

**On-level Matter Test Review (Test #1)**

**States of Matter**

Matching! Identify each property as true for solid, liquid, gas, or aqueous (you can just write s, l, g, or aq). Some questions may have more than one correct answer! Each answer will be used more than once!

1. l, aq ← acts like a liquid  
 Particles take shape of their container. (2!)

2. s, l (same)  
 Particles have definite volume. (2!)

3. g  
 Particles move rapidly. (fast)

4. g (not same)  
 Particles have indefinite volume.

5. aq  
 One example is salt in saltwater. (something dissolved in water)

6. g  
 Particles can easily be squished closer together.

7. s  
 Particles keep their own shape no matter what container they're in.

8. s  
 Particles have little movement. (vibrate)

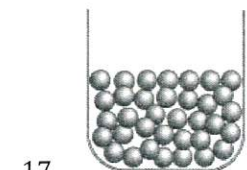
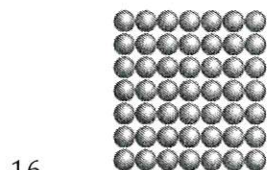
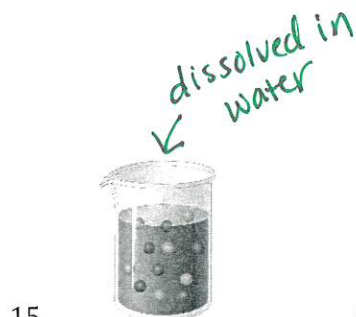
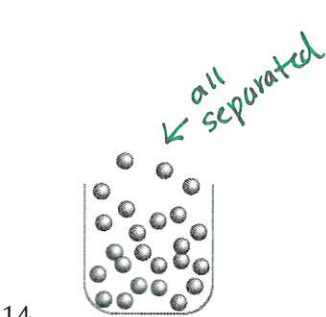
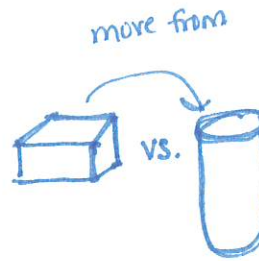
9. l  
 Particles are fluid.

10. g  
 Example: oxygen at room temperature.

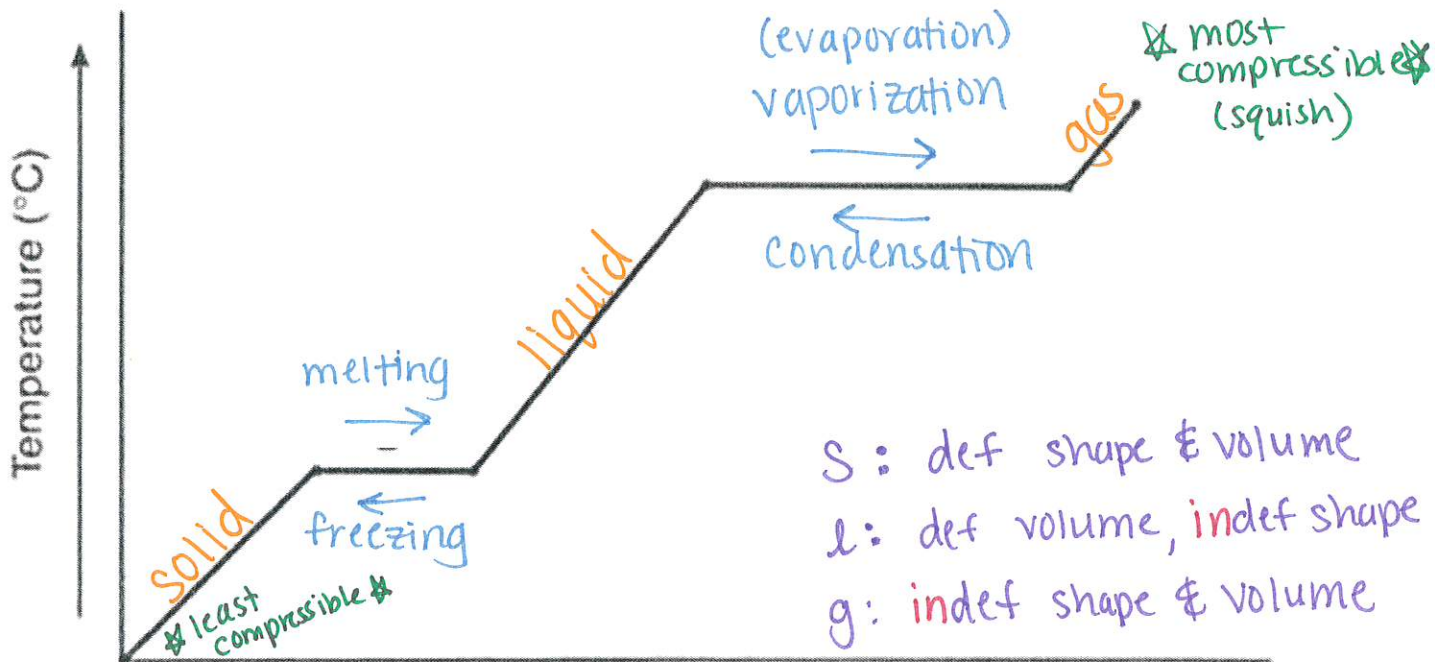
11. s same  
 Particles have definite shape.

12. s  
 Particles are the least compressible.

13. g  
 Particles spread out to fill their entire container.



18. Label the graph below with all the words in the word bank.



| Word Bank         |                    |                   |                 |         |
|-------------------|--------------------|-------------------|-----------------|---------|
| condensation      | liquid             | vaporization      | solid           | melting |
| most compressible | gas                | indefinite volume | freezing        |         |
| definite shape    | least compressible | indefinite shape  | definite volume |         |

19. Hydrogen peroxide decomposes into hydrogen gas and oxygen gas.



Physical or chemical change? C Why?

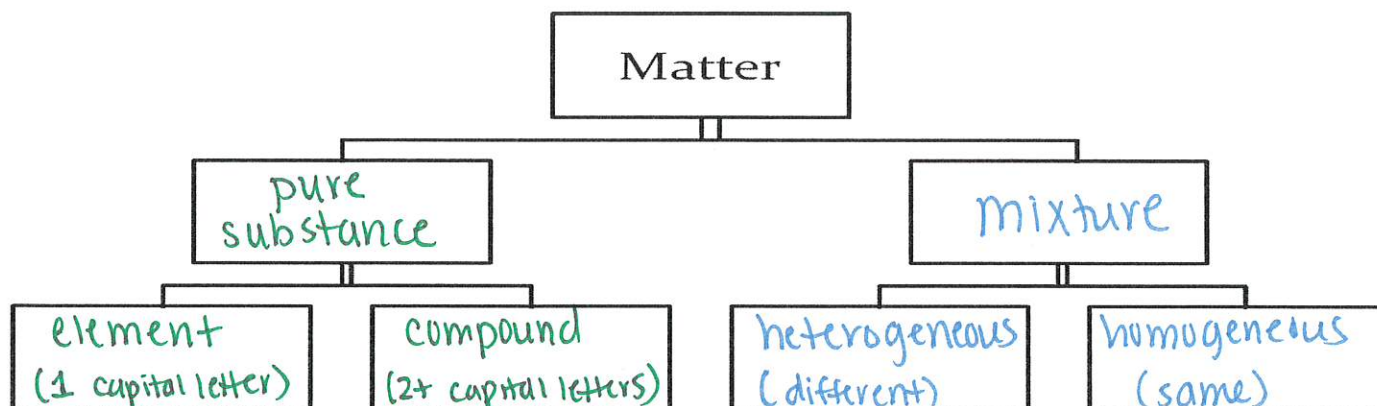
- decomposes
- creates new substance
- identity has changed

20. Ethanol evaporates.



Physical or chemical change? P Why?

- evaporates
- phase change
- vaporization
- change of state
- does not create new substance
- identity has not changed



21. How do you distinguish between a mixture and a pure substance?

2+ things/substances → only 1 thing/substance

22. How is an element different from a compound?

1 capital letters → 2+ capital letters stuck together

23. What is the difference between physical and chemical properties?

does not change substance → creates a chemical change

24. Fill in the chart by checking all that apply.

| Property   | Physical Property | Chemical Property | Extensive Property | Intensive Property |
|--|-------------------|-------------------|--------------------|--------------------|
| magnetism  | ✓                 |                   |                    | ✓                  |
| malleability (can be hammered thin without breaking) | ✓                 |                   |                    | ✓                  |
| temperature  | ✓                 |                   |                    | ✓                  |
| flammability   |                   | ✓                 |                    | ✓                  |
| red color  | ✓                 |                   |                    | ✓                  |
| reacts violently with sodium                         |                   | ✓                 |                    | ✓                  |
| length   | ✓                 |                   | ✓                  |                    |
| mass   | ✓                 |                   | ✓                  |                    |
| produces a <u>different</u> gas when heated          |                   | ✓                 |                    | ✓                  |



25. Identify each of the following as: element (E), compound (C), heterogeneous (He) or homogeneous (Ho).

- a) Steel alloy (Fe & C)  $\downarrow \downarrow$  Ho 2 things & same color  
b) Carbon dioxide (CO<sub>2</sub>) C 1 thing & 2 capital letters  
c) Granite (type of rock) He see at least 2 different colors  
d) Chocolate milk Ho 2 things but same brown color  
e) Liquid nitrogen (N<sub>2</sub>) E 1 thing, 1 capital letter

26. A cup of gold colored metal beads was measured to have a mass 633 grams. By water displacement, the volume of the beads was calculated to be 56.0 mL. Given the following densities, identify the metal. Show your work.

Aluminum: 2.70 g/mL  
Lead: 11.3 g/mL  
Platinum: 21.4 g/mL

$$d = \frac{m}{V} = \frac{633}{56} = 11.3 \text{ g/mL}$$

27. a. A cube measuring 25.88 cm<sup>3</sup> has a density of 19.3 g/cm<sup>3</sup>. What is the mass? Show your work.

$$d = \frac{m}{V} \quad 19.3 = \frac{m}{25.88} \quad m = 499.48 \text{ g}$$

b. The density of water is 1.0 g/cm<sup>3</sup>. Would the cube float or sink in water? How do you know?

sink density = 19.3 g/cm<sup>3</sup> greater than 1 g/cm<sup>3</sup>

(needs to be less than 1 to float)