

# Metallic Bonding Exam Style Question

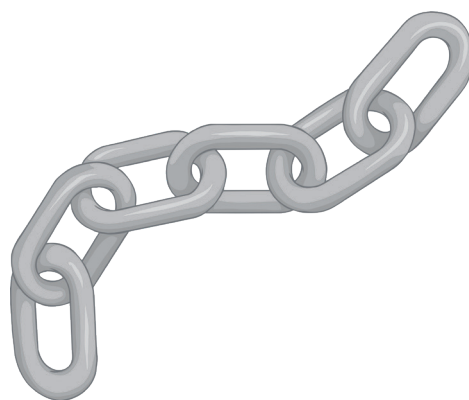
1. Olympic medals are awarded for first (gold), second (silver), and third (bronze), positions in a variety of sports every four years.

a. For each metal, state whether it is an element or an alloy.

gold: \_\_\_\_\_

silver: \_\_\_\_\_

bronze: \_\_\_\_\_



b. State three properties of silver as a metal:

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

c. The last pure gold medal was handed out in 1912. Describe the structure inside the gold medal.

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d. Today, a gold medal is mostly silver with a minimum 6g of gold. Describe the difference in structure and properties between this and a pure gold medal.

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## Self-Assessment

Colour in the stars to show how confident you are:

Before Marking: ☆ ☆ ☆ ☆ ☆

After Marking and Intervention: ☆ ☆ ☆ ☆ ☆

# Answers

1. Olympic medals are awarded for first (gold), second (silver), and third (bronze), positions in a variety of sports every four years.

a. For each metal, state whether it is an element or an alloy.

gold: **element**

silver: **element**

bronze: **alloy**

b. State three properties of silver as a metal:

**Any three of the following:**

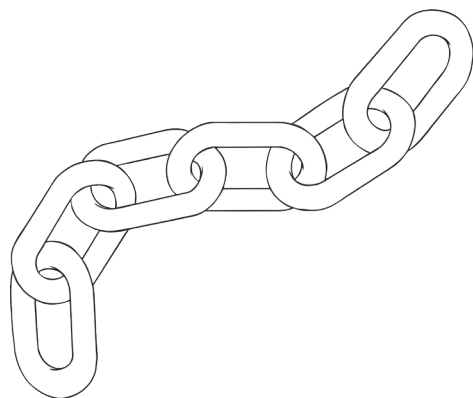
- malleable;
- ductile;
- can conduct thermal energy (heat);
- can conduct electricity;
- lustrous/shiny;
- high density;
- high melting point;
- high boiling point.

c. The last pure gold medal was handed out in 1912. Describe the structure inside the gold medal.

**A regularly arranged lattice/giant lattice/repeating pattern of positive metal ions, and a sea of negative delocalised/free electrons.**

d. Today, a gold medal is mostly silver with a minimum 6g of gold. Describe the difference in structure and properties between this and a pure gold medal.

**No longer a regular pattern/giant lattice. Atoms of another metal are interspersed/in between. This means it is a lot stronger/harder because the layers can no longer slide over each other.**



# Teacher Feedback

Effort: 1 2 3 4 5

With guidance, you can distinguish between pure metal elements and alloys.	You can independently distinguish between pure metal elements and alloys, with few errors.	You can independently distinguish between pure metal elements and alloys, with no errors.
With guidance, you can recall one or more properties of metals.	You can independently recall one or more properties of metals.	You can independently describe several properties of metals.
With guidance, you can describe one or two basic key points about metallic bonding.	You can independently describe one or two basic key points about metallic bonding.	You can independently describe the three key points about metallic bonding.
With guidance, you can recall how alloys are stronger than pure metal elements but give no explanation.	You can independently recall how alloys are stronger than pure metal elements, with some explanation.	You can independently recall how alloys are stronger than pure metal elements, with a detailed explanation.

**Next Steps:**

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