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| **COMPETENCE** | **GENERAL OBJECTIVES** | **MONTH** | **WEEK** | **MAIN TOPIC** | **SUB-TOPIC** | **PERIODS** | **TEACHING ACTIVITIES** | **LEARNING ACTIVITIES** | **T/L MATERIAS** | **REFERENCES** | **ASSESSMENT** | **REMARKS** |
| Applying chemistry principles in understanding industrial processes. | The student should be able to 1. Compare the rate of chemical reactions.
 | July | 2 | CHEMICAL KINETICS, EQUILIBRIUM AND ENERGERTICS | The rate of chemical reactions | 4 | 1. The teacher guide students to discuss the concept of rapid and slow reaction.
2. Students demonstrate a very rapid reaction by mixing KI, with Pb(NO3)2 solutions and aqueous chlorides.
3. The teacher guide students to carry out a slow reaction by allowing iron nails to rust under favourable conditions.
 | * Students note important points.
* Students demonstrate a very rapid reaction by mixing KI with Pb(NO3)2 solutions and aqueous chloride.
 |  |  | * To be able to carry out experiments to slow fast and slow chemical reaction.
 |  |
| Applying chemistry principles in understanding industrial processes. | 1. Perform experiments to measure the rates of chemical reactions.
 |  |  |  |  | 1. Teacher guide students to the selection of the most convenient property of a reaction to measure, so as to determine the rate of that reaction
2. Teacher lead a discussion on students work.
 | * Student measure the rate of evolution of hydrogen when inc is dissolved in dilute HCl acid.
 | * Zinc granules.
* Dilute HCl
* Graph papers
* Stop watches.
 |  | * To be able to perform an experiment to measure the rate of a chemical reaction.
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| **COMPETENCE** | **GENERAL OBJECTIVES** | **MONTH** | **WEEK** | **MAIN TOPIC** | **SUB-TOPIC** | **PERIODS** | **TEACHING ACTIVITIES** | **LEARNING ACTIVITIES** | **T/L MATERIAS** | **REFERENCES** | **ASSESSMENT** | **REMARKS** |
| Applying chemistry principles in understanding industrial processes. | The student should be able to 1. Describe the effect of concentration on the rate of a reaction
 | July | 3 & 4 | CHEMICAL KINETICS, | Factors effecting the rate of chemical reaction | 16 | * Teacher guide student to use dil HCl and Na2S2O3 to study the effect of concentration on the rate of precipitation of sulphur.
* Teacher guide students to study the special features of the graph and make conclusion.
 | * Students tabulate the concentration, rate data and plot a graph.
 | * Source of heat
* Thermometers
* Dilute HCl
* NaS2O3
* Stop watches.
 |  | * To be able to describe the effect of concentration on the rate of reaction.
 |  |
| Applying chemistry principles in understanding industrial processes. | 1. Demonstrate the effect of temperature on the rate of reactions.
 |  | 11 | * Teacher guide a discussion on the special features of the graph and make clarifications.
 | * Students in groups use dilute HCl and NaS2O3 to study the effect of temperature on the rate of precipitation of sulphur.
* Students tabulate the temperature rate data and plot a graph.
 |  |  |  |  |
| Applying chemistry principles in understanding industrial processes | 1. Show the effect of surface area of a solid on the rate of a reaction.
 | Factors affection the rate of a chemical reaction | 11 | * Teacher instruct students to use blocks of CaCo3 and its powder respectively to study the effect of particles size (surface area) on the rate of relicensing Co2 when reacted with dilute HCl.
 | * Students tabulate the temperature rate data and plot a graph.
 | * CaCO3 blocks
* Mortar and pestle
* Stop watches
* Syringe
* Measuring cylinder
 |  |  |  |
| **COMPETENCE** | **GENERAL OBJECTIVES** | **MONTH** | **WEEK** | **MAIN TOPIC** | **SUB-TOPIC** | **PERIODS** | **TEACHING ACTIVITIES** | **LEARNING ACTIVITIES** | **T/L MATERIAS** | **REFERENCES** | **ASSESSMENT** | **REMARKS** |
|  | 1. Demonstrate the effect of catalyst on the rate of a reaction.
 |  |  |  |  | 11 | * Teacher guide students to discuss the special factors of the graph and make conclusions.
 | * Students tabulate the volume rate and plot a graph.
 | * H2O2
* MnO2
* Stop watches
* Syringe
* Graph papers
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