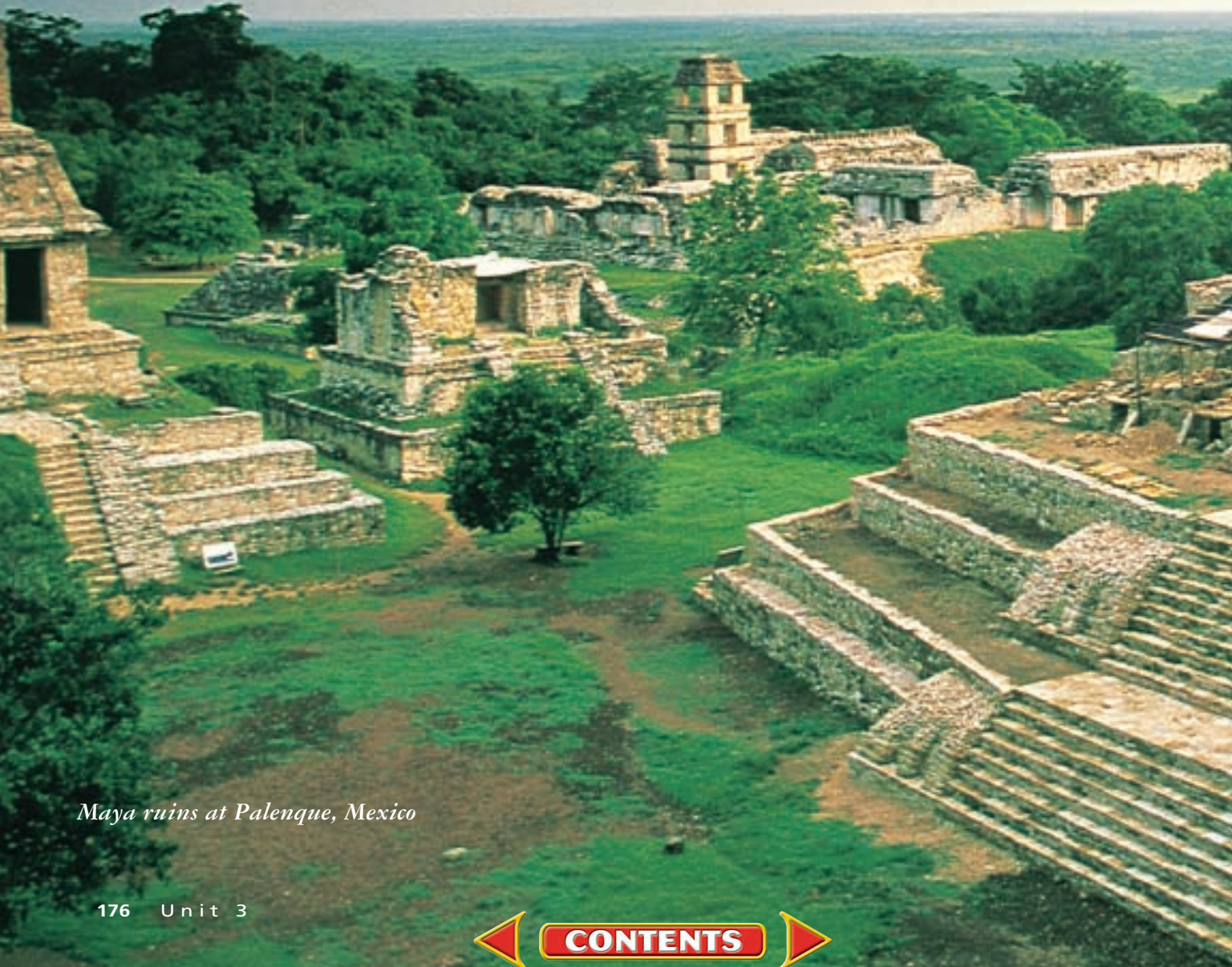




# Latin America



*Maya ruins at Palenque, Mexico*

## WHY IT'S IMPORTANT —

Latin America reflects a unique blend of world cultures, including Native American, European, and African. In turn, Latin America's diverse cultures have spread to other parts of the world. For example, the languages, music, foods, and arts of Latin America have profoundly influenced life in the United States. Today, many Americans are of Latin American descent and maintain close ties to their heritage. In addition, Americans and Latin Americans are close trading partners. They share democratic values based on human rights and revolt from European rule.



### World Regions Video

To learn more about Latin America and its impact on your world, view the World Regions video "Latin America."

## *What Makes Latin America a Region?*

**S**panning more than 85 degrees of latitude, Latin America encompasses Mexico, Central America, the Caribbean Islands, and South America. It is a region of startling contrasts.

High mountains run from northern Mexico through the heart of Central America. The higher peaks of the Andes course down South America's western side.

Elsewhere, broad plateaus span huge areas. At still lower elevations, plains dominate the landscape. These great grasslands, such as the pampas in Argentina and the llanos in Venezuela and Colombia, are ideal for grazing cattle and sheep.

But when people think of Latin America, it's often rain forests that come to mind. Eternally wet, intensely green, and bursting with life, rain forests cover parts of many Caribbean islands and Central American countries. Yet none of these compare to the Amazon rain forest of Brazil. Drained by the Amazon River, this lowland forest covers one-third of South America and is home to nearly half of the world's plant and animal species.



1

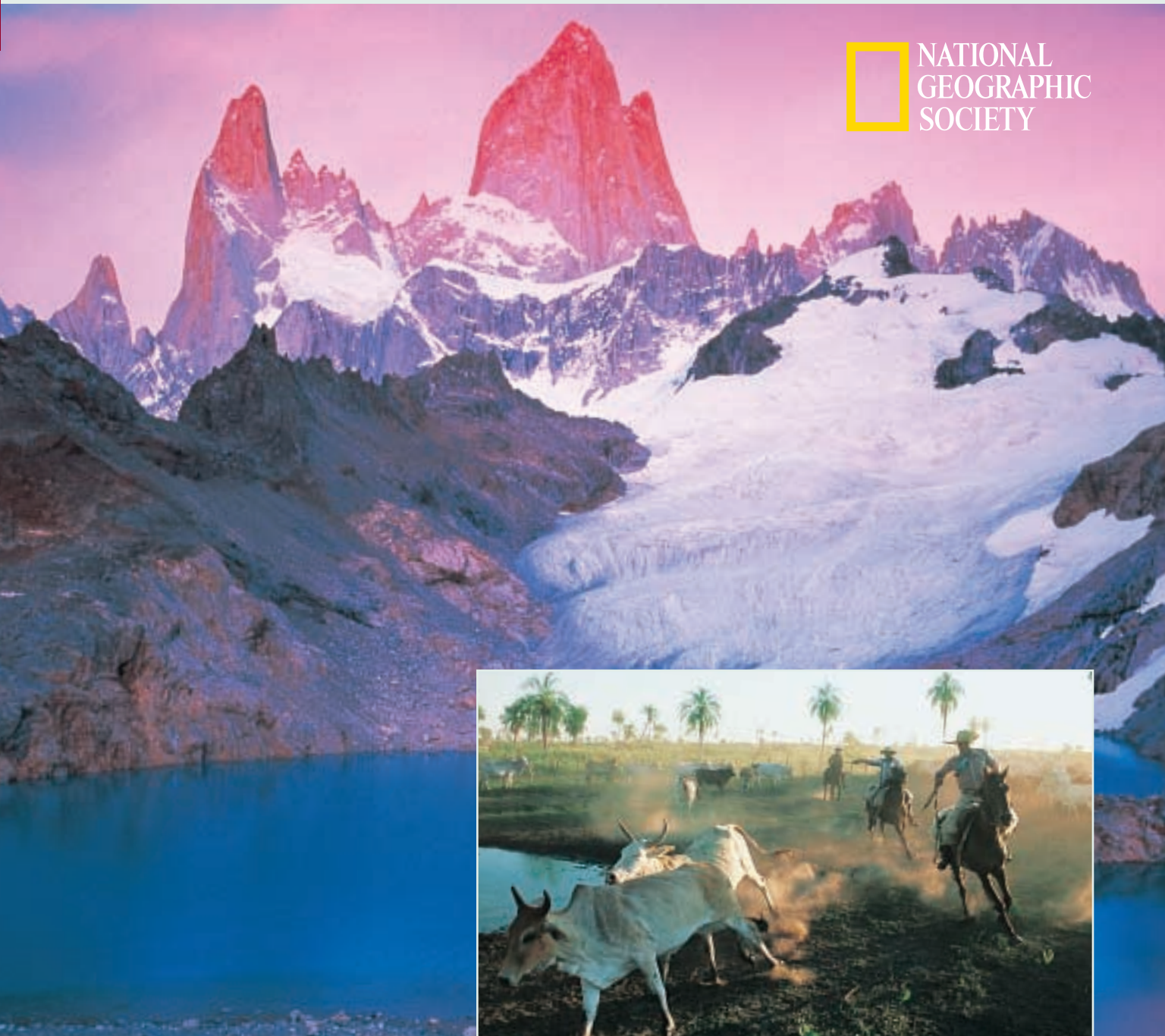
**1** Like a cartoon come to life, a brightly colored toucan calls out from a leafy perch in a Costa Rican rain forest. A toucan's enormous beak has serrated edges that help the bird get a good grip on slippery-skinned fruits.



3



2



**2 Rust-red terraces** curve around the Carajás iron mine, in Brazil. This mine boasts the world's largest deposit of high-quality iron ore. Tin, copper, silver, oil, and natural gas are among Latin America's other important natural resources.

**3 Like jagged teeth** in some enormous jaw, the snow-covered peaks of the Andes guard South America's western flank. The world's longest mountain chain, the Andes stretch the entire length of the continent.

**4 On the plains of Paraguay,** cowboys known as vaqueros round up cattle before driving them to fresh pastures. The western part of Paraguay, the Gran Chaco, is a grassland area where cattle roam on large ranches.

## *Mix of Old and New*

Latin America is a region where cultures have collided and combined. Maya, Aztec, and Inca civilizations flourished here long ago. Then Europeans arrived in the late 1400s. For more than 300 years, Spain and Portugal controlled most of Latin America. They forced new laws, new languages, and a new religion onto the region's inhabitants. Yet native cultures survived by blending with those of the conquerors.

Today, the faces, costumes, and customs of many Latin Americans reveal their mixed heritage.

This is a region of developing nations—countries in the process of becoming industrialized. Latin America's urban population is increasing rapidly as people flock from the countryside to modern, bustling cities.



1

**1** **Music fills the air** as a young Ecuadoran plays the panpipe, a traditional Andean instrument. Many of the people who live in the Andes are Native Americans—descendants of the Inca and other groups that flourished here before the arrival of Europeans.



3



2



4

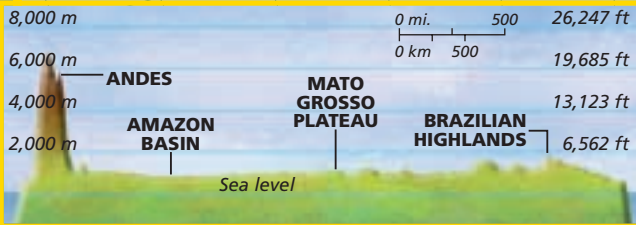
**2 Villages and farms** dot the highlands near Cuzco, Peru. The economies of many Latin American countries are still based largely on agriculture, though manufacturing and other industries play an increasingly important role.

**3 Arms outstretched** as if in blessing, a huge statue of Jesus keeps watch over the sprawling city of Rio de Janeiro, Brazil. Most Latin Americans are Catholic, a legacy from the days of Spanish and Portuguese rule.

**4 A glass-covered bridge** links a hotel to a convention center, part of a new business complex in Monterrey, Mexico. Among Latin American countries, Mexico has been one of the quickest to modernize and industrialize.

## Latin America

### PHYSICAL



Elevation Profile

**POLITICAL**



**MAP Study**

- Through which country do most South American rivers flow?
- What European and North American countries have territories in Latin America?



#### POPULATION DENSITY



**ECONOMIC ACTIVITY**



**Land Use**

- Commercial farming
- Subsistence farming
- Livestock raising
- Forests
- Manufacturing and trade
- Commercial fishing
- Little or no activity

**Resources**

Coal	Bauxite
Petroleum	Nickel
Natural gas	Copper
Uranium	Lead
Iron ore	Manganese
Tin	Gold
Zinc	Silver






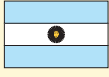






























**MAP Study**

1. Where are most of the coal deposits in Latin America located?
2. Which areas of Latin America are most densely populated?





































0 mi. 1,000  
0 km 1,000  
Lambert Azimuthal Equal-Area projection

## Latin America

### COUNTRY PROFILES

COUNTRY * AND CAPITAL	FLAG AND LANGUAGE	POPULATION AND DENSITY	LANDMASS	MAJOR EXPORT	MAJOR IMPORT	CURRENCY	GOVERNMENT
<b>ANTIGUA AND BARBUDA</b>  St. John's	 English	100,000 394 per sq.mi. 152 per sq.km	170 sq.mi. 440 sq.km	 Petroleum Products	 Foods and Livestock	East Caribbean Dollar	Parliamentary Democracy
<b>ARGENTINA</b>  Buenos Aires	 Spanish	37,500,000 35 per sq.mi. 14 per sq.km	1,073,514 sq.mi. 2,780,401 sq.km	 Meat	 Machinery	Peso	Republic
<b>BAHAMAS</b>  Nassau	 English, Creole	300,000 58 per sq.mi. 23 per sq.km	5,359 sq.mi. 13,880 sq.km	 Pharma- ceuticals	 Foods	Bahamian Dollar	Parliamentary Democracy
<b>BARBADOS</b>  Bridgetown	 English	300,000 1,620 per sq.mi. 626 per sq.km	166 sq.mi. 430 sq.km	 Sugar	 Manufactured Goods	Barbados Dollar	Parliamentary Democracy
<b>BELIZE</b>  Belmopan	 English	300,000 29 per sq.mi. 11 per sq.km	8,865 sq.mi. 22,960 sq.km	 Sugar	 Machinery	Belize Dollar	Parliamentary Democracy
<b>BOLIVIA</b>  La Paz Sucre	 Spanish, Quechua, Aymara	8,500,000 20 per sq.mi. 8 per sq.km	424,162 sq.mi. 1,098,580 sq.km	 Metals	 Machinery	Boliviano	Republic
<b>BRAZIL</b>  Brasilia	 Portuguese	171,800,000 52 per sq.mi. 20 per sq.km	3,300,154 sq.mi. 8,547,399 sq.km	 Iron Ore	 Crude Oil	Real	Federal Republic
<b>CHILE</b>  Santiago	 Spanish	15,400,000 53 per sq.mi. 20 per sq.km	292,135 sq.mi. 756,626 sq.km	 Copper	 Machinery	Peso	Republic
<b>COLOMBIA</b>  Bogotá	 Spanish	43,100,000 98 per sq.mi. 38 per sq.km	439,734 sq.mi. 1,138,511 sq.km	 Petroleum	 Machinery	Peso	Republic




























\* COUNTRIES AND FLAGS NOT DRAWN TO SCALE

COUNTRY * AND CAPITAL	FLAG AND LANGUAGE	POPULATION AND DENSITY	LANDMASS	MAJOR EXPORT	MAJOR IMPORT	CURRENCY	GOVERNMENT
<b>COSTA RICA</b>  San José	 Spanish	3,700,000 188 per sq. mi. 73 per sq. km	19,730 sq. mi. 51,100 sq. km	 Coffee	 Raw Materials	Colón	Republic
<b>CUBA</b>  Havana	 Spanish	11,300,000 264 per sq. mi. 102 per sq. km	42,803 sq. mi. 110,860 sq. km	 Sugar	 Petroleum	Peso	Communist State
<b>DOMINICA</b>  Roseau	 English, French	100,000 262 per sq. mi. 101 per sq. km	290 sq. mi. 751 sq. km	 Bananas	 Manufactured Goods	East Caribbean Dollar	Republic
<b>DOMINICAN REPUBLIC</b>  Santo Domingo	 Spanish	8,600,000 456 per sq. mi. 176 per sq. km	18,815 sq. mi. 48,731 sq. km	 Ferro-nickel	 Foods	Peso	Republic
<b>ECUADOR</b>  Quito	 Spanish, Quechua	12,900,000 118 per sq. mi. 46 per sq. km	109,483 sq. mi. 283,561 sq. km	 Petroleum	 Transport Equipment	Sucre	Republic
<b>EL SALVADOR</b>  San Salvador	 Spanish	6,400,000 788 per sq. mi. 304 per sq. km	8,124 sq. mi. 21,041 sq. km	 Coffee	 Raw Materials	Colón	Republic
<b>FRENCH GUIANA (FRANCE)</b>  Cayenne	 French	200,000 6 per sq. mi. 2 per sq. km	34,749 sq. mi. 89,999 sq. km	 Shrimp	 Foods	French Franc	Overseas Department of France
<b>GRENADA</b>  St. George's	 English, French	100,000 678 per sq. mi. 262 per sq. km	131 sq. mi. 339 sq. km	 Bananas	 Foods	East Caribbean Dollar	Parliamentary Democracy
<b>GUATEMALA</b>  Guatemala City	 Spanish, Mayan Languages	13,000,000 309 per sq. mi. 119 per sq. km	42,042 sq. mi. 108,889 sq. km	 Coffee	 Petroleum	Quetzal	Republic













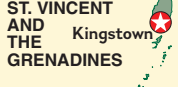























\* COUNTRIES AND FLAGS NOT DRAWN TO SCALE

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### COUNTRY PROFILES

COUNTRY * AND CAPITAL	FLAG AND LANGUAGE	POPULATION AND DENSITY	LANDMASS	MAJOR EXPORT	MAJOR IMPORT	CURRENCY	GOVERNMENT
<b>GUYANA</b> Georgetown	 English	700,000 8 per sq. mi. 3 per sq. km	83,000 sq. mi. 214,969 sq. km	 Sugar	 Manufactured Goods	Guyana Dollar	Republic
<b>HAITI</b> Port-au-Prince	 French, Creole	7,000,000 650 per sq. mi. 251 per sq. km	10,714 sq. mi. 27,750 sq. km	 Manufactured Goods	 Machinery	Gourde	Republic
<b>HONDURAS</b> Tegucigalpa	 Spanish	6,700,000 155 per sq. mi. 60 per sq. km	43,278 sq. mi. 112,090 sq. km	 Bananas	 Machinery	Lempira	Republic
<b>JAMAICA</b> Kingston	 English, Creole	2,600,000 624 per sq. mi. 241 per sq. km	4,243 sq. mi. 10,989 sq. km	 Alumina	 Machinery	Jamaican Dollar	Parliamentary Democracy
<b>MEXICO</b> Mexico City	 Spanish, Native American Languages	99,600,000 132 per sq. mi. 51 per sq. km	756,062 sq. mi. 1,958,201 sq. km	 Crude Oil	 Machinery	Peso	Federal Republic
<b>NICARAGUA</b> Managua	 Spanish	5,200,000 104 per sq. mi. 40 per sq. km	50,193 sq. mi. 129,999 sq. km	 Coffee	 Manufactured Goods	Cordoba	Republic
<b>PANAMA</b> Panama City	 Spanish	2,900,000 100 per sq. mi. 39 per sq. km	29,158 sq. mi. 75,519 sq. km	 Bananas	 Machinery	Balboa	Republic
<b>PARAGUAY</b> Asunción	 Spanish, Guaraní	5,700,000 36 per sq. mi. 14 per sq. km	157,046 sq. mi. 406,749 sq. km	 Cotton	 Machinery	Guaraní	Republic
<b>PERU</b> Lima	 Spanish, Quechua, Aymara	26,100,000 53 per sq. mi. 20 per sq. km	496,224 sq. mi. 1,285,220 sq. km	 Copper	 Machinery	Nuevo Sol	Republic

\* COUNTRIES AND FLAGS NOT DRAWN TO SCALE

COUNTRY * AND CAPITAL	FLAG AND LANGUAGE	POPULATION AND DENSITY	LANDMASS	MAJOR EXPORT	MAJOR IMPORT	CURRENCY	GOVERNMENT
<b>PUERTO RICO (U.S.)</b> 	 Spanish, English	3,900,000 1,139 per sq. mi. 440 per sq. km	3,456 sq. mi. 8,951 sq. km	 Pharma- ceuticals	 Chemical Products	U.S. Dollar	U. S. Commonwealth
<b>ST. KITTS AND NEVIS</b> 	 English	40,000 281 per sq. mi. 108 per sq. km	139 sq. mi. 360 sq. km	 Machinery	 Electronic Goods	East Caribbean Dollar	Parliamentary Democracy
<b>ST. LUCIA</b> 	 English, French	200,000 656 per sq. mi. 253 per sq. km	239 sq. mi. 619 sq. km	 Bananas	 Foods	East Caribbean Dollar	Parliamentary Democracy
<b>ST. VINCENT AND THE GRENADINES</b> 	 English, French	100,000 757 per sq. mi. 297 per sq. km	151 sq. mi. 391 sq. km	 Bananas	 Foods	East Caribbean Dollar	Parliamentary Democracy
<b>SURINAME</b> 	 Dutch	400,000 7 per sq. mi. 3 per sq. km	63,039 sq. mi. 163,271 sq. km	 Bauxite	 Machinery	Suriname Guilder	Republic
<b>TRINIDAD AND TOBAGO</b> 	 English	1,300,000 656 per sq. mi. 253 per sq. km	1,981 sq. mi. 5,131 sq. km	 Petroleum	 Machinery	Trinidad and Tobago Dollar	Republic
<b>URUGUAY</b> 	 Spanish	3,400,000 49 per sq. mi. 19 per sq. km	68,498 sq. mi. 177,410 sq. km	 Wool	 Machinery	Peso	Republic
<b>VENEZUELA</b> 	 Spanish	24,600,000 70 per sq. mi. 27 per sq. km	352,143 sq. mi. 912,050 sq. km	 Petroleum	 Raw Materials	Bolivar	Federal Republic
<b>VIRGIN ISLANDS (U.S.)</b> 	 English	120,917 713 per sq. mi. 276 per sq. km	134 sq. mi. 347 sq. km	 Chemical Products	 Crude Oil	U.S. Dollar	U.S. Territory

\* COUNTRIES AND FLAGS NOT DRAWN TO SCALE

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# GLOBAL CONNECTION

LATIN AMERICA AND THE UNITED STATES

## FOOD CROPS



If you've had cornflakes, French fries, or a chocolate bar recently, you can thank Latin America. That's because these foods all are made from crops that originated there.

About 10,000 years ago, Native Americans in what is now Mexico gathered ears of wild corn for food. Between 5000 B.C. and 3500 B.C., they domesticated the plants and began raising them. Corn became a staple in the diets of the Maya and Aztec peoples. Gradually, corn cultivation spread from Mexico, eventually reaching the northeastern part of North America.

When European colonists arrived on America's eastern shores, Native Americans taught them how to grow this crop. It's been an important part of American agriculture ever since. In fact, the United States now leads the world in corn production.

Roughly 2,000 years ago, people in South America's Andes began cultivating potatoes, which are native to that area. When Spanish and English explorers arrived in the 1500s, they sampled potatoes and then carried some back to their homelands. It took a while for Europeans to develop a taste for these strange-looking tubers. But by the 1700s, potatoes were widely grown, especially in Ireland. Immigrants

from Europe brought potatoes to the American colonies.

Chocolate is made from the seeds of cacao, a tree native to the Amazon River basin. How and when cacao seeds arrived in Central





▲ Guatemalan farmer carrying cornstalks

America remains a mystery, but we do know that cacao came to play a major role in Maya and Aztec cultures. The Aztec believed that cacao seeds were a gift from heaven. The seeds were ground up to make a rich beverage called *xocoatl* (shoh•KOH•ahtl). However, the drink wasn't sweet. It was rather bitter and spiced with chili peppers!

In 1519 the Spanish explorer Hernán Cortés was served a cup of *xocoatl* by an Aztec ruler. When Cortés returned home, he took cacao seeds with him and introduced the drink to Spain. The Spanish made a few alterations. Their "chocolate" was sweetened with sugar and flavored with cinnamon and vanilla. For about 80 years, the Spanish kept their new beverage a secret. Once word got

out, though, a chocolate craze spread across Europe.

When chocolate first arrived in the American colonies, it was an expensive European delicacy that only the wealthy could afford. Then in 1765, cacao seeds began to be imported directly, and relatively cheaply, from the West Indies.

Finally, the average American was able to afford what the Aztec believed was the "food of the gods."



▲ Pod containing cacao seeds





CHAPTER

# 8

# The Physical Geography of Latin America

## GeoJournal

As you read this chapter, use your journal to describe the geographic features of Latin America. Choose strong, vivid terms to capture the beauty, grandeur, and economic importance of the physical features of the region.



**Chapter Overview** Visit the **Glencoe World Geography** Web site at [tx.geography.glencoe.com](http://tx.geography.glencoe.com) and click on Chapter Overviews—Chapter 8 to preview information about the physical geography of the region.

**CLICK HERE**

**CONTENTS**

## Guide to Reading

### Consider What You Know

News accounts of natural disasters in Latin America describe the destruction caused by hurricanes, earthquakes, and volcanic eruptions. What geographic factors might make the region vulnerable to such natural disasters?

### Read to Find Out

- How do geographers divide the large region known as Latin America?
- What factors have shaped the formation of Latin America's landforms?
- How has the Latin American landscape influenced patterns of human settlement?
- What natural resources make Latin America an economically important region?

### Terms to Know

- cordillera
- altiplano
- escarpment
- llano
- pampa
- gaucho
- hydroelectric power
- estuary

### Places to Locate

- Amazon River
- Middle America
- Central America
- West Indies
- South America
- Sierra Madre
- Andes
- Mexican Plateau
- Patagonia
- Mato Grosso Plateau
- Rio Grande
- Río de la Plata

◀ View from the top of the Iguazu Falls, Brazil

# The Land



## A Geographic View

### On the Amazon

*I watched the river. Each boat carried a tiny cross-section of Amazon society. . . . Canoes drifted past. Small wooden passenger boats or traders mumbled their smoky way downstream. No matter how blue the sky, the river never caught the color in its reflection; it was loaded with sediment carved from the Andes. Logs and brush and whirlpools moved past in endless flow, and river dolphins rolled ahead of us.*

—Jere van Dyk, "Amazon: South America's River Road," National Geographic, February 1995



Brazilian riverboat

From the headwaters of the Peruvian Andes to the Atlantic coast of Brazil, the **Amazon River** winds about 4,000 miles (6,400 km) through the heart of South America. This mighty river, the world's second longest, is only one prominent feature of Latin America's large and varied landscape. In this section you will explore the region's physical geography: mountains, islands, coastal lowlands, plains, and waterways.

## A Vast Region

Located in the Western Hemisphere south of the United States, Latin America has a land area of about 8 million square miles (20,700,000 sq. km)—nearly 16 percent of the earth's surface. The countries of the region share a heritage of settlement by Europeans, especially those from Spain and Portugal. Most of these settlers spoke Spanish or Portuguese—languages based on Latin, the language of the ancient Roman Empire, which gives the region its name.

Geographers usually divide Latin America into three areas—Middle America, the Caribbean, and South America. **Middle America** consists of Mexico and the seven countries of **Central America**, the stretch of land that links the landmasses of North and South America. The Caribbean islands, also known as the **West Indies**, fall into three groups—the Bahamas, the Greater Antilles, and the Lesser Antilles. The continent of **South America** is by far the largest land area of Latin America. Among South America’s 13 countries, Brazil is the largest in both land area and population.

## Mountains and Plateaus

One of Latin America’s most distinctive landforms is its towering mountains. Thrusting upward in countless folds and ridges, this mountainous profile begins in North America as the Rocky Mountains and extends all the way to South America’s southern tip. The mountains’ names change as you move south. In Mexico they are the **Sierra Madre**; in Central America, the Central Highlands; and in South America, the **Andes**.

Latin America has such a rugged landscape because much of the region sits along the Pacific Ring of Fire, where plates of the earth’s crust have collided for billions of years. These collisions have formed mountains and volcanoes and have caused tremendous earthquakes. They continue to change the landscape today. In 1999, for example, a strong earthquake reduced to rubble many towns and villages in northwestern South America.

Despite obstacles, the mountains and plateaus of Latin America have been places of human settlement for thousands of years. People wanting to

escape the heat of the lowland areas have been drawn to cooler mountain climates. They also have been attracted by the mountains’ rich natural resources—water, volcanic soil, timber, and minerals. Historically, Latin America’s rugged terrain has tended to block movement and trade and to isolate regions and peoples. In recent decades radio, television, air transport, and the Internet have begun to break down old physical barriers.

## Mountains of Mexico, Central America, and the Caribbean

Look at the physical-political map on page 195. Notice that Mexico’s Sierra Madre consists of two mountain ranges—the Sierra Madre Oriental (“Eastern”) and the Sierra Madre Occidental (“Western”)—that meet near Mexico City to form the sharp-peaked Sierra Madre del Sur (“of the South”). These ranges surround the densely populated **Mexican Plateau**, which covers much of central Mexico. In the plateau’s southern area, the mild climate, fertile volcanic soil, and adequate rainfall have attracted human settlement for thousands of years.

Farther south, the Central Highlands, a chain of volcanic mountains, rise like a backbone across Central America. Many Caribbean islands are also part of this mountain range, which extends across the bed of the Caribbean Sea. The islands are actually volcanic peaks that rise above sea level. Some of these volcanoes are still active, which can make living on these islands hazardous.

## Andes of South America

None of Latin America’s other mountains compare with the 4,500-mile (7,242-km) stretch of the Andes along the western edge of South America. Their extent makes the Andes the world’s longest mountain range, as well as one of the highest, with some peaks rising to more than 20,000 feet (6,096 m) above sea level. The Andes consist of several ranges that run parallel to one another like deep folds in a carpet. Such parallel ranges are called **cordilleras** (KAWR•duhl•YEHR•uhs).

In Peru and Bolivia, the spectacular Andes peaks encircle a region called the **altiplano**, which means “high plain.” In southern Argentina, hills and lower flatlands form the plateau of **Patagonia**.





**Latin America: Physical-Political**



**Geography Skills for Life**

- 1. Interpreting Maps** What physical features surround the Mexican Plateau?
- 2. Applying Geography Skills** Which South American rivers flow through highlands areas? Lowlands areas?

Find NGS online map resources @ [www.nationalgeographic.com/maps](http://www.nationalgeographic.com/maps)

Wildlife expert William Franklin describes the windswept Patagonia region at the southern end of South America:

“The sky is full of mountains in this country. I often get a sore neck from admiring these Andean peaks as we trek on foot and horseback over the plains and hills. The wind is our constant companion; locals advise that if you want to see Patagonia, just stand still and it will all blow past you.”

William Franklin, “Patagonia Puma: The Lord of Land’s End,” *National Geographic*, January 1991

## Highlands of Brazil

Eastern South America is marked by broad plateaus and valleys. The **Mato Grosso Plateau**, a sparsely populated plateau of forests and grasslands, spreads over much of Brazil and across the west to Bolivia and Peru. East of the Mato Grosso Plateau lie the Brazilian Highlands, a plateau so


vast that it spans several climate and vegetation zones. On the eastern edge of the Brazilian Highlands, the plateau plunges sharply to the Atlantic Ocean, forming a steep cliff or slope called an **escarpment**.

## Lowlands and Plains

Narrow coastal lowlands wind their way along the Gulf of Mexico and the Caribbean and also hem the Atlantic and Pacific coasts of South America. One of the longest strips of coastal plain in Latin America lies along Brazil’s Atlantic coast. In north-eastern Brazil, this plain is about 40 miles (60 km) wide but narrows considerably as it winds southward. Between Rio de Janeiro and the southeastern seaport of Santos, the plain disappears entirely, only to reappear and widen again near Brazil’s borders with Uruguay and Argentina. Hemmed in by highland escarpment, Brazil’s coastal plain has been a major area of settlement and economic activity since the 1500s.

Inland areas of South America hold vast grasslands: the **llanos** (LAH•nohs) of Colombia and Venezuela, and the **pampas** of Argentina and

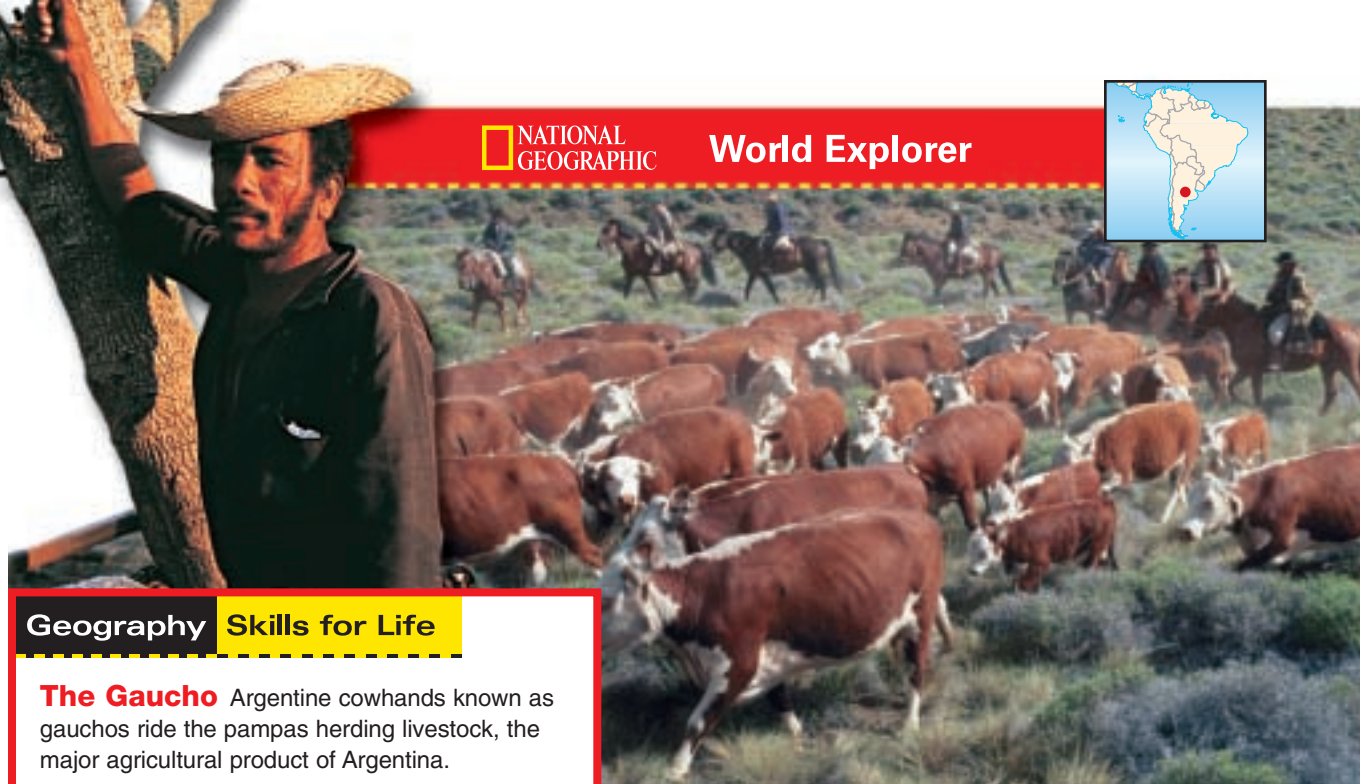
**NATIONAL GEOGRAPHIC** **World Explorer**



**Geography Skills for Life**

**The Coast of Brazil** Ipanema Beach in Rio de Janeiro is a popular tourist area.

**Place** Describe the physical environment in which Rio de Janeiro is located.



**Geography Skills for Life**

**The Gaucho** Argentine cowhands known as gauchos ride the pampas herding livestock, the major agricultural product of Argentina.

**Human-Environment Interaction** How does terrain in Argentina support cattle ranching?

Uruguay. Both plains areas provide wide grazing lands for beef cattle. Ranchers on large estates employ cowhands, called *llaneros* in the llanos and **gauchos** in the pampas, to drive great herds of cattle across the rolling terrain. Known for its fertile soil, the pampas region is one of the world’s major “breadbaskets,” producing an abundance of wheat and corn. Many people in the pampas region grow crops on small- and medium-sized farms.

## Water Systems

Like a massive circulatory system, Latin America’s many waterways serve as arteries that transport people and goods to different parts of the region and the world. Most of the region’s major rivers are in South America. One important exception is the **Rio Grande**, or *Río Bravo del Norte* (“Wild River of the North”), which forms part of the long border between Mexico and the United States.

### Economics

#### Rivers of South America

Middle America’s rivers are generally small, but the rivers that cross South America are gigantic. The Amazon is the Western Hemisphere’s longest river

and carries ten times the water volume of the Mississippi River. Hundreds of smaller rivers join the Amazon as it journeys from the Andes to the Atlantic Ocean. These rivers together form the Amazon Basin, which drains parts of Bolivia, Peru, Ecuador, Colombia, and Venezuela, as well as Brazil. Despite the tremendous force of water at its mouth, the Amazon is navigable. Oceangoing ships can travel upstream as far as 2,300 miles (3,701 km) from the Atlantic coast.

The Paraná, Paraguay, and Uruguay Rivers together form the second-largest river system in Latin America. This system drains the rainy eastern half of South America. Important commercial highways, these three rivers provide inland water routes and **hydroelectric power**—electricity generated from the energy of water—for Argentina, Bolivia, Brazil, Paraguay, and Uruguay. After coursing through inland areas, the three rivers flow into a broad **estuary**, an area where the tide meets a river



**Student Web Activity** Visit the **Glencoe World Geography** Web site at [tx.geography.glencoe.com](http://tx.geography.glencoe.com) and click on Student Web Activities—Chapter 8 for an activity about the physical geography of Costa Rica.

current. This estuary, the **Río de la Plata** (“River of Silver”), meets the Atlantic Ocean. Buenos Aires, the capital of Argentina, and Montevideo, the capital of Uruguay, lie along the Río de la Plata.

## Lakes

Latin America has few large lakes. The region does include the world’s highest navigable lake, Lake Titicaca (TEE•tee•KAH•kah), in the Andes of Bolivia and Peru. Lake Titicaca lies about 12,500 feet (3,810 km) above sea level. The area surrounding Lake Titicaca was one of the centers of early Native American civilization. It holds many architectural remains from the distant past. Lake Maracaibo (MAH•rah•KY•boh) in Venezuela is regarded as South America’s largest lake, even though it is actually an inlet of the Caribbean Sea. Lake Maracaibo and the surrounding area contain the most important oil fields in Venezuela. The largest lake in Central America is Lake Nicaragua, which lies between Nicaragua and Costa Rica.



Gold mask from Ecuador, about 500 B.C.–A.D. 500

beds located in mountain valleys and in offshore areas, especially along the Gulf of Mexico and in the southern Caribbean Sea. These deposits help make Mexico and Venezuela leading oil producers.

Latin America’s mineral wealth was first mined by Native American peoples and later by European colonists. The foothills along Venezuela’s Orinoco River contain large amounts of gold. Brazil also is rich in gold, while Peru and

Mexico are known for silver. Mines in Colombia have been producing the world’s finest emeralds—precious green stones composed of beryllium—for more than 1,000 years. Even Latin America’s nonprecious minerals have great economic value. Chile is the world’s largest exporter of copper, and Jamaica is a leading source of bauxite, the main ore of aluminum. Bolivia and Brazil have large reserves of tin.

Not all of Latin America’s countries share equally in this bounty. Geographic inaccessibility, lack of capital for development, and deep social and political divisions keep many of the region’s natural resources from being developed fully or distributed evenly. The challenge for Latin Americans in the future is how to overcome these obstacles and make the best use of the region’s natural resources.

## Natural Resources

Latin America has significant natural resources, including minerals, forests, farmland, and water. Major deposits of oil and natural gas lie in rock

## TAKS Practice

### SECTION 1 ASSESSMENT

#### Checking for Understanding

- Define** cordillera, altiplano, escarpment, llano, pampa, gaucho, hydroelectric power, estuary.
- Main Ideas** Use a table like the one below to describe Latin America’s three main geographic areas. Then choose one area, and explain how it differs from the other two.

Geographic Area	Physical Features

#### Critical Thinking

- Identifying Cause and Effect** How do the physical features of Latin America affect everyday life? Give examples.
- Drawing Conclusions** Why does much of South America have the potential to produce hydroelectric power?
- Making Inferences** What factors make Latin America important to the global economy?

#### Analyzing Maps

- Region** Study the physical-political map on page 195. What part of South America is dominated by mountains?

#### Applying Geography

- Effects of Landforms** Think about the physical features of South America. Write a descriptive paragraph explaining how landforms affect the course of South America’s water systems.

## Guide to Reading

### Consider What You Know

Most of Latin America's people live in an area between the Tropic of Cancer and the Tropic of Capricorn, an area that includes the Equator. What types of climate and vegetation would you expect to find in this broad area?

### Read to Find Out

- Which climate regions are represented in Latin America?
- How do Latin America's location and landforms affect climates even within particular regions?
- How are the natural vegetation and agriculture of Latin America influenced by climatic factors?

### Terms to Know

- canopy
- *tierra caliente*
- *tierra templada*
- *tierra fría*

### Places to Locate

- Amazon Basin
- Colombia
- Venezuela
- Argentina
- Uruguay
- Atacama Desert

# Climate and Vegetation

NATIONAL GEOGRAPHIC

## A Geographic View

### Exploring Chile's Mountains

*Green was the color we least expected when we landed on [Chile's] Sarmiento [ranges]. . . . Mosses and lichens carpeted the rocks above an iceberg-littered bay. . . . After several days of exploring, our progress thwarted by glacial canyons and snarly ice-falls, we discovered a route to the peaks. . . . To reach the ridge, we had to hack through rain forest, our skis catching on limbs, our boots slipping off logs.*

—Jack Miller, “Chile’s Uncharted Cordillera Sarmiento,” National Geographic, April 1994



Sarmiento peak and bay

Diverse climates make Latin America a region of sharp contrasts. To reach the glacial peaks of Chile's Cordillera Sarmiento, for example, climbers must trek through nearly impenetrable tropical vegetation. Steamy rain forests, arid deserts, grassy plains, and sandy beaches are all part of the region. In this section you will learn about Latin America's various climate regions and how the region's climates and landforms together influence natural vegetation and the growing of crops.

## Climate and Vegetation Regions

Much of Latin America lies between the Tropic of Cancer and the Tropic of Capricorn. As a result, vast areas of the region have some form of tropical climate with lush green vegetation. Yet, even within the Tropics, mountain ranges and wind patterns create a variety of climates and natural vegetation in Latin America. The





Latin America: Climate Regions

Latin America: Natural Vegetation



Geography Skills for Life

1. **Interpreting Maps** What area of South America has a humid subtropical climate?

2. **Applying Geography Skills** What are the predominant types of natural vegetation between the Tropic of Cancer and the Tropic of Capricorn?

Find NGS online map resources @ [www.nationalgeographic.com/maps](http://www.nationalgeographic.com/maps)

maps above show Latin America’s climate regions and natural vegetation zones.

**Tropical Regions**

A tropical rain forest climate and vegetation dominate southern Mexico, eastern Central America, some Caribbean islands, and parts of South America. Hot temperatures and abundant rainfall occur year-round. In the **Amazon Basin**, this combination results from the area’s location on the Equator and the patterns of the prevailing winds.

**The Rain Forest**

Wet tropical areas of Latin America have a dense cover of rain forest, or *selva* as it is called in Brazil. Latin American rain forests contain a variety of trees, including tropical hardwoods, palms,

tree ferns, and bamboos. In Latin America’s tropical rain forest areas, broad-leafed and needle-leafed evergreen trees are so close together that their crowns form a dense **canopy**, or a continuous layer of leaves. The canopy may soar to 130 feet (40 m) and is so dense that sunlight seldom reaches the forest floor. Plants beneath the canopy must be shade tolerant.

The Amazon Basin, with Earth’s largest rain forest, covers about one-third of South America. It is also the world’s wettest tropical plain. Heavy rains drench much of the densely forested lowlands throughout the year, but especially between January and June. During the months of heavy rainfall, large areas crossed by the Amazon River are often severely flooded. In Brazil, the width of the river ranges between 1 and 6 miles (1.6 and

10 km) but enlarges to 30 miles (48 km) or more during annual flooding.

The Amazon rain forest shelters more species of plants and animals per square mile than anywhere else on Earth. One journalist described a recent survey by scientists from the Smithsonian Institution in Washington, D.C.:

“Here at this one site on the Equator, in about 1,500 acres, scientists have counted 3,000 species of plants, 530 species of birds, nearly 80 species of bats, and 11 species of primates. There are jaguars and other wild cats, tapir, deer, otters, capybaras, and agoutis. . . .”

Virginia Morell, “The Variety of Life,”  
*National Geographic*, February 1999

The Amazon rain forest is also a habitat for many reptiles. The snakes there include boas and anacondas. Iguanas and crocodiles also are found in many rain forests. Rivers and streams teem with varied and abundant freshwater fish.

## Tropical Savanna

A tropical savanna climate is typical of the coast of southwestern Mexico, most Caribbean islands, and north-central South America. These areas have hot temperatures and abundant rainfall but also experience an extended dry season. In many tropical savanna areas, vast grasslands flourish. Some of these grasslands, such as the llanos of **Colombia** and **Venezuela**, are covered with scattered trees and are considered transition zones between grasslands and forests.

### History

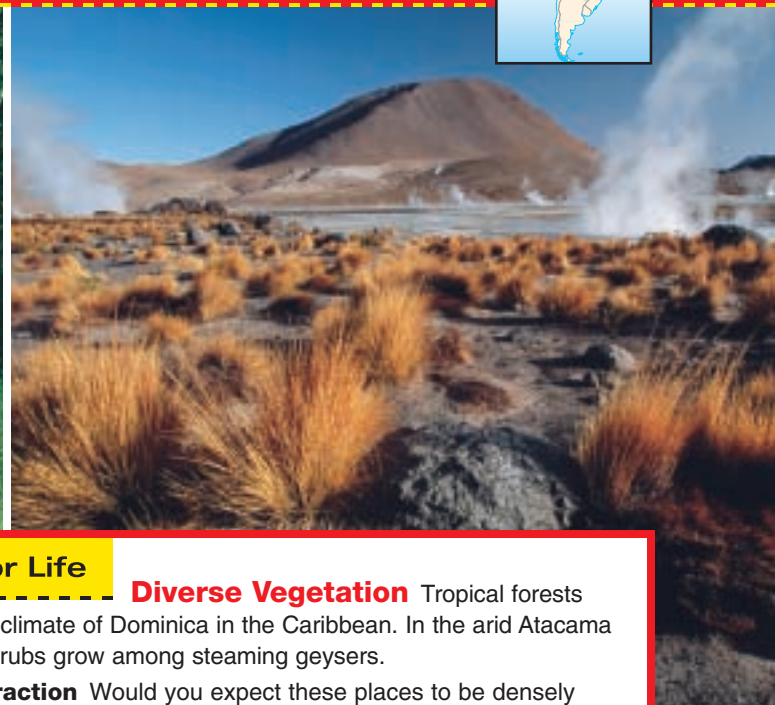
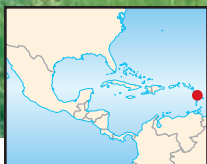
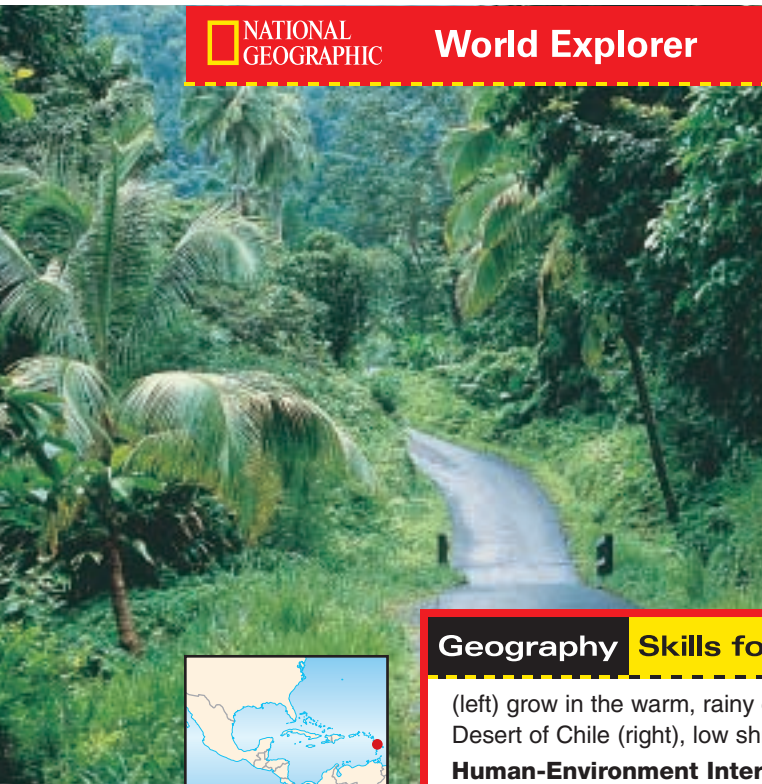
## The Humid Subtropics

A humid subtropical climate prevails over much of southeastern South America, from Rio de Janeiro, Brazil, to the pampas of **Argentina** and **Uruguay**. In this area, winters are short and mild, and summers are long, hot, and humid. Summers occasionally bring short dry periods.

The vast pampas today consist primarily of short grasses but once had scattered trees. Spanish settlers brought cattle and horses to the pampas and cut down trees to set up ranches. Overgrazing



## World Explorer



### Geography Skills for Life

**Diverse Vegetation** Tropical forests (left) grow in the warm, rainy climate of Dominica in the Caribbean. In the arid Atacama Desert of Chile (right), low shrubs grow among steaming geysers.

**Human-Environment Interaction** Would you expect these places to be densely populated? Why or why not?

eventually left only short clumps of grass to anchor the pampas soil, and dust storms periodically swept over the region. Argentine farmers now plant alfalfa, corn, and cotton to hold the topsoil in place.

## Desert and Steppe Areas

Parts of northern Mexico, coastal Peru and Argentina, and the southeastern coast of South America have desert climates and vegetation. In Chile the rain shadow effect of the Andes has produced the **Atacama Desert**, a region so arid that in some places no rainfall has ever been recorded. In the desert areas of Latin America, vegetation is sparse. Prickly cacti and drought-resistant shrubs, however, have adapted to the harsh environment.

Parts of Latin America—northern Mexico, north-eastern Brazil, and south central South America—receive little rainfall but do not have desert climates and vegetation. Instead, they have steppe climates—hot summers, cool winters, and light rainfall—and grassy or lightly forested vegetation.

## Elevation and Climate

Although Latin America lies in the Tropics, its varied climates are more affected by elevation than by distance from the Equator. Throughout the region, Spanish terms are used to describe three different vertical climate zones that occur as elevation increases. Each of these three zones has its own characteristic natural vegetation and crops.

NATIONAL GEOGRAPHIC
GRAPH STUDY

Comparing Climate Regions: Argentina and the United States

**Buenos Aires, Argentina**  
34° S, 58° W  
89 ft (27 m) above sea level

Month	Temperature (°F/°C)	Precipitation (In./Cm)
J	70/21	4/10
F	65/19	4/10
M	60/16	4/10
A	55/13	4/10
M	50/10	4/10
J	50/10	4/10
J	50/10	4/10
A	55/13	4/10
S	60/16	4/10
O	65/19	4/10
N	70/21	4/10
D	70/21	4/10

**Dallas, Texas, U.S.**  
33° N, 97° W  
512 ft (156 m) above sea level

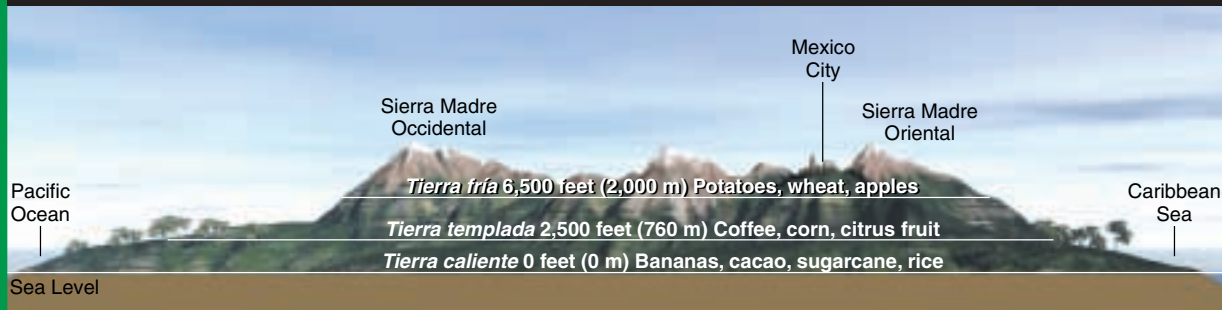
Month	Temperature (°F/°C)	Precipitation (In./Cm)
J	32/0	4/10
F	35/2	4/10
M	40/4	4/10
A	50/10	4/10
M	60/16	10/25
J	80/27	4/10
J	90/32	4/10
A	85/29	4/10
S	75/24	4/10
O	60/16	4/10
N	50/10	4/10
D	40/4	4/10

Source: National Climatic Data Center and Carbon Dioxide Information Analysis Center

Geography
Skills for Life

- 1. Interpreting Graphs** What is the average September temperature in each city?
- 2. Applying Geography Skills** How might climate affect patterns of economic conditions in Argentina? In Texas?

Mexico: Vertical Climate Zones



Geography Skills for Life

1. **Interpreting Diagrams** What kind of crops are grown in the *tierra caliente*? The *tierra templada*?

2. **Applying Geography Skills** How might increasing elevation affect the type and distribution of resources found in each vertical climate zone?

The *tierra caliente*, or “hot land,” lies at elevations between sea level and 2,500 feet (760 m). Average annual temperatures in these coastal areas and foothills range from 68° to 91°F (20° to 33°C). In the rain forests of the *tierra caliente*, the main crops include bananas, sugar, rice, and cacao.

The *tierra templada*, or “temperate land,” lies between 2,500 and 6,500 feet (760 and 2,000 m). In this zone temperatures range between 60° and 72°F (16° and 22°C). Broad-leafed evergreen trees

at lower levels give way to needle-leafed, cone-bearing evergreens at upper levels. In the *tierra templada*, the most densely populated of the vertical climate zones, coffee and corn are the main crops.

Land at 6,500 to 10,000 feet (2,000 to 3,048 m) is known as the *tierra fría*, or “cold land.” At this elevation, frosts are common during winter months. However, crops such as potatoes and barley grow well here. Above the *tierra fría*, conditions are more difficult for agriculture or human habitation.

TAKS Practice

SECTION 2 ASSESSMENT

Checking for Understanding

1. **Define** canopy, *tierra caliente*, *tierra templada*, *tierra fría*.
2. **Main Ideas** Create a table to identify, locate, and describe Latin America’s climate regions. Then write a sentence that describes each zone’s features and vegetation.

Climate Region	Location	Characteristics
Humid Subtropical		

Critical Thinking

3. **Making Inferences** Why might some Latin Americans live in areas in which climate and agriculture are unfavorable?
4. **Determining Cause and Effect** How does elevation affect climate and vegetation in Latin America?
5. **Comparing and Contrasting** Compare the pampas to your region. How do climate and vegetation help define the economic activities in each place?

Analyzing Maps

6. **Place** Study the vegetation map on page 200. Which two types of vegetation cover most of South America?

Applying Geography

7. **Effects of Climate** Write a paragraph describing the effects of climate on economic activities in a particular Latin American country. Then map the locations of these activities.

# Identifying Cause-and-Effect Relationships

Identifying cause-and-effect relationships involves considering how and why an event occurred. A *cause* is the action or situation that leads to the event. An *effect* is the result or consequence of an action or situation.

## Learning the Skill

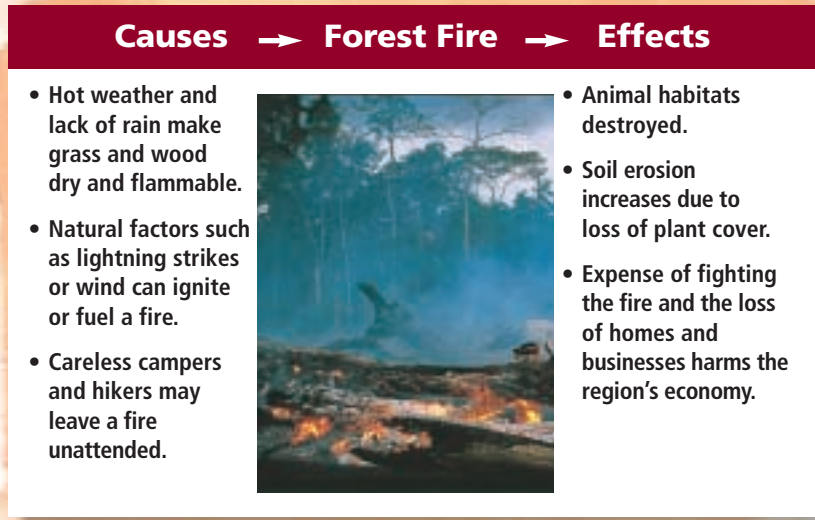
Cause-and-effect relationships may be simple or complex. Several causes can produce a single effect. For example, a forest fire may be caused by a series of events or conditions. Hot weather and lack of rain make grass and wood dry and flammable. The day the fire started might have been windy, and the wind might have blown sparks from a camper's fire to some dry grass.

Similarly, one event can produce several effects. A large forest fire can destroy animal habitats. It can also suddenly reduce plant cover, making the land more susceptible to erosion from wind and rain. A large fire can also be expensive to fight and damaging to homes and businesses, harming the economy of an entire region.

Sometimes one event causes several other events in a chain reaction. A traffic accident on a highway may cause another accident, which causes another accident, and so on. Strings of causal relationships are called *cause-and-effect chains*.

Follow these steps to identify cause-and-effect relationships:

- Ask questions about why events occur.



- Identify the outcomes of events.
- Look for clues that indicate a cause-and-effect relationship. Words and phrases such as *because*, *as a result of*, *brought about*, *as a consequence*, *therefore*, and *thus* can help you identify cause-and-effect relationships.

- 3. Limited access to the rich mineral resources of the Amazon Basin
- 4. Cold temperatures in the *tierra fria*

## Practicing the Skill

Identify one cause and one effect associated with each of the events or conditions listed below.

1. The 1999 earthquake in Colombia
2. The formation of several Caribbean islands

## Applying the Skill

Use the library or the Internet to research volcanic activity in Latin America. Then explain the causes and effects of a volcanic eruption by creating a graphic like the one above.



The **Glencoe Skillbuilder Interactive Workbook, Level 2** provides instruction and practice in key social studies skills.



## SECTION 1

## The Land (pp. 193–198)

### Terms to Know

- cordillera
- altiplano
- escarpment
- llano
- pampa
- gaucho
- hydroelectric power
- estuary

### Key Points

- Latin America includes Middle America, the Caribbean, and South America.
- Latin America's physical features include high mountain ranges, less rugged highlands, vast central plains, and volcanic islands.
- The water systems of Latin America, especially the mighty rivers of South America, are key to human activity in the region.
- Although the region is rich in natural resources, geographic, political, and economic obstacles have kept resources from being developed fully or shared equally.

### Organizing Your Notes

Create a table like the one below to help you organize information about the physical features of Latin America.

Physical Feature	Location
Mexican Plateau	
Andes	
Rio Grande	
Amazon River	
Río de la Plata	

## SECTION 2

## Climate and Vegetation (pp. 199–203)

### Terms to Know

- canopy
- *tierra caliente*
- *tierra templada*
- *tierra fría*

### Key Points

- Much of Latin America lies in the Tropics; however, landforms and wind patterns give the region great climatic diversity.
- Tropical climates such as tropical forest and tropical savanna are the most common climates in Latin America.
- The natural vegetation of Latin America consists mainly of rain forests and grasslands.
- The tropical highlands in Latin America include three vertical climate zones that are based on latitude and elevation.

### Organizing Your Notes

Create an outline using the format below to help you organize your notes for this section.

Climate and Vegetation
I. Climate and Vegetation Regions
A. Tropical Regions
1. The Rain Forest
II.



Andean peaks in northern Chile

## Reviewing Key Terms

Write the key term that best completes each of the following sentences. Refer to the Terms to Know in the Summary & Study Guide on page 205.

- The Andes consist of parallel mountain ranges, or \_\_\_\_\_.
- The high plain encircled by the Andes of Bolivia and Peru is known as the \_\_\_\_\_.
- The plateau of the Brazilian Highlands plunges sharply to the Atlantic Ocean, forming a steep cliff called an \_\_\_\_\_.
- Cattle are raised on the broad grasslands called \_\_\_\_\_ in Colombia and Venezuela and \_\_\_\_\_ in Argentina and Uruguay.
- The Río de la Plata is typical of an \_\_\_\_\_, an area where the tide meets a river current.
- Highlands climates are divided into vertical zones, including the hot \_\_\_\_\_, the temperate \_\_\_\_\_, and the cold \_\_\_\_\_.

## Reviewing Facts

### SECTION 1

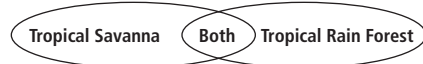
- What are the three major geographic areas within Latin America?
- What three island groups make up the West Indies?
- Which three rivers flow into the Río de la Plata?

### SECTION 2

- What are the eight climate regions of Latin America?
- What factors determine why Latin America's highlands climate is divided into three zones?
- Where is the world's largest rain forest located?
- What are South America's two main grassland areas called?

## Critical Thinking

- Making Generalizations** Write a generalization that describes the kinds of economic activities you would expect to find in grasslands areas, using Latin America as an example.
- Analyzing Information** Identify and explain the factors affecting the location of different types of economic activities in Latin American countries.
- Comparing and Contrasting** Use a Venn diagram to compare the climate and vegetation found in Latin America's tropical areas.



### Locating Places

#### Latin America: Physical Geography

Match the letters on the map with the physical features of Latin America. Write your answers on a sheet of paper.

- |                  |                    |                     |
|------------------|--------------------|---------------------|
| 1. Amazon River  | 5. Lake Maracaibo  | 9. Caribbean Sea    |
| 2. Lake Titicaca | 6. Río de la Plata | 10. Orinoco River   |
| 3. Rio Grande    | 7. Gulf of Mexico  | 11. Mexican Plateau |
| 4. Hispaniola    | 8. Pampas          |                     |





**Self-Check Quiz** Visit the **Glencoe World Geography** Web site at [tx.geography.glencoe.com](http://tx.geography.glencoe.com) and click on Self-Check Quizzes—Chapter 8 to prepare for the Chapter Test.

## Using the Regional Atlas

Refer to the Regional Atlas on pages 184–187.

- 1. Location** What river makes up a major part of the boundary between Mexico and the United States?
- 2. Place** In terms of land use, why is there little to no activity along much of the Pacific coast of South America?

## Thinking Like a Geographer

Review the economic activity map on page 187. Analyze the effects of physical and human geographic processes on the development of Latin America's resources. Make three practical suggestions for improving resource development in the region.

## Problem-Solving Activity

**Problem-Solution Proposal** Working with a group, contact media services to find out more about a recent natural disaster in Latin America. Investigate accounts of the disaster to determine whether human activity made the disaster worse. In a report, describe the disaster's impact and propose ways to reduce the potential for damage in the future.

## GeoJournal

**Descriptive Writing** Using the information you logged in your GeoJournal as you read, write a descriptive paragraph about one of the physical features of the region. Use your textbook and the Internet as resources to make your descriptions vivid, accurate, and interesting.



## Technology Activity

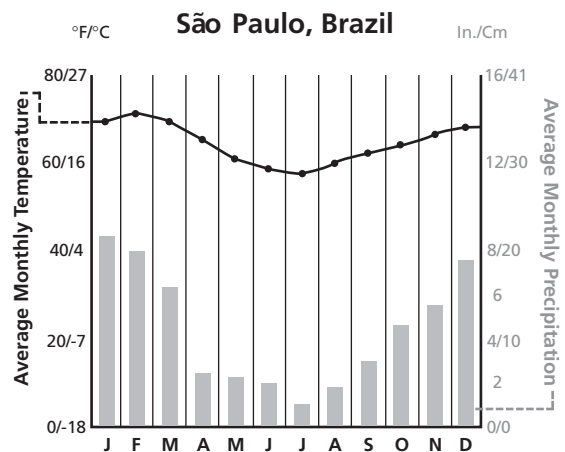
### Building an Electronic Database

Collect facts about the countries of Latin America, such as natural resources, climate, average annual temperature, average annual rainfall, and natural vegetation. Create a database to organize and analyze the data. From the database, develop a table that presents your analysis.



## TAKS Test Practice

Use the climograph below and your knowledge of geography to answer the question.



- Based on the information shown in the climograph, which statement about the months of April and November is accurate?

- The average temperature and amount of rainfall are about the same.
- It is hotter and drier in November.
- The average temperature is about the same, but it is wetter in November.
- The amount of rainfall is about the same, but it is hotter in November.



Study the information shown on the climograph for average temperature and monthly precipitation. Then look carefully at the data for the months of April and November. Compare the amount of precipitation for the two months. As a result, you will be able to eliminate some of the statements.



# Geography Lab Activity

## Simulating Geographic Information Systems



▲ *City planning is made easier with GIS technology.*

**G**eographic information systems (GIS) use computer software to create specialized maps that display a range of geographic information about an area. The user first creates a database with fields for images, such as digitized maps and satellite photos, and

statistical information, such as census figures or property taxes. The GIS software can then generate maps to display the data, either separately or in combination.

GIS technology makes maps that can help people manage resources, select sites for buildings, and plan transportation routes. If Mexico City's government wants to add a new bus route, for example, an urban planner might input such data as population distribution, traffic patterns, congested areas, and existing bus routes. After examining these data, displayed in "layers" on a computerized map, the planner can analyze relationships and make an informed decision about the new bus route.

*GIS technology allows layers of data drawn on a map to be turned on or off.*



### 1 Materials

- Overhead projector
- Transparency markers
- Seven blank 8½" × 11" transparencies
- Street map of your community
- Computer

### 2 Procedures

In this activity, you will simulate a GIS map, using data about your community. As a class, you will analyze the data to determine the best emergency evacuation routes for your community.

1. Form three groups (A, B, and C). Each group will collect a different type of data.
2. Each group should copy a street map of the town or community onto a blank transparency. These will be the base maps. (Be sure that each group uses the same map.)
3. **Group A:** Determine the locations of major roads. Draw these roads on the blank overlay transparency placed on top of the base map. Color-code primary roads in black and secondary roads in purple. Be sure to note specific features such as bridges, railroads, and high-water crossings.
4. **Group B:** Gather information on the population distribution in the community. Locate residential areas, business districts, and shopping centers. Identify single-family homes and clusters of apartment buildings or college dormitories, and mark them on the overlay transparency. Color-code the areas or use symbols.

List peak business hours and traffic rush hours, when roads may be crowded.

- 5. Group C:** Gather information on the location of emergency shelters in the community. Use a symbol to indicate these shelters on the overlay transparency. Also, identify physical features of the town, such as rivers, creeks, or mountains.
- 6.** As a class, layer the overlay transparencies of each group over one base map on the overhead projector. Analyze the map and the data to determine the best emergency evacuation routes. Using a blank transparency taped over the other layers, draw the suggested emergency evacuation route(s) in red.

### 3 Lab Report

1. Which of the steps was the most time-consuming? Why?
2. Which of the overlays provided you with the most useful information? Explain.
3. What layers of information might you need to determine the best location for a new shopping center in your town?
4. **Drawing Conclusions** How do you think GIS technology might help scientists monitor earthquakes and perhaps prevent heavy earthquake damage in the future?

### 4 Find Out More

If you have access to an actual GIS program, use the program to determine the locations of new bridges, roads, or schools in your community. Is the information you gathered in questions 3 and 4 similar to or different from that of the actual GIS program?

#### Did You Know?

In Portland, Maine, researchers are working with the Federal Management Agency's Project Impact to help minimize flood damage. They are using GIS and handheld GPS (global positioning systems) to create a database of the city's drainage systems. The project is part of a nationwide effort to minimize damage from natural disasters.

◀ Growing populations and limited roads may indicate a need for more emergency routes. City planners look at traffic patterns in the community and use GIS technology to help identify solutions.