**EMERALD ROYAL INT’L SCHOOL**

**LESSON PLAN/NOTE FOR WEEK 2 ENDING: 12TH MAY, 2023**

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| **Term** | 3rd |
| **Week** | 2 |
| **Date** | 12/05/2023 |
| **Class** | SSS 1 |
| **Subject** | Physics |
| **Topic** | Particle nature of matter |
| **Sub-topic** | Structure of matter |
| **Period** | 3 |
| **Time** | 10:15-10:50 |
| **Duration** | 35minutes |
| **Number in class** | 8 |
| **Average age** | 13years |
| **Sex** | Mixed |
| **Specific objectives** | By the end of the lesson, the students should be able to explain the following evidences of the particle nature of matter.   1. Brownian motion 2. Law of definite proportion 3. Diffusion |
| **Rationale** | To enable the students understand the particle nature of matter |
| **Previous knowledge** | Students should have been taught the atomic structure of matter |
| **Instructional aid** | One guide sheet for each student, Science notebook and a science textbook. |
| **Reference** | * M.W. Anyakoha. New school physics for secondary schools. Africana first publishers PLC. page 89-94 * P.N. Okeke. Macmillan Senior Secondary Physics. Pearson. Page58-61 |

**LESSON DEVELOPMENT**

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| **STEPS** | **TEACHER’S ACTIVITIES** | **STUDENTS’ ACTIVITIES** | **LEARNING POINTS** |
| **Introduction** | The teacher introduces the lesson by explaining that apart from their small size, another important fact about molecules is their constant motion. | The students listen attentively to the teacher. | To give the students a rudimentary understanding of electric field. |
| **Step I** | *Brownian motion*  Brownian motion is the rapid, constant, and irregular motion of tiny particles due to the bombardment of surrounding molecules.  Brownian motion is important for two reasons. First, it is evidence for the existence of molecules, which are too small to be observed directly. Second, it is evidence that molecules are not still, but are in continual motion. | The students describe a smoke-cell experiment to observe Brownian motion. | To ensure proper understanding of the lesson. |
| **Step II** | *Law of definite proportion*  The law of definite proportion states that when two or more elements combine to form a compound, they do so in the same proportions by mass. | The students listen attentively the teacher’s explanation. | To ensure that all the students are carried along. |
| **Step III** | *Diffusion*  Diffusion is the tendency of molecules to migrate and fill an empty space due to their random thermal motion. Diffusion is due to movements of molecules and it takes place in gases and liquids and quite slowly in solids. In diffusion, the diffusing molecules move from the places where their concentration is high to places where their concentration is low. | The students listen attentively the teacher’s explanation. | Consolidate acquired knowledge on the particle nature of matter. |
| **Summary** | The evidence of the molecular nature of matter comes from   1. Brownian motion 2. Law of definite proportion 3. Diffusion 4. Osmosis   The three states of matter are solids, liquid and gases. In solids the molecules are closely held together by strong intermolecular forces and they vibrate about a mean fixed position. In liquids the intermolecular forces are weaker than in solids and the liquid molecules are therefore freer to move. In gases, molecules are very free to move about because the intermolecular forces are very weak. | The students listen attentively to the teacher’s explanation. | For reference purpose. |
| **Evaluation** | The teacher evaluates the students by giving the students the following classwork.   1. Describe the rate of diffusion in gases, liquid and solids. | The students answer the question in their science notebook. | To ascertain the students level of understanding of the lesson. |
| **Conclusion** | The teacher makes correction of the classwork. | The students copy the correction in their exercise books. | For reference purpose |
| **Assignment**  **(Homework)** | 1. Distinguish between the three states of matter. 2. Describe an experiment to observe Brownian motion in the laboratory. | The students copy the questions into their exercise books and take home for solving. | To encourage critical thinking of the students at home. |



12/7/2023

Principal Head Instuctor