

# Learnzy Academy

## Worksheet: Metals and Non-metals

1. Write equations for the reactions of (i) iron with steam (ii) calcium and potassium with water
2. A man went door to door posing as a goldsmith. He promised to bring back the glitter of old and dull gold ornaments. An unsuspecting lady gave a set of gold bangles to him which he dipped in a particular solution. The bangles sparkled like new but their weight was reduced drastically. The lady was upset but after a futile argument the man beat a hasty retreat. Can you play the detective to find out the nature of the solution he had used?
3. What are alloys?
4. Give reasons (a) Platinum, gold and silver are used to make jewellery. (b) Sodium, potassium and lithium are stored under oil. (c) Aluminium is a highly reactive metal, yet it is used to make utensils for cooking. (d) Carbonate and sulphide ores are usually converted into oxides during the process of extraction.
5. What would you observe when zinc is added to a solution of iron(II) sulphate? Write the chemical reaction that takes place.
6. Define the following terms. (i) Mineral (ii) Ore (iii) Gangue
7. Differentiate between metal and non-metal on the basis of their chemical properties.
8. You are given a hammer, a battery, a bulb, wires and a switch. (a) How could you use them to distinguish between samples of metals and non-metals? (b) Assess the usefulness of these tests in distinguishing between metals and non-metals.
9. In the electrolytic refining of a metal M, what would you take as the anode, the cathode and the electrolyte?
10. Which of the following pairs will give displacement reactions? (a) NaCl solution and copper metal (b) MgCl<sub>2</sub> solution and aluminium metal (c) FeSO<sub>4</sub> solution and silver metal (d) AgNO<sub>3</sub> solution and copper metal
11. Food cans are coated with tin and not with zinc because (a) zinc is costlier than tin. (b) zinc has a higher melting point than tin. (c) zinc is more reactive than tin. (d) zinc is less reactive than tin.
12. Explain the meanings of malleable and ductile
13. Why is sodium kept immersed in kerosene oil?
14. Name two metals which will displace hydrogen from dilute acids, and two metals which will not.
15. Write the electron-dot structures for sodium, oxygen and magnesium.
16. Why do ionic compounds have high melting points?

17. State two ways to prevent the rusting of iron.
18. Which of the following methods is suitable for preventing an iron frying pan from rusting?  
(a) Applying grease (b) Applying paint (c) Applying a coating of zinc (d) All of the above
19. What type of oxides are formed when non-metals combine with oxygen?
20. Give an example of a metal which (i) is a liquid at room temperature. (ii) can be easily cut with a knife. (iii) is the best conductor of heat. (iv) is a poor conductor of heat.