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| **Unit Learning Outcomes** | | **Course Content** | **Teaching Strategy** |
| * Review the knowledge what they learned about cell in Higher Secondary Level. * Differentiate between prokaryotes and eukaryotes. * Describe the function and importance of different cellular organelles * Compare and contrast between plant cell and animal cell. * Analyze the process of cell division for both prokaryotic and eukaryotic cell. | | **Cell:**  Structure and functions, cell inclusion,  division of cell. | Lecture  Brain storming  Discussion |
| * Define and classify different types of animal tissue. * Explain each types of tissue with their functions. * Differentiate between organ system according to their structure | | **Tissue:**  Definition, classification, characteristics, distribution and function of tissue. | Lecture Online group discussion Brain storming |
|  | Describe composition and function of blood  Classify different types of blood according to their structure and functions.  Describe plasma briefly along with its composition and functions. Distinguish between the functions of plasma and blood cells. | **Blood system:**  **Blood:**Composition and function. **Plasma:** Electrolytes, proteins and other organic constituents. **Blood cells:** their formation and destruction, cell count, functions of different blood cells. | Lecture  Video clips Cooperative learning |
|  | Describe how hemoglobin works in human body including oxygen transfer  Identify the structure and functions of hemoglobin  Compare and contrast between hemoglobin related deficiencies in human body. | **Hemoglobin:** Structure, properties and functions. | Lecture  Video clips  Brain storming |
|  | List the blood coagulation factors with their function.  Describe the detail knowledge about anaemia.  Define Hemostasis and describe its components  Describe the major events of coagulation | **Coagulation factor:** Definition, functions. Anaemia: Causes and classification. | Lecture  Video clips |
|  | Apply their knowledge in the laboratory tests for evaluating blood group, hemostasis (bleeding disorders) and state their principle. Describe the function of lymph nodes lymphatic systems Describe detail about lymph composition. | **Blood coagulation:**  Blood groups, blood transfusion. Lymph: Composition, formation, circulation and function, lymph nodes and lymphatic. | Lecture  Video clips  Demonstration |
|  | Draw the structure and describe function of heart.  Describe different types of heart muscle and blood circulation process.  Understand the ECG graph Define some terminology related with heart like heartbeat, cardiac cycle, cardiac output, nervous regulation of heart, cardiac reflexes. | **Circulatory system:** Heart: Structure, heart muscles, conducting system of heart, origin and transmission of cardiac impulse; ECG, control and requirements for the normal heart beat, cardiac cycle, cardiac output, nervous regulation of heart, cardiac reflexes. | Lecture  Video clips  Demonstration |
| * Describe the types and functions of blood vessels. * Differentiate between artery, vain and capillaries * Define blood pressure * Describe different types of blood pressure * Illustrate the factor effecting blood pressure * Compare and contrast between capillary and regional blood circulation. | | **Blood vessels:** Types of blood vessels and their functions.  **Blood pressure:** Measurements and regulation of blood pressure, nervous control and chemical control. Arterial pulse: Definition and clinical study, recording of arterial pulse.  **Capillary circulation**: Importance and functions.  **Regional blood circulation:** Pulmonary circulation, hepatic circulation, renal circulation and cerebral circulation. | Lecture  Video clips  Brainstorming  Group  discussion |
|  | Describe process of respiration. Define different terminologies of respiratory systems Describe the gas exchange process through lung and blood. Illustrate different types of respiratory diseases with their cause. | **Respiratory system:** Mechanism of respiration, pulmonary ventilation, ventilation volumes, gaseous interchange through lungs: carriage of O2 and CO2. Regulation of respiration: Nervous and chemical regulation. Hypoxia**:** Causes and classification, abnormal breathing, Cheyne stokes breathing, Kussmal breathing, breathing at high altitude. | Lecture  Video lecture  Demonstration |
|  | Describe the alimentary process Describe the process of food( carbohydrate, protein, fat)  digestion  Describe deferent types of gastric juice and enzyme  Illustrate the absorption process of food. | **Alimentary system:** Structure of different parts of the alimentary system, movements of the different parts of the alimentary tract and their control, swallowing, gastric contractions, intestinal contraction, secretion of digestive juices, saliva, gastric juice, pancreatic juice, intestinal juice and bile, mechanism and control of the various secretions and their functions, digestion of food stuff, absorption of the  different digested materials | Lecture  Video clips  Demonstration |
|  | Describe function and structure of liver.  Define different terminologies Describe the process of bile formation. | **Structure and functions of liver:** Formation of bile and its concentration in the gall bladder, circulation of bile salts and bile pigments, functions of liver. | Lecture  Demonstration |