**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 : OXIDATION( REDOX REACTION)**

**SUB- TOPIC : 1. meaning of oxidation.**

1. **Meaning of reduction.**
2. **Oxidation number.**

**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. Define oxidation.
2. Define reduction.
3. Calculate oxidation number.

**RATIONALE:** The students should understand the definition of oxidation and reduction and calculate oxidation number of compound.

**PREVIOUS KNOWLEGDE:** The student have been taught compound of sulphur.

**INSTRUCTIONAL MATERIALS:** A chart showing the various definition of oxidation and reduction and flash card of solved oxidation number of compounds.

**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 defines oxidation. | The students pay attention. | To keep them focus for better understanding. |
| **STEP 2** | The teacher defines reduction and asks the students to repeats after her. | The students repeat after her. | To encourage retention ability. |
| **STEP 3** | The teacher calculates the oxidation numbers of some compounds. | The students pay attention. | To keep them focus for better understanding. |
| **BOARD SUMMARY** | **OXIDATION (REDOX REACTION)**  **DEFINITION OF OXIDATION AND REDUCTION**  Oxidation and reduction can be defined in different ways, in terms of oxygen, hydrogen, electronegativity  and in term of electrons. However, the definition that is all embracing is in terms of electrons.  1.**OXIDATION** is the Addition of oxygen to a species.  2Cu + O2 CuO  C + ZnO CO2 + Zn  **REDUCTION** is the Removal of oxygen from a species  CuO + H2 Cu + H2O  C + ZnO CO2 + Zn  2.**OXIDATION** is the Removal of hydrogen from a species while **REDUCTION** is the  Addition of hydrogen to a speciesH2S + 2SO2 3S + H2O  H2S + Br2 2HCl + S  2H2 + O2 H2O  H2S + Br2 2HCl + S  3.**OXIDATION** is the Loss of electron by an atom  Na Na+ + e  FeCl2(s) + Cl2(g) FeCl3(s) while **REDUCTION** is the  Gain of electron by an atom  ½Cl2 + e- Cl –  4FeO(s) + O2(g) 2Fe2O3(s)  Increase in oxidation number of an atom  Cu + O2 2CuO  Decrease in oxidation number of an atom  Cu + O2 CuO  Increase in the number of electronegative  atoms surrounding an element in changing  from reactant to product.  PbCl2 + Cl2 PbCl4  Decrease in number surrounding an element  in changing from reactant to product.  FeCl3 2FeCl2 + Cl2  **OXIDATION NUMBER**  Oxidation is number of an element in any  particular molecule or ion is defined as the  electrical charge it appears to have as  determined by a set of arbitrary rules. From the  rules, the oxidation number of an element can be  calculated.  Rules for Calculating Oxidation Number  1. The oxidation number of an uncombined  element is zero. For example, the O. N. of any  these uncombined elements, Na = 0; Mg = 0,  Ca = 0, or Cl2 is zero.  2. The algebraic sum of the oxidation number of  a compound is 0 (zero). For example CaCO3 =  O;  H2SO4 = O; AgNO3 = 0; etc.  3. The oxidation number of an ion or a  radical is equal to the charge on the ion or  radical. For example, Na+ = +1; Mg2+ = +2,  O2- , Cl- , NO3- = -1; SO42- = -2; etc.  **EXAMPLES**  1. Find the oxidation number of carbon in  CaCO3  Solution  CaCO3 = 0  +2 +C + (-2 x3) = 0  2 + C – 6 = 0  C = 6 – 2  C = + 4  2. Find the oxidation number of sulphur in  SO4 2-  Solution  SO42- = -2S + (-2 x 4) = -2  S - 8 = -2  S = -2 + 8  = + 6  3. KMnO4 = 0  +1 + Mn + (-2 x 4) = 0  +1 + Mn - 8 = 0  Mn = 8 – 1  Mn = + 7  4. Find the oxidation number of nitrogen in  NO3-  Solution  NO3- = -1  N + (-2 x 3) = -1  N - 6 = -1  N = 6 -1  = + 5 | The students ask question for clarification. | To create room for slow learners. |
| **EVALUATION** | The teacher evaluates the students with the following questions;   1. Define oxidation and reduction in terms of 2. Addition of oxygen. 3. Removal of hydrogen. 4. Gain of electron.   2.1. Find the oxidation number of sulphur in SO4 2-  3. Find the oxidation number of chromium in  K2Cr2O7. | 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** | Find the oxidation number of chromium in  K2MnO4.  4. Find the oxidation number sulphur in  (NH4)2SO4  5. Balance the ionic equation for the reaction  below  Mg + Fe2+ → Mg2+ + Fe3+ | 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