

AL NOOR INTERNATIONAL SCHOOL  
Riyadh, Saudi Arabia



# interactive SCIENCE

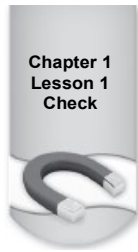


# Workbook

Name: \_\_\_\_\_

Grade 5 - \_\_\_\_\_

Academic Year: \_\_\_\_\_



Name \_\_\_\_\_ Date \_\_\_\_\_

# Chapter 1

## Lesson 1 What makes up matter?

### Words to Know

Write the word next to the description it matches.

atom	compound	molecule
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- \_\_\_\_\_ the smallest part of an element that still has the properties of the element
- \_\_\_\_\_ the smallest particle of a compound that still has the properties of that compound
- \_\_\_\_\_ a type of matter made up of two or more elements



### Explain

Tell if each statement is true or false. Explain your choice.

- All atoms have the same number of protons.

This statement is \_\_\_\_\_ because \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

- Metals and nonmetals are both good conductors.

This statement is \_\_\_\_\_ because \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



### Apply Concepts

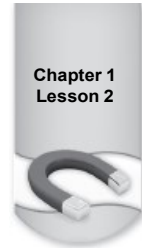
- Is a compound simply a mixture of two or more elements? Explain.

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

**Multiple Choice: Encircle the correct answer from the given alternatives**

1. A/An \_\_\_\_\_ is the smallest part of an element that still has properties of the element.
  - A. Atom
  - B. Molecule
  - C. Compound
2. The smallest part of a compound that still has properties of that compound is a(n)
  - A. Atom
  - B. Compound
  - C. Molecule
3. A type of matter made up of two or more elements is a(n)
  - A. Atom
  - B. Compound
  - C. Molecule
4. Which is true?
  - A. Each element will react in its own way with other elements.
  - B. Elements are always solids.
  - C. Elements are always metals.
5. Sodium and chlorine combine to make a compound. Which is true about that compound?
  - A. This compound is poisonous.
  - B. This compound is white and solid.
  - C. This compound is greenish yellow.

Name \_\_\_\_\_ Date \_\_\_\_\_



# Chapter 1

## Lesson 2 How can matter be described?

### Words to Know

Write the word next to the description it matches.

mass	temperature	volume
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- \_\_\_\_\_ the amount of space an object takes up
- \_\_\_\_\_ the amount of matter in a solid, liquid, or gas
- \_\_\_\_\_ the measure of how fast the particles in an object are moving



### Explain

Write your answer.

- Why might scientists measure the mass of an object rather than the weight of an object?

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- What do you know for certain about the particles that make up a very hot liquid?

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### Apply Concepts

- You have been given an orange liquid and told to describe its properties. What methods would you use to observe, measure, and describe the physical properties of this orange liquid without changing it?

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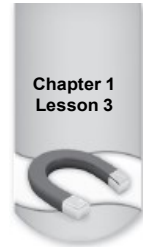
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**Multiple Choice: Encircle the correct answer from the given alternatives**

1. \_\_\_\_\_ is the amount of space that an object takes up.
  - A. Mass
  - B. Volume
  - C. Temperature
2. \_\_\_\_\_ is the amount of matter in a solid, liquid, or gas.
  - A. Volume
  - B. Temperature
  - C. Mass
3. \_\_\_\_\_ is the measure of how fast the particles in an object are moving.
  - A. Mass
  - B. Temperature
  - C. Volume
4. What do you use a balance and gram cubes to measure?
  - A. Mass
  - B. Texture
  - C. Temperature
5. Liquid in a graduated cylinder has a volume of 70 ml. You put a small solid ball into the cylinder, and the height of the liquid moves up to 80 ml. What is the volume of the ball?
  - A. 10 ml
  - B. 75 ml
  - C. 80 ml
6. You measure the temperature of water. One hour later you measure the temperature again, and the temperature is higher. What do you know about the particles in the water?
  - A. The number of particles has decreased.
  - B. The particles are moving slower.
  - C. The particles are moving faster

Name \_\_\_\_\_ Date \_\_\_\_\_



## Chapter 1

### Lesson 3 What are solids, liquids, and gases?

#### Words to Know

Write the word next to the description it matches.

gas	liquid	solid
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1. \_\_\_\_\_ a substance that has a definite shape and volume
2. \_\_\_\_\_ a substance without a definite volume or shape
3. \_\_\_\_\_ a substance that has a definite volume but no definite shape



#### Explain

Tell if each statement is true or false. Explain your choice. Give an example.

4. There are three states of matter: solid, liquid, and gas.

This statement is \_\_\_\_\_ because \_\_\_\_\_

\_\_\_\_\_

5. Dew forming on grass is an example of condensation.

This statement is \_\_\_\_\_ because \_\_\_\_\_

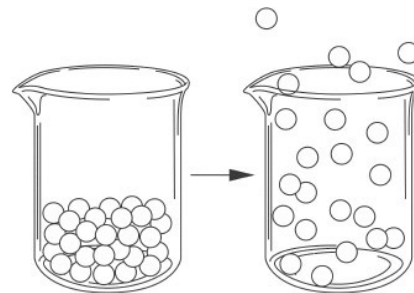
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#### Apply Concepts

6. Look at the illustration. What causes the phase change of water shown in the illustration? How do you know?



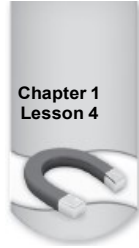
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\_\_\_\_\_

**Multiple Choice: Encircle the correct answer from the given alternatives**

1. A substance that has a definite shape and volume is a \_\_\_\_\_
  - A. Gas
  - B. Liquid
  - C. Solid
  
2. A substance without a definite volume or shape is a \_\_\_\_\_
  - A. Gas
  - B. Liquid
  - C. Solid
  
3. A substance that has a definite volume but no definite shape is a \_\_\_\_\_
  - A. Solid
  - B. Liquid
  - C. Gas
  
4. The particles in an object are very close together. They do not slide easily past each other. The object has a definite shape and volume. What is the state of matter of the object?
  - A. Solid
  - B. Liquid
  - C. Gas
  
5. A substance fills a 1-liter bottle. A scientist transfers the substance to a 2-liter bottle. The substance increases in volume and fills the new space. What is the state of matter of this substance?
  - A. Liquid
  - B. Gas
  - C. Solid



Name \_\_\_\_\_ Date \_\_\_\_\_

# Chapter 1

## Lesson 4 What are mixtures and solutions?

### Words to Know

Write the word next to the description it matches.

mixture	solubility	solution
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- \_\_\_\_\_ the degree to which a material will dissolve in another substance
- \_\_\_\_\_ different materials placed together but keeping their own properties
- \_\_\_\_\_ a mixture in which substances are spread out evenly and will not settle



### Explain

Tell if each statement is true or false. Explain your choice.

4. Salt is a solute in seawater.

This statement is \_\_\_\_\_ because \_\_\_\_\_

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5. All mixtures are solutions.

This statement is \_\_\_\_\_ because \_\_\_\_\_

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### Apply Concepts

6. If you had a bucket that contained a mixture of sand and seashells, how might you use the physical properties of the seashells to separate them from the sand?

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**Multiple Choice: Encircle the correct answer from the given alternatives**

1. \_\_\_\_\_ is the degree to which a material will dissolve in another.
  - A. Dissolvability
  - B. Mixture
  - C. Solubility
2. Different materials placed together but keeping their own properties are called a
  - A. Combination
  - B. Mixture
  - C. Solution
3. A mixture in which substances are spread out evenly and will not settle is a
  - A. Blend
  - B. Combination
  - C. Solution
4. In a \_\_\_\_\_, different materials are put together, but they each keep their own properties.
  - A. Mixture
  - B. Solution
  - C. Solvent
5. Which is true?
  - A. When a solid dissolves, the individual particles spread evenly.
  - B. All solutions are made by dissolving a solid in a liquid.
  - C. Grinding a solid into smaller pieces does not affect dissolving.

Name \_\_\_\_\_ Date \_\_\_\_\_

# Chapter 1

## Lesson 5 How does matter change?

### Words to Know

Write the word next to the description it matches.

chemical change	physical change	rust
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1. \_\_\_\_\_ a new substance that results when iron is left outside
2. \_\_\_\_\_ a change in which one or more types of matter change into other types of matter with different properties
3. \_\_\_\_\_ a change in some properties of matter without forming a different kind of matter



### Explain

Tell if each statement is true or false. Explain your choice.

4. A physical change occurs when matter changes state, as from a liquid to a gas.

This statement is \_\_\_\_\_ because \_\_\_\_\_

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5. An increase in temperature usually slows down a chemical reaction.

This statement is \_\_\_\_\_ because \_\_\_\_\_

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### Apply Concepts

6. What clues could tell you if a chemical change has occurred in a substance?

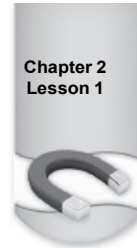
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**Multiple Choice: Encircle the correct answer from the given alternatives**

1. When iron is left outside, it may form a new substance called
  - A. Erosion
  - B. Copper
  - C. Rust
2. A \_\_\_\_\_ is a change in which one or more types of matter change into other types of matter with different properties.
  - A. Chemical change
  - B. Complete change
  - C. Physical Change
3. A \_\_\_\_\_ is a change in some properties of matters without forming a different kind of matter.
  - A. Chemical Change
  - B. Incomplete change
  - C. Physical change
4. Which is an example of a chemical change?
  - A. Cutting paper
  - B. Melting ice
  - C. Ripening tomato
5. How are chemical changes different from physical changes?
  - A. Chemical changes occur very rapidly
  - B. Atoms rearrange to form new matter in a chemical change.
  - C. Chemical changes can be easily seen.



Name \_\_\_\_\_ Date \_\_\_\_\_

## Chapter 2

### Lesson 1 What are forces?

#### Words to Know

Write the word next to the description it matches.

force	friction	gravity
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1. \_\_\_\_\_ the force of attraction between any two objects
2. \_\_\_\_\_ a push or a pull that acts on an object
3. \_\_\_\_\_ the force that results when two materials rub against each other



#### Explain

Tell if each statement is true or false. Explain your choice.

4. A force can make an object slow down or stop.

This statement is \_\_\_\_\_ because \_\_\_\_\_

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5. You weigh less on Earth than in a spaceship orbiting 800 kilometers above Earth.

This statement is \_\_\_\_\_ because \_\_\_\_\_

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#### Apply Concepts

6. Explain what happens when you slip on a wet floor.

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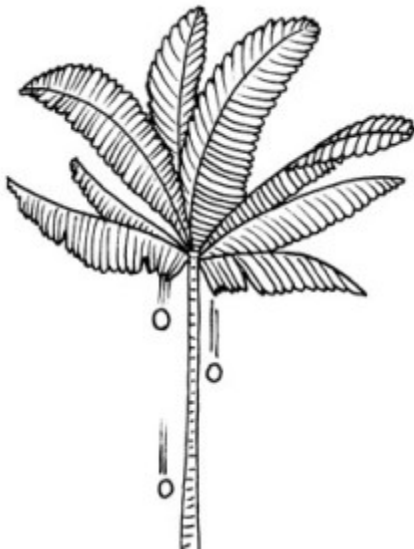
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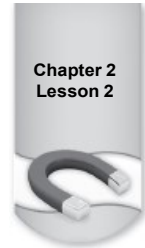
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**Multiple Choice: Encircle the correct answer from the given alternatives**

1. \_\_\_\_\_ is the force of attraction between any two objects.
  - A. Friction
  - B. Gravity
  - C. Magnetism
2. A push or pull that acts on an object is a(n) \_\_\_\_\_.
  - A. Force
  - B. Strength
  - C. Power
3. \_\_\_\_\_ is the force that results when two materials rub against each other.
  - A. Friction
  - B. Static
  - C. Gravity
4. Look at the picture of the coconut tree. What is the force that pulls the coconuts toward the Earth?



- A. Gravity
  - B. Friction
  - C. Electricity
5. A soccer ball is rolled across four different surfaces with the same force. Which surface will slow the movement of the soccer ball the most?
    - A. Tile floor
    - B. Grassy field
    - C. Cement sidewalk



Name \_\_\_\_\_ Date \_\_\_\_\_

## Chapter 2

### Lesson 2 What are Newton's Laws?

#### Words to Know

Write the word next to the description it matches.

acceleration	inertia	uniform motion
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1. \_\_\_\_\_ the rate at which the speed or the direction of motion of an object changes over time
2. \_\_\_\_\_ the tendency of an object to resist any change in motion
3. \_\_\_\_\_ motion where the speed and direction do not change



#### Explain

Tell if each statement is true or false. Explain your choice.

4. When a bike goes around a curve at the same speed as it was moving on a straight road, it has uniform motion.

This statement is \_\_\_\_\_ because \_\_\_\_\_  
\_\_\_\_\_

5. You need the same amount of force to throw a basketball 3 meters as you need to throw a golf ball 3 meters.

This statement is \_\_\_\_\_ because \_\_\_\_\_  
\_\_\_\_\_



#### Apply Concepts

6. Using Newton's first and third laws, explain what happens when you dribble a basketball.

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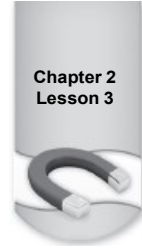
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**Multiple Choice: Encircle the correct answer from the given alternatives**

1. \_\_\_\_\_ is the rate at which the speed or the direction of motion of an object changes over time.
  - A. Acceleration
  - B. Inertia
  - C. Uniform Motion
  
2. \_\_\_\_\_ is the tendency of an object to resist any change in motion.
  - A. Inertia
  - B. Acceleration
  - C. Uniform motion
  
3. \_\_\_\_\_ is motion where the speed and direction do not change.
  - A. Acceleration
  - B. Uniform Motion
  - C. Inertia
  
4. A car is moving down the road at 50 km/hr. A cup of water is sitting on the dashboard of the car. The driver suddenly slams his foot on the brakes and the glass of water spills all over the windshield. Which of Newton's laws does this illustrate?
  - A. Newton's first law
  - B. Newton's second law
  - C. Newton's third law
  
5. Howard has to work harder to pull a wagon filled with toys than to pull an empty wagon. Why?
  - A. It takes less force to move heavier objects.
  - B. It takes more force to move lighter objects.
  - C. It takes more force to move heavier objects.



Name \_\_\_\_\_ Date \_\_\_\_\_

## Chapter 2

### Lesson 3 How are forces combined?

#### Words to Know

Write the word next to the description it matches.

balanced	combined force	net force
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1. \_\_\_\_\_ two forces of equal strength that combine to act on the same object but in opposite directions
2. \_\_\_\_\_ the total of all forces acting on a body
3. \_\_\_\_\_ two forces acting together in the same direction



#### Explain

Tell if each statement is true or false. Explain your choice.

4. If you push a heavy cart while your friend pulls the cart in the same direction, the combined forces will move the cart faster.

This statement is \_\_\_\_\_ because \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. If an object is not moving, the forces acting on it are balanced.

This statement is \_\_\_\_\_ because \_\_\_\_\_  
\_\_\_\_\_



#### Apply Concepts

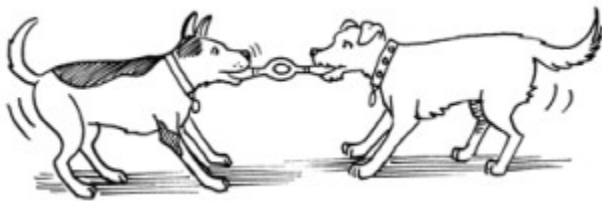
6. You are building a house of cards. Explain how you know if the forces acting on the cards are not balanced.

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

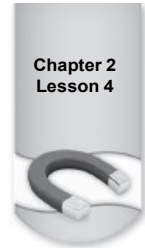


**Multiple Choice: Encircle the correct answer from the given alternatives**

1. Two forces of equal strength that combine to act on the same object but in opposite directions are
  - A. Attracted
  - B. Balanced
  - C. Combined
2. The total of all forces acting on a body is the
  - A. Combined force
  - B. Balanced force
  - C. Net force
3. Two forces acting together in the same direction is a(n)
  - A. Balanced force
  - B. Combined force
  - C. Net force
4. How can the forces in this picture best be described?



- A. The forces are equal.
- B. The toy is using more force
- C. One dog is using more force



Name \_\_\_\_\_ Date \_\_\_\_\_

## Chapter 2

### Lesson 4 How are shadows formed?

#### Words to Know

Write the word next to the description it matches.

light	shadow	waves
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1. \_\_\_\_\_ shade cast by an object in the path of light
2. \_\_\_\_\_ the form in which light energy travels
3. \_\_\_\_\_ a form of energy



#### Explain

Tell if each statement is true or false. Explain your choice. Give an example.

4. An object that light passes through it will have a darker shadow than an object that reflects or absorbs light rays.

This statement is \_\_\_\_\_ because \_\_\_\_\_  
\_\_\_\_\_

5. A person's shadow will be longer in the morning than it is at noon.

This statement is \_\_\_\_\_ because \_\_\_\_\_  
\_\_\_\_\_



#### Apply Concepts

6. Describe three factors that determine the size of a shadow and explain how each one can make the shadow larger or smaller.

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**Multiple Choice: Encircle the correct answer from the given alternatives**

1. Shade cast by an object in the path of light is called a(n)
  - A. Black hole
  - B. Shadow
  - C. Wave
  
2. Light energy travels in \_\_\_\_\_
  - A. Crest
  - B. Shadows
  - C. Waves
  
3. \_\_\_\_\_ is a form of energy.
  - A. Darkness
  - B. Light
  - C. Shadow
  
4. You shine a flashlight toward your upraised hand, and a shadow of your hand forms on the wall. What happens if you move your hand closer to the flashlight?
  - A. The shadow disappears.
  - B. The shadow does not change.
  - C. The shadow becomes larger.

Name \_\_\_\_\_ Date \_\_\_\_\_



# Skills Handbook Part 1

## Lesson 1 What do Scientists do?

### Words to Know

Write the word next to the description it matches.

observation	hypothesis
-------------	------------

1. \_\_\_\_\_ something you find out about objects, events, or living things using your senses
2. \_\_\_\_\_ a statement of what you think will happen during a scientific investigation



### Explain

Tell if each statement is true or false. Explain your choice.

3. A scientist's opinion is a valid source of information to use in a scientific investigation.

This statement is \_\_\_\_\_ because \_\_\_\_\_  
\_\_\_\_\_

4. Scientists make observations very carefully.

This statement is \_\_\_\_\_ because \_\_\_\_\_  
\_\_\_\_\_



### Apply Concepts

5. Suppose a scientist wants to begin an investigation on water pollution. What resources should the scientist use to research water pollution? What are some examples of reliable resources?

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## Multiple Choice: Encircle the correct answer from the given alternatives

1. An \_\_\_\_\_ is something you find out about objects, events, or living things using your senses.
  - A. Observation
  - B. Hypothesis
  - C. Conclusion
2. A \_\_\_\_\_ is a statement of what you think will happen during a scientific investigation.
  - A. Measurement
  - B. Hypothesis
  - C. Observation
3. What does scientific investigation begin with?
  - A. A hypothesis
  - B. A prediction
  - C. A testable question
4. How can you use scientific knowledge to make a decision about whether to eat an apple or a candy bar?
  - A. You can learn which food is more healthful
  - B. You can learn which food costs more.
  - C. You can learn which food is easier to pack
5. When scientists use their senses or tools that extend their senses to learn about the world, they are making
  - A. Conclusions
  - B. Observations
  - C. Hypothesis



# Skills Handbook Part 1

## Lesson 2 How do Scientists Investigate?

### Words to Know

Write the word next to the description it matches.

models	experiment	control group
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1. \_\_\_\_\_ a standard against which change can be measured
2. \_\_\_\_\_ the use of scientific methods to test your hypothesis
3. \_\_\_\_\_ objects or ideas that represent things



### Explain

Tell if each statement is true or false. Explain your choice.

4. The only way to test a scientific hypothesis is to perform an experiment.

This statement is \_\_\_\_\_ because \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. The steps used in scientific methods must always be performed in the same order.

This statement is \_\_\_\_\_ because \_\_\_\_\_  
\_\_\_\_\_



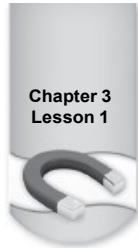
### Apply Concepts

6. Suppose two scientists perform the same experiment separately, but their results are very different. What could they do to find out why this happened?

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

**Multiple Choice: Encircle the correct answer from the given alternatives**

1. A \_\_\_\_\_ is a standard against which change can be measured.
  - A. Control group
  - B. Experiment
  - C. Model
2. A/An \_\_\_\_\_ is the use of scientific methods to test your hypothesis.
  - A. Control group
  - B. Experiment
  - C. Model
3. \_\_\_\_\_ are objects or ideas that represent things.
  - A. Control group
  - B. Experiment
  - C. Models
4. What is it called when scientists collect data from a small group and generalize their conclusions to a larger group?
  - A. Controlling
  - B. Modelling
  - C. Sampling
5. Which is true of scientific methods?
  - A. To be fair, they must include the use of a model.
  - B. They help scientists organize their investigations.
  - C. Only some of the hypotheses have to be testable.



# Chapter 3

## Lesson 1 What are some physical structures in living things?

### Words to Know

Write the word next to the description it matches.

exoskeleton	spiracles	stomata
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- \_\_\_\_\_ holes on the surface of a plant leaf through which gases pass
- \_\_\_\_\_ a hard skeleton on the outside of the body
- \_\_\_\_\_ air holes on the skin of an insect's body



### Explain

Tell if each statement is true or false. Explain your choice. Give an example.

- An exoskeleton's only purpose is to support the body.

This statement is \_\_\_\_\_ because \_\_\_\_\_  
\_\_\_\_\_

- Plants can have a circulatory system.

This statement is \_\_\_\_\_ because \_\_\_\_\_  
\_\_\_\_\_



### Apply Concepts

- How are the parts of birds and fish similar in structure and function?

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**Multiple Choice: Encircle the correct answer from the given alternatives**

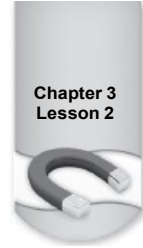
1. Small holes on the surface of a plant leaf through which gases pass are called
  - A. Stomata
  - B. Exoskeleton
  - C. Spiracles
2. A hard skeleton on the outside of the body is called a(n)
  - A. Exoskeleton
  - B. Spiracle
  - C. Stomata
3. Air holes on the skin of an insect's body are called
  - A. Exoskeleton
  - B. Spiracles
  - C. Stomata
4. How are the tissues in a plant's vascular system similar to arteries and veins?
  - A. They both produce sugar and oxygen.
  - B. They both transport things throughout the organism.
  - C. They both take in gases from the air.
5. Identify the exoskeleton and spiracles

A \_\_\_\_\_



B \_\_\_\_\_





# Chapter 3

## Lesson 2 How do adaptations help plants?

### Words to Know

Write the word next to the description it matches.

adaptation	mutation	succession
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- \_\_\_\_\_ a characteristic that allows an organism to survive better in its environment
- \_\_\_\_\_ a random change in a gene
- \_\_\_\_\_ the predictable order of changes in communities after a change occurs



### Explain

Answer the questions below.

4. What adaptation might help a plant survive in an environment with cold winters?

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5. Why might a plant that normally grows in one environment not grow well in a different environment?

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### Apply Concepts

6. What might happen to a plant that has a genetic mutation that results in shorter roots?

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**Multiple Choice: Encircle the correct answer from the given alternatives**

1. A characteristic that allows an organism to survive better in its environment is a(n)
  - A. Adaptation
  - B. Behavior
  - C. Mutation
  
2. A random change in a gene is called a(n)
  - A. Adaptation
  - B. Mutation
  - C. Modification
  
3. \_\_\_\_\_ is the predictable order of changes in communities after a change occurs.
  - A. Adaptation
  - B. Modification
  - C. Succession
  
4. Which is **NOT** an adaptation that might help a plant survive in a very windy environment?
  - A. bendable stems
  - B. strong roots
  - C. fragrant flowers
  
5. Which is true?
  - A. Adaptations happen quickly.
  - B. Plants with the best adaptations are most likely to survive.
  - C. Mutations do not have an effect on a plant.



Name \_\_\_\_\_ Date \_\_\_\_\_

## Chapter 3

### Lesson 3 How do adaptations help animals?

#### Words to Know

Write the word next to the description it matches.

structural adaptations	extinct species	instincts
------------------------	-----------------	-----------

1. \_\_\_\_\_ when a species has no members left that are alive
2. \_\_\_\_\_ behavioral adaptations or inherited behaviors that help animals survive
3. \_\_\_\_\_ useful changes in the body parts of an animal



#### Explain

Tell if each statement is true or false. Explain your choice.

4. A long neck is a physical adaptation that helps a giraffe survive in its environment.

This statement is \_\_\_\_\_ because \_\_\_\_\_

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5. A dog's ability to sit and roll over on command is an instinct.

This statement is \_\_\_\_\_ because \_\_\_\_\_

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#### Apply Concepts

6. How can people help to protect animal species from extinction?

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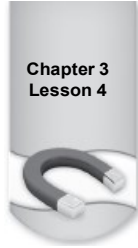
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**Multiple Choice: Encircle the correct answer from the given alternatives**

1. A species that has no members left that are alive is
  - A. Endangered
  - B. Extinct
  - C. Threatened
  
2. Behavioral adaptations or inherited behaviors that help animals survive are called
  - A. Instincts
  - B. Learned Behaviors
  - C. Skills
  
3. \_\_\_\_\_ are useful changes in the body parts of an animal.
  - A. Instincts
  - B. Mutations
  - C. Structural adaptations
  
4. Which is an example of a life-cycle variation?
  - A. birds laying eggs in the spring
  - B. bears having thick fur
  - C. an octopus changing color from fear
  
5. \_\_\_\_\_ are inherited, help animals, and are sometimes referred to as instincts.
  - A. Life-cycle variations
  - B. Behavioral adaptations
  - C. Extinctions



Name \_\_\_\_\_ Date \_\_\_\_\_

# Chapter 3

## Lesson 4 What are the life cycles of some animals?

### Words to Know

Write the word next to the description it matches.

life cycle	metamorphosis	molt
------------	---------------	------

- \_\_\_\_\_ the process of an animal changing form during its life cycle
- \_\_\_\_\_ the process by which an animal sheds its outer covering
- \_\_\_\_\_ a pattern of birth, growth, and death that all animals share



### Explain

Tell if each statement is true or false. Explain your choice. Give an example.

- All animals go through metamorphosis during their life cycle.

This statement is \_\_\_\_\_ because \_\_\_\_\_  
\_\_\_\_\_

- Caterpillar is the pupa stage in the life cycle of a butterfly.

This statement is \_\_\_\_\_ because \_\_\_\_\_



### Apply Concepts

- How are amphibian metamorphosis and insect metamorphosis alike? How are they different?

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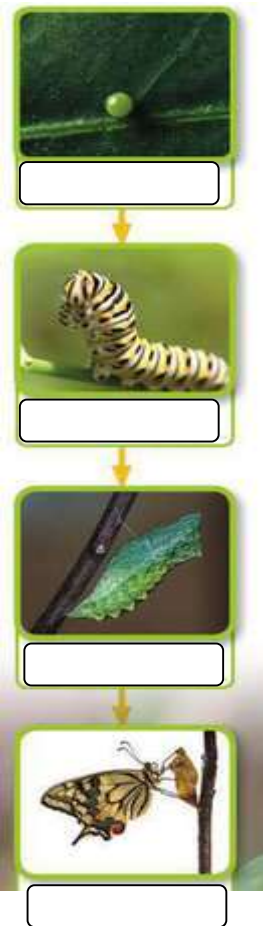
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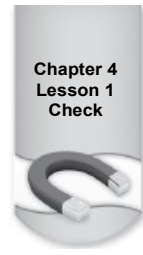
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**Multiple Choice: Encircle the correct answer from the given alternatives**

1. The process of an animal changing form during its life cycle is called
  - A. Metamorphosis
  - B. Molting
  - C. Transformation
2. \_\_\_\_\_ is the process by which an animal sheds its outer covering.
  - A. Flaking
  - B. Metamorphosis
  - C. Molting
3. \_\_\_\_\_ is a pattern of birth, growth, and death that all animals share.
  - A. Life cycle
  - B. Metamorphosis
  - C. Molting
4. **Label the following pictures correctly. (Adult, egg, pupa, larva)**



Name \_\_\_\_\_ Date \_\_\_\_\_



# Chapter 4

## Lesson 1 How do Plants get and use energy?

### Words to Know

Write the word next to the description it matches.

<b>cellular respiration</b>	<b>epidermis tissue</b>	<b>photosynthesis</b>
-----------------------------	-------------------------	-----------------------

- \_\_\_\_\_ the process by which cells break down sugar to release energy
- \_\_\_\_\_ the outside layer of cells on the top and bottom of a leaf
- \_\_\_\_\_ the process plants use to make sugar for food



### Explain

Tell if each statement is true or false. Explain your choice. Give an example.

4. A plant releases oxygen into the ground through its roots.

This statement is \_\_\_\_\_ because \_\_\_\_\_  
\_\_\_\_\_

5. Cellular respiration occurs mostly in a plant's nucleus.

This statement is \_\_\_\_\_ because \_\_\_\_\_  
\_\_\_\_\_



### Apply Concept

6. Explain how photosynthesis and cellular respiration work together to give plants energy.

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**Multiple Choice: Encircle the correct answer from the given alternatives**

1. \_\_\_\_\_ is the process by which cells break down sugar to release energy.
  - A. Cellular respiration
  - B. Photosynthesis
  - C. Digestion
2. The outside layer of cells on the top and bottom of a leaf is called
  - A. Epidermis tissue
  - B. Exoskeleton
  - C. Skin
3. \_\_\_\_\_ is the process plants use to make sugar for food.
  - A. Cellular respiration
  - B. Digestion
  - C. Photosynthesis
4. What is Earth's primary energy source?
  - A. The plants
  - B. The soil
  - C. The sun
5. What happens during photosynthesis?
  - A. Plants produce carbon dioxide by combining water and sugar.
  - B. Plants use sunlight, carbon dioxide, and water to make sugar.
  - C. Plants use sunlight, oxygen, and water to make sugar.

Name \_\_\_\_\_ Date \_\_\_\_\_

# Chapter 4

## Lesson 2 How do organisms interact in ecosystems?

### Words to Know

Match each term with its definition.

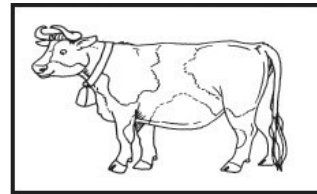
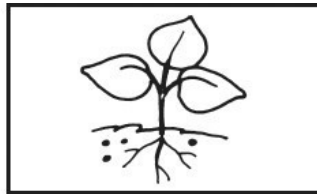
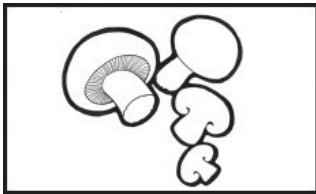
producer	consumer	decomposer	predator	prey
----------	----------	------------	----------	------

- \_\_\_\_\_ an organism that gets energy by breaking down wastes and dead organisms
- \_\_\_\_\_ an organism that cannot make its own food
- \_\_\_\_\_ an organism that is eaten by another organism
- \_\_\_\_\_ an organism that makes its own food for energy
- \_\_\_\_\_ a consumer that hunts and eats another animal to get energy



### Explain

- Label each organism as a producer, consumer, or decomposer.



\_\_\_\_\_



### Apply Concepts

- Put these four organisms in order according to how energy moves between them in the food chain: plant, snail, sea gull, crab. Describe the role of each organism in this food chain.

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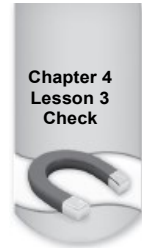


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**Multiple Choice: Encircle the correct answer from the given alternatives**

1. An organism that gets energy by breaking down wastes and dead organisms is a
  - A. Decomposer
  - B. Consumer
  - C. Producer
  
2. A \_\_\_\_\_ is a consumer that hunts and eats another animal to get energy.
  - A. Decomposer
  - B. Predator
  - C. Prey
  
3. What is the role of a decomposer in an ecosystem?
  - A. to eat only producers
  - B. to make food from sunlight
  - C. to break down wastes and dead materials
  
4. How are food webs and food chains alike?
  - A. Both show the flow of energy among organisms.
  - B. Both show only one path of energy
  - C. Both show many paths of energy.
  
5. What happens in a symbiotic relationship that involves a parasite?
  - A. Both organisms are helped.
  - B. The parasite is helped; the other organism is harmed.
  - C. The parasite is harmed; the other organism is not affected.

Name \_\_\_\_\_ Date \_\_\_\_\_



# Chapter 4

## Lesson 3 How do ecosystems change?

### Words to Know

Write the word next to the description it matches.

competition	environment	resources
-------------	-------------	-----------

1. \_\_\_\_\_ all of the conditions surrounding an organism
2. \_\_\_\_\_ the struggle of organisms for the same limited resources
3. \_\_\_\_\_ available supplies of food, water, sunlight, and space in an environment



### Explain

Tell if each statement is true or false. Explain your choice.

4. A disease that wiped out the rabbit population in an environment would affect the coyote population in the same environment.

This statement is \_\_\_\_\_ because \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

5. If beavers built a dam on a stream, the kinds of plants and animals that lived around the stream would not be affected.

This statement is \_\_\_\_\_ because \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



### Apply Concept

6. How would clearing a forest to plant corn affect an environment?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



Name \_\_\_\_\_ Date \_\_\_\_\_

# Chapter 4

## Lesson 4 How do humans impact ecosystems?

### Words to Know

Write the word next to the description it matches.

conservation	nonnative species	pollution
--------------	-------------------	-----------

- \_\_\_\_\_ any substance that damages the environment
- \_\_\_\_\_ an attempt to preserve or protect an environment from harmful changes
- \_\_\_\_\_ new plants and animals that people may bring into an ecosystem



### Explain

Tell if each statement is true or false. Explain your choice. Give an example.

- Nonnative species can harm some populations in an ecosystem.

This statement is \_\_\_\_\_ because \_\_\_\_\_  
\_\_\_\_\_

- Cars and factories cause pollution.

This statement is \_\_\_\_\_ because \_\_\_\_\_  
\_\_\_\_\_



### Apply Concepts

- List and describe three ways that humans can change ecosystems and three ways that humans can help protect ecosystems.

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**Multiple Choice: Encircle the correct answer from the given alternatives**

1. \_\_\_\_\_ is any substance that damages the environment.
  - A. Pollution
  - B. Conservation
  - C. Fog
  
2. An attempt to preserve or protect an environment from harmful changes is called
  - A. Conservation
  - B. Maintenance
  - C. Pollution
  
3. New plants and animals that people may bring into an ecosystem are
  - A. Nonnative species
  - B. Pollution
  - C. Resources
  
4. Which is a way that people can help protect the environment?
  - A. place limits on hunting and fishing
  - B. introduce new species into an ecosystem
  - C. dispose of paint products in landfills
  
5. What is the best definition of pollution?
  - A. any substance that damages the environment
  - B. any trash dumped in landfills
  - C. any waste gases put into the air



Name \_\_\_\_\_ Date \_\_\_\_\_

# Skills Handbook Part 2

## Lesson 1 What is technology?

### Words to Know

Match each term with its definition.

technology	microchip	World Wide Web
------------	-----------	----------------

1. \_\_\_\_\_ a small piece of a computer that contains microscopic circuits
2. \_\_\_\_\_ computer-based network of information sources
3. \_\_\_\_\_ knowledge, processes, and products that solve problems and make work easier



### Explain

Tell if each statement is true or false. Explain your choice. Give an example.

4. A microchip lets computers process information very quickly.

This statement is \_\_\_\_\_ because \_\_\_\_\_

\_\_\_\_\_

5. MRI scans, X rays, and tomography help doctors see bones inside a person's body.

This statement is \_\_\_\_\_ because \_\_\_\_\_

\_\_\_\_\_



### Apply Concepts

6. How are stone tools or sharp sticks technology?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## Multiple Choice: Encircle the correct answer from the given alternatives

1. \_\_\_\_\_ is a small piece of a computer that contains microscopic circuits.
  - A. Calculator
  - B. Microchip
  - C. Microscope
2. \_\_\_\_\_ is a computer-based network of information sources.
  - A. Calculator
  - B. Microchip
  - C. Worldwide web
3. \_\_\_\_\_ is knowledge, processes, and products that solve problems and make work easier.
  - A. Data
  - B. Evidence
  - C. Technology
4. Which is an example of technology that helps us see more than we can with just our eyes?
  - A. MRI Scand
  - B. Tooth brush
  - C. Vaccines
5. What does an engineer do after constructing a prototype?
  - A. research existing technology
  - B. communicate that the prototype solves the problem
  - C. test and evaluate the prototype





Name \_\_\_\_\_ Date \_\_\_\_\_

# Skills Handbook Part 2

## Lesson 2 How does technology mimic living things?

### Words to Know

Match each term with its definition.

muscular system	skeletal system	prosthetic limb
-----------------	-----------------	-----------------

- \_\_\_\_\_ the body structure that includes the bones connected by joints
- \_\_\_\_\_ the body system that uses energy from food to move the body
- \_\_\_\_\_ an artificial hand, leg, arm, or foot that replaces a missing hand, leg, arm, or foot



### Explain

Tell if each statement is true or false. Explain your choice. Give an example.

- A prosthetic hand looks just like the hand it replaces.

This statement is \_\_\_\_\_ because \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

- A modern prosthetic leg can mimic the actions of a real leg.

This statement is \_\_\_\_\_ because \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



### Apply Concepts

- Explain how prosthetic limbs mimic the human muscular and skeletal systems.

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

## Multiple Choice: Encircle the correct answer from the given alternatives

1. The \_\_\_\_\_ is a body structure that includes the bones connected by joints.
  - A. Circulatory system
  - B. Muscular system
  - C. Skeletal system
2. The \_\_\_\_\_ is a body system that uses energy from food to move the body.
  - A. Circulatory system
  - B. Muscular system
  - C. Skeletal system
3. A \_\_\_\_\_ is an artificial hand, leg, arm, or foot that replaces a missing hand, leg, arm, or foot.
  - A. Faux Skeleton
  - B. Prosthetic limb
  - C. Robo limb
4. Why are prosthetics designed to mimic muscular or skeletal systems?
  - A. They replace body parts that have been injured or lost
  - B. They are more complex than real body parts.
  - C. They are smaller than real body parts.
5. Why are some robots that mimic animals able to help humans?
  - A. They are smarter than humans.
  - B. They can go some places where people cannot go.
  - C. They have more complex muscular systems.

Name \_\_\_\_\_ Date \_\_\_\_\_

# Skills Handbook Part 2

## Lesson 3 What is the design process?

### Words to Know

Write a description of each term.

1. prototype \_\_\_\_\_
2. design process \_\_\_\_\_



### Explain

Tell if each statement is true or false. Explain your choice. Give an example.

3. The testing step in the design process of a new product makes sure that everyone can use the product.

This statement is \_\_\_\_\_ because \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. Engineers and scientists redesign a prototype if it does not work correctly.

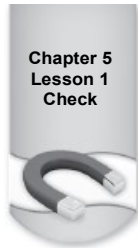
This statement is \_\_\_\_\_ because \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



### Apply Concepts

5. In the design process, why might you need to repeat some steps in the process?

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



Name \_\_\_\_\_ Date \_\_\_\_\_

# Chapter 5

## Lesson 1 What is the water cycle?

### Words to Know

Write the word next to the description it matches.

condensation	evaporation	precipitation
--------------	-------------	---------------

- \_\_\_\_\_ water that falls from clouds as rain, snow, sleet, or hail
- \_\_\_\_\_ the changing of a liquid to a gas
- \_\_\_\_\_ the changing of a gas to a liquid



### Explain

Tell if each statement is true or false. Explain your choice.

- Water can take only one path through the water cycle.

This statement is \_\_\_\_\_ because \_\_\_\_\_

\_\_\_\_\_

- What is the role of the sun in the water cycle?

\_\_\_\_\_

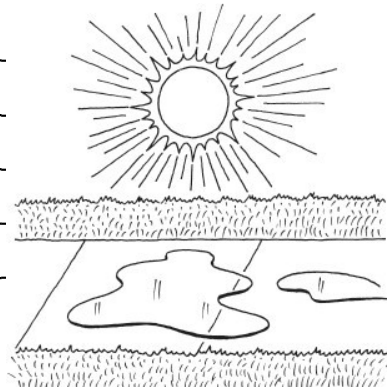
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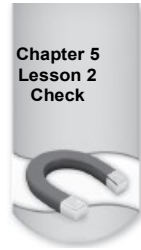


### Apply Concepts

- Study the picture. Explain how the puddle is part of the water cycle.

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





Name \_\_\_\_\_ Date \_\_\_\_\_

# Chapter 5

## Lesson 2 What are the spheres of Earth?

### Words to Know

Write the word next to the description it matches.

atmosphere	hydrosphere	lithosphere
------------	-------------	-------------

- \_\_\_\_\_ all the waters of Earth
- \_\_\_\_\_ the solid, rocky layer of Earth
- \_\_\_\_\_ the mixture of water vapor and other gases, as well as particles of matter, that surrounds Earth's surface



### Explain

Tell if each statement is true or false. Explain your choice. Give an example.

- The hydrosphere is made up of mostly fresh water.  
This statement is \_\_\_\_\_ because \_\_\_\_\_  
\_\_\_\_\_
- Earth's spheres do not interact with one another.  
This statement is \_\_\_\_\_ because \_\_\_\_\_  
\_\_\_\_\_



### Apply Concept

- Explain how each of Earth's four spheres contributes to the existence of life.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



Name \_\_\_\_\_ Date \_\_\_\_\_

# Chapter 5

## Lesson 3 What is weather?

### Words to Know

Write the word next to the description it matches.

barometric pressure	humidity	weather
---------------------	----------	---------

- \_\_\_\_\_ the pushing force of the atmosphere
- \_\_\_\_\_ the amount of water vapor in the air
- \_\_\_\_\_ the state of the atmosphere



### Explain

Tell if each statement is true or false. Explain your choice.

4. Cool air is heavier than warm air.

This statement is \_\_\_\_\_ because \_\_\_\_\_

\_\_\_\_\_

5. A northerly wind comes from the south and moves toward the north.

This statement is \_\_\_\_\_ because \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



### Apply Concepts

6. Suppose a person plans to climb this mountain. What should she expect to happen to the air pressure as she moves from the base of the mountain to the top of the mountain? Explain your answer.



\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Multiple Choice: Encircle the correct answer from the given alternatives**

1. The pushing force of the atmosphere is called
  - A. Barometric pressure
  - B. Weather
  - C. Humidity
2. \_\_\_\_\_ is the amount of water vapor in the air.
  - A. Barometric pressure
  - B. Humidity
  - C. Weather
3. \_\_\_\_\_ is the state of the atmosphere.
  - A. Barometric pressure
  - B. Humidity
  - C. Weather
4. What do meteorologists use to measure wind speed?
  - A. an anemometer
  - B. a hygrometer
  - C. a jet stream
5. What does a hygrometer measure?
  - A. A hygrometer measures the amount of water vapor in the air.
  - B. A hygrometer measures precipitation.
  - C. A hygrometer measures barometric pressure.



Name \_\_\_\_\_ Date \_\_\_\_\_

# Chapter 5

## Lesson 4 How do clouds and precipitation form?

### Words to Know

Write the word next to the description it matches.

hail	precipitation	sleet
------	---------------	-------

- \_\_\_\_\_ ice that forms in layers and then falls to the ground
- \_\_\_\_\_ water leaving clouds in various forms
- \_\_\_\_\_ frozen raindrops



### Explain

Tell if each statement is true or false. Explain your choice.

- Clouds are always made of ice crystals.

This statement is \_\_\_\_\_ because \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

- Cirrus clouds are low-level clouds that are often thin, wispy, and white.

This statement is \_\_\_\_\_ because \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



### Apply Concepts

- Suppose it is 3°C outside. What form of precipitation might be falling?  
 What form of precipitation might be falling if the temperature is below 0°C?  
 Explain your answers.

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



Name \_\_\_\_\_ Date \_\_\_\_\_



# Chapter 5

## Lesson 5 What is climate?

### Words to Know

Write the word next to the description it matches.

climate	elevation	latitude
---------	-----------	----------

- \_\_\_\_\_ the height above sea level
- \_\_\_\_\_ the weather patterns over a long time
- \_\_\_\_\_ a measure of how far a place is from the equator



### Explain

Tell if each statement is true or false. Explain your choice.

4. Temperatures in temperate zones remain steady year round.

This statement is \_\_\_\_\_ because \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. It is cooler at the top of a mountain than at the bottom.

This statement is \_\_\_\_\_ because \_\_\_\_\_  
\_\_\_\_\_



### Apply Concepts

6. Can you learn what the climate is like in another state by checking the daily weather forecast? Why or why not?

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

**Multiple Choice: Encircle the correct answer from the given alternatives**

1. Height above sea level is called
  - A. Climate
  - B. Elevation
  - C. Latitude
  
2. Height above sea level is called
  - A. Climate
  - B. Elevation
  - C. Latitude
  
3. \_\_\_\_\_ is a measure of how far a place is from the equator.
  - A. Climate
  - B. Elevation
  - C. Latitude
  
4. In the United States, why are winter months colder than summer months?
  - A. The sun's energy is less direct in winter.
  - B. There is less precipitation.
  - C. The equator moves during the winter.
  
5. As you travel along the coast from Miami to New York, you notice the temperature becoming cooler. Why does the temperature change?
  - A. because you are moving up a mountain
  - B. because you are moving away from the equator
  - C. because you are moving toward a body of water

Name \_\_\_\_\_ Date \_\_\_\_\_

# Chapter 5

## Lesson 6 What are erosion and deposition?

### Words to Know

Write the word next to the description it matches.

erosion	deposition	sand dunes
---------	------------	------------

- \_\_\_\_\_ the process of laying down materials, such as rocks and soil
- \_\_\_\_\_ the movement of materials away from a place
- \_\_\_\_\_ large, loose deposits of sand



### Explain

4. Which type of erosion and deposition is most common in costal areas around the Gulf of Mexico?

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5. What are some ways to prevent wind erosion in a dry, sandy area?

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### Apply Concept

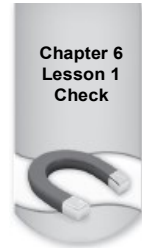
6. Suppose you are a small rock on a riverbank that has been swept into the river. Describe how erosion and deposition affects you, including where you might go and how you would get there.

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Name \_\_\_\_\_ Date \_\_\_\_\_



# Chapter 6

## Lesson 1 How does Earth move?

### Words to Know

Write the word next to the description it matches.

axis	revolution	rotation
------	------------	----------

- \_\_\_\_\_ one full orbit of an object around another object
- \_\_\_\_\_ an imaginary line around which a planet spins
- \_\_\_\_\_ one whole spin of an object around its axis



### Explain

Tell if each statement is true or false. Explain your choice. Give an example.

4. Earth orbits the sun in a circular pattern.

This statement is \_\_\_\_\_ because \_\_\_\_\_

\_\_\_\_\_

5. During the day, the sun appears to move across the sky because of Earth's revolution.

This statement is \_\_\_\_\_ because \_\_\_\_\_

\_\_\_\_\_



### Apply Concepts

6. Explain what causes Earth's seasons, even though Earth is always tilted the same way during its revolution around the sun.

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**Multiple Choice: Encircle the correct answer from the given alternatives**

1. An \_\_\_\_\_ is one full orbit of an object around another object.
  - A. Rotation
  - B. Revolution
  - C. Axis
2. Earth and other planets rotate around an imaginary line called an
  - A. Axis
  - B. Rotation
  - C. Revolution
3. One whole spin of an object around its axis is a(n)
  - A. Revolution
  - B. Rotation
  - C. Axis
4. What is a revolution?
  - A. one complete spin of an object around an axis
  - B. one complete orbit of an object around another object
  - C. a change in the tilt of an object from one side to another



Name \_\_\_\_\_ Date \_\_\_\_\_

# Chapter 6

## Lesson 2 What is a star?

### Words to Know

Write the word next to the description it matches.

constellation	solar flare	sunspots
---------------	-------------	----------

1. \_\_\_\_\_ an explosive eruption of waves and particles into space
2. \_\_\_\_\_ a group of stars that form a pattern
3. \_\_\_\_\_ dark spots that move on the face of the sun



### Explain

Tell if each statement is true or false. Explain your choice. Give an example.

4. The sun is one of the largest stars in the galaxy.

This statement is \_\_\_\_\_ because \_\_\_\_\_

\_\_\_\_\_

5. Polaris does not seem to move as Earth rotates.

This statement is \_\_\_\_\_ because \_\_\_\_\_

\_\_\_\_\_



### Apply Concepts

6. If you look at a star at 7 p.m. and again at 9 p.m., will it be in the same spot? Explain.

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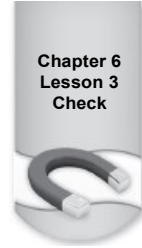
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Name \_\_\_\_\_ Date \_\_\_\_\_



## Chapter 6

### Lesson 3 What are the inner planets?

#### Words to Know

Write the word next to the description it matches.

moon	orbit	planet
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1. \_\_\_\_\_ a large, round object that revolves around a star and has cleared the region around its orbit
2. \_\_\_\_\_ a natural object that revolves around a planet
3. \_\_\_\_\_ the four closest planets to the sun



#### Explain

Tell if the statement is true or false. Explain your choice.

4. \_\_\_\_\_ The force of Earth's gravity keeps Earth in its orbit around the sun.

This statement is \_\_\_\_\_ because \_\_\_\_\_

Answer the question below.

5. \_\_\_\_\_ How is Mercury different from the other inner planets?



#### Apply Concepts

6. What causes Venus to be one of the brightest objects in the night sky?



# Chapter 6

## Lesson 4 What are the outer planets?

### Words to Know

Write the word next to the description it matches.

Neptune	outer planets	Saturn
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- \_\_\_\_\_ the eighth planet from the sun that is the smallest of the gas giants
- \_\_\_\_\_ the four planets in our solar system beyond Mars
- \_\_\_\_\_ the sixth planet from the sun that has very large rings



### Explain

Tell if each statement is true or false. Explain your choice.

- Saturn is the only planet that has rings that orbit it.

This statement is \_\_\_\_\_ because \_\_\_\_\_

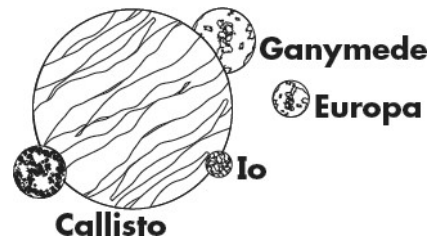
- Jupiter has a longer day than Earth.

This statement is \_\_\_\_\_ because \_\_\_\_\_



### Apply Concepts

- Study the picture. Which planet is shown? Describe three characteristics of this planet.




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