

interactive SCIENCE



WORKBOOK

Grade 7



SEMESTER

2

Name: _____

Class: _____

Teacher: _____

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GRADE 7

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WORKBOOK CHECKLIST



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Lesson 3: Homeostasis (use with pages 288-295)Circle the letter of the correct answer.

1. The condition in which the body's internal environment is kept stable is called _____.

- a. homeopathy
- b. homeostasis

- c. metabolism
- d. equilibrium

2. Which of the following is NOT a good way to manage stress?

- a. Get enough sleep.
- b. Eat a healthful diet.

- c. Spend most of the time alone.
- d. Get plenty of exercise.

3. What is the body's response to the stimulus of getting overheated?

- a. sweating and thirst
- b. shivering and hunger

- c. sweating and shivering
- d. shivering and thirst

4. Which of the following statements about homeostasis is NOT true?

- a. Maintaining homeostasis requires that all of the body systems work together.
- b. Long periods of stress can disrupt homeostasis.
- c. Body temperature is a factor of homeostasis.
- d. Only the nervous and endocrine systems are involved in maintaining homeostasis.



Modified True or False: If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.

- _____ 1. The nose helps the body keep its balance.
- _____ 2. The endocrine system includes specialized cells that help fight bacteria and viruses.
- _____ 3. High levels and long periods of stress can increase a person's risk for many diseases.
- _____ 4. Thirst is the body's response to the need for energy.
- _____ 5. Regardless of external conditions or activities, the body's internal temperature is almost exactly 37°C.
- _____ 6. The condensation of sweat from body surfaces cools the body.



Draw the diagram in the space below.

Start with the sentence: "Warm environment causes body temperature to rise." Draw a cycle diagram to show how your body would respond to this situation.



Answer the following questions.

1. *Explain the following statement. "The cell membrane is the part of the cell that makes homeostasis possible."*

2. *Why is managing stress an important part of being healthy?*

3. *Why is some stress normal and healthy?*



Name: _____

Date: ____/____/____

Lesson 4: The Skeletal System (use with pages 296-303)



Fill in the blank to complete each statement.

1. One important function of bones is to produce _____.
2. Twenty-six small bones make up the _____.
3. A(n) _____ is a place where two bones come together.
4. The bones in movable joints are held together by strong connective tissue called _____.
5. _____ is a condition in which bones become weak and break easily because they have lost some minerals.



Modified True or False: If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.

1. Your skeleton enables you to move.

2. Muscles give your body shape and support.

3. Without joints, bones would not be able to move in different ways.

4. Bones are made up of bone tissue, blood vessels, and nerves.

5. Cartilage is responsible for producing most of your blood cells and for storing fat.



Answer the following questions.

1. How would your knees move if they had ball-and-socket joints?

2. Why does your body need both movable and immovable joints?



Label the structure of bone below.

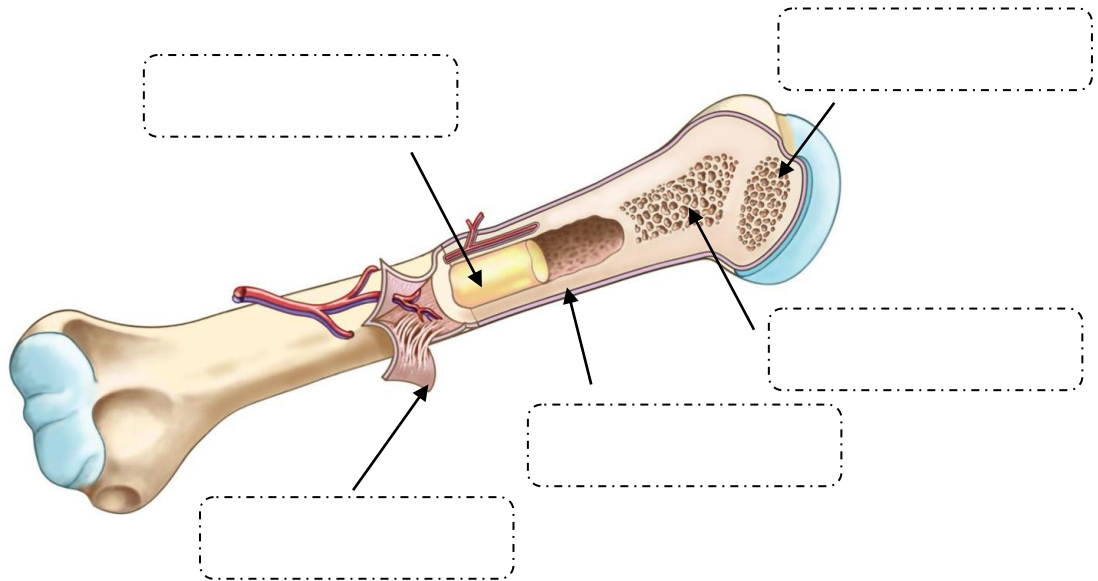
red bone marrow

yellow bone marrow

compact bone

spongy bone

outer membrane



Name: _____

Date: ____/____/____

Lesson 5: The Muscular System (use with pages 304-309)**Fill in the blank to complete each statement.**

1. _____ muscles allow you to move parts of your body in different ways when you want to.
2. Your body has skeletal, _____, and cardiac muscle tissue.
3. A strong connective tissue called a(n) _____ attaches skeletal muscles to a bone.
4. A(n) _____ occurs when muscles are overworked or overstretched.
5. Regular _____ is important for maintaining the strength and flexibility of muscles.

**Modified True or False: If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.**

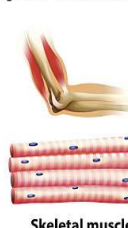
- _____ 1. **Voluntary** muscles perform essential activities in your body, such as keeping your heart beating and moving food through your digestive system.
- _____ 2. Skeletal muscle and cardiac muscle are sometimes referred to as **smooth** muscle, because of their banded appearance.
- _____ 3. Skeletal muscles work **in pairs**.
- _____ 4. The tissue called **cardiac** muscle is found only in the heart.
- _____ 5. Both smooth muscle and cardiac muscle are **voluntary**.

**Classify the type of muscle that composes the given body structures below. Write S for skeletal, C for cardiac and SM for smooth muscle.**

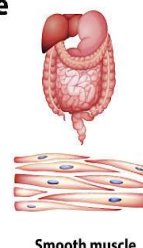
- _____ 1. Blood vessel
- _____ 2. Leg
- _____ 3. Stomach
- _____ 4. Heart
- _____ 5. Face

Types of Muscle

Cardiac muscle



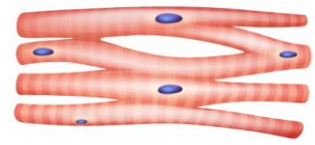
Skeletal muscle



Smooth muscle



Answer the following questions.



Cardiac muscle

1. *Why is it important that cardiac muscle tissue does not tire?*

2. *Why is it important to exercise both muscles in a pair?*



Name: _____

Date: ____/____/____

Lesson 6: The Skin (use with pages 310-313)



Match each term with its definition by writing the letter of the correct definition in the right column on the line beside the term in the left column.

_____ 1. epidermis

_____ 2. dermis

_____ 3. pores

_____ 4. follicles

_____ 5. cancer

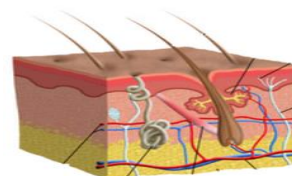
a. the inner layer of the skin

b. openings that allow sweat to reach the surface of the skin

c. a disease in which some cells divide uncontrollably

d. the outer layer of the skin

e. a structure out of which strands of hair grow



Fill in the blank to complete each statement.

1. Skin helps the body maintain a steady _____ through perspiration and the enlarging of blood vessels.

2. _____ in the skin gather information from the environment about pressure, temperature, and pain.

3. Some cells deep in the epidermis produce _____, a pigment that colors the skin.

4. Eating a balanced diet provides the energy and raw materials needed for the growth and replacement of _____.

5. _____ produced in glands around the follicles keeps the surface of the skin moist and the hairs flexible.



Modified True or False: If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.

_____ 1. Skin helps eliminate wastes and produce vitamin D.

_____ 2. The dermis is the outer layer of the skin, which helps protect your skin.

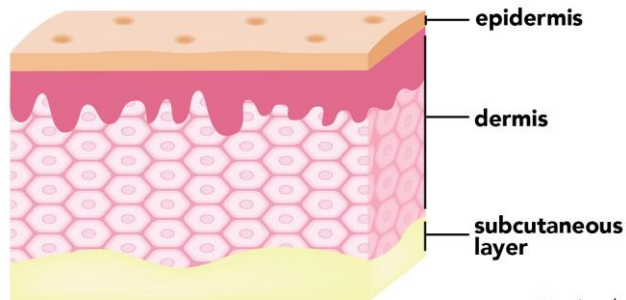
_____ 3. Together an outer layer and an inner layer perform all the skin's functions.

- _____ 4. The **epidermis** is the inner layer of the skin, which includes nerves, blood vessels, sweat glands, hairs, and oil glands.
- _____ 5. Having healthy skin involves **diet**, cleanliness, and limiting time in the sun.



Answer the following question.

1. How do the dead cells of the epidermis help the body?



Name: _____

Date: ____/____/____

Lesson 1: The Nervous System (use with pages 326-337)

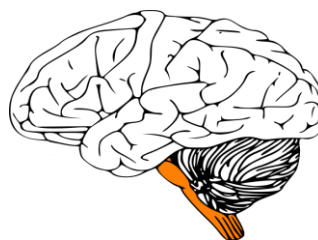
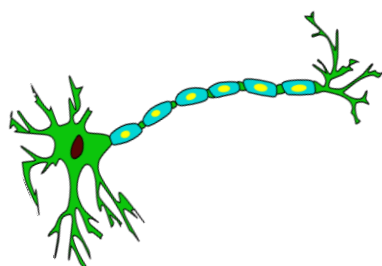
Match each term in the left column with its definition in the right column by writing the letter of the correct definition on the line beside the term.

- | | |
|------------------------------------|--|
| _____ 1. central nervous system | a. cells that carry information through your nervous system |
| _____ 2. reflex | b. the message that a neuron carries |
| _____ 3. neurons | c. a bundle of nerve fibers |
| _____ 4. nerve impulse | d. a system of nerves that branches out and connects it to the rest of the body |
| _____ 5. peripheral nervous system | e. a system that controls the functions of the body with the brain serving as the control center |
| _____ 6. nerve | f. the place where a neuron transfers an impulse to another structure |
| _____ 7. synapse | g. an automatic response that occurs rapidly without conscious control |



Modified True or False: If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.

- _____ 1. The nervous system receives information about what is happening both inside and outside your head.
- _____ 2. Nerve impulses travel through your nervous system from neurons to other neurons or body structures.
- _____ 3. A reflex is an involuntary response that occurs rapidly without conscious control.
- _____ 4. Your eyes convert the stimulus of light into impulses that your brain interprets enabling you to see.
- _____ 5. The brain stem is a thick column of nervous tissue that links the brain to the peripheral nervous system.





Label the ear diagram below.

Hammer

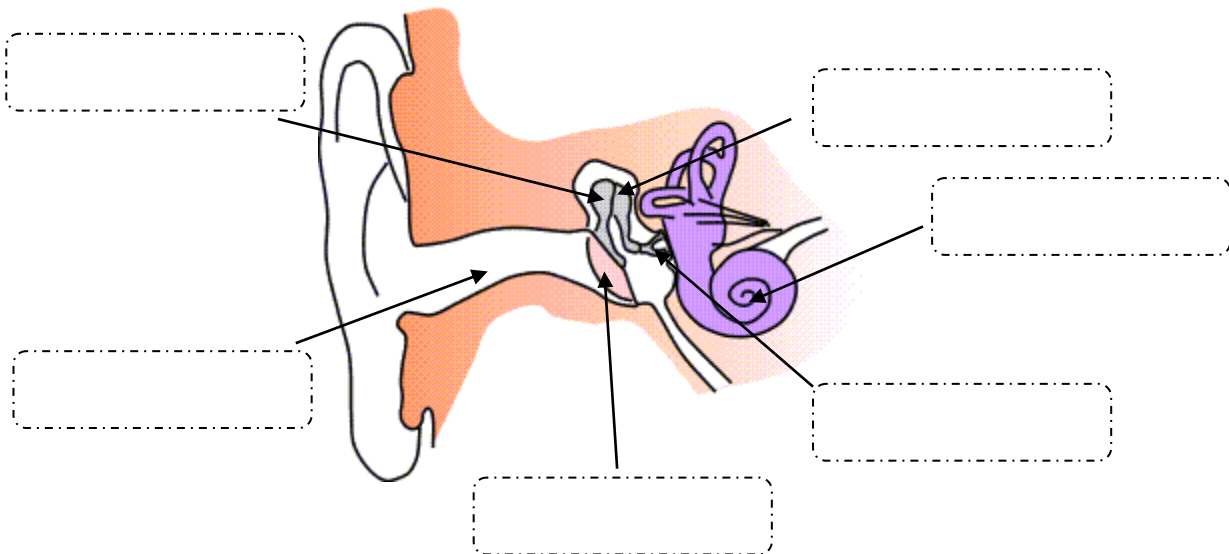
Anvil

eardrum

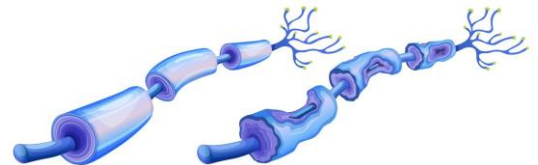
Cochlea

Stirrup

Ear canal



Answer the following questions.



1. How do the two groups of peripheral nerves differ?

2. Why is it important for the brain to be so well protected?



Name: _____

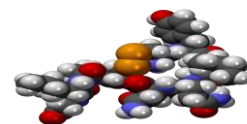
Date: ____/____/____

Lesson 2: The Endocrine System (use with pages 338-345)**Fill in the blank to complete each statement.**

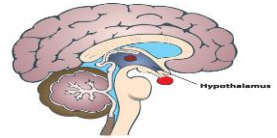
1. The endocrine glands produce and release _____ directly into the bloodstream.
2. Long-term changes controlled by the endocrine system include _____ and development.
3. _____ cells are cells that are specialized in a way that enables them to recognize the hormone's chemical structure.
4. The _____ works with the hypothalamus to control many body activities.
5. _____ levels are controlled by a process called negative feedback.

**Modified True or False: If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.**

- _____ 1. The nervous system regulates short-term and long-term activities by sending chemicals throughout the body.
- _____ 2. Hormones turn on, turn off, speed up, or slow down the activities of organs and tissues.
- _____ 3. The chemical product of an endocrine gland is called a(n) gland.
- _____ 4. The nervous system and the endocrine system are linked by a part of the brain called the pituitary gland.
- _____ 5. When the amount of a hormone in the blood reaches a certain level, the endocrine system sends signals that stop the release of that hormone.

**Answer the following questions.**

1. How does a negative feedback system work to regulate the amount of thyroxine in the blood?

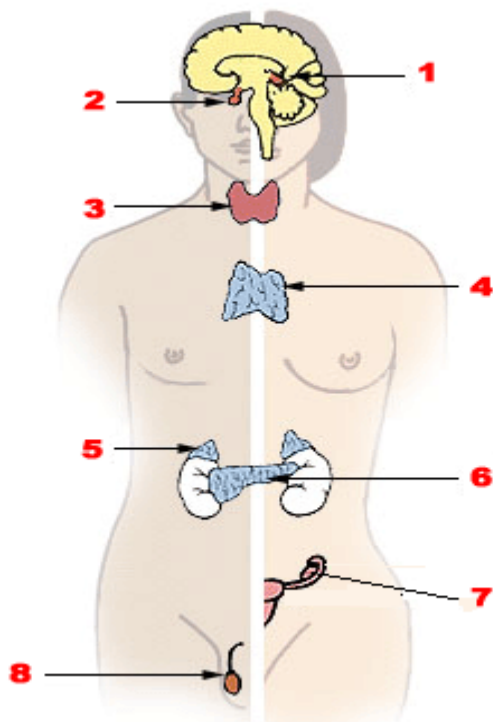


2. Explain how the hypothalamus affects growth.



Label the different glands in the human body.

<i>Hypothalamus</i>	<i>Pituitary gland</i>	<i>Thyroid gland</i>	<i>Ovary</i>
<i>Adrenal gland</i>	<i>Thymus gland</i>	<i>Pancreas</i>	<i>Testes</i>



1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

Name: _____

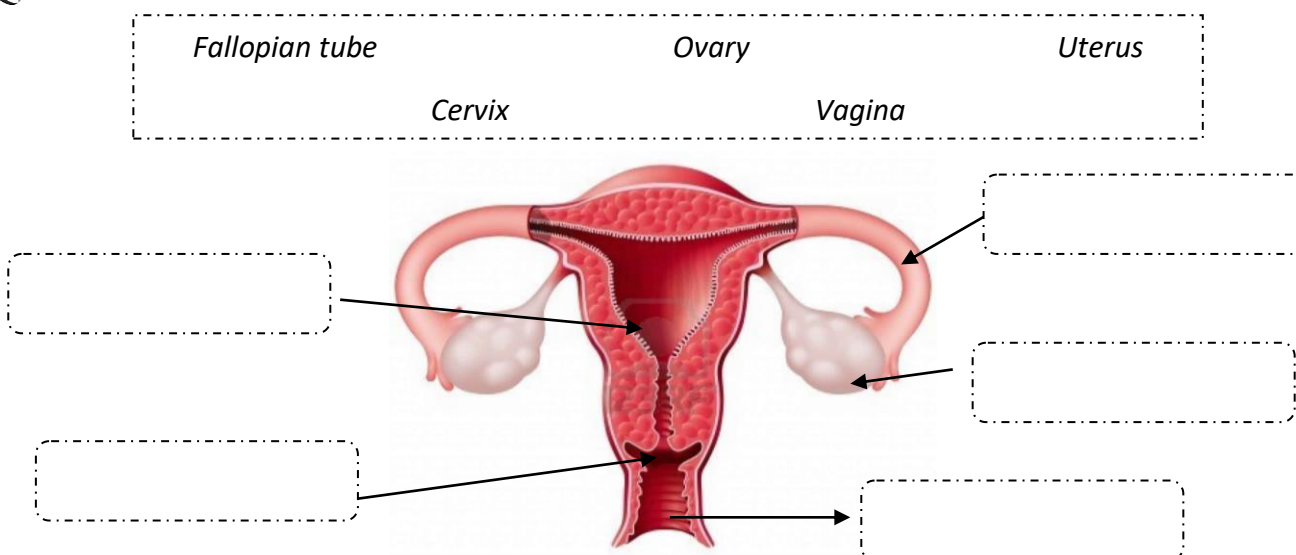
Date: ____/____/____

Lesson 3: The Male and Female Reproductive System (use with pages 346-353)**Fill in the blank to complete each statement.**

1. The joining of an egg cell and a sperm cell is a process called _____.
2. The structures of the _____ include the testes, scrotum, and penis.
3. The mixture of sperm cells and fluids is called _____.
4. The female reproductive system is specialized to produce _____ and the hormone estrogen, as well as to nourish the developing baby until birth.
5. During the menstrual cycle, the lining of the uterus thickens in preparation for a(n) _____.

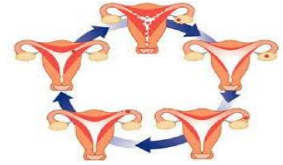
**Modified True or False: If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.**

1. The male reproductive system is specialized to produce sperm cells and the hormone estrogen.
2. Sexual reproduction involves the production of eggs by the female and sperm by the male.
3. The organs of the female reproductive system include the ovaries, fallopian tubes, uterus, and vagina.
4. During the menstrual cycle, an egg develops in the uterus.
5. An egg develops and is released about once a month in a mature woman.

**Label the parts of female reproductive system**



Answer the following questions.



1. What happens in the menstrual cycle if an egg is fertilized?

2. What changes does estrogen cause in a female's body?



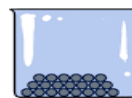
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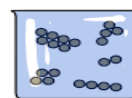
Lesson 1: States of Matter (use with pages 8 -15)



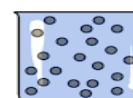
Fill in the blank to complete each statement.



SOLID



LIQUID



GAS

1. The amount of space that matter fills is its _____.
2. A state of matter with a definite volume, but no definite shape is a(n) _____.
3. A(n) _____ will always take the shape and volume of its container.
4. The _____ is a measure of the average speed of the particles in a substance.
5. A(n) _____ has a definite volume but no shape of its own.
6. The _____ of a gas is the force of its outward push divided by the area of the walls of its container.

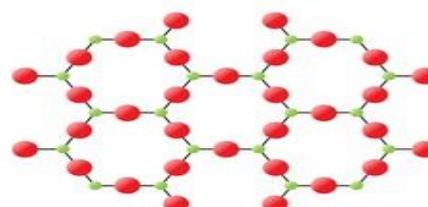


Modified True or False: If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.

1. Viscosity is the inward force among the molecules of a liquid.
2. A(n) amorphous solid has a definite melting point.
3. Both gases and liquids are fluids.
4. All solids have a closely packed, fixed arrangement of particles.

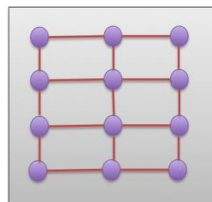


AMORPHOUS STRUCTURE

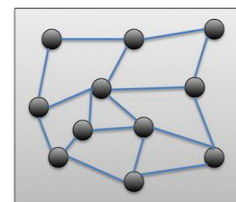




Answer the following questions.



Crystalline Solid



Amorphous Solid

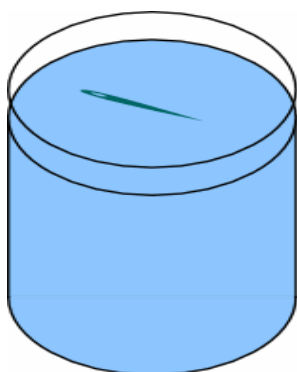
1. What are the general characteristics of a solid?

2. How do crystalline solids differ from amorphous solids?

3. How are liquids described in terms of shape and volume?

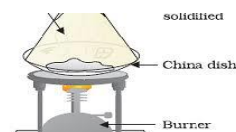
4. Explain why a sewing needle can float on the surface of water in a glass.

5. What determines the shape and volume of a gas inside a container?



Name: _____

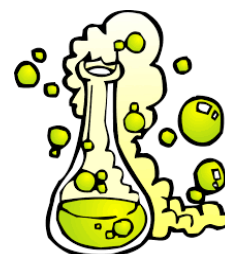
Date: ____/____/____

Lesson 2: Changes of State (use with pages 16-23)**Fill in the blank to complete each statement.**

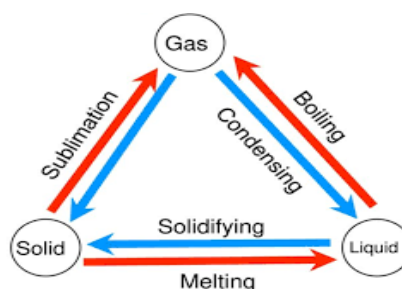
- Both sublimation and _____ occur only on the surface of a substance.
- The _____ of melting is freezing.
- When butter is heated it melts, and when that melted butter cools and solidifies the process is called _____.
- When a gas turns to a liquid, the energy of the particles _____.
- Vaporization is the reverse of _____.



Modified True or False: If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.



- Sublimation and **boiling** both happen at the surface of the substance.
- Vaporization is the reverse of **condensation**.
- The temperature at which a liquid turn to a gas is called the **boiling point**.
- Boiling** is the reverse of freezing.
- Water particles in gas coming off of a pan of boiling water are moving **slower** than the particles of the water in the pan.
- Evaporation and **condensation** are both types of vaporization.





Shade the correct word to complete the given sentences below.

1. As liquid water freezes, its molecules _____ thermal energy.
2. During melting, the water molecules _____ thermal energy.
3. As water evaporates, its molecules _____ thermal energy.
4. As water vapor condenses, its molecules _____ thermal energy

gain

lose

gain

lose

gain

lose

gain

lose

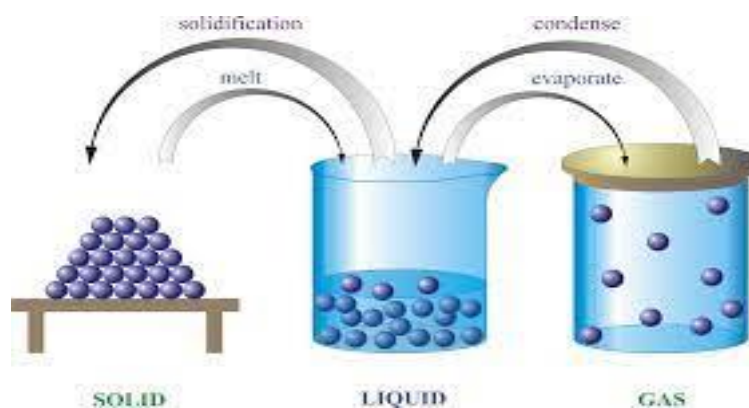


Answer the following questions.



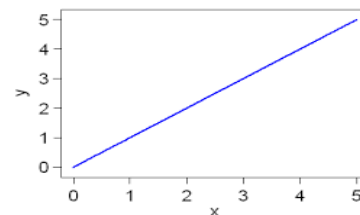
1. How does what happens to the particles in a substance during melting differ from what happens during freezing?

2. How does the thermal energy of water vapor change as the vapor condenses?



Name: _____

Date: ____/____/____

Lesson 3: Gas Behavior (use with pages 24-29)**Fill in the blank to complete each statement.**

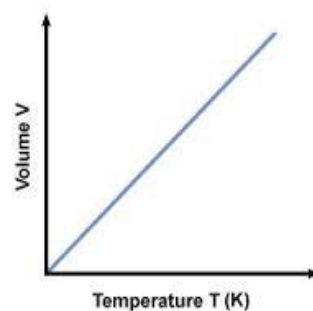
1. When the graph relating two variables is a straight line passing through the origin, the variables are _____ proportional.
2. According to _____ law, when the pressure of a gas at constant temperature is increased, the volume of the gas decreases.
3. According to _____ law, when the temperature of a gas is increased at constant pressure, its volume increases.
4. When the product of two variables is constant, the variables are _____ proportional to each other.

**Modified True or False: If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.**

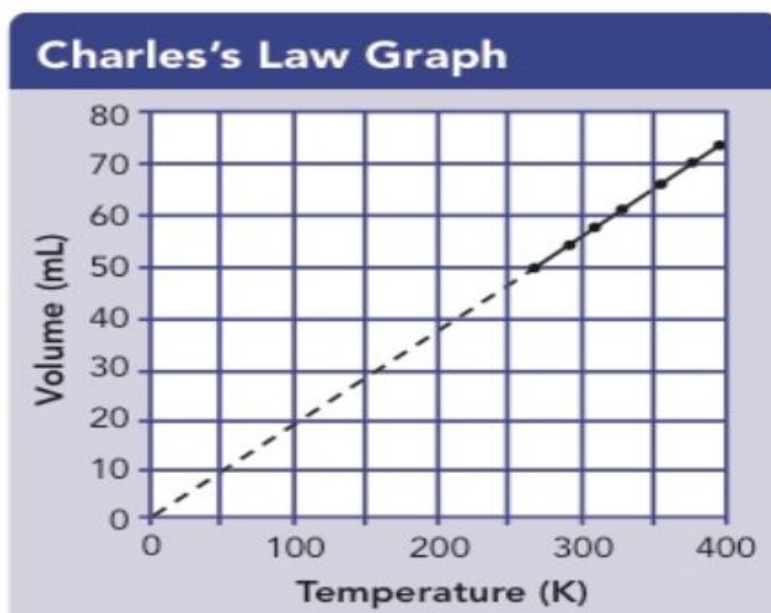
- _____ 1. If the temperature of a gas is constant, when the pressure is increased, the volume decreases.
- _____ 2. If the air pressure inside an inner tube is constant, when the temperature of the air is increased, the volume decreases.
- _____ 3. The graph of the relationship between the volume of a gas at constant temperature and its pressure is a(n) line.
- _____ 4. If the temperature of a gas inside a sealed, rigid container is decreased, its pressure decreases.
- _____ 5. The graph for Charles's law shows that the volume of a gas at constant pressure is inversely proportional to its temperature.
- _____ 6. If a gas at constant pressure inside a cylinder topped by a movable piston is heated, the volume of the gas will increase and push the piston outward.

Answer the following questions.

1. The graph of Charles's law shows that the volume of a gas is _____ to its Kelvin temperature at constant pressure.



2. Suppose the gas in Figure 4 (textbook page 27) shown below could be cooled to 100 K (-173°C). Predict the volume of the gas at this temperature.

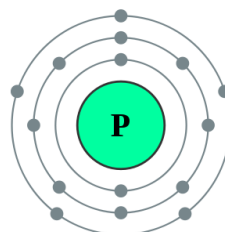
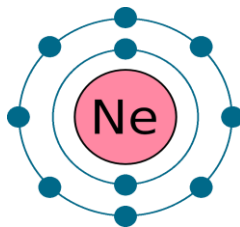
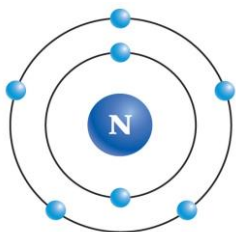




Understanding Main Ideas. Look at the diagram below. Then answer the following questions in the space provided.

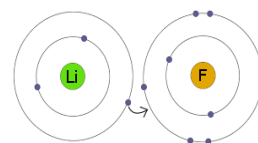


1. How many protons does a nitrogen atom have? _____
2. How many valence electrons does a nitrogen atom have? _____
3. Is nitrogen reactive or stable? _____
4. Neon (Ne), which has an atomic number of 10 is in Group 18 in the periodic table. To which group does nitrogen belong? _____
5. The element directly below nitrogen in the periodic table is phosphorus (P). How many valence electrons do phosphorus have? _____
6. Will the properties of nitrogen be more similar to the properties of neon or the properties of phosphorus? Explain.



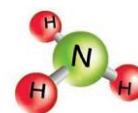
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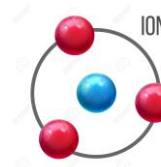
Lesson 2: Ionic Bonds (use with pages 50-57)Circle the letter of the correct answer.

1. Ionic bonds form between two ions that have _____.
 a. ionic compounds
 b. negative charges
 c. positive charges
 d. opposite charges

2. Ions that are made of more than one atom are called _____.
 a. ionic compounds
 b. crystals
 c. polyatomic atoms
 d. ionic bonds



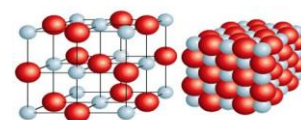
3. Which is most likely to form a negative ion?
 a. an element from Group 17
 b. a metal
 c. an element from Group 1
 d. an element with atoms that have eight valence electrons



4. Which of the following is the correct name for MgCl_2 ?
 a. magnesium chlorine
 b. magnesium dichlorine
 c. magnesium chloride
 d. magnesium dichloride

Fill in the blank to complete each statement.

1. A(n) _____ is an atom or group of atoms that has an electric charge.
2. The attraction between oppositely charged ions is called a(n) _____
3. When an atom loses a valence electron, it becomes a(n) _____ ion.
4. In order to have a stable arrangement of 8 valence electrons, metal atoms are likely to _____ electrons.
5. In an ionic compound, the total positive charge of all the positive ions _____ the total negative charge of all the negative ions.
6. Because the force of attraction between the positive and negative ions is so strong, ionic compounds have _____ melting points.



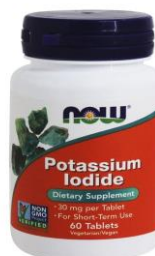


Answer the following questions in the spaces provided. You may use a periodic table.

1. A potassium ion has a charge of $1+$. A sulfide ion has a charge of $2-$. What is the chemical formula for potassium sulfide?

2. Name the following compound: MgO .

3. Why is potassium iodide electrically neutral?



Date: ____/____/____

1. In an electron dot diagram, two pairs of shared electrons represent a _____.

- O

-

a. stronger chemical bonds
b. poor conductivity
c. lower densities
d. a high melting point



_____ 1. The chemical bond formed when two atoms share electrons is called a(n) **ionic** bond.

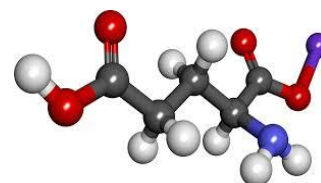
_____ 2. Covalent bonds usually form when a nonmetal combines with a(n) **metal**.

3. A(n) **ion** is a neutral group of atoms joined by covalent bonds.

_____ 4. If a molecule contains polar bonds, the molecule may or may not be polar overall.

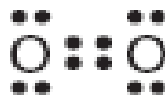
_____ 5. In a(n) **polar** bond, one atom pulls on the shared electrons more than the other atom.

_____ 6. The forces between molecules are much **stronger** than the forces between ions.





Understanding Main Ideas. Answer the following questions in the spaces provided. Use the diagram at right to answer questions 1–5.

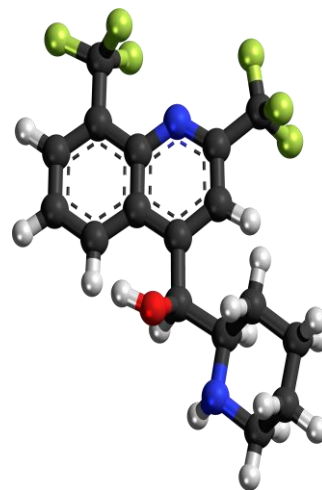


1. Circle all of the covalent bonds in the electron dot diagrams.

2. Which bond(s) shown are double bonds?

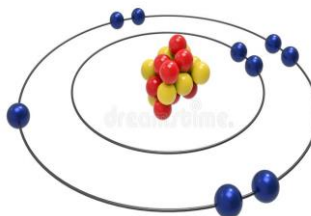
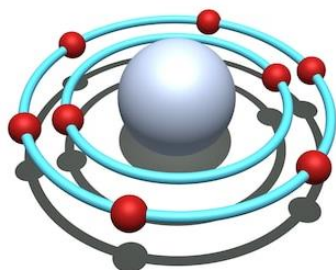
3. Which bond(s) shown are triple bonds?

4. Which molecule(s) shown have polar bonds?



Apply It. Answer the given question below.

1. Compare and contrast O_2 and F_2 .



Name: _____

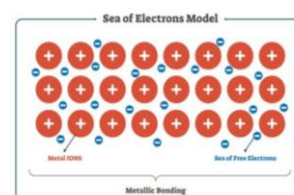
Date: ____/____/____

Lesson 4: Bonding Metals (use with pages 66-71)Circle the letter of the correct answer.**1. Why are alloys generally used to make everyday objects?**

- a. Alloys are often stronger and less reactive than pure metals.
- b. Alloys have higher melting points than pure metals.
- c. Alloys are less expensive to produce than pure metals.
- d. Alloys have ionic bonds instead of metallic bonds.

**2. Metallic bonding is _____.**

- a. a type of covalent bond
- b. a type of ionic bond
- c. an attraction between positive and negative ions
- d. an attraction between positive ions and electrons

**3. Which of the following is NOT a property of metals?**

- a. ductile
- b. good electrical conductor
- c. good thermal insulator
- d. malleable

4. At room temperature, most metals are _____.

- a. liquid
- b. solid
- c. gas
- d. an alloy

Fill in the blank to complete each statement.

1. An attraction between a positive metal ion and surrounding electrons is a(n)

_____ bond.

2. Metals typically have _____ melting points.

3. The metal fins that cool a motorcycle's engine make use of the high

_____ conductivity of metals.

4. Metals are often used to make wire because they are _____.

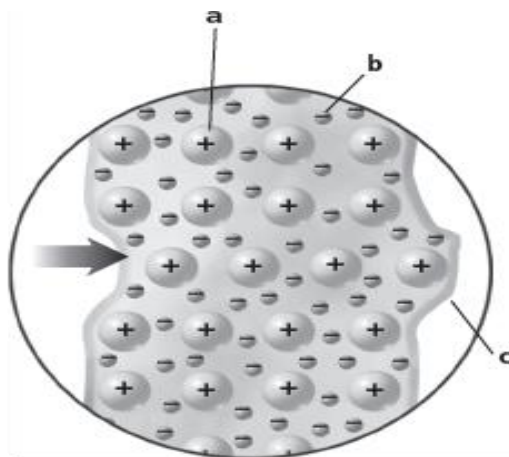
5. Metals are used in electrical wires because they have high _____ conductivity.

6. Nonmetals are unlikely to form metallic bonds because their _____ are strongly held.





Understanding Main Ideas. Use the diagram to answer the following questions.



1. What do points A and B represent?

2. What action is modeled by the diagram? Explain.

3. How does metallic bonding explain the result at point C?



Apply It. Answer the given question below.

1. Why is it safer to use a nonmetal mixing spoon when cooking something on a hot stove?



twinkl

Name: _____

Date: ____/____/____

Lesson 1: Observing Chemical Change (use with pages 84-91)Circle the letter of the correct answer.

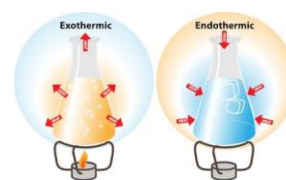
1. Which of the following is true about chemical reactions?

- a. They are accompanied by changes in energy.
- b. They form new substances with new properties.
- c. both A and B
- d. neither A nor B



2. In an endothermic reaction, energy is _____.

- a. absorbed
- b. released
- c. converted to mass
- d. synthesized



3. Which of the following is NOT a physical property?

- a. melting point
- b. state of matter
- c. density
- d. flammability

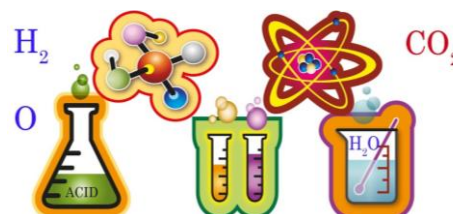


4. Substances formed as a result of a chemical reaction are called _____.

- a. catalysts
- b. precipitates
- c. products
- d. reactants

If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.

- _____ 1. In an exothermic reaction, products have more energy than reactants.
- _____ 2. Water boils at 100°C. This is an example of a chemical property.
- _____ 3. Substances that enter into a chemical reaction are called products.
- _____ 4. The ability to react with oxygen is an example of a chemical property.
- _____ 5. Another name for a chemical change is a chemical bond.
- _____ 6. In a physical change, some of the physical properties of the substance may be altered and the chemical composition remains the same.





Understanding Main Ideas. Complete the following table. Describe changes in properties that you might notice during each process and state whether the changes are chemical or physical.

Changes in Matter		
Event	Observable Changes	Type of Change
Baking a cake	1.	2.
Burning a log	3.	4.
Freezing water	5.	6.



Answer the given question below.

1. When silver coins are found in ancient shipwrecks, they are coated with a black crust. Ask a question that could help you determine whether the silver underwent a chemical change or a physical change. Explain



Name: _____

Date: ____/____/____

Lesson 2: Describing Chemical Reaction (use with pages 92-103)Circle the letter of the correct answer.

1. In a balanced chemical equation, _____.

a. atoms are conserved

c. molecules are equal

b. coefficients are equal

d. energy is not conserved

2. When the equation $\text{Al} + \text{Br}_2 \rightarrow \text{AlBr}_3$ is balanced, the coefficient for Al is _____.

a. 1

c. 3

b. 2

d. 4

3. The reaction in which hydrogen and oxygen are produced by running an electric current through water is an example of _____.

a. single replacement

c. synthesis

b. decomposition

d. double replacement

4. A reaction that has two compounds as reactants and two compounds as products is most likely a _____.

a. synthesis reaction

c. double replacement reaction

b. single replacement reaction

d. decomposition reaction

Fill in the blank to complete each statement.

1. A number written in front of a chemical formula is a(n) _____.

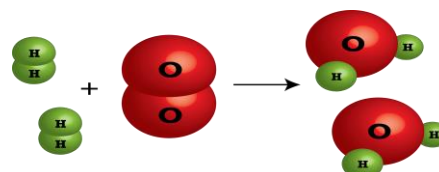
2. The principle that states that matter is neither created nor destroyed during a chemical reaction is called the law of _____.

3. The production of carbon dioxide during the burning of a fuel is an example of a(n) _____ reaction.

4. In a chemical equation, the arrow is read as _____.

5. In the balanced chemical equation for the formation of ammonia (NH_3) from nitrogen (N_2) and hydrogen (H_2), the sum of the coefficients is _____.

6. The law of conservation of mass was first demonstrated by the French chemist _____.





Understanding Main Ideas. Complete the table. Balance each equation. Then indicate whether the reaction is a synthesis, decomposition, or replacement reaction.

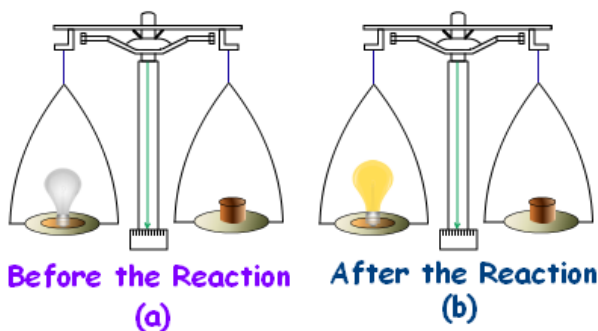
	Given Equation	Balanced Equation	Type of Reaction
1.	$\text{FeS} + \text{HCl} \rightarrow \text{FeCl}_2 + \text{H}_2\text{S}$	a.	b.
2.	$\text{Na} + \text{F}_2 \rightarrow \text{NaF}$	a.	b.
3.	$\text{HgO} \rightarrow \text{Hg} + \text{O}_2$	a.	b.



Apply It. Answer the questions below.

1. Describe in words the reaction represented by the equation and include a description of the composition of each kind of molecule. $2\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O}$

2. Use the law of conservation of mass to explain why the equation in question 1 is balanced?



Name: _____

Date: ____/____/____

Lesson 3: Controlling Chemical Reactions (use with pages 104-109)

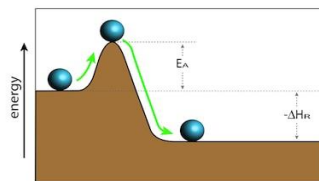
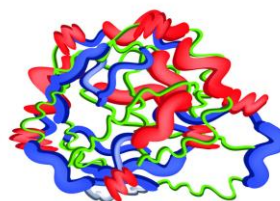
If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.

- _____ 1. Increasing the surface area of the reactants will decrease the rate of the reaction.
- _____ 2. The amount of a substance in a given volume is the concentration of the substance.
- _____ 3. The effect of a catalyst on a reaction is to raise the activation energy.
- _____ 4. Only some reactions require activation energy.
- _____ 5. A(n) inhibitor decreases the rate of a reaction.



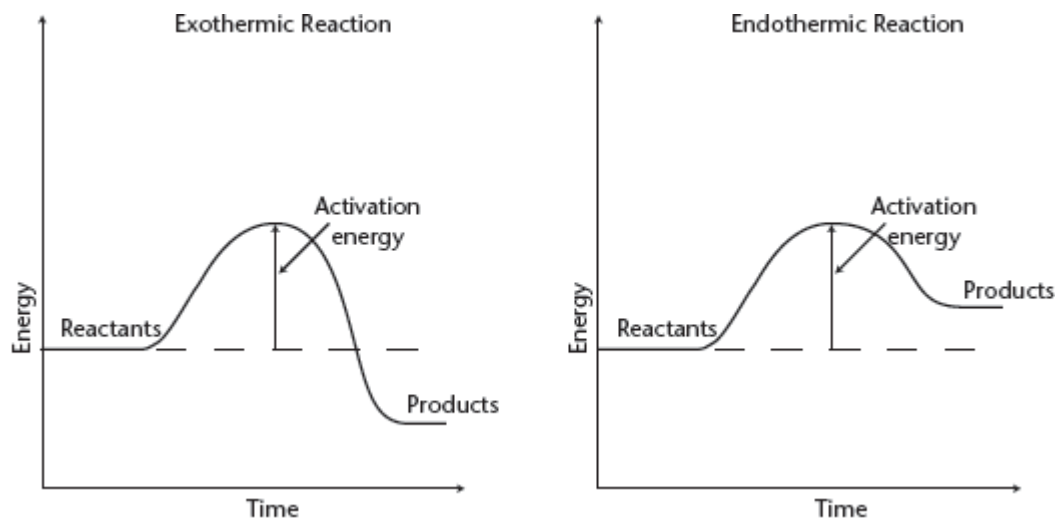
Fill in the blank to complete each statement.

1. The burning of fuels, such as coal, natural gas, or oil, involves a(n) _____ reaction.
2. In an endothermic reaction, the energy of the products is _____ than the energy of the reactants.
3. Increasing the temperature of a reaction will _____ the rate of the reaction.
4. The amount of a substance in a given volume is called _____.
5. Biological catalysts in the human body are called _____.

**PEPSIN**



Understanding Main Ideas. Use the figures below to answer questions 1–3.



1. Use what you know about endothermic and exothermic reactions to explain the differences in the graphs above.

2. Why is the activation energy pictured as a hill in the two diagrams?

3. Explain how adding heat to the reactions shown in the diagrams would change the rate of these chemical reactions. Name two other ways to change the rate of a chemical reaction.
