

Grade 10 Chemistry Worksheet: Metals

Instructions:

This worksheet is designed to assess your understanding of metals as per the Cambridge IGCSE curriculum framework. Read each question carefully and answer to the best of your ability.

Questions

Q 1) Which of the following properties is NOT typical of metals?

- a) High electrical conductivity
- b) Malleability
- c) Ductility
- d) Brittle at room temperature

Q 2) Fill in the blank:

Metals tend to _____ electrons in chemical reactions, forming positive ions known as cations.

Q 3) True or False:

All metals react with water to produce hydrogen gas.

Q 4) Describe the process of electrolysis and its application in extracting metals from their ores.

(Your answer should include at least two key points.)

Q 5) Which of the following metals is most likely to be extracted from its ore using electrolysis?

- a) Iron
- b) Copper
- c) Aluminum
- d) Gold

Q 6) Explain why alloys are often used instead of pure metals. Provide two reasons.

Q 7) Consider the following metals: sodium, magnesium, and copper. Arrange them in order of reactivity from most reactive to least reactive and justify your answer.

Q 8) A metal has a melting point of 660°C and is commonly used in electrical wiring and cookware. Identify the metal and provide two of its properties that make it suitable for these applications.

Q 9) What is the significance of the reactivity series of metals in predicting the outcome of displacement reactions? Provide an example to illustrate your explanation.

Q 10) A student conducts an experiment to investigate the reaction of zinc with hydrochloric acid. Write a balanced chemical equation for this reaction and explain the observable changes that occur during the reaction.

Answer Key

QUESTION NUMBER	ANSWER
Q 1	d) Brittle at room temperature
Q 2	lose
Q 3	False
Q 4	Electrolysis is a process that uses electrical energy to break down compounds. It is used to extract metals from ores, particularly those that are too reactive to be obtained by reduction with carbon.
Q 5	c) Aluminum
Q 6	Alloys are stronger than pure metals and have improved corrosion resistance.
Q 7	Sodium > Magnesium > Copper.

	Sodium is the most reactive while copper is the least reactive due to its position in the reactivity series.
Q 8	The metal is Aluminum. Properties: Lightweight and excellent electrical conductivity.
Q 9	The reactivity series helps predict which metal will displace another in a reaction. For example, zinc can displace copper in copper sulfate solution.
Q 10	$\text{Zn} + 2 \text{HCl} \rightarrow \text{ZnCl}_2 + \text{H}_2$ <p>Observable changes include fizzing or bubbling due to hydrogen gas</p>

production
and the
solution
becoming
colorless as
zinc
chloride
forms.