**Chemistry Unit C1: Structures, Trends, Chemical Reactions, Quantitative Chemistry and Analysis**

**C1.6 The Periodic Table**

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| **Content - CCEA Double Award Chemistry 1 – Fort Hill Integrated College** | Got it | Nearly | Haven’t a clue |
| **C1.6 The Periodic Table** | | | |
| **Basic structure of the Periodic Table** |  |  |  |
| Can you describe how Mendeleev arranged the elements in the Periodic Table and left gaps for elements that had not been discovered at that time, and how this enabled him to predict properties of undiscovered elements; |  |  |  |
| Can you demonstrate knowledge and understanding of how scientific ideas have changed over time in terms of the differences and similarities between Mendeleev’s Periodic Table and the modern Periodic Table; |  |  |  |
| Can you describe an element as a substance that consists of only one type of atom and demonstrate understanding that elements cannot be broken down into simpler substances by chemical means; |  |  |  |
| Can you demonstrate knowledge and understanding that a group is a vertical column in the Periodic Table and a period is a horizontal row; |  |  |  |
| Can you identify and recall the position of metals and non-metals in the Periodic Table and distinguish between them according to their properties, including conduction of heat and electricity, ductility, malleability, melting point and sonority; |  |  |  |
| Can you identify elements as solids, liquids and gases (at room temperature and pressure) in the Periodic Table; and |  |  |  |
| Can you demonstrate knowledge and understanding that elements in the same group in the Periodic Table have the same number of electrons in their outer shell and this gives them similar chemical properties. |  |  |  |
| Can you recall that elements with similar properties appear in the same group (for example Group 1 (I) and Group 2 (II) are groups of reactive metals, Group 7 (VII) is a group of reactive non-metals and Group 0 is a group of non-reactive non-metals), locate these groups in the Periodic Table and recall the names of the groups; |  |  |  |
| **Group 1 (I)** |  |  |  |
| Can you demonstrate knowledge and understanding that the alkali metals have low density and the first three are less dense than water; |  |  |  |
| Can you assess and manage risks associated with the storage and use of alkali metals and recall that alkali metals are easily cut, are shiny when freshly cut and tarnish rapidly in air; |  |  |  |
| Can you demonstrate knowledge and understanding that Group 1 (I) metals react with water to produce hydrogen and a metal hydroxide, and give observations for the reactions; |  |  |  |
| **Can you** **demonstrate knowledge and understanding that alkali metals have similar chemical properties because when they react an atom loses an electron to form a positive ion with a stable electronic configuration;** |  |  |  |
| **Can you** **write half equations for the formation of a Group 1 (I) ion from its atom;** |  |  |  |
| Can you demonstrate knowledge and understanding of how the trend in reactivity down the group depends on the outer shell of electrons of the atoms; |  |  |  |
| Can you demonstrate knowledge and understanding that most Group 1 (I) compounds are white and dissolve in water to give colourless solutions; and |  |  |  |
| **Group 7 (VII)** |  |  |  |
| Can you recall data about the colour, physical state at room temperature and pressure, diatomicity and toxicity of the elements in Group 7 (VII), **interpret given data to** **establish trends within the group and make predictions based on these trends.** |  |  |  |
| Can you recall the observations when solid iodine sublimes on heating and demonstrate understanding of the term sublimation; |  |  |  |
| Can you describe how to test for chlorine gas (damp universal indicator paper changes to red and then bleaches white); |  |  |  |
| **Can you describe how to investigate the displacement reactions of Group 7 (VII) elements with solutions of other halides to establish the trend in reactivity within the group and make predictions based on this trend;** |  |  |  |
| Can you demonstrate knowledge and understanding of how the reactivity down the group depends on the outer shell electrons of the atoms; |  |  |  |
| **Can you recall that the halogens have similar chemical properties because when they react an atom gains an electron to form a negative ion with a stable electronic configuration;** |  |  |  |
| **Can you write half equations for the formation of a halide ion from a halogen molecule or atom;** |  |  |  |
| **Group 0** |  |  |  |
| Can youuse the concept of electronic configuration to explain the lack of reactivity and the stability of the noble gases; |  |  |  |
| Can yourecall that the noble gases are colourless gases; |  |  |  |
| **Can you describe the trend in boiling points of the Noble gases going down the group;** and |  |  |  |
| **Transition metals** |  |  |  |
| Can youdemonstrate knowledge that transition elements form ions with different charges (for example iron(II) and iron(III)) and form coloured compounds:   * copper(II) oxide is black; * copper(II) carbonate is green; * hydrated copper(II) sulfate is blue; and * copper(II) salts are usually blue in solution. |  |  |  |