

Name: \_\_\_\_\_

### Pure Substances

1. Is the following sentence true or false?  
Every sample of a pure substance has exactly the same composition and the same properties.
2. What are the two categories of pure substances? \_\_\_\_\_
3. What is an element? \_\_\_\_\_
4. Is the following sentence true or false? The smallest particle of an element is a molecule.
5. What is a compound? \_\_\_\_\_

### Mixtures

6. A \_\_\_\_\_ mixture is a mixture whose parts are noticeably different from one another.
7. Is the following sentence true or false? A homogeneous mixture is a mixture in which it is difficult to distinguish the substances from one another.

### Solutions, Suspensions, and Colloids

8. A \_\_\_\_\_ can be classified as a solution, a suspension, or a colloid based on the size of its particles.
9. Circle the letter of the term that identifies the homogeneous mixture that forms when sugar is dissolved in a glass of hot water. a. solution b. suspension c. colloid d. substance
10. Circle the letter before each example of a colloid.  
a. windshield wiper fluid b. fog c. Kool aid d. muddy water
11. Is the following sentence true or false? If salt water is poured through a filter, the salt will be trapped on the filter.

### Examples of Physical Properties

12. A \_\_\_\_\_ property is any characteristic of a material that can be observed or measured without changing the of the substances in the material.
13. Explain why a wooden spoon is a better choice than a metal spoon for stirring a boiling pot of soup.
14. Is the following sentence true or false?  
A liquid with a low viscosity flows more slowly than a liquid with a high viscosity at the same temperature.
15. Is the following sentence true or false?  
Discovering which of two materials can scratch the other is a way to compare the hardness of the materials.

### Match the term to its definition

1. ___ viscosity	a) The ability of a solid to be hammered without shattering
2. ___ conductivity	b) The temperature at which a substance changes from a liquid to a gas
3. ___ melting point	c) The ability to allow heat to flow
4. ___ malleability	d) The temperature at which a substance changes from a solid to a liquid
5. ___ boiling point	e) The resistance of a liquid to flowing
6. ___ density	f) The ratio of the mass of a substance to its volume

### Using Physical Properties

16. Is the following sentence true or false? Usually, people consider only one property when choosing a material.
17. Two processes that are commonly used to separate mixtures are \_\_\_\_\_ and \_\_\_\_\_.
18. Explain how filtration separates materials based on the size of their particles.
19. Explain why distillation works for converting seawater into fresh water.

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### Recognizing Physical Changes

20. Is the following sentence true or false? In a physical change, some of the substances in a material change, but the properties of the material stay the same.
21. Explain why the boiling of water is a physical change.
22. Circle the letter for each process that is a reversible physical change.  
a. Burning a hole in a shirt      b. freezing water      c. cutting hair      d. peeling an orange

### Solids, Liquids, and Gases

23. What are three common states of matter?
24. Is the following sentence true or false? The fact that a copper wire can be bent shows that some solids do not have a definite shape.
25. Circle the letter of each phrase that describes how particles at the atomic level are arranged within most solids.  
a. randomly arranged      b. packed close together      c. arranged in a regular pattern      d. spaced far apart
26. Is the following sentence true or false? A solid takes the shape of its container.
27. Compare and contrast the arrangement of particles for a liquid and a solid.
28. What determines the shape and volume of a gas? \_\_\_\_\_
29. Complete the table about states of matter.

State	Shape	Volume
	Definite	
Liquid		
		Not definite

### Kinetic Theory

30. Circle the letter of the phrase that describes all particles of matter in the kinetic theory of matter.  
a. randomly arranged      b. constant temperature      c. in constant motion      d. orderly arrangement

### Characteristics of Phase Changes

31. What is a phase change?

Match the term to its definition

- a. Solid to gas      b. Liquid to gas      c. Gas to solid      d. Liquid to solid      e. Gas to liquid      f. Solid to liquid
- \_\_\_ freezing      \_\_\_ sublimation      \_\_\_ condensation  
\_\_\_ deposition      \_\_\_ vaporization      \_\_\_ melting

32. As water freezes, it releases heat to its surroundings. Freezing is an example of a(n) \_\_\_\_\_ change.
33. Vaporization is the phase change in which a substance changes from a(n) \_\_\_\_\_ into a(n) \_\_\_\_\_.
34. The phase change in which a substance changes from a gas into a liquid is called \_\_\_\_\_.
35. Is the following sentence true or false? A gas absorbs energy as it changes into a liquid.
36. Dry ice can change directly from a solid to a gas without forming a liquid first. This process is an example of \_\_\_\_\_.