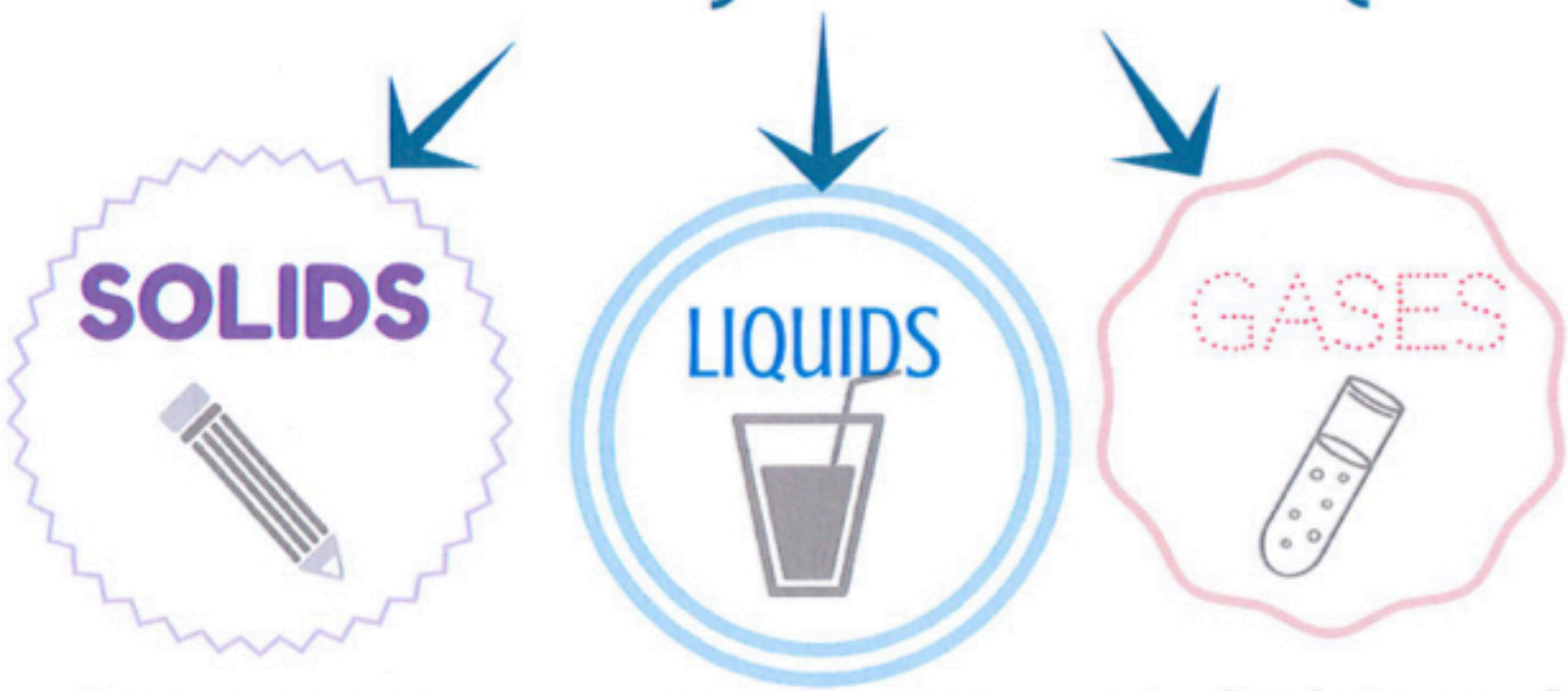
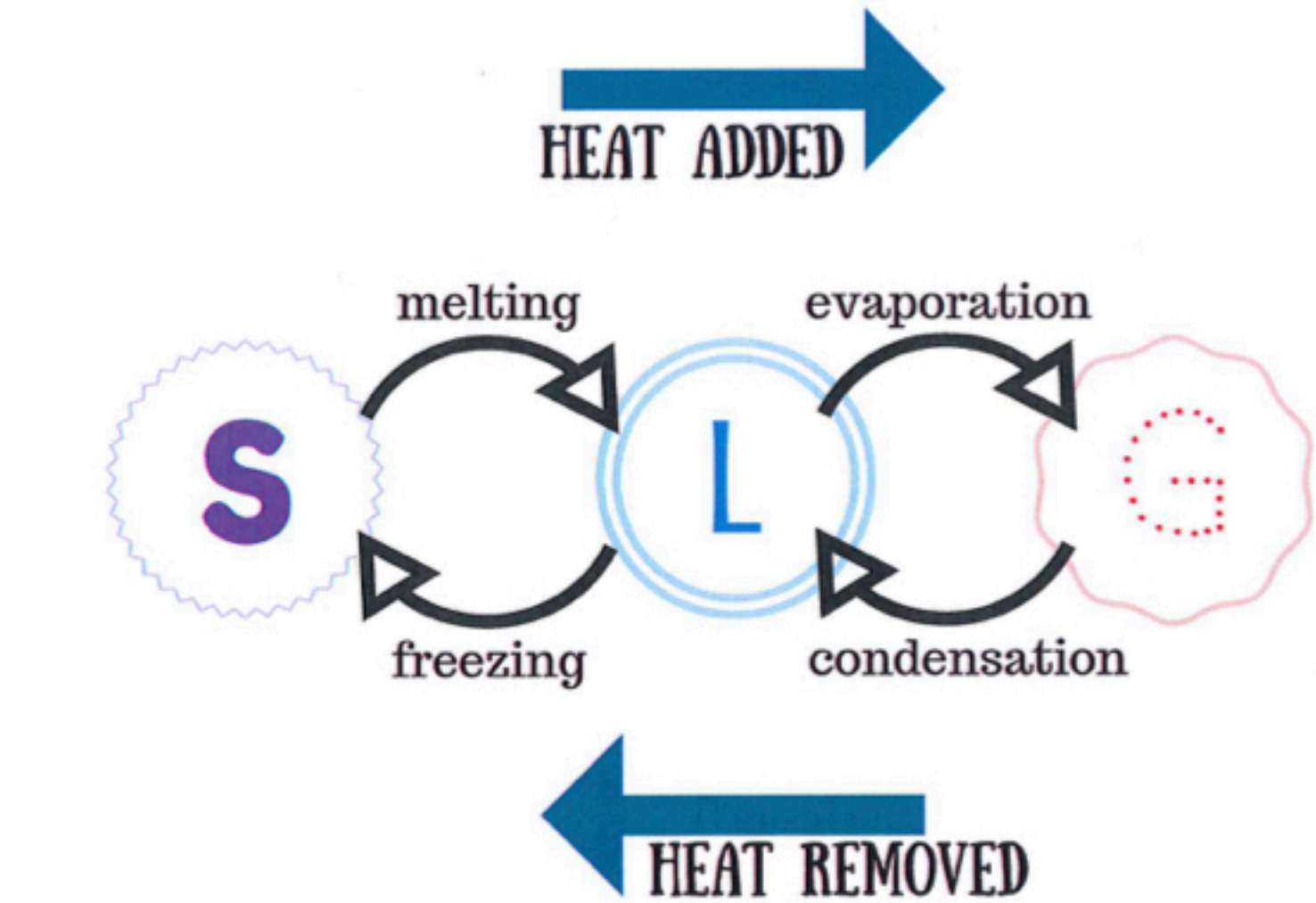
WHAT'S THE MATTER?



fixed shape and fixed volume

not a fixed shape and fixed volume

not a fixed shape and not a fixed volume



MASS, VOLUME, & DENSITY

MASS: The amount of matter in an object.
A scale is used to find the mass of different objects.
The unit of mass is grams (g).

VOLUME: The amount of space something takes up.
The unit of volume is liters (l) or centimeters (cm).

$$V = \text{length} \times \text{width} \times \text{height}$$

DENSITY: The amount of mass in a given volume.

$$D = \frac{m \text{ (mass)}}{V \text{ (volume)}}$$

Lets calculate the density of the Learning Box below!

The mass is 800 g, length is 10 cm, height 3 cm and the width is 4 cm.

Physical vs Chemical

PHYSICAL PROPERTIES

Matter you can see without changing the identity of the substances that make it up.

- Changes shape
- Silver in color
- Density: 7.87
- Boiling point: 3,000• C
- Melting point: 1,536• C

CHEMICAL PROPERTIES

A substance can or cannot combine with or change into one or more new substances.

- Iron can rust
- Reacts with acid

PHYSICAL CHANGE

A change in the size, shape, form or matter that does not change the matters identity.

CAN reverse!

EXAMPLES

melting
boiling
mixing
dissolving

changing shape
changing state

CHEMICAL CHANGE

A change in which something new is made with different properties.

CANNOT reverse!

EXAMPLES

burning
rusting
rotten food
digestion

SIGNS

release a gas
color change
solid forms
heat is released

PRACTICE-MATTER

1. Aisha left her bicycle in the garden for a few weeks. The bicycles' color changed to an orange color. What is the type of change that happened? How did you know?

_____

_____

2. Determine whether each picture is a physical or chemical change.

_____

_____

_____

_____

_____

_____

Revision Sheets

Chapter 7 Matter and Its Properties

Answer the following questions.

Part A- True/False
Indicate whether the statement is true or false.

____ 1. Ice, liquid water, and water vapor are the three states of water.

____ 2. The odor of a substance is an example of a physical property.

____ 3. Physical changes are difficult or impossible to reverse.

____ 4. Sugar dissolved in tea, and sugar in a bowl, are not the same substance.

____ 5. Weight is defined as the amount of space that matter takes up.

____ 6. Copper is a metal and is a conductor of electricity.

____ 7. A liquid will begin to solidify at its freezing point.

Part B- Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 8. Which is not a physical change?

a. tearing paper
b. baking a cake
c. crushing ice
d. cutting an apple

____ 9. Chopping a piece of wood and burning it demonstrates _____.

a. a chemical change followed by a physical change
b. a physical change followed by a chemical change
c. kinetic energy changes into potential
d. kinetic energy changes into chemical

___ 10. The table shows the masses and volumes of three substances, which are named A, B, and C.

Substance	Mass (grams)	Volume (cubic centimeters)
A	2.4	2.0
B	3.1	2.0
C	2.0	2.0

Along with mass, what property must be different for all three substances?

a. density
b. volume
c. odor
d. color

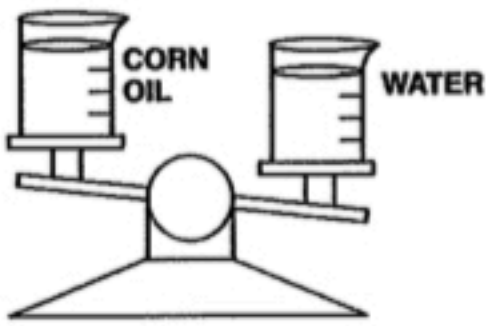
___ 11. In which state do particles spread apart quickly in all directions?

a. solid
b. liquid
c. gas
d. plasma

___ 12. The temperature at which ice melts is called _____.

a. boiling point
b. melting point
c. 50 °C
d. evaporation

___ 13. A beaker of corn oil was put on one side of a balance and the same size beaker of water was put on the other side of the balance. What can be concluded about corn oil and water from looking at the picture?



a. Corn oil and water have the same density.
b. Corn oil weighs less than water.
c. Corn oil weighs more than water.
d. Water and corn oil have the same weight.

___ 14. Which is a chemical change?

a. change in shape
b. mixture
c. forming a new substance
d. boiling water

___ 15. The change of a liquid to a gas as heat is applied is called _____.

a. evaporation
b. boiling
c. condensation
d. melting

___ 16. The color, odor, and density of a substance are all _____.

a. imagined properties
b. material properties
c. physical properties
d. chemical properties

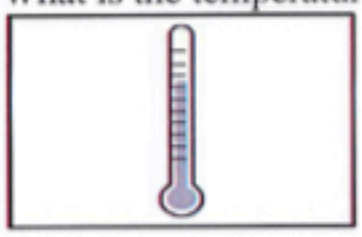
___ 17. Which is <u>not</u> a physical property?

a. hardness
b. strength
c. density
d. flammability

___ 18. Which state of matter has no definite shape and does not take up a definite amount of space?

a. gas
b. plasma
c. solid
d. liquid

___ 19. What is the temperature at which a substance changes from a liquid to a gas?



a. melting point
b. dew point
c. condensation point
d. boiling point

Part C- Matching

Match each term with its correct description by writing the letter on the line.

a. gas
b. liquid
c. density
d. mass
e. physical property
f. solid
g. volume
h. weight

___ 20. The amount of matter in an object.

___ 21. The measurement of the pull of gravity on an object.

____ 22. The amount of space that matter takes up.

____ 23. Matter that has a definite shape and occupies a definite amount of space.

____ 24. Matter that takes up a definite amount of space but has no definite shape

____ 25. Matter that has no definite shape and does not take up a definite amount of space.

____ 26. The measurement of how much mass fits within a certain volume.

____ 27. A property that can be observed without changing the identity of a substance.

Part D- Short Answer
Answer each question using the space provided.

28. Density can be calculated using an object's _____ and _____.

29. Describe three physical properties that can help to identify copper.

30. The evaporation of water is an example of a change in _____.