Worksheet: Metals and Non-metals

1. Name two metals which are found in nature in the free state.
2. Which metals do not corrode easily?
3. Write equations for the reactions of (i) iron with steam (ii) calcium and potassium with water
4. Define the following terms. (i) Mineral (ii) Ore (iii) Gangue
5. In the electrolytic refining of a metal M, what would you take as the anode, the cathode and the electrolyte?
6. 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.
7. What are alloys?
8. What would you observe when zinc is added to a solution of iron(II) sulphate? Write the chemical reaction that takes place.
9. Name two metals which will displace hydrogen from dilute acids, and two metals which will not.
10. 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
11. What type of oxides are formed when non-metals combine with oxygen?
12. Which of the following pairs will give displacement reactions? (a) NaCl solution and copper metal (b) MgCl■ solution and aluminium metal (c) FeSO■ solution and silver metal (d) AgNO■ solution and copper metal
13. Give reasons why copper is used to make hot water tanks and not steel (an alloy of iron).
14. 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.
15. Why is sodium kept immersed in kerosene oil?
16. Show the formation of Na■O and MgO by the transfer of electrons.
17. What are amphoteric oxides? Give two examples of amphoteric oxides.
18. What chemical process is used for obtaining a metal from its oxide?

19. 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?
20. You must have seen tarnished copper vessels being cleaned with lemon or tamarind juice. Explain why these sour substances are effective in cleaning the vessels.