

## UNIT 1 TEST: MATTER

## True/False

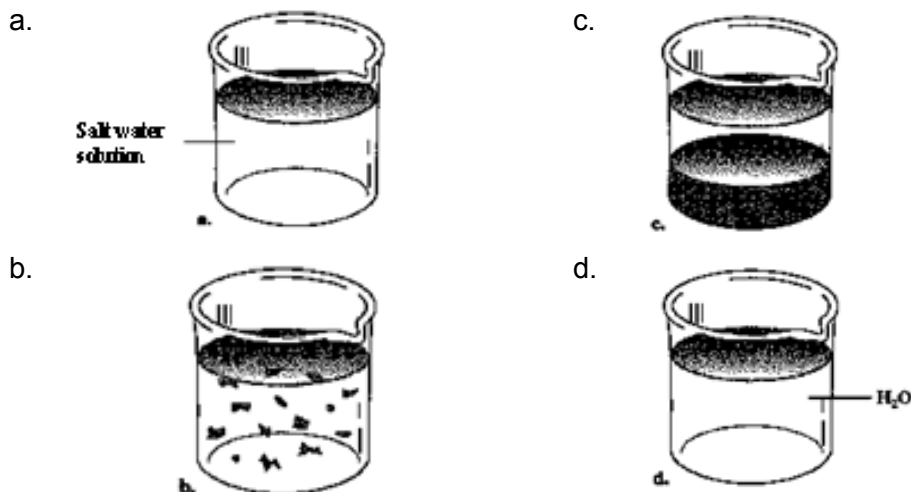
*Indicate whether the sentence or statement is true or false.*

- \_\_\_\_\_ 1. Burning wood is a chemical change.
- \_\_\_\_\_ 2. Gases are more compressible than liquids or solids.
- \_\_\_\_\_ 3. Water is an element.
- \_\_\_\_\_ 4. Solids take the shape of their container, but maintain constant volume.

### Multiple Choice

Identify the letter of the choice that best completes the statement or answers the question.

5. Which beaker illustrated below best represents a **homogeneous** mixture?



- \_\_\_\_\_ 6. Matter includes all of the following EXCEPT
- a. air. c. smoke.
- b. light. d. water vapor.
- \_\_\_\_\_ 7. Which of the following is NOT a sign that a chemical reaction has taken place?
- a. Formation of a solid c. Formation of a gas
- b. Color change d. Melting
- \_\_\_\_\_ 8. The unit  $\text{cm}^3$  measures
- a. length. c. volume.
- b. mass. d. density.

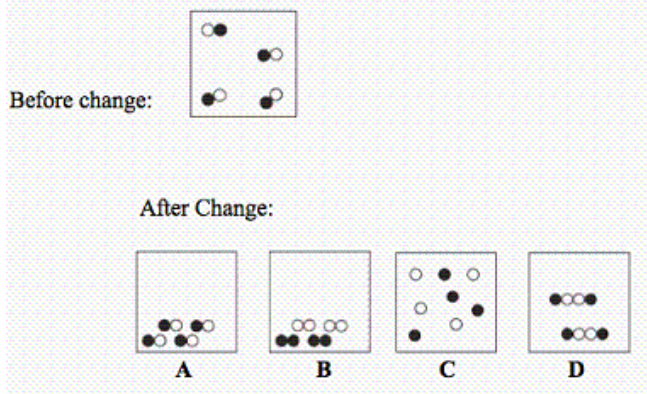
- \_\_\_\_ 9. A student makes a list of some observable properties of a substance.

Students' List of Properties

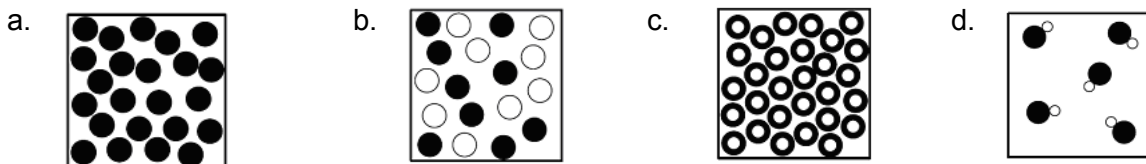
- 1) silver in color
- 2) shiny
- 3) conducts electricity
- 4) forms a compound with sulfur

Which of the student's listed properties is a chemical property of the substance?

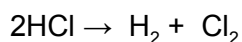
- a. 1
  - b. 2
  - c. 3
  - d. 4
- \_\_\_\_ 10. If a substance can't be broken down physically but it CAN be broken down chemically, it is classified as a \_\_\_\_.
- a. element
  - b. heterogeneous mixture
  - c. compound
  - d. homogeneous mixture
- \_\_\_\_ 11. The first diagram represents four molecules of a substance before any change has occurred. Which diagram best represents the same substance after a **physical** change has occurred?



- a. A
  - b. B
  - c. C
  - d. D
- \_\_\_\_ 12. A sample of water taken from a local lake (where floating particles are present) would be best described as a \_\_\_\_.
- a. homogeneous mixture.
  - b. heterogeneous mixture.
  - c. pure substance.
  - d. compound.
- \_\_\_\_ 13. Which of the following is NOT a pure substance?



- \_\_\_\_\_ 14. The following chemical equation shows that HCl acid can be broken down into its individual components through **chemical** means.



HCl is classified as-

- a. element  
b. solution  
c. mixture  
d. compound
- \_\_\_\_\_ 15. The mass of matter per unit volume is
- a. mass.  
b. weight.  
c. inertia.  
d. density.
- \_\_\_\_\_ 16. Four watch glasses, labeled 1, 2, 3, and 4, each held a few crystals of four different white solid substances. Equal numbers of drops of a dilute acid were added to each of the dishes. Nothing else was done to the containers. The results are listed in the given table.

Watch Glass	Results after acid was added
1	No change
2	Bubbles released
3	Substance dissolved
4	Container became warmer

Which of these MOST likely reflects a physical change?

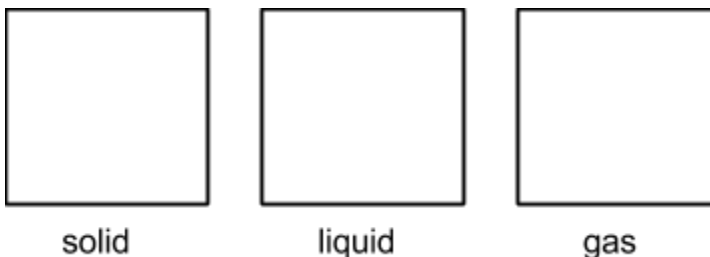
- a. 1  
b. 2  
c. 3  
d. 4
- \_\_\_\_\_ 17. Which description of the states of matter is accurate?
- a. Only gases have an indefinite shape.  
b. Liquids have a definite volume and a definite shape.  
c. Gases have an indefinite shape and a definite volume.  
d. Solids have a definite shape and a definite volume.
- \_\_\_\_\_ 18. Which statement describes a chemical property?
- a. Its crystals are a metallic gray.  
b. It dissolves in alcohol.  
c. It boils at 273K.  
d. It reacts with carbon to form a gas.

### Short Answer

19. A block of aluminum occupies a volume of 15.0 mL and weighs 40.5 g. What is its density?

20. What is the mass of the ethyl alcohol that exactly fills a 200.0 mL container? The density of ethyl alcohol is 0.789 g/mL.

21. Draw a representation of the particles in a solid, liquid and a gas.



22. Matter can have a **definite** or **indefinite** shape and volume depending upon the state of matter. A liquid has \_\_\_\_\_ shape and \_\_\_\_\_ volume.

23. Choose one of the following physical or chemical changes and circle it. Say whether it is a physical or chemical change and then explain why.

- a. Baking a cake
- b. Melting a popsicle

- c. A nail rusting
- d. Water condensing on a cold glass

Physical or Chemical change: \_\_\_\_\_

Why? \_\_\_\_\_

\_\_\_\_\_

24. What is one question you thought would be on this test but wasn't? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

How would you have answered that question? \_\_\_\_\_

\_\_\_\_\_

EXTRA CREDIT: Draw a particle diagram of a pure element and a homogeneous mixture:



pure substance



homogeneous mixture

