

**HOLT** CALIFORNIA   
**Physical Science**

**Study Guide A**  
**with Directed Reading Worksheets**



**HOLT, RINEHART AND** 

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## TO THE STUDENT

Guide

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Study

HOLT

Or 1 Design

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# Contents

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|                                          |     |
|------------------------------------------|-----|
| <b>The Nature of Physical Science</b>    |     |
| The Nature of Science                    | 1   |
| The Nature of Matter                     | 12  |
| <b>Data in Science</b>                   |     |
| The Nature of Science                    | 15  |
| The Nature of Matter                     | 25  |
| <b>Properties of Matter</b>              |     |
| The Nature of Science                    | 29  |
| The Nature of Matter                     | 40  |
| <b>States of Matter</b>                  |     |
| The Nature of Science                    | 43  |
| The Nature of Matter                     | 49  |
| <b>Elements, Compounds, and Mixtures</b> |     |
| The Nature of Science                    | 52  |
| The Nature of Matter                     | 62  |
| <b>Introduction to Atoms</b>             |     |
| The Nature of Science                    | 66  |
| The Nature of Matter                     | 74  |
| <b>The Periodic Table</b>                |     |
| The Nature of Science                    | 77  |
| The Nature of Matter                     | 86  |
| <b>Chemical Bonding</b>                  |     |
| The Nature of Science                    | 88  |
| The Nature of Matter                     | 96  |
| <b>Chemical Reactions</b>                |     |
| The Nature of Science                    | 99  |
| The Nature of Matter                     | 105 |
| <b>Chemical Compounds</b>                |     |
| The Nature of Science                    | 107 |
| The Nature of Matter                     | 118 |

## **The Chemistry of Living Things**

|                                |     |
|--------------------------------|-----|
| The Chemistry of Living Things | 121 |
| The Chemistry of Living Things | 126 |

## **Matter in Motion**

|                  |     |
|------------------|-----|
| Matter in Motion | 128 |
| Matter in Motion | 139 |

## **Forces and Motion**

|                   |     |
|-------------------|-----|
| Forces and Motion | 142 |
| Forces and Motion | 152 |

## **Forces in Fluids**

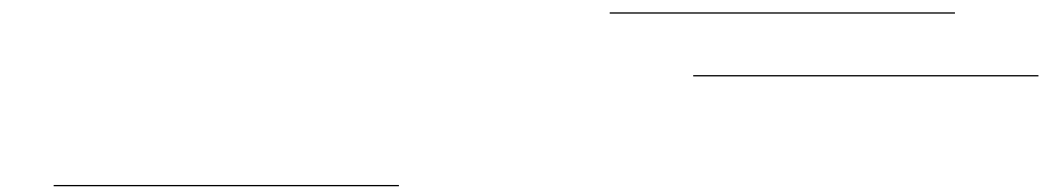
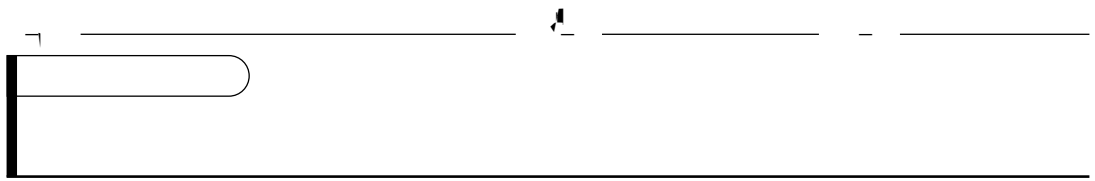
|                  |     |
|------------------|-----|
| Forces in Fluids | 155 |
| Forces in Fluids | 164 |

## **Stars, Galaxies, and the Universe**

|                                   |     |
|-----------------------------------|-----|
| Stars, Galaxies, and the Universe | 166 |
| Stars, Galaxies, and the Universe | 178 |

## **Our Solar System**

|                  |     |
|------------------|-----|
| Our Solar System | 182 |
| Our Solar System | 203 |



## APPLYING THE ANSWERS

### Saving Lives

- \_\_\_\_\_ 7. \_\_\_\_\_
- \_\_\_\_\_ a. \_\_\_\_\_
- \_\_\_\_\_ b. \_\_\_\_\_

# Directed Reading A

## Section: Scientific Methods

### WHAT ARE SCIENTIFIC METHODS?

Write the letter of the correct answer in the space provided.

\_\_\_\_\_ 1. \_\_\_\_\_

Directed Reading A *continued*

continuedc o n t i

---

Directed Reading A *continued*

---

Use the terms from the following list to complete the sentences below.

18.

\_\_\_\_\_ (a) \_\_\_\_\_.

19.

\_\_\_\_\_ (a) \_\_\_\_\_.

20.

\_\_\_\_\_

\_\_\_\_\_

### Analyzing *Proteus*

25. *Proteus* is a bacterium that can change its shape and color to survive in different environments. Which of the following is a characteristic of *Proteus*?
- It can change its shape and color.
  - It can live in extreme environments.
  - It can reproduce very quickly.
  - It can move very fast.

### DRAWING CONCLUSIONS

26. Which of the following is a conclusion that can be drawn from the information in the passage?
- Proteus* is a bacterium that can change its shape and color.
  - Proteus* is a bacterium that can live in extreme environments.
  - Proteus* is a bacterium that can reproduce very quickly.
  - Proteus* is a bacterium that can move very fast.

### The *Proteus* Conclusion

27. Which of the following is a conclusion that can be drawn from the information in the passage?
- Proteus* is a bacterium that can change its shape and color.
  - Proteus* is a bacterium that can live in extreme environments.
  - Proteus* is a bacterium that can reproduce very quickly.
  - Proteus* is a bacterium that can move very fast.

### COMMUNICATING RESULTS

28. Which of the following is a conclusion that can be drawn from the information in the passage?
- Proteus* is a bacterium that can change its shape and color.
  - Proteus* is a bacterium that can live in extreme environments.
  - Proteus* is a bacterium that can reproduce very quickly.
  - Proteus* is a bacterium that can move very fast.
29. Which of the following is a conclusion that can be drawn from the information in the passage?
- Proteus* is a bacterium that can change its shape and color.
  - Proteus* is a bacterium that can live in extreme environments.
  - Proteus* is a bacterium that can reproduce very quickly.
  - Proteus* is a bacterium that can move very fast.

# Directed Reading A

## Section: Safety in Science (pp. 22–27)

### KEEPING YOURSELF SAFE

Write the letter of the correct answer in the space provided.

- \_\_\_\_\_ 1. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_

### Avoiding Accidents

- \_\_\_\_\_ 2. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_

### Reporting Accidents

- \_\_\_\_\_ 3. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_

### ELEMENTS OF SAFETY

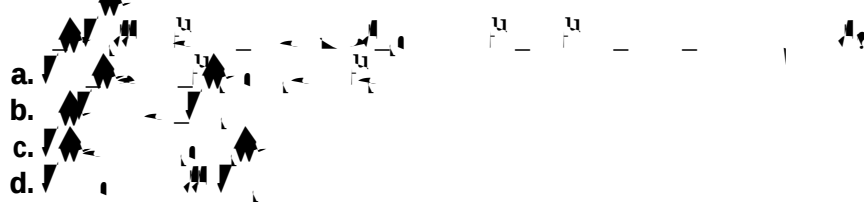
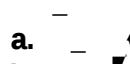
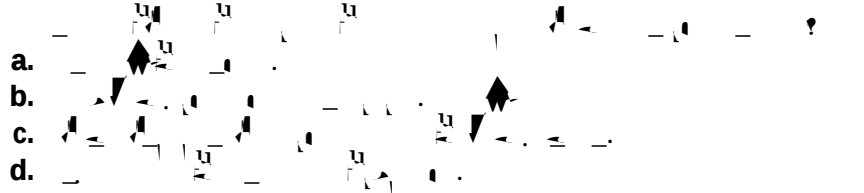
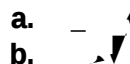
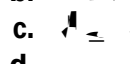
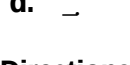
#### Understanding Safety Symbols

- \_\_\_\_\_ 4. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_

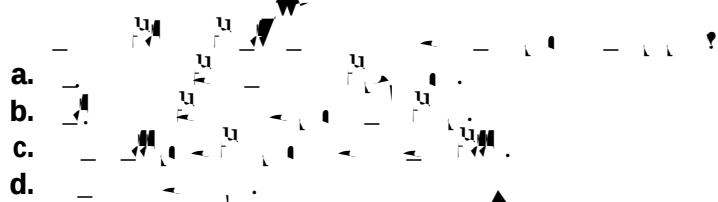
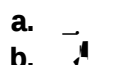
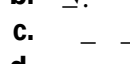
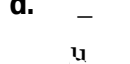
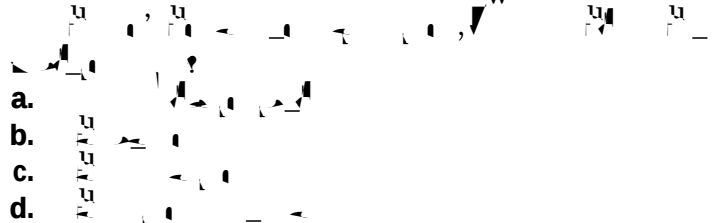
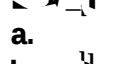
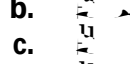
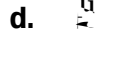
Match each safety symbol with the correct meaning. Write the letter in the space provided.

- \_\_\_\_\_ 5.  \_\_\_\_\_ a. \_\_\_\_\_  
 \_\_\_\_\_ 6.  \_\_\_\_\_ b. \_\_\_\_\_  
 \_\_\_\_\_ 7.  \_\_\_\_\_ c. \_\_\_\_\_

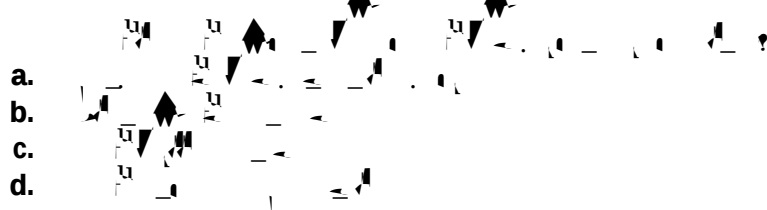
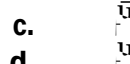
**Following Safety Symbols**

- \_\_\_\_\_ 8. 
- a. 
- b. 
- c. 
- d. 
- \_\_\_\_\_ 9. 
- a. 
- b. 
- c. 
- d. 

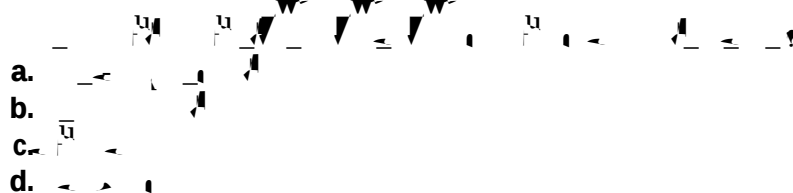
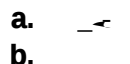
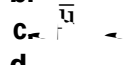
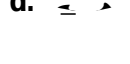
**Following Directions**

- \_\_\_\_\_ 10. 
- a. 
- b. 
- c. 
- d. 
- \_\_\_\_\_ 11. 
- a. 
- b. 
- c. 
- d. 

**Neatness**

- \_\_\_\_\_ 12. 
- a. 
- b. 
- c. 
- d. 

**Using Proper Safety Equipment**

- \_\_\_\_\_ 13. 
- a. 
- b. 
- c. 
- d. 





# Vocabulary and Section Summary A

## Science and Scientists

### VOCABULARY

In your own words, write a definition of the following term in the space provided.

1. **hypothesis**

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---

### SECTION SUMMARY

Read the following section summary.

- Science is a systematic way of learning about the natural world.
- A hypothesis is a statement that can be tested by experiment.
- A theory is a statement that has been tested and found to be true.
- A law is a statement that describes a pattern in nature.

# Vocabulary and Section Summary A

## Scientific Methods

### VOCABULARY

In your own words, write a definition of the following term in the space provided.

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# Vocabulary and Section Summary A

## Safety in Science

### VOCABULARY

In your own words, write a definition of the following term in the space provided.

1. **hazardous**

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---

### SECTION SUMMARY

Read the following section summary.

- The scientific method is a process that scientists use to investigate a question or problem. It involves making observations, asking questions, forming a hypothesis, testing the hypothesis, and drawing conclusions.
- A hypothesis is a statement that can be tested. It is a prediction about the outcome of an experiment.
- A theory is a well-tested explanation of a natural phenomenon. It is based on a large amount of evidence and can be used to make predictions.
- A law is a statement that describes a consistent pattern in nature. It is based on a large amount of evidence and can be used to make predictions.
- A model is a representation of a system or process. It can be used to study the system or process and to make predictions.

# Directed Reading A

## Section: Tools and Models in Science (pp. 42–49)

Write the letter of the correct answer in the space below.

- \_\_\_\_\_ 1. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_

### TOOLS IN SCIENCE

- \_\_\_\_\_ 2. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_
- \_\_\_\_\_ 3. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_

### MAKING MEASUREMENTS

- \_\_\_\_\_ 4. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_

### The International System of Units

- \_\_\_\_\_ 5. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_

---

Directed Reading A *continued*

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6.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Temperature**

Write the letter of the correct answer in the space below.

\_\_\_\_\_ 16.

a.

b.

c.

d.

\_\_\_\_\_ 17.

a.

b.

c.

d.

**MODELS IN SCIENCE**

\_\_\_\_\_ 18.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

### Models: The Right Size

Write the letter of the correct answer in the space below.

\_\_\_\_\_ 24.

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

### The Limits of Models

\_\_\_\_\_ 25.

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

### USING MODELS FOR SCIENTIFIC PROGRESS

\_\_\_\_\_ 26.

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

### SCIENTIFIC THEORIES

Match the correct definition with the correct term. Write the letter in the space provided.

\_\_\_\_\_ 27.

\_\_\_\_\_

a. \_\_\_\_\_

\_\_\_\_\_ 28.

\_\_\_\_\_

b. \_\_\_\_\_

\_\_\_\_\_ 29.

\_\_\_\_\_

c. \_\_\_\_\_

# Directed Reading A

## Section: Organizing Your Data

### CREATING A DATA TABLE

Write the letter of the correct answer in the space below.

- \_\_\_\_\_ 1. \_\_\_\_\_
- a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_

### Organizing: The First Step

- \_\_\_\_\_ 2. \_\_\_\_\_

**Variable and Controlled Parameters**

- \_\_\_\_\_ 7. \_\_\_\_\_
- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

**CREATING A GRAPH**

- \_\_\_\_\_ 8. \_\_\_\_\_
- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

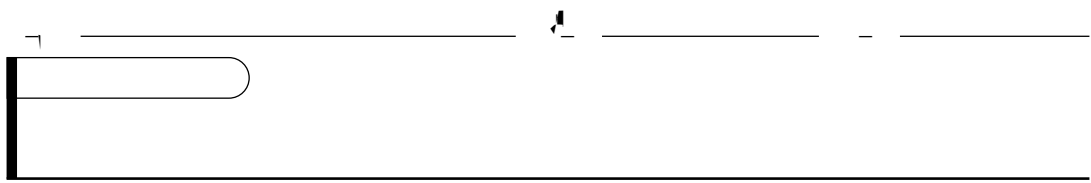
\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_





### REPRODUCIBILITY OF DATA

- \_\_\_\_\_ 6. \_\_\_\_\_
- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

### DESCRIBING THE ENTIRE SET OF DATA

- \_\_\_\_\_ 7. \_\_\_\_\_
- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. ( ) 8 2 ( 1 5 6 . 4 2 1 5 4 5 7
- \_\_\_\_\_ 8. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# Vocabulary and Section Summary A

## Tools and Models in Science

### VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1.  \_\_\_\_\_  
\_\_\_\_\_

2.  \_\_\_\_\_  
\_\_\_\_\_

3.  \_\_\_\_\_  
\_\_\_\_\_

4.  \_\_\_\_\_  
\_\_\_\_\_

5.  \_\_\_\_\_  
\_\_\_\_\_

6.  \_\_\_\_\_  
\_\_\_\_\_

7.  \_\_\_\_\_  
\_\_\_\_\_



## Vocabulary and Section Summary A

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# Vocabulary and Section Summary A

## Analyzing Your Data

### VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. **hypothesis**

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2. **theory**

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---

3. **model**

---

---

---

4. **experiment**

---

---

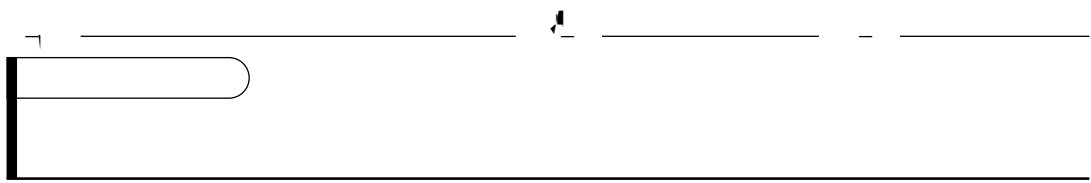
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### SECTION SUMMARY

Read the following section summary.

- The scientific method is a process of inquiry that involves making observations, asking questions, forming hypotheses, testing hypotheses, and drawing conclusions.
- A hypothesis is a statement that can be tested by experiment or observation.
- A theory is a well-substantiated explanation of some aspect of the natural world, based on a body of facts that have been repeatedly confirmed through observation and experiment.

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## Directed Reading A *continued*

6. \_\_\_\_\_ ?
- \_\_\_\_\_ ( )
  - \_\_\_\_\_ ( )
  - \_\_\_\_\_ ( )
  - \_\_\_\_\_ ( )

### Measuring the Volume of Liquids

Use the terms from the following list to complete the sentences below.

7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_

### Volume of an Irregularly Shaped Solid Object

Use the terms from the following list to complete the sentences below.

10. \_\_\_\_\_ ( )
11. \_\_\_\_\_ (1 <sup>3</sup>)
12. \_\_\_\_\_

## MATTER AND MASS

Write the letter of the correct answer in the space provided.

13. \_\_\_\_\_ ?
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

14. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
15. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

### The Difference Between Mass and Weight

16. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
17. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
18. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

### Measuring Mass and Weight

19. \_\_\_\_\_ 100 \_\_\_\_\_
- 1 \_\_\_\_\_
  - 1 \_\_\_\_\_
  - 1 \_\_\_\_\_
  - 1 \_\_\_\_\_

Use the terms from the following list to complete the sentences below.

20. \_\_\_\_\_

21. \_\_\_\_\_

22. \_\_\_\_\_

# Directed Reading A

## Section: Physical Properties (pp. 84–89)

Write the letter of the correct answer in the space provided.

- \_\_\_\_\_ 1. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_

### IDENTIFYING PHYSICAL PROPERTIES

- \_\_\_\_\_ 2. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_

Match the correct example with the correct property. Write the letter in the space provided.

- \_\_\_\_\_ 3. \_\_\_\_\_ a. \_\_\_\_\_  
 \_\_\_\_\_ 4. \_\_\_\_\_ b. \_\_\_\_\_  
 \_\_\_\_\_ 5. \_\_\_\_\_ c. \_\_\_\_\_

Match the correct example with the correct property. Write the letter in the space provided.

- \_\_\_\_\_ 6. \_\_\_\_\_ a. \_\_\_\_\_  
 \_\_\_\_\_ 7. \_\_\_\_\_ b. \_\_\_\_\_  
 \_\_\_\_\_ 8. \_\_\_\_\_ c. \_\_\_\_\_

# Density

Write the letter of the correct answer in the space provided.

- \_\_\_\_\_ 9. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
- \_\_\_\_\_ 10. \_\_\_\_\_ (m) \_\_\_\_\_ (V), \_\_\_\_\_
- $D = \frac{m}{V}$
  - $D = \frac{V}{m}$
  - $D = \frac{m}{V}$
  - $D = \frac{V}{m}$
- \_\_\_\_\_ 11. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
- \_\_\_\_\_ 0 0 11.279 10.7 0 0 11.2797495\_09

### Density of Solids

\_\_\_\_\_ 15.

- a.
- b.
- c.
- d.

### Density, Floating, and Sinking

\_\_\_\_\_ 16.

- a.
- b.
- c.
- d.

### Liquid Layers

\_\_\_\_\_ 17.

- a.
- b.
- c.
- d.

\_\_\_\_\_ 18.

- a.
- b.
- c.
- d.

### PHYSICAL CHANGES: NO NEW SUBSTANCES

Use the terms from the following list to complete the sentences below.

19.

\_\_\_\_\_ (a) \_\_\_\_\_.

20.

\_\_\_\_\_ \_\_\_\_\_.

21.

\_\_\_\_\_ \_\_\_\_\_.

### Examples of Physical Changes

Write the letter of the correct answer in the space provided.

\_\_\_\_\_ 22.

- a.
- b.
- c.
- d.

\_\_\_\_\_ 23.

- a.
- b.
- c.
- d.

### Reversibility of Physical Changes

\_\_\_\_\_ 24.

- a.
- b.
- c.
- d.

### Matter and Physical Changes

\_\_\_\_\_ 25.

- a.
- b.
- c.
- d.

# Directed Reading A

## Section: Chemical Properties

### IDENTIFYING CHEMICAL PROPERTIES

Use the terms from the following list to complete the sentences below.

1. \_\_\_\_\_ ( ) \_\_\_\_\_.
2. \_\_\_\_\_.
3. \_\_\_\_\_.
4. \_\_\_\_\_.

### Comparing Physical and Chemical Properties

Write the letter of the correct answer in the space provided.

- \_\_\_\_\_ 5. \_\_\_\_\_
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
- \_\_\_\_\_ 6. \_\_\_\_\_
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
- \_\_\_\_\_ 7. \_\_\_\_\_
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
- \_\_\_\_\_ 8. \_\_\_\_\_
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_

### Characteristic Properties

9. Which of the following is a characteristic property of a substance?
- a. color
  - b. shape
  - c. mass
  - d. volume

### CHEMICAL CHANGES AND NEW SUBSTANCES

10. Which of the following is a chemical change?
- a. melting
  - b. boiling
  - c. rusting
  - d. dissolving

Use the terms from the following list to complete the sentences below.

11. \_\_\_\_\_ is a physical change.
12. \_\_\_\_\_ is a chemical change.

### What Happens During a Chemical Change?

Write the letter of the correct answer in the space provided.

### Signs of Chemical Changes

- \_\_\_\_\_ 15. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

### Matter and Chemical Changes

- \_\_\_\_\_ 16. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

### PHYSICAL VERSUS CHEMICAL CHANGES

- \_\_\_\_\_ 17. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
- \_\_\_\_\_ 18. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
- \_\_\_\_\_ 19. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

### Reversing Changes

- \_\_\_\_\_ 20. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

# Vocabulary and Section Summary A

## What Is Matter?

### VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. **matter**

---

---

2. **volume**

---

---

3. **density**

---

---

4. **mass**

---

---

5. **weight**

---

---

### SECTION SUMMARY

Read the following section summary.

- Matter is anything that has mass and takes up space.
- Matter can be a solid, liquid, or gas.
- Matter can change from one state to another.
- Matter is made of particles called atoms and molecules.
- Matter is made of particles that are very small.

# Vocabulary and Section Summary A

## Physical Properties

### VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. **ductility**

---

---

---

2. **brittleness**

---

---

---

3. **luster**

---

---

---

### SECTION SUMMARY

Read the following section summary.

- **Physical properties** are characteristics of a substance that can be observed or measured without changing the substance's identity.
- **Chemical properties** are characteristics of a substance that can only be observed when the substance changes into another substance.

# Vocabulary and Section Summary A

## Chemical Properties

### VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1.

---

---

---

2.

---

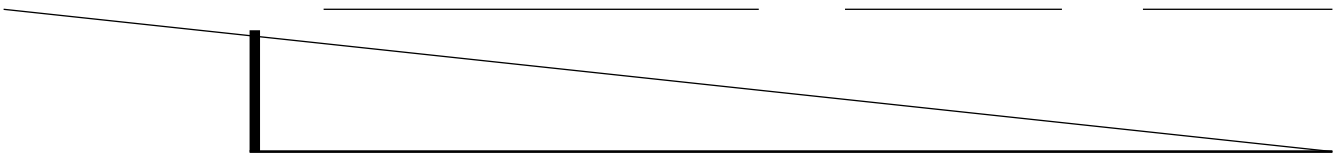
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---

### SECTION SUMMARY

Read the following section summary.

- Matter is anything that has mass and takes up space. Matter can be solid, liquid, or gas.
- The particles of matter are always moving. The faster they move, the more energy they have.
- The particles of matter are attracted to each other. The stronger the attraction, the more the particles stick together.
- The particles of matter are always vibrating. The faster they vibrate, the more energy they have.
- The particles of matter are always colliding. The harder they collide, the more energy they have.



8. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

### GASES

9. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
10. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
11. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

### PLASMAS

12. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
13. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
14. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

# Directed Reading A

## Section: Changes of State

### ENERGY AND CHANGES OF STATE



## EVAPORATION: LIQUID TO GAS

- \_\_\_\_\_ 12. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

## Evaporation and Boiling

- \_\_\_\_\_ 13. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
- \_\_\_\_\_ 14. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

## Effects of Pressure on Boiling Point

- \_\_\_\_\_ 15. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

## CONDENSATION: GAS TO LIQUID

- \_\_\_\_\_ 16. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
- \_\_\_\_\_ 17. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

**SUBLIMATION: SOLID TO GAS**

- \_\_\_\_\_ 18. \_\_\_\_\_ ?
- a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
- \_\_\_\_\_ 19. \_\_\_\_\_ ?
- a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_

**TEMPERATURE AND CHANGES OF STATE**

- \_\_\_\_\_ 20. \_\_\_\_\_ ?
- a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_

# Vocabulary and Section Summary A

## Four States of Matter

### VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. **condensation**

---

---

2. **deposition**

---

---

3. **sublimation**

---

---

4. **precipitation**

---

---

5. **evaporation**

---

---

### SECTION SUMMARY

Read the following section summary.

- Matter can exist in four states: solid, liquid, gas, and plasma. Solids have a definite shape and volume. Liquids have a definite volume but take the shape of their container. Gases have neither a definite shape nor volume. Plasma is a state of matter consisting of ionized gas.
- Changes of state occur when energy is added or removed from a substance. Melting, freezing, boiling, condensation, sublimation, and deposition are all changes of state.
- The rate of change of state depends on the temperature and the amount of energy added or removed. For example, water boils at 100°C at sea level, but it boils at a lower temperature at higher altitudes.

# Vocabulary and Section Summary A

## Changes of State

### VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1.  

---

---

---

2.  

---

---

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3.  

---

---

---

4.  

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5.   

---

---

---

6.   

---

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## SECTION SUMMARY

Read the following section summary.

- The three states of matter are solid, liquid, and gas. Solids have a definite shape and volume. Liquids have a definite volume but no definite shape. Gases have no definite shape or volume.
- Particles in a solid are packed closely together and vibrate in place. Particles in a liquid are close together but can move past one another. Particles in a gas are far apart and move freely.
- Changes of state occur when energy is added or removed. Melting, freezing, boiling, and condensation are changes between the three states of matter.
- The temperature at which a substance changes state is called its melting point, freezing point, or boiling point.
- The amount of energy required to change the state of a substance is called its latent heat.
- The amount of energy required to raise the temperature of a substance is called its specific heat.

# Directed Reading A

## Section: Elements

### Identifying Elements by Their Properties

Match the correct description with the correct term. Write the letter in the space provided.

- |          |    |
|----------|----|
| _____ 6. | a. |
| _____ 7. | b. |
| _____ 8. | c. |
| _____ 9. | d. |

### GROUPING ELEMENTS

#### Categories of Elements

Use the terms from the following list to complete the sentences below.

10. \_\_\_\_\_
11. \_\_\_\_\_
12. \_\_\_\_\_
13. \_\_\_\_\_

#### Categories Are Similar

Match the correct description with the correct term. Write the letter in the space provided.

- |           |    |
|-----------|----|
| _____ 14. | a. |
| _____ 15. | b. |
| _____ 16. | c. |
| _____ 17. | d. |

Match the correct description with the correct term. Write the letter in the space provided.

- \_\_\_\_\_ 18. \_\_\_\_\_  
 \_\_\_\_\_ 19. \_\_\_\_\_  
 \_\_\_\_\_ 20. \_\_\_\_\_

- a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_

# Directed Reading A

## Section: Compounds

Write the letter of the correct answer in the space provided.

- \_\_\_\_\_ 1. \_\_\_\_\_
- a. \_\_\_\_\_ 2. \_\_\_\_\_
- b. \_\_\_\_\_ / 1 1 \_\_\_\_\_
- c. \_\_\_\_\_ / 1 1 \_\_\_\_\_
- d. \_\_\_\_\_ 2 1 1 \_\_\_\_\_ .3( )-0 78. | 0. 78. | 0.01 0.3( )-0.57

COMPOUNDS: MADE OF ELEMENT 550.57n3R578.Tm 0.0001 Tc 0.1413 Tw [ copper)]J /F1 1 Tf -5

**Properties: Compounds Versus Elements**

- \_\_\_\_\_ 6. \_\_\_\_\_
- a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_

**The Ratio of Elements in a Compound**

- \_\_\_\_\_ 7. \_\_\_\_\_
- a. \_\_\_\_\_
  - b. \_\_\_\_\_

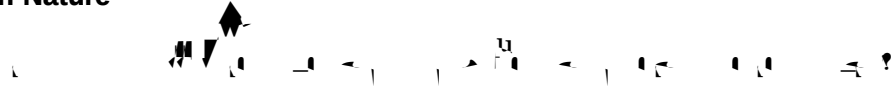
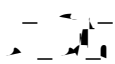
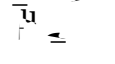
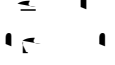
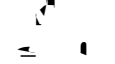
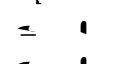
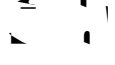
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\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Compounds in Nature

- \_\_\_\_\_ 12.  ?
- a. 
- b. 
- c. 
- d. 
- \_\_\_\_\_ 13.  ?
- a. 
- b. 
- c. 
- d. 
- \_\_\_\_\_ 14.  ?
- a. 
- b. 
- c. 
- d. 

# Directed Reading A

## Section: Mixtures

### PROPERTIES OF MIXTURES

Use the terms from the following list to complete the sentences below.

1. \_\_\_\_\_ is a mixture of two or more substances that are physically combined.
2. \_\_\_\_\_ is a mixture of two or more substances that are chemically combined.
3. \_\_\_\_\_ is a mixture of two or more substances that are physically combined and can be separated by physical means.
4. \_\_\_\_\_ is a mixture of two or more substances that are chemically combined and cannot be separated by physical means.

### Separating Mixtures Through Physical Methods

Match the correct description with the correct term. Write the letter in the space provided.

- |          |       |       |
|----------|-------|-------|
| _____ 5. | _____ | _____ |
| _____ 6. | _____ | _____ |
| _____ 7. | _____ | _____ |
| _____ 8. | _____ | _____ |

# SOLUTIONS

10.

- a.
- b.
- c.
- d.

11.

- a.
- b.
- c.
- d.

12.

- a.
- b.
- c.
- d.

13.

- a.
- b.
- c.
- d.

Use the terms from the following list to complete the sentences below.

14.

15.

16.

17.

18.

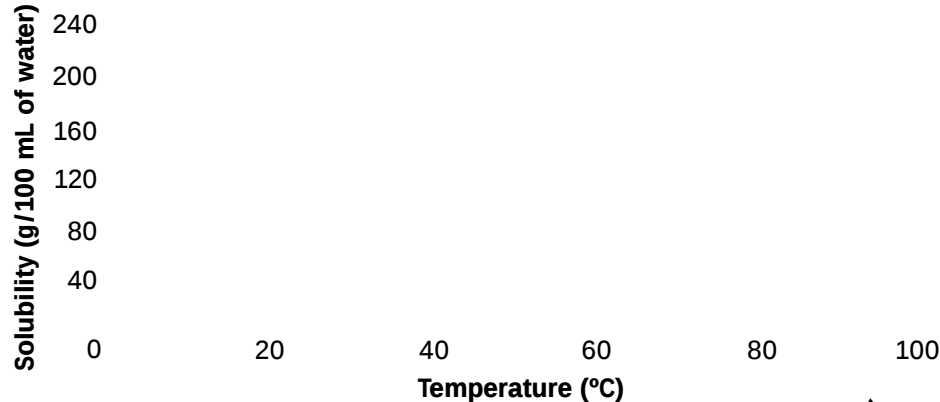
# CONCENTRATION OF SOLUTIONS

Write the letter of the correct answer in the space provided.

- \_\_\_\_\_ 19. A solution is made by dissolving 10 g of a substance in 100 mL of water. The solution is then evaporated until only 50 mL of water remains. The solution is now \_\_\_\_\_.
- more concentrated
  - less concentrated
  - the same concentration
  - more dilute
- \_\_\_\_\_ 20. A solution is made by dissolving 10 g of a substance in 100 mL of water. The solution is then evaporated until only 50 mL of water remains. The solution is now \_\_\_\_\_.
- more concentrated
  - less concentrated
  - the same concentration
  - more dilute
- \_\_\_\_\_ 21. A solution is made by dissolving 10 g of a substance in 100 mL of water. The solution is then evaporated until only 50 mL of water remains. The solution is now \_\_\_\_\_.
- more concentrated
  - less concentrated
  - the same concentration
  - more dilute

## Solubility

Use the graph below to answer questions 22 and 23. Write the letter of the correct answer in the space provided.



- \_\_\_\_\_ 22. According to the graph, the solubility of the substance in water \_\_\_\_\_ as the temperature increases.
- increases
  - decreases
  - remains the same
  - is not affected
- \_\_\_\_\_ 23. According to the graph, the solubility of the substance in water \_\_\_\_\_ as the temperature increases.
- increases
  - decreases
  - remains the same
  - is not affected

Directed Reading A *continued*

\_\_\_\_\_

\_\_\_\_\_

# Vocabulary and Section Summary A

## Elements

### VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. **element**

---

---

2. **compound**

---

---

3. **mixture**

---

---

4. **physical property**

---

---

5. **chemical property**

---

---

### SECTION SUMMARY

Read the following section summary.

- Matter is anything that has mass and takes up space. It is made of particles called atoms and molecules.
- Matter can be classified into elements, compounds, and mixtures.
- Elements are made of only one type of atom. They cannot be broken down into simpler substances by physical or chemical means.
- Compounds are made of two or more different types of atoms joined together by chemical bonds. They can be broken down into simpler substances by chemical means.

# Vocabulary and Section Summary A

## Compounds

### VOCABULARY

In your own words, write a definition of the following term in the space provided.

1. **compound**

---

---

---

### SECTION SUMMARY

Read the following section summary.

- A **compound** is a substance made of two or more different elements.
- A **mixture** is a combination of two or more substances that are not chemically combined.
- A **pure substance** is a substance that has a constant composition and distinct chemical and physical properties.
- A **heterogeneous mixture** is a mixture in which the components are not uniformly distributed.



## SECTION SUMMARY

Read the following section summary.

- A **pure substance** is a material that has a constant composition and chemical properties that cannot be changed by physical means. A pure substance can be an element or a compound.
- A **mixture** is a material that is made of two or more substances that are not chemically combined. The composition of a mixture can vary, and the substances in a mixture can be separated by physical means.
- A **homogeneous mixture** is a mixture in which the components are uniformly distributed. Examples include solutions and alloys.
- A **heterogeneous mixture** is a mixture in which the components are not uniformly distributed. Examples include suspensions and colloids.
- A **colloid** is a mixture in which the particles are small enough to remain suspended but large enough to scatter light. Examples include milk and fog.

# Directed Reading A

## Section: Development of the Atomic Theory (pp. 164–171)

### THE BEGINNING OF ATOMIC THEORY

Write the letter of the correct answer in the space provided.

1. \_\_\_\_\_ a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_
2. \_\_\_\_\_ a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_
3. \_\_\_\_\_ a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_

### DALTON'S ATOMIC THEORY BASED ON EXPERIMENTS

4. \_\_\_\_\_ a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_
5. \_\_\_\_\_ a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_

### THOMSON'S DISCOVERY OF ELECTRONS

6. \_\_\_\_\_ a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_

---

Directed Reading A *continued*

---

Use the terms from the following list to complete the sentences below.

7. \_\_\_\_\_ ( ) \_\_\_\_\_
8. \_\_\_\_\_
- \_\_\_\_\_



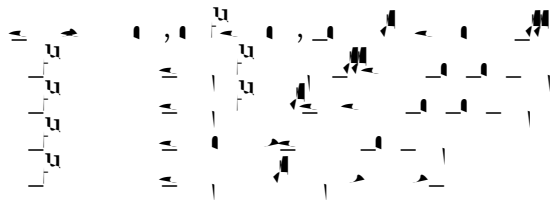


# Directed Reading A

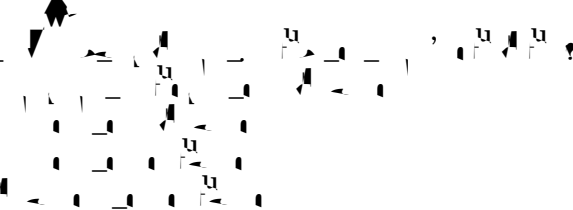
## Section: The Atom (pp. 172–179)

### THE PARTS OF AN ATOM

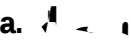
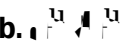
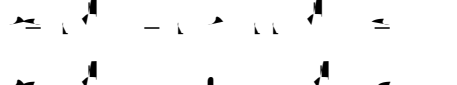
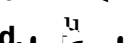
#### Subatomic Particles

- \_\_\_\_\_ 1.  subatomic particles?
- a. 
- b. 
- c. 
- d. 

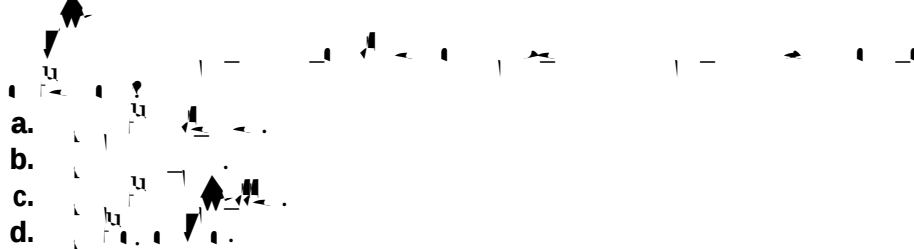
#### The Nucleus

- \_\_\_\_\_ 2. 
- a. 
- b. 
- c. 
- d. 

Match the correct description with the correct term. Write the letter in the space provided.

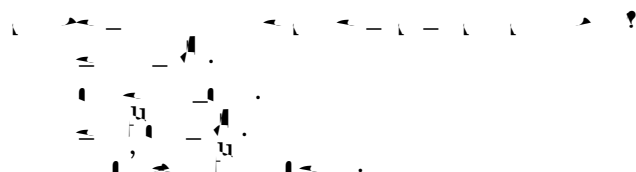
- \_\_\_\_\_ 3.  a. 
- \_\_\_\_\_ 4.  b. 
- \_\_\_\_\_ 5.  c. 
- \_\_\_\_\_ 6.  d. 
- \_\_\_\_\_ 7.  e. 

#### Outside the Nucleus

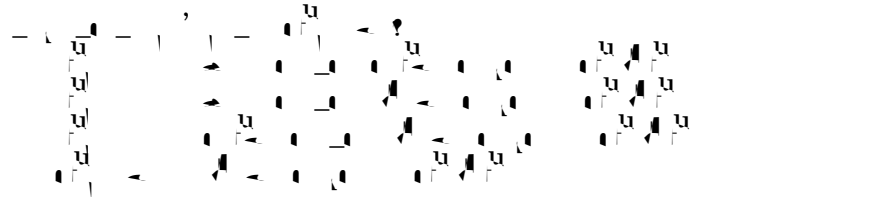
- \_\_\_\_\_ 8. 
- a. 
- b. 
- c. 
- d. 



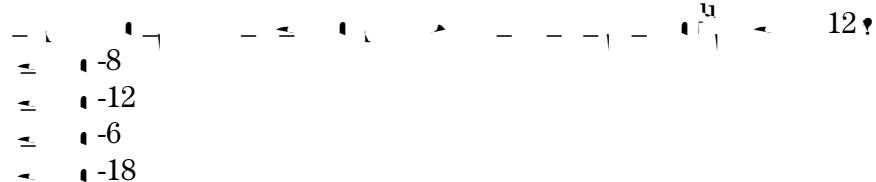
### Properties of Isotopes

18. 
- a.
  - b.
  - c.
  - d.

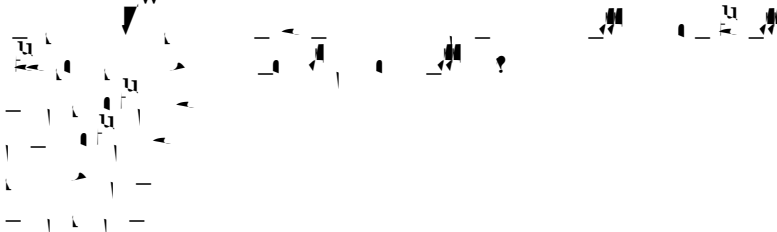
### The Difference Between Isotopes

19. 
20. 
- a. 1
  - b. 11
  - c. 10
  - d. 16

### Naming Isotopes

21. 
- a. -8
  - b. -12
  - c. -6
  - d. -18

### Isotopes and Atomic Mass

22. 
- a.
  - b.
  - c.
  - d.



# Vocabulary and Section Summary A

## Development of the Atomic Theory

### VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1.  $\alpha$  particle

---

---

2.  $\beta$  particle

---

---

3.  $\gamma$  ray

---

---

4.  $\delta$  particle

---

---

### SECTION SUMMARY

Read the following section summary.

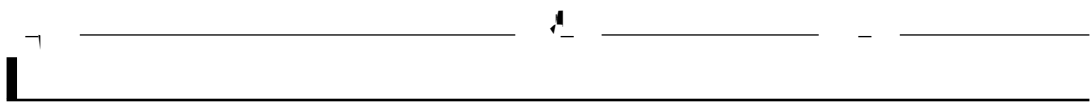
- The  $\alpha$  particle is a helium nucleus, consisting of two protons and two neutrons. It is a heavy, positively charged particle that is emitted by some radioactive elements.

## Vocabulary and Section Summary A

## The Atom

## VOCABULARY

[illegible]



# Directed Reading A

## Section: Arranging the Elements (pp. 194–201)

### DISCOVERING A PATTERN

Write the letter of the correct answer in the space provided.

- \_\_\_\_\_ 1. \_\_\_\_\_
- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

### Periodic Properties of the Elements

- \_\_\_\_\_ 2. \_\_\_\_\_ *periodic*
- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_
- \_\_\_\_\_ 3. \_\_\_\_\_
- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_
- \_\_\_\_\_ 4. \_\_\_\_\_
- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

### Predicting Properties of Missing Elements

- \_\_\_\_\_ 5. \_\_\_\_\_
- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

### CHANGING THE ARRANGEMENT

- \_\_\_\_\_ 6. \_\_\_\_\_
- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_
- \_\_\_\_\_ 7. \_\_\_\_\_
- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

### PERIODIC TABLE OF THE ELEMENTS

- \_\_\_\_\_ 8. \_\_\_\_\_
- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_
- \_\_\_\_\_ 9. \_\_\_\_\_
- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

### THE PERIODIC TABLE AND CLASSES OF ELEMENTS

Use the terms from the following list to complete the sentences below.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## DECODING THE PERIODIC TABLE

### Chemical Symbols

---

---

---

**Atomic Number**

\_\_\_\_\_ 22.

- a.
- b.
- c.
- d.

\_\_\_\_\_ 23.

- a.
- b.
- c.
- d.

\_\_\_\_\_ 24.

- a.
- b.
- c.
- d.

\_\_\_\_\_ 25.

- a.
- b.
- c.
- d.

# Directed Reading A

## Section: Grouping the Elements (pp. 202–209)

Write the letter of the correct answer in the space provided.

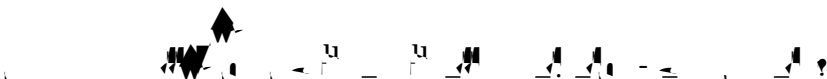
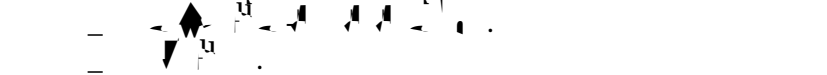
- \_\_\_\_\_ 1. Which of the following is a metalloid?
- boron
  - calcium
  - iodine
  - potassium
- \_\_\_\_\_ 2. Which of the following is a nonmetal?
- aluminum
  - carbon
  - gold
  - silver

### GROUP 1: ALKALI METALS

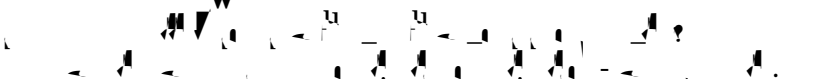
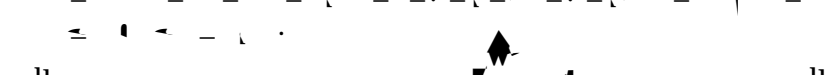
- \_\_\_\_\_ 3. Which of the following is an alkali metal?
- beryllium
  - calcium
  - potassium
  - zinc
- \_\_\_\_\_ 4. Which of the following is an alkali metal?
- cesium
  - chromium
  - gold
  - iron
- \_\_\_\_\_ 5. Which of the following is an alkali metal?
- lithium
  - mercury
  - nickel
  - tin

### GROUP 2: ALKALINE-EARTH METALS

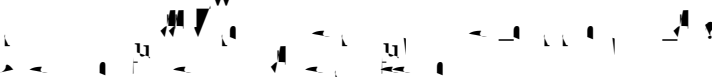
- \_\_\_\_\_ 6. Which of the following is an alkaline-earth metal?
- beryllium
  - calcium
  - cesium
  - gold

7. a.  b.  c.  d. 

### GROUPS 3–12: TRANSITION METALS

8. a.  b.  c.  d. 
9. a.  b.  c.  d. 
10. a.  b.  c.  d. 

### Properties of Transition Metals

11. a.  b.  c.  d. 

**GROUP 13: BORON GROUP**

Use the terms from the following list to complete the sentences below.

12. \_\_\_\_\_ 13. \_\_\_\_\_

13. \_\_\_\_\_

14. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ 21.

a.

b.

15



# Vocabulary and Section Summary A

## Arranging the Elements

### VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. **metamorphic rock**

---

---

2. **igneous rock**

---

---

3. **sedimentary rock**

---

---

4. **metamorphism**

---

---

### SECTION SUMMARY

Read the following section summary.

- The Earth's crust is made of rocks. Rocks are made of minerals. Minerals are made of elements. The elements are arranged in the periodic table.
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# Vocabulary and Section Summary A

## Grouping the Elements

### VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. **metals**

---



---

2. **metalloids**

---



---

3. **nonmetals**

---



---

4. **halogens**

---



---

### SECTION SUMMARY

Read the following section summary.

- The periodic table is a chart that organizes the elements by their chemical and physical properties. It is divided into four main groups: metals, metalloids, nonmetals, and noble gases.
- Metals are located on the left side of the periodic table. They are shiny, malleable, and good conductors of heat and electricity. Examples include iron, copper, and aluminum.
- Metalloids are located between the metals and nonmetals. They have properties of both metals and nonmetals. Examples include silicon, boron, and arsenic.
- Nonmetals are located on the right side of the periodic table. They are not shiny, brittle, and poor conductors of heat and electricity. Examples include oxygen, nitrogen, and carbon.
- Noble gases are located on the far right of the periodic table. They are colorless, odorless, and do not react with other elements. Examples include helium, neon, and argon.
- The periodic table is organized into rows and columns. The rows are called periods, and the columns are called groups. The groups are numbered 1 through 18.
- The periodic table is a useful tool for predicting the properties of elements and for understanding the relationships between different elements.

# Directed Reading A

## Section: Electrons and Chemical Bonding

### COMBINING ATOMS THROUGH CHEMICAL BONDING

Write the letter of the correct answer in the space provided.

- \_\_\_\_\_ 1. \_\_\_\_\_  
 a. \_\_\_\_\_

Use the terms from the following list to complete the sentences below.

7. \_\_\_\_\_.
8. \_\_\_\_\_.
9. \_\_\_\_\_.
10. \_\_\_\_\_.
11. \_\_\_\_\_.

### TO BOND OR NOT TO BOND

Write the letter of the correct answer in the space provided.

11. \_\_\_\_\_
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
12. \_\_\_\_\_
  - a. \_\_\_\_\_ 2
  - b. \_\_\_\_\_ 6
  - c. \_\_\_\_\_ 10
  - d. \_\_\_\_\_ 18

Use the terms from the following list to complete the sentences below.

13. \_\_\_\_\_.
14. \_\_\_\_\_.
15. \_\_\_\_\_.
16. \_\_\_\_\_.

# Directed Reading A

## Section: Ionic Bonds

### FORMING IONIC BONDS

Write the letter of the correct answer in the space provided.

- \_\_\_\_\_ 1. \_\_\_\_\_
- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

### Charged Particles

- \_\_\_\_\_ 2. \_\_\_\_\_
- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_
- \_\_\_\_\_ 3. \_\_\_\_\_
- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

### FORMING POSITIVE IONS

- \_\_\_\_\_ 4. \_\_\_\_\_ 3 \_\_\_\_\_
- a.  $1^+$
- b.  $3^+$
- c.  $2^+$
- d. 2

7

8

9

### The Energy of Gaining Electrons

- \_\_\_\_\_ 14. \_\_\_\_\_ 17.
- - 
  - 
  -

### FORMING IONIC COMPOUNDS

- \_\_\_\_\_ 15. \_\_\_\_\_ 16.
- - 
  - 
  -

### IONIC COMPOUNDS

#### Properties of Ionic Compounds

- \_\_\_\_\_ 17.
- - 
  - 
  -

# Directed Reading A

## Section: Covalent and Metallic Bonds (pp. 236–241)

### COVALENT BONDS

Write the letter of the correct answer in the space provided.

1. \_\_\_\_\_ a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_
2. \_\_\_\_\_ a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_
3. \_\_\_\_\_ a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_

### Covalent Bonds and Molecules

Match the correct description with the correct term. Write the letter in the space provided.

4. \_\_\_\_\_ a. \_\_\_\_\_  
b. \_\_\_\_\_
5. \_\_\_\_\_

### COVALENT COMPOUNDS AND MOLECULES

Write the letter of the correct answer in the space provided.

6. \_\_\_\_\_ a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_

### The Simplest Molecules

7. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_
8. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_
9. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_
10. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_

### More-Complex Molecules

Use the terms from the following list to complete the sentences below.

11. \_\_\_\_\_
12. \_\_\_\_\_
13. \_\_\_\_\_
14. \_\_\_\_\_

## METALLIC BONDS

Use the terms from the following list to complete the sentences below.

15. \_\_\_\_\_  
\_\_\_\_\_.
16. \_\_\_\_\_  
\_\_\_\_\_.

## Movement of Electrons Throughout a Metal

Write the letter of the correct answer in the space provided.

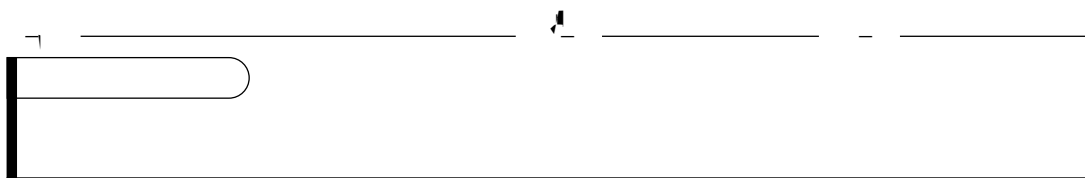
- \_\_\_\_\_ 17. \_\_\_\_\_  
a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_

## PROPERTIES OF METALS

- \_\_\_\_\_ 18. \_\_\_\_\_  
a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_

Match the correct definition with the correct term. Write the letter in the space provided.

- \_\_\_\_\_ 19. \_\_\_\_\_  
\_\_\_\_\_ 20. \_\_\_\_\_  
\_\_\_\_\_ 21. \_\_\_\_\_  
\_\_\_\_\_ 22. \_\_\_\_\_
- a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_

[illegible]

# Vocabulary and Section Summary A

## Ionic Bonds

### VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. **ionic bond**

---

---

---

2. **anion**

---

---

---

3. **electron transfer**

---

---

---

### SECTION SUMMARY

Read the following section summary.

- In an ionic bond, one atom gives up an electron to another atom.
- The atom that gives up the electron becomes a cation.
- The atom that receives the electron becomes an anion.
- The cation and anion are attracted to each other by the opposite charges.
- This attraction is the ionic bond.

---

# Vocabulary and Section Summary A

## Covalent and Metallic Bonds

### VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. **covalent bond**

---

---

---

2. **metallic bond**

---

---

---

3. **crystal lattice**

---

---

---

### SECTION SUMMARY

Read the following section summary.

- In a **covalent bond**, two atoms share one or more pairs of electrons.
- A **covalent molecule** is a group of atoms held together by covalent bonds.
- In a **metallic bond**, the atoms are held together by a sea of delocalized electrons.
- A **crystal lattice** is a regular, repeating arrangement of atoms or ions.

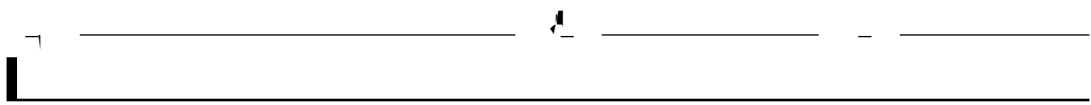
# Directed Reading A

## Section: Forming New Substances

Write the letter of the correct answer in the space provided.

- \_\_\_\_\_ 1. \_\_\_\_\_ prefix [    \_\_\_\_\_   ?
- a.  \_\_\_\_\_
- \_\_\_\_\_ prefix [    \_\_\_\_\_  4 1 91 (  1 ) / 64 /24.612 190.573.4407 578.0366 , 0

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# Directed Reading A

## Section: Chemical Formulas and Equations

### CHEMICAL FORMULAS

Write the letter of the correct answer in the space provided.

- \_\_\_\_\_ 1. \_\_\_\_\_  
a. 10  
b. 100  
c. 200  
d. 1,000

- \_\_\_\_\_ 2. \_\_\_\_\_  
a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_

- \_\_\_\_\_ 3. \_\_\_\_\_  
a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_

- \_\_\_\_\_ 4. \_\_\_\_\_  
a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_

### Writing Formulas for Ionic Compounds

7. a.  $\text{Ca}^{2+}$  and  $\text{Cl}^{-}$  b.  $\text{Ca}^{2+}$  and  $\text{O}^{2-}$  c.  $\text{Ca}^{2+}$  and  $\text{S}^{2-}$  d.  $\text{Ca}^{2+}$  and  $\text{F}^{-}$
8. a. 2 b. 1 c. 0 d. -1

### CHEMICAL EQUATIONS

#### Describing Reactions by Using Equations

Use the terms from the following list to complete the sentences below.

9.  $\text{H}_2 + \text{O}_2 \rightarrow \text{H}_2\text{O}$  is not balanced because the number of oxygen atoms is not the same on both sides of the equation.
10.  $\text{H}_2 + \text{O}_2 \rightarrow \text{H}_2\text{O}$  is not balanced because the number of hydrogen atoms is not the same on both sides of the equation.
11.  $\text{H}_2 + \text{O}_2 \rightarrow \text{H}_2\text{O}$  is not balanced because the number of oxygen atoms is not the same on both sides of the equation.

#### The Importance of Accuracy

Write the letter of the correct answer in the space provided.

12. a.  $\text{H}_2 + \text{O}_2 \rightarrow \text{H}_2\text{O}$  is not balanced because the number of oxygen atoms is not the same on both sides of the equation. b.  $\text{H}_2 + \text{O}_2 \rightarrow \text{H}_2\text{O}$  is not balanced because the number of hydrogen atoms is not the same on both sides of the equation. c.  $\text{H}_2 + \text{O}_2 \rightarrow \text{H}_2\text{O}$  is not balanced because the number of oxygen atoms is not the same on both sides of the equation. d.  $\text{H}_2 + \text{O}_2 \rightarrow \text{H}_2\text{O}$  is not balanced because the number of hydrogen atoms is not the same on both sides of the equation.

#### Why Equations Must Be Balanced

13. a.  $\text{H}_2 + \text{O}_2 \rightarrow \text{H}_2\text{O}$  is not balanced because the number of oxygen atoms is not the same on both sides of the equation. b.  $\text{H}_2 + \text{O}_2 \rightarrow \text{H}_2\text{O}$  is not balanced because the number of hydrogen atoms is not the same on both sides of the equation. c.  $\text{H}_2 + \text{O}_2 \rightarrow \text{H}_2\text{O}$  is not balanced because the number of oxygen atoms is not the same on both sides of the equation. d.  $\text{H}_2 + \text{O}_2 \rightarrow \text{H}_2\text{O}$  is not balanced because the number of hydrogen atoms is not the same on both sides of the equation.

14. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_
15. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_

### How to Balance an Equation

16. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. 2  
 c. 2  
 d. 2
17. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_
18. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_

# Vocabulary and Section Summary A

## Forming New Substances

### VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. **polymerization**

---

---

2. **monomer**

---

---

3. **cross-linking**

---

---

4. **thermosetting**

---

---

5. **thermoelasticity**

---

---

### SECTION SUMMARY

Read the following section summary.

- Polymers are long chains of repeating units called monomers. They can be formed by the process of polymerization, which can be either addition or condensation polymerization.
- Polymers can be thermoplastic or thermosetting. Thermoplastic polymers can be melted and reshaped, while thermosetting polymers cannot.
- Cross-linking is the process of forming bonds between polymer chains, which can result in a more rigid material.

# Vocabulary and Section Summary A

## Chemical Formulas and Equations

### VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1.

---

---

---

---

---

---

---

---

---

---

# Directed Reading A

## Section: Ionic and Covalent Compounds (pp. 282–285)

Write the letter of the correct answer in the space provided.

- \_\_\_\_\_ 1. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_
- \_\_\_\_\_ 2. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_

### IONIC COMPOUNDS AND THEIR PROPERTIES

Use the terms from the following list to complete the sentences below.

3. \_\_\_\_\_  
 \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

### Brittleness

Write the letter of the correct answer in the space provided.

- \_\_\_\_\_ 7. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_

Directed Reading A *continued*

8. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

15. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

### Solubility

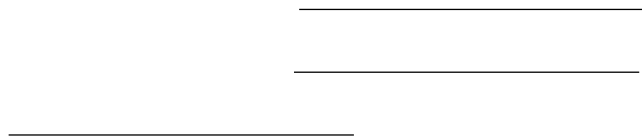
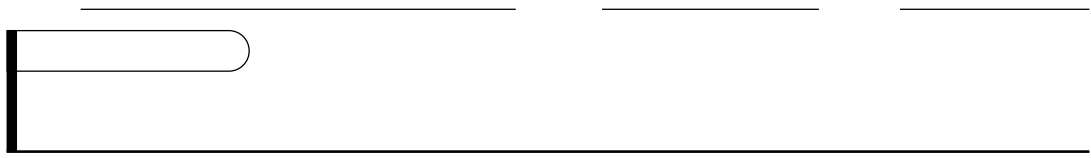
16. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

### Low Melting Points

17. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
18. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

### Electrical Conductivity

19. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
20. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
21. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_



8. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_
9. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_

### Acids React With Metals

10. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_

### Acids Conduct Electric Current

11. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_

### Uses of Acids

Match the correct description with the correct term. Write the letter in the space provided.

12. \_\_\_\_\_  
 13. \_\_\_\_\_  
 14. \_\_\_\_\_  
 15. \_\_\_\_\_
- a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_

## BASES AND THEIR PROPERTIES

Write the letter of the correct answer in the space provided.

\_\_\_\_\_ 16.

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

\_\_\_\_\_ 17.

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

### Bases Have a Bitter Flavor and a Slippery Feel

\_\_\_\_\_ 18.

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

\_\_\_\_\_ 19.

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

### Bases Change Color of Indicators

\_\_\_\_\_ 20.

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

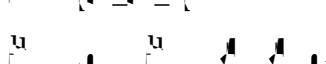
### Bases Conduct Electric Current

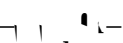
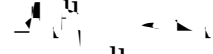
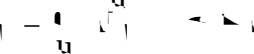
\_\_\_\_\_ 21.

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

### Uses of Bases

Match the correct description with the correct term. Write the letter in the space provided.

- \_\_\_\_\_ 22. 
- \_\_\_\_\_ 23. 
- \_\_\_\_\_ 24. 
- \_\_\_\_\_ 25. 

- a. 
- b. 
- c. 
- d. 

# Directed Reading A

## Section: Solutions of Acids and Bases (pp. 292–295)

### STRENGTHS OF ACIDS AND BASES

Write the letter of the correct answer in the space provided.

- \_\_\_\_\_ 1. \_\_\_\_\_  
a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_

### Strong Versus Weak Acids

- \_\_\_\_\_ 2. \_\_\_\_\_  
a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_
- \_\_\_\_\_ 3. \_\_\_\_\_  
a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_

### Strong Versus Weak Bases

- \_\_\_\_\_ 4. \_\_\_\_\_  
a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_

### ACIDS, BASES, AND NEUTRALIZATION

Use the terms from the following list to complete the sentences below.

5. \_\_\_\_\_ ( )

6. \_\_\_\_\_

\_\_\_\_\_

Match the correct description with the correct term. Write the letter in the space provided.

- \_\_\_\_\_ 13. \_\_\_\_\_  
 \_\_\_\_\_ 14. \_\_\_\_\_  
 \_\_\_\_\_ 15. \_\_\_\_\_

- a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_

### Using Indicators to Determine pH

Write the letter of the correct answer in the space provided.

- \_\_\_\_\_ 16. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_
- \_\_\_\_\_ 17. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_

### pH and the Environment

- \_\_\_\_\_ 18. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_
- \_\_\_\_\_ 19. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_

### SALTS

- \_\_\_\_\_ 20. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_

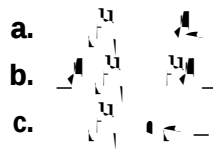
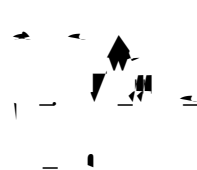
### Uses of Salts

Match the correct description with the correct term. Write the letter in the space provided.

\_\_\_\_\_ 21.

\_\_\_\_\_ 22.

\_\_\_\_\_ 23.



# Vocabulary and Section Summary A

## Ionic and Covalent Compounds

### VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1.

---

---

---

2.

---

---

---

3.

---

---

---

### SECTION SUMMARY

Read the following section summary.

- Ionic compounds are formed by the transfer of electrons from one atom to another, resulting in the formation of oppositely charged ions that are held together by strong electrostatic forces.
- Covalent compounds are formed by the sharing of electrons between two atoms, resulting in the formation of molecules.
- The properties of ionic compounds are different from those of covalent compounds.
- The properties of ionic compounds are different from those of covalent compounds.

# Vocabulary and Section Summary A

## Acids and Bases

### VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1.  $\text{pH}$

---

---

---

2.  $\text{acid}$

---

---

---

3.  $\text{base}$

---

---

---

### SECTION SUMMARY

Read the following section summary.

- Acids are substances that have a  $\text{pH}$  less than 7. Bases are substances that have a  $\text{pH}$  greater than 7.
- Acids and bases react with each other to form salts and water.

# Vocabulary and Section Summary A

## Solutions of Acids and Bases

### VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1.  $\text{H}^+$  ion

---

---

---

2.  $\text{OH}^-$  ion

---

---

---

3.  $\text{H}_2\text{O}$

---

---

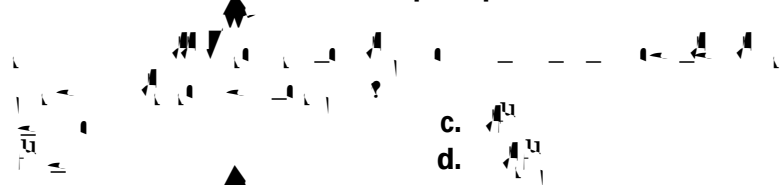
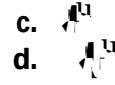
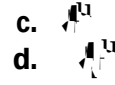
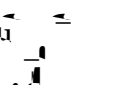
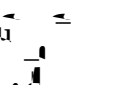
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# Directed Reading A

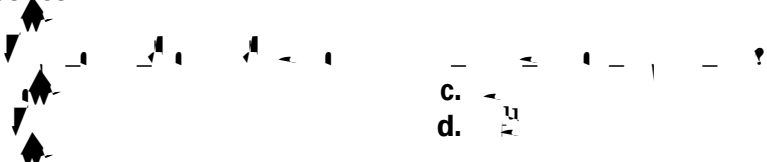
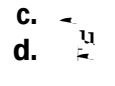
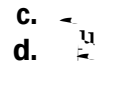
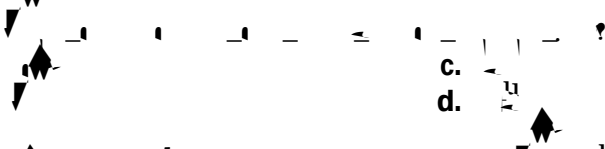
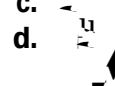
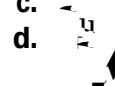
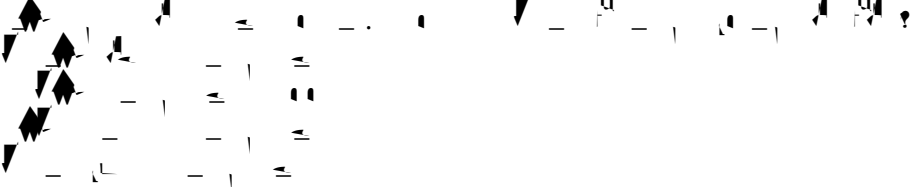
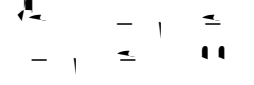
## Section: Elements in Living Things (pp. 310–313)

### THE BONDING OF CARBON ATOMS

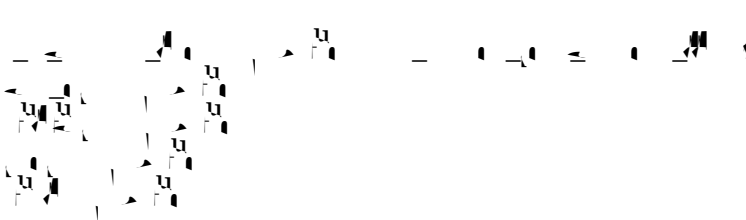
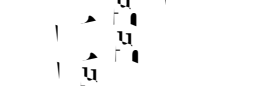
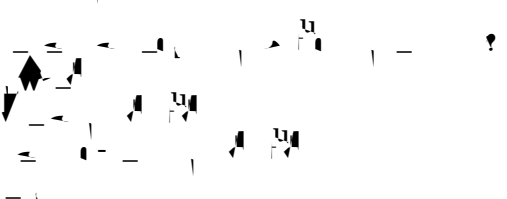
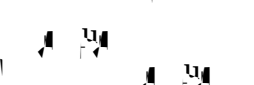
Write the letter of the correct answer in the space provided.

- \_\_\_\_\_ 1. 
- a.  b.  c.  d. 
- \_\_\_\_\_ 2. 
- a.  b.  c.  d. 

### Carbon Backbones

- \_\_\_\_\_ 3. 
- a.  b.  c.  d. 
- \_\_\_\_\_ 4. 
- a.  b.  c.  d. 
- \_\_\_\_\_ 5. 
- a.  b.  c.  d. 

### Single Bonds

- \_\_\_\_\_ 6. 
- a.  b.  c.  d. 
- \_\_\_\_\_ 7. 
- a.  b.  c.  d. 

Use the terms from the following list to complete the sentences below.

8. ( ) \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_
11. ( ) \_\_\_\_\_

### OTHER ELEMENTS IN LIVING ORGANISMS

Write the letter of the correct answer in the space provided.

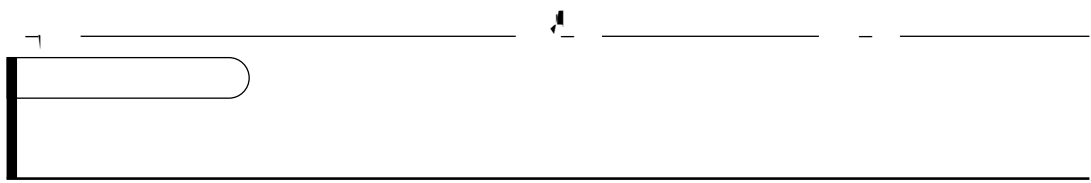
- \_\_\_\_\_ 12. \_\_\_\_\_
- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

### Elements in Organic Compounds

- \_\_\_\_\_ 13. \_\_\_\_\_
- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

### Organic Compounds—Not Just from Living Things!

- \_\_\_\_\_ 14. \_\_\_\_\_
- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_
- \_\_\_\_\_ 15. \_\_\_\_\_
- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_



\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

8. a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_

### PROTEINS

Use the terms from the following list to complete the sentences below.

9. \_\_\_\_\_  
 10. \_\_\_\_\_  
 11. \_\_\_\_\_

### NUCLEIC ACIDS

Use the terms from the following list to complete the sentences below.

12. \_\_\_\_\_  
 13. \_\_\_\_\_  
 14. \_\_\_\_\_

### DNA AND RNA

Match the correct description with the correct term. Write the letter in the space provided.

15. \_\_\_\_\_ a. \_\_\_\_\_  
 16. \_\_\_\_\_ b. \_\_\_\_\_  
 17. \_\_\_\_\_ c. \_\_\_\_\_

## OTHER IMPORTANT COMPOUNDS

### Water

Write the letter of the correct answer in the space provided.

- \_\_\_\_\_ 18. \_\_\_\_\_ 70% \_\_\_\_\_ ?
- a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
- \_\_\_\_\_ 19. \_\_\_\_\_ , \_\_\_\_\_ ?
- a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_

### Salt

- \_\_\_\_\_ 20. \_\_\_\_\_ ?
- a. \_\_\_\_\_

# Vocabulary and Section Summary A

## Elements in Living Things

### VOCABULARY

In your own words, write a definition of the following term in the space provided.

1. **element**

---

---

---

### SECTION SUMMARY

Read the following section summary.

- The elements in living things are carbon, hydrogen, oxygen, nitrogen, phosphorus, and sulfur.
- The elements in living things are carbon, hydrogen, oxygen, nitrogen, phosphorus, and sulfur.
- The elements in living things are carbon, hydrogen, oxygen, nitrogen, phosphorus, and sulfur.

# Vocabulary and Section Summary A

## Compounds of Living Things

### VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. **carbohydrate**

---

---

---

2. **protein**

---

---

---

3. **lipid**

---

---

---

4. **enzyme**

---

---

---

### SECTION SUMMARY

Read the following section summary.

- Carbohydrates are organic compounds that contain carbon, hydrogen, and oxygen. They are the primary source of energy for living organisms.
- Proteins are organic compounds that contain carbon, hydrogen, oxygen, and nitrogen. They are the building blocks of life and are involved in many biological processes.
- Lipids are organic compounds that contain carbon, hydrogen, and oxygen. They are the main energy storage molecules in living organisms.
- Enzymes are proteins that act as biological catalysts, speeding up chemical reactions in the body.
- The body uses these compounds to build and maintain its structure and to provide energy for its functions.

# Directed Reading A

## Section: Measuring Motion

Write the letter of the correct answer in the space provided.

\_\_\_\_\_ 1.

a.

b.

c.

Directed Reading A *continued*

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

### Speed Versus Velocity

\_\_\_\_\_ 13.

- a.
- b.
- c.
- d.

\_\_\_\_\_ 14.

- a. 600 /
- b. 600 /
- c. 600 /
- d. 600 /

### Changing Velocity

\_\_\_\_\_ 15.

- a.
- b.
- c.
- d.

### ACCELERATION

Use the terms from the following list to complete the sentences below.

16.

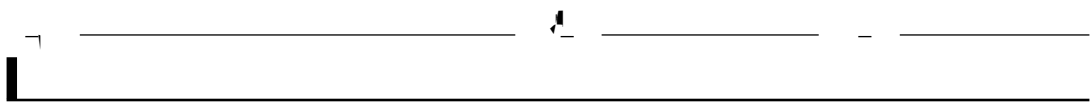
\_\_\_\_\_

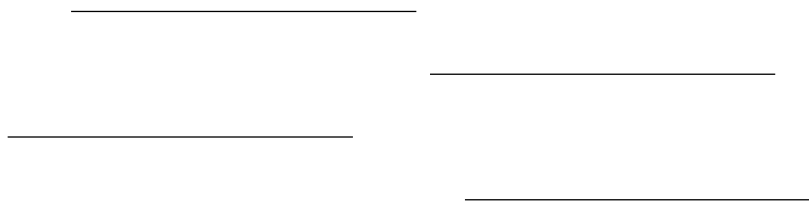
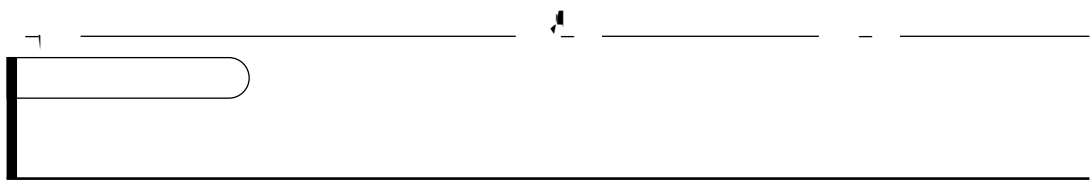
\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_





### Forces in the Same Direction

- \_\_\_\_\_ 8. 
- a. 
- b. 
- c. 
- d. 

### Forces in Opposite Directions

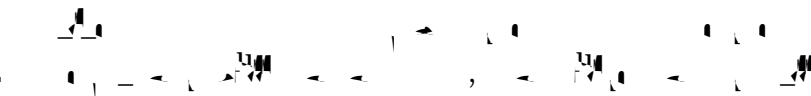
- \_\_\_\_\_ 9. 
- a. 
- b. 
- c. 
- d. 

### BALANCED FORCES: NO CHANGE IN MOTION

- \_\_\_\_\_ 10. 
- a. 
- b. 
- c. 
- d. 
- \_\_\_\_\_ 11. 
- a. 0
- b. 1
- c. 2
- d. 3
- \_\_\_\_\_ 12. 
- a. 
- b. 
- c. 
- d. 

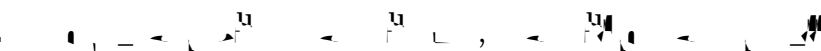
Use the terms from the following list to complete the sentences below.

13.



\_\_\_\_\_.

14.



\_\_\_\_\_.

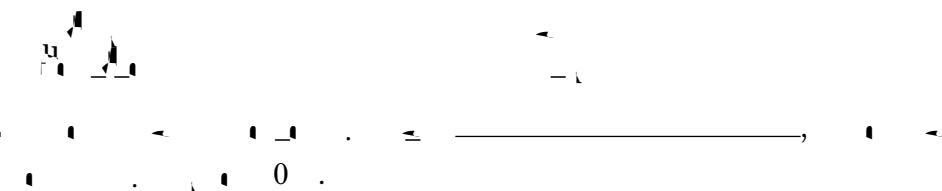
15.



### UNBALANCED FORCES: VELOCITY CHANGES

Use the terms from the following list to complete the sentences below.

16.



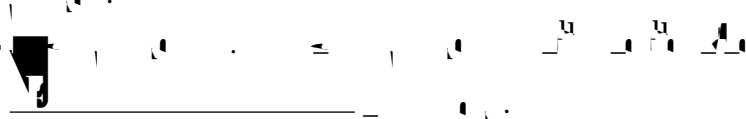
17.



18.



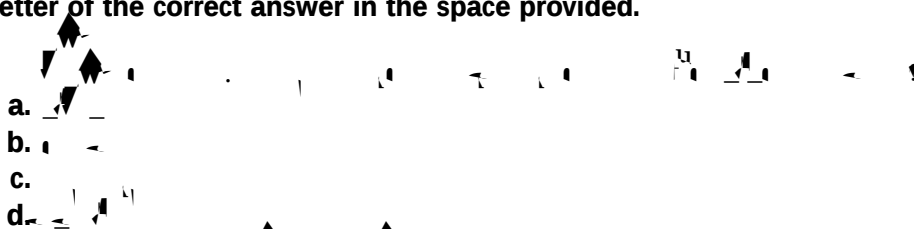
19.



### Unbalanced Forces and Direction of Motion

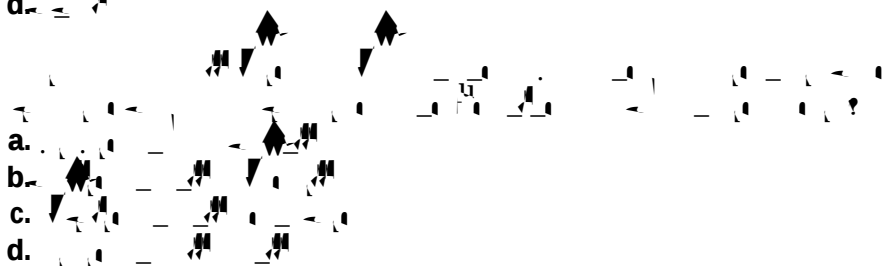
Write the letter of the correct answer in the space provided.

\_\_\_\_\_ 20.



- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

\_\_\_\_\_ 21.



- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

# Directed Reading A

## Section: Friction: A Force That Opposes Motion (pp. 350–355)

Write the letter of the correct answer in the space provided.

- \_\_\_\_\_ 1.
- - 
  - 
  -

### THE SOURCE OF FRICTION

- \_\_\_\_\_ 2.
- - 
  - 
  -
- \_\_\_\_\_ 3.
- - 
  - 
  -

### The Effect of Force on Friction

- \_\_\_\_\_ 4.
- - 
  - 
  -

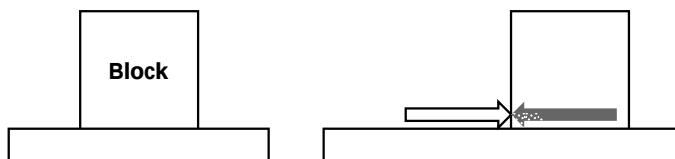
### The Effect of Material on Friction

- \_\_\_\_\_ 5.
- - 
  - 
  -

Directed Reading A *continued*

6.

Use the figures below to answer questions 13, 14, and 15. Write the letter of the correct answer in the space provided.



13.

- a.
- b.
- c.
- d.

14.

- a.
- b.
- c.
- d.

15.

- a.
- b.
- c.
- d.

### FRICTION: HARMFUL AND HELPFUL

16.

- a.
- b.
- c.
- d.

17.

- a.
- b.
- c.
- d.

**Ways to Reduce Friction**

\_\_\_\_\_ 18.

- a.
- b.
- c.
- d.

\_\_\_\_\_ 19.

- a.
- b.
- c.
- d.

**Ways to Increase Friction**

\_\_\_\_\_ 20.

- a.
- b.
- c.
- d.

\_\_\_\_\_ 21.

- a.
- b.
- c.
- d.

# Vocabulary and Section Summary A

## Measuring Motion

### VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. **distance**

---

---

2. **displacement**

---

---

3. **speed**

---

---

4. **velocity**

---

---

### SECTION SUMMARY

Read the following section summary.

- Motion is a change in position. Distance is the total length of the path traveled.
- Displacement is the change in position from the starting point to the ending point.
- Speed is the distance traveled divided by the time taken.
- Velocity is the displacement divided by the time taken.
- Acceleration is the change in velocity divided by the time taken.
- The SI unit for distance is the meter (m).
- The SI unit for time is the second (s).



# Vocabulary and Section Summary A

## Friction: A Force That Opposes Motion

### VOCABULARY

In your own words, write a definition of the following term in the space provided.

1. **Friction**

---

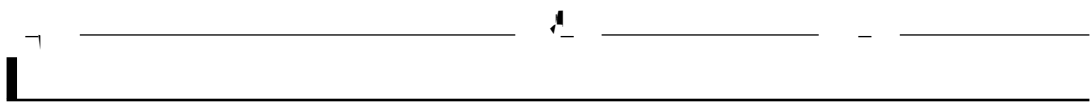
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### SECTION SUMMARY

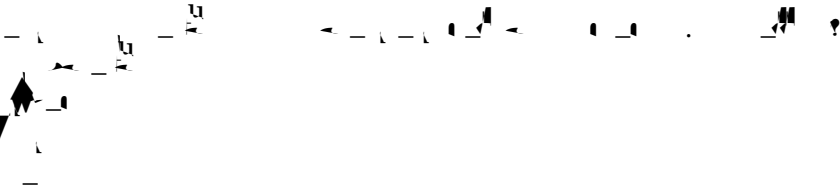
Read the following section summary.

- Friction is a force that opposes motion.
- Friction acts in the opposite direction of the motion.
- Friction is caused by the roughness of surfaces.
- Friction is a contact force.
- Friction is a force that acts between two surfaces in contact.
- Friction is a force that acts between two objects in contact.

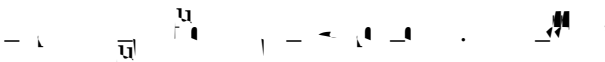
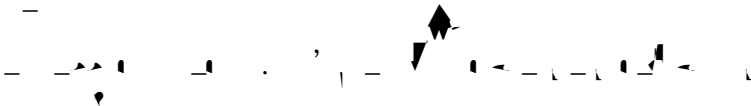
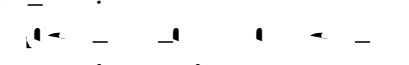
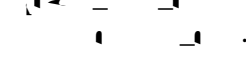
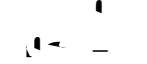
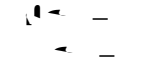
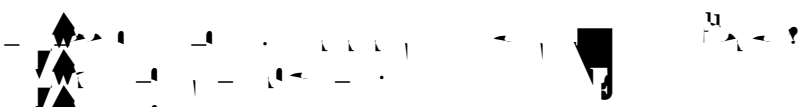
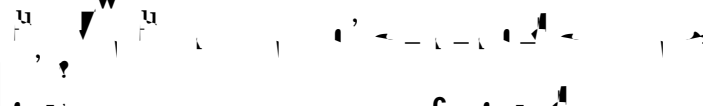
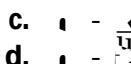
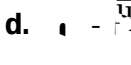




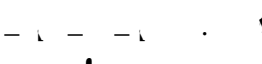
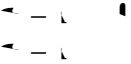
## WEIGHT AND GRAVITATIONAL FORCE

12. 
- a. 
- b. 
- c. 
- d. 

## The Differences Between Weight and Mass

13. 
- a. 
- b. 
- c. 
- d. 
14. 
- a. 
- b. 
- c. 
- d. 
15. 
- a. 
- b. 
- c. 
- d. 
16. 
- a. 
- b. 
- c. 
- d. 

## GRAVITY AND STATIC OBJECTS

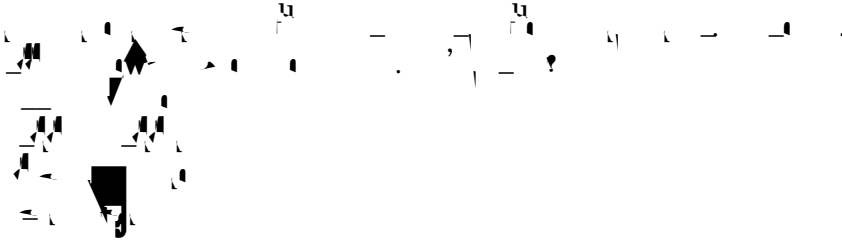
17. 
- a. 
- b. 
- c. 
- d. 
18. 
- a. 
- b. 
- c. 
- d. 

# Directed Reading A

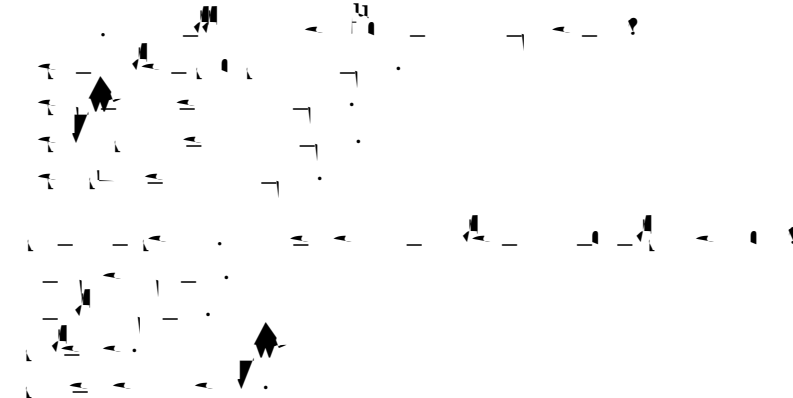
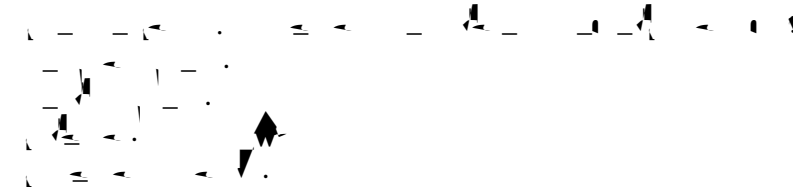
## Section: Gravity and Motion

### GRAVITY AND FALLING OBJECTS

Write the letter of the correct answer in the space provided.

- \_\_\_\_\_ 1. 
- a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_

### Gravity and Acceleration

- \_\_\_\_\_ 2. 
- a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_
- \_\_\_\_\_ 3. 
- a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_

### Acceleration and Changes in Velocity

Match the correct description with the correct term. Write the letter in the space

### AIR RESISTANCE AND FALLING OBJECTS

Write the letter of the correct answer in the space provided.

\_\_\_\_\_ 10.

a.

b.

c.

d.

\_\_\_\_\_ 11.

a.

b.

c.

d.

### Acceleration and Terminal Velocity

Match the correct description with the correct term. Write the letter in the space provided.

\_\_\_\_\_ 12.

a.

b.

\_\_\_\_\_ 13.

### PROJECTILE MOTION AND GRAVITY

Write the letter of the correct answer in the space provided.

\_\_\_\_\_ 14.

a.

b.

c.

d.

### Horizontal Movement

\_\_\_\_\_ 15.

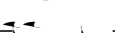
a.

b.

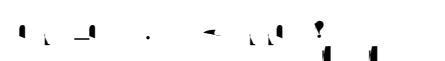
c.

d.

**Vertical Movement**

- \_\_\_\_\_ 16. 
- a. 
- b. 
- c. 
- d. 
- \_\_\_\_\_ 17. 
- a. 
- b. 
- c. 
- d. 
- \_\_\_\_\_ 18. 
- a. 
- b. 
- c. 
- d. 

**ORBITING AND GRAVITY**

- \_\_\_\_\_ 19. 
- a. 
- a. 

7

8

9

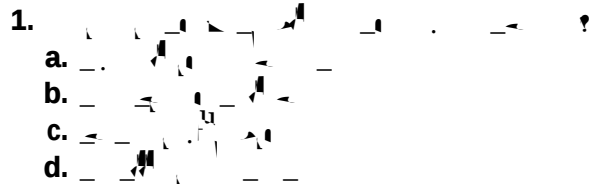
# Directed Reading A

## Section: Newton's Laws of Motion (pp. 384–391)

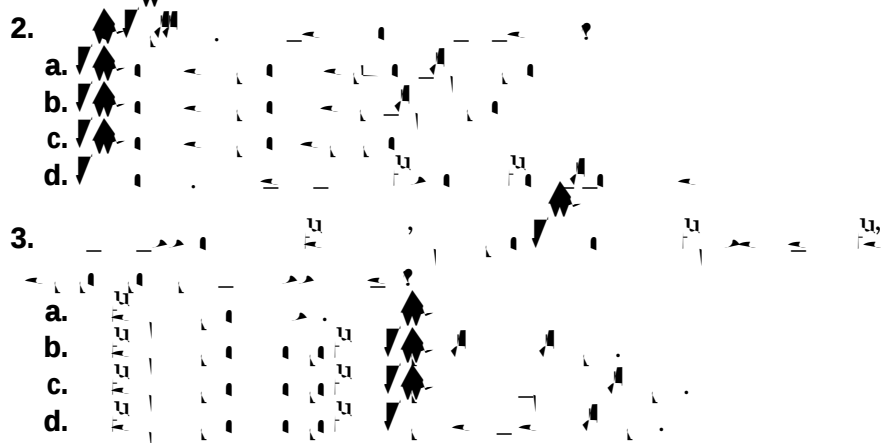
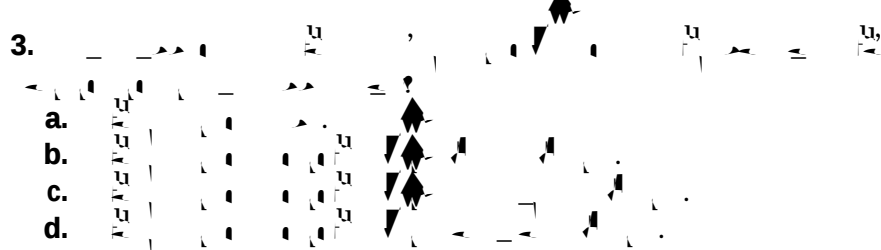
### NEWTON'S FIRST LAW

#### Part 1: Objects at Rest

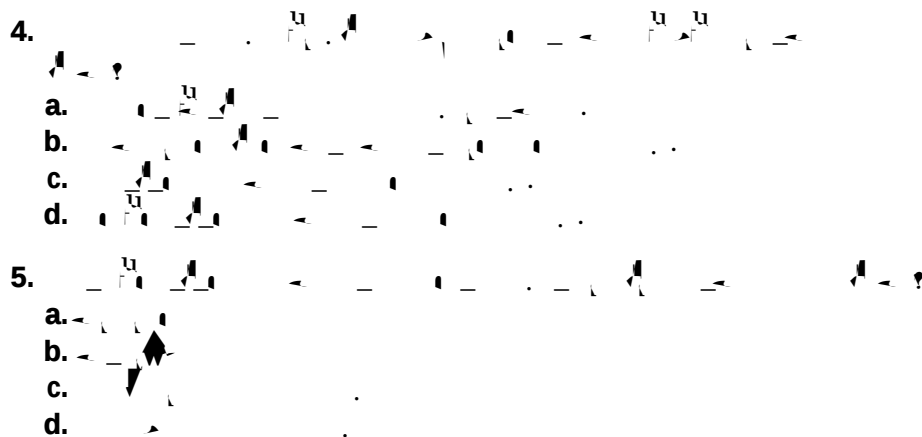
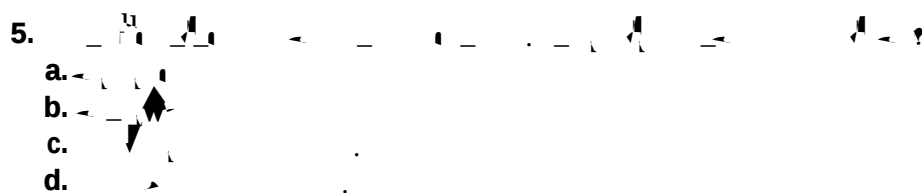
Write the letter of the correct answer in the space provided.

- \_\_\_\_\_ 1. 
- a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_

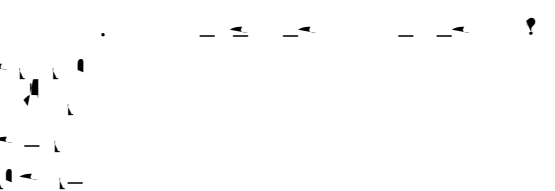
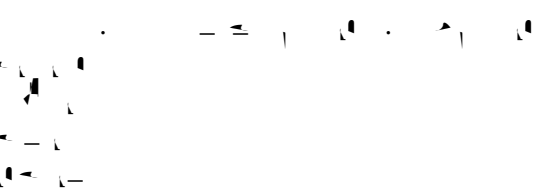
#### Part 2: Objects in Motion

- \_\_\_\_\_ 2. 
- a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_
- \_\_\_\_\_ 3. 
- a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_

#### Friction and Newton's First Law

- \_\_\_\_\_ 4. 
- a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_
- \_\_\_\_\_ 5. 
- a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_

### Inertia and Newton's First Law

- \_\_\_\_\_ 6.  ?
- 
  - 
  - 
  - 
- \_\_\_\_\_ 7.  ?
- 
  - 
  - 
  - 
- \_\_\_\_\_ 8.  ?
- 
  - 
  - 
  - 

### Mass and Inertia

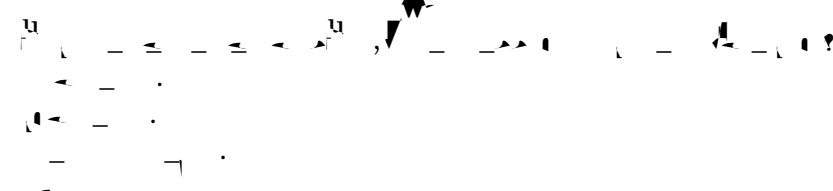
- \_\_\_\_\_ 9.  ?
- 
  - 
  - 
  - 

### NEWTON'S SECOND LAW OF MOTION

#### Part 1: Acceleration Depends on Mass

- \_\_\_\_\_ 10.  ?
- 
  - 
  - 
  - 

#### Part 2: Acceleration and Force

- \_\_\_\_\_ 11.  ?
- 
  - 
  - 
  - 

7 \_\_\_\_\_ 4 \_\_\_\_\_ - \_\_\_\_\_

# Vocabulary and Section Summary A

## Gravity: A Force of Attraction

### VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1.  \_ \_

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2.  \_ \_

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3.  \_

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## Vocabulary and Section Summary A

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# Vocabulary and Section Summary A

## Newton's Laws of Motion

### VOCABULARY

In your own words, write a definition of the following term in the space provided.

1. **net force**

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### SECTION SUMMARY

Read the following section summary.

- Newton's first law of motion states that an object at rest stays at rest and an object in motion stays in motion with the same speed and in the same direction unless acted upon by an unbalanced force.
- Newton's second law of motion states that the acceleration of an object is directly proportional to the net force acting on it and inversely proportional to its mass.
- Newton's third law of motion states that for every action, there is an equal and opposite reaction.
- The net force on an object is the sum of all the forces acting on it.
- If the net force on an object is zero, the object is in equilibrium and its motion does not change.
- If the net force on an object is not zero, the object is not in equilibrium and its motion changes.
- The acceleration of an object is the change in its velocity divided by the time it takes for the change to occur.

# Directed Reading A

## Section: Fluids and Pressure (pp. 406–411)

Use the terms from the following list to complete the sentences below.

1. \_\_\_\_\_ ( ) \_\_\_\_\_.
2. \_\_\_\_\_.
3. \_\_\_\_\_.

### FLUIDS AND PRESSURE

Use the terms from the following list to complete the sentences below.

4. \_\_\_\_\_.
5. \_\_\_\_\_.
6. \_\_\_\_\_.
7. \_\_\_\_\_.

### Pressure and Bubbles

Write the letter of the correct answer in the space provided.

- \_\_\_\_\_ 8. \_\_\_\_\_
- a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_

## ATMOSPHERIC PRESSURE

Match the correct description with the correct term. Write the letter in the space provided.

- |           |            |
|-----------|------------|
| _____ 9.  | a.         |
| _____ 10. | b.         |
| _____ 11. | c.         |
| _____ 12. | d. 101,300 |

## Variation of Atmospheric Pressure

Write the letter of the correct answer in the space provided.

- |           |            |
|-----------|------------|
| _____ 13. | a.         |
|           | b.         |
|           | c. 12,000  |
|           | d. 150,000 |
| _____ 14. | a.         |
|           | b.         |
|           | c. 12,000  |
|           | d. 150,000 |

## Atmospheric Pressure and Depth

- |           |    |
|-----------|----|
| _____ 15. | a. |
|           | b. |
|           | c. |
|           | d. |

## Pressure Changes and Your Body

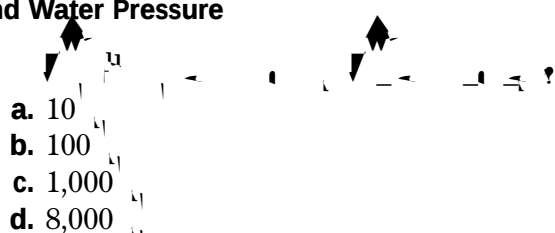
- |           |    |
|-----------|----|
| _____ 16. | a. |
|           | b. |
|           | c. |
|           | d. |

## WATER PRESSURE

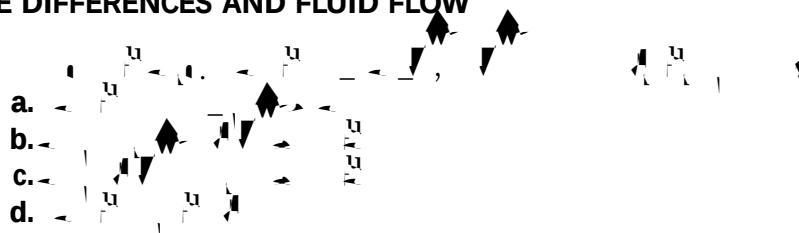
### Water Pressure and Depth

- \_\_\_\_\_ 17. 
- a.
  - b.
  - c.
  - d.

### Density and Water Pressure

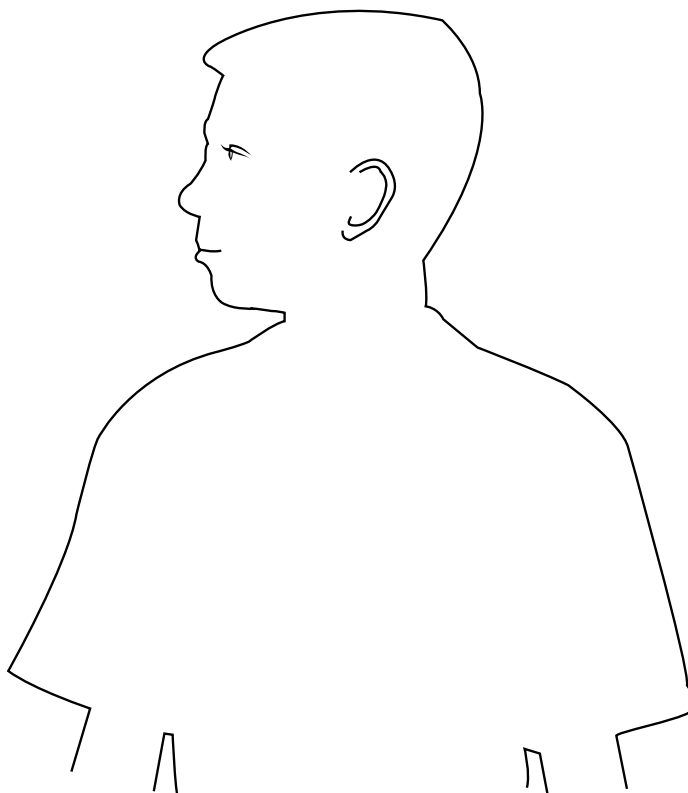
- \_\_\_\_\_ 18. 
- a. 10
  - b. 100
  - c. 1,000
  - d. 8,000
- \_\_\_\_\_ 19. 
- a.
  - b.
  - c.
  - d.
- \_\_\_\_\_ 20. 
- a.
  - b.
  - c.
  - d.

## PRESSURE DIFFERENCES AND FLUID FLOW

- \_\_\_\_\_ 21. 
- a.
  - b.
  - c.
  - d.

**Pressure Differences and Breathing**

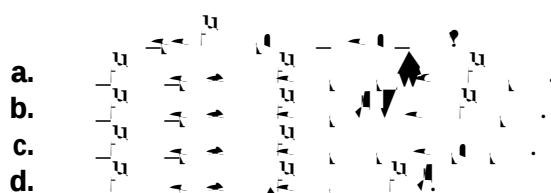
Use the drawing below to answer questions 22 and 23. Write the letter of the correct answer in the space provided.



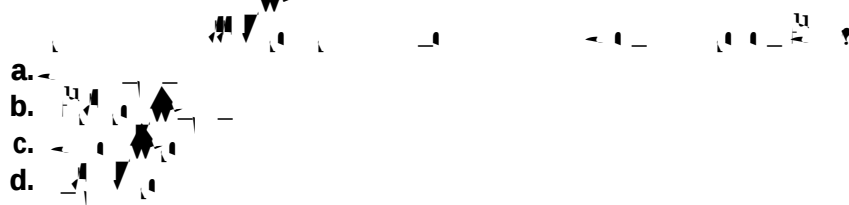
- \_\_\_\_\_ 22. \_\_\_\_\_
- a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
- \_\_\_\_\_ 23. \_\_\_\_\_
- a. \_\_\_\_\_ ( \_\_\_\_\_ ) \_\_\_\_\_ ( \_\_\_\_\_ ) \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_ ( \_\_\_\_\_ ) \_\_\_\_\_

**Pressure Differences and Tornadoes**

\_\_\_\_\_ 24.



\_\_\_\_\_ 25.



# Directed Reading A

## Section: Buoyancy and Density

Write the letter of the correct answer in the space provided.

- \_\_\_\_\_ 1. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_

### BUOYANT FORCE AND FLUID PRESSURE

Use the terms from the following list to complete the sentences below.

2. \_\_\_\_\_  
 3. \_\_\_\_\_  
 \_\_\_\_\_  
 4. \_\_\_\_\_

### WEIGHT VERSUS BUOYANT FORCE

Use the terms from the following list to complete the sentences below.

5. \_\_\_\_\_  
 \_\_\_\_\_  
 6. \_\_\_\_\_  
 \_\_\_\_\_

### Sinking

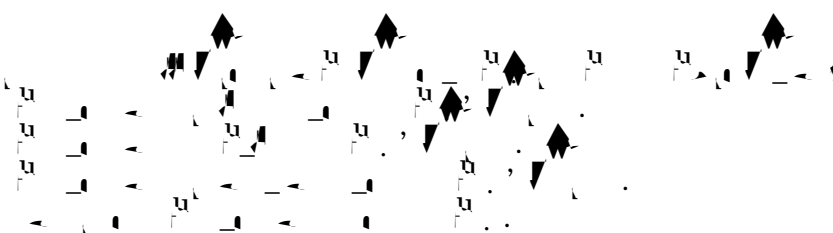
Write the letter of the correct answer in the space provided.

- \_\_\_\_\_ 7. \_\_\_\_\_  
 a. \_\_\_\_\_

### Floating

- \_\_\_\_\_ 8. 
- 
  - 
  - 
  - 

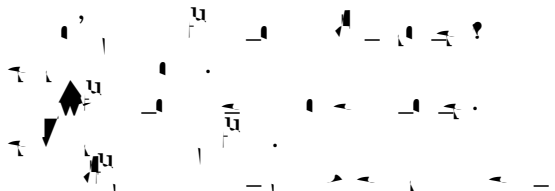
### Buoying Up

- \_\_\_\_\_ 9. 
- 
  - 
  - 
  - 

### DENSITY AND FLOATING

- \_\_\_\_\_ 10. 
- 
  - 
  - 
  - 
- \_\_\_\_\_ 11. 
- 
  - 
  - 
  - 

### More Dense Than Air

- \_\_\_\_\_ 12. 
- 
  - 
  - 
  - 

### Less Dense Than Air

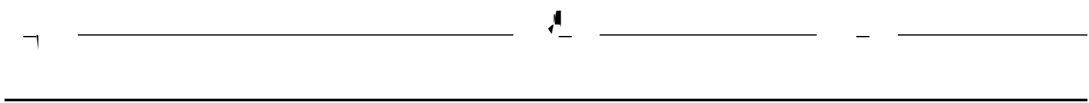
- \_\_\_\_\_ 13. 
- 
  - 
  - 
  - 

### DETERMINING DENSITY

- \_\_\_\_\_ 14. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

### Volume of a Regular Solid

- \_\_\_\_\_ 15. \_\_\_\_\_
- \_\_\_\_\_ How do you find the volume of a solid? \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_  $1.279 / 3.4$  \_\_\_\_\_



# Vocabulary and Section Summary A

## Fluids and Pressure

### VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. 

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2. 

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3. 

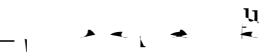
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4. 

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### SECTION SUMMARY

Read the following section summary.

-  Fluids exert pressure in all directions.
-  Pressure is the force exerted per unit area.
-  Pressure is the same in all directions at a given point in a fluid.
-  Pressure increases with depth in a fluid.
-  Pressure is the same at the same depth in a fluid.
-  Pressure is the same in all directions at a given point in a fluid.
-  Pressure is the same at the same depth in a fluid.



# Directed Reading A

## Section: Stars

Write the letter of the correct answer in the space provided.

- \_\_\_\_\_ 1. \_\_\_\_\_ ?
- a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_

## COLOR OF STARS

- \_\_\_\_\_ 2. \_\_\_\_\_ ?
- a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_

### Types of Spectra

Use the terms from the following list to complete the sentences below.

7. \_\_\_\_\_ (a) \_\_\_\_\_

8. \_\_\_\_\_

### Trapping the Light: Cosmic Detective Work

Write the letter of the correct answer in the space provided.

\_\_\_\_\_ 9. \_\_\_\_\_ ?  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_

\_\_\_\_\_ 10. \_\_\_\_\_ ?  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_

\_\_\_\_\_ 11. \_\_\_\_\_ ?  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_

\_\_\_\_\_ 12. \_\_\_\_\_ ?  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_

### Identifying Elements by Using Dark Lines

\_\_\_\_\_ 13. \_\_\_\_\_ ?  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_

### The Types of Elements in a Star

- \_\_\_\_\_ 14. \_\_\_\_\_ ?
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
- \_\_\_\_\_ 15. \_\_\_\_\_ ?
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

### CLASSIFYING STARS

- \_\_\_\_\_ 16. \_\_\_\_\_ ?
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

### Differences in Temperature

- \_\_\_\_\_ 17. \_\_\_\_\_ ?
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
- \_\_\_\_\_ 18. \_\_\_\_\_ ?
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

### Differences in Brightness

- \_\_\_\_\_ 19. \_\_\_\_\_ ?
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
- \_\_\_\_\_ 20. \_\_\_\_\_ ?
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

## Directed Reading A *continued*

21. \_\_\_\_\_
- a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_
22. \_\_\_\_\_
- a. 14 \_\_\_\_\_ c. 9.8 \_\_\_\_\_  
b. 1.4 \_\_\_\_\_ d. 9.8 \_\_\_\_\_

### HOW BRIGHT IS THAT STAR?

#### Apparent Magnitude

Use the terms from the following list to complete the sentences below.

23. \_\_\_\_\_
24. \_\_\_\_\_ 32.6 \_\_\_\_\_

### DISTANCE TO THE STARS

Use the terms from the following list to complete the sentences below.

25. \_\_\_\_\_ ( ) \_\_\_\_\_
26. \_\_\_\_\_

### MOTIONS OF STARS

#### The Apparent Motion of Stars

Write the letter of the correct answer in the space provided.

27. \_\_\_\_\_
- a. \_\_\_\_\_

# Directed Reading A

## Section: The Life Cycle of Stars

### TYPES OF STARS

Write the letter of the correct answer in the space provided.

- \_\_\_\_\_ 1. \_\_\_\_\_  
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
  
- \_\_\_\_\_ 2. \_\_\_\_\_  
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_

### THE LIFE CYCLE OF SUNLIKE STARS

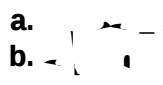
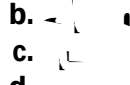
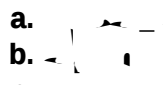
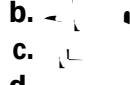
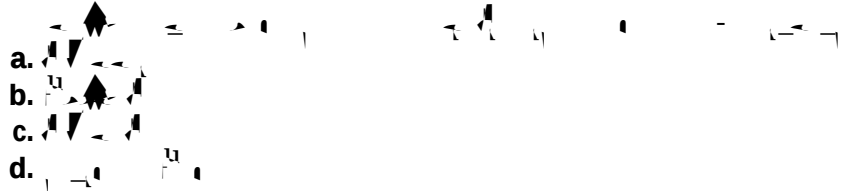
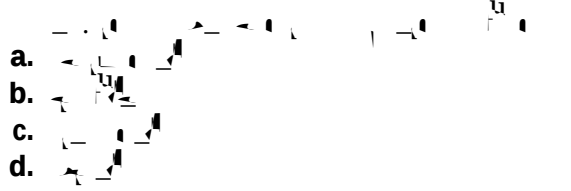
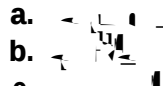
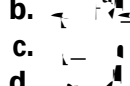
Use the terms from the following list to complete the sentences below.

- \_\_\_\_\_ 3. \_\_\_\_\_
- \_\_\_\_\_ 4. \_\_\_\_\_
- \_\_\_\_\_ 5. \_\_\_\_\_
- \_\_\_\_\_ 6. \_\_\_\_\_

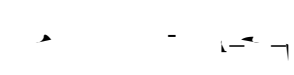
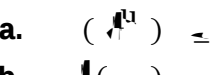
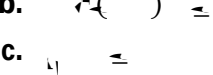
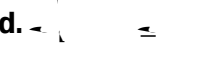
### A TOOL FOR STUDYING STARS

Write the letter of the correct answer in the space provided.

### The H-R Diagram

9. 
- a. 
- b. 
- c. 
- d. 
10. 
- a. 
- b. 
- c. 
- d. 
11. 
- a. 
- b. 
- c. 
- d. 
12. 
- a. 
- b. 
- c. 
- d. 

Match the correct description with the correct term. Write the letter in the space provided.

13.  a. 
14.  b. 
15.  c. 
16.  d. 

### THE AGING OF MASSIVE STARS

Use the terms from the following list to complete the sentences below.

17. \_\_\_\_\_ (1)
18. \_\_\_\_\_ (1)
19. \_\_\_\_\_ (1)
20. \_\_\_\_\_ (1)

**Write the letter of the correct answer in the space provided.**

- 2.**

8. \_\_\_\_\_
- a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_

## QUASARS

9. \_\_\_\_\_
- a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
10. \_\_\_\_\_
- a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_

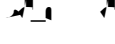
## ORIGIN OF GALAXIES

11. \_\_\_\_\_
- a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
12. \_\_\_\_\_
- a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_

## Directed Reading A

### Section: Formation of the Universe

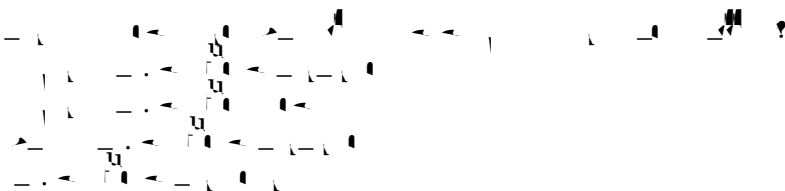
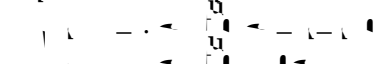
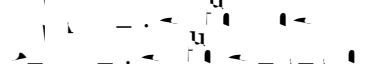
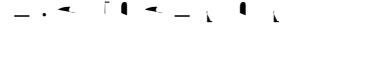
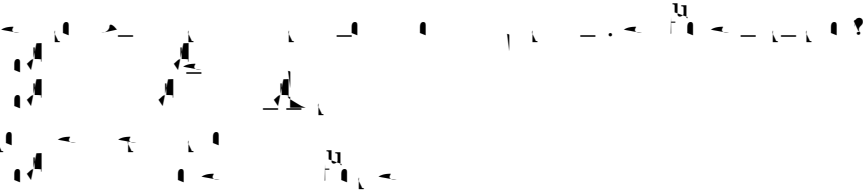
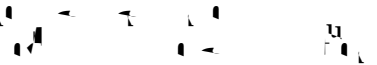
Write the letter of the correct answer in the space provided.

- \_\_\_\_\_ 1. 
- a. 
- b. 
- c. 
- d. 

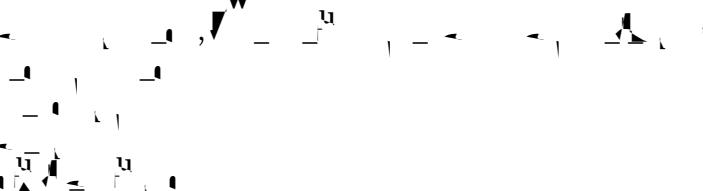
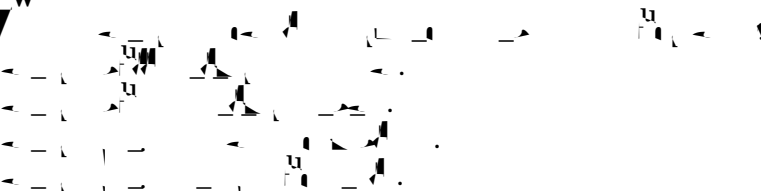
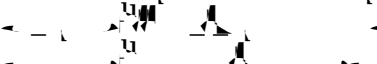
### THE BIG BANG THEORY

- \_\_\_\_\_ 2.

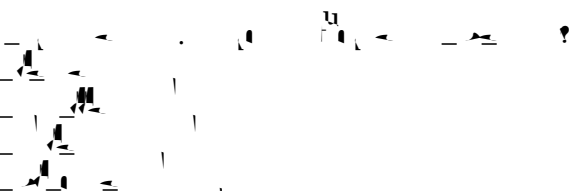
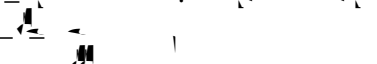
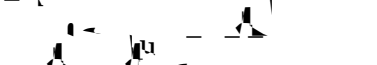
### Cosmic Background Radiation

- \_\_\_\_\_ 6.  ?
- a. 
- b. 
- c. 
- d. 
- \_\_\_\_\_ 7.  ?
- a. 
- b. 
- c. 
- d. 

### GRAVITY AND THE UNIVERSE

- \_\_\_\_\_ 8.  ?
- a. 
- b. 
- c. 
- d. 
- \_\_\_\_\_ 9.  ?
- a. 
- b. 
- c. 
- d. 

### A Cosmic Repetition

- \_\_\_\_\_ 10.  ?
- a. 
- b. 
- c. 
- d. 
- \_\_\_\_\_ 11.  ?
- a. 
- b. 
- c. 
- d. 

### HOW OLD IS THE UNIVERSE?

- \_\_\_\_\_ 12. \_\_\_\_\_ ?
- a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
- \_\_\_\_\_ 13. \_\_\_\_\_ ?
- a. \_\_\_\_\_ 12 \_\_\_\_\_ 13 \_\_\_\_\_
  - b. \_\_\_\_\_ 12 \_\_\_\_\_ 13 \_\_\_\_\_
  - c. \_\_\_\_\_ 12 \_\_\_\_\_ 13 \_\_\_\_\_
  - d. \_\_\_\_\_ 12 \_\_\_\_\_ 13 \_\_\_\_\_

### A FOREVER-EXPANDING UNIVERSE?

- \_\_\_\_\_ 14. \_\_\_\_\_ ?
- a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
- \_\_\_\_\_ 15. \_\_\_\_\_ ?
- a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
- \_\_\_\_\_ 16. \_\_\_\_\_ ?
- a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_



\_\_\_\_\_

[illegible]



# Vocabulary and Section Summary A

## Formation of the Universe

### VOCABULARY

In your own words, write a definition of the following term in the space provided.

1. **nebula**

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### SECTION SUMMARY

Read the following section summary.

- The universe is made of billions of galaxies. Each galaxy is made of billions of stars. The stars are made of hydrogen and helium.
- The universe is expanding. The galaxies are moving away from each other. The space between the galaxies is getting bigger.
- The universe is getting older. It is about 14 billion years old.
- The universe is getting bigger. It is expanding.
- The universe is getting hotter. It is getting closer to the Big Bang.

# Directed Reading A

## Section: A Solar System Is Born (pp. 472–479)

Write the letter of the correct answer in the space provided.

- \_\_\_\_\_ 1. \_\_\_\_\_ ?
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

### THE SOLAR NEBULA

- \_\_\_\_\_ 2. \_\_\_\_\_ ?
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
- \_\_\_\_\_ 3. \_\_\_\_\_ ?
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
- \_\_\_\_\_ 4. \_\_\_\_\_ ?
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

### Gravity Pulls Matter Together

- \_\_\_\_\_ 5. \_\_\_\_\_ ?
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
- \_\_\_\_\_ 6. \_\_\_\_\_ ?
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

### Pressure Pushes Matter Apart

Use the terms from the following list to complete the sentences below.

7. \_\_\_\_\_.
8. \_\_\_\_\_.

### UPSETTING THE BALANCE

Write the letter of the correct answer in the space provided.

9. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

### HOW THE SOLAR SYSTEM FORMED

10. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

### From Planetesimals to Planets

11. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
12. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
13. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

\_\_\_\_\_ 14.

a.

b.

c.

d.

**The Birth of a Star**

\_\_\_\_\_ 15.

a.

b.

c.

d.

\_\_\_\_\_ 16.

a.

b.

c.

d.

### Nuclear Fusion

20.

- a.
- b.
- c.
- d.

### Conditions Required for Fusion

21.

- a.
- b.
- c.
- d.

### Fusion in the Sun

22.

- a.
- b.
- c.
- d.

### MEASURING INTERPLANETARY DISTANCES

Match the correct description with the correct term. Write the letter in the space provided.

23.

a.

24.

b.

### THE INNER AND OUTER SOLAR SYSTEMS

Match the correct description with the correct term. Write the letter in the space provided.

25.

a.

26.

b.

# Directed Reading A

## Section: The Inner Planets

Write the letter of the correct answer in the space provided.

\_\_\_\_\_ 1. \_\_\_\_\_ *terrestrial planets?*

- a.
- b.
- c.
- d.

\_\_\_\_\_ 2. \_\_\_\_\_ ?

- a.
- b.
- c.
- d.

### MERCURY: CLOSEST TO THE SUN

\_\_\_\_\_ 3. \_\_\_\_\_ ?

- a.
- b.
- c.
- d.

\_\_\_\_\_ 4. \_\_\_\_\_ ?

- a.
- b.
- c.
- d.

### Days and Years on Mercury

\_\_\_\_\_ 5. \_\_\_\_\_ 59 \_\_\_\_\_ ?

- a.
- b.
- c.
- d.

\_\_\_\_\_ 6. \_\_\_\_\_ ?

- a. 55
- b. 150
- c. 88
- d. 220

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Directed Reading A *continued*

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**Match the correct description with the correct term. Write the letter in the space provided.**

\_\_\_\_\_ 7.

**The Atmosphere of Venus**

**Write the letter of the correct answer in the space provided.**

\_\_\_\_\_ 15. \_\_\_\_\_

## MARS: THE RED PLANET

### The Atmosphere of Mars

- \_\_\_\_\_ 21. \_\_\_\_\_  
a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_
- \_\_\_\_\_ 22. \_\_\_\_\_  
a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_

### Water on Mars

- \_\_\_\_\_ 23. \_\_\_\_\_  
a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_

### Where Is the Water Now?

- \_\_\_\_\_ 24. \_\_\_\_\_  
a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_

### Volcanoes on Mars

- \_\_\_\_\_ 25. \_\_\_\_\_  
a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_
- \_\_\_\_\_ 26. \_\_\_\_\_  
a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_

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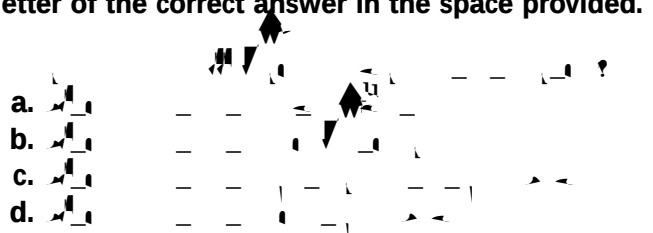
## Missions to Mars

- \_\_\_\_\_ 27. \_\_\_\_\_ *Mars Express Orbiter's* \_\_\_\_\_ ?
- a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
-

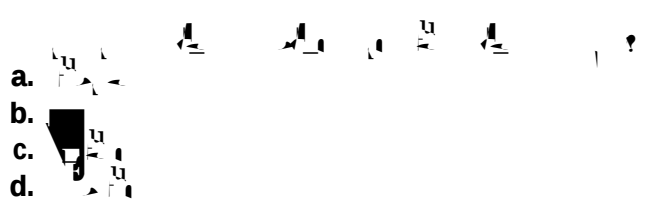
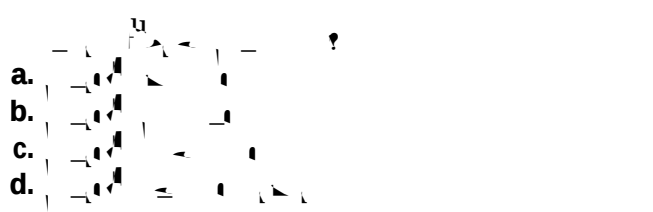
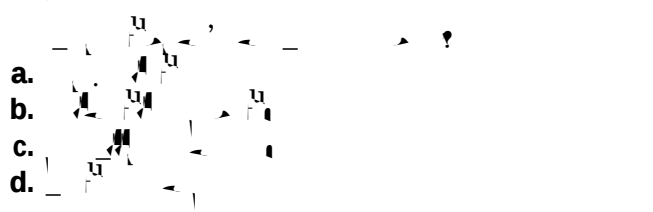
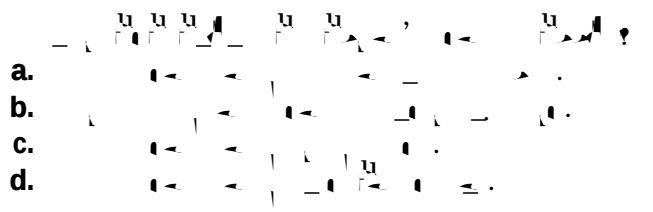
# Directed Reading A

## Section: The Outer Planets (pp. 486–491)

Write the letter of the correct answer in the space provided.

- \_\_\_\_\_ 1. 
- a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_
- \_\_\_\_\_ 2. 
- a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_

### JUPITER: A GIANT AMONG GIANTS

- \_\_\_\_\_ 3. 
- a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_
- \_\_\_\_\_ 4. 
- a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_
- \_\_\_\_\_ 5. 
- a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_
- \_\_\_\_\_ 6. 
- a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_

**The Exploration of Jupiter**

- \_\_\_\_\_ 7. \_\_\_\_\_
- a. \_\_\_\_\_
- b. \_\_\_\_\_

## URANUS: A SMALL GIANT

12. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

### A Tilted Planet

13. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_ 45°
  - \_\_\_\_\_
  - \_\_\_\_\_
14. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

## NEPTUNE: THE BLUE WORLD

15. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

### The Weather on Neptune

16. \_\_\_\_\_
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
17. \_\_\_\_\_
- \_\_\_\_\_ 100 /
  - \_\_\_\_\_ 1,000 /
  - \_\_\_\_\_ 300 /
  - \_\_\_\_\_ 1,000 /

## PLUTO: A DWARF PLANET

### A Small World

- \_\_\_\_\_ 18. \_\_\_\_\_
- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_
- \_\_\_\_\_ 19. \_\_\_\_\_
- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

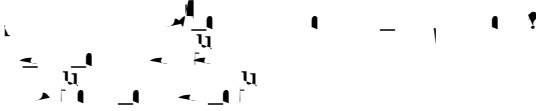
### Beyond Pluto

- \_\_\_\_\_ 20. \_\_\_\_\_
- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_
- \_\_\_\_\_ 21. \_\_\_\_\_
- a. 2003 \_\_\_\_\_ 313 \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

# Directed Reading A

## Section: Moons

Write the letter of the correct answer in the space provided.

- \_\_\_\_\_ 1. 
- a. 
- b. 
- c. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

---

Directed Reading A *continued*

---

7.

a.

b.

---

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### Eclipses

Write the letter of the correct answer in the space provided.

- \_\_\_\_\_ 14. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_

Match the correct description with the correct term. Write the letter in the space provided.

- \_\_\_\_\_ 15. \_\_\_\_\_ a. \_\_\_\_\_  
 \_\_\_\_\_ 16. \_\_\_\_\_ b. \_\_\_\_\_  
 \_\_\_\_\_ 17. \_\_\_\_\_ c. \_\_\_\_\_  
 \_\_\_\_\_ 18. \_\_\_\_\_ d. \_\_\_\_\_

### The Moon's Tilted Orbit

Write the letter of the correct answer in the space provided.

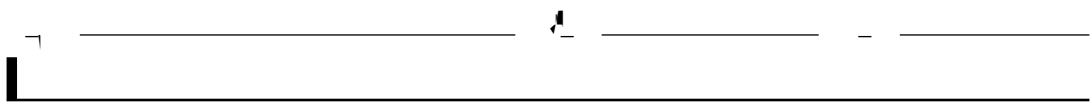
- \_\_\_\_\_ 19. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_

### THE MOONS OF OTHER PLANETS

- \_\_\_\_\_ 20. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_

### The Moons of Mars

- \_\_\_\_\_ 21. \_\_\_\_\_  
 a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_  
 d. \_\_\_\_\_



### The Moons of Neptune

- \_\_\_\_\_ 29. \_\_\_\_\_
- a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_

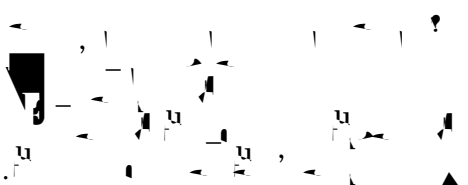
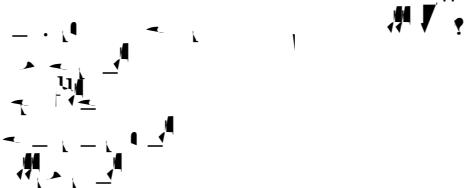
### The Moon of Pluto

- \_\_\_\_\_ 30. \_\_\_\_\_
- a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_

# Directed Reading A

## Section: Small Bodies in the Solar System

### Comet Orbits

- \_\_\_\_\_ 7. 
- a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_
- \_\_\_\_\_ 8. 
- a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_

### Long- and Short-Period Comets

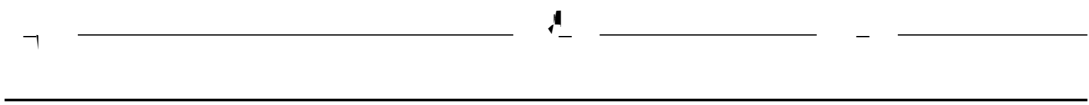
Match the correct description with the correct term. Write the letter in the space provided.

- \_\_\_\_\_ 9.  \_\_\_\_\_ 200 \_\_\_\_\_
- \_\_\_\_\_ 10.  \_\_\_\_\_ 200 \_\_\_\_\_

### ASTEROIDS

Use the terms from the following list to complete the sentences below.

11. 
- \_\_\_\_\_ ( ) \_\_\_\_\_.
- \_\_\_\_\_



# Vocabulary and Section Summary A

## A Solar System Is Born

### VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. protostar

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2. protoplanet

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3. protoplanetary disk

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### SECTION SUMMARY

Read the following section summary.

- A **protostar** is a cloud of gas and dust that is collapsing under its own gravity. It is the first stage in the formation of a star.
- As the protostar collapses, it becomes hotter and denser. It is surrounded by a **protoplanetary disk**, which is a disk of gas and dust that is rotating around the protostar. The disk is the source of the material that will form the planets.
- A **protoplanet** is a small body that is formed from the material in the protoplanetary disk. It is the first stage in the formation of a planet.
- The protoplanet grows by accreting more material from the disk. It is the stage before a planet is fully formed.
- The protoplanet eventually becomes a planet. It is the final stage in the formation of a planet.
- The solar system is a system of planets and other objects that orbit a central star, the Sun. It is the result of the formation of a star and its surrounding disk.

# Vocabulary and Section Summary A

## The Inner Planets

### VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. **terrestrial planet**

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2. **gas giant**

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3. **ice giant**

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### SECTION SUMMARY

Read the following section summary.

- The inner planets are Mercury, Venus, Earth, and Mars. They are rocky and have solid surfaces.
- The outer planets are Jupiter, Saturn, Uranus, and Neptune. They are gas giants and have no solid surfaces.
- The gas giants are Jupiter, Saturn, Uranus, and Neptune. They are made mostly of hydrogen and helium.
- The ice giants are Uranus and Neptune. They are made mostly of water, ammonia, and methane.
- The inner planets are closer to the Sun than the outer planets.
- The outer planets are further from the Sun than the inner planets.
- The inner planets have fewer moons than the outer planets.

# Vocabulary and Section Summary A

## The Outer Planets

### VOCABULARY

In your own words, write a definition of the following term in the space provided.

1. **gas giant**

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### SECTION SUMMARY

Read the following section summary.

- The outer planets are Jupiter, Saturn, Uranus, and Neptune. They are all gas giants.
- Jupiter is the largest planet in our solar system. It has a diameter of about 143,000 kilometers (89,000 miles).
- Saturn is the second largest planet in our solar system. It has a diameter of about 120,000 kilometers (75,000 miles).
- Uranus and Neptune are the two smallest of the gas giants. Uranus has a diameter of about 51,000 kilometers (32,000 miles) and Neptune has a diameter of about 49,000 kilometers (30,000 miles).

# Vocabulary and Section Summary A

## Moons

### VOCABULARY

In your own words, write a definition of the following terms in the space provided.

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2.  \_

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3.  \_

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### SECTION SUMMARY

Read the following section summary.

- The  is made up of the  and all the objects that orbit it.
- The  are the large objects that orbit the sun.
- The  are the objects that orbit the planets.
- The  of the moon are the different shapes it appears to have.
- The  are the holes in the surface of the moon.
- The  are the four moons of Jupiter.
- The  of Jupiter are Io, Europa, Ganymede, and Callisto.
- The  of Saturn are Titan, Enceladus, Mimas, and Iapetus.
- The  of Uranus are Ariel, Umbriel, Titania, and Oberon.

