Answer all the questions below then check your answers

1. Which of the following is a property of metals?

A) They are poor conductors of electricity.
B) They are malleable and ductile.
C) They have low melting points.
D) They do not reflect light.

True or False

2. All metals lose electrons when they react with other substances.

Fill in the blanks to complete the sentences below:

3. Metals are generally _____ in tension, meaning they can support heavy loads before breaking. This property is due to the strong _____ bonds holding their atoms in a giant metallic structure.

4. Explain why metals are good conductors of electricity.

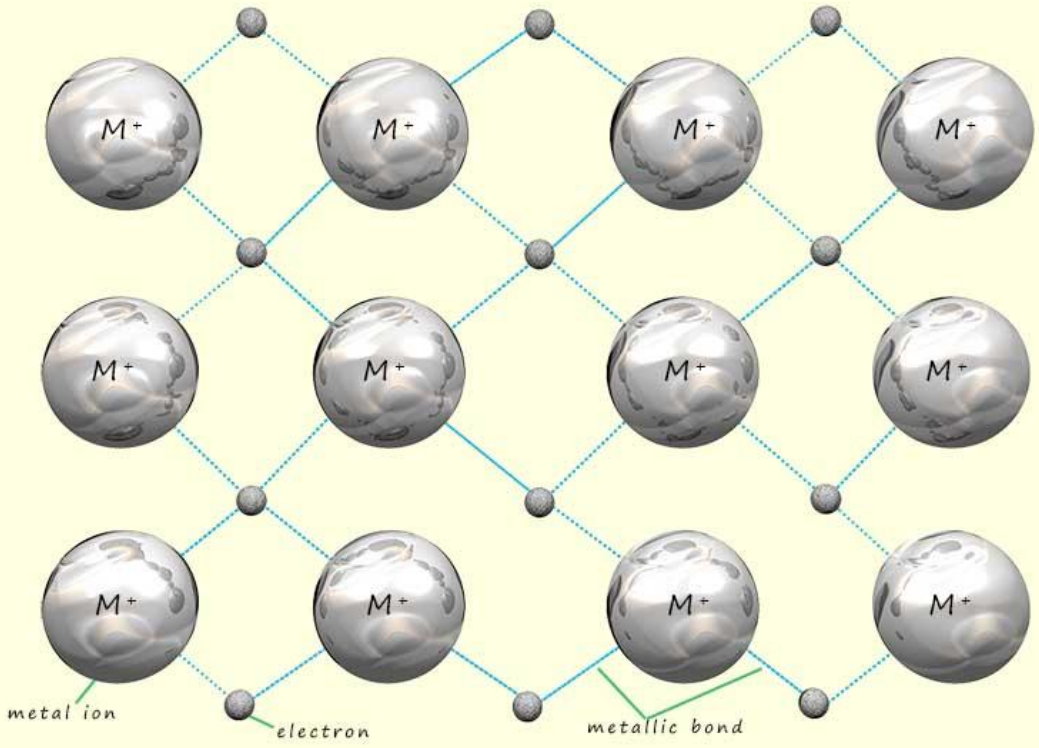
5. Explain why alkali metals (Group 1) become more reactive as you move down the group.

6. Which of the following metals is magnetic?

A) Copper B) Silver C) Iron D) Gold

7. What is the general trend in the melting and boiling points of metals as you move across the periodic table from left to right?

8. Look at the image of the metallic bonding structure shown below. Explain how the movement of metal ions in the structure contributes to the malleability of metals.



Answer: The layers of metal ions in the giant metallic structure can slide over each other when a force is applied. This allows metals to be hammered into different shapes without breaking, which makes them malleable.

9. Sodium (Na) is a Group 1 metal. Use your knowledge of the structure of metals to suggest a reason why sodium is less dense than many other metals.

Answer: Sodium is less dense than many other metals because its atoms are arranged with more space between them, which results in a lower overall density.

True or False

10. All metals in the periodic table have high densities and high melting points.

Answer: False (Group 1 metals, such as sodium, have lower densities and melting points compared to transition metals.) Mercury is a liquid metal at room temperature so has a low melting point.

Answers

1. Which of the following is a property of metals?

A) They are poor conductors of electricity. B) They are malleable and ductile.

C) They have low melting points. D) They do not reflect light.

Answer: B) They are malleable and ductile.

True or False

2. All metals lose electrons when they react with other substances.

Answer: True

Fill in the blanks to complete the sentences below:

3. Metals are generally _____ in tension, meaning they can support heavy loads before breaking. This property is due to the strong _____ bonds holding their atoms in a giant metallic structure.

Answer: strong, metallic

4. Explain why metals are good conductors of electricity.

Answer: Metals are good conductors of electricity because they have delocalised electrons that can move freely through the structure, allowing electrical current to pass through easily.

5. Explain why alkali metals (Group 1) become more reactive as you move down the group.

Answer: As you move down Group 1, the alkali metals become more reactive because their atoms get larger, meaning the outer electron is further from the nucleus and is

more shielded by inner electron shells. This makes it easier for the outer electron to be lost.

6. Which of the following metals is magnetic?

A) Copper B) Silver C) Iron D) Gold

Answer: C) Iron

7. What is the general trend in the melting and boiling points of metals as you move across the periodic table from left to right?

Answer: As you move across the periodic table from left to right, the melting and boiling points of metals generally increase due to stronger metallic bonds as the number of delocalised electrons increases.

8. Look at the image of the metallic bonding structure shown below. Explain how the movement of metal ions in the structure contributes to the malleability of metals.

Answer: The layers of metal ions in the giant metallic structure can slide over each other when a force is applied. This allows metals to be hammered into different shapes without breaking, which makes them malleable.

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