**EMERALD ROYAL INTERNATIONAL SCHOOL, MPAPE ABUJA**

**LESSON PLAN AND NOTE FOR WEEK 4 ENDING 26TH MAY, 2023**

**TERM: THIRD**

**WEEK : 4**

**DATE: 22ND - 26TH MAY, 2023**

**SUBJECT : CHEMISTRY**

**TOPIC : OXIDATION( REDOX REACTION)**

**SUB- TOPIC : 1. types of reaction**

1. **Types of catalyst.**
2. **Test for oxidizing and reducing agents.**

**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. State the types of reaction.
2. Explain the types of catalyst.
3. State the test for oxidizing and reducing agents.

**RATIONALE:** The students should understand the types of reaction and catalyst.

**PREVIOUS KNOWLEGDE:** The student have been taught balancing of redox reaction.

**INSTRUCTIONAL MATERIALS:** A chart showing types of reaction and catalyst.

**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 states and explains the types of reaction. | The students pay attention. | To keep them focus for better understanding. |
| **STEP 2** | The teacher asks the students to state the types of catalyst. | The students states the types of catalyst. | To encourage critical thinking. |
| **STEP 3** | The teacher explains the test for oxidizing and reducing agents. | The students pay attention. | To keep them focus for better understanding. |
| **BOARD SUMMARY** | Different Types of Chemical Reactions The 5 primary types of chemical reactions are:   1. Combination reaction 2. [Decomposition reaction](https://byjus.com/chemistry/decomposition-reaction/) 3. [Displacement reaction](https://byjus.com/chemistry/displacement-reactions/) 4. [Double Displacement reaction](https://byjus.com/chemistry/displacement-reactions/) 5. [Precipitation Reaction](https://byjus.com/chemistry/precipitation-reaction/)  1. Combination Reaction  * A reaction in which ****two or more reactants combine to form a single product**** is known as a combination reaction. * It takes the form of X + Y → XY * Combination reaction is also known as a synthesis reaction. * Example of combination reaction: 2Na + Cl2 → 2NaCl  2. Decomposition Reaction  * A reaction in which a ****single compound breaks into two or more simpler compounds**** is known as a decomposition reaction. * It takes the form of XY → X + Y * A decomposition reaction is just the opposite of a combination reaction. * Example of a decomposition reaction: CaCO3 → CaO + CO2 * The reaction in which a compound decomposes due to heating is known as a thermal decomposition reaction.  3. Displacement Reaction  * A chemical reaction in which a ****more reactive element displaces a less reactive element from its aqueous salt solution.**** * It takes the form X + YZ → XZ + Y * It is also called a substitution reaction * Example of displacement reaction: Zn + CuSO4 → ZnSO4 + Cu  4. Double Displacement Reaction  * A chemical reaction in which ****ions get exchanged between two reactants which form a new compound**** is called a double displacement reaction. * It takes the form of XY + ZA → XZ + YA * It is also called a metathesis reaction * Example of double displacement reaction:     BaCl2 + Na2SO4 → BaSO4 + 2NaCl 5. Precipitation Reaction  * A chemical reaction that involves the ****formation of an insoluble product**** (precipitate; solid) is called Precipitation reaction. * The reactants are soluble, but the product formed would be insoluble and separates out as a solid. * The chemical equation by which a [chemical change](https://byjus.com/chemistry/physical-chemical-changes/) is described is adequate for reaction in solutions, but for reactions of ionic compounds in aqueous solution (water), the typical molecular equation has different representations. * A molecular equation may indicate formulas of reactants and products that are not present and eliminate completely the formulas of the ions that are the real reactants and products. * If the substance in the molecular equation that is actually present as dissociated ions are written in the form of their ions, the result is an ionic equation.   A precipitation reaction occurs when a solution, originally containing dissolved species, produces a solid, which generally is denser and falls to the bottom of the reaction vessel.  The most common precipitation reactions occurring in aqueous solution involve the formation of an insoluble ionic compound when two solutions containing soluble compounds are mixed. Consider what happens when an aqueous solution of NaCl is added to an aqueous solution of AgNO3. The first solution contains hydrated Na+ and Cl− ions and the second solution, Ag+, and NO3− ions.  ****NaCl(s) → Na+(aq) + Cl−(aq)****  ****AgNO3(s) → Ag+(aq) + NO3−(aq)****  When mixed, a double displacement reaction takes place, forming the soluble compound NaNO3 and the insoluble compound AgCl. In the reaction vessel, the Ag+ and Cl− ions combine, and a white solid precipitated from the solution. As the solid precipitates, the Na+ and NO3− ions remain in solution.  The overall double displacement reaction is represented by the following balanced equation:  ****NaCl(aq) + AgNO3(aq) → AgCl(s) + NaNO3(aq)**** What is a catalyst? A **catalyst** is a term used in chemistry to describe substances that can speed up a reaction, without being used up in the process. The catalyst definition also states that they that can change the conditions required for a reaction to processes, such as the required temperature or pressure.**Types of Catalysts** There are two major types of catalysts - Homogeneous Catalysts and Heterogeneous catalysts **Homogeneous Catalysts** **Homogeneous catalysts** are catalysts that occupy the same phase as the reactants they are interacting with. This could either mean that the catalyst is of the same state of matter (solid, liquid, or gas) as the reactants and well mixed, or that it can dissolve into a solution with the reactants.  A well-known example of a homogeneous catalyst is Chlorofluorocarbons (CFCs). CFCs are gases that can catalyze the breakdown of ozone gas (O3) into Oxygen gas (O2) in the atmosphere. Because the CFCs occupy the same phase as ozone they are considered homogeneous. This catalysis reaction is of great relevance because ozone gas plays an important role in shielding the earth from harmful ultraviolet radiation, and by breaking down ozone gas, CFCs (which were once commonly used in aerosols and refrigerators) can cause permanent damage to the protective ozone layer. **Heterogeneous and surface catalysis** Heterogeneous catalysts are catalysts that are in a different phase than the reactants. For example, the catalyst might be in the solid phase while the reactants are in a liquid or gas phase. | The students ask question for clarification. | To create room for slow learners. |
| **EVALUATION** | The teacher evaluates the students with the following questions;   1. State the types of reaction. 2. State the types of catalyst and give an example each. | 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** | Write short note on the following;   1. Reversible reaction. 2. Thermal reaction. 3. Oxidation reaction. | 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