**6th Year Topics so far….**

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| **1.3 Radioactivity**  By the end of this section you should be able to | **Good** | **Fair** | **Poor** |
| define radioactivity  describe the nature and penetrating ability of alpha, beta and gamma radiation  give one example each of the following: an α emitter, a β emitter and a γ-emitter  explain how radiation is detected having seen a demonstration / video ( principles of a geiger muller tube not required)  define radioisotopes  define and explain half life (non-mathematical treatment)  give a historical outline of:   * Becquerel’s discovery of radiation from uranium salts * Marie and Pierre Curie’s discovery of polonium and radium   comment on the widespread occurrence of radioactivity  **distinguish between a chemical reaction and a nuclear reaction (simple equations required, confine to α and β emissions)**  state three uses of radioactivity, including food irradiation and the use of 60Co for cancer treatment  explain how 14C is used for age determination (calculations not required) |  |  |  |

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| **3.2 Gas Laws**  By the end of this section pupils should be able to | **Good** | **Fair** | **Poor** |
| State and explain Boyle’s law  describe the significance of Boyle’ air pump  state and explain Charles’s law  **state and explain Gay-Lussac’s law of combining volumes**  **state and explain Avogadro’s law**  carry out simple calculations using the  combined gas law == constant  **define ideal gases**  **list the assumptions of the kinetic theory of gases**  **explain why gases deviate from ideal gas behavior**  **carry out simple calculations involving**  ***PV* = *nRT ( units: Pa m3,K)*** |  |  |  |

**Gas Laws**

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| Chemical Equilibrium | | | |
| **8.1 Chemical Equilibrium**  By the end of this section you should be able to | **Good** | **Fair** | **Poor** |
| explain what is meant by a reversible reaction  explain what is meant by dynamic equilibrium  explain what is meant by chemical equilibrium  state the equilibrium law (Kconly)  write expressions for Kc  **perform calculations involving equilibrium constants (*K*c)** |  |  |  |
| **8.2 Le Chatelier’s Principle**  By the end of this section you should be able | **Good** | **Fair** | **Poor** |
| state Le Chatelier’s principle  use Le Chatelier’s principle to predict the effect (if any ) on equilibrium position of concentration, pressure, temperature and catalyst  perform simple experiments to demonstrate Le Chatelier’s principle using the following equilibrium mixtures   * CoCl42– + 6H20 ⇔Co(H20)62+ + 4Cl–   (to demonstrate the effects of both temperature changes and concentration changes on an equilibrium mixture)   * Cr2O72– + H2O ⇔2CrO42– + 2H+ * Fe3+ + CNS**–** ⇔Fe(CNS)2+   (to demonstrate the effects of concentration changes on an equilibrium mixture)  discuss the Industrial application of Le Chatelier’s principle in the catalytic oxidation of sulfur dioxide to sulfur trioxide and in the Haber process |  |  |  |