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The four **cardinal directions** are: *north, south, east, and west*. When you face north, east is to your right, west is to your left, and south is behind you.



Finding Directions

To find a place on a map, you must know directions.

Directions (duh-REK-shuhns) tell you where places are, and how to find them. The four main directions, or **cardinal directions**, are *north, south, east, and west*.

In the “real world” you can find directions by looking at the sun. The sun is always seen rising in the east and setting in the west. Go outside in the morning when the sun is rising. Raise your arms straight from your sides, with your right arm pointing toward the sun. When you do that, your right arm will point east and your left arm will point west. North will be in front of you, and south will be behind you.



The Compass

About one thousand years ago, people started using a tool called a compass to find directions.

A **compass** (KUHM-puhss) uses a magnetic needle that always points north. Once you know where north is, it is easy to find the other directions.

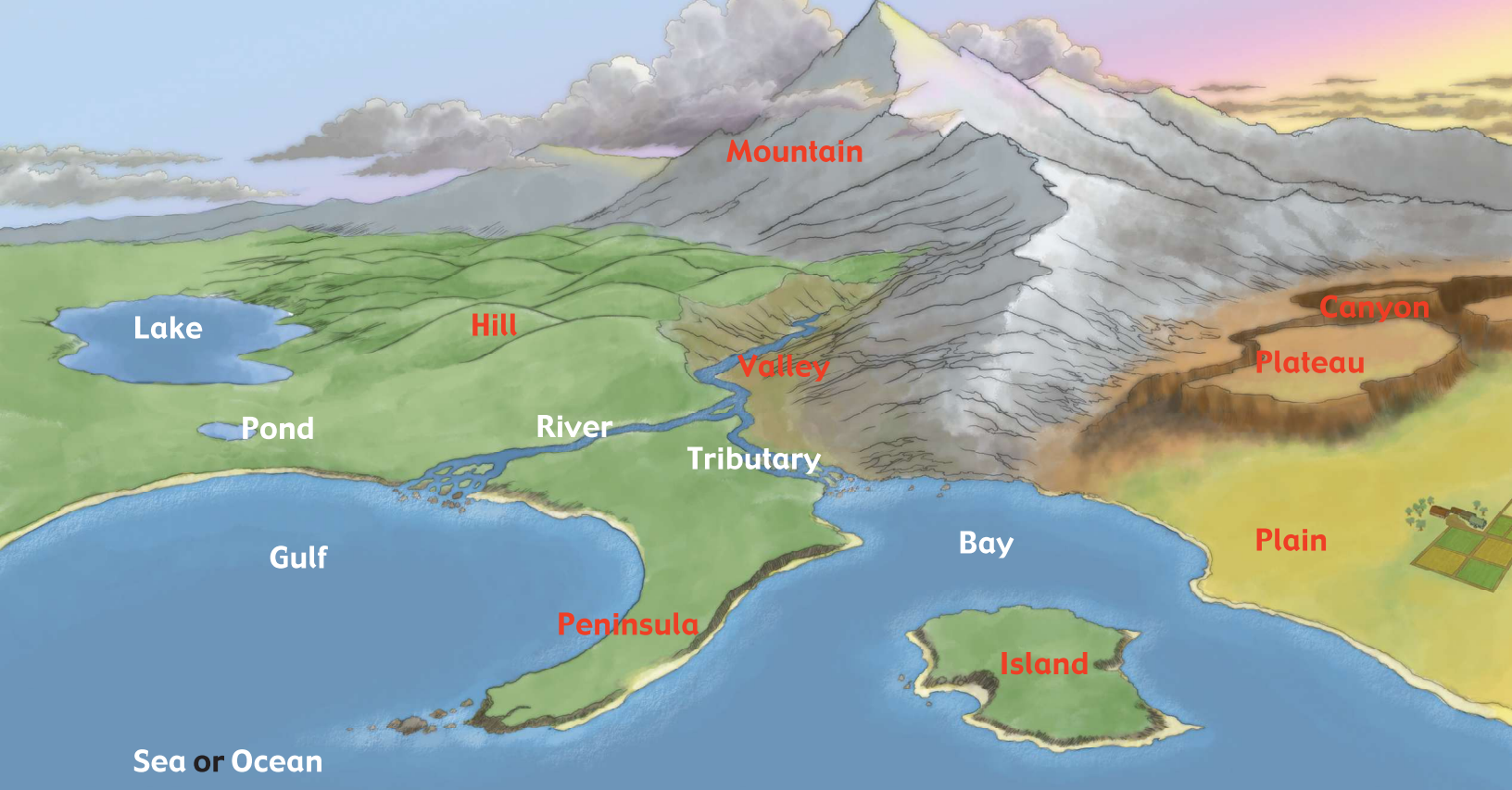
Compass Rose

Maps and globes use a drawing called a **compass rose** to show directions. Usually, a compass rose uses the letters *N, S, E, and W*, for the directions *north, south, east, and west*.

A compass rose may also show **intermediate directions**. These directions are halfway-between the cardinal directions. For example, halfway between *north* and *east* is *northeast*. Other intermediate directions are *northwest, southeast, and southwest*. For the intermediate directions, a compass rose uses the letters *NE, NW, SE, and SW*.



A **compass rose** helps you find **directions** on a map. On most maps, *north* is toward the top, *south* toward the bottom, *east* toward the right, and *west* toward the left.



Other Bodies of Water

Sometimes, parts of the ocean have different names. A **sea** is a body of water that is part of the ocean. A **gulf** is a large body of ocean water that is partly surrounded by land. A **bay** is also a body of water that is partly surrounded by land. A bay is usually smaller than a gulf.

The water in the oceans and seas is salty and cannot be used for drinking and for watering plants. But people use the oceans and seas for traveling from place to place. They also use the oceans and seas for catching fish.

A **lake** is a body of water with land all around it. Most lakes contain fresh water. People, plants and most animals need fresh water to live and grow. A **pond** is like a lake. It has land all around it. But a pond is smaller than a lake.

A **river** is a body of water that **flows** through land. Rivers usually start very small, from mountain springs or from melting ice on the mountains. As rivers flow through the land, they become wider and deeper. They flow into larger rivers, or into seas or oceans.

Often, large rivers have smaller rivers or streams flowing into them. These smaller rivers look like branches of a tree. They are called **tributaries**. Long rivers usually have many tributaries.

CHAPTER REVIEW - The Earth's Water

Vocabulary

Finish the sentences with words from the list below.

1. The largest bodies of water are called _____.
2. A body of water that moves, or _____, through land is called a _____.
3. A _____ is a body of water with land all around it.
4. A _____ is part of an ocean that stretches into land.
5. A _____ is a small river that connects to a larger river.

river

gulf

lake

flows

oceans

tributary

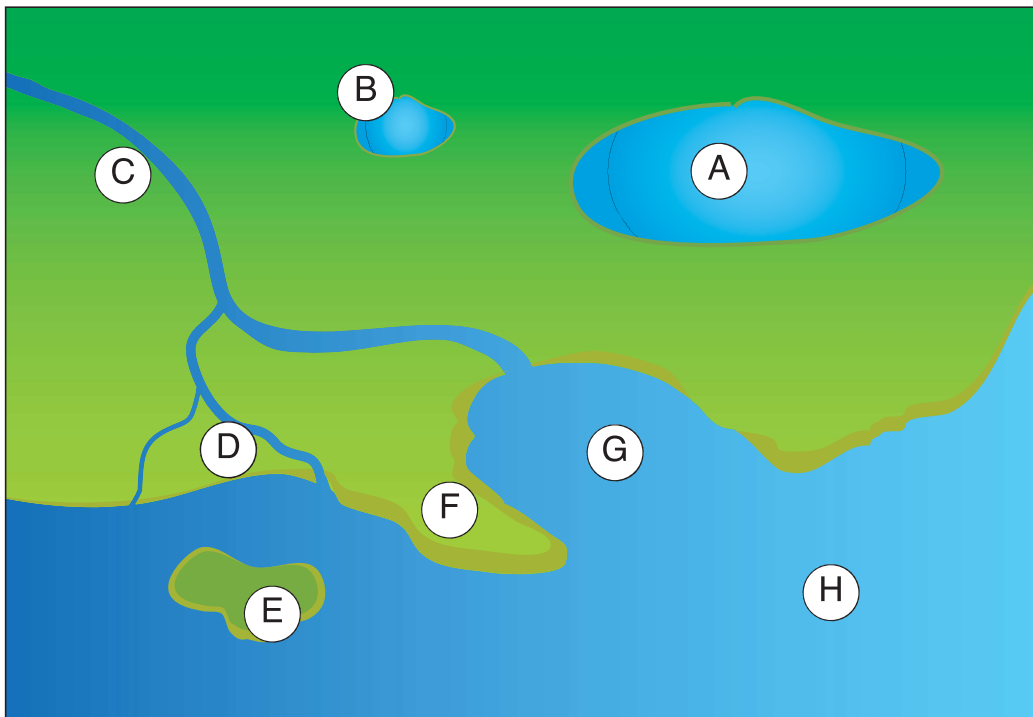
Remember and Write

Write the correct answer for each question. Find the answers in the chapter you just read.

1. Name the four oceans 1) _____ 2) _____
3) _____ 4) _____
2. How does ocean water taste? _____
3. What kind of water do most lakes have? _____

Land and Water

Write the correct label (a, b, c...) next to the words on the list that match those in the drawing.



1. sea _____
2. bay _____
3. river _____
4. tributary _____
5. pond _____
6. island _____
7. peninsula _____
8. lake _____

Hemispheres

Chapter 4

You already know that the globe is round, like the real shape of the earth. Another name for something that is round is **sphere** (SFEER).

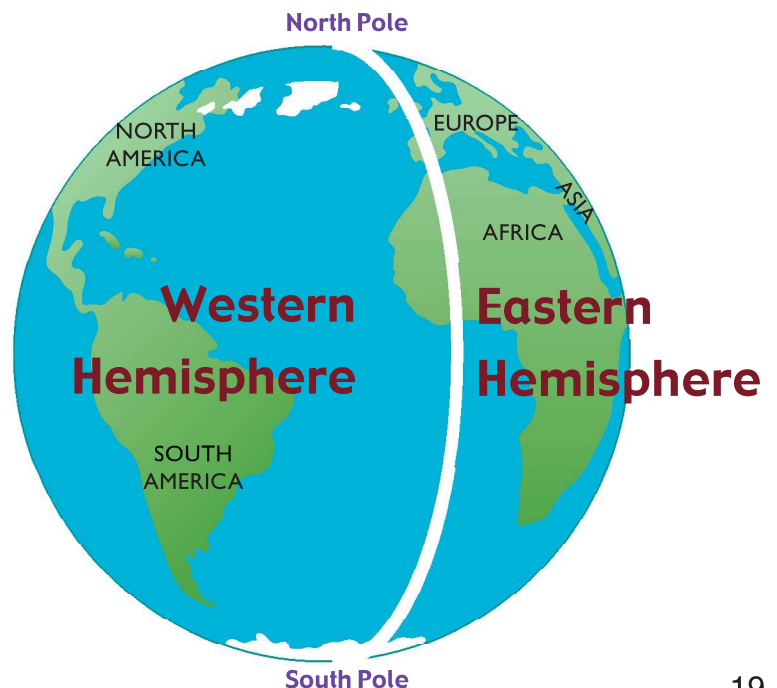
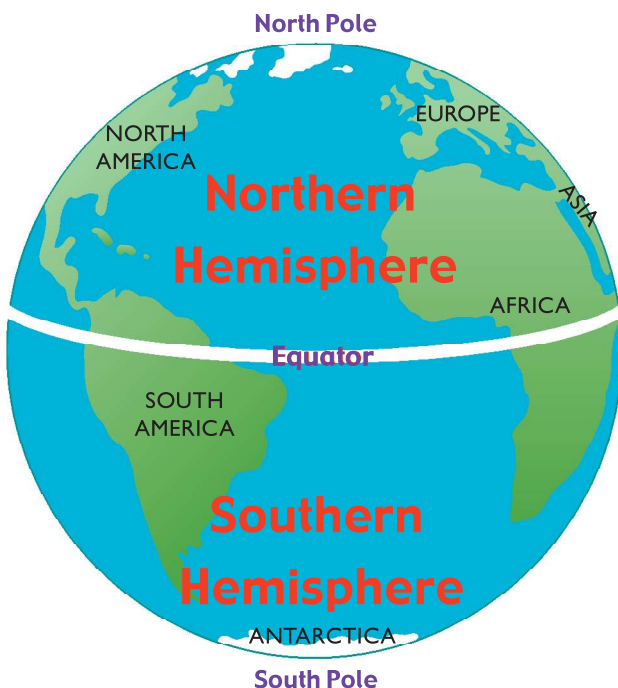
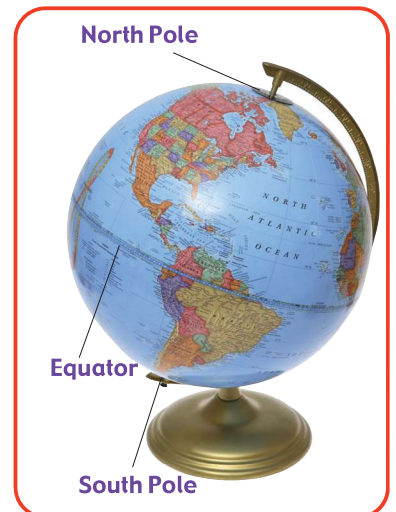
Because a globe is round, you can see only half of it at one time. The other half is hidden. The name for each half of the globe is **hemisphere** (HEM-uh-sfeer). *Hemi* means “half,” so hemisphere means “half a sphere.”

There are two ways to divide the globe into hemispheres. The **equator** (ee-KWAY-tur) is an **imaginary**, or make-believe, line drawn around globes. The equator divides the globe into halves called the *Northern* and *Southern Hemispheres*. The place farthest north from the equator is called the **North Pole**. The place farthest south is called the **South Pole**. On a globe you can find the poles easily. They are usually where the globe is connected to its stand.

The globe can also be divided from top to bottom into the *Western* and *Eastern Hemispheres*. Every place on the earth is in at least two hemispheres. For example, North America is both in the Northern and Western Hemispheres.

WORDS TO KNOW

sphere
hemisphere
equator
imaginary
North Pole
South Pole



CHAPTER REVIEW - Weather and Climate

Vocabulary

Finish the sentences by circling the correct missing word for each sentence.

- When you talk about how hot or cold it is outside, you are talking about the _____.
precipitation temperature elevation
- When you talk about how much it rains or snows, you are talking about _____.
temperate temperature precipitation
- Weather often changes every day, but weather also follows an order, or _____.
pattern polar effect
- The kind of weather a place has over a long period of time is called _____.
tropical weather climate
- A _____ has a dry climate.
forest desert continent
- The _____, or height, of a place can affect the climate of the place.
elevation temperate direction

Climate Zones

Finish the sentences with words from the list below. You may use each word more than once.

- The area near the equator has a _____ climate.
- The area near the North Pole has a _____ climate.
- A place with cold winters and warm summers
has a _____ climate.
- The coldest places on earth have _____ climates.
- In a _____ climate, it is hot all the time.
- A _____ climate is not too hot and not too cold.

tropical temperate polar

True or False

Circle T for a statement that is true; circle F for a statement that is false.

- It is hotter near the equator than it is at any other place in the world. **T F**
- It is warmer on top of a mountain than it is in the valley below. **T F**
- It is cooler in a temperate zone than in a tropical zone. **T F**
- Places near water have different climates than places away from water. **T F**
- The South Pole has a temperate climate. **T F**

BONUS READING

Fahrenheit and Celsius

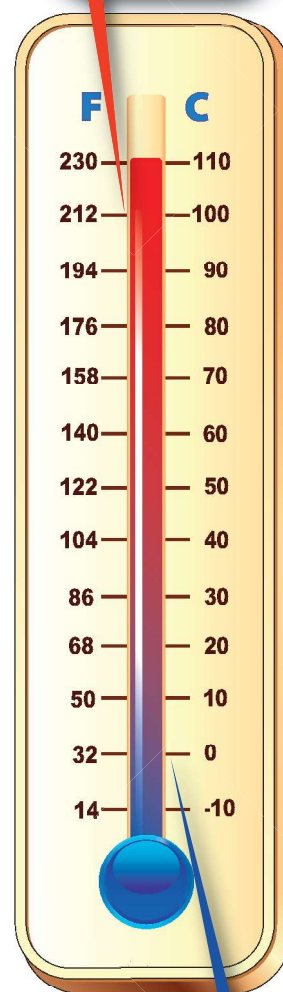
A **thermometer** (thur-MOM-uh-tur) is a tool that is used to **measure**, or show, temperature. You can use a thermometer to tell the temperature outside or inside your house. It can show how hot or cold your food is. A thermometer can also measure your body's temperature.

Like a ruler, a thermometer is marked with a **scale** of numbers. These numbers stand for **degrees**. The symbol for degrees is $^{\circ}$. The higher the degree, the hotter the temperature. The lower the degree, the colder the temperature.

There are two different kinds of scales to measure temperature. One scale uses **Fahrenheit** (FAIR-en-hite) degrees. This scale is used by most people in the United States. In this country, when you say the temperature outside is 90 degrees, it means 90 degrees Fahrenheit. Another scale uses **Celsius** (SELL-see-us) degrees. This scale is used by people in Europe and much of the rest of the world.

The Celsius scale is easy to use because it is based on 100 degrees. Zero degrees is the temperature at which water freezes, and 100 degrees is the temperature at which water boils. The Fahrenheit scale is not as easy. On a Fahrenheit thermometer, 32 degrees is the freezing temperature, and 212 degrees is the boiling temperature. So, zero-degrees Celsius is the same as 32-degrees Fahrenheit.

Usually, the letters F (for Fahrenheit) and C (for Celsius) are used when writing about temperature. For example, 32 degrees Fahrenheit is 32°F , and 100 degrees Celsius is 100°C .



WORDS

TO KNOW

thermometer

measure

scale

degrees

Fahrenheit

Celsius



Ships used large **sails** to catch the wind and move the ship across the water.

For traveling across water, people used ships and boats. But **sailing**, or traveling by ship, was often very dangerous. The ships were small, and made of wood. They had no motors to help them move across the water. Instead, they had **sails**, large sheets made of cloth. When the winds blew the sails, the ships moved across the water.

Sometimes, winds would not blow and ships would not move. Other times, winds would blow ships in the wrong directions. And sometimes, strong winds and giant waves would toss the ships around or even turn them over. The **sailors**—people who worked on the ships—would get thrown into the water. Smaller boats had to be **rowed** by oars or paddles. This was slow and hard work; it sometimes took weeks or months to get from one place to another.

People were especially afraid to sail far from land, across the wide open ocean. In those days, much of what we now know about the world was unknown. Some people believed that the ocean was full of giant sea animals, ready to eat people who sailed too far out on the ocean.



Boats often had to be **rowed** by oars or paddles.

WORDS TO KNOW

board up
nightfall
gushing
crumpled
rescue

The Storm

Mr. Foster held on tightly to his hammer as he glanced upwards at the grey sky. “It appears that the hurricane is traveling quite fast,” he said to his son Kevin, who was helping him **board up** the windows. “The heavy winds and rain will probably be here by **nightfall**. Let’s hurry up. These plywood boards need to be nailed in tightly, or the wind will tear them off.”

Soon, all the windows were covered in plywood and Kevin and his father were able to go inside. Mother rushed around the house, checking all the emergency supplies. “Oh, Kevin,” she said worriedly, “we don’t have any batteries for our flashlights. Can you please run quickly to the supermarket to see if they have any left?”

Kevin stepped outside and turned in the direction of the supermarket. He took the shortcut along the path near the beach. The ocean seemed to be angry. It showered his face with a salty spray. Kevin pulled the hood of his rain jacket tightly around his face and hurried on. He didn’t have time to watch the waves now. He had to get to the store and back home fast.

The supermarket was crowded with people trying to get last minute supplies. It took a while for Kevin to find the batteries that he needed. Because of the large crowd, half an hour had passed before he finally reached the cash register to pay for the batteries.

By the time Kevin started out for home, the sky was dark and a strong wind was angrily snapping branches off trees. The beach was empty. Here and there a man or woman would rush by on their way home.



A man boarding up the windows of his house before a hurricane.

CHAPTER REVIEW - The Storm

Vocabulary

Finish the sentences with words from the list below.

1. Kevin's father had to _____ the windows of the house, so the strong winds wouldn't break them.
2. Kevin's father said, "The heavy winds and rain will probably be here by _____."
3. Soon, the rain came down very heavily. Water was _____ down the roof of the house.
4. Trees and telephone poles lay _____ on the ground. They looked like toy sticks thrown together.
5. People waited for boats to come and _____ them.
crumpled nightfall rescue gushing board up

Choose the Correct Answer

Circle the correct answer to complete each sentence.

1. Kevin and his family lived
 - a) near the sea.
 - b) near a high mountain.
2. Kevin's mother needed batteries for the flashlights because
 - a) she had to go outside in middle of the storm.
 - b) there was often no electricity in the house during a storm.
3. In the morning, Kevin could not go downstairs because
 - a) it was very dark.
 - b) water filled the entire ground floor.
4. Many houses were on fire because
 - a) people were not careful with candles they had used during the blackout.
 - b) the heavy winds and rains caused fires.
5. After the storm, Kevin and his parents could not get out of the house
 - a) because the winds were too strong.
 - b) because the town was flooded.

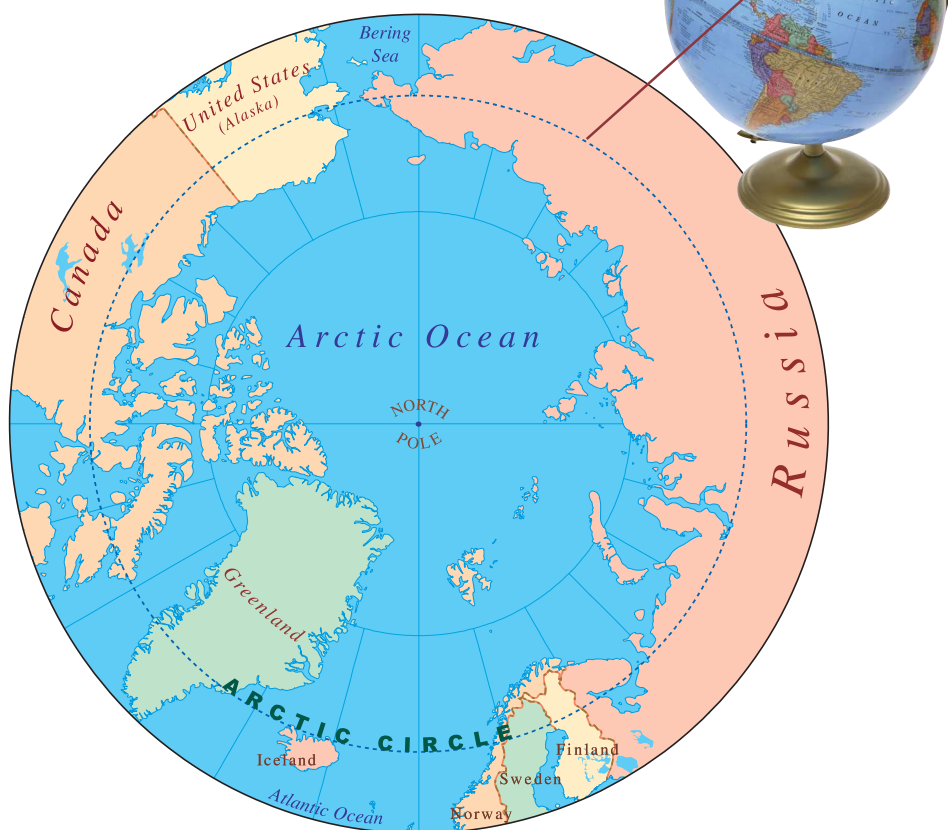
Think and Write

Write one or more sentences to answer the question.

In what way would you prepare for an upcoming storm? _____

The Arctic

Chapter 11



WORDS TO KNOW

Arctic Circle
tundra
Inuit
igloo
blubber
dogsled
kayak
snowmobile
reindeer
thaw
modern
harsh

The area around the North Pole is known as the Arctic. On globes, this area is shown inside an imaginary circle called the **Arctic Circle**.

Parts of the United States, Canada, and several other countries are inside the Arctic Circle. But most of the Arctic is a body of water called the Arctic Ocean.

The Arctic has a polar climate. The land is covered with ice and snow, and it is very cold for much of the year. The Arctic Ocean is covered with a thick sheet of ice. Parts of the ice sheet melt in the summer, but large areas remain frozen all year.

Winter starts as early as September in the Arctic. The air gets colder and the days get shorter. At the North Pole, the sun does not rise in the sky for six months. It is dark even during the daytime! A little farther south in the Arctic Circle, the sun does rise, but it sets very quickly. It is only light outside for about six hours a day.



In the winter, there is very little sun in the Arctic.

Chapter 14

WORDS TO KNOW

tropical
rain forest

canopy

humid

toucan

bill

latex

mahogany

clearing

stilts

survival

rainy season

scientists

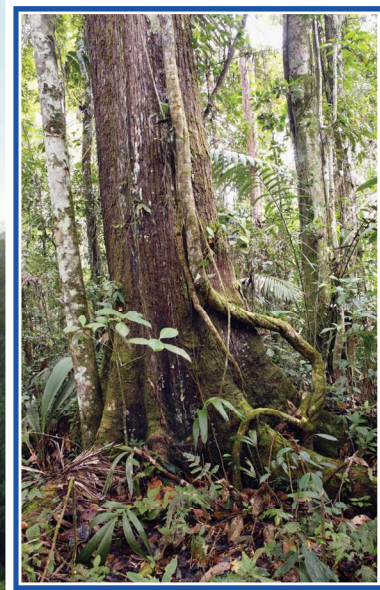
Tropical Rain Forests

In tropical climates near the equator, it is warm and wet all year long. More than one hundred inches of rain may fall during the year. That is higher than the walls of many rooms! Large, dense forests, called **tropical rain forests**, grow in this **humid** climate. Tropical rain forests have more kinds of plants and animals than any other place in the world!

Large rain forests are found in Africa and in Asia. But the largest of all the rain forests in the world is along the Amazon River in South America. It is called the **Amazon rain forest**. The Amazon rain forest covers parts of Brazil and several other South American countries.

The trees of the Amazon rain forest are among the tallest in the world. Some trees reach as high as 150 feet! The trees grow closely together, and the leaves form a **canopy** (KAN-uh-pee), or roof, over the ground below. The green canopy of leaves blocks out the sun and the sky.

The **canopy** of the rain forest serves as a cover over the ground below.





Fires burning
in the Amazon
rain forest

On many days, fires burned in different parts of the forest. That is why Mayra's father had traveled to the city to talk to the men in the government. He knew that the government did not want the forest destroyed. Mayra's father hoped that the government would help stop the destruction of the rain forest.

As she stood in the garden next to her mother, Mayra smelled smoke in the air. She could not see any flames, but she knew that fires were burning somewhere not too far away. She could also hear the sound of trucks and bulldozers rumbling in the distance.

Her mother stood up and began to gather her garden tools. "Mayra, I don't want you to wander into the forest today. We will wait for Dad and Marco at home." As they walked back toward the cabin together, they could see curls of smoke rising above the treetops.

Mayra felt scared. She thought about the different birds and animals in the forest who were losing their homes because of the fires. She was also thinking about her family. What if the fires came too close? What if her family had to move away from their village? Would they move to the city?

All morning, Mayra sat on the steps of their cabin and watched the smoke rising up into the air. She wished that her father and brother would come home soon. Mayra hoped that the people in the government loved the forest as much as she did. She hoped that they would listen to her father and stop the destruction of the forest. Mayra knew that her family and her neighbors were poor, and life was sometimes hard for them. But the Amazon rain forest was their home, and they did not want it to be destroyed.