Answer Key

Directed Reading A

SECTION: WHAT IS MATTER?

1. They are all made of matter.
2. Matter is anything that has mass and takes up space.
3. B
4. D
5. Volume is the amount of space taken up by an object.
6. volume
7. meniscus
8. cubic
9. length, width, and height
10. Answers may vary. Sample answer: The volume could be measured by placing the object in a graduated cylinder with water. The volume of water displaced is the volume of the object.
11. because 1 milliliter of water is equal to 1 cubic centimeter
12. D
13. C
14. A
15. D
16. The only way to change the mass is to change the amount of matter it contains.
17. mass
18. weight
19. weight
20. mass
21. weight
22. weight
23. mass
24. C
25. Something must act on an object to change the motion of the object.
26. The more mass an object has, the greater its inertia.
27. Answers may vary. Sample answer: A full cart has more mass than an empty one. More mass means the cart has more inertia. Because it has more inertia, a full cart is harder to put into motion.

SECTION: PHYSICAL PROPERTIES

1. B
2. C
3. D
4. A
5. F
6. C
7. B
8. E
9. G
10. physical property
11. density
12. density
13. The densest layer will settle on the bottom.
14. The least dense layer will be found on top.
15. because 1 kg of lead would take up less space than 1 kg of feathers
16. The object will sink.
17. Answers may vary. Sample answer: If you know the density of the substance, you could compare it with the density of water. If the density of the object is less than the density of water it will float.
18. $D = m/V$
19. density; volume; mass
20. volume
21. Answers may vary. Sample answer: because a substance's density is always the same at a given temperature and pressure and because most substances have different densities
22. physical change
23. changes in state
24. PC
25. X
26. PC
27. PC
28. PC
29. PC
30. identity

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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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