**EMERALD ROYAL INTERNATIONAL SCHOOL, MPAPE ABUJA**

**LESSON PLAN AND NOTE FOR WEEK 5 ENDING FRIDAY, 9TH**

**FEBRUARY 2024**

**TERM: SECOND**

**WEEK: WEEK 5**

**DATE : 5TH - 9TH FEBRUARY 2024**

**SUBJECT: CHEMISTRY**

**TOPIC: SYMBOLS, FORMULA AND EQUATION.**

**SUB - TOPIC: 1. laws of chemical combination.**

1. **Chemical equation.**
2. **Balancing of chemical equation.**

**PERIOD : 5th**

**TIME : 11:10 -11:50**

**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. State laws of chemical combination.
2. Explain chemical equation.
3. Balance chemical equation.

**RATIONALE:** The students should understand the law of chemical combination.

**PREVIOUS KNOWLEDGE:** The students have been taught state of matter.

**INSTRUCTIONAL MATERIALS:** Chart showing balanced chemical equation.

**Reference Material:** New school chemistry for senior secondary schools by Osei- Yaw Ababio.

**LESSON DEVELOPMENT**

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| **STAGES** | **TEACHER’S ACTIVITIES** | **STUDENT’S ACTIVITIES** | **LEARNING POINT** |
| **INTRODUCTION** | The teacher introduces the lesson by reviewing the previous lesson. | The students pay attention. | To arouse the students interest. |
| **PRESENTATION**  **STEP 1** | The teacher states the laws of chemical combination. | The students pay attention. | To keep them focus. |
| **STEP 2** | The teacher asks the students to write a chemical equations. | The students write chemical equations. | To encourage critical thinking |
| **STEP 3** | The teacher writes examples of balanced chemical equation. | The students pay attention. | To keep them focus. |
| **BOARD SUMMARY** | **CHEMIACL EQUATION**  Chemical equations are symbolic representations of chemical reactions in which the reactants and the products are expressed in terms of their respective chemical formulae.  Chemical equations make use of symbols to represent factors such as the direction of the reaction and the physical states of the reacting entities. Chemical equations were first formulated by the French chemist Jean Beguin in the year 1615.  Chemical reactions can be represented on paper with the help of chemical equations, an example for which is represented below (for the reaction between hydrogen gas and oxygen gas to form water).  2H2 + O2 → 2H2O  It can be observed in the example provided above that the reacting entities are written on the left-hand side whereas the products that are formed from the [chemical reactions](mhtml:file://C:/Users/PERPETUAL/AppData/Local/Microsoft/Windows/Temporary Internet Files/Content.IE5/JCSBN4F4/What_are_Chemical_Equations__Detailed_Explanation,_Examples[1].mhtml!https://byjus.com/chemistry/chemical-reactions/) are written on the right-hand side of the chemical equation.  It can also be observed that there are coefficients assigned to each of the symbols of the corresponding reactants and products. These coefficients of entities in a chemical equation are the exact value of the stoichiometric number for that entity.  **Representing the Direction of the Chemical Reaction**  The reactants and the products (for which the chemical formulae are written in chemical equations) can be separated by one of the following four symbols.   * In order to describe a net forward reaction, the symbol ‘→’ is used. * In order to describe a state of chemical equilibrium, the symbol ‘⇌’ is used. * To denote stoichiometric relationships, the ‘=’ symbol is used. * In order to describe a reaction that occurs in both forward and backward directions, the symbol ‘⇄’ is used.   Multiple entities on either side of the reaction symbols described above are separated from each other with the help of the ‘+’ symbol in a chemical equation. It can be noted that the ‘→’ symbol, when used in a chemical equation, is often read as ‘gives rise to’ or ‘yields’.  **Representing the Physical States of the Reacting Entities**  Apart from the [stoichiometric](mhtml:file://C:/Users/PERPETUAL/AppData/Local/Microsoft/Windows/Temporary Internet Files/Content.IE5/JCSBN4F4/What_are_Chemical_Equations__Detailed_Explanation,_Examples[1].mhtml!https://byjus.com/jee/stoichiometry-and-stoichiometric-calculations/) coefficients of the reacting and the produced entities, symbols enclosed in parentheses are also written adjacent to them in order to describe their physical states over the course of the chemical reaction. These symbols may be one of the following.   * The symbol (s) describes an entity in the solid state * The symbol (l) denotes the liquid state of an entity * The symbol (g) implies that the entity is in the gaseous state. * The (aq) symbol corresponding to an entity in a chemical equation denotes an aqueous solution of that entity.   In some reactions, a reactant or a product may be in the form of a precipitate which is insoluble in the solution that the reaction is taking place in. The ‘↓’ symbol is written next to the chemical formula of these entities to describe them as precipitates.  **How is the Input of Energy Represented in a Chemical Equation?**  Some chemical reactions require an input of energy in order to proceed. The energy requirements of these reactions are described above the arrow symbol (forward reaction) in their corresponding chemical equations with the help of the following symbols   * The Greek letter delta in its capitalized form (Δ) is used to state that an input of heat energy is required by the reaction. * The formula ‘hv’ which describes the energy of a photon is used above the arrow symbol to state that the reaction requires an input of light to proceed.   It is important to note that the stoichiometric coefficients that are assigned to each entity in the chemical equation are used to make the entire equation obey the law of conservation of charge and the law of conservation of mass. | The students ask questions for further clarification. | To create room for slow learners. |
| **Evaluation** | 1. Explain chemical equation. 2. Write 3 symbols used in the writing of chemical equation. 3. Write 2 balanced chemical equation. | The students attempt the questions. | To ascertain their level of understanding. |
| **Conclusion** | The teacher concludes by coping the note on the board. She checks and marks the note. | The students copy the note on the board. | For future use. |
| **Assignment** | 1. Balance the following chemical equations; 2. Mg + HCL --------MgCl2 + H2 3. 2H2(g) + O2(g) ------H2O(g) 4. State 3 information not provided by the equation. | The students did and submit their assignment for marking and correction. | To encourage the students to study at home. |