**EMERALD ROYAL INTERNATIONAL SCHOOL, MPAPE ABUJA**

**LESSON PLAN AND NOTE FOR WEEK 3 ENDING 19TH MAY, 2023**

**TERM: THIRD**

**WEEK : 3**

**DATE: 15TH - 19TH MAY, 2023**

**SUBJECT : CHEMISTRY**

**TOPIC : CARBON AND ITS COMPOUNDS**

**SUB- TOPIC : 1. coke.**

1. **Gaseous fuel.**
2. **Uses of gaseous fuel.**

**PERIOD: 1ST**

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

**DURATION:**  **40 minutes**

**CLASS: SS1**

**NUMBER IN CLASS: 7**

**AVERAGE AGE: 14 years**

**SEX: mixed**

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

1. Explain coke.
2. State the gaseous fuels.
3. State the uses of gaseous fuel.

**RATIONALE:** The students should understand the gaseous fuels and its uses.

**PREVIOUS KNOWLEGDE:** The student have been taught the coal and its types.

**INSTRUCTIONAL MATERIALS:** A chart showing the gaseous fuels.

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

|  |  |  |  |
| --- | --- | --- | --- |
| **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 explains coke. | The students pay attention. | To keep them focus for better understanding. |
| **STEP 2** | The teacher asks the students to state the gaseous fuels. | The students state the gaseous fuels. | To encourage critical thinking. |
| **STEP 3** | The teacher states the uses of gaseous fuels. | The students pay attention. | To keep them focus for better understanding. |
| **BOARD SUMMARY** | **Gasification of Coke.**  Coke Gasification is a process used in converting coke from  its solid state to gaseous fuel by the passage of steam or air  through coke at a high temperature. Coke is heated to  1000oC and it decomposes to form combustible mixture of  gas. When air is used *producer gas* is formed; when steam is  used *water gas* is formed.    **Gaseous Fuel**  There are two main gaseous fuel, water gas and producer  gas.    **Water Gas (mixture of equal volume of H2 and CO)**  Water gas is a mixture of carbon II oxide and hydrogen in  the volume ratio of 1: 1. It is produced by passing steam  through white hot coke at 10000C  C(s) + H2O(g) → CO(g) + H2(g).  **Producer Gas (mixture of CO and N2 in the ratio of 1 :2)**  Producer gas is a mixture of nitrogen and carbon ii oxide. It  is prepared by passing streams of air through red-hot coke.  The oxygen in the air oxidizes the coke to carbon (II) oxide  while the nitrogen is unchanged.  2C(s) + O2 + 4N2(g) → 2CO + 4N2(g)  Producer gas has a low heating power because it contains  67% nitrogen which is non-combustible and only 33%  carbon II oxide which is combustible. Thus, water gas is a  better fuel than producer gas because all the component of  water gas are combustible whereas only 33% of producer  gas is combustible.  **Uses of Producer**  Used to heat furnace  Used in the manufacture of coal gas  Used as a source of nitrogen in the Haber process.    **Synthetic Gas**  Syn-gas is an abbreviation for synthesis gas, which is a  mixture comprising of carbon (II) oxide, carbon (IV) oxide,  and hydrogen. The syn-gas is produced by gasification of a  carbon containing fuel to form a gaseous product that has  some heating value. | The students ask question for clarification. | To create room for slow learners. |
| **EVALUATION** | The teacher evaluates the students with the following questions;   1. Explain the term coke. 2. Define gasification of fuel. 3. State the gaseous fuels and write their equations. 4. State at least 2 uses each of the fuel gases. | The students attempt the questions. | To ascertain their level of understanding. |
| **CONCLUSION** | The teacher concludes by copying note on the board. She checks and marks the notes. | The students copy the note into their note books. | For future use. |
| **HOME WORK** | Write at least 3 differences between the producer gas and synthetic gas. | The students did your assignment and submit for marking and correction. | To encourage the students to study at home. |



9/5/2023

Principal Head Instuctor