GES IA2 BIOLOGY Half Term 2 (January - March 2020)

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| TOPIC: Unit 5 Energy, Exercise and Coordination |

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| Theme: develop their interest in, and enthusiasm for, biology including developing an interest in further study and careers in the subject | Level: Year 13 |
| Objectives: To further develop an understanding of the scientific concepts in the effects of both too much and too little exercise on the body. | |

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| Focussing Questions | Key Words | |
| * 1. **What are the muscle structure and function, and the ways in which energy is provided by means of aerobic and anaerobic respiration.?**  1. Describe how the heart and respiratory system to exercise are included, with the concept of homeostasis? 2. Discuss the importance in both the regulation of body temperature and at the molecular level with a reference to gene switching. 3. How is the medical technology is used in relation to sports, and the ethical positions with respect to the use of performance-enhancing substances by athletes.    1. **Describe how to investigate the effects of exercise on tidal volume and breathing rate using data from spirometer traces?** 4. Describe the limitations of this investigation? 5. How to use the oxygen? 6. What are vital capacity? 7. Analyse and interpret data on possible disadvantages of exercising too much (wear and tear on joints, suppression of the immune system) and exercising too little (increased risk of obesity, coronary heart disease (CHD) and diabetes), recognising correlation and causal relationships 8. Explain how medical technology, including the use of keyhole surgery and prostheses, is enabling those with injuries and disabilities to participate in sports, e.g. cruciate ligaments repair using keyhole surgery and knee joint replacement using prosthetics. | Homeostasis  Lactate  Lactic acid  Coenzymes  Atrio-ventricular node  Sino-atrial node  Cardiovascular control centre  Ventilation  DNA  Spirometer  Inspiratory  Intercostal muscles  EPOC  Diabetes | **Explaining words**  These are examples of….  There is a relationship between…….  A correlation exists between….  To calculate…..  In order to…..  The equations states….  This is caused by….  However….  …because…  This explains….. |

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