

HOLT CALIFORNIA 

Physical Science

Study Guide A

with Directed Reading Worksheets



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TO THE STUDENT

Guide $\frac{1}{2}$ 0 0 $\frac{1}{2}$ Study

Guide, — 0 0

Study

HOLT **Open** **Design**

HOLT, **Owl Design** = $\frac{1}{\sqrt{\pi}} \int_0^{\infty} e^{-t^2} dt = \frac{1}{\sqrt{\pi}}$

— — — — —

Figure 1. The effect of the concentration of the *Agrobacterium* suspension on the transformation efficiency of *Agrobacterium* strains.

$$\left\{ \begin{array}{l} \text{if } \mathbf{u} \in \mathbf{U}_1 \text{ then } \mathbf{u} \in \mathbf{U}_2 \\ \text{if } \mathbf{u} \in \mathbf{U}_2 \text{ then } \mathbf{u} \in \mathbf{U}_1 \end{array} \right.$$

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1 2 3 4 5 6 7 054 11 10 09 08 07 06

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Forces in Fluids

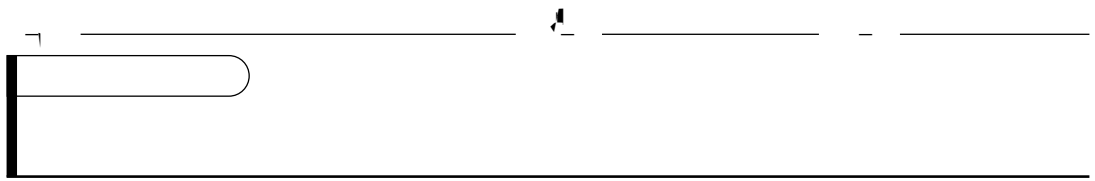
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APPLYING THE ANSWERS

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.

Proteus

a. b. c. d.

a.

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

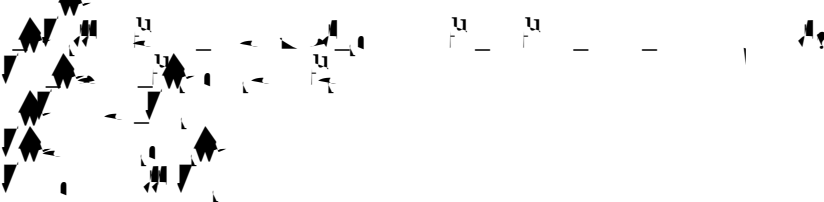
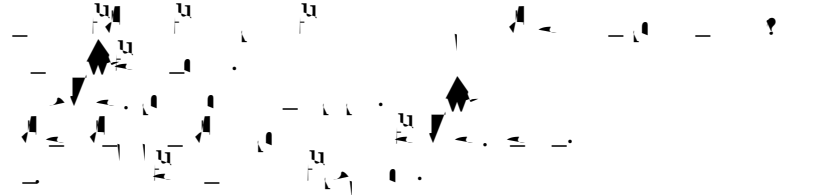
Understanding Safety Symbols

- _____ 4. _____
 a. _____
 b. _____
 c. _____
 d. _____

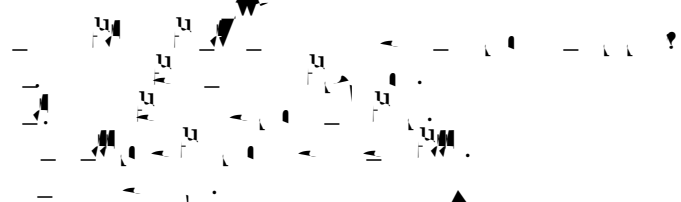
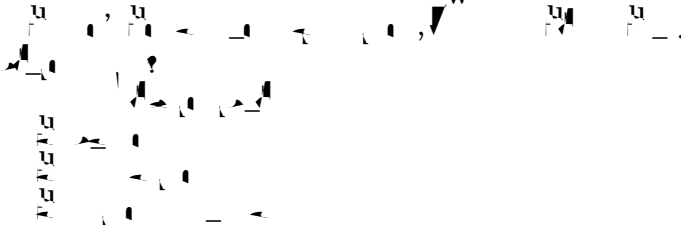
Match each safety symbol with the correct meaning. Write the letter in the space provided.

- _____ 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**

SECTION SUMMARY

Read the following section summary.

- Science is a systematic way of learning about the natural world. It is based on observation and experimentation.
- A hypothesis is a statement that can be tested by experiment. It is a prediction of what will happen under certain conditions.
- A theory is a well-tested hypothesis that has been accepted by the scientific community. It is a statement that explains a natural phenomenon.
- A law is a statement that describes a natural phenomenon. It is a statement that is always true under certain conditions.

Vocabulary and Section Summary A

Scientific Methods

VOCABULARY

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

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**

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 hypothesis that has been supported by many experiments and observations.
- A law is a statement that describes a consistent pattern in nature.
- A model is a representation of an object or system that is too small, too large, or too complex to study directly.

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*

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

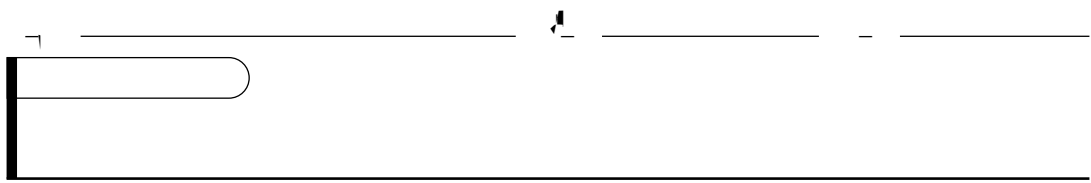
- _____ 2. _____

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

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**

2. **theory**

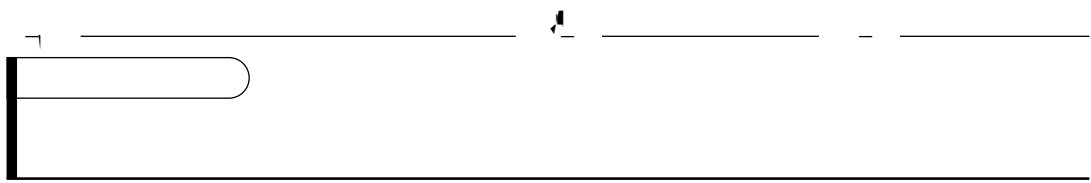
3. **model**

4. **experiment**

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.



Directed Reading A *continued*

6.

- a. ()
- b. ()
- c. ()
- d. ()

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.

12.

MATTER AND MASS

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

13.

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

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. _____
- a. _____
b. _____
c. _____
d. _____
- _____ 10. _____ (m) _____ (V), _____
- a. $D = \frac{m}{V}$ c. $D = \frac{V}{m}$
b. $D = \frac{m}{V}$ d. $D = \frac{V}{m}$
- _____ 11. _____
- a. _____
b. _____
c. _____ - 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.

() _____.

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. freezing

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. mass

2. volume

3. density

4. matter

5. particle

SECTION SUMMARY

Read the following section summary.

- Matter is anything that has mass and takes up space.
- Matter is made of particles.
- Particles are very small.
- Particles are in constant motion. ()
- Particles have mass. ()
- Particles have volume. ()

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.

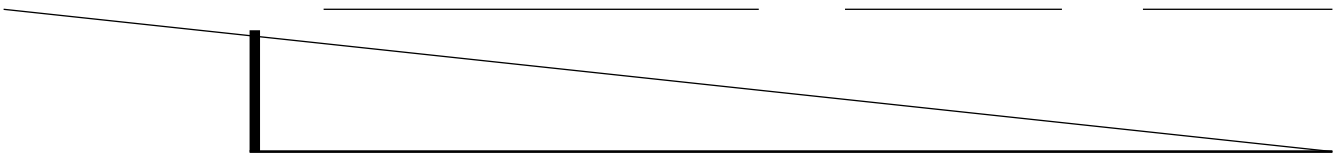
1.

2.

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 energy it takes to pull them apart.
- The particles of matter are always colliding with each other. The more energy they have, the more often they collide.
- The particles of matter are always changing their positions. The more energy they have, the more they move.



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. _____ ?
- a. _____
 - b. _____
 - c. _____
 - d. _____

Evaporation and Boiling

- _____ 13. _____ ?
- a. _____
 - b. _____
 - c. _____
 - d. _____
- _____ 14. _____ ?
- a. _____
 - b. _____
 - c. _____
 - d. _____

Effects of Pressure on Boiling Point

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

CONDENSATION: GAS TO LIQUID

- _____ 16. _____ ?
- a. _____
 - b. _____
 - c. _____
 - d. _____
- _____ 17. _____ ?
- a. _____
 - b. _____
 - c. _____
 - d. _____

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. **solid**

2. **liquid**

3. **gas**

4. **plasma**

5. **sublimation**

SECTION SUMMARY

Read the following section summary.

- Matter is anything that has mass and takes up space. It can be a solid, liquid, gas, or plasma.
- Solids have a definite shape and volume. Their particles are packed closely together and vibrate in place.
- Liquids have a definite volume but no definite shape. Their particles are close together but can move past one another.
- Gases have no definite shape or volume. Their particles are far apart and move freely in all directions.
- Plasma is a state of matter made of ions and electrons. It is found in stars and lightning.

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.  

3.  

4.  

5.  

6.  

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 amount of energy required to change the state of a substance depends on its mass and the specific heat of the substance.
- The boiling point of a liquid is the temperature at which it changes from a liquid to a gas. The melting point of a solid is the temperature at which it changes from a solid to a liquid.
- The pressure of a gas is the force exerted by the gas particles on the walls of the container.

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

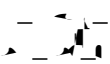
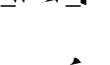
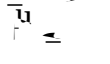
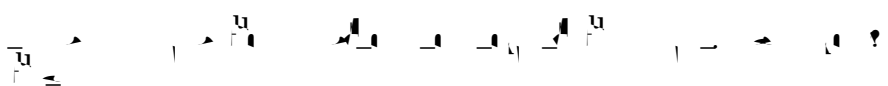
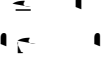
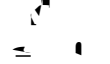
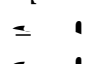
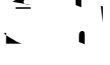
- _____ 6. _____
- a. _____
 - b. _____
 - c. _____
 - d. _____

The Ratio of Elements in a Compound

- _____ 7. _____
- a. _____
 - b. _____

d./F1Industr6.3(ue0 -127143 5D20.0)41(rTw it5 Tm -- 0.02lett)1.23pace provide1.1111 nd

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.

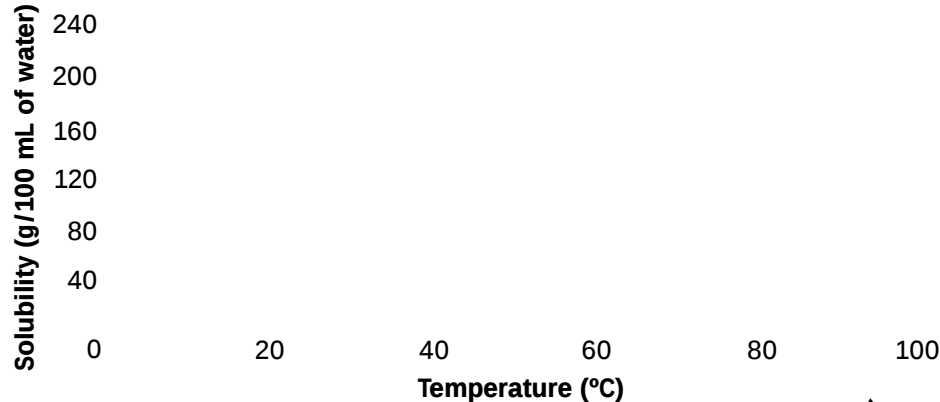
CONCENTRATION OF SOLUTIONS

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.
- Matter can be classified as a pure substance or a mixture.
- A pure substance is a material that has a constant composition and distinct chemical and physical properties.
- A mixture is a material that is made of two or more pure substances.

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 that is made of two or more different elements.
- A **mixture** is a substance that is made of two or more different compounds or elements.
- A **pure substance** is a substance that is made of only one type of element or compound.
- A **homogeneous mixture** is a mixture in which the components are evenly mixed.

SECTION SUMMARY

Read the following section summary.

- A **pure substance** is a material that has a constant composition and distinct chemical and physical properties. A pure substance can be an **element** or a **compound**.
- A **mixture** is a material made of two or more substances that are not chemically combined. A mixture can be a **homogeneous mixture** or a **heterogeneous mixture**.
- A **homogeneous mixture** is a mixture in which the components are uniformly distributed. A homogeneous mixture is also called a **solution**.
- A **heterogeneous mixture** is a mixture in which the components are not uniformly distributed. A heterogeneous mixture is also called a **non-solution**.
- A **physical change** is a change in which the substance's physical properties are altered, but its chemical composition remains the same. A physical change is also called a **physical transformation**.

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.

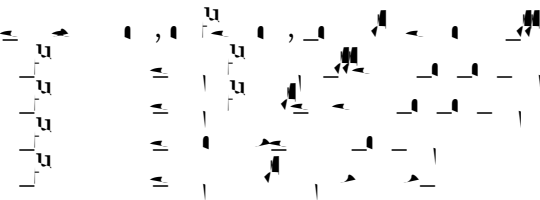
7. _____ () _____
8. _____
- _____

Directed Reading A

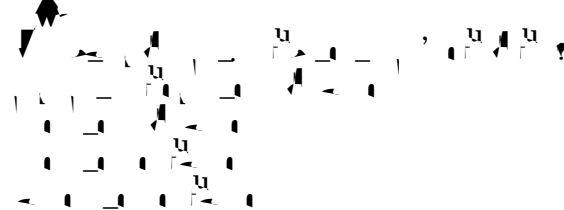
Section: The Atom (pp. 172–179)

THE PARTS OF AN ATOM

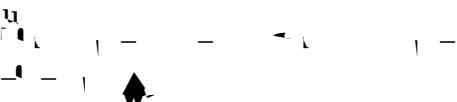
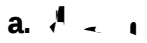
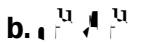
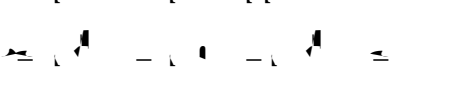
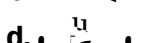
Subatomic Particles

- _____ 1.  subatomic particles?
- a. 
- b. 
- c. 
- d. 

The Nucleus

- _____ 2. 
- a. 
- b. 
- c. 
- d. 

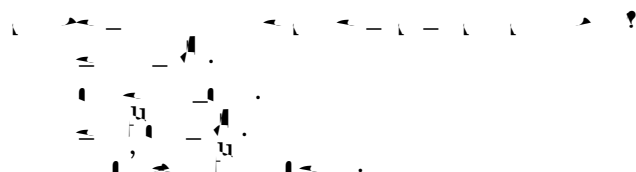
Match the correct description with the correct term. Write the letter in the space provided.

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

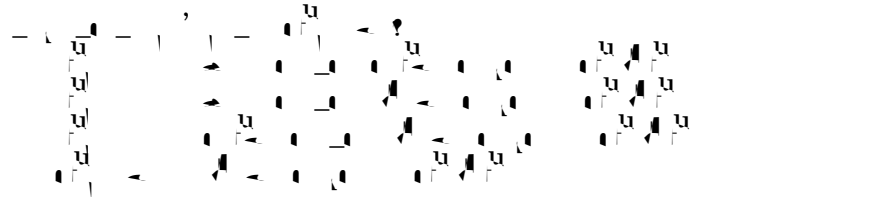
Outside the Nucleus

- _____ 8. 
- a. 
- b. 
- c. 
- d. 

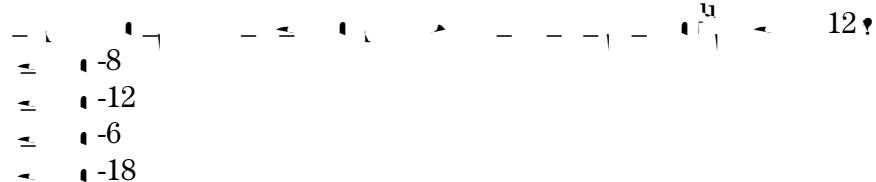
Properties of Isotopes

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

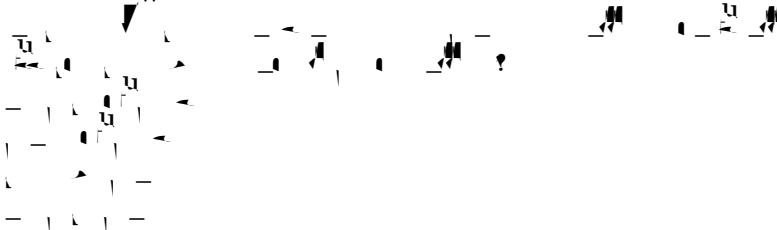
The Difference Between Isotopes

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. α particle

2. β particle

3. γ ray

4. α decay

SECTION SUMMARY

Read the following section summary.

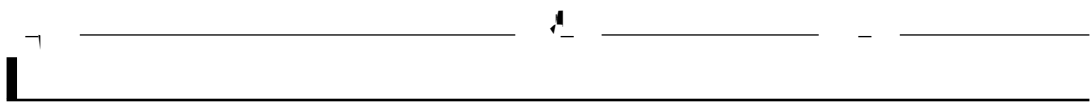
- The α particle is a helium nucleus, consisting of two protons and two neutrons.

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.

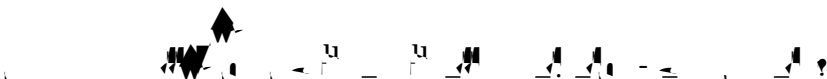
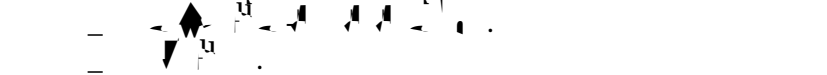
- _____ 1. Which of the following is a metalloid?
- boron
 - calcium
 - iodine
 - potassium
- _____ 2. Which of the following is a nonmetal?
- aluminum
 - carbon
 - gold
 - silver

GROUP 1: ALKALI METALS

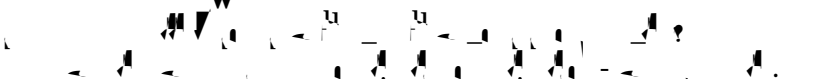
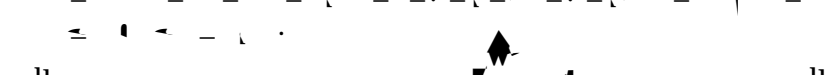
- _____ 3. Which of the following is an alkali metal?
- beryllium
 - calcium
 - potassium
 - zinc
- _____ 4. Which of the following is an alkali metal?
- cesium
 - chromium
 - gold
 - iron
- _____ 5. Which of the following is an alkali metal?
- lithium
 - mercury
 - nickel
 - tin

GROUP 2: ALKALINE-EARTH METALS

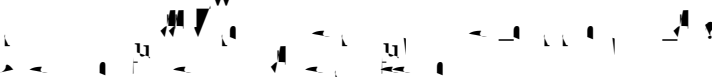
- _____ 6. Which of the following is an alkaline-earth metal?
- beryllium
 - calcium
 - cesium
 - gold

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

GROUP 18: NOBLE GASES

27. Which of the following is **not** a noble gas?
- Helium
 - Neon
 - Argon
 - Chlorine
28. Which of the following is **not** a noble gas?
- Helium
 - Neon
 - Argon
 - Krypton
29. Which of the following is **not** a noble gas?
- Helium
 - Neon
 - Argon
 - Xenon

HYDROGEN

30. Which of the following is **not** a noble gas?
- Helium
 - Neon
 - Argon
 - Hydrogen
31. Which of the following is **not** a noble gas?
- Helium
 - Neon
 - Argon
 - Hydrogen

The Uniqueness of Hydrogen

32. Which of the following is **not** a noble gas?
- Helium
 - Neon
 - Argon
 - Hydrogen

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. **metals**

2. **metalloids**

3. **nonmetals**

4. **transition metals**

SECTION SUMMARY

Read the following section summary.

- The periodic table is a chart that shows the elements of the periodic table. It is organized into groups and periods. The elements are arranged in order of increasing atomic number.
- The periodic table is divided into three main sections: metals, metalloids, and nonmetals. Metals are located on the left side of the table, metalloids are located in the middle, and nonmetals are located on the right side.
- The periodic table is also divided into four main groups: Group 1 (alkali metals), Group 2 (alkaline earth metals), Group 16 (chalcogens), and Group 17 (halogens).
- The periodic table is also divided into four main periods: Period 1, Period 2, Period 3, and Period 4.
- The periodic table is also divided into four main blocks: s-block, p-block, d-block, and f-block.
- The periodic table is also divided into four main categories: metals, metalloids, nonmetals, and noble gases.
- The periodic table is also divided into four main groups: Group 1 (alkali metals), Group 2 (alkaline earth metals), Group 16 (chalcogens), and Group 17 (halogens).
- The periodic table is also divided into four main periods: Period 1, Period 2, Period 3, and Period 4.

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 organized into groups and periods. (p. 1)
- The periodic table is organized into groups and periods. (p. 2)
- The periodic table is organized into groups and periods. (p. 3-12)
- The periodic table is organized into groups and periods. (p. 13-16)
- The periodic table is organized into groups and periods. (p. 17)
- The periodic table is organized into groups and periods. (p. 18)
- The periodic table is organized into groups and periods. (p. 19)

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.

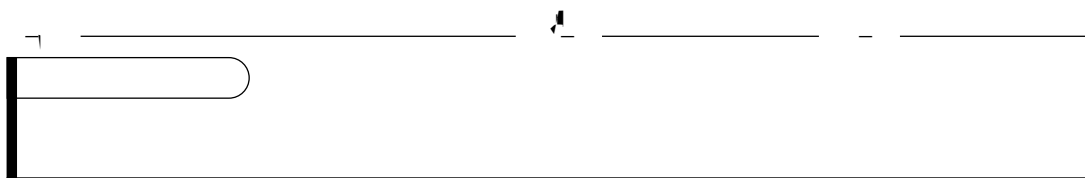
- _____ 17. _____
a. _____
b. _____
c. _____
d. _____

PROPERTIES OF METALS

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

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

- _____ 19. _____ a. _____
_____ 20. _____ b. _____
_____ 21. _____ c. _____
_____ 22. _____ 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.

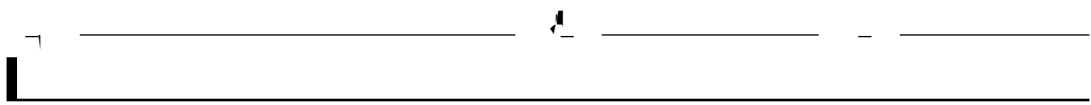
- In a **covalent bond**, two atoms share one or more pairs of electrons.
- A **covalent molecule** is a group of atoms held together by covalent bonds.
- In a **metallic bond**, the atoms are held together by a sea of delocalized electrons.
- A **crystal lattice** is a regular, repeating arrangement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



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. Ca^{2+} and Cl^{-} b. Ca^{2+} and O^{2-} c. Ca^{2+} and S^{2-} d. Ca^{2+} and 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. **thermoelastic**

SECTION SUMMARY

Read the following section summary.

- Polymers are long chains of repeating units. They can be thermosetting or thermoelastic.
- Thermosetting polymers are rigid and do not melt. They are used in many applications, such as in the production of plastics and composites.
- Thermoelastic polymers are flexible and can be melted. They are used in many applications, such as in the production of rubbers and elastomers.

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

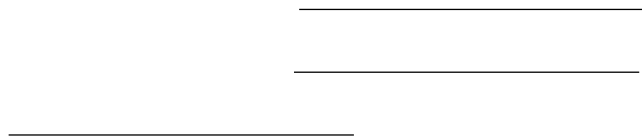
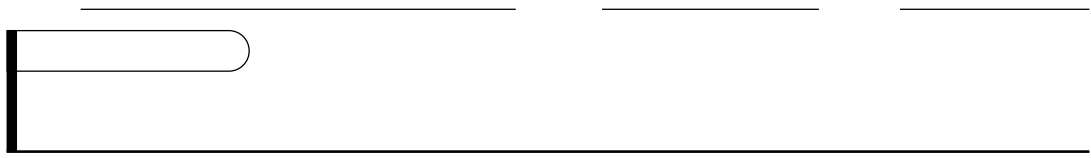
16. _____
- _____
 - _____
 - _____
 - _____

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. _____

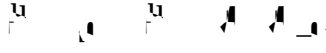
Bases Conduct Electric Current

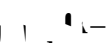
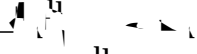
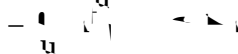
_____ 21.

- 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. _____

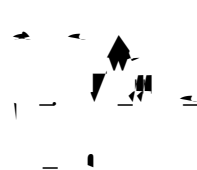
Uses of Salts

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

_____ **21.**

_____ **22.**

_____ **23.**



- a.
- b.
- c.

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. pH

2. acid

3. base

SECTION SUMMARY

Read the following section summary.

- Acids are substances that have a pH less than 7. Bases are substances that have a 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. H^+ ion

2. OH^- ion

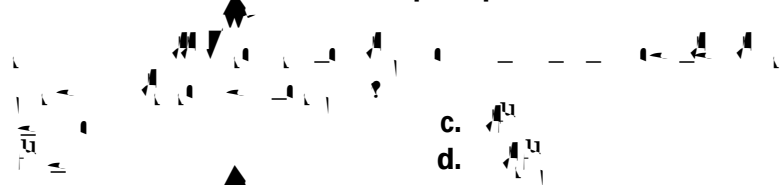
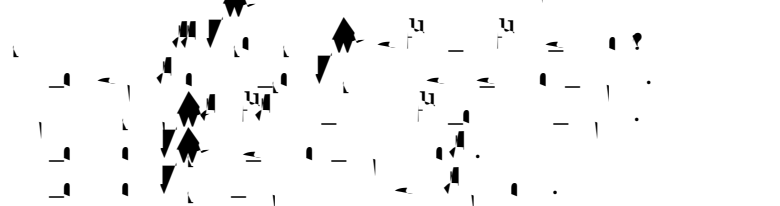
3. H_2O

Directed Reading A

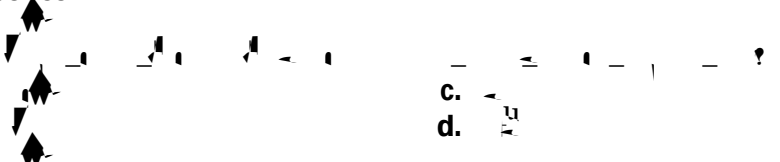
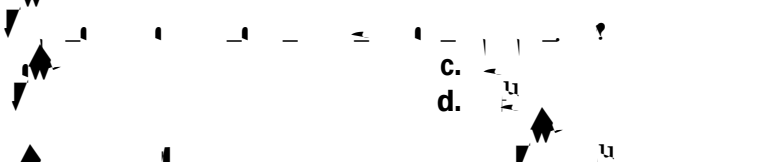
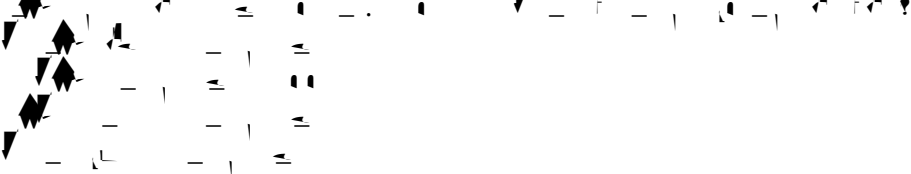
Section: Elements in Living Things (pp. 310–313)

THE BONDING OF CARBON ATOMS

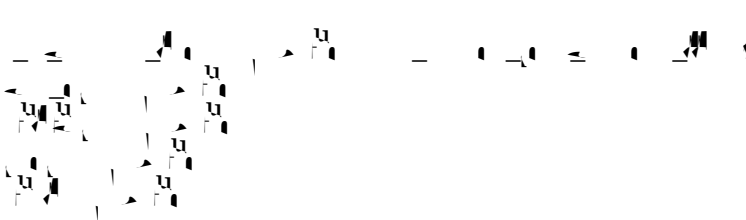
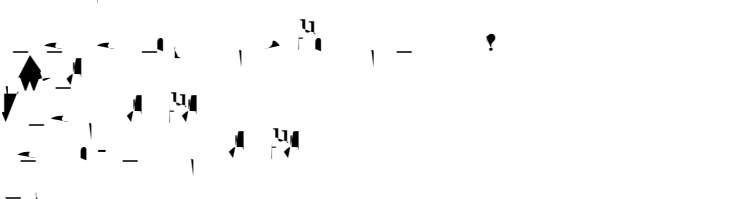
Write the letter of the correct answer in the space provided.

- _____ 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.

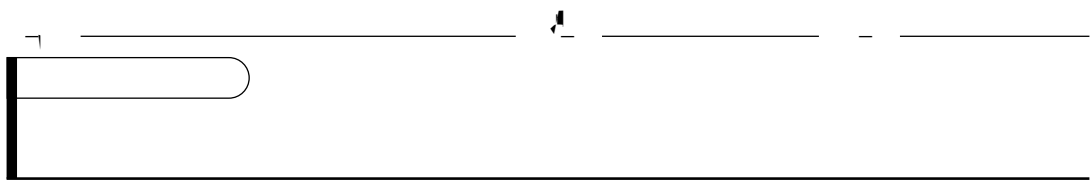
- _____ 12. _____
- a. _____
- b. _____
- c. _____
- d. _____

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. **enzyme**

4. **vitamin**

SECTION SUMMARY

Read the following section summary.

- Carbohydrates are organic compounds that provide energy for living organisms. They are made of carbon, hydrogen, and oxygen.
- Proteins are organic compounds that are essential for life. They are made of amino acids and are used to build and repair tissues.
- Enzymes are proteins that act as catalysts for chemical reactions in the body. They speed up reactions without being changed themselves.
- Vitamins are organic compounds that are essential for health. They are needed in small amounts but are important for many body functions.
- Minerals are inorganic substances that are essential for life. They are needed for many body functions, including building bones and teeth.

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 /

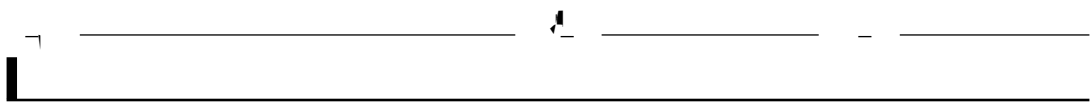
Changing Velocity

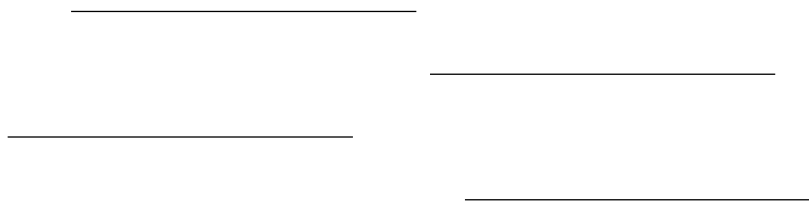
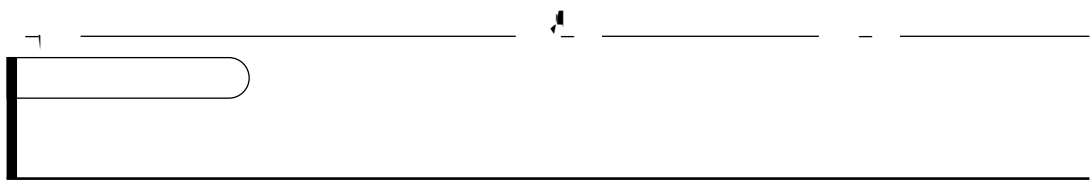
- _____ 15. _____
- a. _____
 - b. _____
 - c. _____
 - d. _____

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

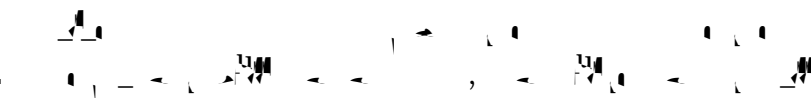
- _____ 9. 
- a. 
- b. 
- c. 
- d. 

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. 

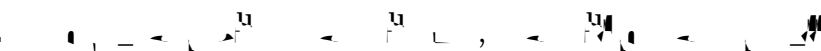
Use the terms from the following list to complete the sentences below.

13.



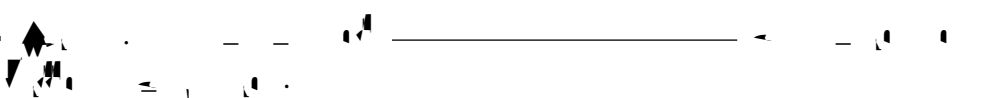
_____.

14.



_____.

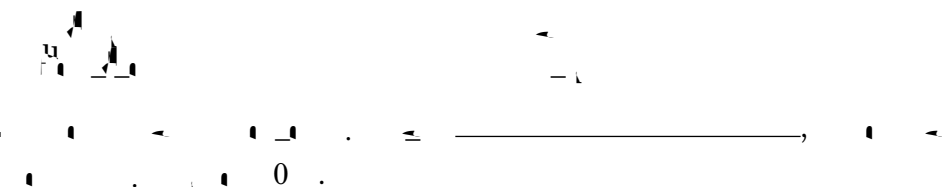
15.



UNBALANCED FORCES: VELOCITY CHANGES

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

16.



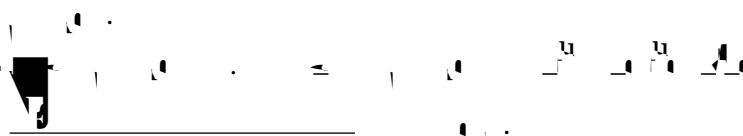
17.



18.



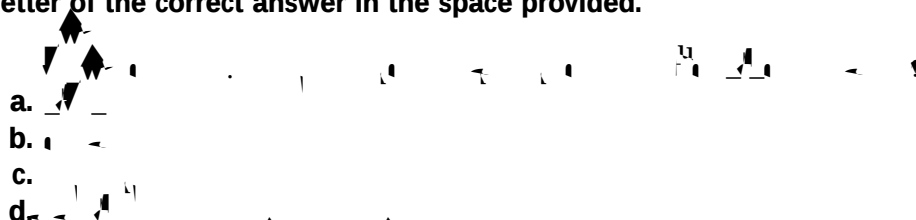
19.



Unbalanced Forces and Direction of Motion

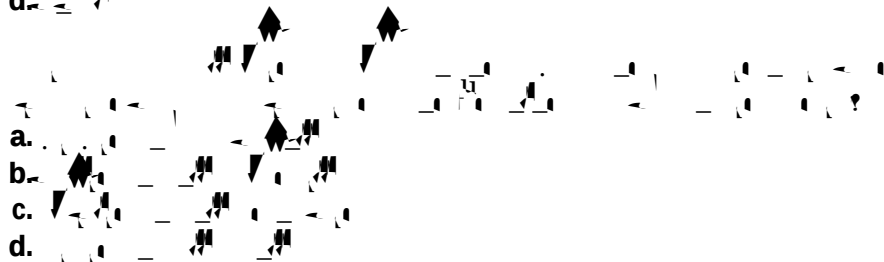
Write the letter of the correct answer in the space provided.

_____ 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.
- -
 -
 -

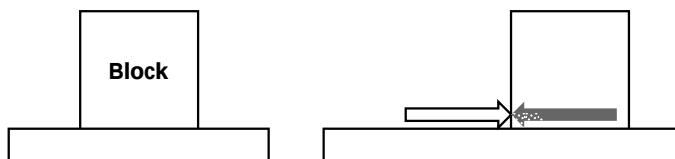
The Effect of Material on Friction

- _____ 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.
- Free fall is the motion of an object under the influence of gravity alone.
- Projectile motion is the motion of an object launched into the air and follows a curved path.

Vocabulary and Section Summary A

Friction: A Force That Opposes Motion

VOCABULARY

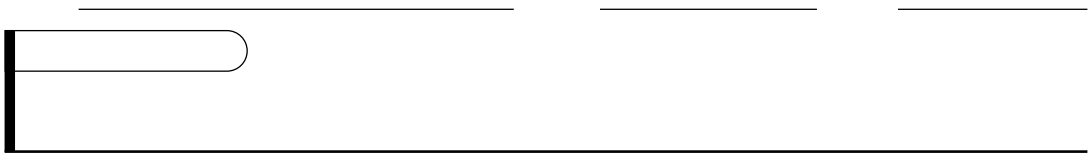
In your own words, write a definition of the following term in the space provided.

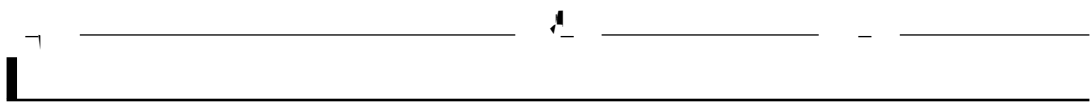
1. **Friction**

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

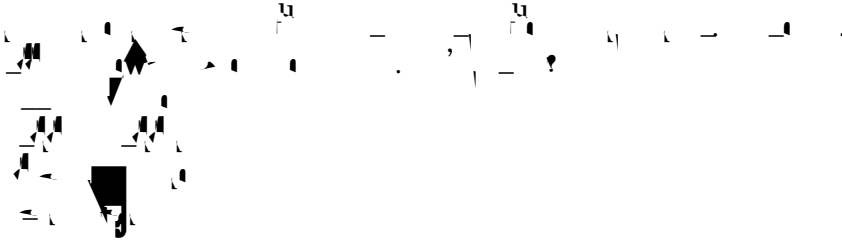
- _____ 17. _____ ?
- a. _____
b. _____
c. _____
d. _____
- _____ 18. _____ ?
- a. _____
b. _____
c. _____
d. _____
- _____ 3 155.440. _____ ?

Directed Reading A

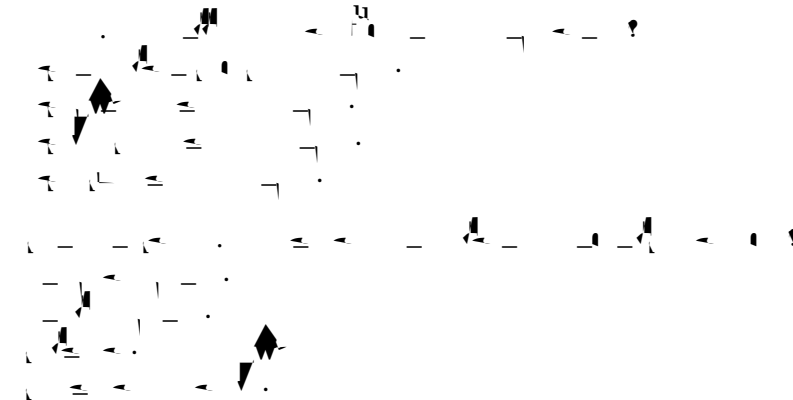
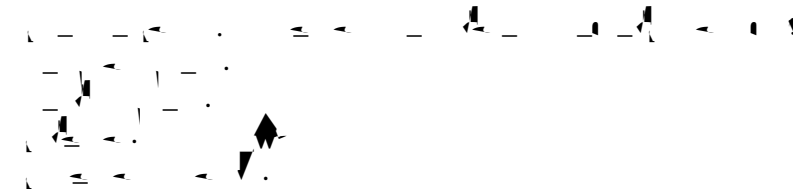
Section: Gravity and Motion

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.

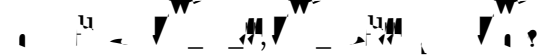
a.

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

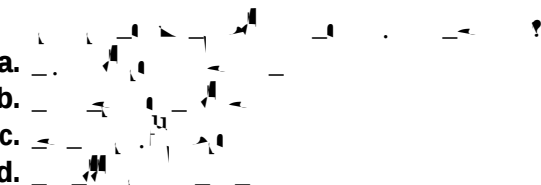
Directed Reading A

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

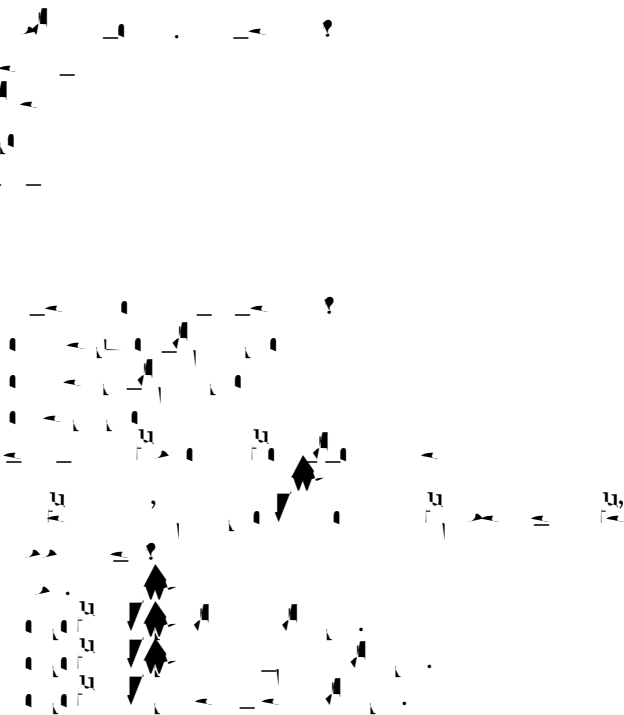
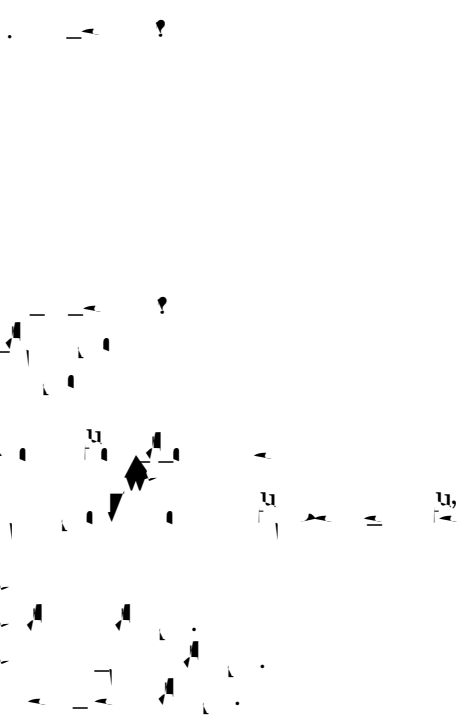
NEWTON'S FIRST LAW

Part 1: Objects at Rest

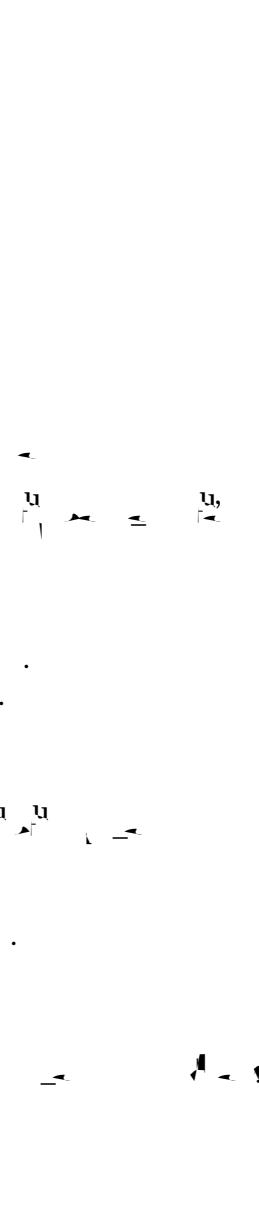
Write the letter of the correct answer in the space provided.

- _____ 1. 
- a. _____
b. _____
c. _____
d. _____

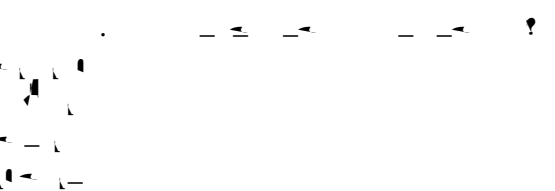
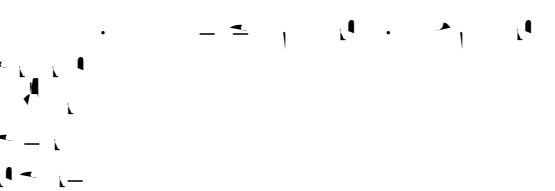
Part 2: Objects in Motion

- _____ 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

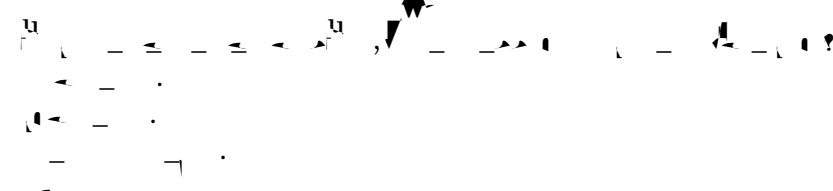
- _____ 9. 

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.  

2.  

3.  

Vocabulary and Section Summary A

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**

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 the object and inversely proportional to the mass of the object.
- 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

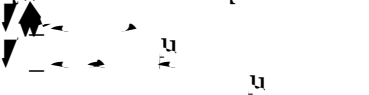
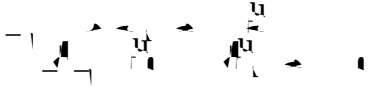
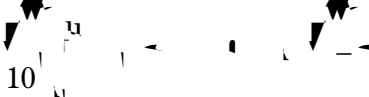
- | | |
|-----------|----|
| _____ 15. | a. |
| | b. |
| | c. |
| | d. |

Pressure Changes and Your Body

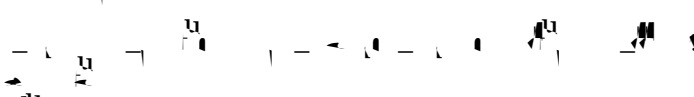
- | | |
|-----------|----|
| _____ 16. | a. |
| | b. |
| | c. |
| | d. |

WATER PRESSURE

Water Pressure and Depth

- _____ 17. 
- a. 
- b. 
- c. 
- d. 

Density and Water Pressure

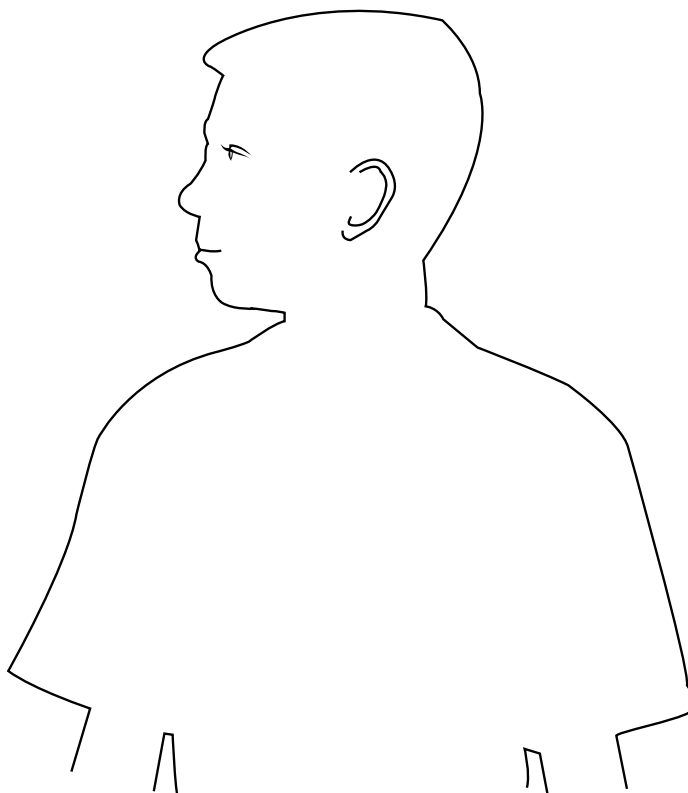
- _____ 18. 
- a. 10
- b. 100
- c. 1,000
- d. 8,000
- _____ 19. 
- a. 
- b. 
- c. 
- d. 
- _____ 20. 
- a. 
- b. 
- c. 
- d. 

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.

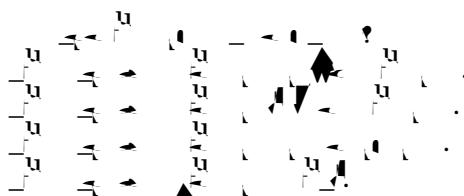


- _____ 22. _____
- a. _____
 - b. _____
 - c. _____
 - d. _____
- _____ 23. _____
- a. _____ (_____) _____ (_____) _____
 - b. _____
 - c. _____
 - d. _____ (_____) _____

Pressure Differences and Tornadoes

_____ 24.

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



_____ 25.

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



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

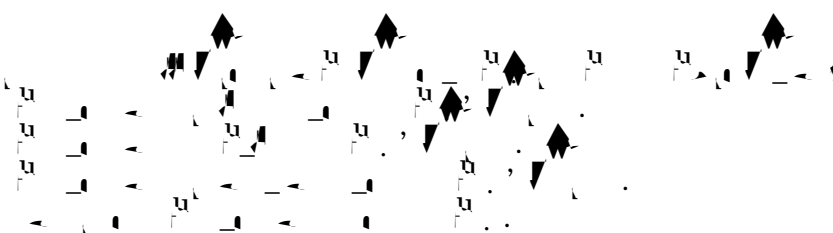
Write the letter of the correct answer in the space provided.

- _____ 7. _____
 a. _____

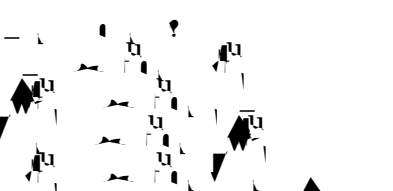
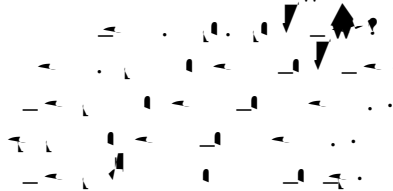
Floating

- _____ 8. 
- a. 
- b. 
- c. 
- d. 

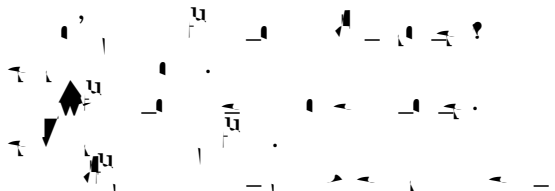
Buoying Up

- _____ 9. 
- a. 
- b. 
- c. 
- d. 

DENSITY AND FLOATING

- _____ 10. 
- a. 
- b. 
- c. 
- d. 
- _____ 11. 
- a. 
- b. 
- c. 
- d. 

More Dense Than Air

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

Less Dense Than Air

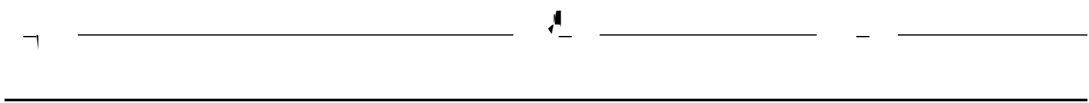
- _____ 13. 
- a. 
- b. 
- c. 
- d. 

DETERMINING DENSITY

- _____ 14. _____
- _____
 - _____
 - _____
 - _____

Volume of a Regular Solid

- _____ 15. _____
- _____ How do you find the volume of a solid? _____
- _____
 - _____
 - _____
 - _____ $1.279 / 34$ _____



Vocabulary and Section Summary A

Fluids and Pressure

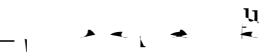
VOCABULARY

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

1. 

2. 

3. 

4. 

SECTION SUMMARY

Read the following section summary.

-  A fluid is a substance that can flow and take the shape of its container.
-  A fluid exerts pressure in all directions.
-  The pressure in a fluid is the same in all directions at the same depth.
-  The pressure in a fluid increases with depth.
-  The pressure in a fluid is the same at the same depth in all directions.
-  The pressure in a fluid is the same at the same depth in all directions.
-  The pressure in a fluid is the same at the same depth in all directions.

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. _____ ?
- _____
 - _____
 - _____
 - _____

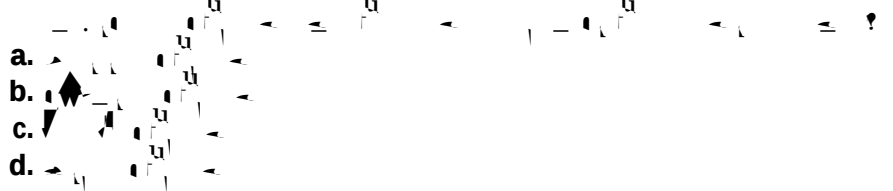
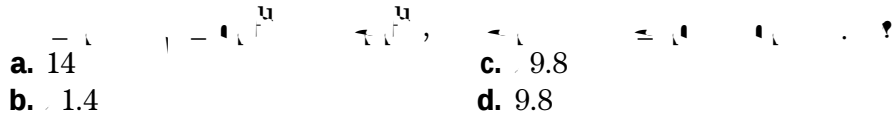
Differences in Temperature

- _____ 17. _____ ?
- _____
 - _____
 - _____
 - _____
- _____ 18. _____ ?
- _____
 - _____
 - _____
 - _____

Differences in Brightness

- _____ 19. _____ ?
- _____
 - _____
 - _____
 - _____
- _____ 20. _____ ?
- _____
 - _____
 - _____
 - _____

Directed Reading A *continued*

21. 
22. 

HOW BRIGHT IS THAT STAR?

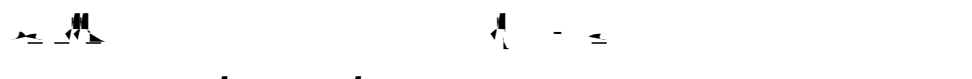
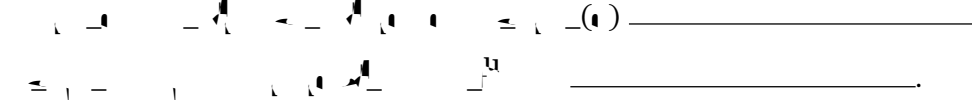
Apparent Magnitude

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

23.  _____.
24.  32.6 _____.

DISTANCE TO THE STARS

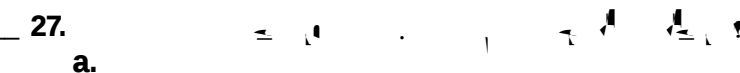
Use the terms from the following list to complete the sentences below.

25.  _____.
26.  _____.

MOTIONS OF STARS

The Apparent Motion of Stars

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

27.  _____.

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

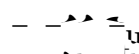
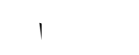
Use the terms from the following list to complete the sentences below.

- _____ 3. _____
- _____ 4. _____
- _____ 5. _____
- _____ 6. _____

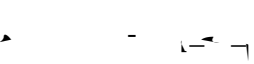
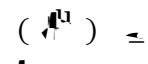
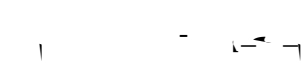
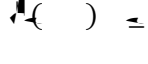
A TOOL FOR STUDYING STARS

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.

- _____ 1.**
- a. _____
- b. _____
- c. _____
- d. _____

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

- 2.**

8. _____
- _____
 - _____
 - _____
 - _____

QUASARS

9. _____
- _____
 - _____
 - _____
 - _____
10. _____
- _____
 - _____
 - _____
 - _____

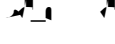
ORIGIN OF GALAXIES

11. _____
- _____
 - _____
 - _____
 - _____
12. _____
- _____
 - _____
 - _____
 - _____

Directed Reading A

Section: Formation of the Universe

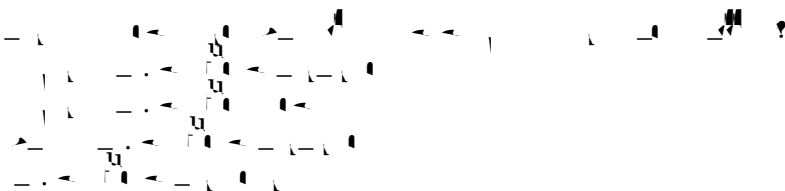
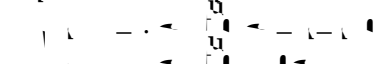
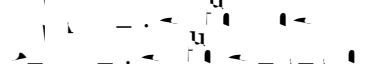
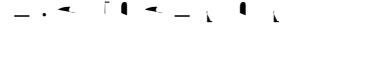
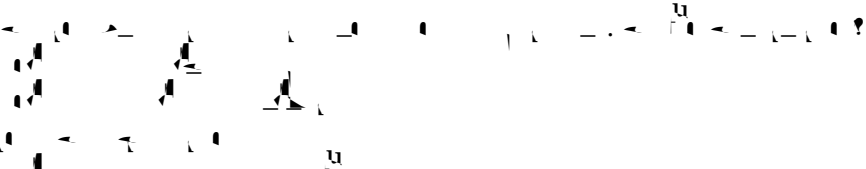
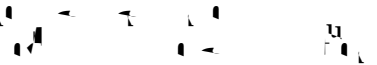
Write the letter of the correct answer in the space provided.

- _____ 1. 
- a. 
- b. 
- c. 
- d. 

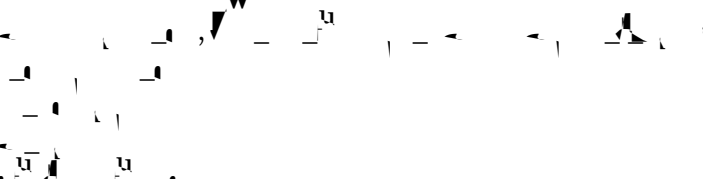
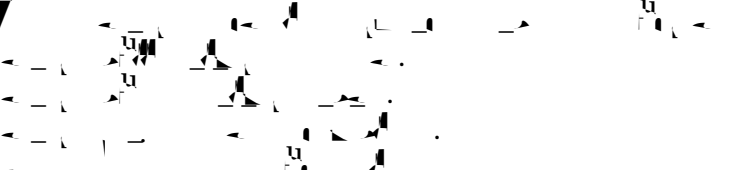
THE BIG BANG THEORY

- _____ 2.

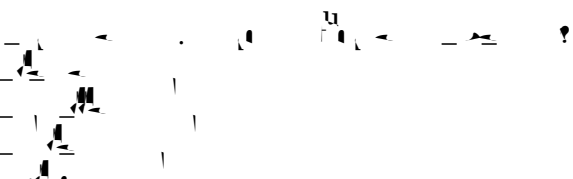
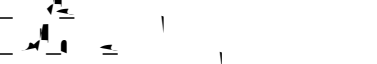
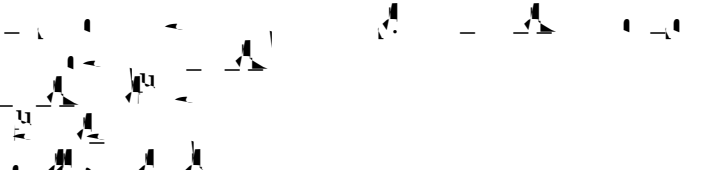
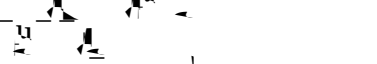
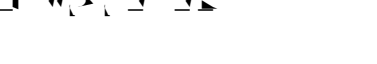
Cosmic Background Radiation

- _____ 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.

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**

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

Directed Reading A *continued*

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. _____

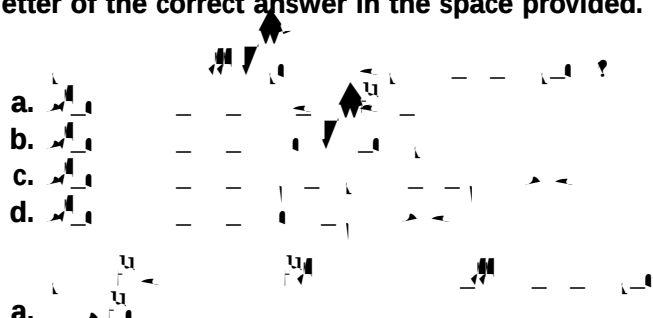
Missions to Mars

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

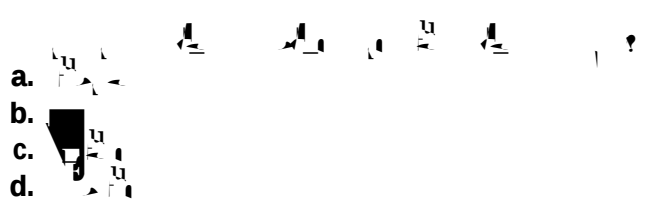
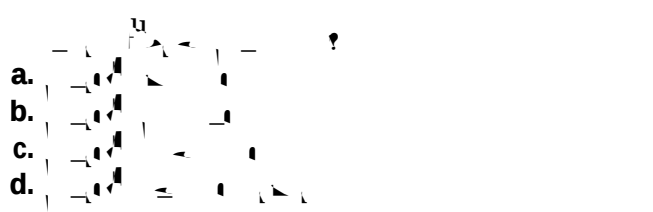
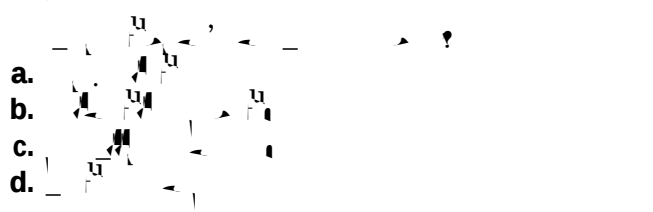
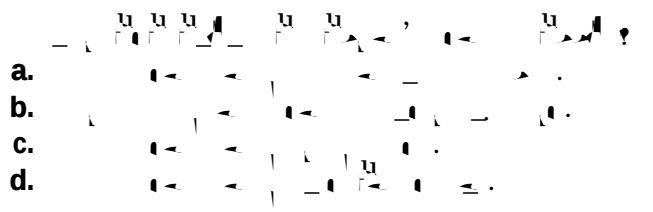
Directed Reading A

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. _____

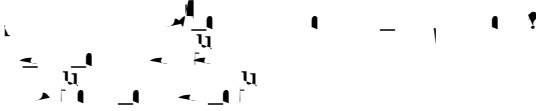
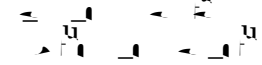
Beyond Pluto

- _____ 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.

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.

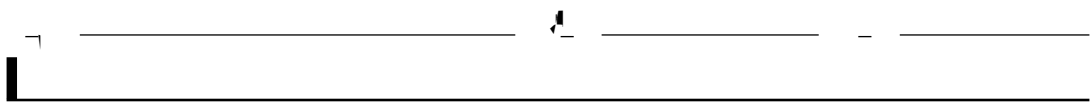
- _____ 19. _____
 a. _____
 b. _____
 c. _____
 d. _____

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. _____

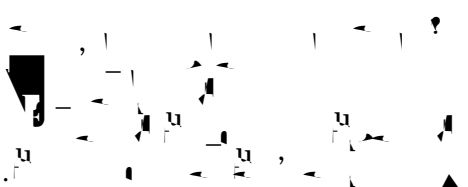
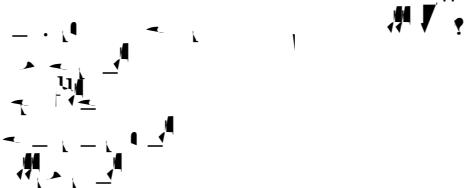
The Moon of Pluto

- _____ 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

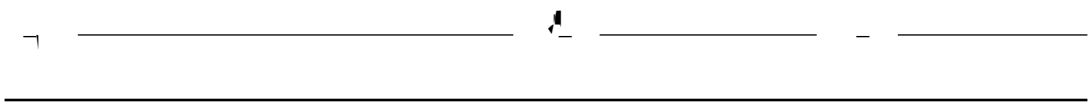
Match the correct description with the correct term. Write the letter in the space provided.

- _____ 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

2. protoplanet

3. protoplanetary disk

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 made of gas and dust. It is the first stage in the formation of a planet.
- The **protoplanet** is surrounded by a **protoplanetary disk**, which is a disk of gas and dust that is rotating around the protoplanet. The disk is the source of the material that will form the planets.
- The **protoplanet** is surrounded by a **protoplanetary disk**, which is a disk of gas and dust that is rotating around the protoplanet. The disk is the source of the material that will form the planets.
- The **protoplanet** is surrounded by a **protoplanetary disk**, which is a disk of gas and dust that is rotating around the protoplanet. The disk is the source of the material that will form the planets.

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**

2. **gas giant**

3. **ice giant**

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 are smaller than the outer planets.
- The outer planets are larger than the inner 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**

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.
- Saturn is the second largest planet. It has a diameter of about 120,000 kilometers.
- Uranus and Neptune are smaller than Jupiter and Saturn. Uranus has a diameter of about 51,000 kilometers, and Neptune has a diameter of about 49,000 kilometers.

Vocabulary and Section Summary A

Moons

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.

- 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 Mimas, Enceladus, Tethys, Dione, Rhea, Iapetus, and Titan.
- The  of Uranus are Miranda, Ariel, Umbriel, Titania, and Oberon.
- The  of Neptune are Triton and Nereid.

