

1. Which could **best** be separated into simpler substances by filtration and evaporation?
 - a. Atom
 - b. Mixture**
 - c. Element
 - d. Compound
2. Which substance is composed of only one type of atom?
 - a. Water
 - b. Gold**
 - c. Salt
 - d. Sugar
3. Which of these is an element?
 - a. KBr
 - b. O₂**
 - c. 2KCl
 - d. FeO₂
4. The best way to separate salt from water is with the use of
 - a. Oil
 - b. Heat**
 - c. A magnet
 - d. Rubbing alcohol
5. In a chemical reaction, what is the **best** description of a molecule's movement when the temperature decreases?
 - a. Movement decreases**
 - b. Movement increases
 - c. Movement stays the same
 - d. There is not enough information to determine movement
6. As part of a study, a scientist observed a number of different molecular changes in matter. Which of the following observations provides evidence of a physical change?
 - a. Using heat to burn a log in a fireplace
 - b. Using light to produce sugar in plants
 - c. A cake that was baked from many ingredients
 - d. A bottle that was broken into many small pieces**
7. What is the **best** description for iron rusting quickly when exposed to water and salt?
 - a. A change of state
 - b. A chemical reaction**
 - c. A physical reaction
 - d. A change in density

8. The drawing shows solid carbon dioxide changing into carbon dioxide gas.



Which statement describes the relationship between the solid carbon dioxide and the carbon dioxide gas after all of the solid has changed to gas?

- They have the same volume
 - The gas has less volume than the solid
 - They have the same mass
 - The gas has less mass than the solid
9. When two liquids are combined, a bright red precipitate is formed. Which is true of the precipitate?
- It has a mass greater than the two liquids
 - It is formed as a result of a chemical reaction
 - It has a higher temperature than the two liquids
 - It is formed through a change in physical state of one of the solutions
10. A student kept a notebook during an investigation. Which recorded observation was most likely a physical change?
- The solution was heated for two minutes until it boiled
 - A solid formed when two liquids were mixed together
 - Two solutions were mixed and the resulting solution felt hot
 - The color of two mixed solutions changed from clear to white
11. When iron combines with oxygen in a moist environment, rust forms because of a
- Chemical reaction
 - Physical reaction
 - Change in density
 - Change in temperature
12. Which chemical change is **most likely** to involve bubbling or an odor change?
- Color change
 - Gas production
 - Precipitate formation
 - Temperature decrease

13. A flat piece of paper has a mass of 5 grams. When the paper is crumpled into a ball, the mass of the crumpled paper is
- Much more than that of the flat paper
 - Slightly more than that of the flat paper
 - The same as that of the flat paper
 - Slightly less than that of the flat paper
14. Which **best** describes a substance that changes from a liquid to a solid?
- The substance gains mass
 - The substance gains volume
 - The substance undergoes a physical change
 - The substance undergoes a chemical change
15. When water boils, water vapor is produced and escapes into the air. Which **best** describes this change?
- Melting
 - Freezing
 - Physical change
 - Chemical change
16. Which changes when gases condense to form liquids?
- Physical mass
 - Physical state
 - Chemical reactivity
 - Chemical composition
17. Which is the **best** evidence that the creation of a precipitate is the result of a chemical reaction?
- Demonstrates gas production
 - Demonstrates a temperature change
 - Demonstrates a new substance has formed
 - Demonstrates a change in state
18. A beaker contains a sample of water with a mass of 325 grams. The water in the beaker is boiled and weighed again after it cools. The new mass of the water is 305 grams. In this example of the conservation of matter in physical changes,
- The mass is less after it cools because water has less mass as a gas
 - The mass of the water was 305 grams, and the mass of the water vapor was 20 grams
 - The process of boiling destroyed 20 grams of the water and left 305 grams of water
 - The heat energy created by boiling water makes up the rest of the mass

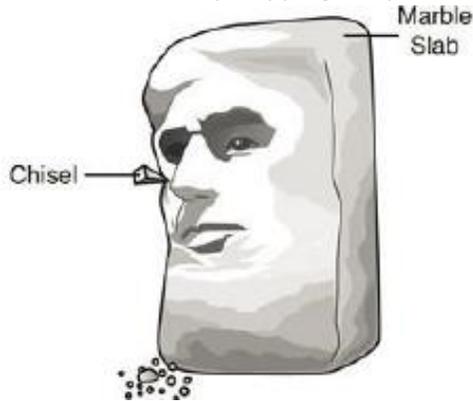
19. When two liquids are mixed together, a solid forms and settles on the bottom of the container. What can be concluded?

- a. Each liquid was a different color
- b. A chemical change has taken place
- c. The temperature of the liquids decreased
- d. The solubility of the liquids has decreased

20. A sea creature releases a liquid into the ocean that reacts with the water to form a seashell. Which process does this represent?

- a. Freezing
- b. Gas formation
- c. Change of state
- d. Precipitate formation

21. An artist carves a statue by chipping off pieces from a marble slab.



Which of these is the best reason to describe the carving as a physical change?

- a. The statue is the same substance as the slab
- b. The statue is made from a natural material
- c. The artist uses a chisel to make the statue
- d. The artist will work many hours to make the statue

22. A scientist placed a sample of lithium into a container of water. The scientist observed the lithium floating and making a buzzing sound as gas bubbles were forming around it. Which conclusion is best supported by this observation?

- a. A chemical change took place
- b. The lithium was dissolved by the water
- c. Dissolved gases were released
- d. Water was vaporized

23. Which **best** describes the type of change that occurs when liquid water freezes to become ice?

- a. Physical change in which the ice is less dense than the liquid water
- b. Chemical change in which the ice is less dense than the liquid water
- c. Physical change in which the ice is more dense than the liquid water
- d. Chemical change in which the ice is more dense than the liquid water

24) To find density we must do what?

- a. Multiply mass and volume
- b. Divide Mass and Volume
- c. Add mass and Volume
- d. Subtract mass and Volume

25) Which of the following would most likely have the greatest density?

- a. Solid
- b. Liquid
- c. Gas
- d. Plasma

26) Using the chart below, which object would most likely float on water?

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

Object	Density
A	3.08 g/mL
B	1.06 g/mL
C	0.75 cm ³
D	1.00 cm ³

27) Using the chart below, which object would most likely be suspended in water?

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

Object	Density
A	3.08 g/mL
B	1.06 g/mL
C	0.75 cm ³
D	1.00 cm ³

28) If I were to layer 6 liquids, where would I find the liquid with the greatest density?

- a. at the top
- b. at the bottom
- c. in the middle
- d. there is not enough information to answer this question

29) Can gasses be layered?

- A. Yes, if their densities are different
- B. yes, if their densities are the same
- C. No, because their densities are different
- D. No, there is too much energy to keep them separated

30) Which of the following is a homogenous mixture?

- a. Legos
- b. Salad
- c. Milk
- d. Sugar

31) Which of the following is not a pure substance?

- a. Milk
- b. Gold
- c. sugar
- d. Salt

32) What do all pure substances have in common?

- a. They are physically mixed together
- b. They can be physically separated
- c. They can make new matter
- d. They are chemically combined.

33) Sifting, evaporating, using a magnet, and filtering all have what in common?

- a. They are ways to combine mixtures
- b. They are ways to separate mixtures
- c. They are ways to separate pure substances
- d. They are ways to combine pure substances

34) CO_2 is best described as a what?

- a. Molecule
- b. Compound
- c. Element
- d. Mixture

35) O_2 is best described as a what?

- a. Molecule
- b. Compound
- c. Element
- d. Mixture