HSP Georgia Science

Reading Support and Homework

Grade 4

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Chapter 8

Adaptations for Survival

Vocabulary Games and Cards

Name _____

Date _____

Getting to Know Your Textbook

Welcome to *Science* by Harcourt School Publishers. You can look forward to an exciting year of discovery.

Your textbook has many features that can help you learn science this year. Use this scavenger hunt to learn more about it.

1. What animal is on the cover of your book? _____

Name one fact about the animal. _____

2. What is the copyright year of your book? _____

3. How many authors are there? Name one. _____

_____

4. How many chapters are in your book? Name one. _____

_____

5. Find the chapter called "Getting Ready for Science." Name one of the science tools you will use this year. _____

6. Name two of the steps of the Scientific Method, found in the same chapter.

_____

_____

7. What are the three handbooks in the back of your book? _____

_____

8. What Reading Focus Skill is used in Lesson 1 of Chapter 2?

_____

9. What is the first word in the glossary? _____

10. What is the last term listed in the index? _____

Name _____

11. Name the title and page number of an Investigate you would like to try.

_____

12. Name the title and page number of an Insta-Lab you would like to try.

_____

13. Name the title and page number of a Science Project for Home or School you would like to try. _____

14. What three types of links are found at the end of Lesson 2 in Chapter 3?

_____

15. Find a Fast Fact that you find interesting. Write its title and page number.

_____

16. What is the title of the Science Up Close feature in Chapter 5?

_____

17. Turn to page R36. What is one way you can be safe when doing experiments?

_____

18. The Science Spin features come from what magazine?

_____

19. Write the name of a person featured in one of the Science Spin People features. _____

20. Write three new things you expect to learn about this year.

_____

_____

Name _____

Date _____

Lesson Quick Study

Lesson 1—What Are Inquiry Tools?

1. Investigation Skill Practice–Measure

Jonathan needs to add 10 drops of soap to the bubble mixture he is making. The tools in his science lab include a measuring cup, beaker, graduated cylinder, and dropper. Which tool should he select to accurately measure this volume of liquid? Why?

_____

_____

2. Use Vocabulary

Complete each sentence with the correct term from the box.

microscope
spring scale

To measure an object's weight in newtons, you would use a _____.

A _____ makes objects look many times larger than they are.

3. Focus Skill Reading Skill Practice–Main Idea and Details

Read the selection. Underline the main idea. List at least two details about the main idea.

Christina wanted to measure the temperature of the chocolate that she was melting. She knew that she could use the numbers on a thermometer to measure how warm the liquid was. Christina carefully placed the thermometer in the melted chocolate. As the liquid inside the thermometer got warmer, it expanded and rose up in the tube. Then she read the number closest to the top of the liquid to discover the temperature of the melted chocolate.

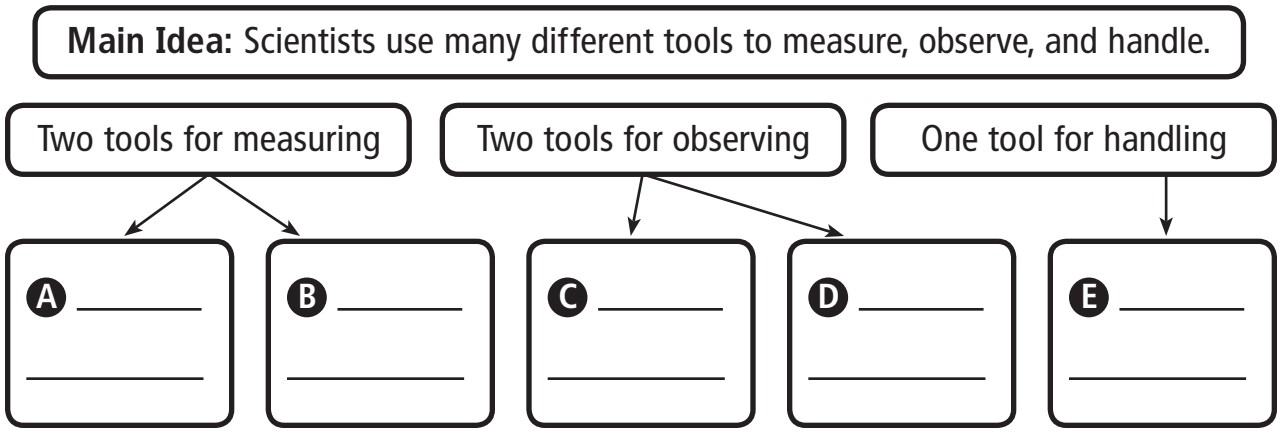
_____

_____

Name _____

4. Main Idea and Details

Complete the graphic organizer shown below.



5. Critical Thinking and Problem Solving

How would measurements be different today if people still used body parts to measure distance?

_____

_____

_____

_____

Name _____

Date _____

Lesson Quick Study

Lesson 2—What Are Inquiry Skills?

1. Investigation Skill Practice–Use Models

In the Investigate you made a model of a building. What would you plan so you could double the height of your building? How would your model compare to an actual building?

_____

_____

_____

2. Use Vocabulary

Complete each sentence with the correct term from the box.

When you use your knowledge to make an educated guess about what will happen next, you are making a _____.

estimate
prediction

An _____ is an educated guess about a measurement.

3. Focus Skill Reading Skill Practice–Main Idea and Details

Read the selection. Underline the main idea. List at least three details about the main idea.

Brian used inquiry skills to predict that the cocklebur was designed to travel far from the plant. He observed that the burr had hooked bristles. He already knew that the burr clung to his dog's fur when they hiked. In his experience, the plant was widely distributed. Based on this pattern of events, Brian took an educated guess about the design of the cocklebur.

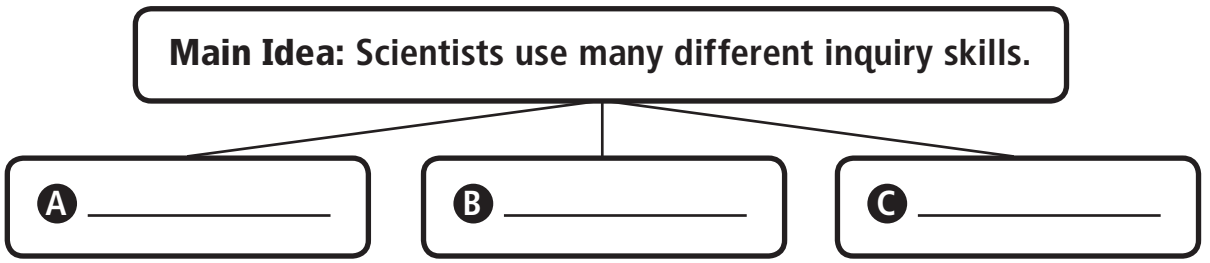
_____

_____

Name _____

4. Main Idea and Details

Complete the graphic organizer shown below.



5. Critical Thinking and Problem Solving

Suppose you were helping your friends make homemade ice cream. What investigation skills might you use?

_____

_____

_____

_____

Name _____

Date _____

Lesson Quick Study

Lesson 3—How Do Scientists Use Graphs?

1. Investigation Skill Practice–Display Data

What does this line graph show?

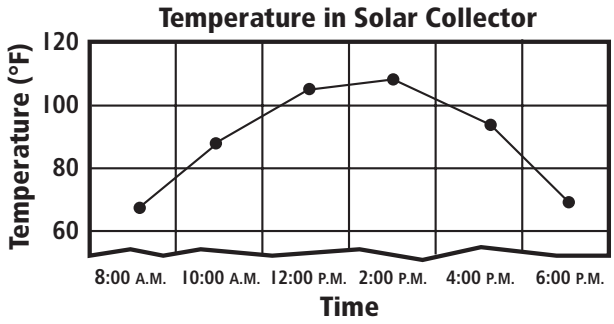
_____

_____

_____

_____

_____



2. Use Vocabulary

Complete each sentence with the correct term from the box.

When you _____ data, you analyze it in order to draw conclusions.

A _____ on a graph shows you the size of the units.

interpret
scale

3. Focus Skill Reading Skill Practice–Main Idea and Details

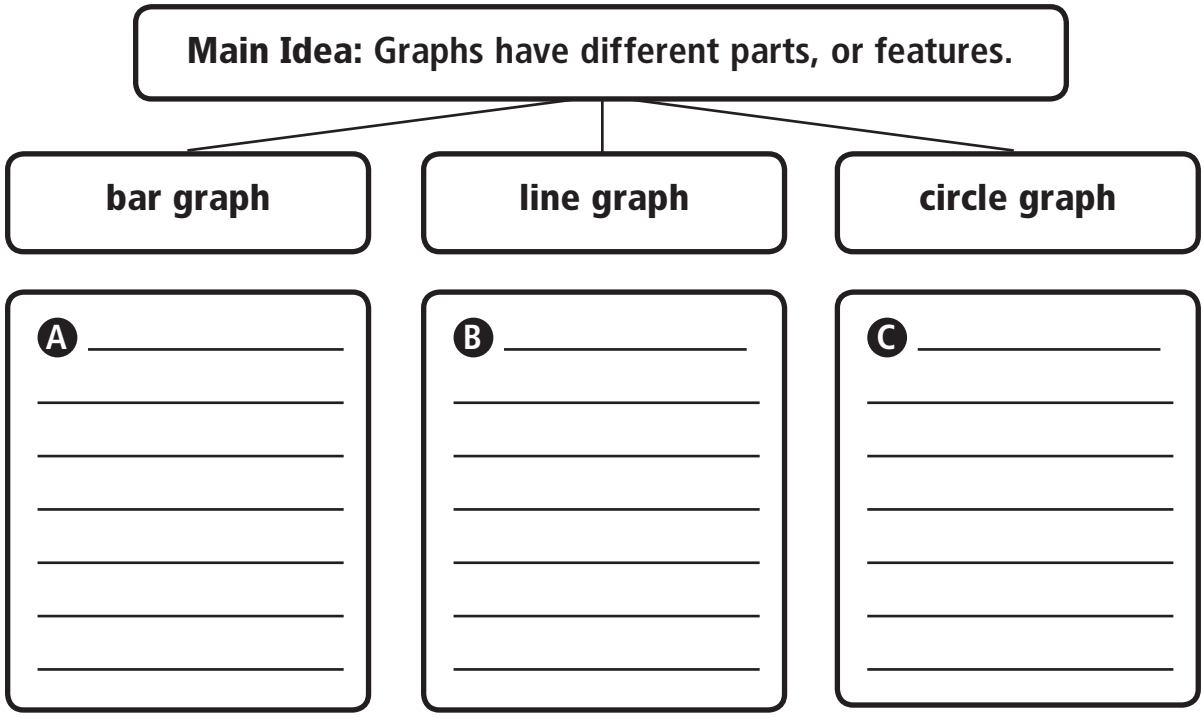
Read the selection. Underline the main idea. Circle at least two details about the main idea.

Ms. Shea's fourth-grade class needed to make a graph for a science project. They decided to display their data in a circle graph to easily compare whether students were right- or left-handed. First they took a poll. They counted 40 students in all and recorded their data in a table. Next, they displayed their data in a circle graph. The graph showed that 10 percent of the students were left-handed and 90 percent of the students were right-handed.

Name _____

4. Main Idea and Details

Complete the graphic organizer shown below.



5. Critical Thinking and Problem Solving

Walter is studying the weight of his pet guinea pig over a 6-month period. His guinea pig is on a diet, and the veterinarian recommended that Walter weigh his pet once a month. What would be a good way for Walter to display his data for the vet? Why?

Name _____

Date _____

Lesson Quick Study

Lesson 4—What Is the Scientific Method?

1. Investigation Skill Practice–Experiment

Suppose you wanted to test whether animals with dark-colored fur warmed up more quickly than animals with light-colored fur on a sunny day. Describe an experiment to test your hypothesis.

_____

_____

_____

2. Use Vocabulary

Write a sentence that correctly uses the term *scientific method*.

_____

_____

3. Focus Skill Reading Skill Practice–Main Idea and Details

Read the selection. Underline the main idea. List at least two details about the main idea.

Yvonne shared the result of her experiment so others could double-check her work. By double-checking Yvonne's work, others should get similar results when they repeated her investigation. If they identified any mistakes, others could build new ideas on reliable knowledge. Yvonne's findings would allow others to learn from her experiment.

_____

_____

_____

_____

Name _____

4. Main Idea and Details

Complete the graphic organizer shown below.

Main Idea: The Scientific method consists of five steps.

Step 1: (A) _____ and ask questions.

Step 2: Form a (B) _____.

Step 3: Plan an experiment.

Step 4: Conduct an (C) _____.

Step 5: (D) _____ and communicate results.

5. Critical Thinking and Problem Solving

Suppose you need to know which type of candy will melt the fastest. You predict that the chocolate bar would melt fastest. Your test results support this. A friend predicts that the toffee would melt fastest. What step of the scientific method would help your friend to learn from your experiment? Why?

_____

_____

_____

_____

_____

_____

Name _____

Date _____

Vocabulary Power

The Scientific Method?

Context Clues

Read each sentence. Think about the meaning of the underlined word. Write the meaning on the line.

1. The scientific method can help you to test ideas.

_____

_____

2. Sandy needed to test her hypothesis that she could rollerskate faster on wood floors than on carpet because wood has lower rolling resistance.

_____

_____

3. Only one variable would be tested in Roger's experiment.

_____

4. Sara got the same result for each trial in her experiment.

_____

_____

5. Jim drew conclusions after he completed his experiment.

_____

_____

6. After experimenting with the straws, the students wrote a report.

_____

_____

_____

Name _____

Date _____

Write an Editorial

Persuasive–Editorial

Write an editorial for a science magazine, urging government and private sources to continue funding for space exploration. Use details about the benefits of past space exploration efforts to support your argument. Complete the outline below to help you organize your writing.

State your position.
Give supporting details. **Detail 1:**
Detail 2:
Detail 3:
Restate your position.

Name _____

Date _____

Lesson Quick Study

Lesson 1 - How Do Earth and Its Moon Move?

1. Inquiry Skill Practice–Measure

Lupe measured and recorded the average temperatures during the day for the summer and winter months. What do you notice? What caused these temperature changes?

December 32°F
January 30°F
February 34°F
June 79°F
July 85°F
August 87°F

_____

_____

_____

_____

_____

2. Use Vocabulary

Complete each sentence with the correct term from the box.

phases
orbits
axis
moon

When Earth moves around the sun, it _____ the sun.

The moon has _____ that follow a pattern, repeating about every $29\frac{1}{2}$ days.

The _____ is the imaginary line from one pole of Earth to the other.

3. Reading Skill Practice–Sequence

Put the following events in the correct sequence. Number the events 1 to 3. Begin with the new moon phase.

____ More of the lit side of the moon is visible.

____ The entire lit side of the moon is visible from Earth.

____ None of the lit side of the moon is visible.

Name _____

4. Focus Skill Sequence

Complete the graphic organizer shown below.

winter solstice	spring Ⓐ _____	Ⓑ _____	fall equinox

5. Critical Thinking and Problem Solving

Scientists often use models to study the movements of Earth and its moon. Why do you think they use models to study these movements?

_____

_____

_____

_____

_____

Name _____

Date _____

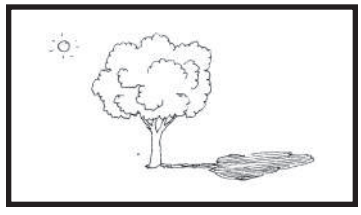
Extra Support

Chapter 2, Lesson 1

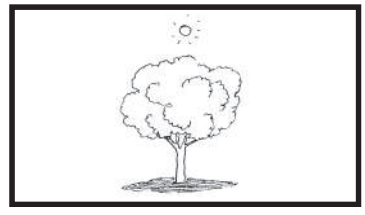
Patterns in Space

A. Patterns

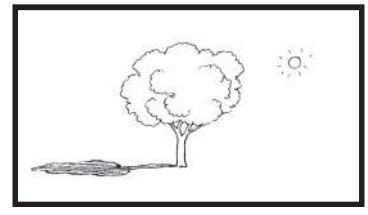
1. Look at the pictures of the sun and the shadows. Describe how shadows change throughout the day.



morning

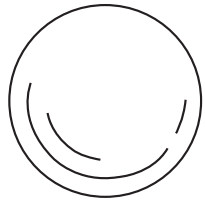


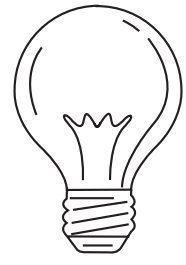
noon



evening

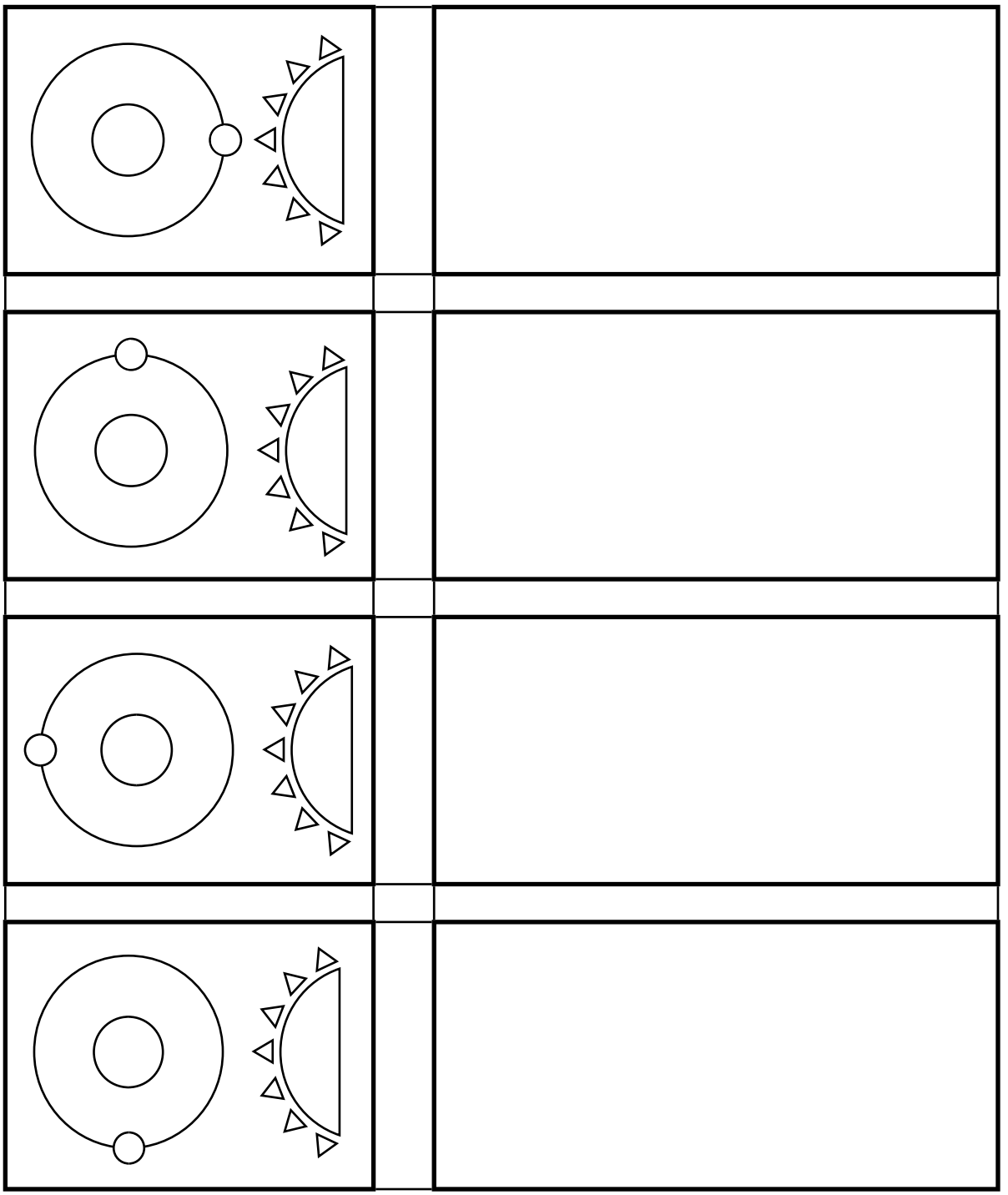
2. Look at the picture of the model. What does it represent?





Name _____

3. In the drawing below, the moon is in different positions as it orbits Earth. Color the sun yellow. Using the color gray, shade in the half of the moon that is dark. Next, shade the half of Earth that is in night-time. For each of the four drawings, in the right-hand column draw how the moon appears from Earth in the night sky.



Name _____

Date _____

Lesson Quick Study

Lesson 2 - What Objects Are in the Solar System?

1. Inquiry Skill Practice–Use Numbers

Use the numbers shown to draw a model of the order of the inner planets. Label the sun. Label each planet with a number. Use the space below to list the planets by number.

Planet	Distance from the Sun
Earth	149.6 million kilometers
Mars	227.9 million kilometers
Venus	108.2 million kilometers
Mercury	57.9 million kilometers

2. Use Vocabulary

Write a complete sentence that uses the terms *solar system*, *planets*, and "*dwarf planets*" correctly.

3. Reading Skill Practice– Compare and Contrast

Read the selection. Compare and contrast Mars and Earth.

Mars is an inner, rocky planet with no liquid water. Its diameter is about 6700 kilometers (4200 mi). Mars has two moons. Earth is an inner, rocky planet, with a surface that is 70 percent water. Earth's diameter is about 12,700 kilometers (7890 mi). It has one moon.

Name _____

4. Focus Skill Compare and Contrast

Complete the graphic organizer shown below.

Inner Planets **Outer Planets**

What's Different?	What's the Same?	What's Different?
Close to Ⓐ _____ Small with rocky surfaces No more than _____ moons	Part of the Ⓑ _____ Planets orbit _____	Ⓒ _____ from the sun Have many _____ Rings of dust, ice, and rock

5. Critical Thinking and Problem Solving

Mercury and Venus are the two planets closest to the sun. Venus has a thick atmosphere made of carbon dioxide. Mercury has a very thin atmosphere. Explain why Venus is hotter than Mercury, even though Mercury is closer to the sun.

_____

_____

_____

Name _____

Date _____

Extra Support

Chapter 2, Lesson 2

Space Research/Exploration

A. Internet Research

Visit the NASA government website at *http://www.nasa.gov.* Click on the *Missions* button. Select one of the *Current Missions* listed on the website. Click on the icon for that mission and read about it. Use the information you read to answer the questions below.

1. What is the name of the mission?

_____

2. When does the mission begin and end?

_____

_____

3. Describe the purpose of the mission.

_____

_____

_____

_____

_____

4. Is the mission manned or unmanned?

_____

5. What parts of the solar system will be explored during this mission?

_____

_____

_____

Name _____

B. Research Halley's Comet

Use the library or internet to research Halley's Comet. Answer the questions below.

1. What causes the tail on Halley's Comet?

_____

2. Why does Halley's Comet travel through our solar system regularly?

_____

3. Which direction does a comet's tail point?

_____

4. When is the next time we will be able to see Halley's Comet?

_____

5. Who is the comet named after?

_____

6. Write a short paragraph explaining how people have observed Halley's Comet since 1682?

_____

_____

_____

_____

_____

_____

_____

_____

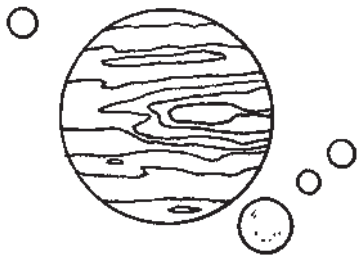
Name _____

Date _____

Lesson Quick Study

Lesson 3 - What Can We See in the Sky?

1. Inquiry Skills Practice–Plan an Investigation



The drawing of Jupiter is based on a photograph taken through a telescope. Suppose you had a large telescope. Plan a simple investigation to study Jupiter. When and what would you study and investigate?

_____

_____

2. Use Vocabulary

Match the clue on the left to the term on the right. Write the letter in the blank.

____ a system made up of stars, gases, and dust	**A.** universe
____ star patterns that form an imaginary picture in the sky	**B.** galaxy
____ everything that exists in space	**C.** constellation

3. Focus Skill Reading Skill Practice–Main Idea and Details

Read the selection. Underline the main idea. List at least two details about the main idea.

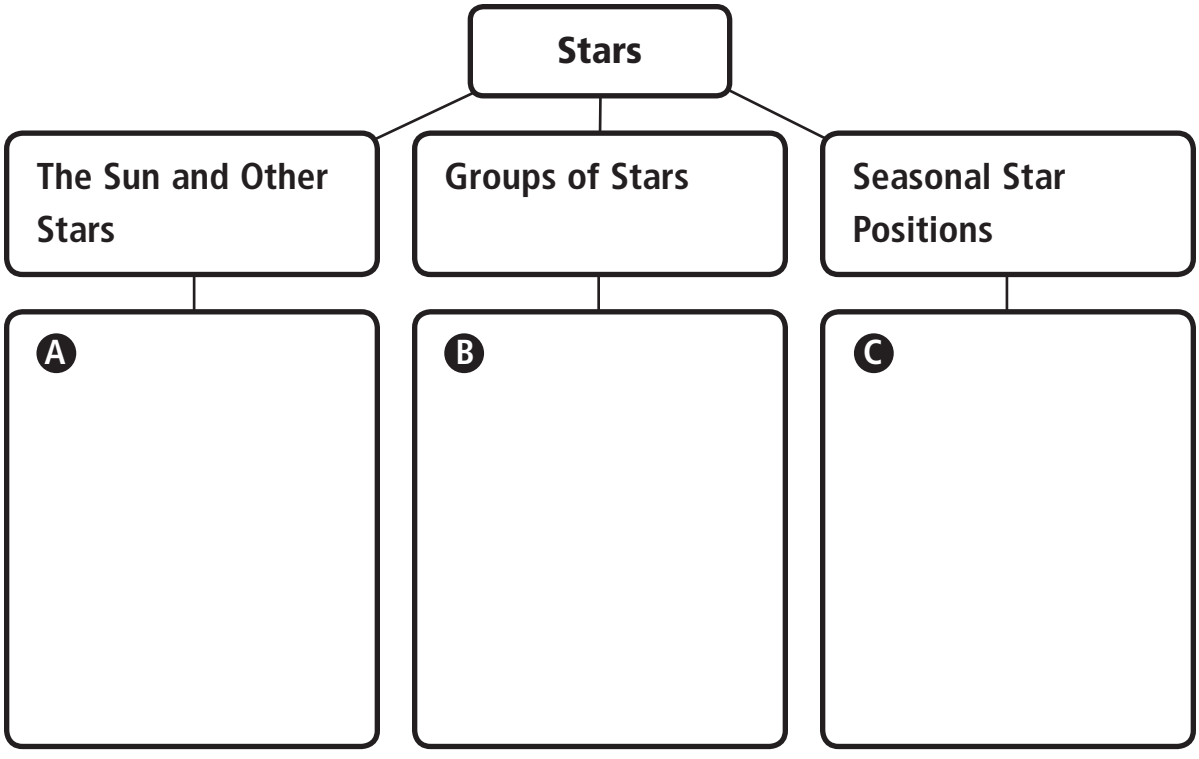
In this lesson, you learned that we can see both panets and stars in the sky. Planets and stars can be difficult to tell apart. Both look like small points of light. However, stars twinkle, while planets shine with a steady light. Another difference is that the planets seem to wander through the constellations, whose patterns of stars do not change.

_____

Name _____

4. Main Idea and Details

Complete the graphic organizer shown below. Write two supporting details for each main idea about stars.



5. Critical Thinking and Problem Solving

Explain why the night sky would appear different to someone who lives in the Northern Hemisphere than to someone who lives in the Southern Hemisphere.

_____

_____

_____

_____

Name _____

Date _____

Extra Support

Chapter 2, Lesson 3

Stars

A. Types of Stars

The table below lists information that is used to classify stars. Use the table to answer the questions that follow.

Types of Stars			
Surface Temperature (°C)	**Color**	**Elements Detected in the Stars**	**Examples of Stars**
above 30,000	blue	helium	10 Lacetae
10,000–30,000	blue-white	helium and hydrogen	Rigel, Spica
7500–10,000	blue-white	hydrogen	Vega, Sirius
6000–7500	yellow-white	hydrogen and heavier elements	Canopus, Procyon
5000–6000	yellow	calcium and other metals	the sun, Capella
3500–5000	orange	calcium and molecules	Arcturus, Aldebaran
less than 3500	red	molecules	Betelgeuse, Antares

1. How are the stars arranged in the table?

_____

2. What is the hottest star? The coolest stars?

_____

3. Locate our sun in the table. What is its temperature?

_____

4. How is the information in the first three columns related?

_____

_____

_____

Name _____

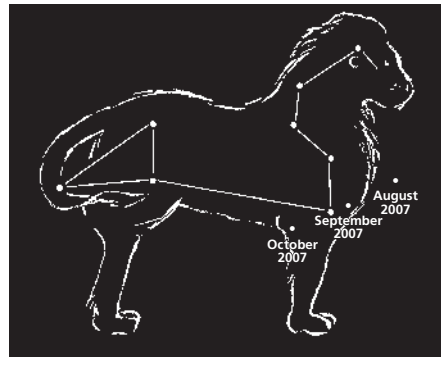
B. Distances to the Stars

Since ancient times, we have learned that stars are located at different distances from Earth. We use the unit *light-year* (ly) to describe a star's distance from Earth. One light-year is the distance that light travels in one year: about 9.5 trillion kilometers (9,500,000,000,000 km).

Use reference sources and the Internet to find the distances from Earth to the stars listed in the table below. Give the distances in light-years.

Star	Distance (in light-years)
Alpha Centauri	
Barnard's Star	
Wolf 359	
Sirius	
Ross 154	
Procyon	
Betelgeuse	
Rigel	

C. This illustration shows the constellation Leo. The three labeled dots show the position of the planet Saturn as seen from Earth during three consecutive months.



What does this illustration show?

_____

_____

_____

Name _____

Date _____

Vocabulary Power

Planets and Stars

A. Analogy

An analogy is made of two pairs of words. The words in each pair are related to each other in the same way. Think about the relationships in the following pairs of words. Then choose a word from the box to complete the analogy.

comet	galaxy	moon	orbit	sun

1. *Road* is to *highway* as *path* is to _____.
2. *Sole* is to *pole* as *soon* is to _____.
3. *Hubble* is to *telescope* as *Halley* is to _____.
4. *Granny Smith* is to *apple* as *Milky Way* is to _____.
5. *Won* is to *one* as *son* is to _____.

B. Explore Word Meanings

Use the glossary to find the meaning of the underlined words. Then write your answer to each question.

6. A solar system is a group of objects in space that orbit around a star in the center. The center of our solar system is the sun. What does *solar* mean?

_____

7. The universe is everything that exists in space. What are two examples of things in the universe?

_____

Name _____

Date _____

Lesson Quick Study

Lesson 1 - What Is the Water Cycle?

1. Inquiry Skill Practice–Compare

Compare fog with clouds that form higher in the atmosphere. How are they alike?

_____

2. Use Vocabulary

Write a complete sentence for each of the following terms:

water cycle: _____

evaporation: _____

condensation: _____

water vapor: _____

3. Focus Skill Reading Skill Practice–Main Idea and Details

Read the selection below. Underline the main idea. List the details on the lines below.

Some scientists believe that they can use the sun to convert salt water to fresh water. They know that developing such a process would have advantages and disadvantages. First, the energy to make the fresh water would be cheap, since the sun's energy is free. Second, the source of ocean water is endless. There is more water in the ocean than is needed on land. However, the water conversion equipment would take a lot of money to build. Also, it could be costly to pump the fresh water to the cities or dry farmlands where it is needed.

_____

_____

Name _____

4. Focus Skill Main Idea and Details

Complete the graphic organizer shown below.

Main Idea: Water on Earth is found in many different places.

salt water

A Found in:

_____

_____

_____

_____

_____

_____

_____

_____

_____

fresh water

B Found as ice in:

_____

_____

C Found as liquid water in: _____

_____

_____

_____

_____

_____

5. Critical Thinking and Problem Solving

Not all of the water that falls as rain, snow, or sleet evaporates. What happens to the rest of the water?

_____

_____

_____

_____

_____

_____

Name _____

Date _____

Lesson Quick Study

Lesson 2—How Do the Oceans and the Water Cycle Affect Weather?

1. Investigation Skill Practice–Infer

Some factories release steam and hot gasses into the air. Such warm air rises into the atmosphere and warms the colder layers. Based on your knowledge of weather patterns, what can you infer about the effect of hot gasses on the weather of a region?

_____

_____

_____

2. Use Vocabulary

Match the clues on the left to the terms on the right.

_____Water that falls from clouds to Earth's surface

_____ A measure of the amount of water vapor in the air

A. humidity

B. precipitation

3. Reading Focus Skill Practice–Cause and Effect

Read the selection. Describe the cause and effect of global winds.

The sun heats the part of Earth's atmosphere near the equator more than parts farther north or south. This uneven heating produces global winds that carry warm water vapor away from the equator to cooler regions. As this warm, humid air condenses, it gives off heat energy. This means that areas near the equator lose some heat and moisture, while cooler regions gain heat and moisture. This process helps balance temperatures in the atmosphere.

_____

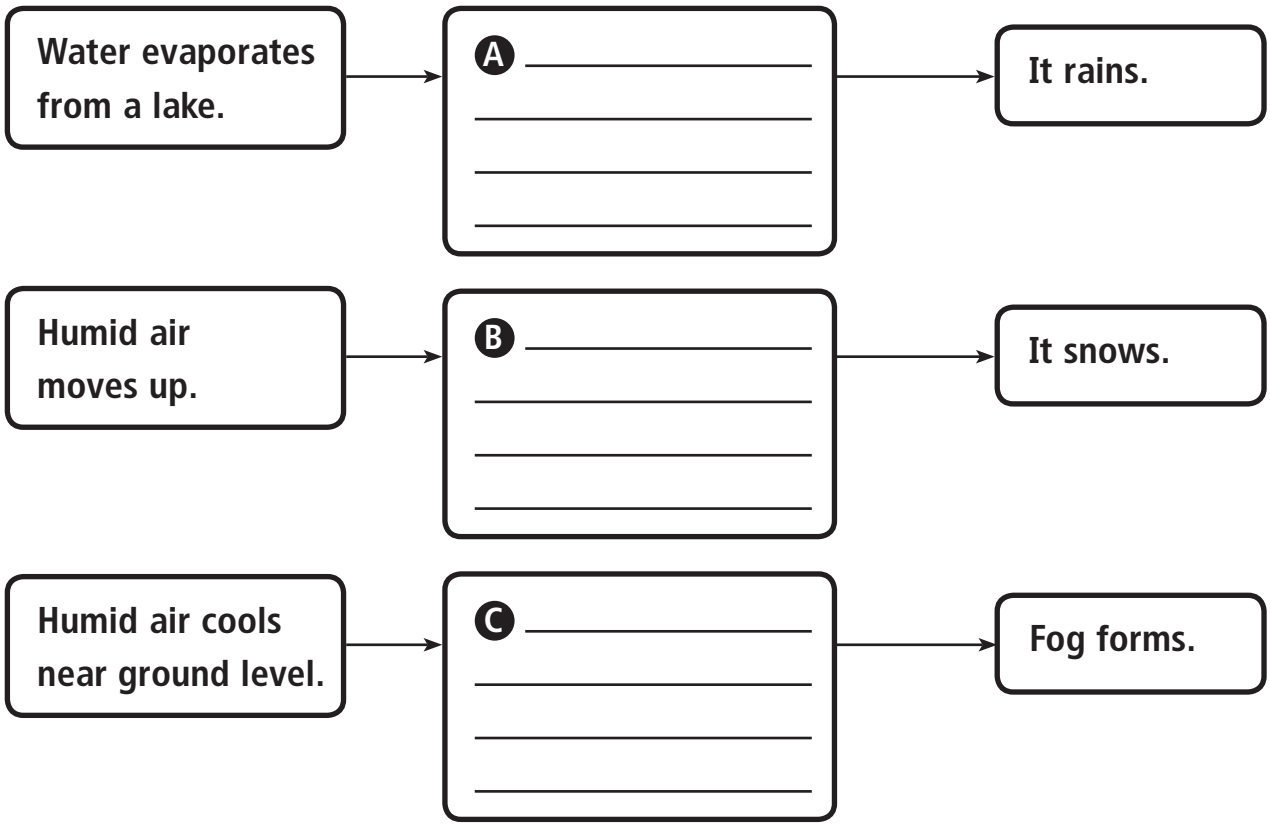
_____

_____

Name _____

4. Focus Skill Cause and Effect

Complete the graphic organizer shown below.



5. Critical Thinking and Problem Solving

One of your classmates thinks that dew is a form of precipitation. Write what you would say to help your classmate understand why he is wrong.

_____

_____

_____

_____

_____

Name _____

Date _____

Extra Support

Chapter 3, Lesson 2

Types of Precipitation

A. Use the information in the chart to complete the sentences that follow.

Types of Precipitation	
Type	**Cause**
rain	Water vapor condenses on dust or other particles in the air.
snow	Water vapor turns into ice crystals instead of a liquid.
sleet	Falling rain passes through a layer of freezing-cold air.
hail	Rain freezes and then falls to a warmer pocket of air. The frozen rain is coated with liquid water and then carried back up to a cold pocket of air, where the liquid coating also freezes. It varies in size.

1. The most common form of precipitation is _____, which falls when the temperature is higher than 0°C, the freezing point of water.
2. _____ forms when rain falls through freezing-cold air.
3. When water vapor turns directly into ice crystals, _____ forms.
4. The size of _____ depends on how many times it is carried up and down in a storm cloud.

B. Suppose you carried out the following activity.

Place 5 cm of hot water in a clear bottle and put the lid on. Set an ice cube on top of the bottle, and place the bottle on a piece of black paper. After a few minutes, shine a flashlight beam through the bottle. You should see tiny water droplets.

What happened? What process have you modeled?

_____

_____

_____

Name _____

Date _____

Lesson Quick Study

Lesson 3 - How Is Weather Predicted?

1. Inquiry Skill Practice–Gather and Record Data

The National Weather Service specifies that temperature readings be taken 5 feet above the ground, over shaded grass, in a ventilated box. How would a temperature reading be different if the thermometer were over unshaded asphalt?

_____

2. Use Vocabulary

Complete each sentence with the correct term from the box.

With the cold _____ moving in, we prepared for gusty winds and rain.

The tropical _____ brought hot and humid weather to the city.

The _____ on two sides of a mountain can be very different.

air mass
front
climate

3. Focus Skill Reading Skill Practice–Main Idea and Details

Read the selection. Underline the main idea. Write three details on the lines below.

Santa Ana winds are famous for their part in strengthening forest fires in California. The winds begin in the Mojave Desert and move toward the coast by passing through valleys in the San Gabriel and Santa Ana mountains. The air is very warm and dry. The strong winds can turn a small forest fire into a huge blaze. Often everything in the path of the fires is destroyed, including forests, homes and businesses.

_____

_____

Name _____

4. Focus Skill Main Idea and Details

Complete the graphic organizer shown below.

Main Idea: Measurments taken with weather instruments can be used to forecast weather.

- **A** _____
- **B** _____
- **C** _____

5. Critical Thinking and Problem Solving

Weather forecasters cannot predict the weather very far in advance. What are some of the factors that explain why long-term forecasts are not very accurate?

_____

_____

_____

_____

_____

Name _____

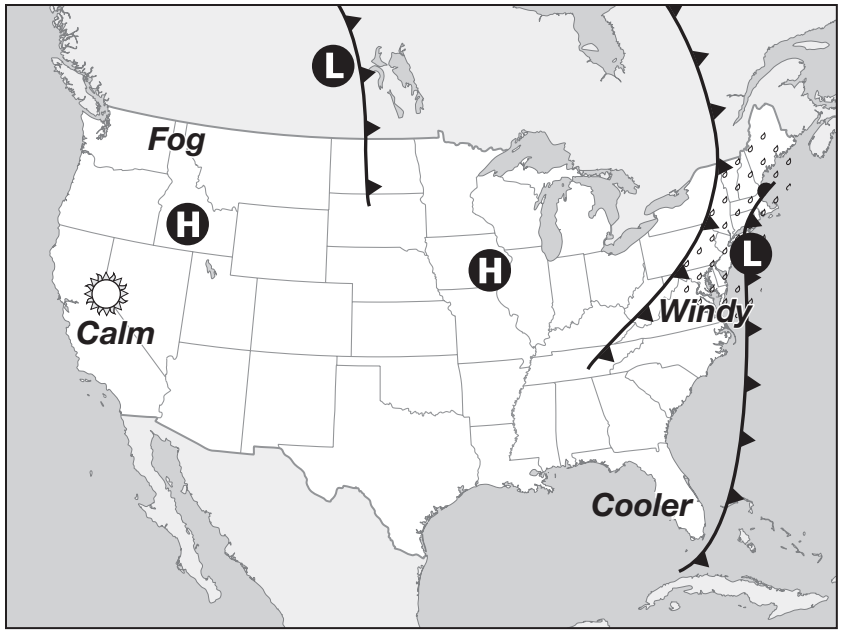
Date _____

Extra Support

Chapter 3, Lesson 3

Weather Maps

A. Reading Weather Maps



Use the weather map shown above to answer the following questions.

1. What type of front is moving across the northeastern states?

_____

2. Which part of the United States is experiencing windy conditions?

_____

3. What does the letter "H" stand for on the map?

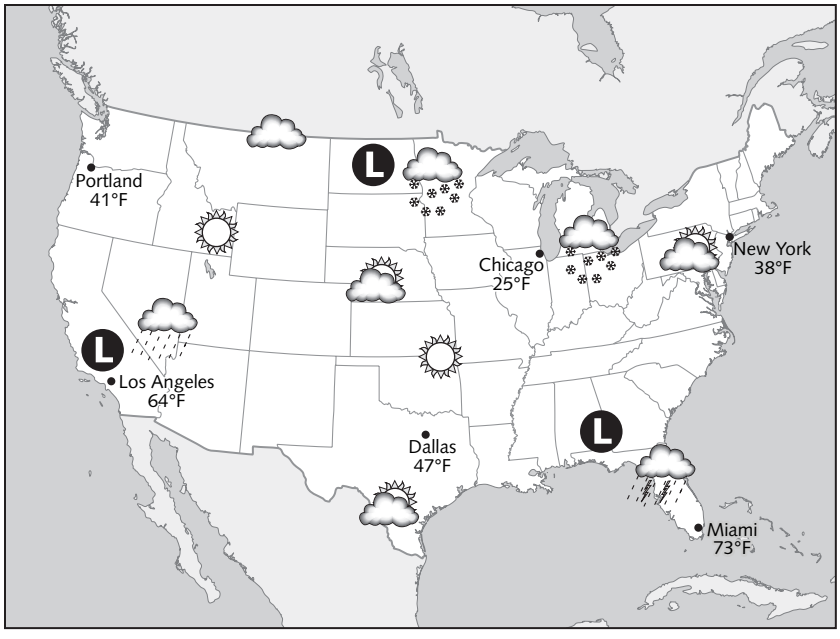
_____

4. Name one state that is experiencing fog according to the map.

_____

Name _____

B. Interpreting Weather Maps



Use the weather map above to answer the following questions.

1. Name a state that is receiving rain.

_____

2. What is the weather like in Dallas, Texas?

_____

3. What is the weather like in northwestern Ohio and northeastern Indiana?

_____

4. Name one part of the country that has sunny weather.

_____

5. What type of weather is usually experienced in a high-pressure area?

_____

6. What type of weather is usually experienced in a low-pressure area?

_____

Name _____

Date _____

Vocabulary Power

Weather

A. Greek and Latin Roots

Read the Latin and Greek roots and their meanings. Then write a sentence for each numbered word. You can look the words up in a glossary to help you.

Greek Root	Meaning
atmos	Vapor, or air
humere	Moist
klima	Region, zone

1. atmosphere

_____

2. humidity

_____

3. climate

_____

B. Context Clues

Write the word from the box that best completes each sentence.

precipitation	condensation	evaporation

4. Because of _____ the puddle grew smaller and smaller and finally dried up as the sun shone on it.

5. Droplets of water vapor cooled, and _____ took place. Puffy white clouds were the result.

6. Snow, sleet, and rain are three examples of _____.

Name _____

Date _____

Writing Practice

Describe an Everyday Machine

Informative Writing–Description

Think of a machine you use every day. Imagine you are writing a page in a technical manual that describes this machine. Your page should describe the function of the machine, the simple machines it is made up of, and the forces it uses. In the box below, draw the machine you have chosen and label its parts. Then use the organizer to make notes on the machine for your page.

Everyday Machine _____

Drawing of Machine with Parts Labeled	Description of Machine for Technical Manual
	Function:
	Simple Machines:
	Forces:

Name _____

Date _____

Lesson Quick Study

Lesson 1 - What Is Sound?

1. Inquiry Skill Practice–Identify the Variables

Suppose you want to do an experiment to hear how three different objects would sound when dropped from the same distance. You drop a pebble, a rock, and a grain of sand. What is the tested variable in your experiment?

_____

2. Use Vocabulary

Complete each sentence with the correct term from the box.

vibration
volume
pitch
frequency

How loud a sound is, is its _____.

How high or low a sound is, is its _____.

_____ is the number of vibrations per second a sound makes.

A _____ occurs when matter moves back and forth.

3. Focus Skill Reading Skill Practice–Main Idea and Details

Read the selection. Underline the main idea. List at least 2 details about the main idea.

You hear different sounds every day. The volume of these sounds can be measured in units called decibels. Low decibels make soft sounds. A whisper is 20 decibels. A normal conversation is 60 decibels. High decibels make loud sounds. A jackhammer makes sounds that are 100 decibels. A thunderclap makes sounds that are 120 decibels. Sounds that are more than 120 decibels can damage your ears. People who are around places with sounds that have very high decibels wear ear protection.

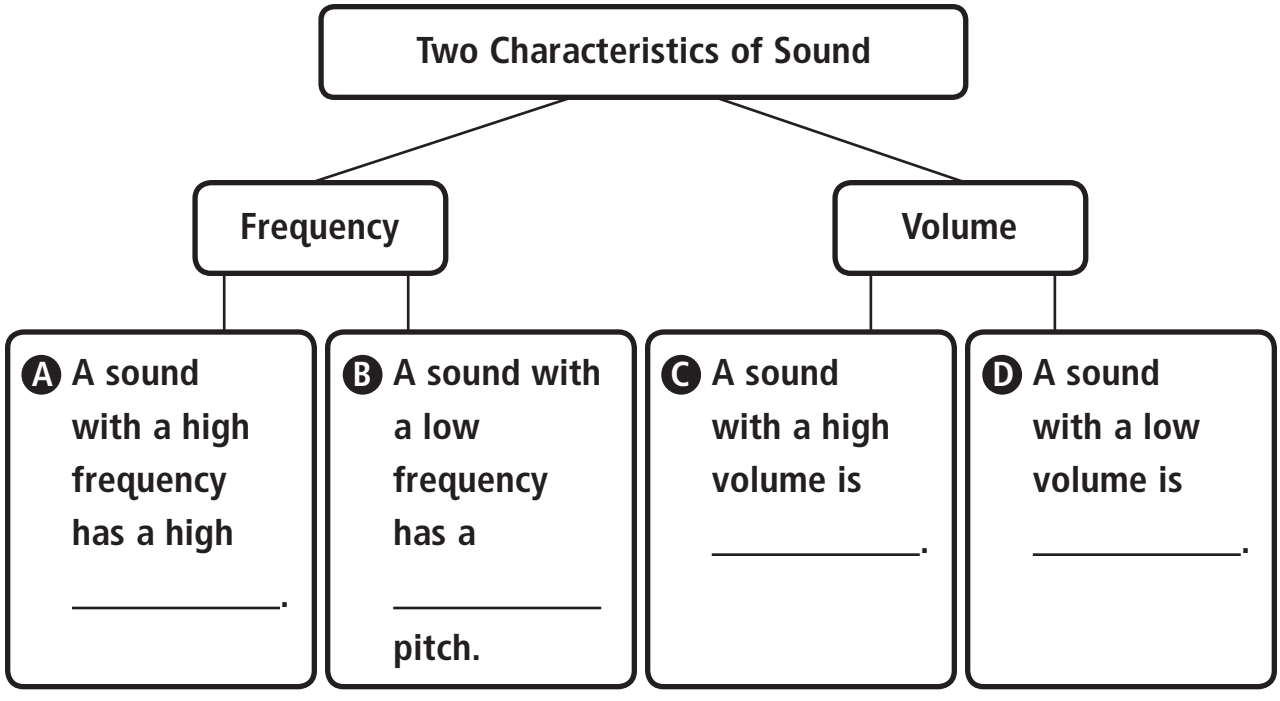
_____

_____

Name _____

4. Main Idea and Details

Complete the graphic organizer shown below.



5. Critical Thinking and Problem Solving

Suppose that you made a musical instrument using rubber bands fastened around an empty loose-leaf binder. To make sounds, you hold the binder open and pluck the rubber bands. Would the sound be the same if you use thin and thick rubber bands? Explain your reasoning.

_____

_____

_____

_____

Name _____

Date _____

Lesson Quick Study

Lesson 2 - What Is Light?

1. Inquiry Skill Practice–Predict

Predict whether the measurement of the angle and its reflection would be the same or different if you repeat the experiment placing the pushpins 15 cm from the mirror. Explain your reasoning.

_____

_____

2. Use Vocabulary

Match the clues on the left to the terms on the right.

____ The bending of light as it passes from one object to another

____ The bouncing of light from a surface

____ Objects that allow light to pass through them

____ Objects that allow some light to pass through them

A. reflection

B. translucent

C. transparent

D. refraction

3. Reading Skill Practice–Main Idea and Details

Read the selection. Underline the main idea. List at least three details about the main idea.

Light is one small part of a range of energy known as the *electromagnetic spectrum*. The waves that make up this spectrum have different frequencies. The part of the spectrum that we can see is called *visible light*. Radio waves have lower frequencies than visible light waves. Gamma rays and X rays have higher frequencies. Waves with higher frequencies carry more energy than waves with lower frequencies. Unlike sound waves, light waves can travel through empty space.

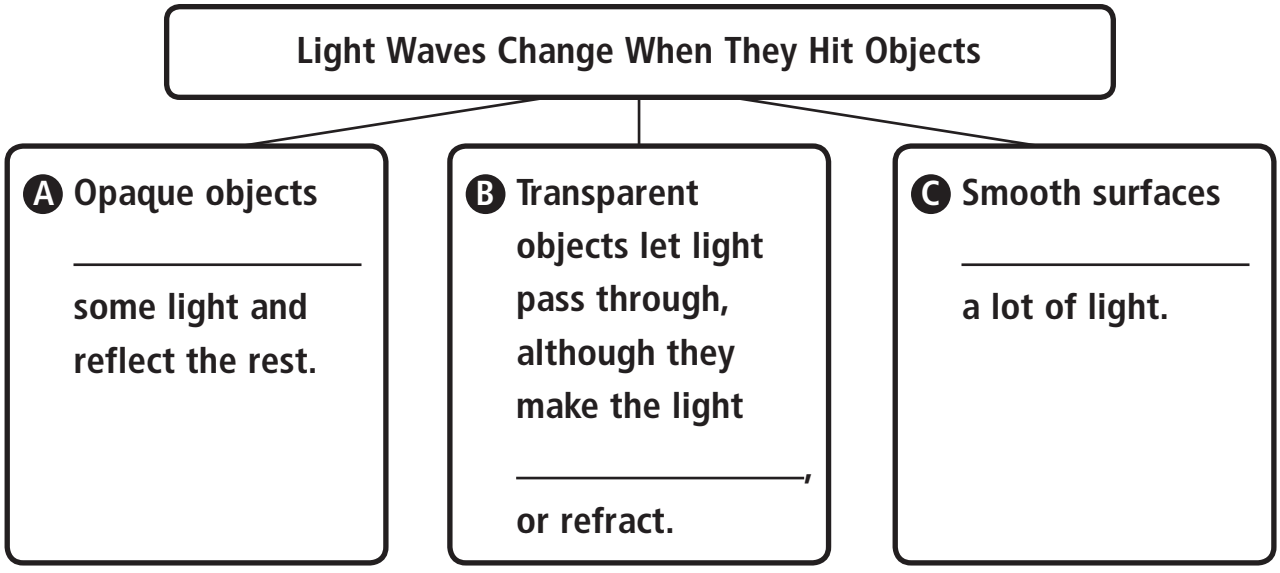
_____

_____

Name _____

4. Main Idea and Details

Complete the graphic organizer shown below.



5. Critical Thinking and Problem Solving

Look around you. List at least three objects that fit each category below.

Translucent: _____

_____

Transparent: _____

_____

Opaque: _____

_____

Name _____

Date _____

Lesson Quick Study

Lesson 3 - How Do Objects Bend Light?

1. Inquiry Skill Practice–Predict

A boy is looking at a turtle through a convex lens. Predict how the turtle will look to him. Explain your answer.

_____

_____

_____

2. Use Vocabulary

Complete each sentence with the correct term from the box.

concave lens
convex lens

A _____ bends light toward the center, making objects seem larger.

A _____ makes light spread out, so objects seem smaller.

3. Focus Skill Reading Skill Practice–Cause and Effect

Read the selection. Underline what causes a rainbow. List at least two effects of that cause.

Where does a rainbow come from? Sunlight passes through drops of water in the air. Each drop of water is a prism. The prisms make the colors in the sunlight change direction. Each color takes a slightly different path. The color separates from the other colors, creating a rainbow.

_____

_____

_____

Name _____

4. Focus Skill Cause and Effect

Complete the graphic organizer shown below.

Cause	Effect
Light passes through a prism.	_____
_____	Light rays come together. Objects look bigger.
Light passes through a concave lens.	_____

5. Critical Thinking and Problem Solving

You see a red flower and a white flower. Which one reflects the most colors? Explain your answer.

_____

_____

_____

_____

_____

Name _____

Date _____

Vocabulary Power

Sound and Light

A. Words in Context

Use the words in the box to fill in the blanks to complete each sentence. Use each word only once.

opaque	**volume**	**concave lens**	**frequency**
reflection	**transparent**	**vibration**	**convex lens**

1. When Sarah hit the drum with her sticks, the _____ created sound energy.
2. During a camping trip, Jerome looked at his _____ in the lake so he could part his hair.
3. Dogs can hear sounds that range up to 25,000 vibrations per second, which is a much higher _____ than people can hear.
4. Amanda requested _____ curtains in her bedroom so the sunlight wouldn't wake her up early in the morning.
5. Jack was playing his stereo so loudly that his sister asked him to turn down the _____.
6. As Charles looked through the _____ in his camera's viewfinder, he saw a smaller version of his entire family reunion.
7. The dewdrops clinging to the leaves were _____ and Simon could see through them to the bird's nest.
8. Janelle's grandmother uses a _____ as a magnifier when she reads the Sunday comics.

Name _____

Date _____

Lesson Quick Study

Lesson 1 - How Is Motion Described and Measured?

1. Inquiry Skill Practice–Communicate

Betty walks to school from home. She starts by walking two blocks straight up from her house. Then she turns left and continues walking one block. At the end of the block, Betty makes two rights. The school is at the corner of that block. Make a drawing of Betty's path. How would you give directions from school to her house if she does not change her route?

_____

_____

2. Use Vocabulary

Match the clues on the left to the terms on the right.

____ How a position changes during a unit of time **A.** position

____ The location of an object **B.** motion

____ The change of position of an object **C.** speed

3. Focus Skill Reading Skill Practice–Compare and Contrast

Read the selection. Compare and Contrast the different runners.

Athletes know that running improves the strength of their heart and lungs. However, not all runners run the same way. Some runners are sprinters. They are good at racing quickly for short distances. Others are distance runners. They run at a slower speed but for a longer distance. Usually, distance racers would not perform well in a sprint because their muscles are not trained to let them start out

(cont'd.)

Name _____

fast and continue to run fast. Sprinters become exhausted when they try to run a long distance.

_____

_____

_____

4. Focus Skill Compare and Contrast

Complete this graphic organizer to compare and contrast a driver in a car passing a person who is walking on a sidewalk.

Alike	Different
Both are examples of (A) _____ .	The car has a greater (B) _____ than the walker.
Both changes in position are compared to a (C) _____ .	The driver is (D) _____ compared to the car seat but is (E) _____ compared to the sidewalk.

5. Critical Thinking and Problem Solving

Suppose a cyclist takes 4 hours to reach the end of the race. He rides his bike 60 kilometers. What was the cyclist's speed? How do you know?

_____

_____

Name _____

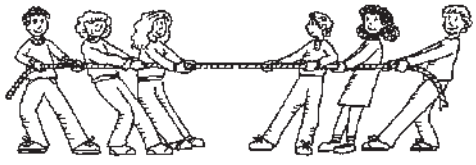
Date _____

Lesson Quick Study

Lesson 2 - How Do Forces Affect Motion?

1. Inquiry Skill Practice–Measure

Below are pictures of forces. Use arrows to show the forces the students are exerting in each picture. The length of the arrows should indicate the sizes of the forces. Include a scale key.



2. Use Vocabulary

Write a complete sentence for each term in the box. Use the terms correctly.

velocity	force
acceleration	inertia

_____

_____

_____

_____

3. Focus Skill Reading Skill Practice–Cause and Effect

Read the selection. Describe a cause and its effect.

Danny pushed an empty cart into the library. It was easy for Danny to push the cart. He filled the cart with books. Danny tried pushing the cart out of the room, but he could barely move it. The cart was too

(cont'd.)

Name _____

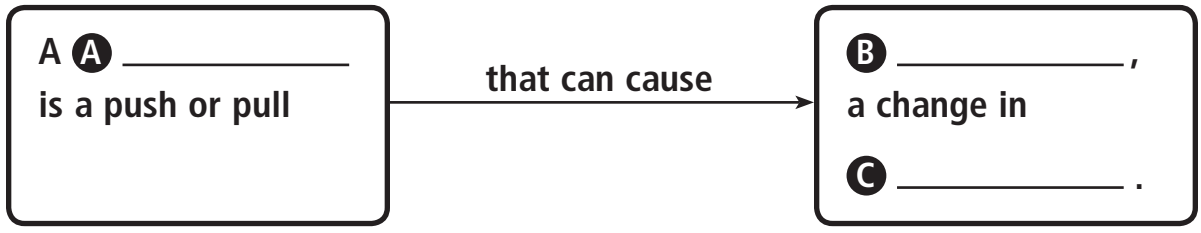
heavy to move easily. Danny realized that objects that have little mass are easier to move than objects that have a lot of mass.

_____

_____

4. Focus Skill Cause and Effect

Complete the graphic organizer shown below.



5. Critical Thinking and Problem Solving

Suppose a car is traveling north at 100 kilometers per hour. Another car is traveling in the opposite direction at the same speed. Are their velocities the same? Explain.

_____

_____

_____

Name _____

Date _____

Lesson Quick Study

Lesson 3 - How Does Gravity Affect Motion?

1. Inquiry Skill Practice–Experiment

Suppose you have a box. Describe an experiment to test how it slides across the different surfaces listed in the box. Circle the surface that you predict will cause the least friction.

rug
wooden floor
plastic with spikes (carpet protector)

_____

_____

2. Use Vocabulary

Complete each sentence with the correct term from the box.

The _____ force between Earth and the moon keeps the moon in orbit.

The _____ caused by a rubber door stopper makes it difficult to open a door.

_____ is what helps us keep our feet on the ground.

The doctor asked the child to step on the scale to measure his _____.

gravity
gravitational
weight
friction

3. Focus Skill Reading Skill Practice–Main Idea and Details

Read the selection. Underline the main idea. List at least 2 details.

In this lesson, you learned about gravity. You learned that gravity is the force that pulls you towards Earth. Because of gravity you do not

(cont'd.)

Name _____

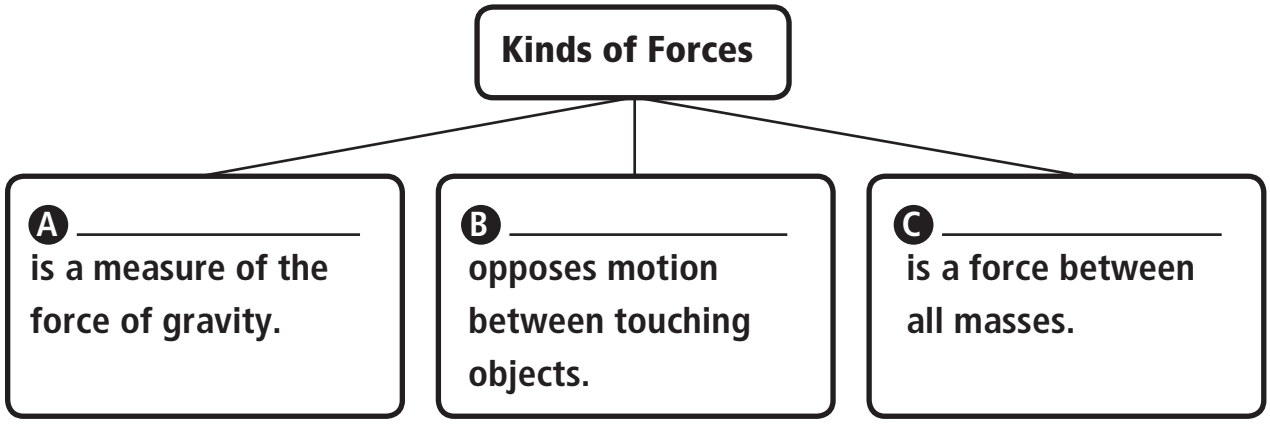
float in the air. Instead, you walk with your feet touching the ground. Gravity makes it possible to keep your books and pencils on your desk.

_____

_____

4. Focus Skill Main Idea and Details

Complete the graphic organizer shown below.



5. Critical Thinking and Problem Solving

Suppose Olga is traveling to a planet that has gravity half as strong as Earth's. How will her weight and mass change on that planet? Explain.

_____

_____

_____

_____

Name _____

Date _____

Vocabulary Power

Forces and Motion

A. Context Cues

Read each sentence below. Use context clues to figure out the meaning of each underlined word. Circle the letter of the correct meaning.

1. The driver slowed the car's acceleration as she drove down a steep slope.

A. gas mileage
C. a change in speed or direction
B. temperature gauge
D. a measure of pressure

2. The drill bit became hot from the friction created between the metal and the wood.

A. sharp blade
C. downward force
B. wood grain
D. resistance between two touching objects

3. The baseball's velocity was 90 miles per hour, north.

A. an object's speed and direction
C. an object's size
B. an object's covering
D. an object's degree of hardness

4. The inertia of the huge rock was so great that it took an enormous push to start it rolling downhill.

A. speed of motion
C. color
B. the tendency to stay at rest
D. tendency to float in water

5. People who parachute out of airplanes know that the force of gravity will bring them to the ground.

A. the force that causes something to remain still
B. the force that increases the speed of an object
C. how something changes position
D. the force that pulls objects toward Earth

Name _____

Date _____

Lesson Quick Study

Lesson 1 - How Do Simple Machines Help People Do Work?

1. Inquiry Skill Practice–Use Space Relationships

Objects take up space and move through space in different ways. Scientists use these differences to make models. For example, how a rubber band stretches helps you "see" the force acting on it. How could you use space relationships to model Earth and its moon?

_____

_____

2. Use Vocabulary

Match the clues on the left to the terms on the right.

____ The fixed point of a broom

____ Has few or no moving parts

____ The bar that pivots on a fixed point

A. simple machine

B. lever

C. fulcrum

3. Reading Skill Practice–Main Idea and Details

Focus Skill

Read the selection. Underline the main idea. List at least 2 details.

Work is when force is used to move an object. The object must move in the direction of the force for work to be done. When you push a bicycle and it moves, you have done work. When you lift a box from the floor onto the table, you have also done work. But when you push a wall and it does not move, then work has not been done.

_____

_____

Name _____

4. Main Idea and Details

Complete this graphic organizer. Give a definition and an example.

	Work	Simple Machine	Lever
Description	A	B	C
Example	D	E	F

5. Critical Thinking and Problem Solving

Melissa uses a lever to collect leaves into piles. What type of lever might she be using? How do you think she is using the lever? Explain using the word *fulcrum*.

_____

_____

_____

_____

Name _____

Date _____

Lesson Quick Study

Lesson 2 - How Do a Pulley and a Wheel-and-Axle Help People Do Work?

1. Inquiry Skills Practice–Identify Variables

Suppose you are testing how pulley systems change the force you apply. Tell the variables you will control, change, and measure.

_____

_____

2. Use Vocabulary

Write a complete sentence that uses the term correctly.

pulley: _____

wheel-and-axle: _____

3. Reading Skill Practice–Main Idea and Details

Read the selection. Underline the main idea. List at least 2 details.

A pulley is a simple machine that makes work easier to do. A pulley is a wheel with a rope around it. When you pull the rope on the pulley one way, the other end of the rope goes the opposite way. When a bucket is dropped down in a well to take water out, a pulley is used. The rope is pulled down on one end, and the bucket comes up on the other. A single, nonmoving pulley does not change the force needed to lift the bucket.

_____

_____

Name _____

4. Main Idea and Details

Complete the graphic organizer shown below.

A pulley	A wheel-and-axle
is made up of	
A _____ _____	C _____ that turns
with	
B _____ _____	D _____ _____

5. Critical Thinking and Problem Solving

Luis needs to lift a 50-pound box to a balcony on a second floor. The box is on the first floor. How many pounds will he be lifting if he uses a single pulley to lift the box? Explain.

_____

_____

_____

_____

Name _____

Date _____

Lesson Quick Study

Lesson 3 - How Do Other Simple Machines Help People Do Work?

1. Inquiry Skill Practice–Interpret Data

Look at the data from a test of ramps. Do you think the data is reliable? Explain.

_____

_____

Trial	Ramp Length (cm)	Ramp Height (cm)	Force (N)
1	45	30	60
2	60	30	40
3	75	30	70
4	90	30	20

2. Use Vocabulary

Complete each sentence with the correct term from the box.

A _____ is a post with threads around it.

A sloped surface such as a ramp is called an _____.

A _____ is two inclined planes back to back.

inclined plane
screw
wedge

3. Reading Skill Practice–Main Idea and Details

Read the selection. Underline the main idea. List at least three details.

Alex uses screws to make a bird house. He uses screws because they will hold the pieces of wood better than nails. Nails are smooth. They can slide out of the wood with time. Screws have threads wrapped around them. The threads will help the screw stay in place. The screws will not slide out.

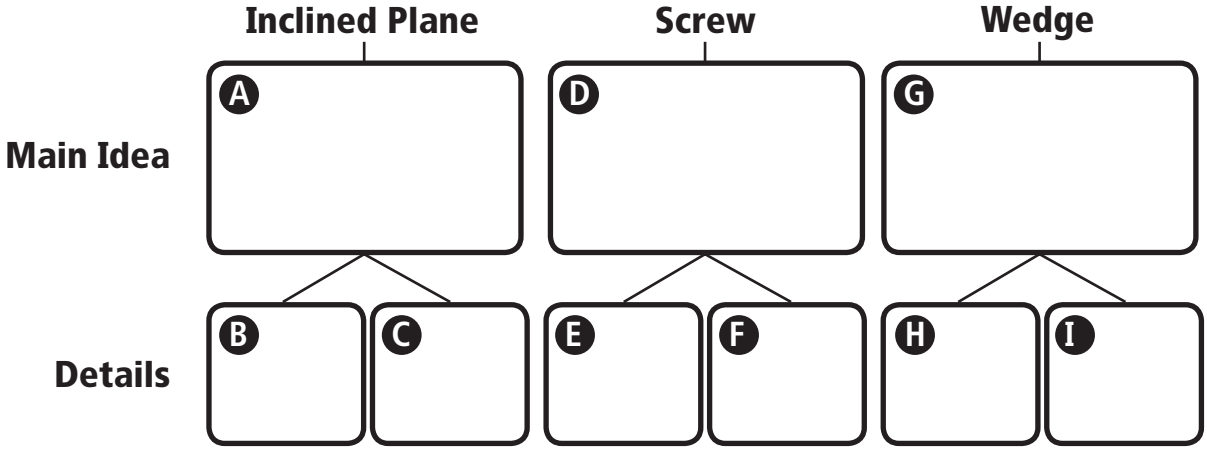
_____

_____

Name _____

4. Main Idea and Details

Complete this graphic organizer by giving definitions and two examples of each machine.



5. Critical Thinking and Problem Solving

Suppose you want to walk to the top of a steep hill. You can take the path that goes straight up, or you can take the path that winds around the hill. Use the words *force* and *distance* to explain what happens in each case.

_____

_____

_____

_____

_____

Name _____

Date _____

Vocabulary Power

Simple Machines

A. Explore Word Meanings

Think about the meaning of the words underlined below. Then use the definitions to place two simple machines from the box into each category.

A lever is a bar that pivots on a fixed point. An inclined plane is a slanted surface. A screw is a post with threads wrapped around it. A wedge is two inclined planes placed back to back. A pulley is made of a wheel with a line around it to change the direction of force. A wheel-and-axle is made of a wheel and an axle that turn together.

drill bit	**water faucet**	**axe**	**clothesline**
skateboard ramp	**wheelbarrow**	**cleaver**	**pry bar**
flag hoister	**salad spinner**	**nut and bolt**	**wheelchair ramp**

Lever	**Inclined Plane**	**Screw**
_____	_____	_____
_____	_____	_____
Wedge	**Pulley**	**Wheel-and-axle**
_____	_____	_____
_____	_____	_____

Name _____

Date _____

Writing Practice

A Day in the Life of a Forest Animal

Narrative Writing–Story

Imagine that you are an animal that lives in a forest. Write the story of one day in your life. Describe how you interact with living and nonliving things in your environment. Use the story map below to help you plan your narrative.

Character (animal):	Setting (where the animal lives):
In what part of the forest do you spend your day?	
On what other parts of the ecosystem do you depend for food?	
What other living and nonliving parts of the ecosystem help you?	
What parts of the ecosystem do you need to avoid, and why?	

Name _____

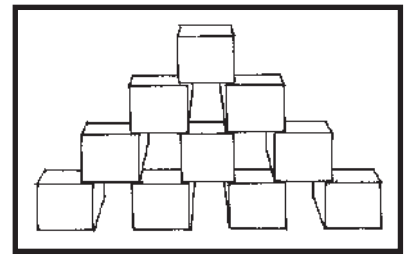
Date _____

Lesson Quick Study

Lesson 1 - What Is an Ecosystem?

1. Inquiry Skill Practice–Make a Model

Think of a tower of blocks as a model of an ecosystem. Each block is a population of animals or plants. What do you think would happen if one important population of animals or plants vanished from the ecosystem?



_____

2. Use Vocabulary

Match the clues on the left to the terms on the right.

____ A group of organisms of the same kind that live in the same place

A. ecosystem

____ The living and nonliving things in an environment that interact

B. population

____ All of the populations that live in an ecosystem at the same time

C. community

3. Focus Skill Reading Skill Practice–Main Idea and Details

Read the selection. Underline the main idea. List at least two details.

An ecosystem is all the living and nonliving things that interact in an environment. Imagine a small pond. Fish live in the water. Frogs jump from lily pad to lily pad. Fish, frogs, and ducks feed on plants and other animals that live by the pond. All the animals and plants interact, breathe the same air, and use the same water. The small pond is an ecosystem.

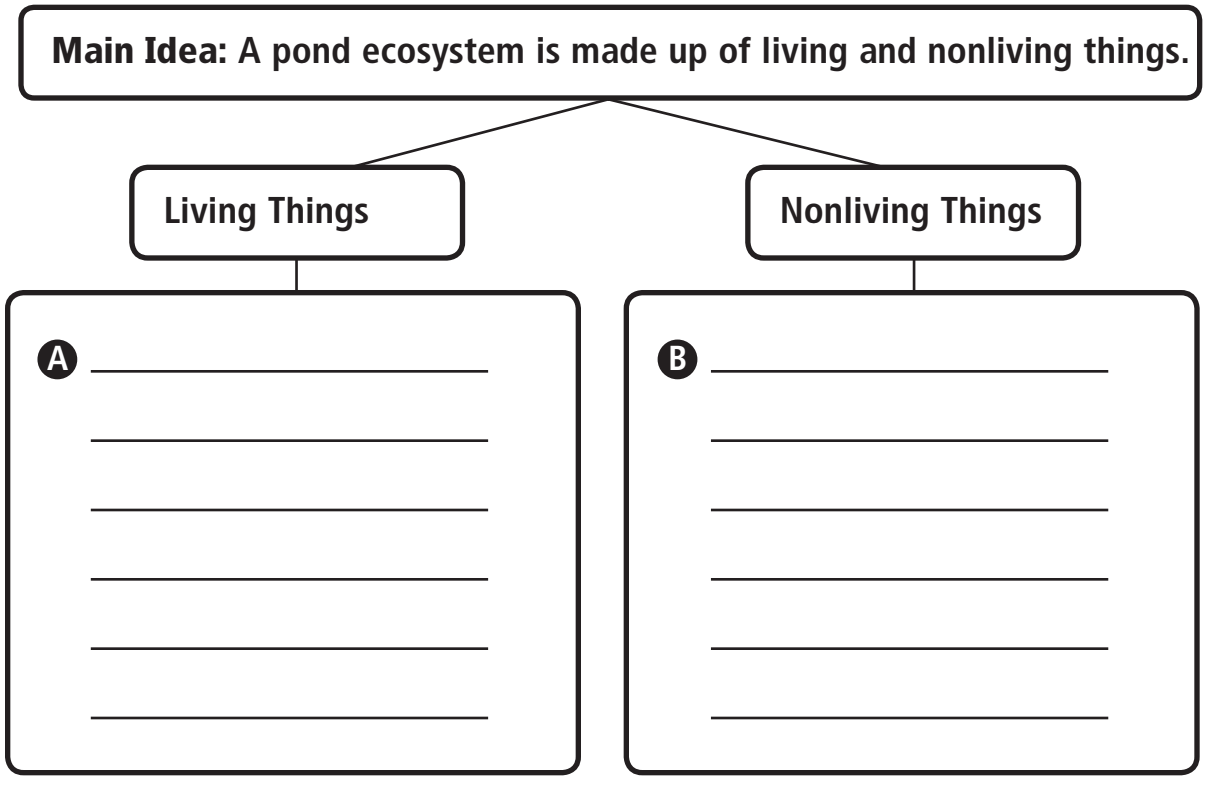
_____

_____

Name _____

4. Focus Skill Main Idea and Details

Draw and complete the graphic organizer. List details about an ecosystem.



5. Critical Thinking and Problem Solving

Sometimes we do things that can help or destroy the habitats of animals. What are some things we can do to help protect their habitats rather than destroy them?

_____

_____

_____

Name _____

Date _____

Lesson Quick Study

Lesson 2 - What Are the Roles of Producers, Consumers, and Decomposers?

1. Inquiry Skill Practice–Use Time Relationships

Read the list of what happens as the remains of plants and animals decompose.

Step 1: Plants and animals die.
Step 2: Decomposers break down their bodies into nutrients.
Step 3: The nutrients become part of the soil.
Step 4: Plants take up the nutrients through their roots.
Step 5: Animals eat the plants and absorb the stored nutrients.
Step 6: Plants and animals die, and the cycle repeats.

Use the lines below to summarize the time relationships described in the list.

_____

_____

2. Use Vocabulary

Match the clues on the left to the terms on the right.

____ organism that can make its own food

____ organism that eats plants or other organisms

____ organism that feeds on wastes and plant and animal remains

A. decomposer

B. consumer

C. producer

3. Focus Skill Reading Skill Practice–Main Idea and Details

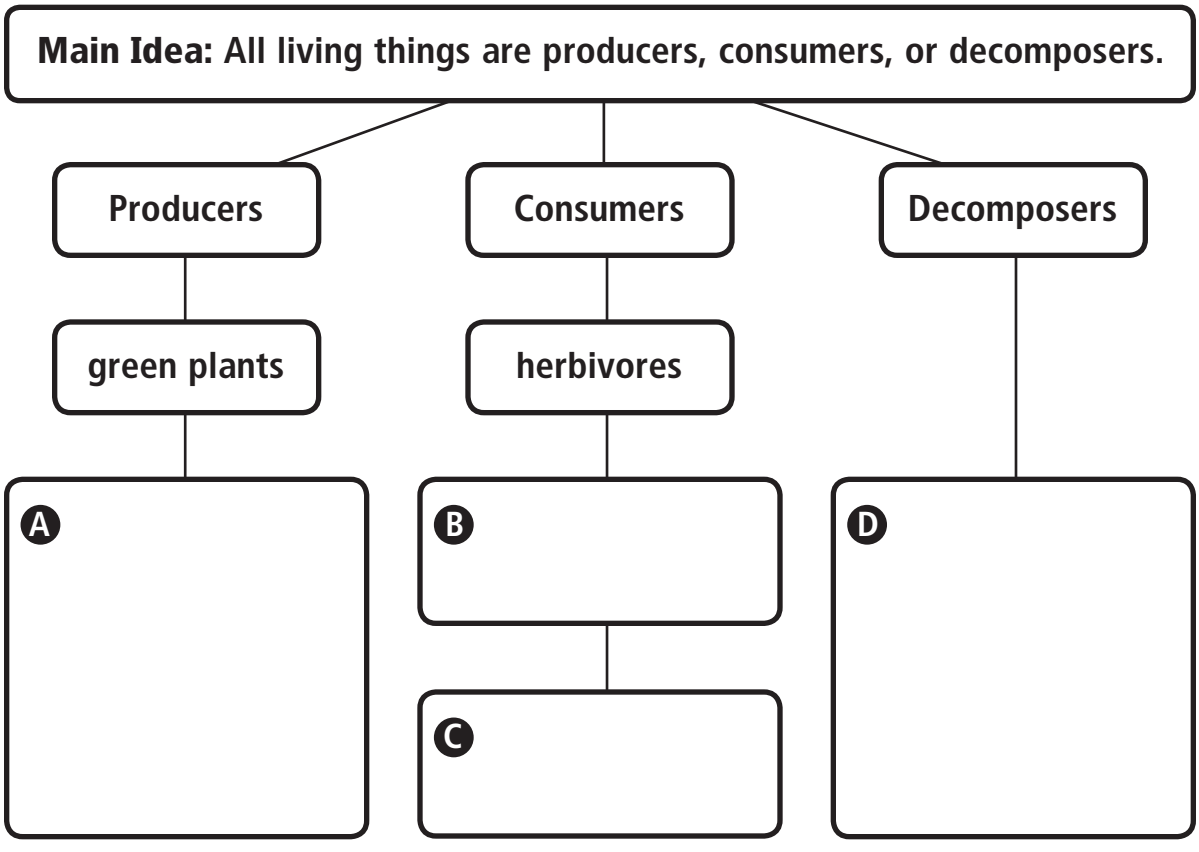
Read the selection. Underline the main idea. Circle at least three details about the main idea.

Producers are organisms that make their own food. These organisms are very important. Producers can be found in many places. In the ocean, you can find producers such as seaweed. In deserts, there are cacti and shrubs. In forests, we find trees and moss. Where else can we find producers?

Name _____

4. Focus Skill Main Idea and Details

Complete the graphic organizer shown below.



5. Critical Thinking and Problem Solving

How are the decomposers in an environment helpful to the consumers in the environment?

_____

_____

_____

_____

_____

Name _____

Date _____

Lesson Quick Study

Lesson 3 - How Does Energy Flow Through an Ecosystem?

1. Inquiry Skills Practice–Communicate

Think about the living things that live in your community. Complete the table below to communicate information about these living things and their habitats. An example has been done for you.

Living Thing	Description	Habitat
squirrel	gray-brown fur, 4 legs, bushy tail	trees

2. Use Vocabulary

Complete each sentence with a word from the box.

habitat
prey
predators
food web

Consumers that eat prey are called _____.

The ocean is the _____ of many fish.

A _____ is a group of food chains that overlap.

Consumers that are eaten are called _____.

3. Focus Skill Reading Skill Practice–Sequence

Put the following events in a food chain in the correct sequence. Number the events 1 to 3.

____ A bird feeds on the grasshopper that fed on grass.

____ A grasshopper feeds on grass.

____ A cat feeds on the bird that fed on the grasshopper that fed on grass.

Name _____

4. Focus Skill Sequence

Complete the graphic organizer shown below.

Put the words below in order to create a food chain.

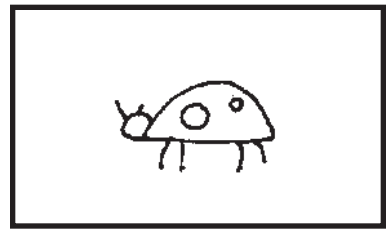
woodpecker	**hawk**	**leaves**	**insect**

A. → **B.** → **C.** → **D.**

5. Critical Thinking and Problem Solving

You learned that in a food chain there are producers, different levels of consumers, and decomposers. The living things shown below are part of a food chain. Label each picture to show the organism's role.

_____



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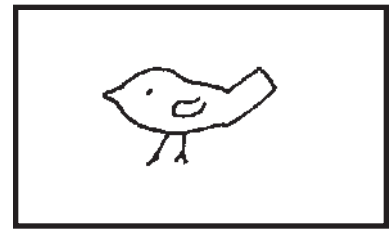

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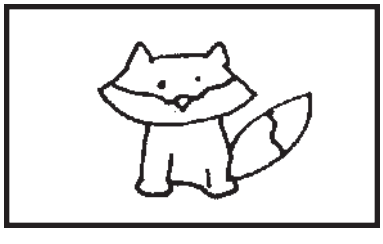

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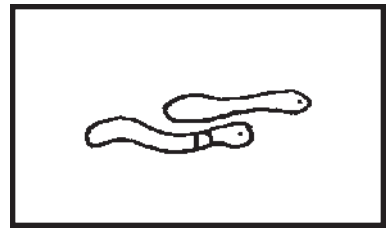


_____

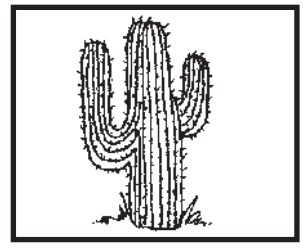
Name _____

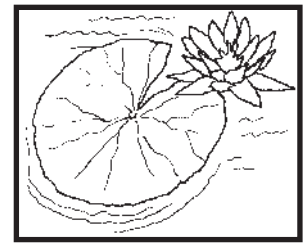
Date _____

Lesson Quick Study

Lesson 4 - What Factors Influence Ecosystems?

1. Inquiry Skill Practice–Compare





Both plants in the drawing rely on abiotic factors to survive in their ecosystem. However, neither plant would survive in the ecosystem of the other. What makes each plant's ecosystem suitable for its survival?

_____

2. Use Vocabulary

Complete each sentence with the correct term from the box.

biotic
abiotic

_____ factors are the living things in an ecosystem.

_____ factors are the nonliving things in an ecosystem.

3. Focus Skill Reading Skill Practice–Cause and Effect

Read the selection. Describe the cause and effect.

What we do affects the ecosystem around us. Imagine a wooded area. There are birds, squirrels, raccoons, and other animals that live there. They use the lake in the wooded area to drink, feed, and even bathe. People start to walk by and enjoy the view. Each time a person passes by, he drops an empty bottle or can, or any other piece of garbage. The lake and wooded area start to get dirty. The animals that depend on the lake and the woods can no longer use it safely. They start to get sick and die. Many others go away. The ecosystem vanishes.

_____

_____

_____

Name _____

4. Focus Skill Cause and Effect

Complete the graphic organizer shown below.

Cause	Effect on Ecosystem
increase in hawk population →	A _____
washing away of soil →	B _____
increase in average temperature →	C _____

5. Critical Thinking and Problem Solving

What are the biotic and abiotic factors that support the ecosystem where you live? How do the biotic factors rely on the abiotic factors to live?

_____

_____

_____

Name _____

Date _____

Extra Support

Chapter 7, Lesson 4

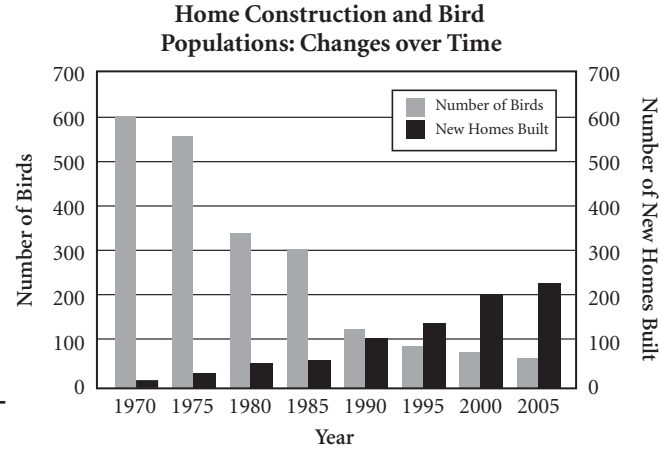
Change in Ecosystems

A. Changes in the Environment

Suppose that a large city is growing too big for its water supply. Some people suggest that the city could reroute a river to make it flow closer to the city. Consider the habitat of the area where the river now flows. How do you predict it will change if the river is rerouted?

This bar graph shows how the number of birds changed over time as new homes were built.

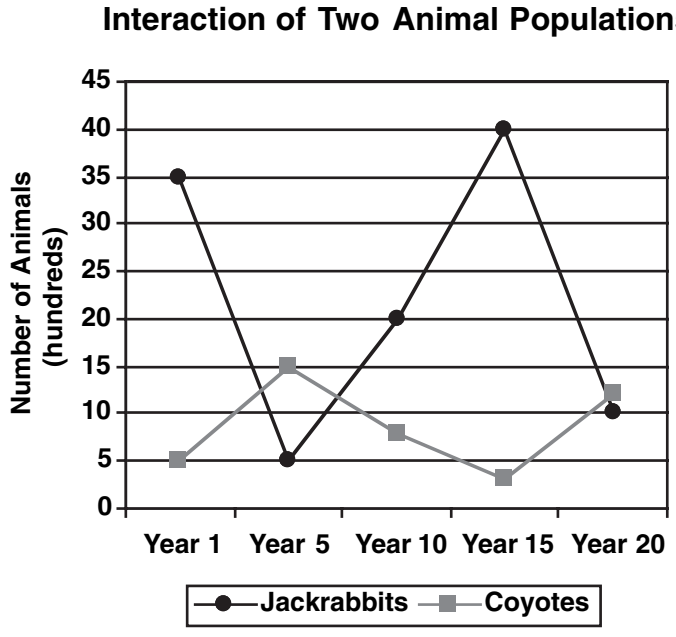
Interpret the data. How do you account for the relationship shown in the graph?



Name _____

B. Animal Relationships

Living things interact as they complete for resources in an ecosystem. The graph below shows how the populations of jackrabbits and coyotes changed over a period of 20 years.



Explain the relationship between the populations of jackrabbits and coyotes.

Name _____

Date _____

Vocabulary Power

Food Energy in Ecosystems

A. Suffixes

Adding a suffix to a word changes its meaning and usage. The suffixes *–tion*, *–ity*, and *–ment* make nouns out of verbs and adjectives. Add suffixes to each of the following words. Then write what the new word means. Use a glossary to help you, if necessary.

Suffix	Meaning
–ity	state or quality
–ment	something that
–tion	the act of doing something

1. commune + ity _____

_____

2. environ + ment _____

_____

3. populate + tion _____

_____

B. Greek Roots and Prefixes

The words, *biotic* and *abiotic* contain the Greek root *–bio–* meaning "life." The prefix *a–* means "not." Choose the words from the box that are examples of the terms.

soil	**plants**	**sunlight**
water	**air**	**animals**

4. biotic _____

5. abiotic _____

Name _____

Date _____

Lesson Quick Study

Lesson 1 - What Are Physical Adaptations?

1. Inquiry Skill Practice–Draw Conclusions

Rain forests receive from 2000 to 10,000 millimeters (7 to 33 ft) of rainfall each year. Because it rains so often, some plants have leaves with grooves or an oily coating. Both adaptations let water run off quickly instead of pooling on the leaves. How does this adaptation keep the plant from being harmed?

_____

2. Use Vocabulary

Write a complete sentence that uses the words *basic needs* correctly.

_____

Write a complete sentence that uses the word *adaptation* correctly.

_____

3. Focus Skill Reading Skill Practice–Main Idea and Details

Read the selection below. Underline the main idea. List at least two details about the main idea.

Plants and animals that live in the desert are adapted to this hot, dry climate. Many of the animals are light brown in color, which makes it easier for them to hide from predators. Some animals, such as jackrabbits and mule deer, have extra-large ears that enable them to release heat from their bodies into the air. Most desert plants store water in their stems. A waxy coating on the stems helps to prevent water loss. Most desert plants also have spines, not leaves. Narrow spines release less water into the air than leaves do. The spines also discourage animals from eating the plants.

_____

_____

Name _____

4. Focus Skill Main Idea and Details

Complete this graphic organizer.

Main Idea: Animals develop adaptations to meet their needs.

An adaptation to meet the need for food: A _____

_____

An adaptation to meet the need for water: B _____

_____

An adaptation to meet the need for shelter: C _____

_____

5. Critical Thinking and Problem Solving

Why do you suppose that different animals have different adaptations?

_____

_____

_____

_____

_____

_____

Name _____

Date _____

Extra Support

Chapter 8, Lesson 1

Animal Adaptations

A. Height Data

A group of scientists had a question about animal adaptations. The scientists wanted to study an adaptation to see how it helps the animal survive. They headed to Africa to collect data.

The scientists planned an investigation that focused on the tallest land animals: giraffes. They counted how many pounds of acacia leaves that 10 giraffes ate in a week. They also measured how tall each giraffe was. They recorded their data in the table below.

Giraffe Data		
Giraffe Name	**Height (in feet)**	**Pounds of Leaves Consumed in 7 Days**
Alpha	14	450
Beta	10	350
Gamma	17	500
Delta	11	375
Epsilon	15	460
Zeta	16	475
Eta	12	400
Theta	14	430
Iota	18	525
Kappa	13	420

Name _____

How would you interpret the data that the scientists gathered? Compare measurements to draw a logical conclusion.

_____

_____

_____

_____

_____

_____

_____

B. Scientists use facts to back up their observations. They do not rely on claims or opinions. Read the statements below. Put a check next to the statements that are supported by evidence from the experiment on page RS 72.

_____ Giraffes of different subspecies have different spot patterns on their coats.

_____ Giraffes are the most exciting animals in Africa.

_____ Gamma was one of the tallest giraffes studied.

_____ There was a 175-pound difference between the tallest giraffe and the shortest giraffe in amount of leaves eaten.

_____ Giraffes are not currently classified as endangered animals.

_____ Beta, the shortest giraffe, ate 350 pounds of leaves.

_____ Iota, the tallest giraffe, had a height of 18 feet.

_____ A giraffe's neck weighs about 60 pounds.

_____ When giraffes aren't eating leaves, they are sleeping.

_____ Shorter giraffes usually eat fewer leaves.

Name _____

Date _____

Lesson Quick Study

Lesson 2 - What Are Behavioral Adaptations?

1. Inquiry Skill Practice–Infer

Some animals hibernate during the winter. During this time, they do not eat or drink anything. How are they able to survive without food and water?

_____

_____

_____

_____

2. Use Vocabulary

Match the clues on the left to the terms on the right.

____ The state in which animals become dormant

____ Behaviors animals are born with that help them meet their needs

A. Instincts

B. Hibernation

3. Focus Skill Reading Skill Practice–Main Idea and Details

Read the selection. Underline the main idea. Circle at least three details about the main idea.

Sometimes the instincts that animals are born with are not enough to help them survive. Animals need to learn behaviors from other animals. A bear cub is born knowing how to get milk from its mother. It also knows how to cry if it is hungry. But a bear must teach its cubs to climb trees for safety, hunt for food, and find shelter.

Name _____

4. Main Idea and Details

Complete the graphic organizer shown below.

Main Idea: Instinctive behaviors help animals meet their needs.

A Everyday behaviors:	B Hibernation:	C Migration:

5. Critical Thinking and Problem Solving

Which is more likely to become extinct: A species with a single large population living on a remote island, or a species with several small populations in different places? Explain your answer.

Name _____

Date _____

Vocabulary Power

Adaptations for Survival

A. Suffixes

The suffix *–tion* changes a verb into a noun that means "the act of doing something." For example the verb *conserve* means "to save resources by using them wisely." *Conservation* means "the act of conserving." Add the suffix *–tion* to the words below to form a new word. Then write the definition of the new word.

1. adapt + tion _____

2. hibernate + tion _____

3. extinct + tion _____

4. migrate + tion _____

B. Explore Word Meanings

Now answer these questions. Think about the meaning of the underlined words.

5. Extinction means that all the members of a certain group of organism have died. Does extinction describe pandas or woolly mammoths?

_____

6. An adaptation is a body part or a behavior that helps a living thing survive. Which of these is an example of an adaptation: a lizard's long tongue or a dog's collar?

_____

7. Hibernation means "to enter a dormant, inactive state." Which animal hibernates in winter: a zebra or a woodchuck?

_____

VOCABULARY GAMES and CARDS

Contents

Vocabulary Games

Vocabulary Games

You can use the vocabulary cards on pages RS 83–RS 132 to play these games. The cards are provided for each chapter in your science textbook. Each card has a word on one side and the word's definition on the back. For some of these games, you may need to keep the definition hidden from view.

Guess the Word

You will need

vocabulary cards, paper and pencil

Grouping large groups or pairs

1. Form two teams. Each player must have a partner. One player in each pair is the clue giver, and one is the guesser.
2. Teams take turns playing. The first clue giver draws a word card and gives the guesser one clue at a time. Count clues to keep score.
3. After the word is guessed, play is passed to a pair on the other team. Use all the cards. The lowest score wins.

Word Ladder

You will need

vocabulary cards, tabletop

Grouping groups or partners

1. Place the cards in a pile, hiding the definitions.
2. Player 1 chooses a card, reads the word, and says the word's meaning. That player then turns the card over to check his or her answer.
3. If the meaning is correct, the word is placed near the edge of a tabletop. Player 1 continues until a word is missed. If more words are guessed correctly, the words are added to Player 1's ladder. If a word is missed, the card is returned to the pile. It is then the next player's turn.
4. The player who has formed the tallest ladder is the winner!

Hidden Words

You will need

vocabulary cards, paper and pencil

Grouping Whole class or large groups; small groups; pairs

1. Choose a word from the vocabulary cards to hide in a sentence. For example, the word *heat* is hidden in the following sentence: Mitch eats ice cream.
2. Write a sentence with a hidden word. Exchange papers with a classmate to find each other's hidden words.

Crossed Words

You will need

vocabulary cards, grid paper, and pencil

Grouping small groups or pairs

1. Place the cards face-up on a table so that each word can be seen. Choose one word for your crossword puzzle. Write that word vertically on the grid. Identify it by writing a number 1 in the box with the first letter, just as on a crossword puzzle. Use the word's definition on the back of the card to help write a clue for this starter word.
2. Choose a second word to add to the grid. Be sure it shares a letter with the first word written. Attach it to the first word by writing the second word horizontally on the grid. Identify it by writing a number 2 in the box with the first letter of that word.
3. Continue to attach words to the puzzle and number each word. Write clues for each of the numbered words.
4. Give a partner a blank grid with spaces numbered to match your puzzle. To help your partner solve the puzzle, shade each square of the grid that doesn't contain a letter. Challenge your partner to solve the puzzle by reading the clues and guessing each word.

Name That Word

You will need

2 identical sets of word cards; paper and pencil

Grouping small groups of at least five

1. One player is named as the "host." Players pair off into two teams. Each team has a set of word cards in the same order, placed facedown.
2. The host asks one person from each team to draw a card, checking to make sure both are looking at the same word. The player from Team A who saw the word goes first. He or she gives a one-word clue about the word. Team members then try to guess the word.
3. If the word is guessed, the host gives Team A a point. If the word is not guessed, Team B gets a turn. The player from Team B who saw the word gives a second one-word clue about the word. Team B then tries to guess the word. If the word is not guessed after five rounds, no team scores a point, and the host reveals the word to both teams.
4. After all of the cards have been drawn, the team with the most points wins.

Red Light, Green Light

You will need

vocabulary cards sorted by chapter, science textbook

Grouping large or small groups

1. Each player has a set of the same word cards. One person is the host of the game and does not play.
2. The host holds up one word for everyone to see. Each player then pulls that word card out of his or her pile. All players open their books to the chapter from which the word has been taken.
3. The host calls out "green light." Each player quickly looks for the word in a sentence. When a player finds the word, the word card marks the page and the book is closed. That player calls out "red light." Play then stops.
4. The player who stopped the game reads the sentence that holds the word. He or she scores one point. Play continues with the next word.

Wink, Wink

You will need

vocabulary cards, paper and pencil

Grouping groups or pairs

1. One player chooses a card and writes that word's definition. He or she then reads the word and says, "This word means…" The written definition is then read to the group. The player then winks at the group, reminding them that the definition may be correct, or it may have been invented.
2. Players take turns telling if they think the first player invented the definition, or if the correct meaning was given.
3. Any player guessing the correct response, earns a point. A second point is given to a player who can tell the correct definition when an invented definition was given.
4. Players take turns choosing word cards. The player with the most points at the end wins the game.

Word-O!

You will need

12 vocabulary cards for each player, 12 vocabulary cards for the caller, paper and pencil

Grouping large or small groups

1. Draw a tic-tac-toe board on your paper (two vertical lines crossed by two horizontal lines). Fill each space with a word from the word cards. Use a word only once.
2. A caller reads one word at a time. If one of your words is called, circle it.
3. When you have circled three words in a row, you have won! Call out, "Word-O!"

1

abiotic

2

acceleration

3

adaptation

4

air mass

2

acceleration

[ak•sel•er•AY•shuhn]

Any change in the speed or direction of an object's motion

This racing car is capable of great *acceleration*.

1

abiotic

[ay•by•AHT•ik]

Describes a nonliving part of an ecosystem

Water and rocks are *abiotic* parts of an ecosystem.

4

air mass

[AIR MAS]

A large body of air that has similar temperature and humidity throughout

The blue arrows represent cool *air masses*.

3

adaptation

[ad•uhp•TAY•shuhn]

A body part or behavior that helps an organism survive

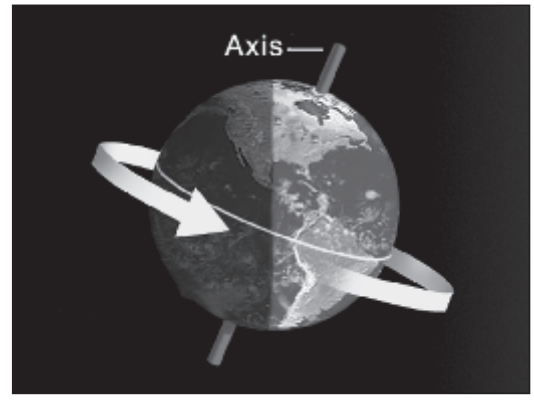
This insect's stick-like body is an *adaptation* that makes it look like part of a tree.

5

anemometer

6

axis



7

barometer

8

basic needs

6

axis

[AK•sis]

An imaginary line that runs through the center of Earth from the North Pole to the South Pole

Earth's tilted *axis* is responsible for seasonal changes in climate.

5

anemometer

[an•uh•MAHM•uht• er]

An instrument for measuring wind speed

Wind makes an *anemometer* spin.

8

basic needs

[BAY•sik NEEDZ]

Food, water, air, and shelter that an organism needs to survive

These living things have the same *basic needs.*

7

barometer

[buh•RAHM•uht•er]

An instrument for measuring air pressure

A falling *barometer* usually means a greater chance of rain.

9

biotic

10

camouflage

11

carnivore

12

climate

10

camouflage

[KAM•uh•flahzh]

A color or shape that helps an animal hide

Because of this insect's *camouflage*, it is hard to detect among the leaves.

9

biotic

[by•AHT•ik]

Describes a living part of an ecosystem

Plants and animals are *biotic* parts of an ecosystem.

12

climate

[KLY•muht]

The pattern of weather an area experiences over a long period of time

The living things in this desert are adapted to a dry *climate*.

11

carnivore

[KAR•nih•vawr]

An animal that eats only other animals

Carnivores have sharp teeth to help them eat meat.

13

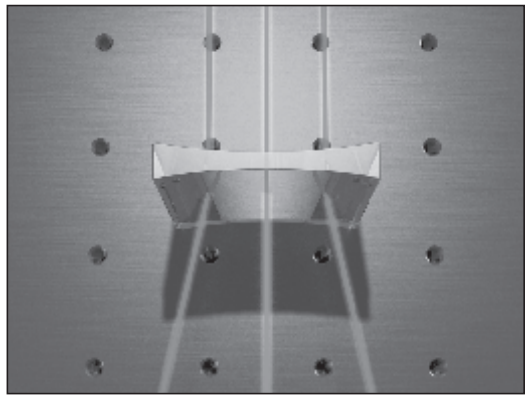
comet

14

community

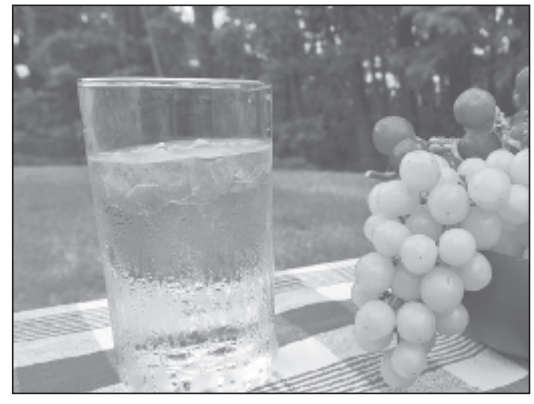
15

concave lens



16

condensation



14

community

[kuh•MYOO•nuh•tee]

All the populations of organisms living in an environment

A *community* has many kinds of interdependent organisms.

13

comet

[KAHM•it]

A ball of ice, rock, and frozen gases that orbits the sun

The fiery tail of a *comet* may be seen from Earth.

16

condensation

[kahn•duhn•SAY•shuhn]

The process by which a gas changes into a liquid

Condensation caused droplets to form on the outside of the glass as water in the air lost heat energy and cooled off.

15

concave lens

[kahn•KAYV LENZ]

A lens that is thicker at the edges than it is at the center

Light waves are spread apart as they pass through this *concave lens*.

17

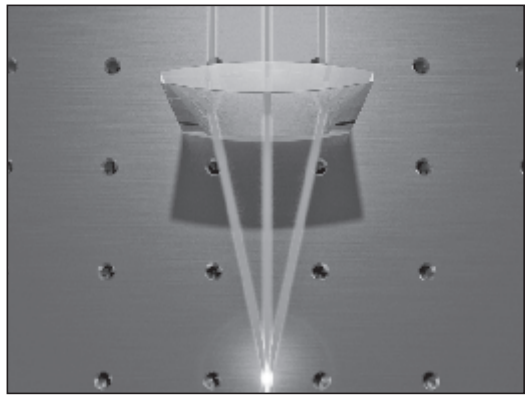
constellation

18

consumer

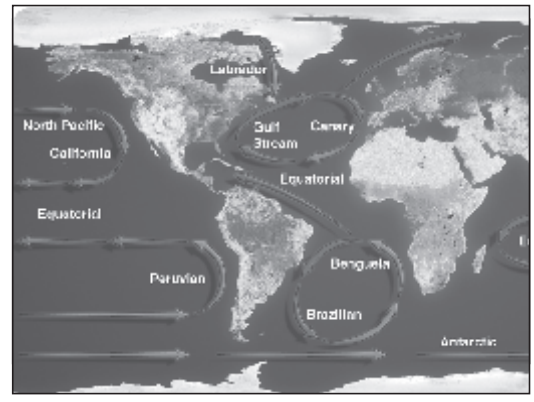
19

convex lens



20

current



18

consumer

[kuhn•SOOM•er]

A living thing that can't make its own food and must eat other living things

Animals are *consumers*.

17

constellation

[kahn•stuh•LAY•shuhn]

A pattern of stars that form an imaginary picture or design in the sky

Ursa Major is a *constellation* that looks like a bear to many people.

20

current

[KUR•uhnt]

A stream of water that flows like a river through the ocean

Ocean *currents* flow in only one direction.

19

convex lens

[kahn•VEKS LENZ]

A lens that is thicker at the center than it is at the edges

Light waves are brought together by a *convex lens*.

21

decomposer

22

ecosystem

23

energy pyramid

24

environment

22

ecosystem

[EE•koh•sis•tuhm]

A community of living things and the community's physical environment

This *ecosystem* includes water, fish, grass, flowers, and air.

21

decomposer

[dee•kuhm•POHZ•er]

A living thing that feeds on the wastes and remains of plants and animals

Mushrooms are one kind of *decomposer*.

24

environment

[en•VY•ruhn•muhnt]

All of the living and nonliving things surrounding an organism

Clean water is essential to the health of this wetland *environment*.

23

energy pyramid

[EN•er•jee PIR•uh•mid]

A diagram showing how much energy is passed from one organism to the next in a food chain

Energy pyramids have producers at the bottom and higher-level consumers at the top.

25

estimate

26

evaporation

27

experiment

28

extinction

26

evaporation

[ee•vap•uh•RAY•shuhn]

The process by which a liquid changes into a gas

Evaporation of water by the sun causes these footprints to dry up.

25

estimate

[ES•tuh•mit]

A careful guess about the amount of something

If you can't measure an object, you might make *estimates* of its length and width.

28

extinction

[ek•STINGK•shuhn]

The death of all the members of a certain group of organisms

The *extinction* of dinosaurs took place about 65 million years ago.

27

experiment

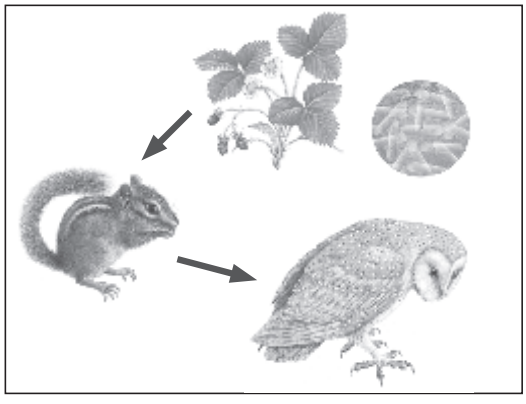
[ek•SPER•uh•muhnt]

A controlled test of a hypothesis

In order to compare the results of different *experiments*, they must be carried out under similar conditions.

29

food chain



30

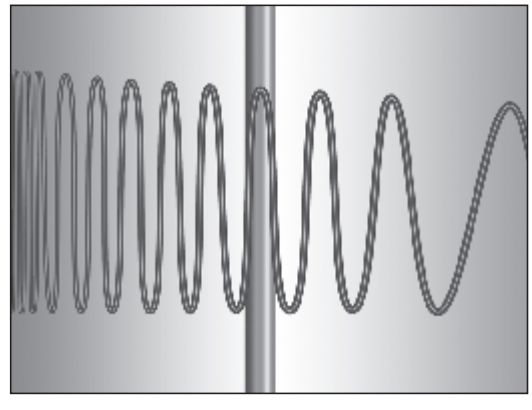
food web

31

force

32

frequency



30

food web

[FOOD WEB]

A group of food chains that overlap

A *food web* shows the interdependence of organisms in an ecosystem.

29

food chain

[FOOD CHAYN]

A series of organisms that depend on one another for food

A *food chain* begins with a producer.

32

frequency

[FREE•kwuhn•see]

The number of vibrations per unit of time

In this diagram, the *frequency* of the wave decreases from left to right.

31

force

[FAWRS]

A pull or push that causes an object to move, stop, or change direction

Each of these animals applies a *force* to the other.

33

friction

34

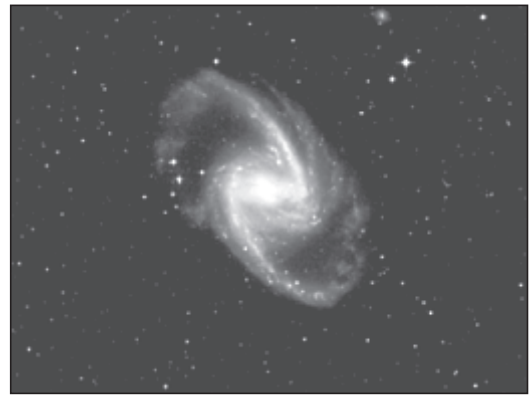
front

35

fulcrum

36

galaxy



34

front

[FRUHNT]

The border where two air masses meet

Sometimes you can locate a *front* by watching the clouds.

33

friction

[FRIK•shuhn]

A force that resists motion between objects that are touching

When you rub your hands together, *friction* changes the motion into heat.

36

galaxy

[GAL•uhk•see]

A grouping of gas, dust, and many stars, plus any objects that revolve around those stars

Our solar system is located on the edge of the Milky Way *galaxy*.

35

fulcrum

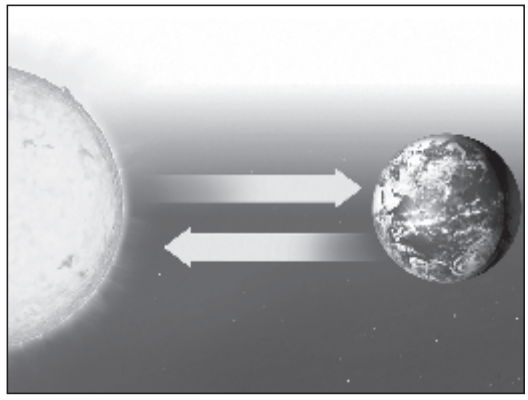
[FUL•kruhm]

The fixed balance point on a lever

As the girl sweeps, the broom pivots about its *fulcrum*.

37

gravitation

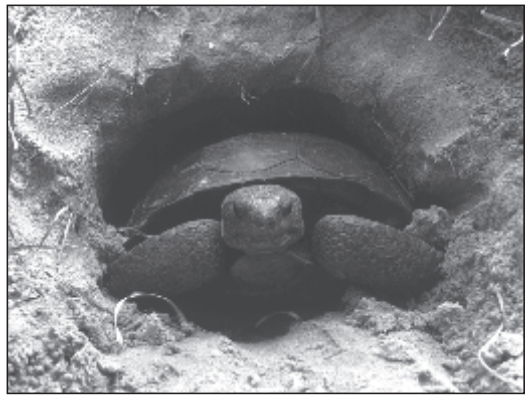


38

gravity

39

habitat



40

herbivore

38

gravity

[GRAV•ih•tee]

The force of attraction between Earth and other objects

On a roller coaster, you experience the effects of *gravity*.

37

gravitation

[grav•ih•TAY•shuhn]

The pull of all objects in the universe on one another

Gravitation holds Earth in its orbit around the sun.

40

herbivore

[HER•buh•vawr]

An animal that eats only plants or other producers

Cows are *herbivores*.

39

habitat

[HAB•ih•tat]

An environment that meets the needs of an organism

A gopher tortoise's *habitat* includes its burrow.

41

hibernation

42

humidity

43

hygrometer

44

hypothesis

42

humidity

[hyoo•MID•uh•tee]

A measurement of the amount of water vapor in the air

When *humidity* is high, your sweat evaporates slowly.

41

hibernation

[hy•ber•NAY•shuhn]

A dormant, inactive state in which normal body activities slow

During *hibernation*, animals live off the fat stored in their bodies.

44

hypothesis

[hy•PAHTH•uh•sis]

A scientific explanation that can be tested

A scientist carries out an experiment in order to test a *hypothesis*.

43

hygrometer

[hy•GRAHM•uht•er]

An instrument for measuring humidity

A decreasing *hygrometer* reading usually indicates a lower chance of rain.

45

inclined plane

46

inertia

47

inference

48

instinct

46

inertia

[in•ER•shuh]

The property of matter that keeps an object at rest or moving in a straight line

You must overcome an object's *inertia* in order to change its motion.

45

inclined plane

[in•KLYND PLAYN]

A simple machine that is a slanted surface

Pushing an object up an *inclined plane* is easier than lifting it.

48

instinct

[IN•stingkt]

A behavior that an animal begins life with and that helps it meet its needs

These ospreys' *instincts* include building nests and hunting for fish.

47

inference

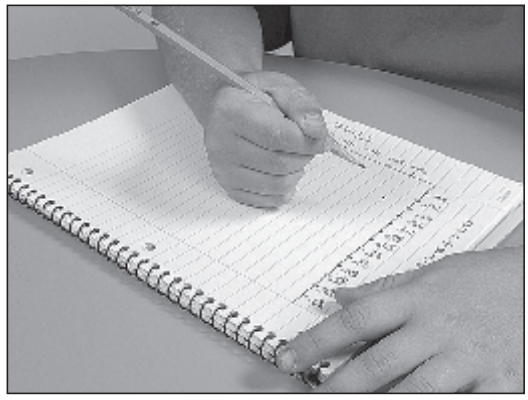
[IN•fuhr•uhns]

An untested interpretation of observations

An *inference* can be restated in the form of a hypothesis that you can test.

49

interpret



50

lever

51

meteorology

52

microscope

50

lever

[LEV•er]

A simple machine made of a bar that pivots on a fixed point

The girl is using a broom, which is a kind of *lever*.

49

interpret

[in•TER•pruht]

To evaluate evidence or data in order to draw a conclusion

Scientists *interpret* their results to explain what happened in their experiments.

52

microscope

[MY•kruh•skohp]

A science tool that makes tiny things look bigger

You can use a *microscope* to see things that you can't see with your eyes alone.

51

meteorology

[mee•tee•uh•RAHL•uh•jee]

The study of weather

Students use weather stations to help them learn about *meteorology*.

53

migration

54

moon

55

motion

56

niche

54

moon

[MOON]

A natural body that revolves around a planet

It takes about a month for the *moon* to revolve around Earth.

53

migration

[my•GRAY•shuhn]

The movement of animals from one region to another and back

Canada geese fly south during their fall *migration*.

56

niche

[NICH]

The role a living thing plays in its habitat

Every living thing has a *niche*.

55

motion

[MOH•shuhn]

A change in position of an object

This boy and his bike are in *motion*.

57

observation

58

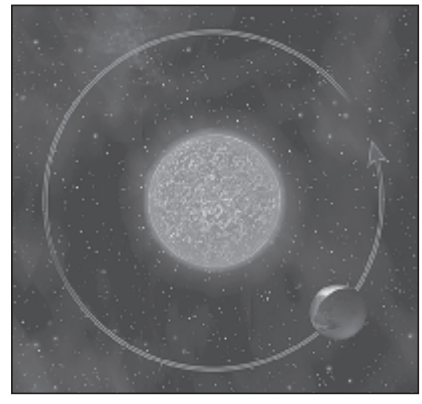
omnivore

59

opaque

60

orbit



58

omnivore

[AHM•nih•vawr]

An animal that eats both plants and other animals

Bears, raccoons, and people are *omnivores*.

57

observation

[ahb•zuhr•VAY•shuhn]

Information that you gather with your senses

You can make an *observation* with your eyes or ears.

60

orbit

[AWR•bit]

The path of one object in space around another object

Earth's *orbit* is almost a perfect circle.

59

opaque

[oh•PAYK]

Not allowing light to pass through

You cannot see through *opaque* objects.

61

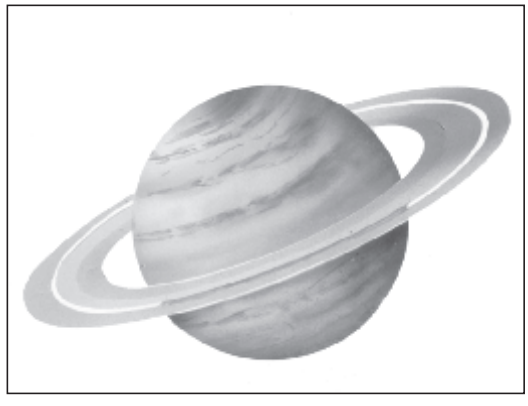
phase

62

pitch

63

planet



64

population

62

pitch

[PICH]

How high or low a sound is

The girl produces sounds of different *pitch* by striking the different-sized metal bars on this instrument.

61

phase

[FAYZ]

One of the shapes the moon seems to have as it orbits Earth

The moon waxes and wanes through its cycle of *phases*.

64

population

[pahp•yuh•LAY•shuhn]

All the individuals of one kind living in the same ecosystem

Populations compete for resources in an ecosystem.

63

planet

[PLAN•it]

A large body that revolves around a star

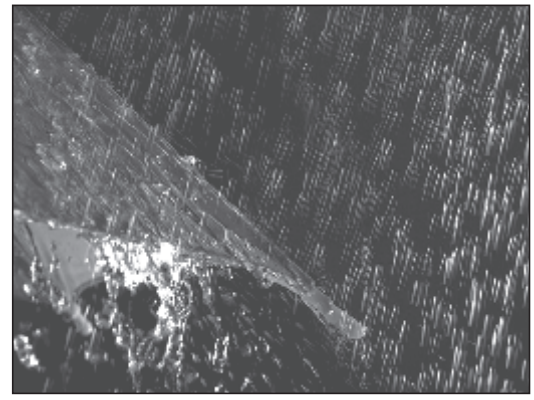
Saturn is one of eight *planets* that revolve around the sun.

65

position

66

precipitation

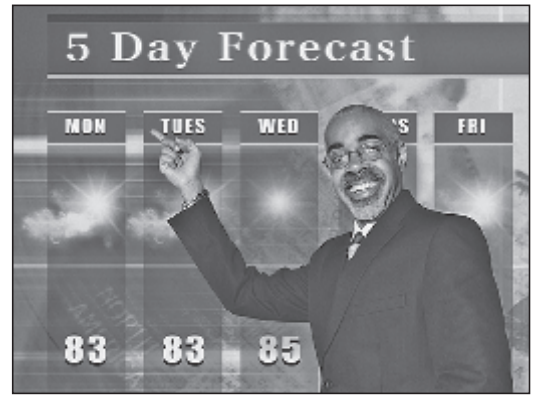


67

predator

68

prediction



66

precipitation

[pree•sip•uh•TAY•shuhn]

Water that falls from clouds to Earth's surface

Precipitation can be solid, like snow, or liquid, like rain.

65

position

[puh•ZISH•uhn]

The location of an object

The runners' *positions* do not change as they wait for the race to begin.

68

prediction

[pree•DIK•shuhn]

A statement of what will happen, based on observations and knowledge of cause-and-effect relationships

To make a *prediction*, you combine what you already know with things you have observed.

67

predator

[PRED•uh•ter]

A consumer that eats prey

A wolf hunts living animals, so it is a *predator*.

69

prey

70

producer

71

pulley

72

reflection

70

producer

[proh•DOOS•er]

A living thing, such as a plant, that can make its own food

Grasses are *producers*.

69

prey

[PRAY]

Consumers that are eaten by predators

Prey have adaptations that allow them to escape or hide from predators.

72

reflection

[rih•FLEK•shuhn]

The bouncing of light off an object

The *reflection* of light from a mirror allows us to see our image.

71

pulley

[PUHL•ee]

A simple machine that consists of a wheel with a line around it

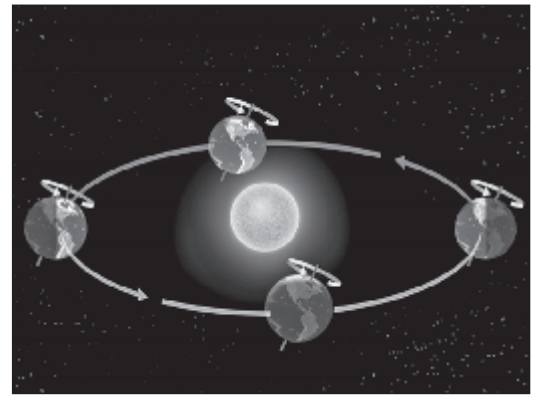
This single fixed *pulley* changes the direction, but not the amount, of the applied force.

73

refraction

74

revolve

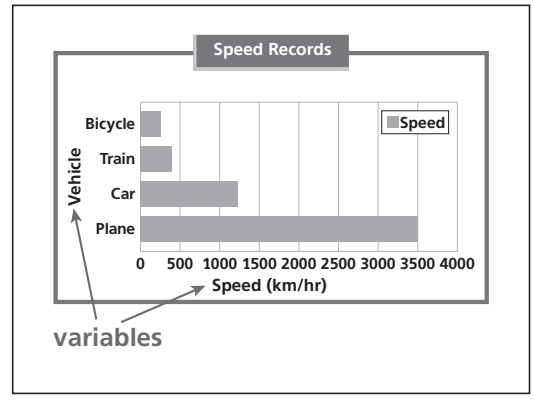


75

rotate

76

scale



74

revolve

[rih•VAHLV]

To travel in a closed path

It takes 365$\frac{1}{4}$ days for Earth to *revolve* around the sun.

73

refraction

[rih•FRAK•shuhn]

The bending of light as it moves from one material to another

Refraction of light causes this flower's stem to look broken.

76

scale

[SKAYL]

The size of the units on a bar or line graph

The *scale* appears along the bottom of a horizontal bar graph.

75

rotate

[ROH•tayt]

To spin around an axis

Earth *rotates* once on its axis every 24 hours.

77

scientific method

78

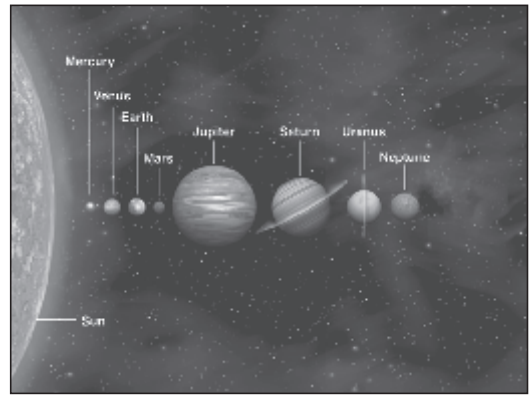
screw

79

simple machine

80

solar system



78

screw

[SKROO]

A simple machine made of a post with an inclined plane wrapped around it

The threads on the jar and on the inside of the lid are both examples of *screws.*

77

scientific method

[sy•uhn•TIF•ik METH•uhd]

An organized plan that scientists follow to test their hypotheses

This student is using the *scientific method* to plan and carry out an experiment.

80

solar system

[SOH•ler SIS•tuhm]

A star and all the planets and other objects that revolve around it

The largest planet in our *solar system* is Jupiter.

79

simple machine

[SIM•puhl muh•SHEEN]

A machine with few or no moving parts that you apply just one force to

This man is using two *simple machines:* a wheelbarrow and a shovel.

81

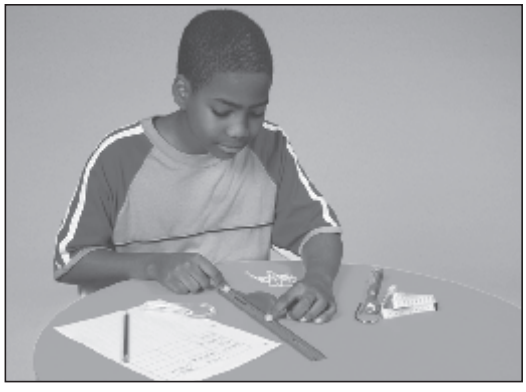
speed

82

spring scale

83

standard measure



84

star

82

spring scale

[SPRING SKAYL]

A tool that measures forces, such as weight

You would use a *spring scale* to measure the force you use to pull a toy car up a ramp.

81

speed

[SPEED]

The measure of the change in an object's position in a unit of time

The winner of the race has the fastest *speed*.

84

star

[STAR]

A huge ball of very hot gases in space

Stars look small when viewed from Earth.

83

standard measure

[STAN•derd MEZH•er]

An accepted unit of measurement

A meter is a *standard measure* of length.

85

sun

86

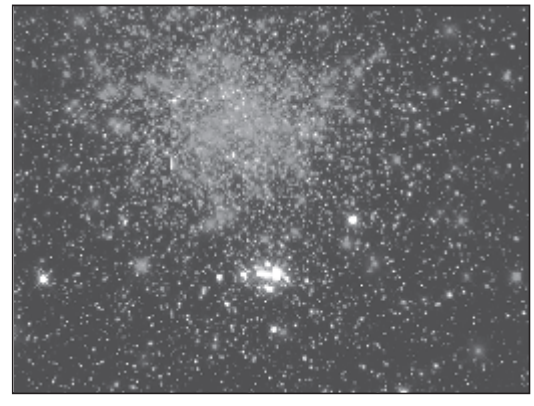
translucent

87

transparent

88

universe



86

translucent

[tranz•LOO•suhnt]

Allowing only some light to pass through

You can see light through *translucent* objects, but you cannot see clearly through them.

85

sun

[SUHN]

The star at the center of the solar system

The *sun* provides the light and heat energy that enable Earth to support life.

88

universe

[YOO•nuh•vers]

Everything that exists in space

Many galaxies make up the *universe*.

87

transparent

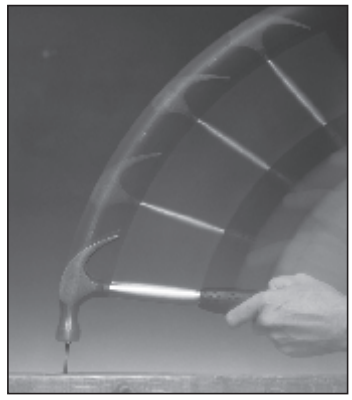
[tranz•PAIR•uhnt]

Allowing light to pass through

You can see clearly through *transparent* objects.

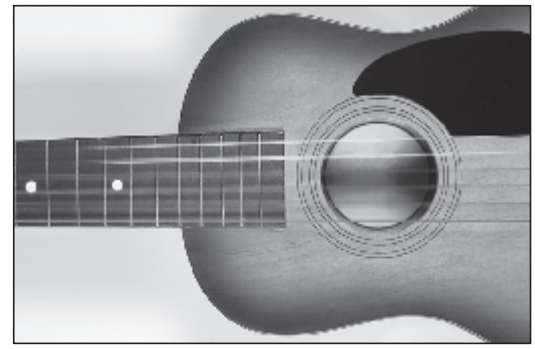
89

velocity



90

vibration

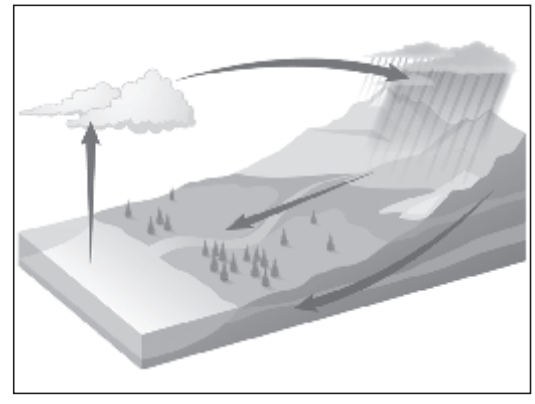


91

volume

92

water cycle



90

vibration

[vy•BRAY•shuhn]

A quick back-and-forth movement of matter

Vibrations of the strings of this guitar cause sounds.

89

velocity

[vuh•LAHS•uh•tee]

The measure of the speed and direction of motion of an object

The *velocity* of this hammer includes both its speed and the direction in which it is moving.

92

water cycle

[WAW•ter SY•kuhl]

The constant movement of water from the surface of Earth to the air and back again

The sun's energy drives the *water cycle*.

91

volume

[VAHL•yoom]

The loudness of a sound

Over time, listening to sounds of high *volume* can damage your hearing.

93

water vapor

94

weather

95

wedge

96

weight

94

weather

[WETH•er]

The condition of the atmosphere at a certain place and time

Weather can affect people's activities, especially if it is severe.

93

water vapor

[WAW•ter VAY•per]

The gas form of water

Water vapor forms when water boils or evaporates.

96

weight

[WAYT]

A measure of the gravitational force acting on an object

The boy is using a spring scale to find the *weight* of the stapler.

95

wedge

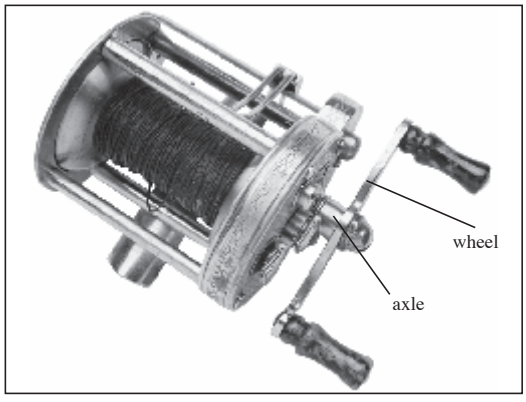
[WEJ]

A simple machine made of two inclined planes placed back to back

When a downward force is applied to the *wedge*, it pushes the wood apart.

97

wheel-and-axle



98

work

98

work

[WERK]

The use of a force to move an object over a distance

The girl does *work* by pushing a chair across the room.

97

wheel-and-axle

[weel•and•AK•suhl]

A simple machine made of a wheel and an axle that turn together

This fishing reel is an example of a *wheel-and-axle* because the crank (wheel) and axle turn together.