels, <i>Textbook Diagrams: transverse sections of artery, vein and capillary</i>. Double Circuit. Portal System/</p> <p>The Heart, <i>Textbook Diagram: structure of the heart</i>. Heart action, Cardiac cycle- Diastole: Systole: Cardiac Muscle The Pacemaker. Factors affecting heart rate. Coronary circulation. <i>Textbook Diagram: General Circulation and learn the names of the major blood vessels</i>. Pulse. Blood Pressure. Effect of Smoking. Effect of Diet, Effect of Exercise.</p> <p>The Lymphatic System. <i>Textbook Diagram: formation of tissue fluid and lymph</i>. Summary of the major functions of the Lymphatic System</p> <p>Mandatory Activities -Investigate the effect of exercise on your heart rate. Dissect, display and identify an ox's or a sheep's heart</p>	Practical account – heart dissection Test
2nd Term	Jan – May	<p>Finish blood, heart & circulation</p> <p>Excretion, Kidneys Osmoregulation and Homeostasis</p> <p>Flowering Plant Structure</p> <p>External Structure of Flowering Plant</p> <p>Internal Structure of Flowering Plants</p> <p>Transport in Plants</p> <p>Principles of Ecology</p> <p>Human Impact on an Ecosystem</p> <p>Ecological Fieldwork: Principles and Practices</p>	Tests

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