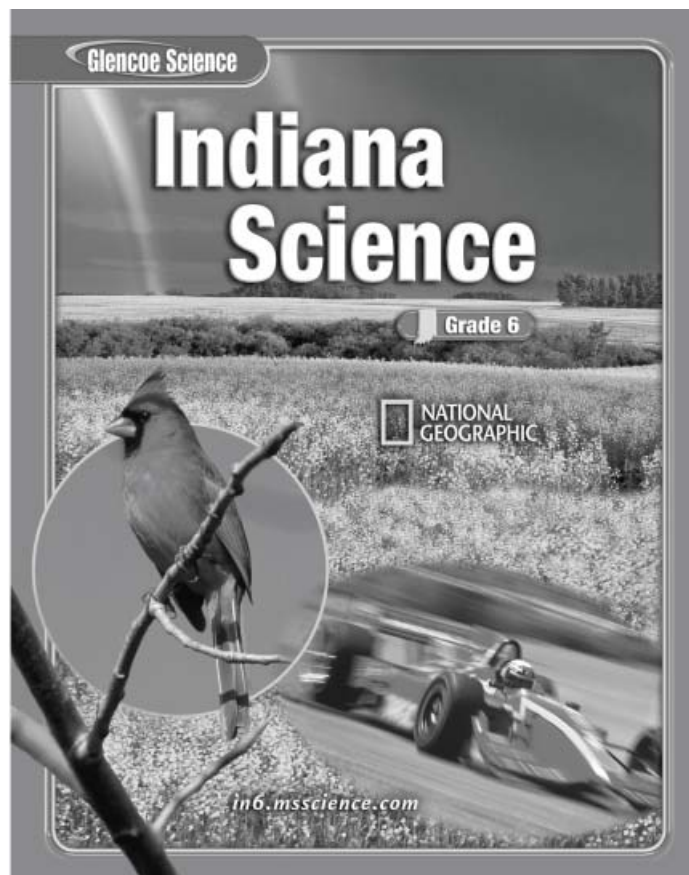


Color Transparencies

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To The Teacher

Color Transparencies for **Indiana Glencoe Science Grade 7** provides three types of transparencies for use while teaching each chapter.

The *Section Focus Transparencies* are designed to generate interest and focus students' attention on the topic being presented in the section. You can use these transparencies at the beginning of the class as a means of assessing prior knowledge and as a stimulus for discussion.

The *Teaching Transparency* for each chapter addresses a major concept that will benefit from an extra visual learning aid. Use the Teaching Transparency for review after the concept has been introduced.

The *Assessment Transparency* for each chapter is set up to resemble standardized tests. These transparencies enhance familiarity with testing formats as well as provide practice in graph, table, and diagram reading and interpretation. This transparency can be used as a pretest to introduce chapter concepts or as a brief review after the chapter has been taught.

The *Chapter Resources* booklet contains black and white masters of each transparency along with additional background information, teaching strategies, test-taking tips, and the answers to questions.



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SECTION
1**Section Focus**
Transparency**Dress for the Occasion****Chapter**
1

Researching the area around an active volcano requires special precautions. High temperatures and gases like sulfur dioxide make this a hostile environment, but the safety suit enables the scientist to collect data.



1. What are some other hostile environments that scientists explore?
2. What special equipment helps this scientist gather information?
3. How might work in a laboratory compare with work in the field?

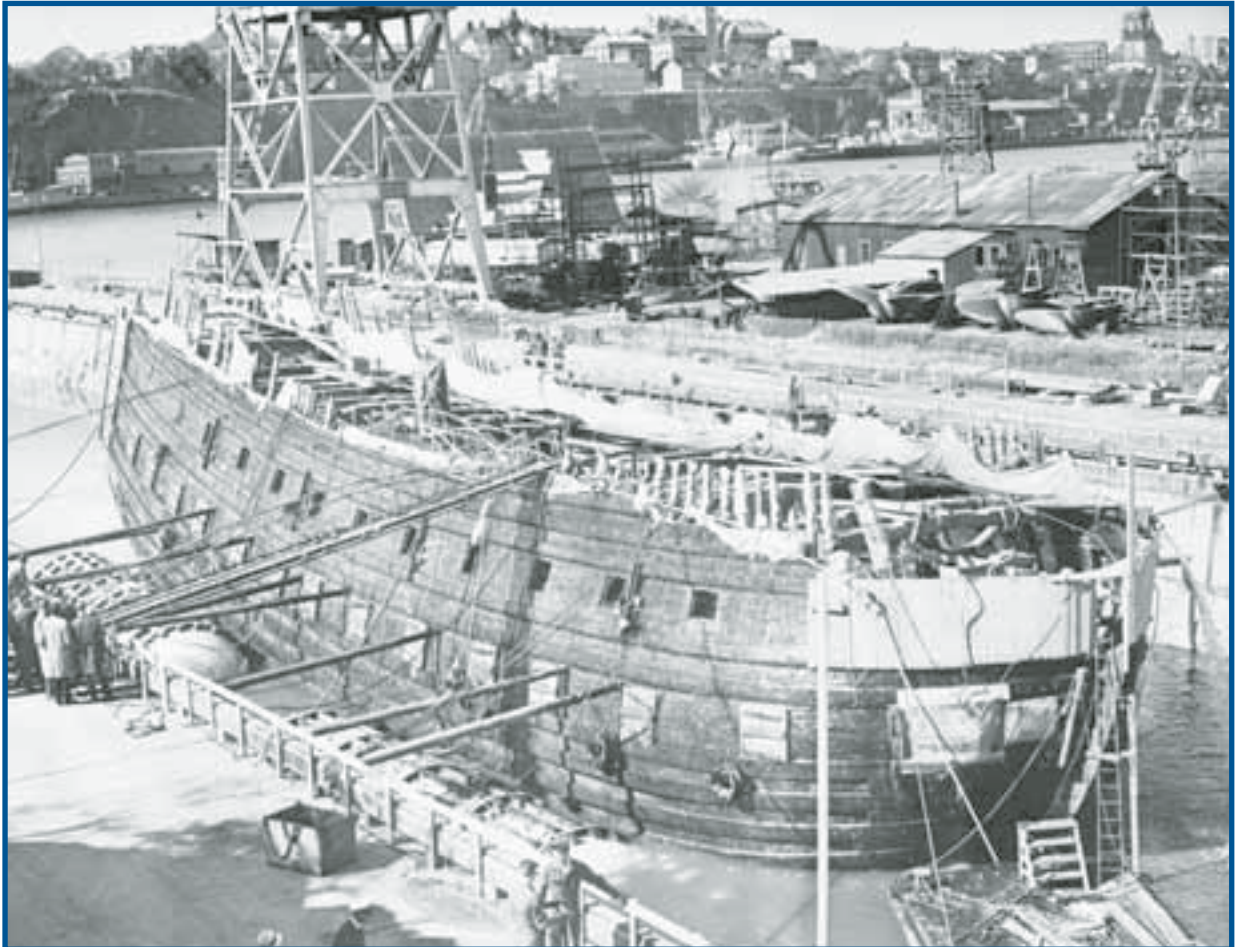
SECTION 2

Section Focus Transparency

Did we skip a step?

Chapter 1

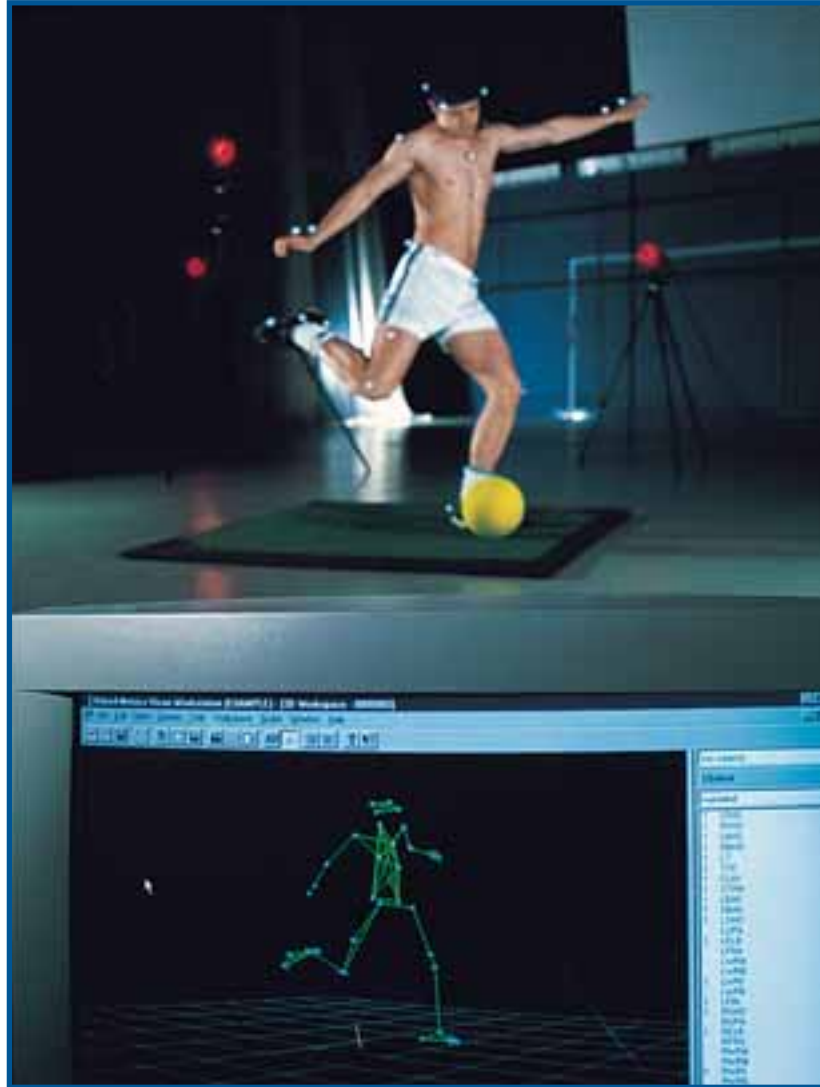
These are the remains of the *Vasa*, the largest warship of its time. Due to improper testing, it sank on its maiden voyage in 1625. In 1961, the ship was salvaged and a museum built to house it.



1. Prior to the *Vasa*'s maiden voyage an admiral ordered a test for stability. The ship failed the test, but the admiral kept the result a secret. What would a scientist have done with this result?
2. How could you test a new ship design without actually building the ship?

SECTION
3**Section Focus**
Transparency**Connect the Dots****Chapter**
1

Scientists often need help to visualize and understand everyday events. In the example below, scientists are using a computer to view and analyze movement.



1. How might this type of computer program be used?
2. What activity or movement would you be interested in seeing on a computer like this?

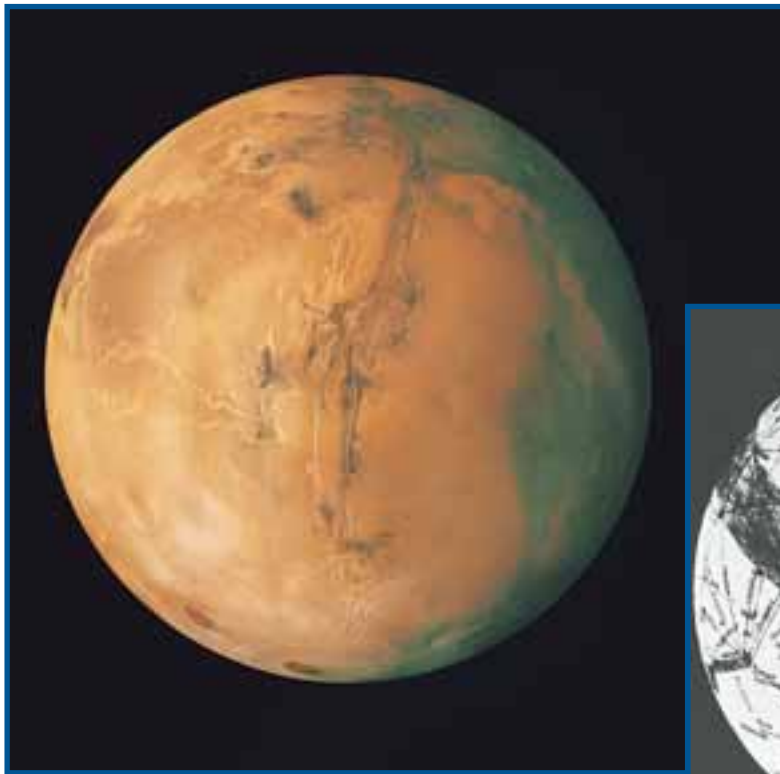
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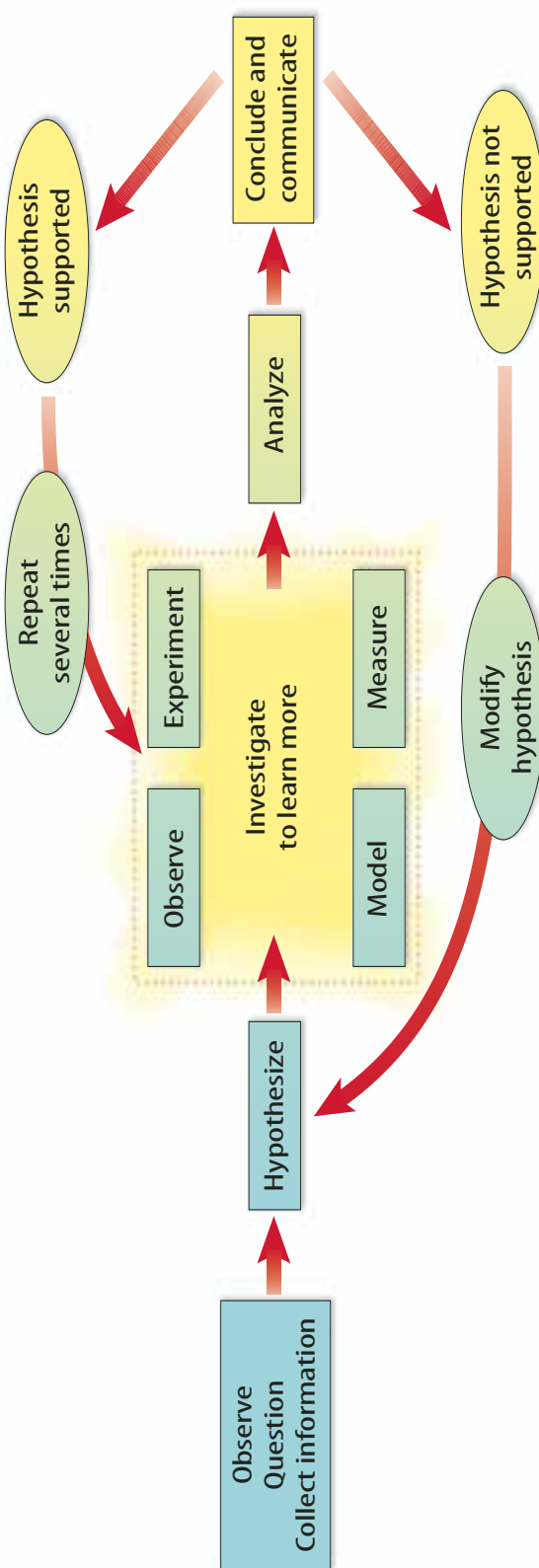
A View of Mars

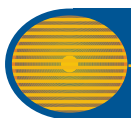
Chapter
1

In 1895, Percival Lowell began a series of observations of Mars. He claimed to see a vast system of canals that transported water from the melting polar ice caps to Martian cities. His books on the subject fascinated the public and made him famous. Scientists, however, eventually proved that the canals and the cities were figments of Lowell's imagination.

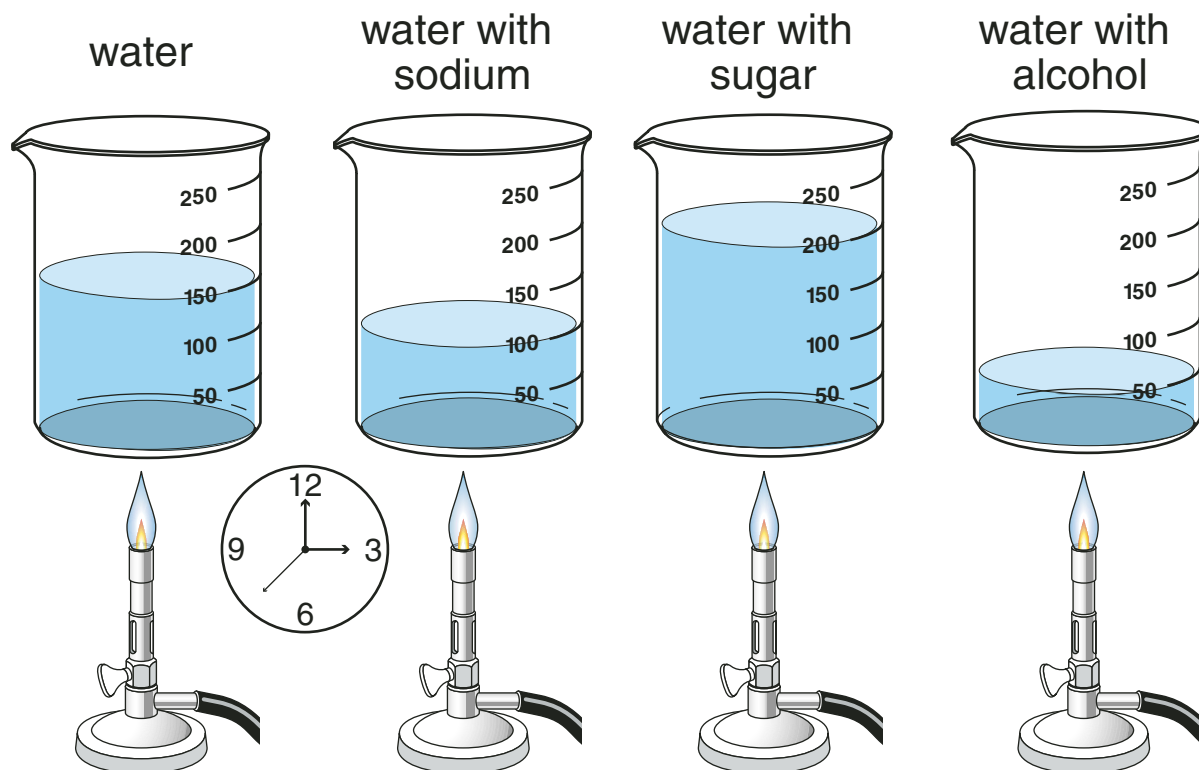


1. Can you see any features in the photograph of Mars that might be canals or cities?
2. How might two people looking at the same image of Mars reach different conclusions?





Directions: Carefully review the diagram and answer the following questions.



1. Which of these questions might the experiment best answer?
 - A What is the boiling point of water?
 - B What effect do solvents in water have upon the time it takes for each solution to boil?
 - C How much sodium chloride can completely dissolve in room temperature water?
 - D What is the density of water when it boils?
2. This experiment would give more accurate results if _____.
 - F each container of water was boiled one at a time
 - G greater amounts of each solvent were added to the containers
 - H the amount of water in each container were equal
 - J a fifth container with a different solvent were added

SECTION
1**Section Focus**
Transparency**On the Move****Chapter**
2

Sometimes animals migrate in response to seasonal changes. Snow geese, like those shown below, migrate from Greenland and the Canadian Arctic to New Jersey and the Carolinas.



1. What time of year do you think this picture was taken? What seasonal changes occur at this time?
2. What is summer like in your area? What is winter like?
3. How does the light reaching Earth change between sunrise and sunset?

SECTION 2

Section Focus Transparency

A Really Big Belt

Chapter 2

Planets aren't the only things in our solar system; asteroids also orbit the Sun. Most of these asteroids are in an area between Mars and Jupiter called the asteroid belt. This photo shows an asteroid named Gaspra (Asteroid 951). The image was made by the Galileo space probe.



1. Describe Gaspra's shape.
2. Judging from the picture, what do you think asteroids are made of?
3. Name some objects that orbit the Sun. Name some objects that orbit Earth.

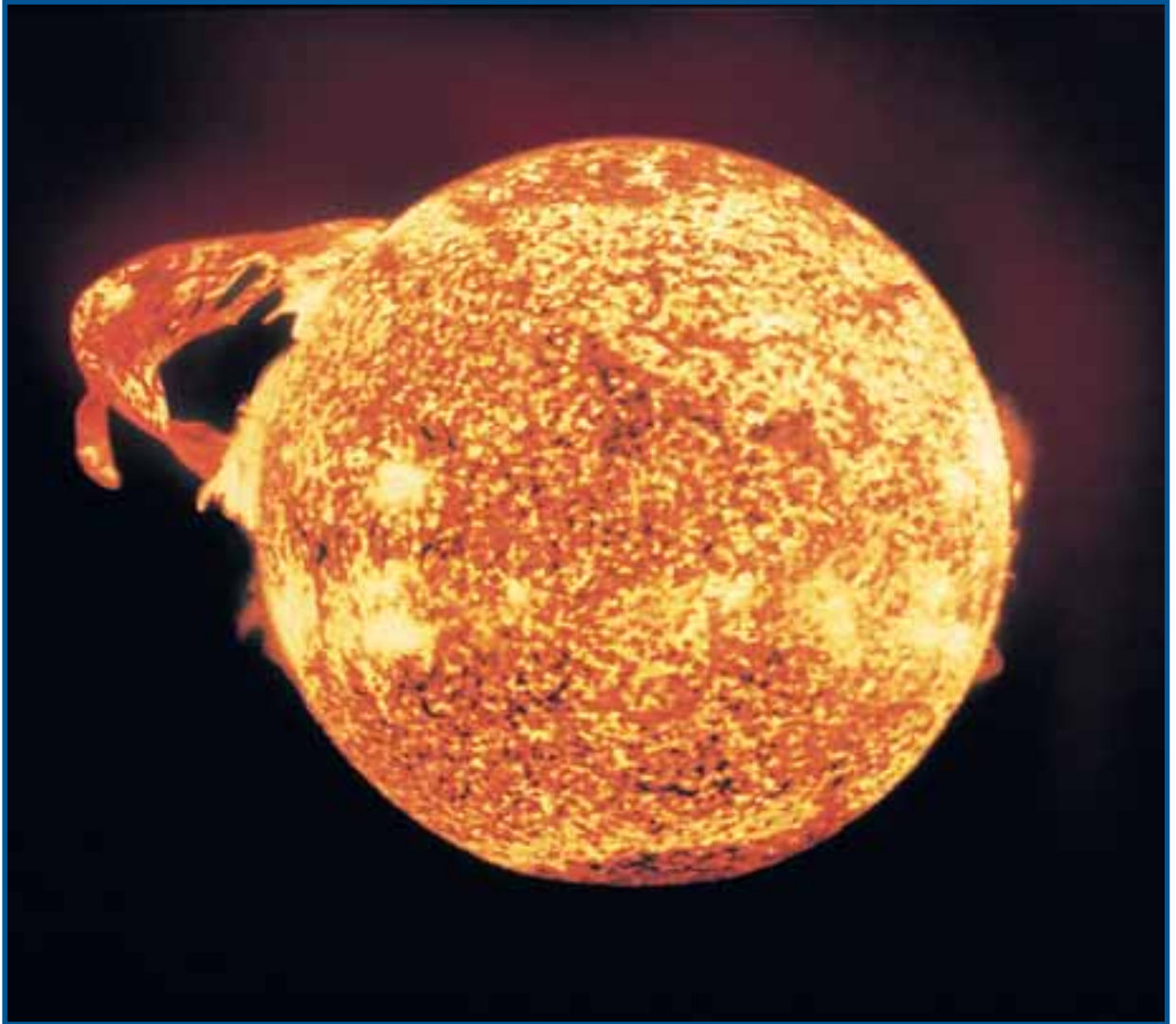
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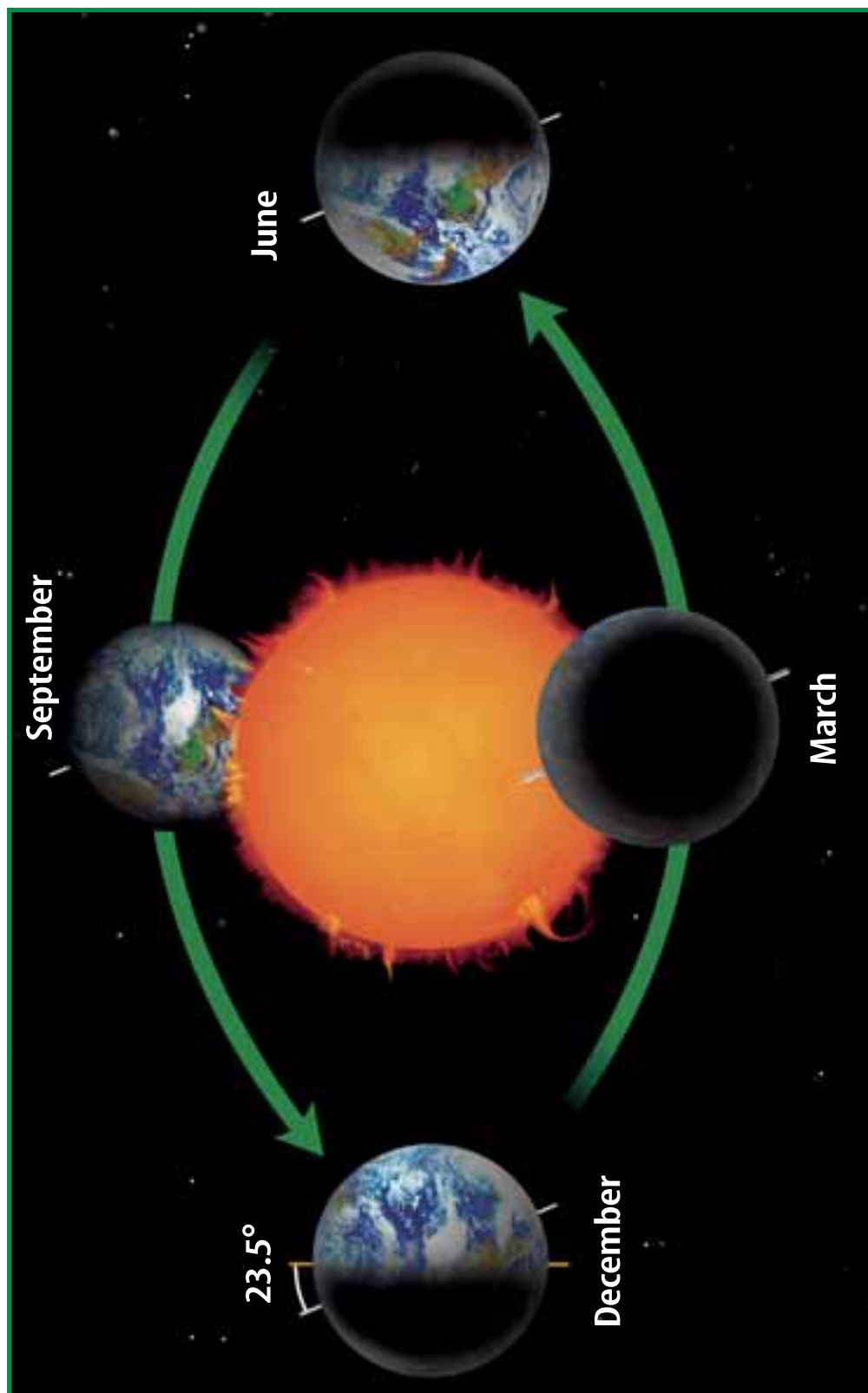
Fiery Sun

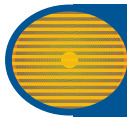
Chapter
2

The star nearest Earth is our very own Sun. Scientists think the Sun is about 4.6 billion years old and that it will continue to shine for another five billion years or so. As far as stars go, the Sun is medium-sized.



1. What would our Sun look like from a distant galaxy?
2. How do people group stars in the night sky?
3. Why do some stars appear brighter than others?





Directions: Carefully review the table and answer the following questions.

Inner Planets			
Planet	Diameter (km)	Distance from Sun (AU)	Temperature (°C)
Mercury	4,875	0.39	-170 to 450
Venus	12,104	0.72	470
Earth	12,756	1.00	-50 to 55
Mars	6,794	1.52	-170 to 27

1. According to the table, the inner planet with the largest diameter is ____.
A Mercury
B Venus
C Earth
D Mars
2. According to this information, which planet is closest to the Sun?
F Mercury
G Venus
H Earth
J Mars
3. According to the table, a space probe sitting on an inner planet with a temperature of 470°C is probably on ____.
A Mercury
B Venus
C Earth
D Mars

SECTION
1**Section Focus**
Transparency**Cosmic Impact****Chapter**
3

You might think you have to live on the Moon to find a large impact crater such as the one in this photo. Not so. This impact crater in Australia is one of the world's largest. However, unlike the Moon where impact craters are quite common, impact craters on Earth are pretty rare.



1. What does a meteor shower look like? What do you think is happening in a meteor shower?
2. Why is the surface of the Moon struck by objects from space so much more frequently than the surface of Earth?
3. What effect do you think the impact of the meteorite shown above had on the atmosphere?

SECTION 2

Section Focus Transparency

Full of Hot Air

Chapter

3

Ready for a hot air balloon ride? First, the hot air balloon must be spread out on the ground. Second, the pilot must fill it with hot air. Then, the hot air balloon will rise. Finally, it's up, up, and away!



1. Why does a balloon filled with hot air rise?
2. How do you think a pilot controls the altitude of a hot air balloon?
3. What atmosphere conditions might affect the flight of a hot air balloon?

SECTION
3**Section Focus**
Transparency**The Growth of a Mountain****Chapter**
3

Did you know that Mount Everest, the world's highest point, is two meters higher than previously thought? Researchers on a 1999 expedition sponsored by the National Geographic Society used sophisticated satellite equipment to measure the peak's height. They found the elevation to be 8,850 m (29,035 feet), instead of 8,848 m (29,028 feet)—a measurement that had been accepted since 1954.



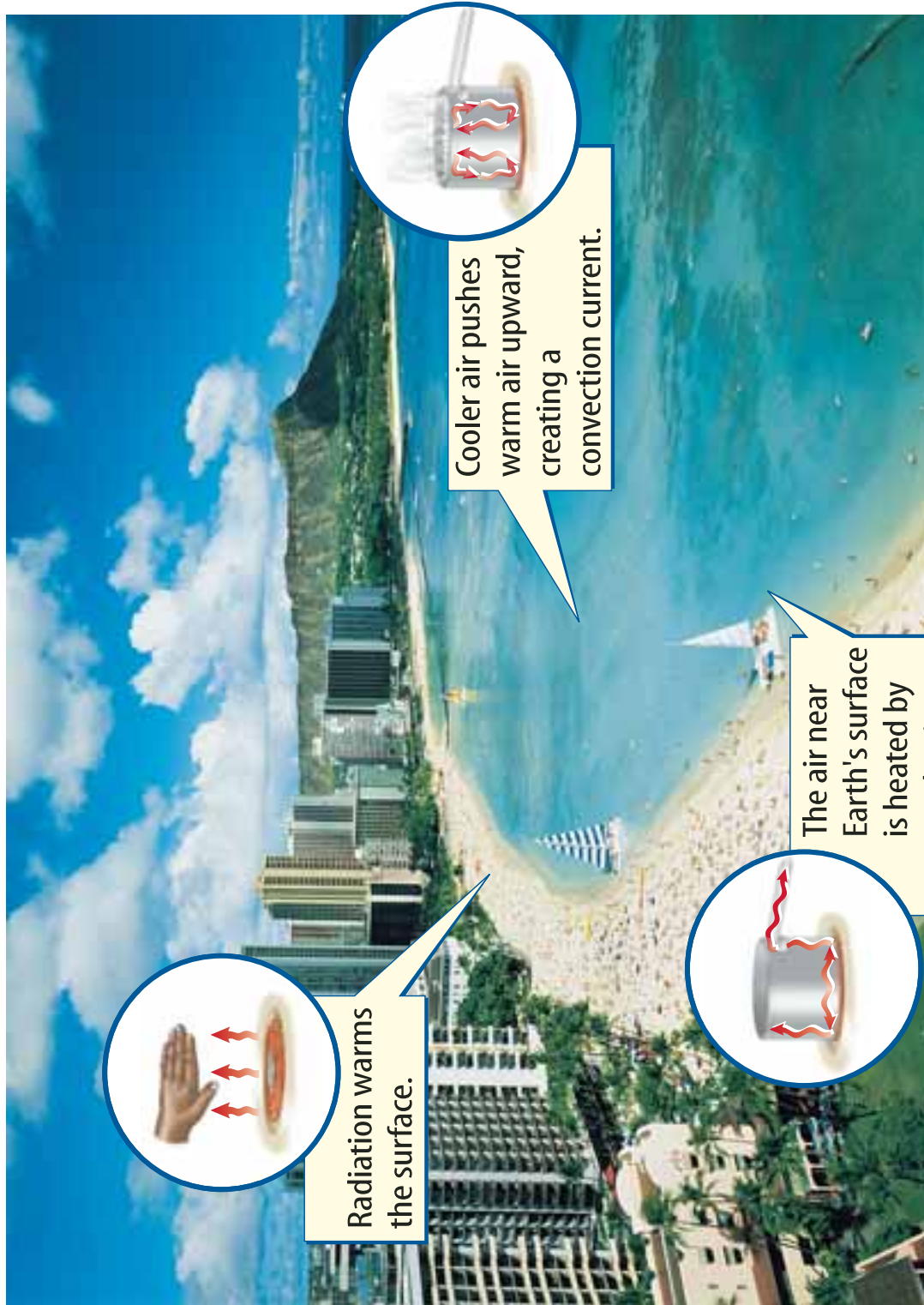
1. In general, what do you think conditions are like at the top of Mount Everest compared to the base?
2. What causes the plume coming off the summit of Mount Everest?
3. How do winds affect air travel?

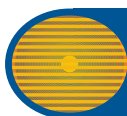
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Teaching
Transparency

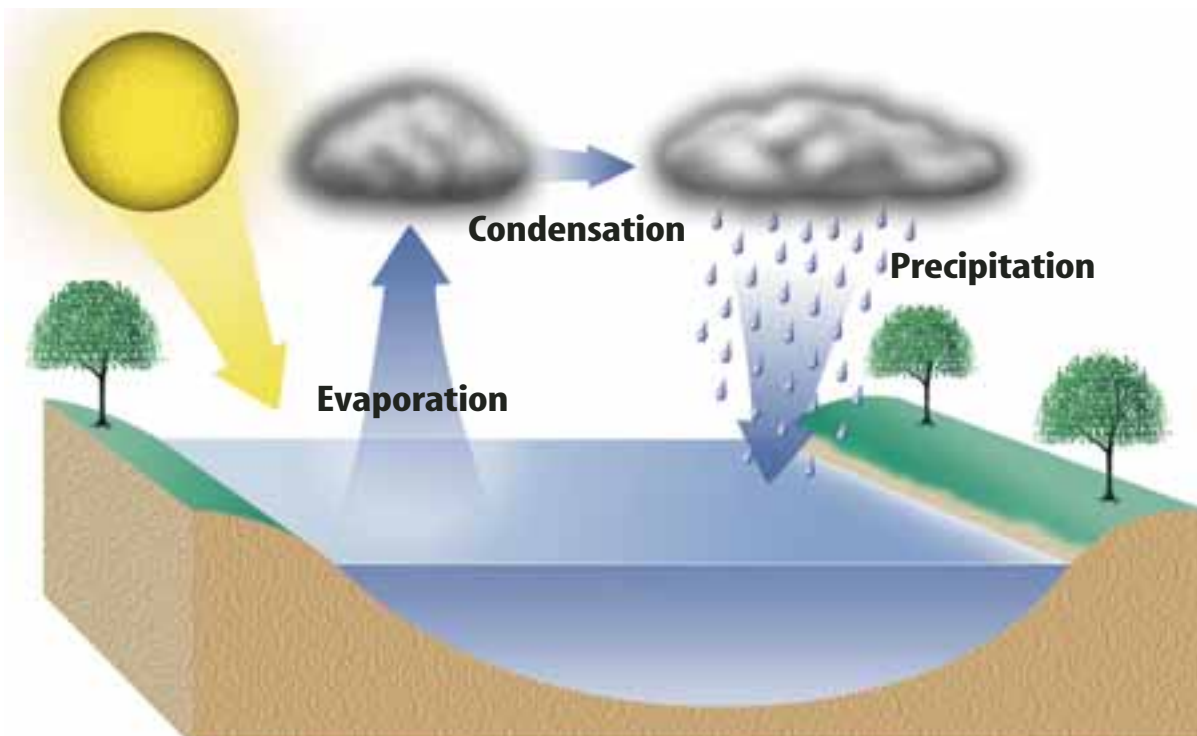
Heat Transfer

Chapter
3





Directions: Carefully review the diagram and answer the following questions.



1. The water in the lake evaporated in response to ____.
A the Sun
B the wind
C the clouds
D precipitation
2. Which of these facts best explains why water vapor condenses back into water drops?
F Sunlight heats the water, causing it to turn into vapor.
G Water vapor rises into the air and then cools again, forming clouds.
H Rain falls back onto the ground from the clouds.
J The water cycle needs the Sun.
3. Many types of chemicals are dumped into lakes and rivers from large factories. This practice could affect the environment by ____.
A decreasing the amount of rain
B decreasing the water level in lakes
C increasing the temperature of the air
D increasing the amount of pollution in rain

SECTION
1

Section Focus
Transparency

Valley Mist

Chapter

4

This Chinese painting depicts a mountain and valley scene. Mountains with fog hanging in the valleys are common elements in this style of painting.



1. What do you think the weather in this picture is like?
2. Describe how fog or mist feels.
3. How are fog and clouds similar?

SECTION
2**Section Focus**
Transparency**Cloud Walking****Chapter**
4

If you've ever hiked up a mountain, you may have noticed that it is often cooler at higher elevations. Sometimes, however, the air at the top of a mountain is noticeably warmer than the air at the bottom. The warm air traps the colder surface air.



1. How can you tell that there is not a lot of air movement in this picture?
2. What will happen when the Sun warms the lower air?
3. What would happen if there were pollutants near the ground?

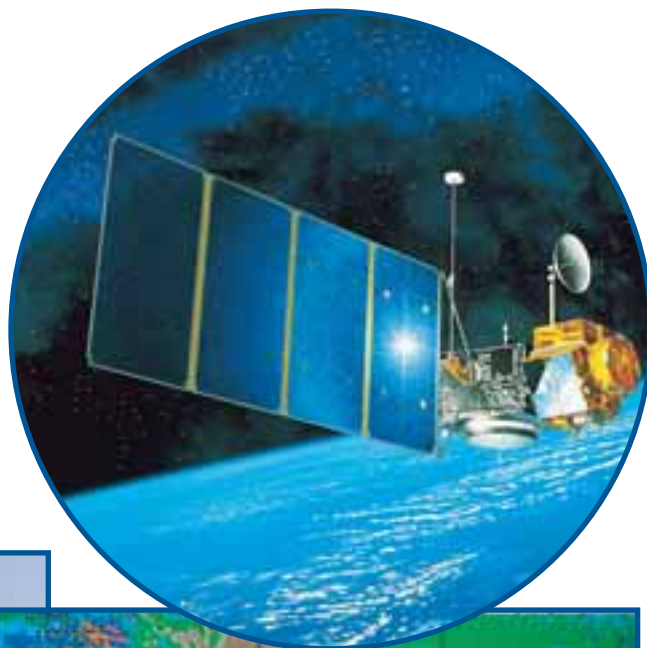
SECTION 3

Section Focus Transparency

Whither wanders the weather?

Chapter 4

For many people, knowing what the weather will be like is important. Farmers schedule planting, irrigation, or harvesting based on weather conditions. Weather can change travel schedules or even make travel unsafe. Many people like to know whether they should carry an umbrella.



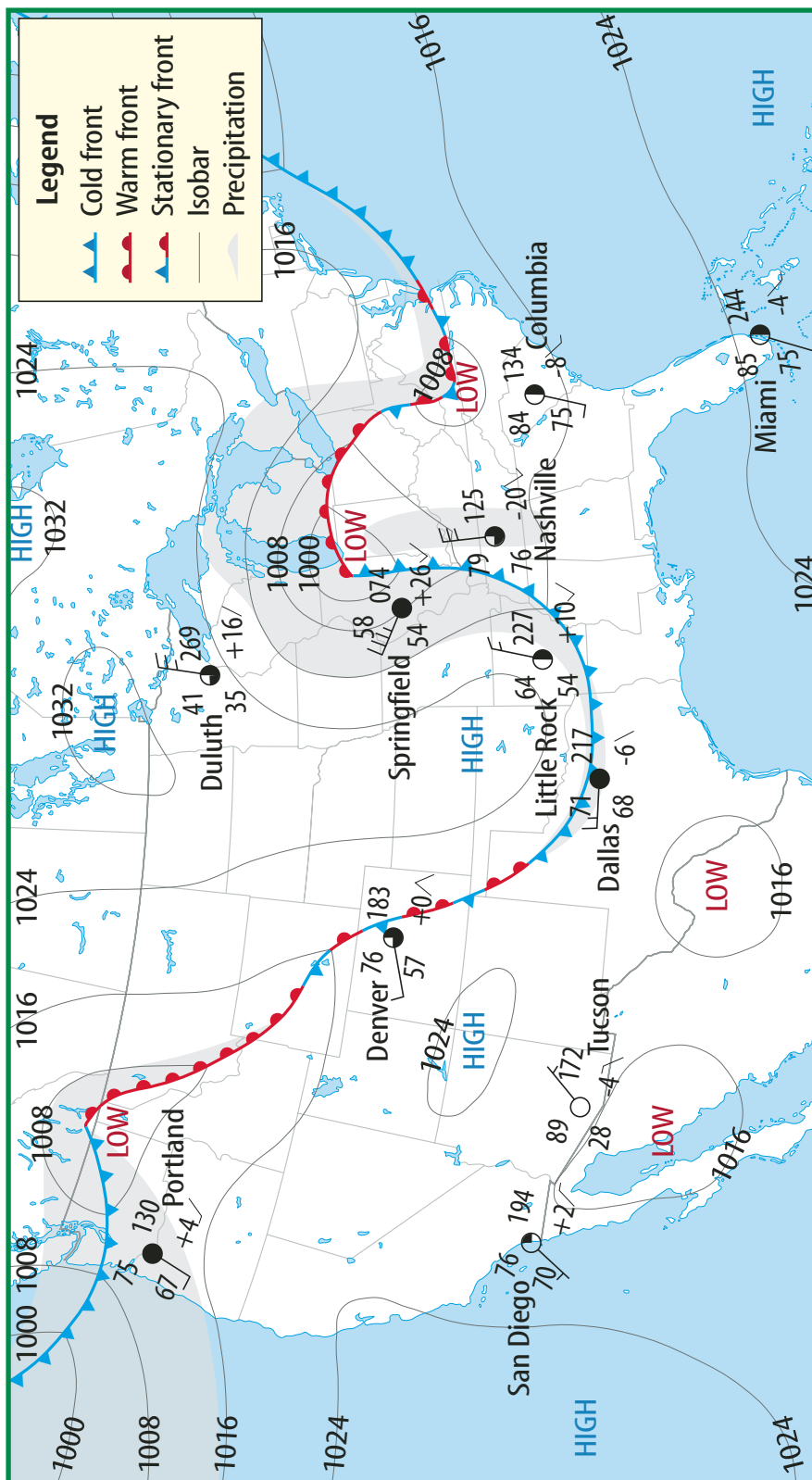
1. Which of these items would you use if you wanted to know how much snow fell last night? Which item displays the path of a storm?
2. How has weather prediction changed in the last century?

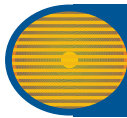
SECTION 3

Teaching Transparency

Weather Map

Chapter 4





Directions: Carefully review the table and answer the following questions.

Three Main Cloud Shapes			
Name	Height	Shape	Type of weather
Stratus	low	smooth layers	fair weather or precipitation
Cumulus	mid-high	puffy masses	fair weather or thunderstorms
Cirrus	high	feathery or curly	fair weather

- The table provides information about the ____.
A discovery of clouds **C** color of clouds
B shape of clouds **D** approximate weight of clouds
- According to the table, which types of clouds occur when it is raining?
F Cirrus and Cumulus **H** Stratus and Cirrus
G Stratus and Cumulus **J** Cirrus only
- Tony and Brian noticed that there seemed to be more cumulus clouds in the afternoon than in the morning. Which of the following information should they add to the table above to **BEST** test this hypothesis?
A time of day when clouds are seen
B how many clouds appear in the sky
C the direction the clouds moved
D which season generally has the most clouds

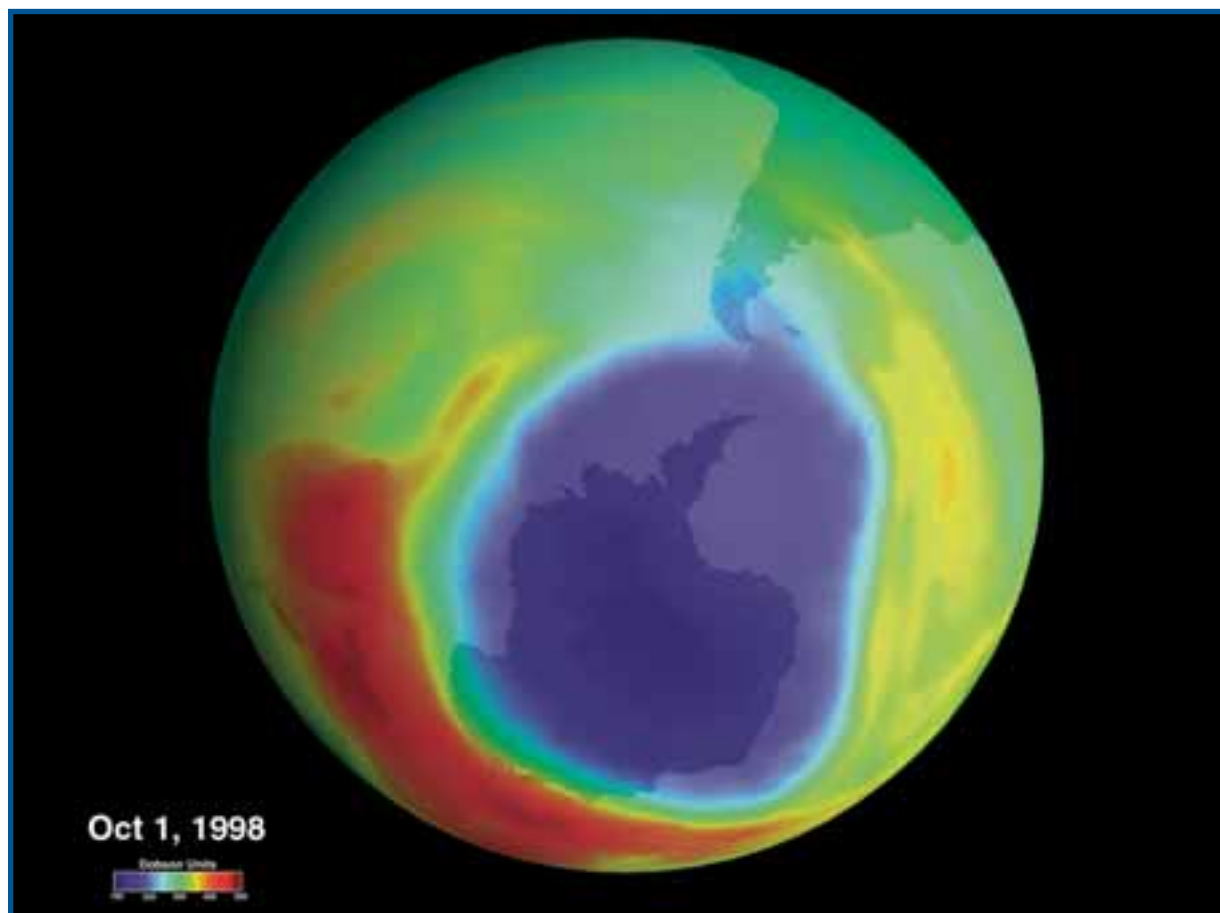
SECTION
1

Section Focus
Transparency

Ozone Layer (Or Lack Thereof)

Chapter
5

This image of Earth was made in October 1998. It shows the recurrence of a hole in the ozone layer. This hole results from pollutants released into Earth's atmosphere. The image was made in such a way that the places that are low in ozone are colored purple.



1. What is air pollution? What are some common sources of air pollution?
2. Why does having a hole in the ozone pose a threat?
3. Which two continents are recognizable on the image?

SECTION
2**Section Focus**
Transparency**The Yolk's On Us****Chapter**
5

It's easy to imagine air pollution outside, but air pollution can occur inside, too. These eggs show how even one month of humid, acidic conditions can damage a surface. After a few more days in the "polluted" air, one egg crumbled.



1. Which egg was stored in a humid, acidic environment? Which egg was stored in an ideal environment? Explain your answers.
2. How does air pollution affect living things? Give some examples.
3. Why would an art museum curator be concerned with indoor air pollution?

SECTION 3

Section Focus Transparency

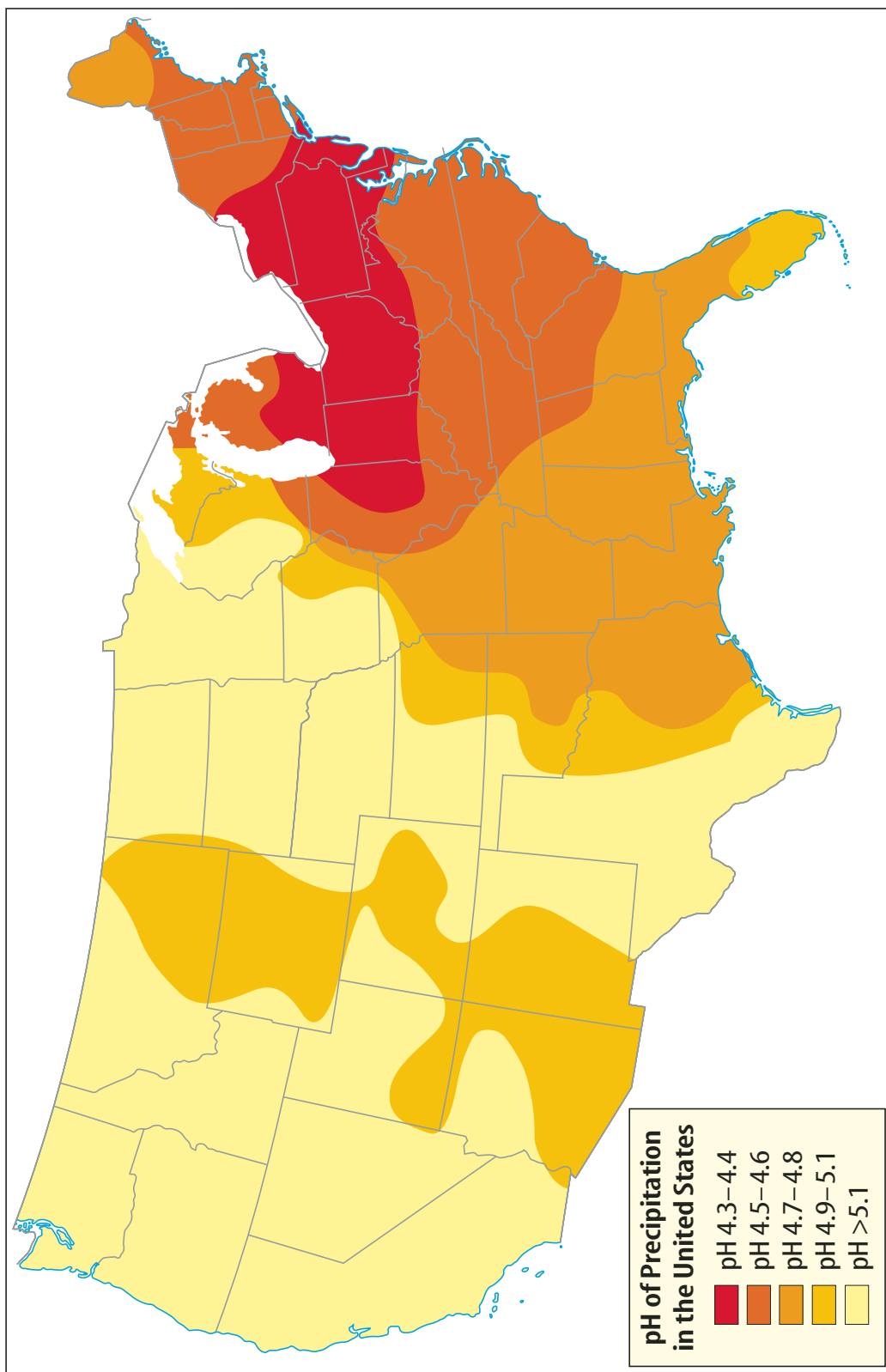
Studying Plants (So Be Quiet and Let Them Concentrate)

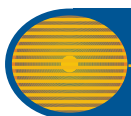
Chapter 5

Studies indicate that plants can improve the quality of air. Houseplants, like the golden pothos, remove some pollutants from the air. NASA is even studying the role of plants in life support systems for space travel.



1. Describe the exchange of molecules between a plant and the air.
2. How might plants be beneficial to astronauts?
3. Name some everyday things you can do to help control air pollution.





Directions: Carefully review the tables and answer the following questions.

Some Different Kinds of Air Pollution		
Toxin	Source	Characteristics
Carbon monoxide	Car exhaust	Poisonous at high levels
CFCs	Air conditioners, refrigerators, and aerosol sprays	Destroys ozone molecules that absorb Sun's rays
Acid rain	Sulfur dioxides and nitrogen oxides released by factories	Damages animal and plant life as well as structures
Smog	Sunlight mixing with secondary pollutants	Dangerous to breathe at high levels

1. According to the table, which type of air pollution can harm buildings?
A Carbon monoxide **C** Acid rain
B CFCs **D** Smog
2. In the 1970s and 1980s, scientists learned that CFCs destroy ozone in the upper atmosphere. CFCs in the upper atmosphere could affect the health of Earth's organisms by ____.
F increasing the number of ozone molecules
G decreasing the risk of carbon monoxide poisoning
H increasing the amount of the Sun's harmful rays that reach Earth's surface
J decreasing the amount of carbon dioxide absorbed by plants on Earth's surface

SECTION
1**Section Focus**
Transparency**Denting the Water****Chapter****6**

If you look closely at this water strider's feet, you can see that it is standing on top of the water. Water striders can stand on the surface of water without breaking through.



1. How can you tell this water strider is on top of the water, rather than floating in it?
2. What are the three different forms that water can take? Give some examples of each one in nature.
3. Does ice sink or float? What does this indicate about ice?

SECTION 2

Section Focus Transparency

Artificial Oasis

Chapter 6

This community is located in a desert. The plants and animals native to the desert can tolerate the very dry conditions. Do you think the grass you see in the photo is native to the desert?



1. What does the word *resource* mean?
2. How does this community maintain green grass in such an arid environment?
3. How do you use water during a typical day?

SECTION
3

Section Focus
Transparency

Big Drop

Chapter
6

Angel Falls are the highest waterfalls in the world. Located in Venezuela, the falls plummet 979 meters. The water that falls here makes its way to the Churún River.



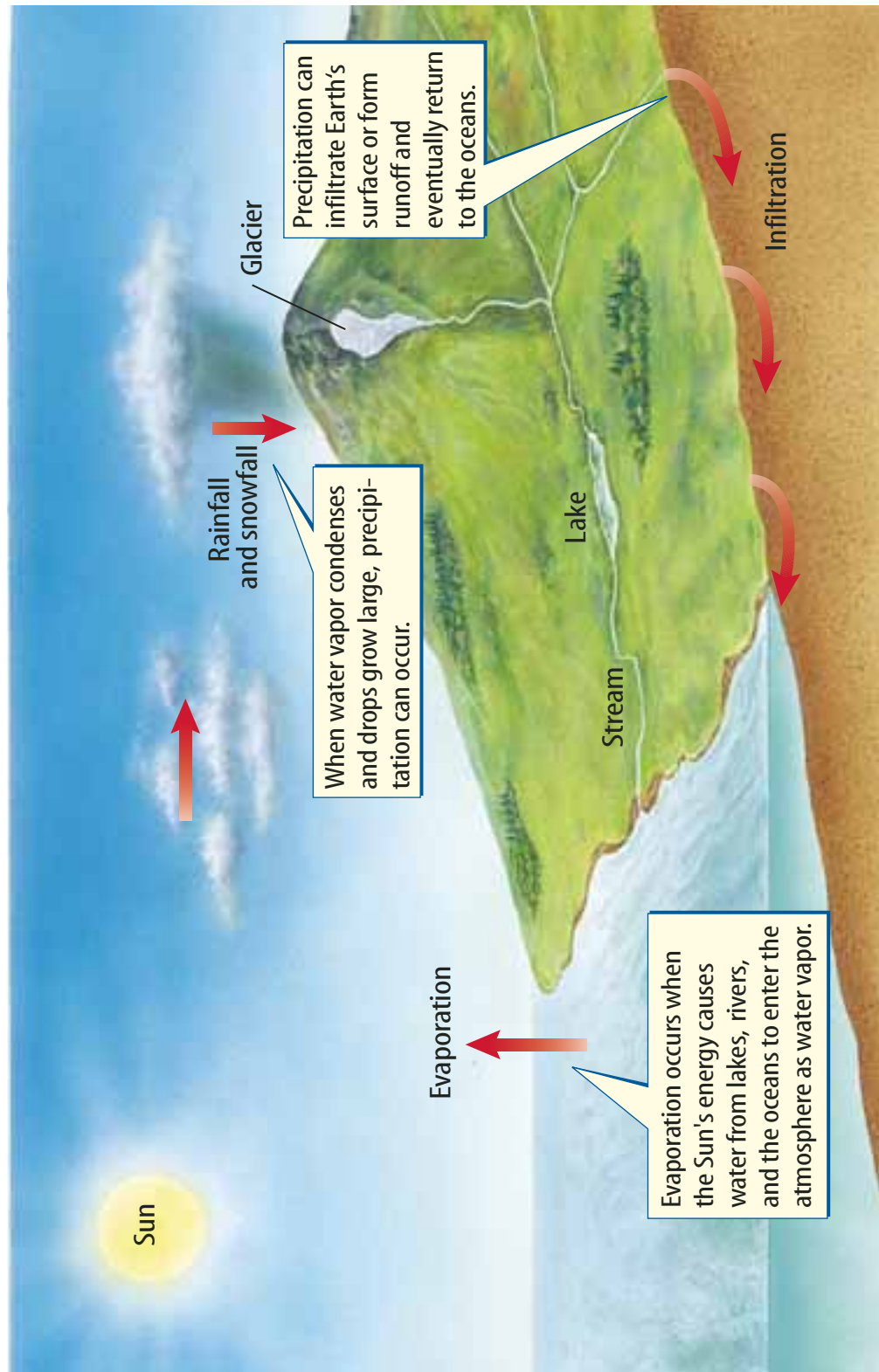
1. Is most of the water on Earth freshwater or salt water?
2. What happens to water flowing in a river? How might it end up in your drinking water?
3. How could you try to obtain freshwater in an area where there are no lakes or streams?

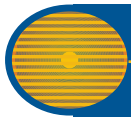
SECTION
3

Teaching
Transparency

The Water Cycle

Chapter
6





Directions: Carefully review the table and answer the following questions.

Freshwater Usage			
Country	Percent of Total Usage		
	Agricultural	Domestic	Industrial
Belgium	4.0	11.0	85.0
Denmark	43.0	30.0	27.0
Italy	59.0	14.0	27.0
Norway	8.0	20.0	72.0
Spain	62.0	12.0	26.0
United Kingdom	3.0	20.0	77.0

Source: World Resources Institute and United Nations

- According to the table, which of these countries uses the largest percentage of its freshwater on agriculture?
A Spain
B Denmark
C Italy
D United Kingdom
- According to the table, which country uses more than 25 percent of its freshwater for domestic purposes?
F Denmark
G Italy
H Norway
J Belgium
- According to the table, which country listed below is likely the most industrialized one?
A Denmark
B Spain
C United Kingdom
D Norway

SECTION
1**Section Focus**
Transparency**Livin' Life Large****Chapter**
7

What's the biggest animal that ever lived? You might be surprised to learn that it's not a dinosaur, but the blue whale. The biggest blue whales are roughly 30 meters (100 feet) long and weigh about 136,000 kilograms (150 tons).



1. How does water help support the blue whale's massive size?
2. Name two ways animals in the ocean get oxygen.
3. In what ways do humans depend on the ocean?

SECTION
2**Section Focus**
Transparency**Treacherous Current****Chapter**
7

Coursing around this peaceful island is the Maelstrøm, a swirling current caused by a combination of tide, wind, and configuration of sea floor. Running between two islands in the Norwegian Sea, the Maelstrøm poses a challenge to those who must navigate its waters.



1. What is a current?
2. How might a strong current make swimming dangerous?
3. Why do you think the Maelstrøm would be difficult to navigate?

SECTION
3**Section Focus**
Transparency**Deadly Wave****Chapter**
7

Giant waves called tsunamis are created in the oceans by earthquakes or volcanoes. Tsunamis can be over 30 m (100 feet) high and are capable of traveling long distances. This photo shows a tsunami that struck Hilo, Hawaii, in 1946.



1. What happens when you drop a rock in water?
2. What do you think causes ocean waves?
3. Why are tsunamis more dangerous than regular waves?

SECTION
4**Section Focus**
Transparency**It's Warm and There's Lots
of Sulfur!****Chapter**
7

The areas around thermal vents in the ocean floor are home to rather exotic living things. Beyond the reach of sunlight, these living communities rely on sulfur compounds, emitted by the vents, and each other in order to survive.



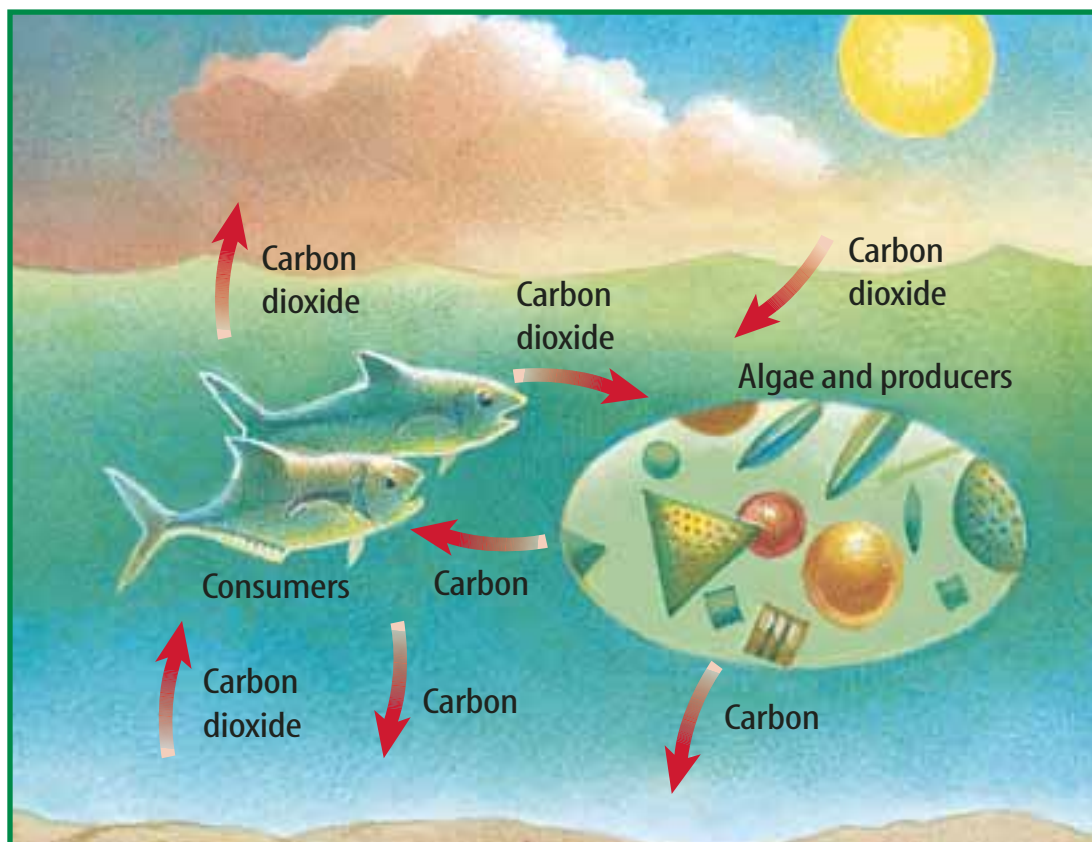
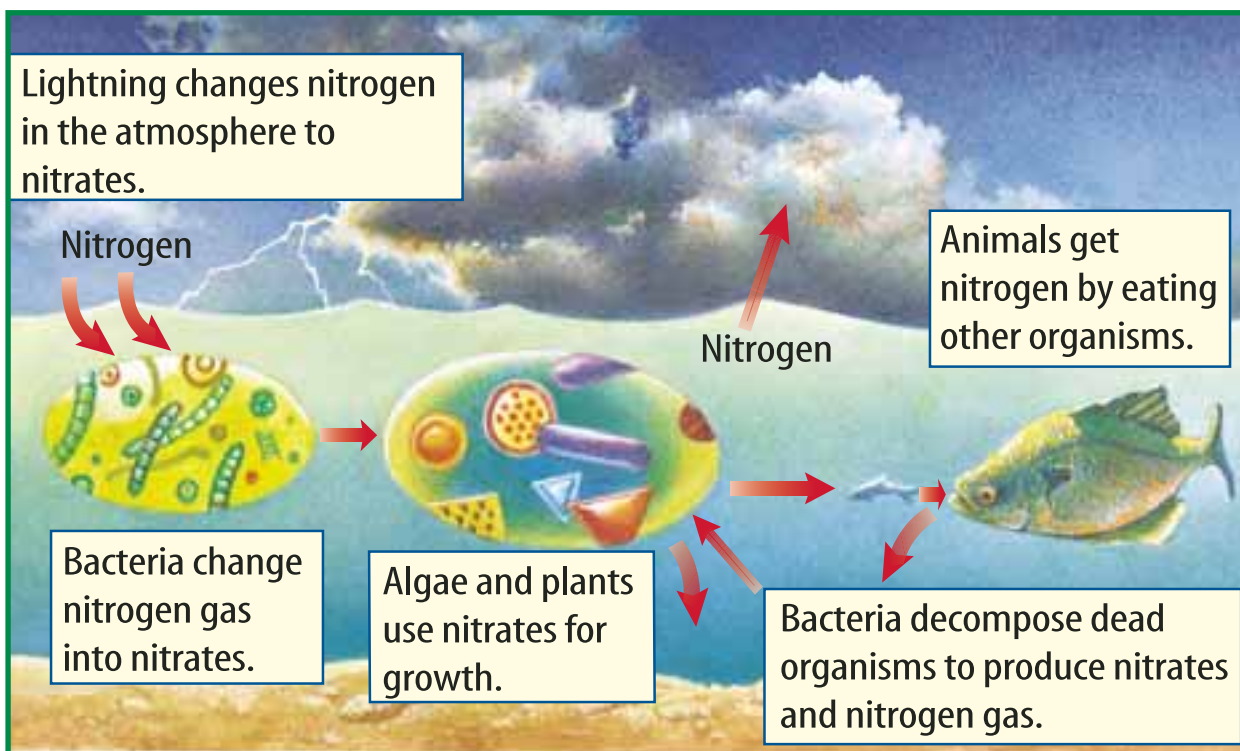
1. Why must these ocean floor communities rely on sulfur compounds for energy?
2. What does ocean life closer to the surface depend on for energy?
3. Name some ocean organisms that can make their own food. Name some organisms that eat other organisms to survive.

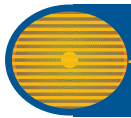
SECTION
4

Teaching
Transparency

Nitrogen Cycle/Carbon Cycle

Chapter
7





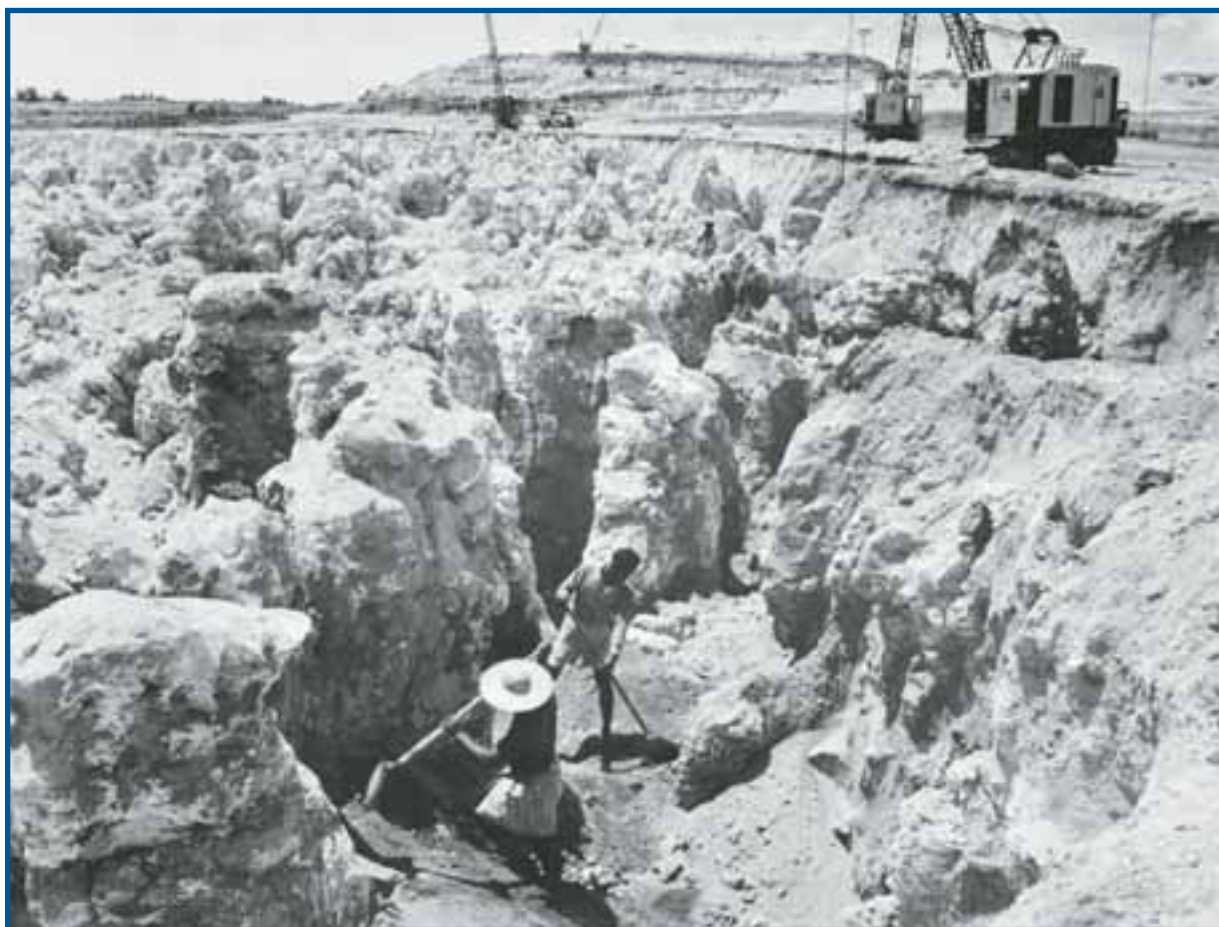
Directions: Carefully review the table and answer the following questions.

Salinity and Temperature Readings in Aquatic Ecosystems		
Water type	Temperature (°C)	Salinity (grams salt per liter of water)
Pond	17	0.03
Lake	18	0.05
River	15	0.12
Atlantic Ocean	12	34.5
Pacific Ocean	11	?

- According to the table, which type of water has a temperature less than 13 degrees Celsius?
A pond
B river
C ocean
D lake
- Using the data in the table as a guide, which of the following most closely describes the salinity of a stream?
F 0.01
G 0.10
H 10.0
J 100.0
- These data were collected by testing water samples from different sources. When the salinity of the Pacific Ocean is tested, which of these is the value most likely to go in the table?
A 34.5
B 0.34
C 0.03
D 0.01

SECTION
1**Section Focus**
Transparency**Phosphate Was Everywhere!****Chapter**
8

Nauru is a tiny island in the Pacific Ocean near Papua New Guinea. Despite its small size, Nauru is one of the richest developing nations. Its wealth, however, comes from phosphate deposits that are expected to run out early in the twenty-first century.



1. Judging from the picture, how is phosphate mined on Nauru?
2. Do you think the phosphate is ready for use as fertilizer straight from the mine? Why or why not?
3. Name some other valuable materials that are mined from Earth.

SECTION
2**Section Focus**
Transparency**Beautiful Blue****Chapter****8**

Crater Lake, in western Oregon, was formed over 6,000 years ago by volcanic processes. Subsequent eruptions and lava flows formed Wizard Island, shown below. In 1902, the region including Crater Lake (a total of 647 km²) became a national park.



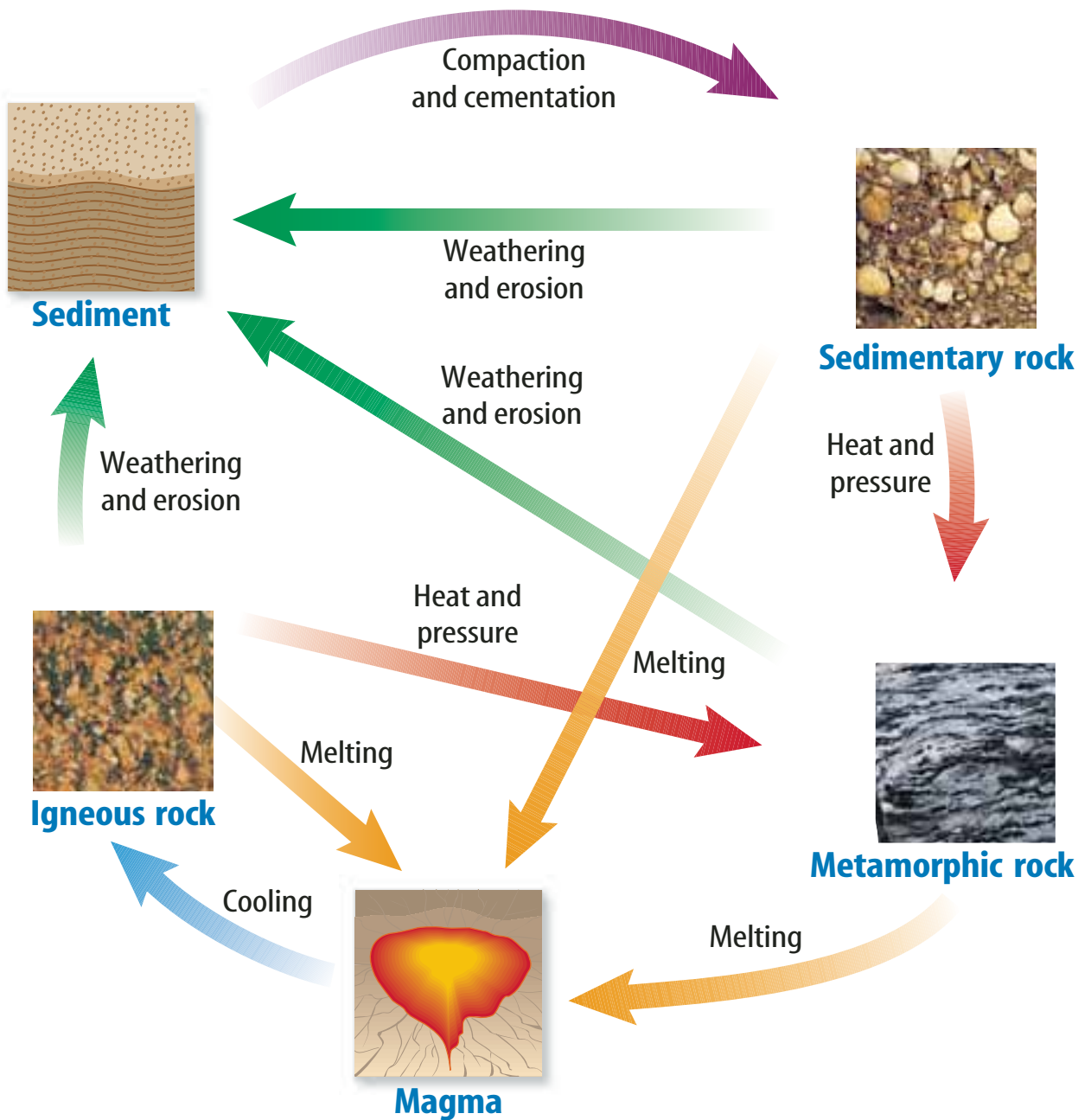
1. Given Crater Lake's origin, how do you think many of the area's rocks were formed?
2. Name some other formations resulting from volcanic activity.

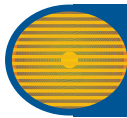
SECTION
3**Section Focus**
Transparency**Hutton's Unconformity****Chapter**
8

Geologist James Hutton felt that rocks and rock formations could be explained by processes people could observe. He hypothesized that heat, pressure, and erosion were important parts of these processes. Observations of formations like the one shown below helped Hutton arrive at these revolutionary ideas.



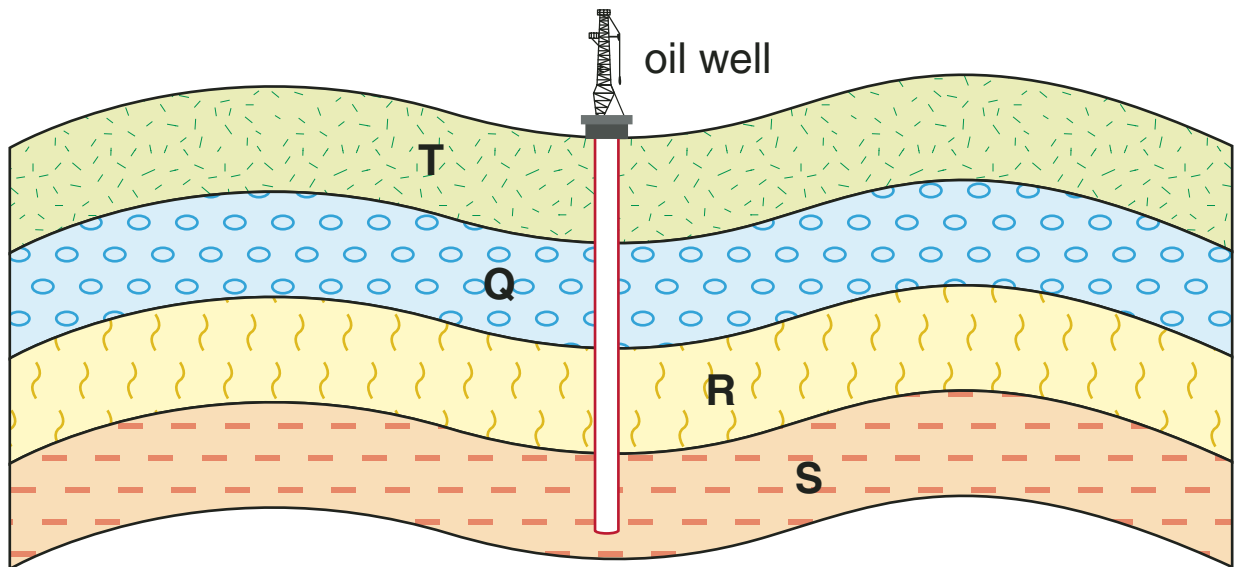
1. Describe the layers of rock in the photograph.
2. Why do you think these layers are interesting to geologists?
3. What are some processes that change rock?





Directions: Carefully review the diagram and answer the following questions.

Folded Rock Layers



- Which sequence shows the rock layers in correct order from youngest to oldest?
A R, S, T, Q
B S, Q, R, T
C Q, S, T, R
D T, Q, R, S
- Which of the following would be the correct order for a core sample from the oil well?
F T, R, Q, S
G Q, S, T, R
H S, R, Q, T
J R, S, T, Q
- The rock layers in the diagram are folded because they have been subject to extreme pressure and heat. What kind of rock is formed by high temperatures and pressures?
A sedimentary rock
B metamorphic rock
C igneous rock
D detrital rock

SECTION
1**Section Focus**
Transparency**Congregation of Plants****Chapter**
9

Plant growth can get so thick in the rainforest that it can hide an entire city. Angkor Preah Ko, a mountaintop temple in Cambodia, is being reclaimed by the rainforest through gradual processes.



1. Describe how plants are affecting the rock in this picture.
2. How might climate affect the process you described in question one?
3. Could animals have an effect on the rocks similar to that of the plants? Explain.



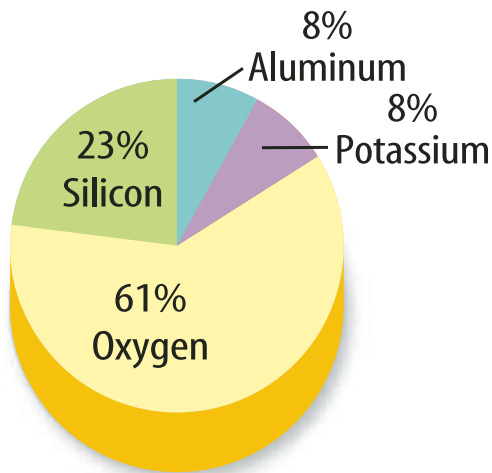


SECTION
2**Section Focus**
Transparency**Give and Take****Chapter**
9

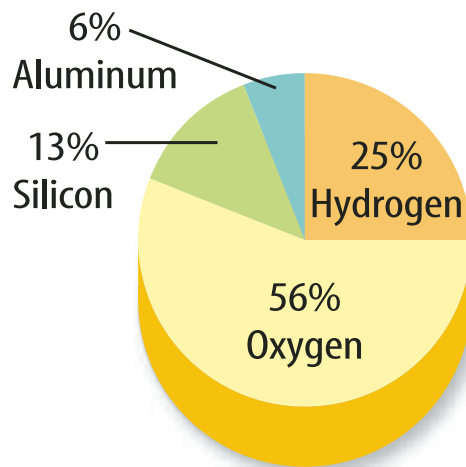
The effects of centuries of wind blasting sand particles against the surface of the Sphinx is easily seen. But wind has also helped preserve this ancient monument. For many years the Sphinx was buried by wind-blown sand, protecting it from further damage.



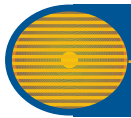
1. How has wind damaged the Sphinx?
2. What happens to particles that the wind blasts off the Sphinx?
3. How could the Sphinx be protected from further damage?



Feldspar



Kaolinite



Directions: Carefully review the table and answer the following questions.

Precipitation–Catch (mm at 990 m altitude) 1980–1986 (November–April)						
Year	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
1980	313	153	253	276	142	132
1981	100	34	280	156	237	8
1982	126	100	28	28	32	54
1983	89	165	77	78	12	60
1984	138	46	170	93	44	50
1985	32	116	181	40	189	56
1986	31	169	17	113	13	18

- According to the table, the month and year that experienced the highest amount of precipitation-catch was ____.
A April, 1980 **C** November, 1980
B January, 1980 **D** February, 1980
- According to the information in the table, all of the following years had at least one month in which the monthly precipitation-catch was greater than 180 millimeters **EXCEPT** ____.
F 1980 **G** 1981 **H** 1985 **J** 1986
- According to the information in the table, which month experienced the greatest amount of precipitation-catch?
A November **B** December **C** January **D** February

SECTION
1**Section Focus**
Transparency**City Aglow****Chapter**
10

You can't see the city in this picture, but you know it's there because of the glow coming from all the electric lights. While you're probably familiar with many forms of pollution, did you ever consider the polluting effect of light itself? Many people want to reduce the amount of light we send into the skies.



1. How might the glow from a city interfere with the observations of professional and amateur astronomers?
2. How might the production of electricity generate pollution?
3. What could you do to reduce light pollution?

SECTION
2

Section Focus
Transparency

Missing a Little Water

Chapter
10

Water flowing through a dam is an excellent source of alternative power. However, problems sometimes arise. This photograph shows a build-up of silt that has stopped the flow of water.



1. Is the dam pictured above being used for electric power? Explain.
2. What are some other energy sources that people can develop?

SECTION
3

Section Focus
Transparency

Real Slick

Chapter
10

The colorful rings in this puddle make an interesting design, but they actually show pollution from automobiles. When it rains, this gas and oil can wash off the asphalt and into the water supply.



1. Where might the gasoline that washes off the road end up?
2. Is it possible to determine exactly where this pollution came from? Explain.
3. What are some ways to help ensure a clean water supply?

SECTION
4**Section Focus**
Transparency**Island Town****Chapter**
10

This town, named El Qasr, was built around an oasis in the Egyptian desert. What do you notice about the land around the oasis? Oases are areas in a desert where plants and animals can access groundwater. In this situation, it's easy to see that arable land is a scarce resource.



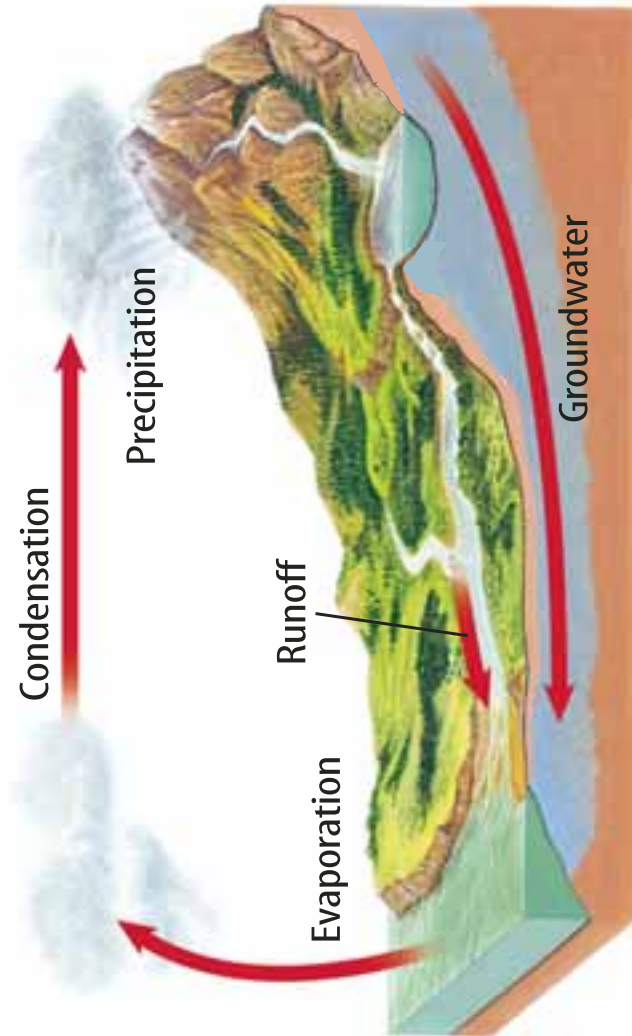
1. How is an oasis like an island?
2. How might people use land at this oasis? How do they use the surrounding desert?
3. What sorts of land conservation issues might people in the U.S. face?

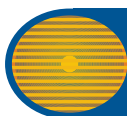
SECTION
3

Teaching
Transparency

The Water Cycle

Chapter
10



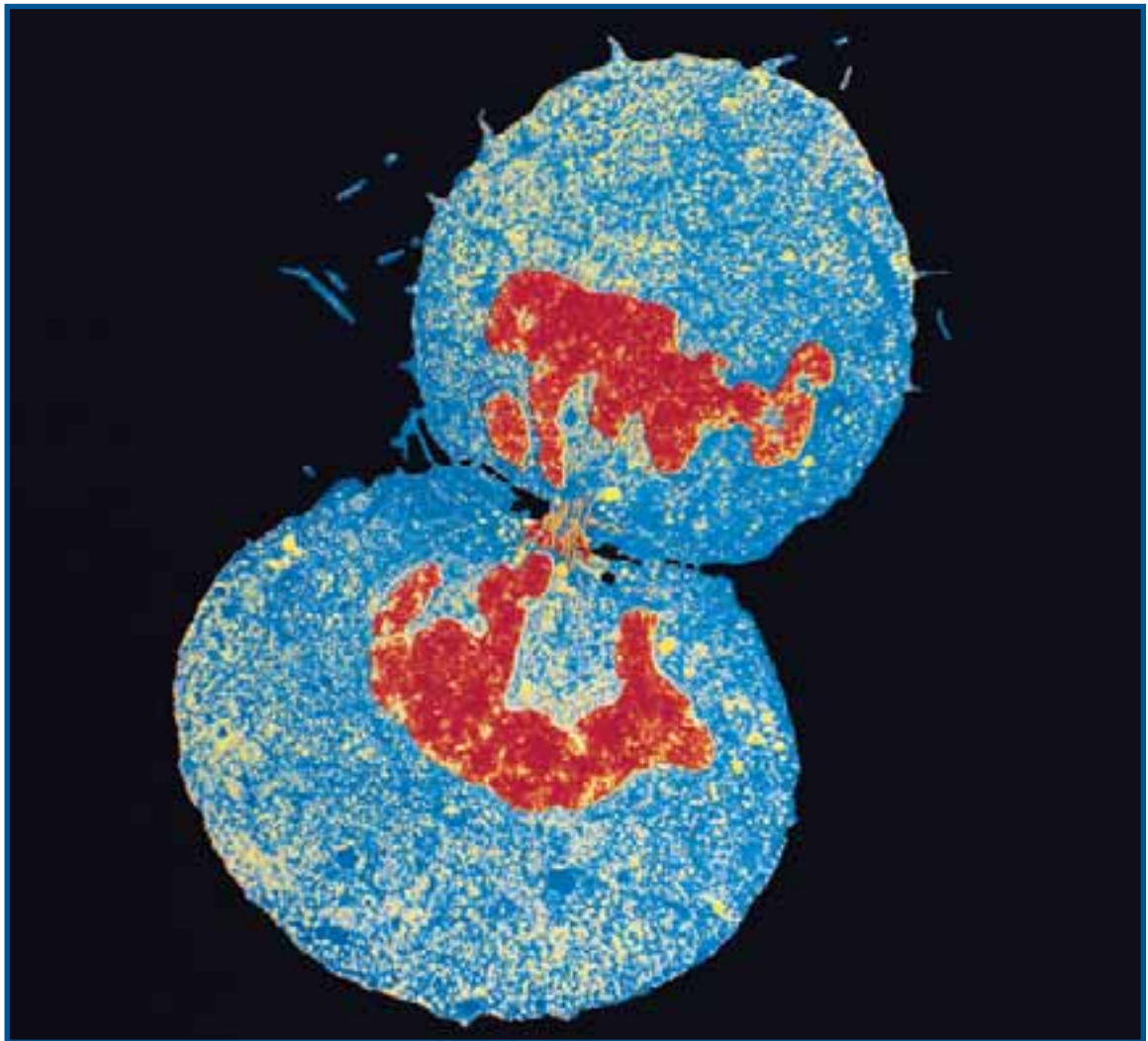


Directions: Carefully review the table and answer the following questions.

Energy Sources		
Source	Benefit	Detriment
W	Nonpolluting, could supply enough energy for the world, very abundant	Less efficient on cloudy days with present technology
X	Nonpolluting, presently supplies energy to several cities	Increased water erosion, wildlife disturbed, possible only in certain geographical locations
Y	Presently used in Iceland and California	Expensive, can release polluting gases, possible only in certain geographical areas
Z	Produces a lot of energy	Produces highly radioactive waste

- Which of the energy sources creates the most dangerous pollutants?
A W **B** X **C** Y **D** Z
- Which of the sources listed in the table is solar energy?
F W **H** Y
G X **J** Z
- Under which heading in a table of contents would the most information about energy source Z be found?
A Hydroelectric Power
B History of Geothermal Energy Across the World
C That Powerful Sun
D The Power of Uranium: Nuclear Energy

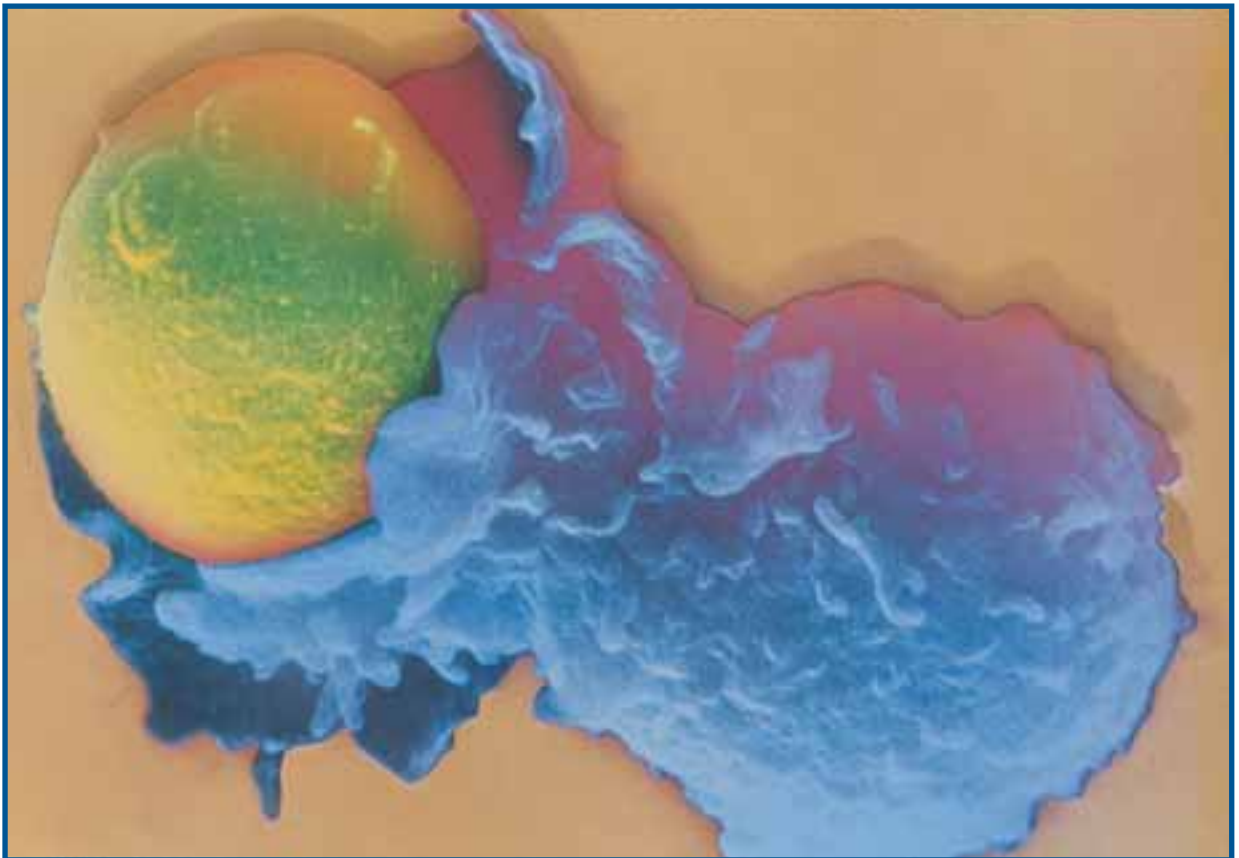
In the past, scientists thought that living organisms could come from decaying matter. Today, however, we know that living things come from other living things. Every day our bodies replace millions of cells, the most basic unit of life. Most cells reproduce themselves by dividing in two, as shown on the image below.



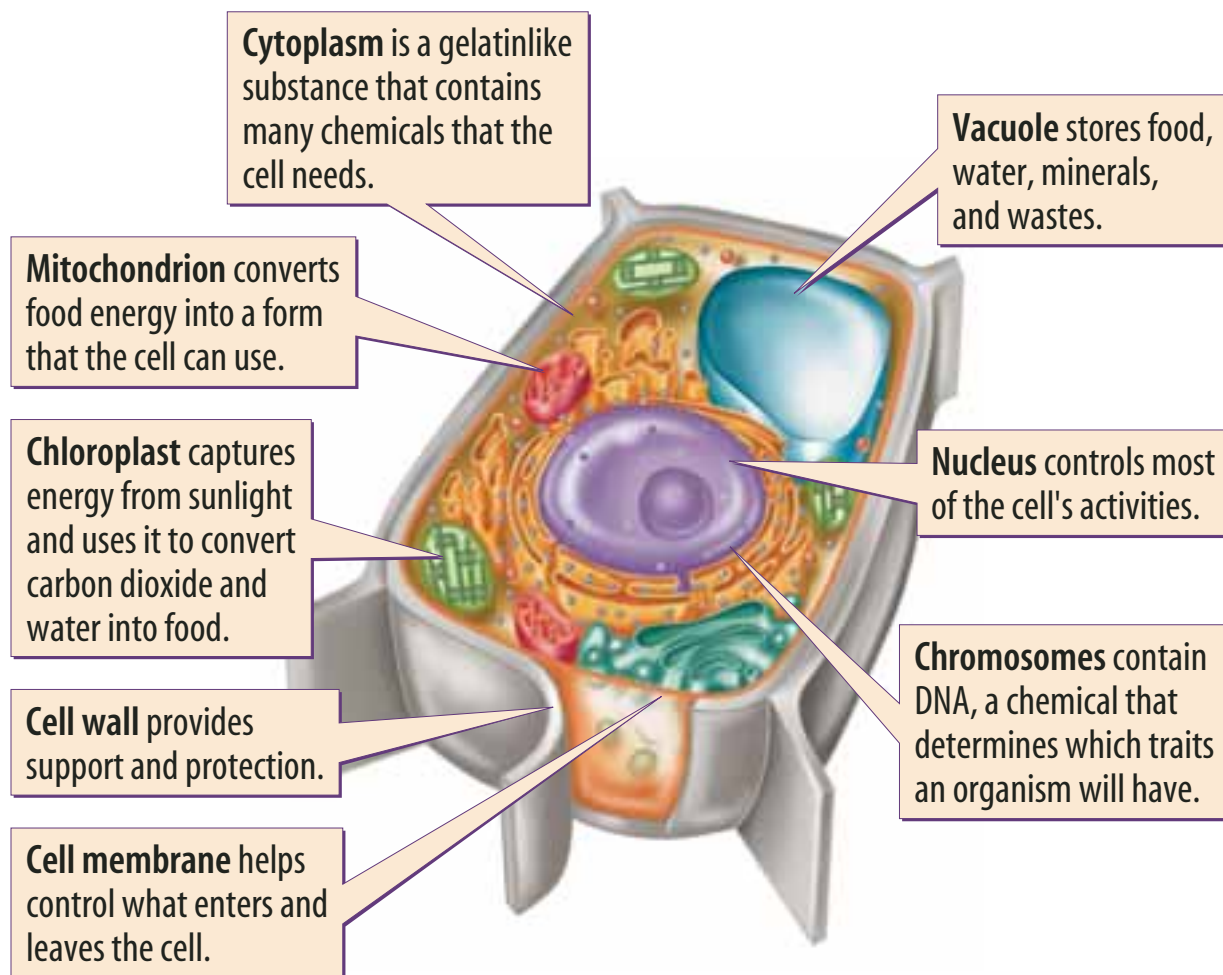
1. What instrument was necessary to make this image?
2. How many cells were there before this process started? How many will there be after this process is done?
3. Do you think all the cells within your body are the same? Explain.

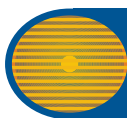
SECTION
2**Section Focus**
Transparency**Just Doing My Job****Chapter**
11

The plants and animals you see every day are made up of many cells with different jobs. For example, the cells that comprise your nervous system are able to send messages quickly to many other cells. Below you see a cell from the immune system whose job it is to eat other cells.



1. Do you think a cell from the immune system is different than a skin cell? Explain.
2. What does the immune system do?
3. Name some other organ systems.





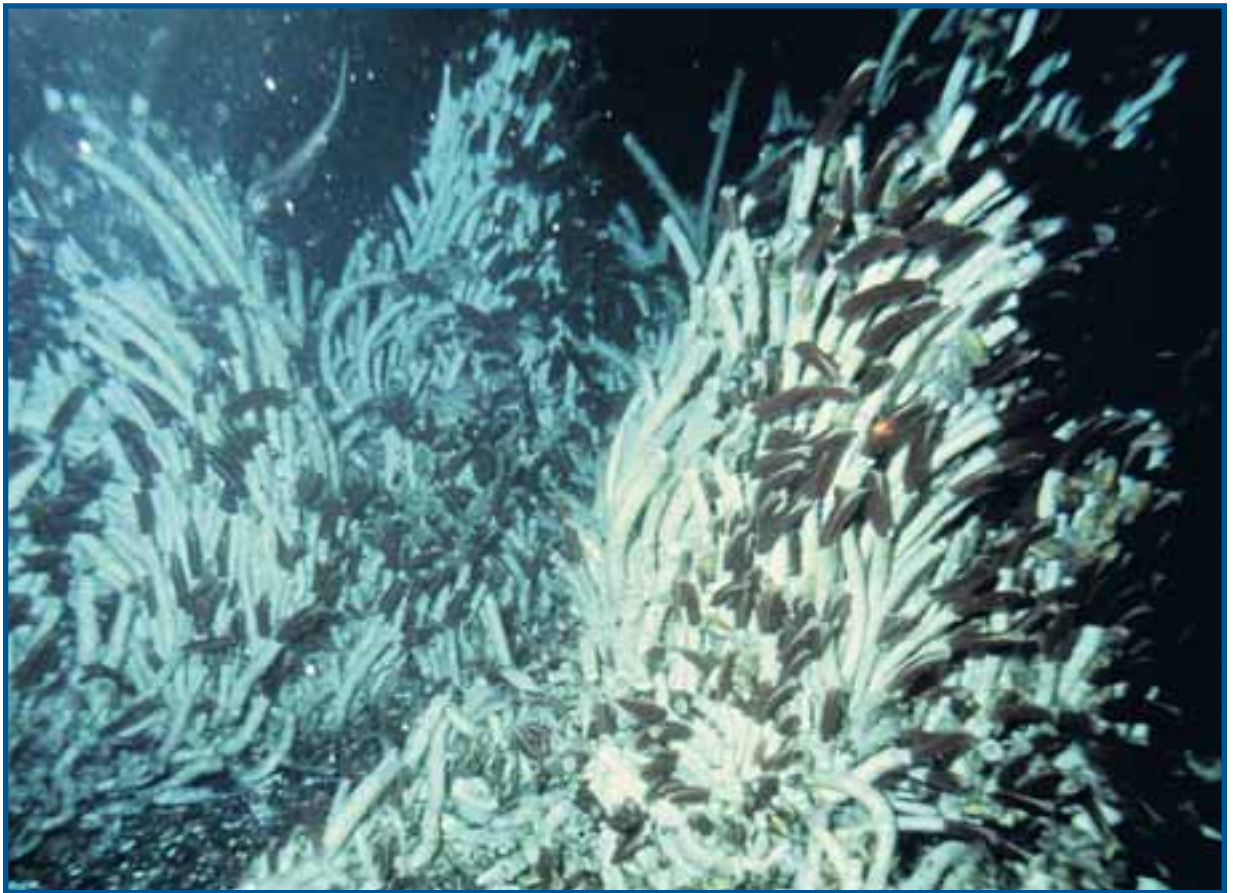
Directions: Carefully review the table and answer the following questions.

Units of Life	
Unit	Characteristics
Chromosome	Carries the code for cell characteristics
Nucleus	Directs the cell's activities
Cell	Smallest unit of an organism
Tissue	Group of similar cells doing the same sort of work
Organ	Structure made up of different types of tissues working together
?	Group of organs working together to do a job

1. According to the table, what is the smallest unit of an organism?
A Chromosome **C** Cell
B Nucleus **D** Tissue
2. According to the table, all of the following are found in a tissue **EXCEPT** a(n) ____.
F chromosome **H** cell
G nucleus **J** organ
3. What unit of life is a group of organs working together to do a job?
A Vacuole
B Organelle
C Organ System
D Mitochondrion

SECTION
1**Section Focus**
Transparency**A Worm's World****Chapter**
12

These tube worms live deep below the surface of the ocean where there is no sunlight. Existing near vents in the ocean floor, tube worms get energy from microscopic organisms in the water. The other living things around the vent directly or indirectly depend on these microscopic organisms.



1. What do you think the area where this photograph was taken is like?
2. Do the microscopic organisms around vents need light to stay alive? Explain.

SECTION
2

Section Focus
Transparency

Spring into Action

Chapter
12

Tiny organisms like these *Vorticella* abound in ponds. Each one-celled creature lives its life attached by its stalk to a convenient surface, like a rock. Its only movement is the springing of its coiled stalk.



1. Do you think you could see a *Vorticella* without a microscope? Why or why not?
2. Tiny hairs surround the opening of *Vorticella*'s cuplike top. What purpose might they serve?
3. How does this organism react when it's threatened?

SECTION
3**Section Focus**
Transparency**Snuffle for a Truffle****Chapter**
12

Using a technique that originated in France, people have trained their domestic pigs to root out flavorful truffles, shown below. The pigs have very poor eyesight, but they can smell the truffles, which may grow 6 cm below the surface of the ground. The pig is usually led on a leash and rewarded with some other food as the prized truffles are carefully collected.



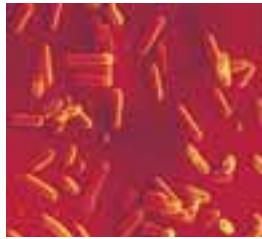
1. What food that you have seen, or maybe eaten, do truffles resemble?
2. If the truffles grow below ground, do you think that they require sunlight to live? Explain your answer.
3. Why are truffles not classified as plants?

SECTION
1

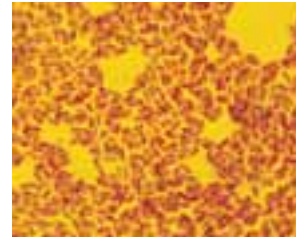
Teaching
Transparency

Bacteria

Chapter
12



Salmonella



Citrobacter



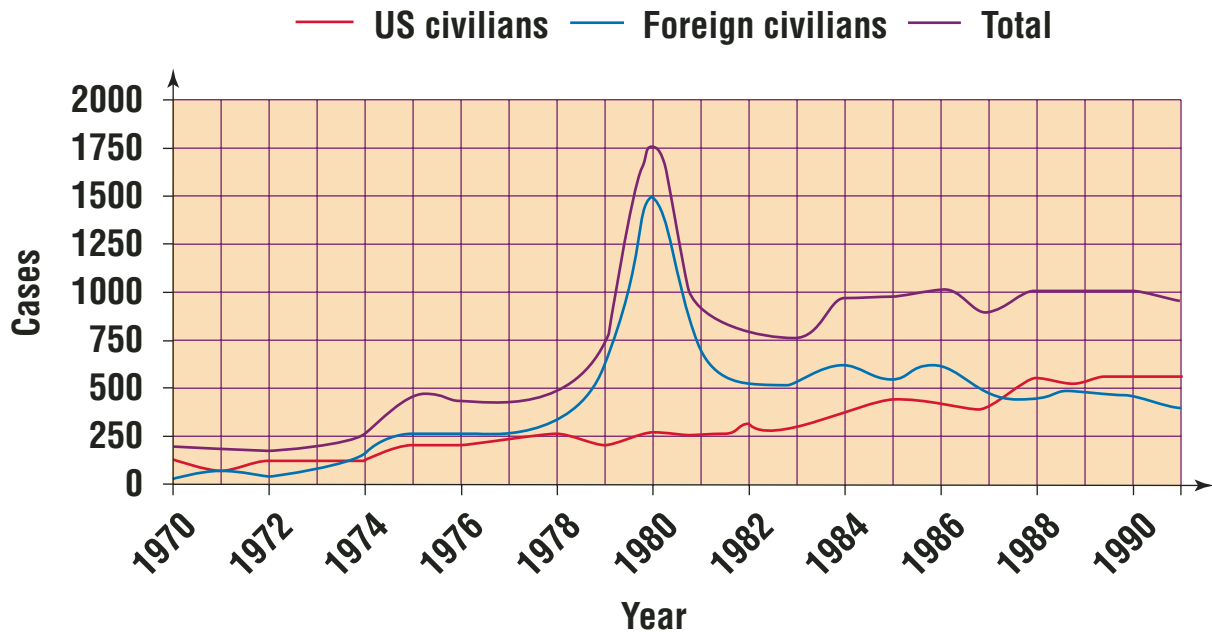
Escherichia



Shigella

Directions: Carefully review the graph and answer the following questions.

Reported Cases of Malaria—United States, 1970–1990



- According to the graph, in what year was the total number of malaria cases in the United States greater than 1,500?
A 1975
B 1980
C 1985
D 1990
- During what time interval was the number of malaria cases for U.S. civilians greater than for foreign civilians?
F 1975–1978
G 1979–1982
H 1983–1986
J 1988–1990
- In 1980, about how many more foreign civilians contracted malaria than did U.S. civilians?
A 750
B 1,000
C 1,250
D 1,500

SECTION
1**Section Focus**
Transparency**A Lot Can Happen**
in 4,000 Years**Chapter**
13

Bristlecone pines live a very long time. The oldest one is thought to be over 4,600 years old. From the time the pyramids at Giza were built through this very moment, it has lived in a quiet spot in eastern California. Bristlecones are usually found at high altitudes where it is very dry.



1. Looking at the picture, describe the bristlecone pine's environment.
2. What might some advantages be to the bristlecone's habitat?
What might be disadvantages?

SECTION 2

Section Focus Transparency

A Fresh Start

Chapter 13

After a forest fire has burned out, what happens to the barren acres of land? Will lush vegetation ever thrive in these areas again? Probably. In fact, it could even be better than before!



1. What life can you identify in the top picture?
2. What life can you identify in the bottom picture? What function might these first plants serve?

SECTION
3

Section Focus
Transparency

Rooted in Nature

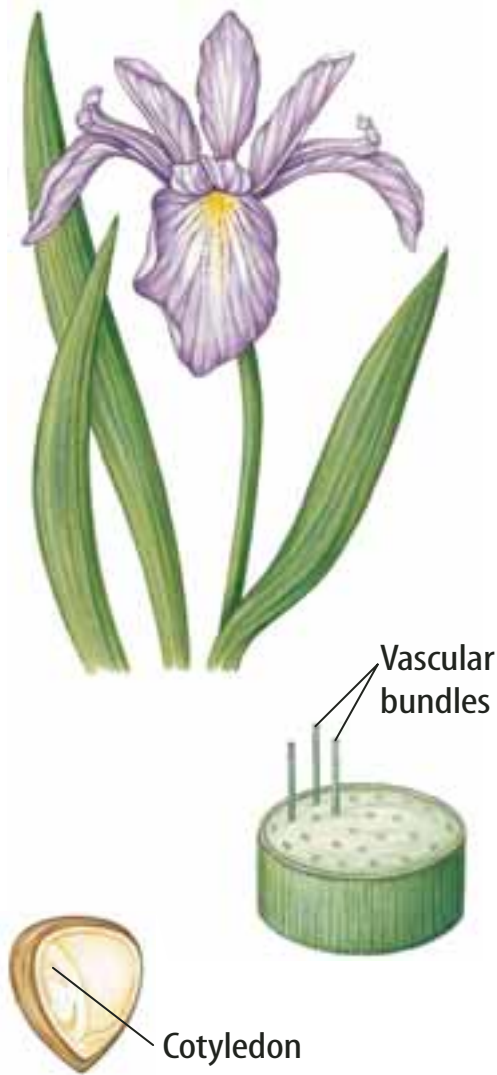
Chapter
13

Bonsai is an ancient method of growing trees or shrubs in small containers. The plants are kept small by pruning the branches and roots. Because some types of plants used for bonsai can live for more than 100 years, they are passed from generation to generation.

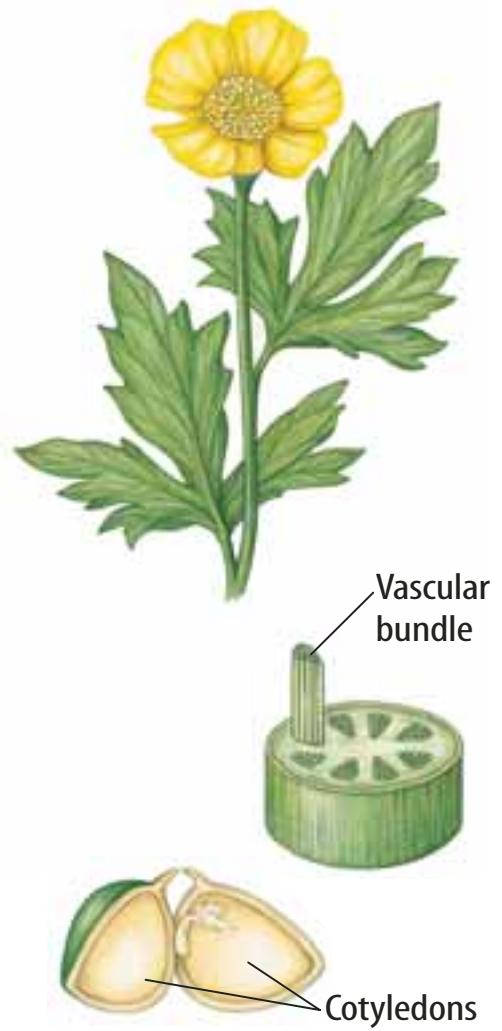


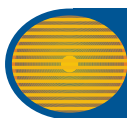
1. What are some advantages to having bonsai plants? What might some disadvantages be?
2. What qualities do you think would be important in practicing bonsai?

Monocot



Dicot





Directions: Carefully review the table and answer the following questions.

Watering and Plant Growth				
Day	Plant A with no water	Plant B watered monthly	Plant C watered weekly	Plant D watered daily
1	10 cm	11 cm	12 cm	8 cm
5	10 cm	12 cm	13 cm	12 cm
10	10 cm	12 cm	15 cm	18 cm
15	10 cm	13 cm	17 cm	19 cm
20	10 cm	13 cm	20 cm	23 cm
25	10 cm	?	22 cm	27 cm

- According to the table, which plant was the tallest on Day 5?
A Plant A
B Plant B
C Plant C
D Plant D
- According to the table, which plant grew the most between Day 1 and Day 20?
F Plant A
G Plant B
H Plant C
J Plant D
- If everything remains the same, what is a reasonable prediction for the height of Plant B on Day 25?
A 10 cm
B 14 cm
C 18 cm
D 24 cm

SECTION
1

Section Focus
Transparency

Jelly Sea

Chapter
14

Jellyfish are interesting animals whose bodies are comprised mostly of water. They drift with the currents, but they are also able to move by expelling a jet of water.



1. How are jellyfish similar to you? How are they different?
2. Describe a jellyfish's shape.
3. Why are jellyfish classified as animals?

SECTION
2**Section Focus**
Transparency**Rub-a-dub-dub****Chapter**
14

When you clean something with a sponge, you may be using the skeleton of an animal! People harvest sponges in areas like the Mediterranean Sea and the Gulf of Mexico. Most sponges you buy in stores, however, aren't animals at all; they're artificial sponges.



1. Why might scientists have originally thought sponges were plants?
2. How do animals get food? How do plants get food?

SECTION
3

Section Focus
Transparency

I'll Have One for Dinner

Chapter
14

One thing these animals have in common is they're occasionally served as dinner. Food is one way people use them, but they are also important for other reasons. For example, some of these creatures live in the sea near the shore and filter large amounts of water each day.



1. What similarities do these three animals share?
2. Describe some of the differences among the three animals.

SECTION
4

Section Focus
Transparency

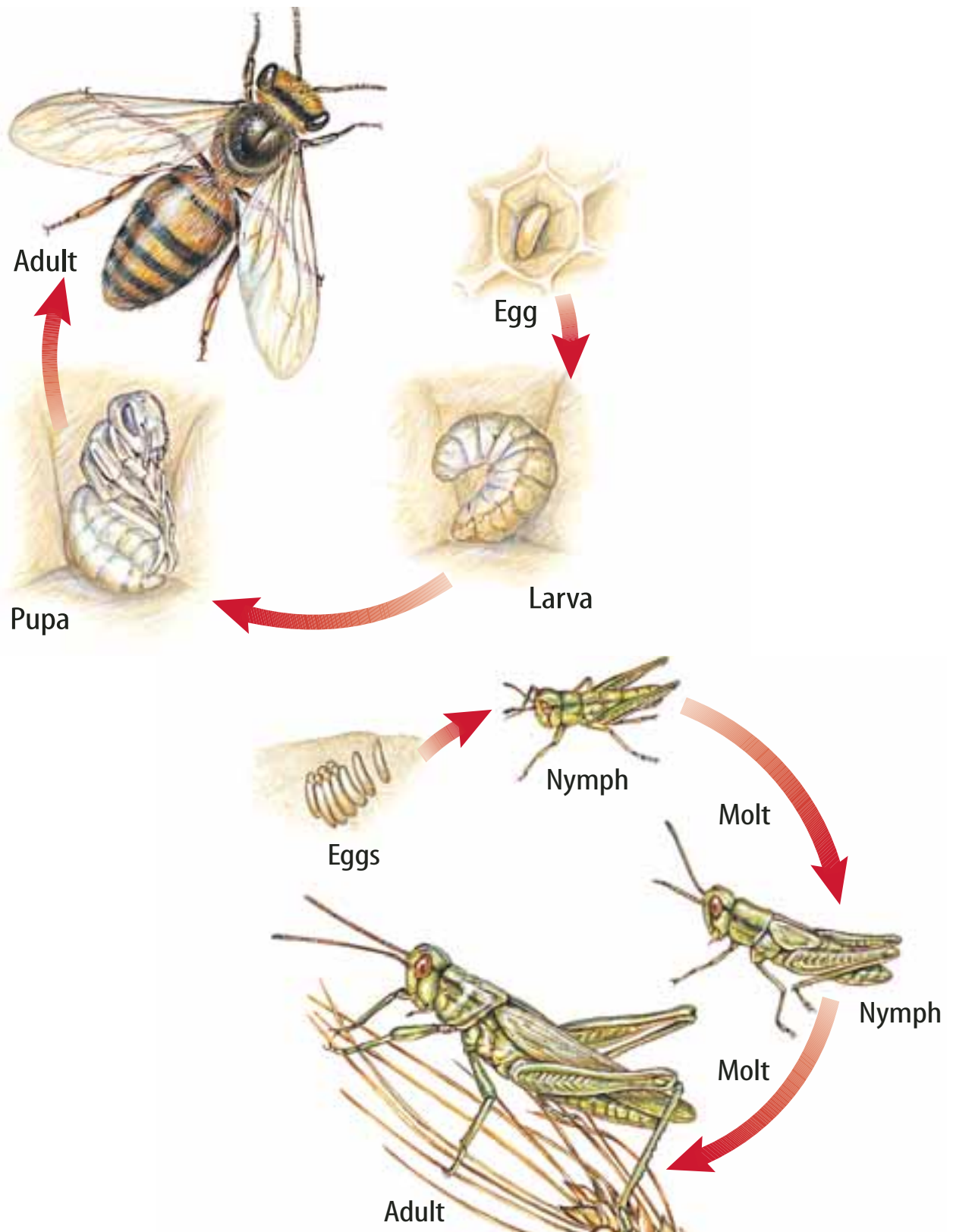
Olfactory Feet

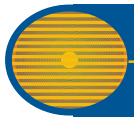
Chapter
14

This fascinating sea creature is a brittle star. It has tube feet, which are located on its arms, that smell. Not that they stink, but the brittle star can use its feet to sense different aromas as well as light.



1. What other animals are similar to the brittle star?
2. How do you think brittle stars feed?
3. What do you notice about the skin of the brittle star?





Directions: Carefully review the table and answer the following questions.

Animals Collected from Tidal Pool				
Animal	Body symmetry	Motility	Mode of feeding	Vertebrae
Sponge	Asymmetrical	None	Filtration	None
Sand worm	Bilateral	Medium	Predation	None
Crab	Bilateral	High	Predation	None
Sea star	Radial	Medium	Predation	None
Flatworm	Bilateral	Low	Predation	None

- According to the table, which characteristic do these animals have in common?
A All are invertebrates.
B All are mollusks.
C All are motile.
D All are predators.
- According to the table, all of the following animals exhibit bilateral symmetry **EXCEPT** ____.
F flatworm
H sandworm
G crab
J sea star
- According to the table, the animal with the **LEAST** motility is probably the ____.
A sandworm
B sponge
C flatworm
D sea star

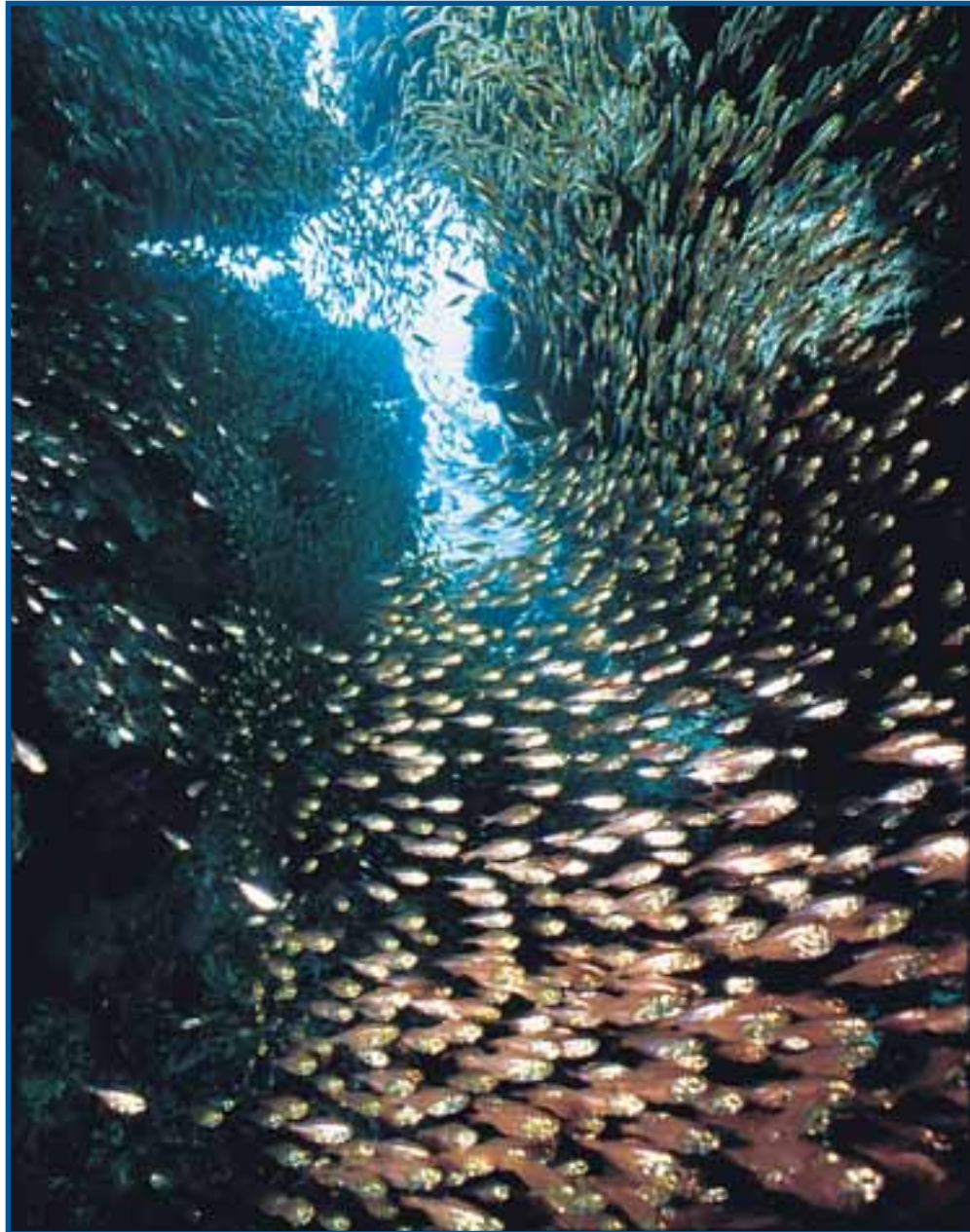
SECTION
1

Section Focus
Transparency

Do they have tests?

Chapter
15

These colorful little fish live in warm, tropical waters. A group of fish swimming together like this is called a school. Fish swim in schools for protection as well as for feeding and breeding purposes.



1. What do fish and mammals have in common?
2. What are some characteristics of fish?

SECTION
2**Section Focus**
Transparency**On Second Thought, Let's
Eat Something Else****Chapter**
15

Usually, this animal stays hidden, but when it is threatened, it twists its body and puffs out its belly to show its brilliant red color. Its flashy colors warn other animals that it would make a dangerous—even deadly—meal!



1. What kind of environment do you think this animal lives in?
2. How is this creature different from a fish? A lizard?

SECTION
3**Section Focus**
Transparency**Maybe the Scientists**
Were a Hoax!**Chapter**
15

This bird, called a kiwi, is the national bird of New Zealand. It's so unusual that when it was first brought to the attention of scientists, they thought it was a hoax. It has no tail and only stubby wings hidden by hair-like feathers. Flightless, the nocturnal kiwi lives in burrows and tends to be shy.



1. Why might scientists have thought the kiwi a hoax?
2. Why do you think the kiwi is classified as a bird?

SECTION
4

Section Focus
Transparency

Midnight Raid of an Anthill

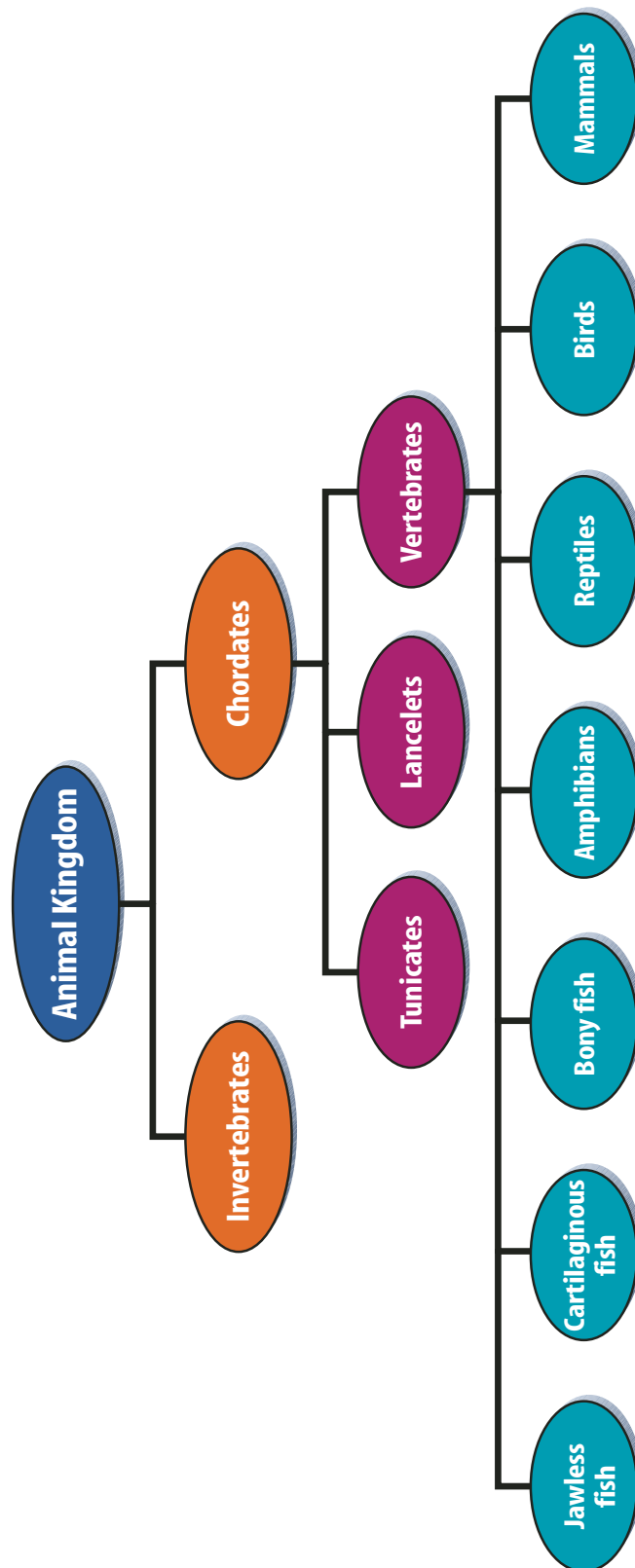
Chapter
15

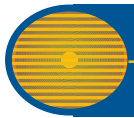
This animal, called a pangolin, was once thought to be a close relative of anteaters and armadillos. Though sometimes called scaly anteaters, pangolins are now thought to be more closely related to sloths!



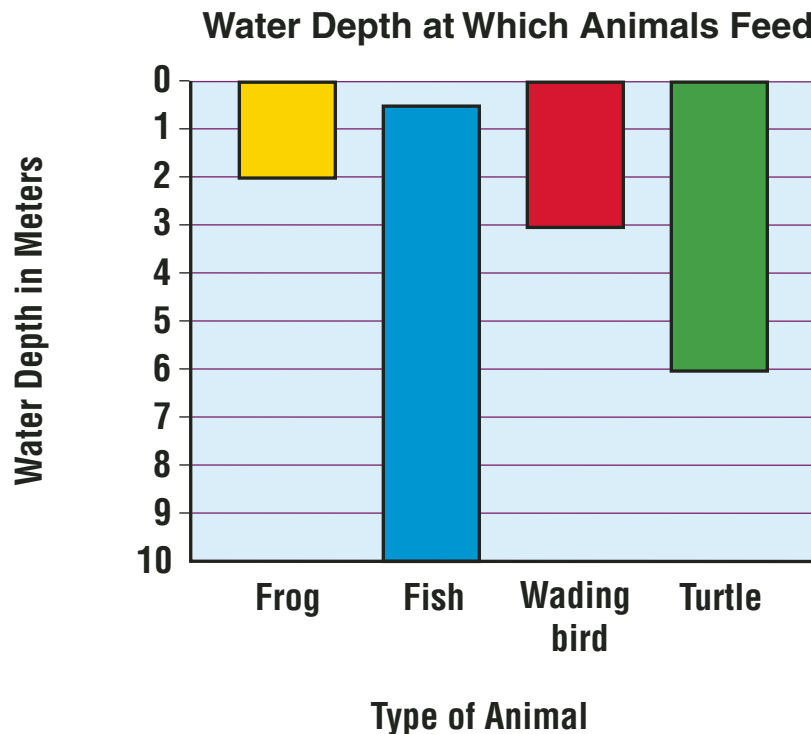
1. Looking at the photograph, name some characteristics of pangolins.
2. What characteristics can you name that are commonly associated with mammals?

Vertebrate Classification





Directions: Carefully review the graph and answer the following questions.



1. What animal can find food in the greatest range of water depth?
A Frog **C** Fish
B Wading bird **D** Turtle
2. According to the graph shown above, competition among the animals for food would be greatest at ____.
F 1 m **G** 3 m **H** 5 m **J** 0 m
3. From the graph above, which animals can gather food in deep water?
A Frog and fish
B Fish and wading bird
C Wading bird and turtle
D Turtle and fish

SECTION
1

Section Focus
Transparency

**What Are Different
Body Systems?**

Chapter
16

Look at the photograph below. Think about all of the different parts of the body that must work together so the person can run.



1. What parts support the rest of the body as it moves?
2. What parts of the body make the body move?
3. What parts of the body bring air into the body?
4. What parts of the body control the rest of the body?

SECTION
2

Section Focus
Transparency

Life Stages

Chapter
16

Look at the photos below. They show different stages of life. Think about what changes a person goes through during each stage.



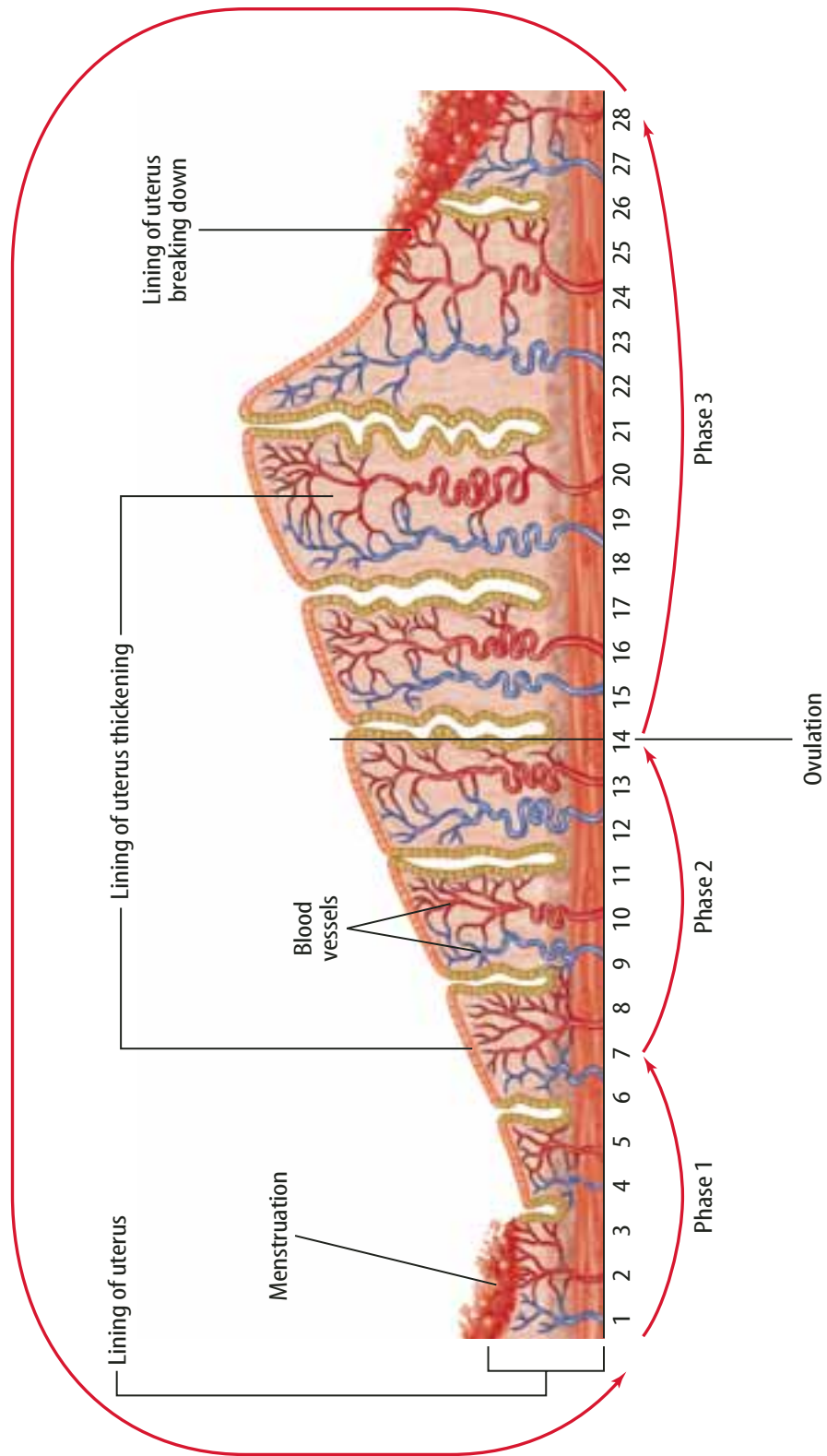
1. What changes occur during infancy (first photo)?
2. What changes occur during childhood (second photo)?
3. What changes occur during adolescence (third photo)?
4. What changes occur during adulthood (fourth photo)?

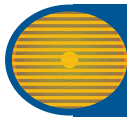
SECTION
2

Teaching
Transparency

The Menstrual Cycle

Chapter
16





Directions: Carefully review the chart and answer the following questions.

Nutrient	Organic	Inorganic	Needed in Large Quantities	Needed in Small Quantities
Proteins	✓		✓	
Carbohydrates	✓		✓	
Lipids	✓		✓	
Vitamins	✓			✓
Minerals		✓		✓
Water		✓	✓	

- Which nutrient is organic and needed in small quantities?
A Carbohydrates
B Lipids
C Minerals
D Vitamins
- Which nutrient is inorganic and needed in large quantities?
F Proteins
H Minerals
G Lipids
J Water
- Which nutrients are needed in small quantities?
A Proteins and water
B Vitamins and minerals
C Minerals and water
D Lipids and carbohydrates

SECTION
1

Section Focus
Transparency

Water, Water Everywhere

Chapter
17

How much water can you find here? Actually, water is almost everywhere.



1. Where do you see water as a solid? A liquid?
2. What happens to snow on a sunny, warm day? What happens to water in a kettle if you light a burner underneath? How are these events similar?

SECTION
2**Section Focus**
Transparency**You Look a Little Green!****Chapter**
17

In 1986, after one hundred years on Bedloe's Island, the Statue of Liberty needed to be repaired. Part of this process included cleaning the copper exterior. One thing that could not be changed, however, was the copper's green color. This green tint is now a permanent characteristic.



1. What was the original color of the Statue of Liberty?
2. Do you think the statue's color will continue to change?

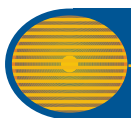
SECTION
3

Teaching
Transparency

Solid, Liquid, Gas

Chapter
17





Directions: Carefully review the table and answer the following questions.

Properties of Some Materials				
Material	State at room temp.	Color	Density (g/mL)	Reacts with light
Rock	Solid	Brown	2.8	No
Hydrogen peroxide	Liquid	Colorless	1.45	Yes
Water	Liquid	Colorless	1.0	No
Aluminum	Solid	Shiny Silver	2.7	No

- Which material has a density less than 1.3 grams per milliliter?
A Rock **C** Water
B Hydrogen peroxide **D** Aluminum
- According to the table, a material that is colorless and has a density of 1.45 grams per milliliter is ____.
F rock
G hydrogen peroxide
H water
J aluminum
- A chemical property is any characteristic that gives a substance the ability to undergo a change that results in a new substance. According to this definition, which property in the table is an example of a chemical property?
A State at room temperature **C** Density
B Color **D** Reacts with light

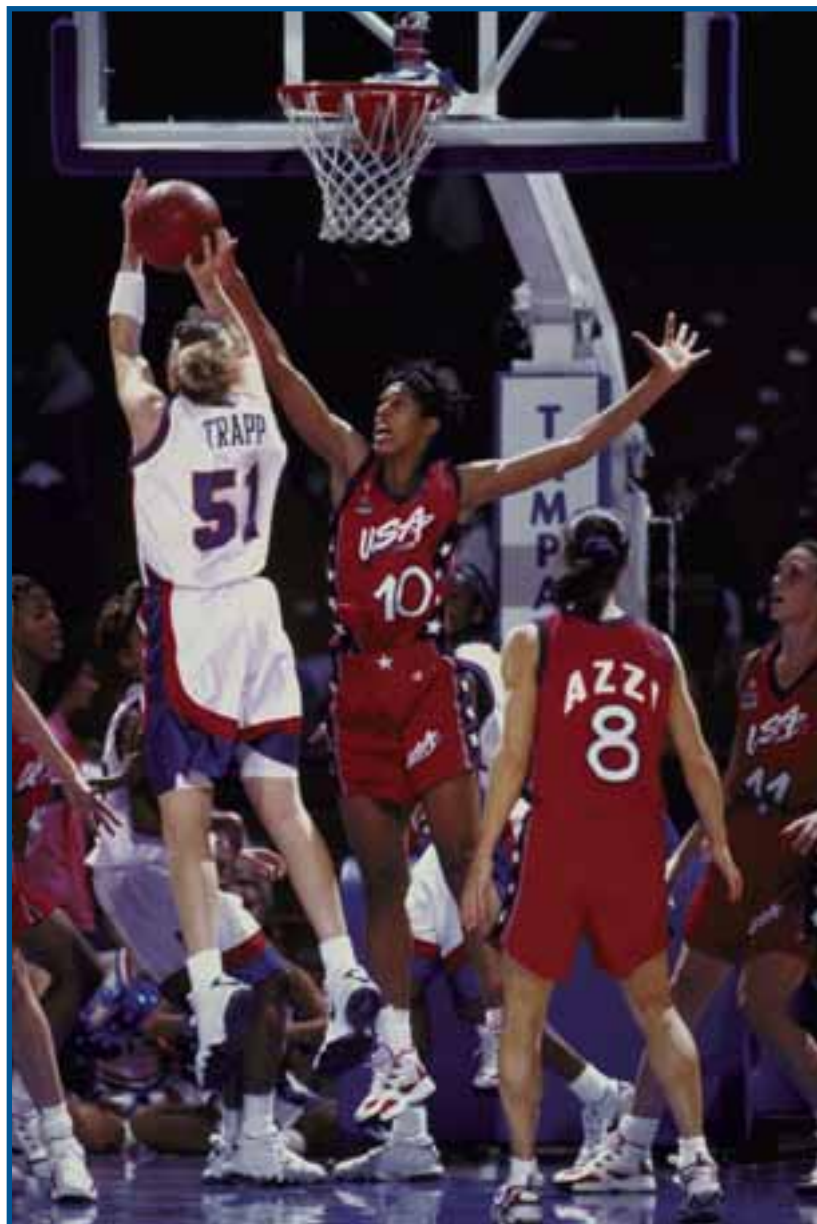
SECTION
1

Section Focus
Transparency

High Energy

Chapter
18

A body needs a lot of energy to participate in physical activities like basketball. Energy also refers to the position and motion of objects.



1. How is energy being used in the photo?
2. Where do you get energy for exercise?

SECTION
2**Section Focus**
Transparency**Heat It Up****Chapter**
18

Since 1960, electricity has been produced at an area called The Geysers in California. This is a geologically active area where underground water is turned to steam by Earth's hot interior. The steam forces its way to the surface where it is converted to electricity.



1. What are some properties of steam? How does steam compare to liquid water?
2. What are some advantages of using energy from Earth's interior to produce electricity?

SECTION
3

Section Focus
Transparency

Cold Pack Relief

Chapter
18

You encounter many chemical reactions every day. Lighting a gas stove, starting a lawnmower, and playing sports all involve chemical reactions. So does the chemical cold pack shown below. The chemicals inside combine to provide instant cold for relief of minor athletic injuries.



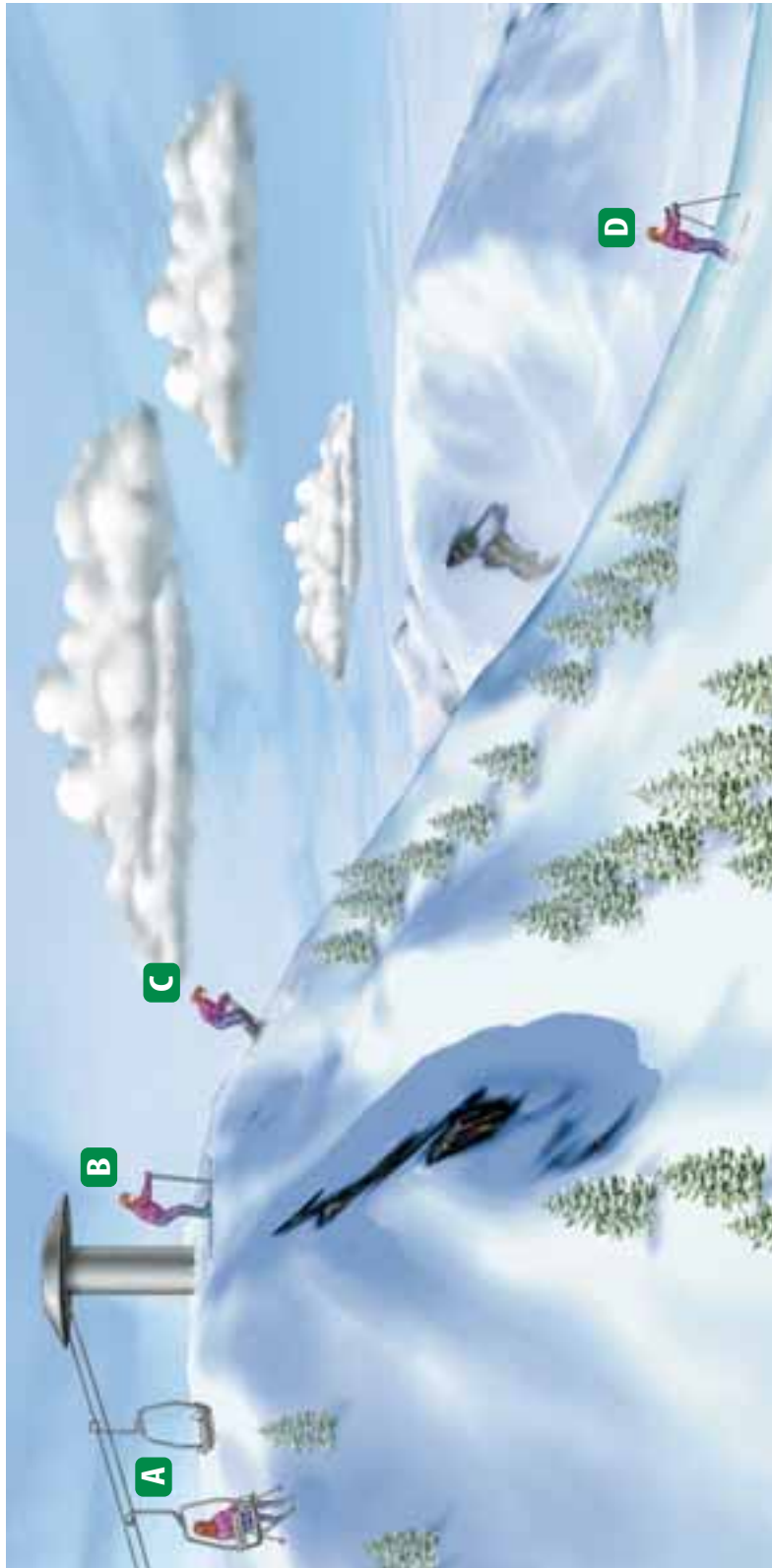
1. What does a cold pack feel like before you mix the chemicals?
What does it feel like after the chemicals mix?
2. Can chemical cold packs be reused? Why or why not?

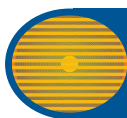
SECTION
1

Teaching
Transparency

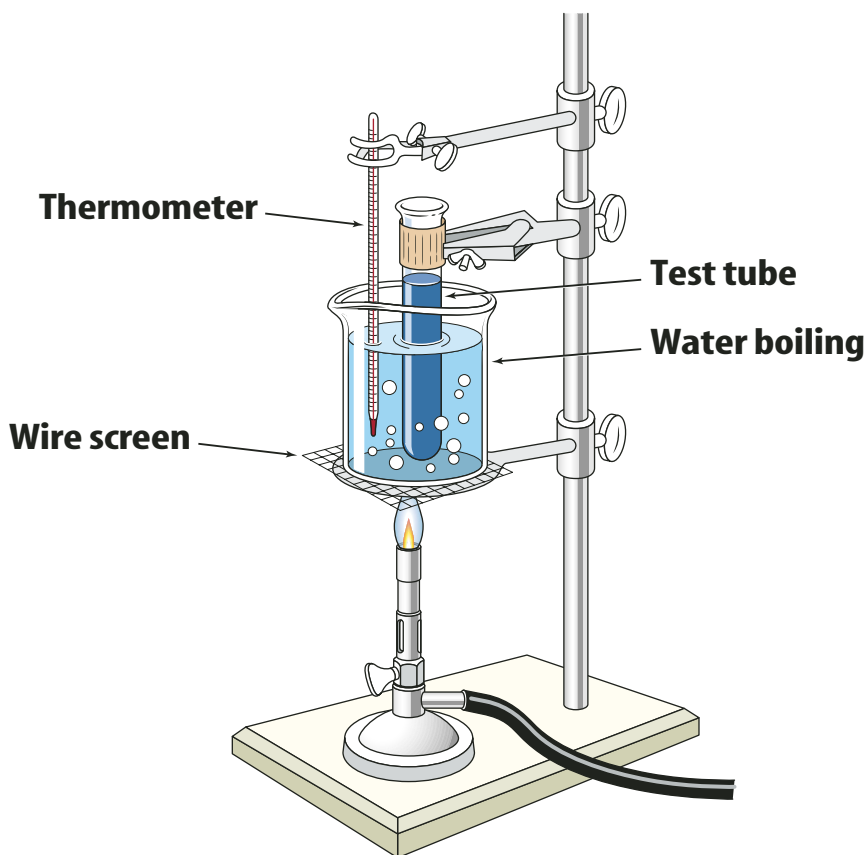
Potential to Kinetic Energy

Chapter
18





Directions: Carefully review the diagram and answer the following questions.



1. The fluid inside the test tube heats up because ____.
A the thermometer transfers heat from the air into the water
B energy radiates up from the flame
C the water is reacting with itself
D the test tube conducts heat from the boiling water to the fluid inside the tube
2. If the beaker of water were resting on a ceramic tile instead of a wire screen, you would predict that the water temperature would rise ____ because ceramics are good ____.
F more quickly; conductors
G more slowly; conductors
H more quickly; insulators
J more slowly; insulators

SECTION
1**Section Focus**
Transparency**Lighting Up the Night****Chapter**
19

Charged particles, flowing through the atmosphere as lightning, interact with molecules in the air and release energy. Although a lightning strike typically lasts for less than a second, it transfers an enormous amount of energy. For a short time, the light that the electric discharge produces allows you to see as clearly as if it were daytime.



1. If the clouds have a negative charge, what type of charge does the ground have to form lightning?
2. In the case described in question 1, what is the direction of electron flow?
3. How can lightning occur between two clouds or two regions within a cloud?

SECTION
2**Section Focus**
Transparency**Towers Carrying Power****Chapter**
19

Large towers hold power lines far above the ground to prevent accidents with electricity. Power lines like the ones shown below carry electrical energy at hundreds of thousands of volts. The wires must be far from each other and from other objects to prevent dangerous sparks.



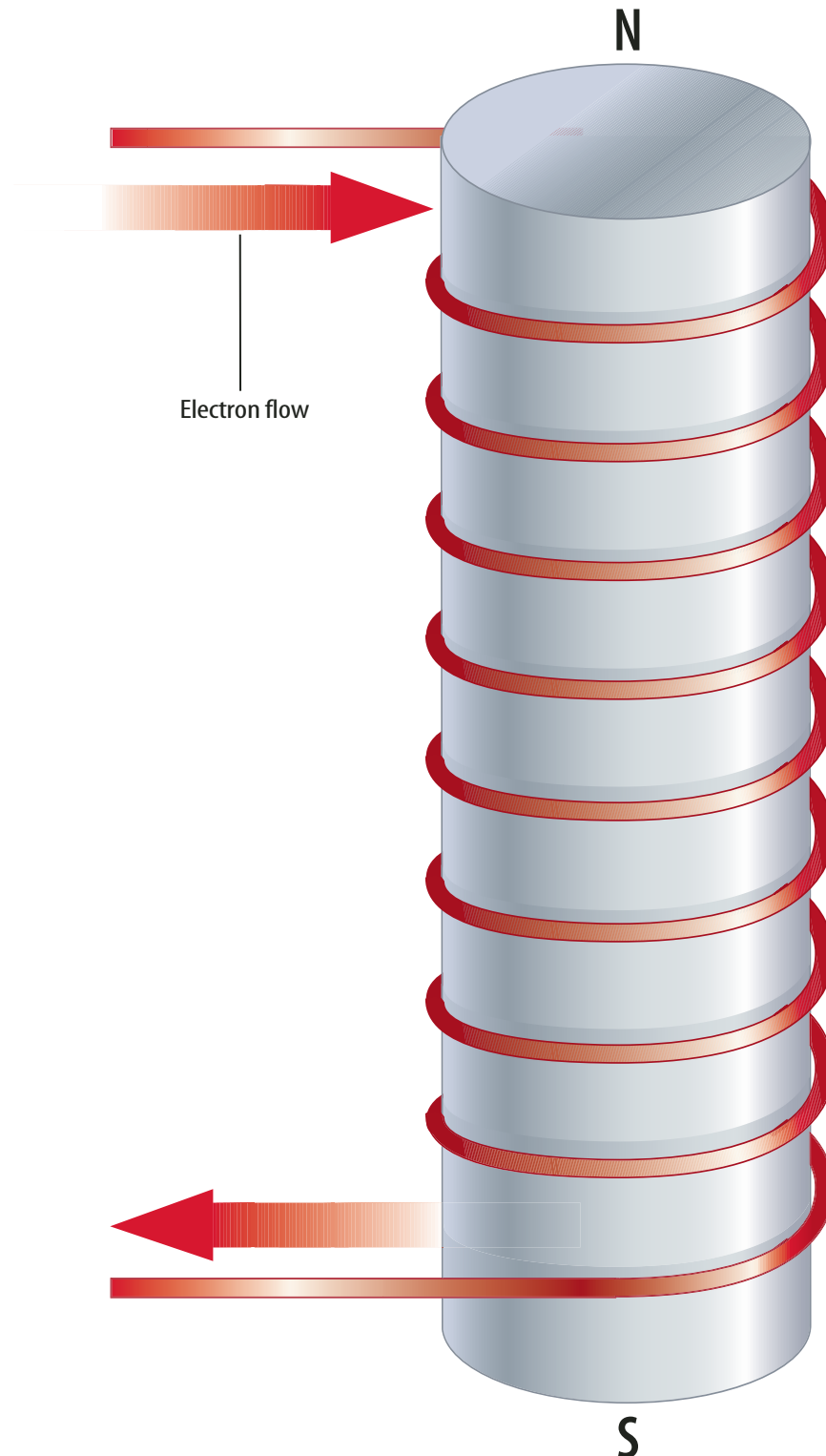
1. Why would the power grid system that carries power from many power plants to millions of users be a parallel circuit?
2. Why do power lines often sag in the summer, when many people are using air conditioners?
3. Why does the current not flow from the power lines to the metal towers?

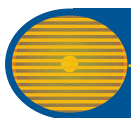
SECTION
3**Section Focus**
Transparency**Pick It Up and Drop It****Chapter**
19

Large electromagnets, like this one, are used at recycling facilities to lift scrap metal for transportation to a recycling plant. Cranes hold electromagnets that can lift many tons of steel.



1. Why would a powerful permanent magnet be less useful for this purpose?
2. How can the magnet be used to separate steel and aluminum scrap for shipment to different types of factories?
3. What type of energy is needed to operate the magnet?





Directions: Carefully study the table and choose the best answer for each of the questions.

Flashlight	Voltage	Current
A	1.5 V	0.2 A
B	3.0 V	0.4 A
C	1.5 V	1.0 A
D	3.0 V	1.0 A

1. What is the resistance of the lightbulb in flashlight A?
A 7.5 ohms
B 0.75 ohms
C 0.3 ohms
D 6.0 volts
2. Based on the data on the chart, which two flashlights have bulbs with the same resistance?
A A and B
G A and C
H C and D
J they are all different
3. Which flashlight bulb has the smallest resistance?
A Flashlight A
B Flashlight B
C Flashlight C
D Flashlight D

SECTION
1**Section Focus**
Transparency**Ride the Wave!****Chapter**
20

Surfing may seem like a fairly new sport, but it's not. In fact, people think there were surfers in Hawaii in the 1400s. When Captain Cook landed in the Hawaiian Islands in 1778, he was greeted by an islander on a surfboard!



1. Name some different kinds of waves.
2. What do you think creates waves on the ocean?
3. Describe the path of light from the Sun to the camera that took this picture.

SECTION
2

Section Focus
Transparency

The Sun's Radiant Energies

Chapter
20

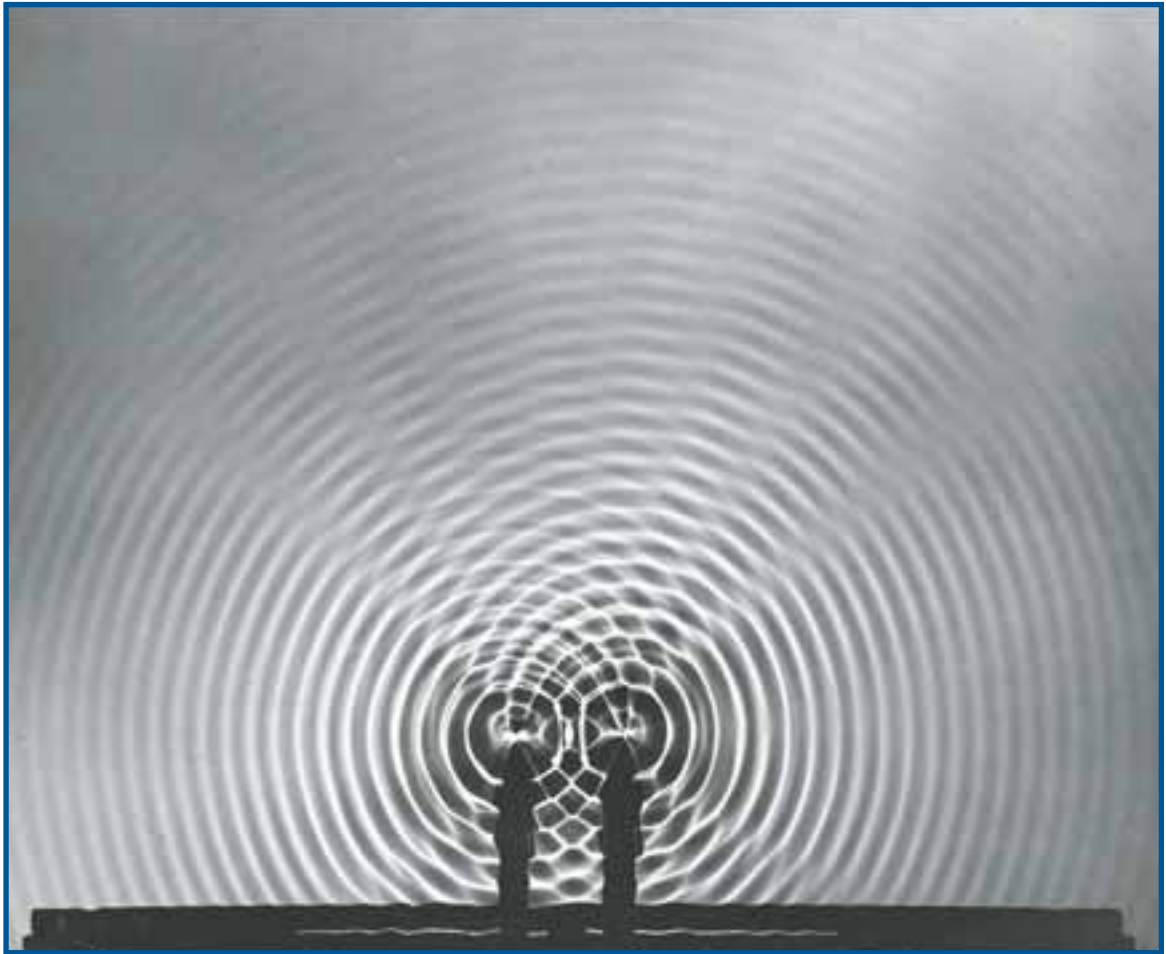
Visible light and ultraviolet (UV) radiation both come from the Sun. UV radiation causes eye damage, skin cancer, and burns skin. Visible light and UV radiation are both electromagnetic waves, but they have different properties.



- 1. How can you protect yourself from the harmful consequences of UV radiation?**
- 2. What are some differences among water waves that you have noticed? How might electromagnetic waves be different, too?**

SECTION
3**Section Focus**
Transparency**Wave Art****Chapter**
20

Artists work with all kinds of materials, so why not water? This image was made by placing two vibrating probes in the water. The probes generate waves that overlap and create this fascinating pattern.



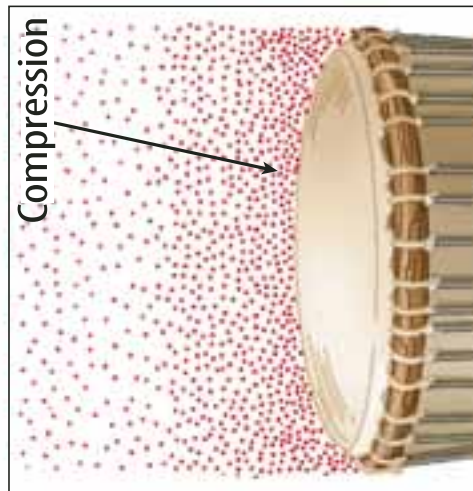
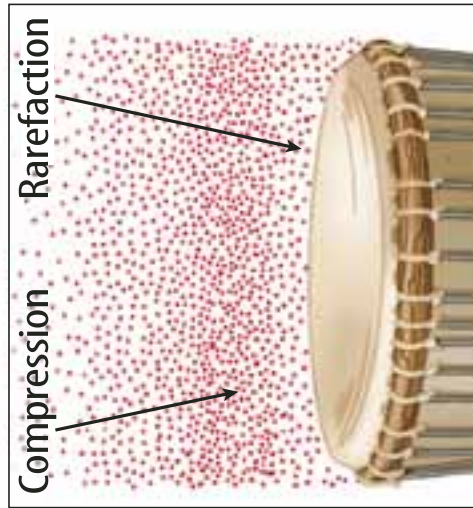
1. What kind of waves are these—transverse or compressional?
2. If this image is shown in its actual size, how could you calculate the wavelength of these waves?
3. What would happen to the wave pattern if only one of the probes were vibrating?

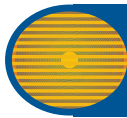
SECTION
1

Teaching
Transparency

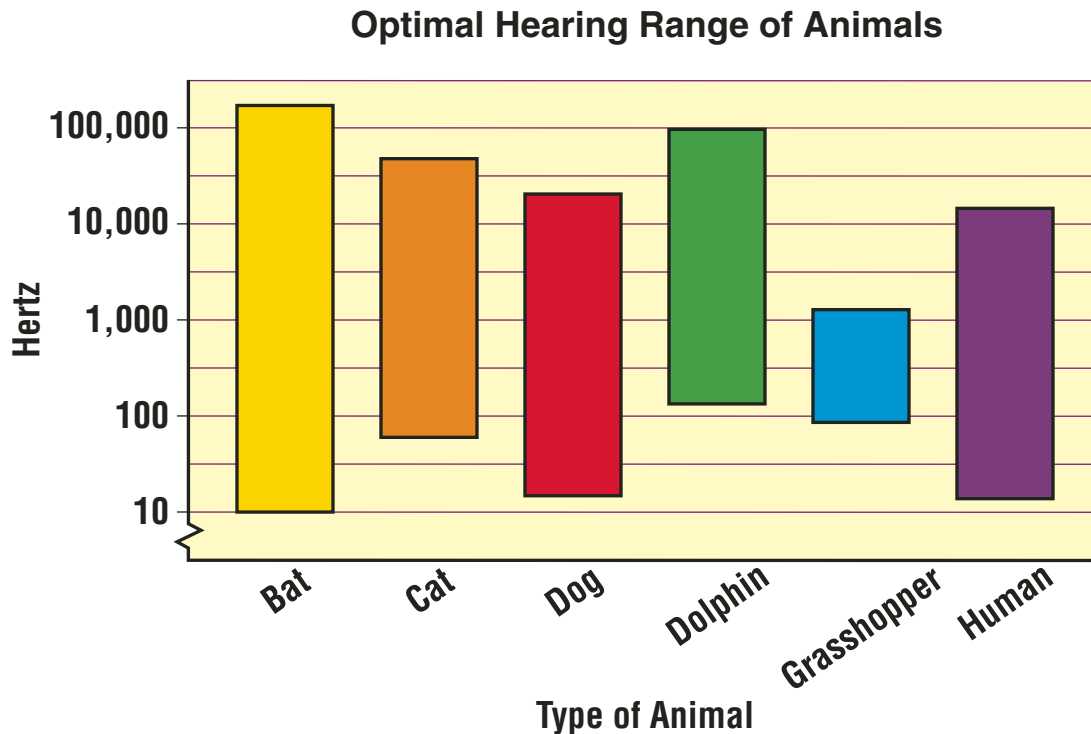
Compression and Rarefaction

Chapter
20





Directions: Carefully review the graph and answer the following questions.



1. According to these data, which type of animal is most likely to hear sounds with frequencies of 10 hertz?
A Bat **B** Dog **C** Grasshopper **D** Human
2. According to the graph, which type of animal has the smallest hearing range?
F Bat **G** Cat **H** Dolphin **J** Grasshopper
3. Which of the following animals cannot hear sounds with frequencies below 100 hertz?
A Bat **C** Dolphin
B Cat **D** Grasshopper
4. According to this information, which type of animal can hear sounds with frequencies higher than 100,000 hertz?
F Bat **H** Dolphin
G Cat **J** Human