

## Worksheet (Is Matter Around Us Pure?)

1. What is the general name of the materials which contain at least two pure substances and show the properties of the constituents?
2. Which of the following is a mixture?  
Salt, Air, Water, Alum, Sugar
3. Classify the following into elements and compounds:  
a.  $\text{H}_2\text{O}$             b. He            c.  $\text{Cl}_2$             d. CO            e. Co
4. Name the property:  
(a) Which allows metals to be hammered into thin sheets.  
(b) Which enables metals to be drawn into wires.
5. Which of the following are 'pure substances'?  
Ice, Milk, Iron, Hydrochloric acid, Calcium oxide, Mercury, Brick, Wood, Air
6. What is the other name for impure substances? Give two examples of impure substances.
7. State three reasons why you think air is a mixture and water is a compound.
8. Explain why, hydrogen and oxygen are considered elements whereas water is not considered an element.
9. Compare the properties of metals and non- metals with respect to  
(i) malleability (ii) ductility, and (iii) electrical conductivity
10. Choose the solutions from among the following mixtures:  
Soil, Sea-water, Air, Coal, Soda-water
11. Give two reasons for supposing that water is a compound and not a mixture.
12. List five characteristics by which compounds can be distinguished from mixtures.
13. (a) Differentiate between homogeneous and heterogeneous mixtures.  
(b) Classify the following materials as homogeneous mixtures and heterogeneous mixtures.  
Soda-water, Wood, Air, Soil, Vinegar, Alcohol and water mixture, Petrol and water mixture, Chalk and water mixture, Sugar and water mixture, Copper sulphate solution.

14. Classify the following into metals, non-metals and metalloids:  
Silicon, Mercury, Diamond, Sulphur, Iodine, Germanium, Sodium, Carbon, Magnesium, Copper, Boron, Helium
15. Draw a flow chart for the schematic representation of different types of matter.
16. Out of a colloid, solution and a suspension:
  - (a) Which one has the smallest particles?
  - (b) Which one has the largest particles?
17. Calculate the concentration of solution which contains 2.5 g salt dissolved in 50 g water.
18. A solution contains 5.6 mL of alcohol mixed with 75 mL of water. Calculate the concentration of this solution.
19. What happens when the temperature of a saturated sugar solution is increased?
20. Which of the two will scatter light: soap solution or sugar solution ? Why?
21. Define (a) solute, and (b) solvent
22. What is the difference between solutions and colloids?
23. What is the difference between colloids and suspensions?
24. Classify the following into true solutions and colloidal solutions:  
Ink, Salt solution, Starch, Blood, Sugar Solution
25. Explain what happens when a beam of light is passed through a colloidal solution.
26. Which of the following will show Tyndall Effect and why?
  - (a) Salt solution (b) Starch solution (c) Milk (d) Copper sulphate solution
27. Classify the following as physical or chemical changes:
  - (i) Cooking of food                      (ii) Boiling of water                      (iii) Cutting of trees
  - (iv) Dissolving salt in water      (v) Digestion of food                      (vi) Melting of ice
28. Name the process by which the various gases of the air are separated.
29. Name any two solid substances whose mixture can be separated by sublimation.
30. How will you separate a mixture of chalk powder and water?
31. Name the process which can be used to recover salt from an aqueous salt solution.
32. Name the process you would use to separate ammonium chloride from a mixture of sodium chloride and ammonium chloride.
33. Name the process which is used in milk dairies to separate cream from milk.
34. Name the process you would use to separate a mixture of water and alcohol.

35. Name the apparatus you would use to separate oil from water.
36. What differences in the properties of oil and water enable their separation by a separating funnel?
37. Name the process by which can be used to purify an impure sample of copper sulphate.
38. Name the process by which the various 'dyes' (coloured materials) present in black ink can be separated.
39. How will you separate a mixture of sodium chloride and sand?
40. How would you separate iodine from a mixture of iodine and common salt?
41. How will you separate a mixture of iron filings and powdered carbon?
42. A mixture contains water, kerosene and sand . How will you separate this mixture?
43. How is cream separated from milk?
44. Explain how, impure copper sulphate can be purified by crystallisation.
45. What is chromatography? State its two applications.
46. With the help of a labelled diagram, describe the method of separating ammonium chloride from a mixture of ammonium chloride and common salt. Mention the difference in the properties of ammonium chloride and sodium chloride which has made this separation possible.
47. How can you obtain pure water from a salt-water mixture (or salt-solution)? Draw a neat and labelled diagram of the apparatus you would use to obtain pure water from a salt-water mixture (or salt-solution).
48. How is water purified on a large scale at water works? Explain with the help of a labelled diagram. Name the substance which is added to kill germs in the drinking water supply?
49. (a) What is fractional distillation? What is the use of fractionating column in fractional distillation?  
(b) Draw a labelled diagram of the fractional distillation apparatus used for separating a mixture of alcohol and water.
50. (a) Explain how, nitrogen, oxygen and argon gases are separated from air.  
(b) Draw a flow diagram of the processes involved in obtaining gases like nitrogen, oxygen and argon from air.