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| THEME: TRANSPORT IN ANIMALS AND PLANTS | | | | | | | | | | |
| wk | PRD | subtopic | COMPETENCY | LEARNING  OUTCOMES | LEARNING ACTIVITIES | RESOURCES | Method. | Ref | ASSES.  STRATEGY | REMARKS |
| 1 |  | Remediation on cellular transport **(osmosis, diffusion and gaseous exchange)** | | | | | | | | |
| 2 | 2 | Need for circulatory system  Types of transport system  Mammalian circulatory system | The learner appreciates that animals have special systems for the efficient transport of materials around their bodies, and understand the principles of how these systems operate. | Understand the principle of the surface area to volume ratio.  know the need for a transport system, and identify the components involved in the transport system in mammals | In pairs, learners use cubes of different dimensions to calculate the surface area to volume ratios of the cubes, then discuss and explain the biological significance of calculated ratios.  In pairs, learners discuss what they already know about the components of their circulatory systems. | charts | discussion | Biology, An integrated approach, Soper and Smith | Listen to pair and group conversations and whole class discussion to monitor progress towards learning outcomes. Intervene as appropriate to ensure all understand and to deepen learning. |  |
| 3 | 4 | Blood vessels |  | understand how structure of blood vessels are related to their function by comparing arteries, veins and capillaries | In pairs, learners research on structures of arteries, capillaries and veins, and produce tables, models or diagrams to show how structure is related to function in each case. | -do- | -do- | Biology, An integrated approach, Soper and Smith | Observe pairs and groups carrying out activities; check that all contribute so that everyone is learning and developing skills.Steer progress towards learningoutcomes |  |
|  |  | The heart |  | describe the structure of the heart and how it functions. | In pairs, learners discuss the structure and function of the heart, referring to diagrams and a model. Pairs share their thoughts in groups or whole class discussion.  Learners draw and label the parts of a mammalian heart adding clear notes relating to function. | Video clip | -do- | Biology, An integrated approach, Soper and Smith | Observe pairs and groups carrying out activities; check that all contribute so that everyone is learning and developing skills.Steer progress towards learningoutcomes |  |
| 5 | 4 | Blood and its components |  | understand how structure of blood vessels are related to their function by comparing arteries, veins and capillaries | In pairs, learners research on components of blood and their functions and produce a table summarising their findings to share with the class. | Blood typing chart | discussion | Biology, An integrated approach, Soper and Smith | Evaluate quality of products of each activity: annotateddiagrams,  Presentations, summary tables,reports,and roleplays |  |
|  |  | Functions of blood |  | Identify the major functions of blood, and relate the functions to the components of blood. | In groups, learners design a model, visual aid, animation or drama to illustrate blood flow/circulation in the human body and present to theclass. | Animations of the circulatory system  Chart | Observation  Discussion  Brain storming | Biology, An integrated approach, Soper and Smith | Listen to pair and group conversations and whole class discussion to monitor progress towards learning outcomes. Intervene as appropriate to ensure all understand and to deepenlearning. |  |
| 6 | 4 | Blood pressure |  | understand the causes and prevention of diseases associated with the heart (high blood pressure, coronary heart disease and stroke) | In pairs, learners research on components of blood and their functions and produce a table summarising their findings to share with the class. | Internet | Research | Biology, An integrated approach, Soper and Smith | Evaluate quality of products of each activity: annotateddiagrams,  Presentations, summary tables,reports,and roleplays |  |
|  |  | Blood groups |  | Understand the importance of knowledge of blood groups for bloodtransfusion | Learners watch a video clip or listen to a talk from blood bank personnel to find out the importance of blood transfusion and the possible risks involved. In pairs, learners complete a short reportonthe benefits and risks of transfusions, including compatible blood groups. | Video/ audio clip  Multimedia material  Power point slides | Discussion  Observation  Brainstorming | Biology, An integrated approach, Soper and Smith | Evaluate quality of products of each activity: annotateddiagrams,  Presentations, summary tables,reports,and roleplays |  |
| 7 | 4 | Immunity |  | appreciate the role of blood in the defence of the human body  know how immunity is weakened by various infections including HIV.  understand the process of the formation of lymph and its flow around the body. | Organise learners to visit a health facility to find out about the causes and prevention of high blood pressure, coronary heart disease, and stroke. Learners write a report on the causes and theirprevention. | Health facility | Interview  Field work  research | Biology, An integrated approach, Soper and Smith | Listen to pair and group conversations and whole class discussion to monitor progress towards learning outcomes. Intervene as appropriate to ensure all understand and to deepenlearning. |  |
|  |  | Lymph |  | appreciate the function of the lymphatic system in maintaining a healthy body. | Learners watch a video clip or listen to a talk from blood bank personnel to find out the importance of blood transfusion and the possible risks involved. In pairs, learners complete a short **report on the** benefits and risks of transfusions, including compatible blood groups. | Video clip  Multimedia material | Research  Brainstorming | Biology, An integrated approach, Soper and Smith |  |  |
| **THEME: GASEOUS EXCHANGE** | | | | | | | | | | |
| 8 | 4 | Need for gaseous exchange system. |  | appreciate the need for a gaseous exchange system in multicellular organisms | In pairs, learners think about their prior learning on surface area to volume ratios. Explain verbally or on paper why multicellular organisms need specialised systems for gaseous exchange | Irish potatoes  Potassium permanganate  Earth worm | Practical approach | New Biology for tropical Schs. Stone & Cozens | Listen to pair and group discussions and ask probing questions to promotecritical thinking and deepen understanding. |  |
|  |  | Gaseous exchange surfaces. |  | identify adaptations of gas exchange surfaces |  | Fish gills  Rat for dissection | Practical | New Biology for tropical Schs. Stone & Cozens | Listen to pair and group discussions and ask probing questions to promotecritical thinking and deepen understanding. |  |
| 8 | 4 | Human respiratory system |  | understand the structure of the human respiratory system, and explain the mechanism of gaseous exchange in humans | Learners draw and label the structure of the human respiratorysystem.  In pairs, learners use models to explain the mechanism of gaseous exchange in humans and share models with/explain models to theclass | Rat for dissection | Practical  Brainstorming and discussion | New Biology for tropical Schs. Stone & Cozens | Observe groups as they interact and examine specimens, research or use models. Help as appropriate to set up experiments correctly and guide them towards learningoutcomes |  |
|  |  | Analyzing inhaled and exhaled air |  | determine and understand the variation in the percentage composition of gases in inhaled and exhaled air | In pairs, learners conduct experiments to analyse inhaled and exhaled air, and report the significance of their observations. | Bicarconate indicator  Straws  Chart | Practical | New Biology for tropical Schs. Stone & Cozens | Evaluate quality of products: clarity of explanations and drawings; models and group reports; accuracy and creativity of presentationsand posters. |  |
| 9 | 4 | Dangers of smoking and pollution on lungs |  | understand the dangers of smoking and air pollution to gas exchange surfaces in the lungs | In groups, learners design, perform, and report on an experiment to demonstrate the tar in cigarette smoke that is so damaging to the gas exchange surfaces in the lungs | Ciggarates  Charts | Discussion | New Biology for tropical Schs. Stone & Cozens | Listen to pair and group discussions and ask probing questions to promotecritical thinking and deepen understanding |  |
| 10 | 6 | Respiratory tract infections |  | know the causes, symptoms and treatment of diseases (bronchitis, emphysema, lung cancer, throat cancer, and chronic cough) associated with respiratory organs in humans | In groups, learners design, perform, and report on an experiment to demonstrate the tar in cigarette smoke that is so damaging to the gas exchange surfaces in the lungs | Charts | Brain storming | New Biology for tropical Schs. Stone & Cozens | Evaluate quality of products: clarity of explanations and drawings; models and group reports; accuracy and creativity of presentationsand posters. |  |