

**AQA, OCR, Edexcel**

**GCSE Science**

# **GCSE Chemistry**

**Metallic Bonding**

**Answers**

**M M E**

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**Total Marks: /15**

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Q1) Describe the structure of a metal.

A= Giant structure of atoms (1 mark) arranged in a regular pattern (1 mark).

(2 marks)

Q2) Describe the position of electrons in a metal.

A= Delocalised.

(1 mark)

Q3) Atoms within metals have strong metallic bonds. Describe how this occurs.

A= through the sharing of electrons.

(1 mark)

Q4) Draw a diagram to represent a metal, representing the electrons and the respective charges.

A= Show metal atoms with a **positive charge** (1 mark)

Represent **delocalised electrons**, labelled (1 mark)

Show metallic bonds between the atoms (1 mark)

(3 marks)

Q5) Describe the melting and boiling points for metals and why they are this way.

A= High (1 mark). Strong metallic bonding (1 mark).

(2 marks)

Q6) What are the structural differences between a pure metal and an alloy?

A= A pure metal contains atoms of the same metal whereas an alloy is compiled of different metal atoms (1 mark). In pure metals, the atoms are arranged in layers / alloys have distorted layers.

(2 marks)

Q7) Why are alloys used more in construction than pure metals?

A= In pure metals the layer arrangement means the metal can be bent and shaped (1 mark).

They are too soft for many uses, alloys are a mixture of other metals this **distorts the layers** and they are harder therefore (1 mark).

(2 marks)

Q8) Describe how metals are good conductors.

A= The delocalised electrons carry electrical charge through the metal (1 mark)

They are also good conductors of thermal energy/ heat energy (1 mark)

(2 marks)