

## SOL 5.7 – MATTER

Matter is anything that has mass and takes up space; and occurs as a solid, liquid, or gas. Key concepts:

- matter is composed of atoms;
- substances can be mixed together without changes in their physical properties; and
- energy has an effect on the phases of matter.

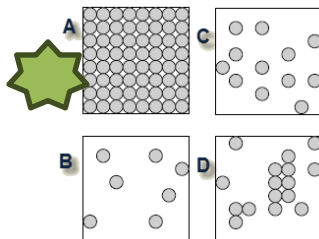
### SOLID-LIQUID-GAS – PHASES OF MATTER

1. The circles in the bottles represent the same particles of matter. Which pattern of particles represents a gas in a bottle?

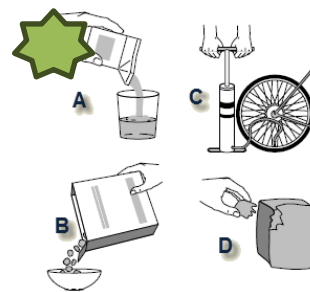


2. What will happen if the lid is removed from a container that holds helium gas?
- The gas will expand and escape from the container.
  - The gas will slowly change back into a liquid.
  - When light hits the gas, it will change colors.
  - Gravity will keep the gas in the container.
3. Oxygen, nitrogen, and carbon dioxide may be grouped together because at room temperature they are all a —
- solid
  - liquid
  - gas
  - colloid
4. Which of these will happen if the temperature of a metal pan is increased?
- The pan will begin to lose heat.
  - The tiny particles that make up the pan will move faster.
  - The metal will change into another metal.
  - The pan will contract.

5. Which of the diagrams best shows the arrangement of molecules in a solid?

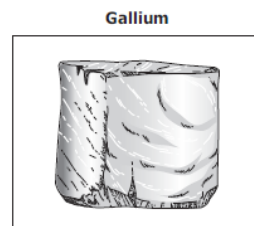


6. Which picture shows a liquid at room temperature?



7. Gallium is a metal that melts at about 30°C. If a person, whose body temperature is 37°C, held a cube of gallium for five minutes, what will most likely happen to the gallium?

- It will change to a gas.
- It will change to a liquid.
- It will become a solution.
- It will become a mixture.



8. When ice cream is left out of a freezer, the ice cream changes from a —
- solid to a gas
  - gas to a liquid
  - solid to a liquid
  - liquid to a gas
9. Which of these shows how frozen water changes as the temperature of the air increases?
- Gas → liquid → solid
  - Solid → gas → liquid
  - Liquid → gas → solid
  - Solid → liquid → gas
10. Which of these will change solid iron to a liquid?
- Raising the air pressure
  - Increasing its temperature
  - Crushing the solid iron
  - Adding water to the iron
11. Which of the following changes is possible with the addition of heat?
- Liquid water changes to ice.
  - Water vapor changes to ice.
  - Water vapor changes to liquid water.
  - Ice changes to liquid water.

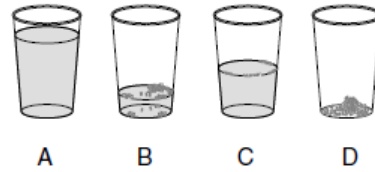
## ATOMS

12. Water, ice, and steam are alike because they —

- a. are the same substance
- b. have the same shape
- c. look the same
- d. feel the same

13. The smallest particle of matter is —

- a. the atom
- b. the molecule
- c. the cell
- d. air



18. Which set of pictures shows what happens to a glass of salt water when it is left out on a counter for several weeks?

- a. C → D → A → B
- b. A → C → B → D
- c. B → A → C → D
- d. D → B → A → C

## MIXTURES & SOLUTIONS

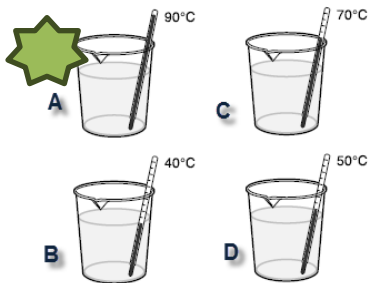
14. Which of these is a mixture?

- a. Salt
- b. Water
- c. Lemonade
- d. Sugar

15. People put sugar in their tea to make it sweet. The sugar will dissolve fastest when the tea —

- a. is hot
- b. is cold
- c. is in a tall glass
- d. has lemon in it

16. In which beaker of water will sugar dissolve the fastest?



17. A student makes a fruit drink by stirring a powdered mix into cold water. Why is the fruit drink a solution?

- a. The powder dissolves in the water.
- b. The water changes color.
- c. The student stirs the water.
- d. The water is the proper temperature.

19. When stirred, which two substances form a solution?

- a. Sand and salt
- b. Sugar and salt
- c. Sand and water
- d. Sugar and water