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

**C1.3 Structures**

|  |  |  |  |
| --- | --- | --- | --- |
| **Content - CCEA Double Award Chemistry 1 – Fort Hill Integrated College** | Got it | Nearly | Haven’t a clue |
| **C1.3 Structures** |
| **Ionic structures** |  |  |  |
| Can you use the accepted structural model for giant ionic lattices to explain the physical properties of ionic substances such as sodium chloride, including melting point, boiling point and electrical conductivity (diagram of giant ionic lattice is not expected); |  |  |  |
| Can you recall that most ionic compounds are soluble in water; |  |  |  |
| **Molecular Covalent structures** |  |  |  |
| Can you use the accepted structural model for molecular covalent structures to explain the physical properties of molecular covalent structures such as iodine and carbon dioxide, including melting point, boiling point and electrical conductivity; |  |  |  |
| Can you demonstrate knowledge and understanding that the intermolecular forces between covalent molecules are weak forces called van der Waals’ forces; |  |  |  |
| Can you recall that many covalent molecular substances are insoluble in water; |  |  |  |
| **Giant covalent structures** |  |  |  |
| Can you demonstrate knowledge and understanding of the giant covalent structure of carbon (diamond) and carbon (graphite), and predict and explain their physical properties, including:* electrical conductivity;
* hardness;
* melting point and boiling point; and
* their uses in cutting tools (diamond), lubricants and pencils (graphite);
 |  |  |  |
| **Metallic structures** |  |  |  |
| **Can you** **use the accepted structural model for metals to predict and explain their structure and physical properties including melting point, malleability, ductility and electrical conductivity.** |  |  |  |
| Can you demonstrate knowledge and understanding that an alloy is a mixture of two or more elements, at least one of which is a metal, and the resulting mixture hasmetallic properties; |  |  |  |
| **Structure and bonding of carbon** |  |  |  |
| Can you demonstrate recall that carbon can form four covalent bonds; |  |  |  |
| Can you demonstrate knowledge and understanding of the structure of graphene (a single atom thick layer of graphite), explain its physical properties, including strength and electrical conductivity, and recall its uses such as those in batteries and solar cells; |  |  |  |
| Can you demonstrate knowledge and understanding of the meaning of the term allotrope as applied to carbon (diamond), carbon (graphite) and graphene; and |  |  |  |
| **Classification of structures** |  |  |  |
| **Can you** **use given information to classify the structure of substances as giant ionic lattice, molecular covalent, giant covalent or metallic.** |  |  |  |