31. Answers may vary. Sample answer: When matter undergoes a physical change, one or more physical properties are changed. For example, if a lump of copper is drawn out into a thin wire, only its shape is changed, not its identity.

SECTION: CHEMICAL PROPERTIES

1. C
2. A
3. B
4. D
5. B
6. Answers will vary. Sample answer: The burning changes wood to smoke and ashes.
7. chemical
8. characteristic
9. B
10. C
11. Answers may vary. Sample answer: Baking a cake involves chemical changes because the cake has completely different properties than its original ingredients. It is impossible to reverse the results of those changes.
12. Answers may vary. Sample answer: The creation of new substances with new properties shows that a change is chemical. Other signs include fizzing or foaming, a change in color or odor, the production of heat, sounds, or light being given off.
13. chemical changes
14. Answers may vary. Sample answer: Some chemical changes can be reversed with more chemical changes. For example: The water formed in a space shuttle's rockets can later be split back into hydrogen and oxygen using an electric current.
15. B
16. A
17. physical changes
18. CC
19. PC
20. CC
21. PC
22. CC
23. CC
24. PC
25. PC

Directed Reading B

SECTION: WHAT IS MATTER?

1. C
2. B
3. C
4. A
5. B
6. D
7. meniscus
8. cubic
9. volume
10. irregular solid
11. milliliter
12. cubic centimeters
13. B
14. D
15. C
16. D
17. C
18. B
19. A
20. mass
21. kilogram
22. newton
23. weight
24. C
25. B
26. C

SECTION: PHYSICAL PROPERTIES

1. A
2. C
3. C
4. B
5. A
6. B
7. C
8. A
9. A
10. B
11. C
12. D
13. D
14. B
15. D
16. A
17. C
18. physical change
19. state
20. identity
21. B

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22. C
23. C
24. B

SECTION: CHEMICAL PROPERTIES

1. chemical property
2. flammability
3. nonflammability
4. reactivity
5. B
6. C
7. A
8. B
9. D
10. property
11. change
12. C
13. B
14. C
15. A
16. C
17. D
18. B
19. B
20. A

Vocabulary and Section Summary

SECTION: WHAT IS MATTER?

1. matter: anything that has mass and takes up space
2. volume: a measure of the size of a body or region in three-dimensional space
3. meniscus: the curve at a liquid's surface by which one measures the volume of the liquid
4. mass: a measure of the amount of matter in an object
5. weight: a measure of the gravitational force exerted on an object; its value can change with the location of the object in the universe
6. inertia: the tendency of an object to resist being moved or, if the object is moving, to resist a change in speed or direction until an outside force acts on the object

SECTION: PHYSICAL PROPERTIES

1. physical property: a characteristic of a substance that does not involve a chemical change, such as density color, or hardness
2. density: the ratio of the mass of a substance to the volume of the substance
3. physical change: a change of matter from one form to another without a change in chemical properties

SECTION: CHEMICAL PROPERTIES

1. chemical property: a property of matter that describes a substance's ability to participate in chemical reactions
2. chemical change: a change that occurs when one or more substances change into entirely new substances with different properties

Section Review

SECTION: WHAT IS MATTER?

1. Sample answer: You can measure the volume of a liquid by pouring it into a graduated cylinder and reading the scale at the bottom of the meniscus.
2. Sample answer: Mass is a measurement of how much matter is in an object. Weight is a measurement of how much gravitational force is exerted on an object's mass. Inertia is what causes an object to remain at rest or remain in motion. The more mass an object has, the greater its inertia.
3. D
4. A
5. C
6. D
7. Mass is a measure of inertia. The more mass an object has, the more inertia it has.
8. 145 cm^3
9. 4 N
10. Not all objects that have large masses have large weights because the weight of an object can change depending on where it is located in the universe. Mass remains the same everywhere in the universe. So a massive object in space may not have a large weight.
11. The elephant's weight on the moon would be only one-sixth of its weight on Earth. This is due to the moon having only one-sixth the gravitational force of the Earth.

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