**Chemistry 2.4 AS 91164** Demonstrate understanding of bonding, structure, properties and energy changes

Writing Excellence answers to **Solids – Conductivity (Ductility)** questions



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| **Solids – Conductivity (Ductility) QUESTION** |
| **Question:**  Using your knowledge of structure and bonding, explain why, although both graphite and copper are good **conductors** of electricity, copper is suitable for **electrical wires**, but graphite is not. (note two properties to discuss)(you will need to fill in the chart below correctly as part of the question and use the terms in your answer)

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| --- | --- | --- | --- |
| Substance | Type of substance | Type of particle | Attractive forces between particles |
| C(s)  Graphite | Covalent network | Atom | Covalent ( and weak intermolecular forces) |
| Cu(s) copper | metal | Atom / cations and electrons | Metallic bonds / electrostatic attraction |

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| **ANSWER** |
| 1. For the first substance (name) state the **type of solid** that it is |  |
| 2. describe the **structure** of this type of substance using the *terms* above in the table |  |
| 3. explain how the **bonding** relates to the present of free moving charged particles to conduct electricity in your substance (property 1) |  |
| 4. link to the **observation** (conductivity) in your question for the first substance |  |
| 5. explain how the **bonding** relates to ductility in your substance (property 2) |  |
| 6. link to the **observation** (forming wires) in your question for the first substance |  |
| 7. For the second substance (name) state the **type of solid** that it is |  |
| 8. describe the **structure** of this type of substance using the *terms* above in the table |  |
| 9. explain how the **bonding** relates to the present of free moving charged particles to conduct electricity in your substance (property 1) |  |
| 10. link to the **observation** (conductivity) in your question for the second substance |  |
| 11. explain how the **bonding** relates to ductility in your substance (property 2) |  |
| 12. link to the **observation** (forming wires) in your question for the second substance |  |

NOTE: The white column is how your answer would appear on your test paper so make sure you **write out complete sentences**. The grey area is just to help you structure your answer and would not appear in the question.