

## **Chemistry PPE Revision tasks**

### **Task 1 - Structure and bonding of ionic, covalent and metallic substances**

#### **Resources**

AQA Specification (available online):

5.2.1 Chemical bonds, ionic, covalent and metallic

5.2.2 How bonding and structure are related to the properties of substances

Collins Revision Guide

BBC Bitesize - <https://www.bbc.com/bitesize/topics/z33rrwx>

#### **Properties of substances– Ionic compounds, small molecules, polymers, giant covalent structures, metals and alloys**

1. Describe the structure of ionic compounds.
2. Why do ionic compounds have high melting and boiling points?
3. Why can ionic compounds conduct electricity when melted or dissolved in water?
4. What state of matter are small molecules normally found in?
5. Why do small molecules have low melting and boiling points?
6. Why don't small molecules conduct electricity?
7. What are polymers?
8. Give an example of a giant covalent structure.
9. Why do giant covalent structures have very high melting and boiling points?
10. How are atoms arranged in pure metals?
11. What is an alloy?

12. Why do we use alloys, rather than pure metals, for many uses?

13. Why are metals good conductors of electricity and thermal energy?

**Properties of substances – Diamond, graphite, graphene and fullerenes**

1. In a diamond, how many covalent bonds does each carbon make?

2. Name 2 properties of diamond.

3. In graphite, how many covalent bonds does each carbon make?

4. Describe the structure of graphite.

5. Why is graphite soft?

6. Why does graphite conduct electricity?

7. What is graphene?

8. What are fullerenes?