**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 : CHEMISTRY**

**TOPIC : SULPHUR**

**SUB- TOPIC : 1. allotropes of sulphur( Rhombic sulphur).**

1. **Monoclinic sulphur.**
2. **Amorphous sulphur and plastic sulphur.**

**PERIOD: 1ST**

**TIME : 8: 10 - 8 :50**

**DURATION:**  40 minutes

**CLASS: SS2**

**NUMBER IN CLASS:**  3

**AVERAGE AGE: 14 years**

**SEX: mixed**

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

1. Explain the properties of Rhombic sulphur(allotropes).
2. Explain the properties of monoclinic sulphur.
3. Explain the properties of amorphous and plastic sulphur.

**RATIONALE:** The students should understand the allotropes of sulphur.

**PREVIOUS KNOWLEGDE:** The student have been taught extraction and uses of sulphur.

**INSTRUCTIONAL MATERIALS:** A chart showing the solubility curve of compounds.

**REFERENCE MATERIALS:** New school Chemistry for Senior Secondary Schools by Osei Yaw Ababio .

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| **STAGES/STEPS** | **TEACHER’S ACTIVITIES** | **STUDENTS’ ACTIVITIES** | **LEARNING POINTS** |
| **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 allotropy and explain the properties of Rhombic sulphur. | The students pay attention. | To keep them focus for better understanding. |
| **STEP 2** | The teacher asks the students to state the properties of monoclinic sulphur. | The students state the properties of Rhombic sulphur. | To encourage critical thinking. |
| **STEP 3** | The teacher explains the properties of amorphous and plastic sulphur. | The students pay attention. | To keep them focus for better understanding. |
| **BOARD SUMMARY** | **Allotropes of Sulphur**–  It exists in two crystalline allotropic forms i.e.  Rhombic sulphur-Rhombic sulphur is a crystalline allotropic form of sulphur. It is also designated as α–sulphur. This is the most stable variety of sulphur. All other varieties of sulphur eventually revert to rhombic form on standing.  **Preparation:** Rhombic sulphur is prepared by dissolving powdered sulphur in carbon disulphide at room temperature. The mixture is then filtered. The filtrate is then kept in a small beaker covered with a filter paper. The carbon disulphide will slowly evaporate away leaving behind large octahedral crystals of rhombic sulphur (or α–sulphur).  **Properties:**  1.1.It exists as rhombic octahedral crystals.   * 2.Its density is 2.06 g/mL. * 3.It melts at 112.8°C   Z4.4.When slowly heated to 96°C, it changes into monoclinic or β–sulphur. However, when cooled below 96°C, it returns back to rhombic form.   * 5.It is insoluble in water and soluble in carbon disulphide.   MONOCLINIC SULPHUR  Monoclinic sulfur is a crystalline allotrope of sulfur obtained when rhombic sulfur is heated to 94.5°C. This form is stable only above 96°C. When left at room temperature it reverts back to rhombic form. It has S8 ring molecules in crystalline structure.  IMG_256  **Preparation:** sulfur is heated slowly in an evaporating (porcelain) dish till it melts. The molten sulfur is then allowed to cool slowly. During the cooling process, a solid crust will be formed over the surface. As this crust is being formed, two holes are made in the crust. The molten sulfur is then poured out of these holes. The crust is then removed. On the lower side of the crust, long needle–shaped crystals of monoclinic sulfur are formed.  **Properties:**   * Monoclinic sulfur exists as long needle –like prisms, hence it is also called prismatic sulfur. * Its density is 1.98 g/mL. * It melts at 119°C. * It is stable between 96 and 119°C. Below 96°C it slowly changes into rhombic sulfur. Sa IMG_256 Sb * It is insoluble in water but readily dissolves in carbon disulphide. * AMORPHOUS SULPHUR * Amorphous sulfur is a dark, noncrystalline, gumlike substance. It is often thought to be a supercooled liquid; it is formed by rapidly cooling molten sulfur, e.g., by pouring it into cold water. It slowly reverts to the rhombic form on standing. The crystalline forms are readily soluble in carbon disulfide, but the amorphous form is not. Many other forms of sulfur exist. Liquid sulfur is unusual in that its viscosity increases as it is heated. This property is thought to be due to the formation of long polymeric chains of sulfur molecules. * PLASTIC SULPHUR * It is also known as gamma-sulphur, is a tough elastic substance that is formed when molten sulphur is poured into cold water. Plastic sulphur is prepared by suddenly cooling the molten sulphur (near its boiling point) by pouring it into cold water. Yellow rubbery ribbons of sulphur are formed. | The students ask question for clarification. | To create room for slow learners. |
| **EVALUATION** | The teacher evaluates the students with the following questions; | The students attempt the questions. | To ascertain their level of understanding. |
| **CONCLUSION** | The teacher concludes by copying note on the board. | The students copy the note into their note books. | For future use. |
| **HOME WORK** | What are the differences between solution and suspension. | The students did your assignment and submit for marking and correction. | To encourage the students to study at home. |



10/5/2023

Principal Head Instuctor