**EMERALD ROYAL INTERNATIONAL SCHOOL, MPAPE ABUJA**

**LESSON PLAN AND NOTE FOR WEEK 1 ENDING 5TH MAY, 2023**

**TERM: THIRD**

**WEEK:** **1**

**DATE** : **2ND - 5TH MAY, 2023.**

**SUBJECT:** **BIOLOGY**

**CLASS : SS 2**

**TOPIC : HOMEOSTASIS**

**SUB - TOPIC: 1**. **the kidney**

1. **Functions of the kidney.**
2. **Diseases of the kidney.**

**PERIOD : 7th**

**TIME : 12: 30 - 1:00**

**DURATION : 40 minutes**

**AVERAGE AGE : 15 years**

**SEX:** **mixed**

**LEARNING OBJECTIVES:** by the end of the lesson,the students, should be able to;

1. Describe the kidney.
2. State and explain the functions of the kidney.
3. Explain diseases of the kidney

**RATIONALE:** the students should understand the functions of the kidney.

**PREVIOUS KNOWLEDGE:** The students have been taught definition and organs involve in homeostasis.

**INSTRUCTIONAL MATERIALS:** chart showing different organs involved in homeostasis.

**Reference Material:** Essential Biology foe Senior Secondary School by M.C. Michael.

**LESSON DEVELOPMENT**

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| **STAGES** | **TEACHER’S ACTIVITIES** | **STUDENTS’**  **ACTIVITIES** | **LEARNING POINT** |
| **INTRODUCTION** | The teacher introduces the lesson by reviewing the previous lesson. | The students were active. | To arouse the students interest. |
| **PRESENTATION**  **STEP 1** | The teacher defines and explains homeostasis. | The students pay attention. | To keep them focus. |
| **STEP 2** | The teacher asks the students to describe the kidney. | The students describe the kidney. | To encourage critical thinking. |
| **STEP 3** | The teacher explains diseases of the kidney. | The students were active. | To keep them focus. |
| **BOARD SUMMARY** | **THE KIDNEY**  The kidneys are two bean-shaped organs, each about the size of a fist. They are located just below the rib cage, one on each side of your spine.  Healthy kidneys filter about a half cup of blood every minute, removing wastes and extra water to make [urine](https://www.niddk.nih.gov/Dictionary/U/urine). The urine flows from the kidneys to the bladder through two thin tubes of muscle called ureters, one on each side of your bladder. Your bladder stores urine.  **FUNCTIONS OF THE KIDNEY**   1. Osmoregulation - This is defined as the process where an animal regulates the balance between water and salts in its body fluids. The body does not have room for excess or shortage pf water or salt. 2. Maintenance of acid- base balance - when the body fluids becomes acidic that is the concentration of acid becomes more than that if the base, more acid is excreted by the kidney with the urine if the concentration of the base becomes higher more salts will be excreted with the urine. 3. Excretion - The kidney removes metabolic waste product from the body in forms of urine. 4. Diseases - diseases can affect the normal functioning of the kidney. Examples are; 5. kidney stones - This is caused by some diseased growths within the tubules. These diseased growth may narrow urine passage thereby reducing free flow of urine. In most cases the growth may block the urine passage making the removal of urine extremely difficult.   Effects of kidney stones   1. It obstructs the passage of urine. 2. Severe abdominal pain is experienced. 3. Pain is experienced on passing out urine. 4. It leads to high blood pressure, fever, chills, blood in urine.   Remedy   1. a lot of water should be taken. 2. Patient should avoid excess intake of calcium. 3. There should be reduction of protein intake. 4. Surgery called nephrectomy can be performed. This involves the opening up of the kidney to remove the stones. ? 5. Nephritis - this is a condition in which the blood vessels in Bowman's capsule (glomerular) becomes inflamed and porous as a result of which, they cannot carry out the function of ultra filtration completely. This result in the passage of most of the useful materials in the blood fluid with urine. It can be caused by bacterial infection.   Effect of Nephritis   1. Inflammation of the kidney. 2. Presence of amino acid in urine. 3. Weakness of the body. 4. Feber. 5. Pain   Remedy   1. Use of dialysis - An artificial kidney can be adopted to take over the work of the kidney. 2. Use of antibiotics - Antibiotics is used when the disease is caused by bacteria. 3. Kidney transplant - the diseased kidney can be replaced with a healthy one.   Other diseases of the kidney include;   1. Diuresis 2. Oedema/ dropsy.   ****5. Keep bones healthy****  The kidneys make an active form of vitamin D. You need vitamin D to absorb calcium and phosphorus. Calcium and phosphorus are important minerals for making bones strong. The kidneys also balance calcium and phosphorus so your body has the right amount.  ****6. Control pH Levels****  pH is a measure of acid and base. Your kidneys maintain a healthy balance of the chemicals that control acid levels. As cells break down, they make acids. The foods you eat can either increase or lower the amount of acid in your body. Your kidneys balance the pH of your body by either removing or adjusting the right amounts of acid and buffering agents.  ****7. Make red blood cells****  Your kidneys make a hormone called erythropoietin.  Erythropoietin tells bone marrow to make red blood cells. Red blood cells car ry oxygen from your lungs to supply all your body's needs. Red blood cells give you the energy you need for daily activities. | The students ask questions for further clarification. | To create room for slow learners. |
| **Evaluation** | The teacher evaluates the students with the following questions:   1. describe the kidney. 2. State 5 functions of the kidney. 3. State 3 diseases of the kidney and its remedy. | The students attempt the questions. | To ascertain their level of understanding. |
| **Conclusion** | The teacher concludes by coping the note on the board. She checks and marks the notes. | The students copy the note on the board. | For future use. |
| **Assignment** | Explain osmoregulation in man. | The students did and submit their assignment for marking and correction. | To encourage the students to study at home. |



11/5/2023

Principal Head Instuctor