GES IA2 CHEMISTRY Term 1 (Sept – Oct, 2019-20)

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| TOPIC: Unit 4 Rates, Equilibrium and Further Organic Chemistry |

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| Theme: To further explore Organic and Inorganic Chemistry and associated practical skills | Level: Year 13 |
| Objectives: To further develop an understanding of the scientific concepts in Organic and Inorganic Chemistry and practical applications in industry. | |

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| Focussing Questions | Key Words | |
| * 1. How Fast? How do rates of chemical reactions change over time?  1. What are the techniques to measure the rate of reactions? 2. What are the rate equations, rate constants and the order of a reaction? 3. How do you determine the order of a reaction and the rate equation from experimental data? 4. How is a mechanism related to the rate determining step? 5. What is the mechanism of the reaction if iodine with propanone?    1. How Far? What is entropy? 6. What is the natural direction of change? 7. How are entropy changes calculated? 8. What is the feasibility of a reaction, thermodynamic stability and kinetic inertness? 9. How can the solubility be predicted from the enthalpy and entropy of solution?    1. What is the idea of equilibrium constant? 10. How do you calculate Kc and Kp? 11. How do you determine the rate constant? 12. How is the entropy related to the equilibrium constant?     1. How does temperature, pressure and catalysis effect an equilibrium constant? 13. How are conditions chosen for the industrial purposes? 14. How are reactions controlled for safety, yield, cost and atom economy? | Evaluate  Analyse  Accuracy  Formulae  Further Organic Chemistry  Entropy  Equilibria  Reaction mechanisms  Redox equilibria  Energetics  Amines  Amides  Amino acids  Proteins  Carboxylic acids  Chirality  Acid-base equilibria  Chemical equilibria  Isotopes  NMR  Mass spectrometer  Bond angles  Enthalpy change  Nomenclature | **Explaining words**  To calculate…..  In order to…..  The equations states….  These are examples of….  There is a relationship between…….  A correlation exists between….  This is caused by….  However….  …because…  This explains….. |

**Resources: departmental textbooks and worksheets/exam board resources**