GES IGCSE Chemistry Term 1B (Jan-March, 2019-20)

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| TOPIC: Energy changes and reversible reactions |

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| Theme: Introduce the concept of bond energies and Calculate the energy of a reaction using bond energies Introduce the concept of equilibrium and its importance to industry [the Haber Process and the Contact Process] and the world economy. These industrial processes enable vital chemicals such as ammonia and sulfuric acid to be produced. | Level: IG 2 |
| Objectives: Predict the effect of changing the conditions (concentration, temperature and pressure) on other reversible reactions e.g. Haber process and contact process  Describe the meaning of exothermic and endothermic reactions • Interpret energy level diagrams showing exothermic and endothermic reactions | |

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| Focussing Questions | Key Words | |
| 1. Why is bond breaking as an endothermic process and bond forming as an exothermic process? 2. Draw and label energy level diagrams for exothermic and endothermic reactions using data provided 3. Calculate the energy of a reaction using bond energies 4. What is the use of hydrogen as a fuel reacting with oxygen to generate electricity in a fuel cell? 5. How is it that some chemical reactions can be reversed by changing the reaction conditions. (Limited to the effects of heat and water on hydrated and anhydrous copper(II) sulfate and cobalt(II) chloride)? 6. What are the effects of changing the conditions (concentration, temperature and pressure) on other reversible reactions? 7. Demonstrate knowledge and understanding of the concept of equilibrium   Assessment Textbook questions  Collection, and interpretation, of data  End of unit test constructed from past paper questions | Energy change,  exothermic,  endothermic,  energy level,  bond energies,  KJ/mole,  activation,  fuel,  reversible,  industry,  optimum conditions, rate,  properties,  sulfur dioxide,  sulfur trioxide, contact,  sulfuric acid,  pressure,  temperature | Bond breaking is the …  Energy level diagram shows….  The graph shows that….  From the equation we can show that….  The applications are…  As a result of…  Changing the variable results in…  The effect of….  The calculation to work out…..  The equilibrium shifts…..  The factors that determine….. |

**Text Book: departmental textbooks and worksheets**