**EMERALD ROYAL INTERNATIONAL SCHOOL, MPAPE ABUJA**

**LESSON PLAN AND NOTE FOR WEEK 7 ENDING 16TH JUNE, 2023**

**TERM: THIRD**

**WEEK : 7**

**DATE: 12TH - 16TH JUNE, 2023**

**SUBJECT : CHEMISTRY**

**TOPIC : ELECTROLYSIS**

**SUB- TOPIC : 1. terms used in electrolytes.**

**2.Similarity between conductor and electrolyte.**

**3. differences between conductors and electrolyte.**

**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 terms used in electrolysis.

2.state the similarity between conductors and electrolyte.

3.state the differences between conductors and electrolyte.

**RATIONALE:** The students should understand the similarity and differences between conductors and electrolyte.

**PREVIOUS KNOWLEGDE:** The student have been taught ionic theory.

**INSTRUCTIONAL MATERIALS:** A chart showing terms used in electrolysis.

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

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| **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 the terms used in the study of electrolysis. | The students pay attention. | To keep them focus for better understanding. |
| **STEP 2** | The teacher asks the students to state the similarity between conductor and electrolytes. | The students stater the similarity between conductors and electrolyte. | To encourage critical thinking. |
| **STEP 3** | The teacher states the differences between conductors and electrolytes. | The students pay attention. | To keep them focus for better understanding. |
| **BOARD SUMMARY** | **ELECTROLYSIS OF SOME COMMON COMPOUNDS**    **Electrolysis of Some Compounds**  In the electrolysis of compounds, electrolytic cells are used to carry out the electrolysis. A general example of an  electrolytic cell is as shown:  **Electrolysis of Acidified Water**  It is the electrolysis of a very dilute solution of H2SO4. It can simply be considered as distilled water in which few  drops of tetraoxosulphate vi acid has been added.  Hoffman’s Voltammeter is used to carry out this experiment.  **Diagram for Hoffman’s Voltammeter ( or draw from your textbook)**  H2SO4 2H+ + SO4 2-  H2O H+ + OH-Electrolysis of acidified water is carried out using an instrument called Hoffman Voltammeter, and it is used for  separating water into its components (hydrogen and oxygen).  Cathodic Reaction  Hydrogen ions migrate to the cathode where hydrogen ion is discharged and liberated as a gas.  2H+ + 2e  H2  Anodic Reaction  SO42- and OH- migrate to the anode where OHis discharged in preference to SO42- as shown:  4OH-  2H2O + O2 +4e  **Electrolysis of Dilute NaCl, using carbon electrode**  In aqueous solution, sodium chloride dissociate as shown:  NaCl Na+ + Cl-  H2O H+ + OH  Cathodic Reaction  Hydrogen ions and sodium ions migrate to the cathode where hydrogen ion is discharged and liberated as a gas.  2H+ + 2e  H2  Anodic Reaction  SO42- and OH- migrate to the anode where OHis discharged in preference to SO42- as shown:  4OH- 2H2O + O2 +4e  Electrolysis of Concentrated NaCl, using carbon electrode  In aqueous solution, sodium chloride dissociate as shown:  NaCl  Na+ + Cl-  H2O H+ + OH  Cathodic Reaction  Hydrogen ions and sodium ions migrate to the cathode where hydrogen ion is discharged and liberated as a gas.  2H+ + 2e  H2  Anodic Reaction  Cland OH- migrate to the anode where Clis discharged in preference to OH- due to concentration since the  competing ions are closely position in the electrochemical series as shown:  2Cl- Cl2 + 2e  Electrolysis of Concentrated NaCl, using mercury electrode  In aqueous solution, concentrated sodium chloride dissociate as shown:  NaCl Na+ + Cl-  H2O H+ + OH-Cathodic Reaction  Hydrogen ions and sodium ions migrate to the cathode where sodium is discharge in preference to hydrogen ions  because of the mercury electrode used. Mercury electrode has a high affinity for sodium, forming sodium amalgam.  Na++ Hg+ + 2e- Na/Hg  Anodic Reaction  Cland OH- migrate to the anode where Clis discharged in preference to OH- due to concentration since the  competing ions are closely position in the electrochemical series as shown:  2Cl- Cl2 + 2e  **Some common Electrolysis reactions**  **Electrolysis**  **Cathode**  **Product**  **discharged at**  **cathode**  **Anode**  **Product**  **discharged at**  **Anode**  **Effects on**  **electrolysis**  **Acidulated**  **water dilute H2**  **SO4**  Pt  H2 (g)  Pt  O2 (g) 1 vol  It becomes more  acidic with H2SO4  **Copper CuSo4**  **(aq)**  Cu  Copper deposited  Cu  Cu Copper anode  dissolves  Concentration of  the electrolyte  remains unchanged  **Copper CuSO4**  **(aq)**  Cu  Cu  Pt  O2 (aq) 1vol  It becomes acid  with H2 SO4  **CuSO4 (aq)**  Cu  Cu  Pt  CI2 (g)  It becomes dilute  **Fused Na CI**  C  Sodium  C  CI2 (aq)  Concentration  **Copper Na Oh**  **(aq)**  Pt  H2 (g) 2 vol  Pt  O2 (aq) 1 vol  It becomes more  alkaline | 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. She checks and marks the note. | The students copy the note into their note books. | For future use. |
| **HOME WORK** | . | The students did their assignment and submit for marking and correction. | To encourage the students to study at home. |



10/5/2023

Principal Head Instuctor