The Story Matters...

Cotton farming is big business in Texas. About 25 percent of the cotton grown annually in the United States is produced by Texans. In the Great Plains region, the soil and expanses of flat land allow farmers to plow and harvest long rows of cotton. Rainfall in the Great Plains can be sparse though, so this farmer uses a mechanized watering system to ensure his crop gets enough water. Although the climate, elevation, and soil differ among Texas's regions, cotton farmers across the state adjust to the conditions to raise a successful crop. Many of Texas’s regions have rich soil which helps crops thrive. Farmers in other regions rely more on fertilizers to supply nutrients.
CHAPTER 3
Place & Time: Regions of Texas

The geography of the North American Great Plains shaped the nation and its history. In Texas, the Great Plains is one of four unique geographical regions. Each region has a distinct geography, climate, and set of resources. Together, the regions form a very large and diverse state.

Step Into the Place

MAP FOCUS Texas has four unique natural regions: Mountains and Basins, Great Plains, North Central Plains, and Coastal Plains.

1. LOCATION In which portion of Texas is the Great Plains located?

2. REGIONS According to the map, which major cities are found in the North Central Plains?

3. CRITICAL THINKING Analyzing Why do you think there are few large towns in the Mountains and Basins region?

Padre Island is a barrier island in the Coastal Plains region. The island stretches 130 miles (290 km) along the east coast of Texas. It is the longest stretch of undeveloped coast in the United States.

The Pecos River flows through the western part of the Edwards Plateau. The Edwards Plateau is in the southern part of the Great Plains region.

Step Into the Time

TIME LINE Geographic events that shaped Texas and its regions occurred millions of years ago. Study the timeline. What is the most recent event shown on the timeline for Texas? How can you tell?

c. 140 million B.C. Big Bend and Edwards Plateau created from limestone

c. 65 million B.C. Earthquakes and volcanoes form Coastal Plains

c. 54 million B.C. First horses appear

<table>
<thead>
<tr>
<th>TEXAS</th>
<th>AMERICAS</th>
<th>WORLD</th>
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</thead>
<tbody>
<tr>
<td>150 million B.C.</td>
<td>100 million B.C.</td>
<td>50 million B.C.</td>
</tr>
</tbody>
</table>
It Matters Because

Natural beauty, trade, and industry make the Mountains and Basins region an important part of Texas.

A Rugged Land

GUIDING QUESTION What characterizes the landscape and climate of this region?

Imagine living in a place that is so hot and dry that few trees can grow there. The land is parched, and the air almost shimmers with an intense heat. Mountains arise from a cactus-studded landscape. Wide depressions, or dips in the land called basins, also cover the area. This part of Texas is known as the Mountains and Basins region. Located in West Texas and bordered by Mexico and New Mexico, most of the region lies to the west of the Pecos River.

For this reason, the region is sometimes called the Trans-Pecos, meaning “across the Pecos River.”

Mountain Ranges and Peaks

The great eastern ranges of the Rocky Mountain system extend from Canada through Texas near the Pecos River, giving the Mountains and Basins region the highest elevations in the state.

For an idea of how high some mountains are in the region, note that one mile is 5,280 feet (1,609 m). Texas has seven mountains standing over 8,000 feet (2,438 m)—each well over one mile high. All seven peaks are found in the Mountains and Basins region.

The region includes several ranges and famously high peaks. The Guadalupe Range, which extends into New Mexico, is among...
the highest ranges in Texas. At 8,749 feet (2,667 m), Guadalupe Peak is the highest mountain in the state. The next highest in the range is El Capitán, at 8,085 feet (2,464 m).

Near the center of the Mountains and Basins region rise the Davis Mountains and Mount Livermore. Also called Baldy Peak, Mount Livermore stands at 8,378 feet (2,554 m). The Chisos Mountains are another significant range, and they are located near the southern tip of the region. The Chisos make up the largest range in an area to the south known as Big Bend Country.

**Hot, Dry Climate**

The Chihuahuan Desert sprawls across much of the Mountains and Basins region. Rainfall is not very common in this area. Areas that are higher in elevation, or height above sea level, have slightly cooler temperatures and get more rain than the lower basin areas. Some parts of the region get from 14 to 18 inches (36 to 46 cm) of rain annually, while other parts get less than 14 inches. Summer temperatures average in the mid-90s°F (32°C) in desert and basin areas, and slightly cooler, in the 80s°F (27°C) in the mountains. Hot temperatures and a lack of rain affect all life in the region—plants, animals, and humans.

**Plants and Animals**

Although its climate is extreme, the Mountains and Basins region is blessed with a rugged, natural beauty. Flowering cactus plants lend a bright splash of color to the softer colors of the desert. Other desert plants, such as yucca and creosote bush, cover the ground. Plants suited to the desert require little water. In some cases, they store water in their leaves.

Animals of the mountains include cougars, mule deer, and black bears. The elk of the region, which had once become extinct, have been reintroduced into the Guadalupe Mountains.
The prickly pear cactus is able to survive in the Chihuahuan Desert because it stores water in its fleshy pods. (inset) Roadrunners are awkward at flying but can run on the ground at high speeds. They prey on snakes, lizards, and insects found in the desert.

**CRITICAL THINKING**

**Drawing Inferences** How do you think roadrunners get enough water to survive?

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**THE MARFA LIGHTS**

Lucky visitors to the desert city of Marfa in Presidio County may be able to witness a nighttime attraction known as the Marfa Lights. These lights flicker and float and glow. They come in yellow, white, red, or blue. On clear nights, these lights sometimes appear between Marfa and Paisano Pass. No one is really sure about the source of the lights, but people have been seeing them for years. Historical records note a cowhand who spotted them in 1883. Today, visitor may see them from a highway viewing area just outside of Marfa. Guesses as to the source of the lights include distant campfires, a mirage, reflections of car headlights, of gases from the air catching fire.

Snakes and *paísanos*, or roadrunner birds, make their homes in the desert areas of the region.

**READING PROGRESS CHECK**

**Identifying** What types of plants thrive in the Chihuahuan Desert?

---

**Natural Landmarks**

**GUIDING QUESTION** How can rivers and natural places affect life in a region?

Although the Mountains and Basins region is hot and dry, it is nearly bounded on two sides by rivers. The Pecos River runs from the north to the northeast of the region. The curving Rio Grande flows from the western edge of the region and around its southern border. Rivers and other natural features serve as landmarks both to residents and visitors.

**The Rio Grande**

Rivers provide an important resource necessary for all living things: water. *Río Grande* is Spanish for “big river.” From its source of a mountain stream well above sea level in Colorado, through to New Mexico and into West Texas, the Rio Grande carries water used for raising crops and livestock into its valleys. The river allows farmers to raise mainly cotton, but also pecan trees. Cantaloupes are an important crop of Pecos in Reeves County.

Cities and towns tend to develop along big rivers, where water is available to serve large populations. Industries along the Rio Grande provide work for many people of the Mountains and Basins region. West Texas has strong economic and cultural ties to Mexico. The Rio Grande is also important because it provides a natural border with Mexico. Businesses on both sides of the border depend upon the river’s resources and their trade with one another.

**Big Bend National Park**

As the Rio Grande flows along the border of the Mountains and Basins region, it takes a turn at the southern end of West Texas
before heading northeast. The curve in the river is known as Big Bend. Big Bend National Park, the state’s first national park, covers over 1,250 square miles (2,012 sq. km) at the very tip of the area.

Over time the Rio Grande has carved a path along the southern border of West Texas, creating the spectacular Santa Elena, Marsical, and Boquillas canyons. The scenery, wildlife, and recreation within the park draw many visitors.

**Cities, Places, and Resources**

**GUIDING QUESTION** How do location and available resources affect cities and places?

The Mountain and Basins Region is generally sparsely settled. However, it is home to El Paso, one of the state’s largest cities.

**El Paso**

The most concentrated populations in the region are found in and around El Paso. El Paso sits on the Rio Grande at the far western end of the state. It has strong business ties with its border neighbors, Mexico and New Mexico. El Paso has strong features of Hispanic culture and traditions. Just across the river is the large Mexican city of Ciudad Juárez. Together, the population of El Paso and Ciudad Juárez make it the largest urban center on the United States–Mexico border.

El Paso is the commercial center of the upper Rio Grande Valley. One factor contributing to trade here is the North American Free Trade Agreement (NAFTA). Its purpose was to lessen barriers to trade between the United States and Canada and Mexico. Border trade has grown since the agreement took effect in 1994.
Content Vocabulary

**maquiladora** factory in Mexico that assembles parts made in the United States and elsewhere into products for export

**arid** lacking enough water for things to grow

**petroleum** a type of oil that is the source for gasoline

One result has been the building of **maquiladoras**, or factories, along the Mexican border. The factories in Mexico provide low-cost labor for items such as clothing, auto parts, electronics, and toys for businesses in the United States, Japan, and elsewhere. In El Paso, goods from Mexico’s maquiladoras can be shipped to other factories and warehouses in the city for distribution.

Another notable place in the Mountains and Basins region is Fort Davis. Tourists visit the village of Fort Davis to view the Davis Mountains and Fort Davis National Historic Site.

**Small Towns and Populations**

Further from the Rio Grande, very **arid**, or dry climate conditions in the Mountains and Basins region affect population size. On average the region has fewer people than other parts of Texas.

Loving County is a sparsely populated county found along the border to New Mexico. The county gets about 10 inches (about 25 cm) of rain annually. Although the Pecos River marks Loving County’s western border, it does not provide enough water for farming in this area. Moreover, the river’s water is too saline, or salty, for drinking. The county seat of Mentone is the smallest in Texas, with only 19 people. The town has a well, but it does not have its own water system. A lack of good drinking water means that few people live in the desert region.

**Resources**

Although lack of water is a problem, the region has important natural resources, including **petroleum** and natural gas. In dry Loving County, oil and gas production are the main industry. The region’s other mineral resources include limestone, shale rock, and clay, which are used in cement production. Talc, used to produce ceramics, paint, and artificial rubber, comes from the region, too. Copper, sulfur, and salt are also found here.

**READING PROGRESS CHECK**

1. **Explaining** What factors make El Paso a strong commercial center?

**LESSON 1 REVIEW**

**Reviewing Vocabulary**

1. What does **elevation** mean? Write your own sentence using elevation.

**Answering the Guiding Questions**

2. **Describing** Describe the location of the Mountains and Basins region of Texas.

3. **Explaining** Provide an example of how climate and resources have affected development in the region.

4. **Comparing and Contrasting** What factors do Loving County and El Paso have in common? In what ways do they differ?

5. **Identifying** Name two important mountain peaks in the region.

6. **Describing** What are some of the attractions found in Big Bend National Park?

7. **DESCRIPTIVE WRITING** Write a travel-journal entry about the Mountains and Basins region. Describe the location of the region as well as important features, including the landscape and the wildlife.
It Matters Because

The Great Plains is a significant agricultural region. Crop-growing conditions attracted farmers who helped settle the region.

A Sea of Grass

GUIDING QUESTION: Where is the Great Plains region in Texas?

The North American Great Plains region has been called the “bread basket of the world.” This fertile area stretches from Canada to Texas. It is bounded on the east by the Mississippi River and on the west by the Rocky Mountains. Folk songs written about the Great Plains compare the region to a sea of grass, because the area can seem as vast as an ocean. In Texas, the Great Plains region reaches from the upper north corner of the state, known as the Panhandle, to the Rio Grande.

Land Use

Great herds of North American bison, or buffalo, once roamed the Great Plains. They fed on the deep-rooted wild grasses that covered the region. Nomadic Native Americans followed the herds, hunting them for their meat and hides. After the arrival of the Europeans, settlers moved onto the land, first using it to graze sheep and, later, cattle. Once farmers came to the region, much of the grasslands were plowed up to plant crops, such as corn and wheat.
Around the 1920s, oil and gas were discovered in the Texas Panhandle and elsewhere. (The Panhandle is the northern rectangular part of Texas that reaches east to Oklahoma and west to New Mexico.) In the 1930s, the Great Plains experienced a terrible drought resulting in Dust Bowl conditions. Lack of rainfall, high winds that caused erosion, and poor farming methods led to the near collapse of farming throughout the Great Plains. Shortly after, the federal government established national grasslands in Texas and throughout the Great Plains area. Its purpose was to preserve and protect the depleted land. Today the land is used largely for grazing livestock, but the overall plan allows for recreational use, wildlife habitat, soil conservation, and water protection.

**Climate**

The Great Plains is a dry region. Elevations are higher than those found in eastern Texas, although not as high as those generally found within the Mountains and Basins region. High elevations mean that summers and winters are cooler in the Great Plains than in lower elevations to the east. In this dry region farmers irrigate crops from underground water sources, such as the Ogallala Aquifer, a massive source of groundwater for Texas and other areas of the country.

**Content Vocabulary**

*drought* a period of lower than normal precipitation

**READING PROGRESS CHECK**

*Explaining* How do Texas farmers manage to water their crops under the dry growing conditions of the Great Plains region?
The High Plains

GUIDING QUESTION  What is the significance of geographical features in the High Plains?

Three smaller geographic sections make up the Great Plains of Texas: the High Plains, the Edwards Plateau, and the Llano Basin.

The mostly flat High Plains of Texas cover the Panhandle in the northernmost tip of Texas on the Oklahoma border, and they extend some 350 miles (563 km) southward. To the east, the Caprock Escarpment provides a natural border to the North Central Plains. This escarpment, a steep cliff, stretches from the Panhandle into Central Texas. Elevations in the northwestern portion of the Panhandle are quite high: more than 4,000 feet (1,219 m) above sea level.

Landscape and Rivers

Visitors to the High Plains are often awed by the great, flat expanse of the landscape. Imagine how they must have seemed to the region’s first settlers, especially those who came from city landscapes or mountain regions. One Spanish explorer, Pedro de Castañeda, described the plains as “spacious and level.” He further wrote:

PRIMARY SOURCE

“...The country is like a bowl, so that when a man sits down, the horizon surrounds him all around...And even if a man only lay down on his back he lost sight of the ground.”

Running through the Panhandle are two rivers: the northerly Canadian River, and to the south, the Red River. Cattle graze on the Canadian Breaks, a rugged valley created by the Canadian River as it cut through the Caprock Escarpment. Long ago the Red River also carved a channel through the Caprock Escarpment to create the remarkable Palo Duro Canyon. Palo duro is Spanish for “hardwood,” and it refers to the many hardwood trees found throughout the area. The canyon averages about 6 miles (9.6 km) wide and 800 feet (244 m) deep. Native Americans sought shelter within the high canyon walls to protect them against fierce storms common to the area. Wildlife includes turkey and deer. Cactus plants, yucca, mesquite, and cedar grow here.

North and South Plains

The High Plains is made up of two geographic sections—the North Plains and the South Plains. The North Plains reaches from the Panhandle’s border with Oklahoma to just north of Lubbock. Industries that dominate the North Plains economy include petroleum, cattle ranching, and farming wheat and sorghum, a grain used for cattle feed. Amarillo is the largest city in the North Plains. Amarillo is active in the distribution of wheat and in cattle markets. Oil field equipment is manufactured here.
Cotton is an important crop in the Great Plains region, although the land needs irrigating. Because cotton is produced on a large scale, machines are needed to harvest the crop and process the cotton bolls.

CRITICAL THINKING

Explaining: How does the terrain of the Great Plains make it easy to use machinery?

Farmers of the adjacent South Plains raise large quantities of cotton. The world’s largest cottonseed processing industry is found in Lubbock. It is both a large commercial center and cultural center. Cottonseed processing is big business in Lubbock. Whole cottonseed and its by-products (oil, meal, hulls, and short, fuzzy fibers called linters) are used to produce a wide variety of products, including cattle feed, rubber and plastics, fingernail polish, sausage casings, x-ray film, salad dressing, margarine, and cosmetics.

The petroleum-rich Permian Basin is found in the southernmost part of the High Plains. There, oil is important to the economies of two cities, Midland and Odessa. Area farmers and ranchers also depend on the cities for commerce, entertainment, and culture.

READING PROGRESS CHECK

Identifying: What is the largest city on the High Plains, and what are three main economic activities there?
Edwards Plateau

GUIDING QUESTION  How does geography affect the economy of the Edwards Plateau?

In the far south of the Great Plains region is the Edwards Plateau. The plateau is a high-level land area rising from an escarpment. Its large land area—nearly 300 miles (482 km) from east to west, and 50 to 175 miles (80 to 282 km) from north to south—is flat or gently rolling hills. Its southern boundaries include the South Texas Plain and the Rio Grande. The Blackland Prairie meets the plateau’s eastern border at the Balcones Escarpment. In Spanish, balcones means “balconies,” which captures the essence of this high overlook to the plains below. The hilly land nearing the escarpment is a section called the Hill Country.

Land and Economy

The plateau’s thin soil and cover of mesquite, cedar, small oak trees, and scrub make it more suitable to grazing livestock than to farming. Plateau ranchers raise cattle and sheep. The plateau is also famous for producing Angora goats, whose long hair is sheared and sold as mohair, which is used to make sweaters and fabrics.

Ranchlands comprise much of the plateau, with few cities or towns. The largest city of the Edwards Plateau is Del Rio, located on the Rio Grande. Like El Paso in the Mountains and Basins region, Del Rio is a border town. Trade with Mexico and cross-border tourism are important economic activities there.

Hill Country

Within the Hill Country lay the cities of Fredericksburg and Kerrville. The resort town of Fredericksburg was settled by German immigrants and is famous for its peaches. Visitors come to see and hike a huge, pink, granite landmark named Enchanted Rock. In Kerrville, music fans flock to a large yearly music festival held there.

Angora goats produce mohair that can be spun into a silky thread, and they can be shorn twice a year, unlike sheep.

CRITICAL THINKING

Making Inferences  Why would Angora goats be an attractive breed for ranchers to raise for profit?

Academic Vocabulary

comprise  to make up

THE TEXAS WHITE HOUSE

During his presidency, Lyndon B. Johnson spent so much time at his Hill Country ranch that it became known as the Texas White House. Journalists reported on meetings at the ranch between Johnson and powerful politicians, ambassadors, foreign leaders, and business executives. In the 1960s newspaper, magazine, and television news stories brought the Hill Country into American homes and made this part of Texas famous.

Today, the LBJ Ranch is part of the National Park Service and is open to visitors.
Lake Buchanan was created by the construction of the Buchanan Dam, and both are important economic resources in Texas.

CRITICAL THINKING
Making Connections How are dams related to energy?

Content Vocabulary
erosion the wearing away of Earth’s surface by the movement of water, wind, ice, and gravity

LLANO BASIN
GUIDING QUESTION How has the Llano Basin landscape been shaped by nature as well as human activity?

The Llano (LAH•noh) Basin is an area of rolling plains and hills crossed by two main rivers: the Llano and Colorado rivers. The work of flowing river waters and time has caused significant erosion, or loss of soil and minerals, from the basin area. It is the state’s smallest geographic region, with elevations lower than the rest of the Edwards Plateau.

The construction of dams on the Colorado River created a series of reservoirs known as the Highland Lakes. Lake Buchanan is the largest. These lakes are a popular spot for activities such as boating, fishing, and swimming.

The Llano Basin economy relies on tourism, hunting, and livestock production. Pecans are an important crop in the basin’s northern town of San Saba. The cleaning and processing of wool and mohair happens in the town of Brady. Also, the market and supply center of Mason caters to nearby ranches and a growing tourism industry.

REVIEWING VOCABULARY
1. Use the word drought in a sentence about the Great Plains that demonstrates your understanding of the term. 224

ANSWERING THE GUIDING QUESTIONS
2. Explaining How do Texas farmers manage to water their crops under the dry growing conditions of the Great Plains region? 104, 218

3. Summarizing Where are the High Plains located, and what are the region’s features? 218

4. Analyzing In what ways have rivers been important to the formation of the High Plains? 218


6. Explaining How has the construction of dams on the Colorado River affected the Llano Basin? 104, 218

7. EXPOSITORY WRITING Select one geographic section of the Great Plains to write a one-paragraph explanation of how geographic features such as soil conditions, water supply, or natural landmarks affect the industry and economy of the area. 108, 220
It Matters Because

A strong agriculture industry makes the North Central Plains an important contributor to the Texas economy.

A Cliff-Bound Region

GUIDING QUESTION  Where in Texas are the North Central Plains?

Travelers moving southeast from the Panhandle through Texas notice how the landscape changes. The plains change from flat to rolling. Elevations drop. Bound between the Caprock and Balcones Escarpments is the interior region of the North Central Plains.

The hills and valleys of the North Central Plains are covered with grasses, brush, and weathered trees. Summer temperatures average in the mid-70s°F (mid-20s°C), and winter temperatures average in the 50s°F (10–15°C).

Slightly more rain falls here than on the Great Plains. More precipitation means a variety of crops can be grown in this region. Still, cattle ranching dominates the economy of the North Central Plains.

The area tends to be rural, with low populations. Populations are highest within the region's few cities, including the largest, Fort Worth. Geographic sections of the region are the Rolling Plains, Cross Timbers, and the Grand Prairie.

**Academic Vocabulary**

*dominate* to control, to be the majority of

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**Content Vocabulary**

- mesa
- butte
- agribusiness

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**Reading HELPDESK**

**TAKING NOTES: Outlining**

As you read the lesson, complete an outline like the one shown here to organize information about the region's features. Add sections as needed.

I. A Cliff-Bound Region
   A. 
   B. 
   C. 
II. The Rolling Plains
   A. 
   B. 

---

**ESSENTIAL QUESTION** How does geography influence the way people live?
The Rolling Plains

GUARDING QUESTION  How does the landscape of the Rolling Plains compare to that of the Great Plains?

The Rolling Plains, sometimes called the Lower Plains, is the largest geographic section of the North Central Plains. Elevations are lower than those of the Great Plains region. The Rolling Plains occupy a land area about 200 miles (322 km) from east to west and about 300 miles (483 km) from north to south.

Climate, Terrain, and Economy

As with much of Texas, winter is the dry season in the Rolling Plains. Only a little rain and perhaps a few inches of snow may fall in the region. Thunderstorms are widespread through most of Texas, and they can occur year-round. Tornadoes occur frequently, although they are most common in the spring months.

The rolling landscape includes distinct hills, small plateaus called mesas, and smaller flat-topped hills called buttes. The grass and scrub terrain are suitable for livestock grazing. Typically, cattle graze the best grasslands. Sheep and goats can thrive in dry areas with less vegetation. Moving east, more rain falls within the area. Here, crops such as cotton, grain sorghum for cattle feed, and wheat are grown. The peaches and pecans grown here help to make Texas a leading producer of these popular foods.

Communities

The city of Wichita Falls is found in the northeastern part of the Rolling Plains. Its location on the Oklahoma border encourages business and trade between the states. The U.S. Air Force is important to the area's economy. Area residents also work in manufacturing and service jobs.

In the south-central town of Abilene, oil services and marketing are important. Large-scale commercial

Content Vocabulary

<table>
<thead>
<tr>
<th>Word</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>mesa</td>
<td>a small, high plateau</td>
</tr>
<tr>
<td>butte</td>
<td>a flat-topped hill, smaller than a mesa</td>
</tr>
<tr>
<td>agribusiness</td>
<td>large-scale farming including production, processing, and distribution</td>
</tr>
</tbody>
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Academic Vocabulary

<table>
<thead>
<tr>
<th>Word</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>widespread</td>
<td>far-reaching; spread over a broad area</td>
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</table>
farming, or agribusiness, is strong in San Angelo, a city in the region's southwest. San Angelo is the largest sheep market in the United States and a market leader in wool and mohair.

READING PROGRESS CHECK

Describing  Describe the weather conditions found in the Rolling Hills region.

Cross Timbers and the Grand Prairie

GUIDING QUESTION  What are some features of interest in the Cross Timbers and Grand Prairie areas?

Other areas of the North Central Plains lay to the east of the Rolling Plains. On either side of a large prairie stand two strips of land that were once more forested than they are today. The middle section is known as the Grand Prairie—not to be confused with the city of that name—and the two wooded areas are the Western and Eastern Cross Timbers.

Timberland and Economy

Blackjack oak and post oak trees, as well as hickories, pecans, and elms, grow in the Cross Timbers areas. Historically, the woods have provided lumber for firewood and railroad ties. The woodlands also gave Native Americans a refuge from enemies. The woodlands and their soils are important for draining rainfall to preserve as groundwater.

Farming of cotton, corn, vegetables, and the drought-resistant Spanish peanut is popular in the area. Livestock and dairy farming also exist there.

Cities of the Cross Timbers include the manufacturing and tourist town of Arlington in the Eastern Cross Timbers. The Western Cross Timbers city of Brownwood conducts regional trade and distribution.
The long arms shown in this photograph are grain elevators, common sights in the North Central Plains. These are covered conveyor belts used to move grain from a truck delivering it into one of the silos, the round structures.

CRITICAL THINKING

Drawing Inferences What is the function of the silo?

Foldables Study Organizer

Include this lesson’s information in your Foldables.

LESSON 3 REVIEW

Reviewing Vocabulary

1. Write a sentence defining agriculture and explaining its importance in the North Central Plains. 22A

Answering the Guiding Questions

2. Identifying What is the location of the North Central Plains? 9A

3. Comparing How do the Rolling Plains landscape and rainfall compare to that of the Great Plains? 9B, 21B

4. Identifying What are some important features of the two Cross Timbers areas? 21B

5. Describing Describe some of the economic activities of the Grand Prairie area. 21B

6. NARRATIVE WRITING Suppose that you are visiting the Rolling Plains. Write an email to a friend describing the area’s climate, landscape, and major economic activity. 22B

Prairie Features

Once a land of tall grasses, the grazing land of today’s Grand Prairie area includes mainly short and bunched grasses. Rain quickly drains through the limestone and clay soil. It is difficult for trees to grow anywhere but near streams. Livestock ranching and crop farming are important activities in the Grand Prairie. Crops include cotton, grain sorghum, wheat, peanuts, and corn.

Fort Worth is the largest in the North Central Plains. Fort Worth and Dallas, which lies outside the area of the North Central Plains, are part of a 20-county area called the Metroplex. As a major manufacturing and trade center, the Metroplex is an important economic force in the region. Sometimes referred to as “the place where the West begins,” Fort Worth is an agricultural business center. Area farmers and ranchers are served by the city’s grain elevators, feed mills, and related businesses. Other industries important to Fort Worth include aircraft, clothing and computer manufacturing, and finance.

Fort Hood is located in the Grand Prairie area. This military installation is one of the country’s largest. Businesses and residents in nearby communities, such as Killeen and Copperas Cove, benefit from Fort Hood’s economic activity.
LESSON 4
Coastal Plains

ESSENTIAL QUESTION: How do people adapt to their environment?

It Matters Because
More people live in the Coastal Plains region than in any other part of Texas.

A Growing Region

GUIDING QUESTION: What is the location and importance of the Coastal Plains?

The Coastal Plains of Texas is the state's largest geographic region. Like the Great Plains, it extends beyond the borders of Texas. This natural region is part of a long expanse of coastline. It reaches from eastern and southeastern portions of the United States into Texas, and south to Mexico. Within Texas the Coastal Plains lie to the east of the North Central Plains. Its inland border is the Balcones Escarpment. Elevations are low in this coastal region. Height above sea level ranges from just a few feet up to 1,000 feet (305 m).

Coastal Climate

The climate along the region's coastline is hot and humid. Winds from the nearby Gulf of Mexico deliver moisture to the coast and create a more dependable water supply than in other areas of the state. Tropical storms and hurricanes are common here. Strong winds bring hard rains that can damage property and cost lives. In the coastal city of Galveston, some 6,000 people died when a hurricane slammed the coast in 1900. More recent storms, including the 2001 tropical storm Allison, brought heavy rains, flooding, and great damage to Houston and other parts of the region.

Content Vocabulary
- petrochemical
- alluvial soil
Resources and Population

More people live in the Coastal Plains than in the rest of Texas. A warm climate and good water supply support agriculture and other industries. The coastal location brings in shipping trade. Resources within the region include the East Texas pinewoods forests. The lumber from these forests is used for building materials and other products. In parts of the region, good soils produce cotton, rice, vegetables, and grains. Livestock graze on the grasses of drier areas.

Petroleum discoveries, such as the Spindletop Oilfield in 1901 and the East Texas Oilfield in 1930, have greatly enriched the region. Petroleum processing and products continue to be an important part of the region's economy. Shipping and warehousing industries, two other important economic activities, grew out of the oil industry.
A network of roads, railroads, and pipelines transports goods to and from the seaports. A shipping channel known as the Gulf Intracoastal Waterway reaches from Brownsville to Apalachee Bay, Florida. This waterway allows Texas access to trade along the nation's southeastern coast and links it to countries overseas.

The Coastal Plains can be divided into five smaller geographic areas: the Blackland Prairie, the Post Oak Belt, the Piney Woods, the Gulf Coast Plain, and the South Texas Plain.

**READING PROGRESS CHECK**

**Identifying** What are three of the region's natural resources?

**Blackland Prairie**

**GUIDING QUESTION** *What are the important features and cities of the Blackland Prairie?*

The Blackland Prairie reaches from the Red River in the north to San Antonio in the south. Before the land was settled, a wide variety of native grasses thrived on the prairie. Today, the land is important for growing cotton.

**Dallas**

Dallas is the third-largest city in Texas. A number of industries, such as financial, insurance, electronics, and technology make their homes in Dallas. It is also an important commercial and transportation hub. Retailers visit the merchandising center of Dallas. Here they preview items to buy for their stores. Cultural landmarks include the Sixth Floor Museum at Dealey Plaza, which explores the assassination and legacy of President John F. Kennedy. The Dallas area has a number of popular sports including the Dallas Cowboys, Dallas Mavericks, and Dallas Stars.

Dallas has a central location that encourages the movement of people and goods. Transportation routes, such as highways, railroads, and the busy Dallas-Fort Worth International Airport provide important links to the nation and the world.

**Other Cities**

To the south is San Antonio, the second-largest city in Texas. In recent years, it has become a major location of customer-support call centers in the country. Military installations are also important to this area. Three U.S. Air Force bases are located here, as is Fort Sam Houston, home of the U.S. Fifth Army. Visitors come to San Antonio to see the historic Alamo mission and the River Walk of shops along the San Antonio River. A large Hispanic population makes the city a lively center of Mexican American culture.

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**POPULATIONS OF MAJOR CITIES OF THE COASTAL PLAINS REGION**

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<tr>
<th>CITY</th>
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<td>Corpus Christi</td>
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<td>1,241,862</td>
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<td>Houston</td>
<td>2,160,231</td>
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<tr>
<td>San Antonio</td>
<td>1,392,601</td>
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*Figures given are population estimates for 2012.
Source: U.S. Census Bureau*

**GRAPH SKILLS**

The five largest cities of the Coastal Plains region include the largest cities in the state of Texas.

**CRITICAL THINKING**

1. **Using Math Skills** About how much larger is Houston than Corpus Christi?

2. **Interpreting Graphs** What does the footnote to the graph mean?

---

**Academic Vocabulary**

overseas abroad; across the seas
route a line of travel
The capital city of Austin is the center of Texas state government. Several high-technology firms are based in Austin, as is the University of Texas at Austin. The city has a lively music scene, and it is known worldwide for its many bands and dance clubs. It hosts the annual Austin City Limits music festival, featuring well-known bands and musicians. Smaller cities of the region include Sherman, San Marcos, and Waco.

**Analyzing** Why is Dallas a transportation hub?

### The Post Oak Belt

**GUIDING QUESTION** *What natural features mark the Post Oak Belt?*

Wrapping around the northern tip and alongside the eastern edge of the Blackland Prairie is the Post Oak Belt. This is a timbered area of oak, hickory, and other hardwood trees. Soil conditions in the Post Oak Belt are good for raising corn, grains, cotton, peanuts, pecans, hay, watermelon, peaches, and Christmas trees. The land is also used to graze livestock.

Light industry and education are also important to the area’s economy. Texas A&M University is located in the Bryan and College Station area. Together, the communities are home to about 150,000 people. Medicine, agriculture, and service industries are established here. The Post Oak Belt has no large cities. The city of Tyler, the region’s largest, is nicknamed the “Rose Capital of America” because of the thousands of roses that are grown there.

In and around the area’s Bastrop State Park grows a species of loblolly pine called *Pinus taeda*. These pines can sometimes live 300 to 400 years. Experts think that this section of forest was long ago separated from similar trees in the larger Piney Woods geographical area. The forest is known as the Lost Pines.

**Identifying** How is land used in the Post Oak Belt?

### Piney Woods

**GUIDING QUESTION** *What are the physical characteristics and industries of the Piney Woods?*

The Piney Woods extends southward from the Red River on the Texas coast. Its borders include the Post Oak Belt to the west and the Gulf Coast Plain to the south. Pine and hardwood forests here supply most of the state’s timber industry. The national forests of Angelina, Sabine, Sam Houston, and Davy Crockett are part
of the area. The Big Thicket National Preserve includes dense forestland and swamp.

Two natural resources, wood and oil, have greatly added to the economic health and growth of the area. Logging and lumber-related businesses are here. The 1930s discovery of a large oilfield in Gregg, Rusk, and Smith Counties led to a boom in population as oil workers rushed to the area.

While lumber and oil are the area’s main industries, farming is also important. Piney Woods enjoys a long growing season, making it possible to raise fruits and vegetables as well as roses and bedding plants for the gardening market.

Piney Woods has long been a settled area. Its cultural history has been influenced by Native Americans, the Spanish, African Americans, and Anglo Americans who lived here over time. A manufacturing and medical center known as Texarkana is located here on the Texas-Arkansas boundary. Other communities include Longview, which is a center for industry, conventions, and recreation. Huntsville is home to the Texas Department of Criminal Justice, the state’s prison system. Conroe and many northern suburbs of Houston are also in the Piney Woods.

**READING PROGRESS CHECK**

**Identifying** Name two major industries of the Piney Woods.

---

**Lady Bird Johnson** was born Claudia Alta Taylor, and was given the nickname by her nursemaid, who said she was as pretty as a ladybird. The name stuck with her throughout her life.

Lady Bird was attending the University of Texas at Austin in 1934 when she met an up-and-coming politician named Lyndon Baines Johnson. He proposed to her on their first date, and they married the next month. LBJ’s career soon carried the couple to Washington, D.C., and later to the White House.

As First Lady, Lady Bird Johnson launched an effort to beautify the nation’s highways. The Highway Beautification Act of 1965, also known as “Lady Bird’s Bill,” led to the planting of millions of flowers along roads throughout the nation.

At the end of LBJ’s presidency, the Johnsons returned to Texas. Lady Bird continued to support beautification projects. In 1982 she helped establish the Lady Bird Johnson Wildflower Center, a research facility in Austin to study and promote the use of wildflowers and native plants. In 2006, the center became a part of the University of Texas at Austin. For her work to improve the city’s riverfront area, Austin’s Town Lake was renamed Lady Bird Lake in her honor, shortly after her death in 2007.

**Explaining** What causes did Lady Bird Johnson support while she was First Lady and after returning to Texas following LBJ’s presidency?
The Gulf Coast and South Texas Plains

GUIDING QUESTION  How does the South Texas Plain compare with the Gulf Coast Plain?

Two important regions of Texas are the Gulf Coast Plain and the South Texas Plain. The Gulf Coast Plain is cattle and farming country. It is also the location of many important Texas industries. The South Texas Plain is dryer than the Gulf Coast Plain, but around the Rio Grande water is plentiful and crops can be grown even in the winter.

The Gulf Coast Plain

Cattle thrive on the excellent grasslands of the Gulf Coast Plain, making cattle ranching a major industry here. Per square mile, more cattle are raised here than in any other region of the state. Crops such as cotton, grain sorghum, and rice are also grown. Wharton County is the largest rice producer in Texas. Texas farmers sell their rice to countries around the world.

Although the Gulf Coast Plain is well suited to ranching and farming, parts of the area serve heavy industry. Products made from oil and natural gas include gasoline, plastics, fertilizer, antifreeze, and synthetic rubber. A great many petrochemical industries, or businesses related to oil and gas products, may be found throughout the area. This industry is important from Corpus Christi up to the Louisiana border.

The Gulf Coast city of Houston is the state’s largest city, with about 2 million people. Houston’s economy is diverse, with ties to such industries as science and technology, banking, and oil. The city is home to the famous Johnson Space Center for astronaut training. A highly respected medical research complex is in the city, while computer manufacturing takes place in suburban areas. Popular Houston sports teams are the Houston Astros, Houston Texans, and Houston Rockets.

Houston’s major economic role is as a leader of the state’s petrochemical industry. Oil refineries use the city’s coastal location to transport oil in tankers, huge ships that carry large amounts of liquid. These tankers and other large ships carry goods through a human-made waterway dug at the city’s port, or harbor, called the
Houston Ship Channel. Ships use the channel to travel between Houston and the Gulf of Mexico.

The port city of Corpus Christi is also important to the petrochemical industry. Its ports are useful to the U.S. Navy, which has a base here, and to an active fishing and shrimping industry. Beaumont is a petroleum-refining center. Tourism, fishing, and shipping industries are found in Galveston. Another city, Victoria, is important in agriculture and petrochemicals.

**The South Texas Plain**

The South Texas Plain gets much less precipitation than the Gulf Coast Plain to its north. In this drier area, vegetation includes prickly pear cactus, mesquite, black brush, and other shrubs. A long 10-month growing season makes cattle ranching, farming, and related industries possible. Water from wells and streams services an area known as the “Winter Garden,” a cluster of counties using wells and irrigation to grow vegetables and fruits for sale in winter.

In the lower Rio Grande Valley to the south, rich **alluvial soil** from river deposits help to grow citrus trees, such as orange, grapefruit, and lemon. At times, dangerous freezes strike the area, damaging crops and killing trees.

The city of Laredo on the Rio Grande is important for rail transport, meatpacking, and various manufacturing industries. It is the main entry point for Mexican and American trucks carrying trade products between the two countries. Other cities in the area include Kingsville, Brownsville, McAllen, Edinburg, and Harlingen.

**SKILLS PRACTICE**

Work with a partner. Take turns asking one another questions about what was taught in class about the Coastal Plains. Answer one another’s questions.

<table>
<thead>
<tr>
<th>Content Vocabulary</th>
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<tbody>
<tr>
<td><strong>alluvial soil</strong></td>
</tr>
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**FOLDABLES Study Organizer**

Include this lesson’s information in your Foldable®.

- Mountains and Plains
- Great Plains
- North Central Plains
- Coastal Plains

---

**LESSON 4 REVIEW TES**

**Reviewing Vocabulary**

1. Explain what **alluvial soil** is and tell why it is important in the Rio Grande Valley. 22A

**Answering the Guiding Questions**

2. **Describing** Describe the effects of some of the weather hazards that are part of life on the Coastal Plains. 108

3. **Comparing** How do cities in the Coastal Plains compare to other regions of Texas? 98, 21B

4. **Identifying** What important natural features, cities, or landmarks lay to the north and south of the Blackland Prairie? 21B

5. **Explaining** Describe the natural features of the Post Oak Belt. 21B

6. **Identifying** Name some physical characteristics and industry of the Piney Woods. 108, 21B

7. **Explaining** Explain two ways in which geographic factors, such as location or natural resources, affect the region’s economic health and development. 108, 21B

8. **Comparing** In what important ways is the South Plains different from other sections of the region? 98, 21B

9. **PERSUASIVE WRITING** Choose the area of the Coastal Plains that you find most interesting. Write a short essay persuading your readers to visit the specific area you chose. 22D

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**CHAPTER 3  Activities**

**Directions:** Write your answers on a separate piece of paper. Use standard grammar, spelling, sentence structure, and punctuation.

1. **Use your Foldables to explore the Essential Question.**
   **EXPOSITORY WRITING** In a short essay, discuss how people in each of the four physical regions of Texas have adapted to and modified their environment. Give an example of a modification people made in each region. 10A, 22B, 22D

2. **Social Studies Skills**
   **RESEARCHING ON THE INTERNET** Research online to find out what the region of Texas that you live in was like 100 and 200 years ago. Illustrate or find photos or illustrations of your area during each time. Write about how humans have changed the landscape, where cities have developed, and how people used the land to help them adapt. Analyze how local points of interest and historic landmarks in the area have changed over time. 10A, 21B, 22B, 22D

3. **Thinking Like a Historian**
   **COMPARING AND CONTRASTING** Create and fill in a chart like the one shown here to help you explain the attractions, economies, and cities of each of the four regions of Texas. 8A, 9B, 21B, 22B

<table>
<thead>
<tr>
<th>Mountains and Basins</th>
<th>Great Plains</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Central Plains</td>
<td>Coastal Plains</td>
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</tbody>
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4. **GEOGRAPHY ACTIVITY**

![Map of Texas and Mexico](image)

**Locating Places**

Match the letters on the map with the numbered places below. 9A

1. Mountains and Basins Region
2. Great Plains
3. North Central Plains
4. Coastal Plains
5. Pecos River
6. Rio Grande
7. Colorado River
8. Guadalupe Peak
9. Red River
10. Caprock Escarpment
Directions: Write your answers on a separate piece of paper. Use standard grammar, spelling, sentence structure, and punctuation.

CHECKING FOR UNDERSTANDING

1. Identify the region where each of the following places is located. Explain why the place is important to the region. 228
   A. Brownwood
   B. Loving County
   C. Del Rio
   D. Houston
   E. Canadian Breaks
   F. San Antonio
   G. Chisos Mountains
   H. Corpus Christi

2. Understanding Supporting Details Why is the Mountains and Basins Region of Texas sometimes called the Trans-Pecos? 228

3. Identifying Identify the city that is the commercial center of the upper Rio Grande Valley. Explain the importance of NAFTA to this city. In your response, be certain to include NAFTA. 73, 134, 228

4. Listing List the three conditions that led to the near collapse of farming throughout the Texas Great Plains in the 1930s. What industry helped the region survive the difficult economic times that resulted? Explain whether farming became successful again. 104, 108, 218, 228

5. Specifying What are two important economic activities of the Edwards Plateau? Why are they important? 228

6. Identifying Which Texas city is the largest sheep market in the United States? What is another term for large-scale commercial farming done in the city? 224, 228

7. Explaining Name the region where more cattle are raised per square mile than in any other region of Texas. What about this region makes it particularly good for raising cattle? 104, 218, 228

CRITICAL THINKING

8. Describing Describe the climate in the Mountains and Basins Region of Texas. 218, 228

9. Comparing Compare the heights of El Capitán, Guadalupe Peak, and Mount Livermore. List each peak in order from lowest to highest. 58, 218, 228

10. Sequencing Sequence events discussed in the chapter about the buffalo’s existence on the Great Plains before and after settlers arrived. 10, 16, 218, 228

11. Defending Considering the geography of the area, does the name Palo Duro make sense for the Palo Duro Canyon? Explain. 196, 218, 228

12. Differentiating If you were a cotton farmer, would you more likely want to do your farming on the Edwards Plateau or in the Post Oak Belt? Explain. 104, 218, 228

13. Assessing What is the largest city on the Edwards Plateau? Is it likely this city would have grown so large if it had not been located on the Rio Grande? Explain. 108, 218, 228

14. Speculating Suppose that cattle ranching were to stop on the North Central Plains. What kind of effect would this have on the city of Fort Worth? 218, 228

15. Making Connections Petroleum discoveries have been important to the Coastal Plains of Texas. Why has this led to strong shipping and warehousing industries in the state? 128, 218, 228

16. Describing Based on what you have learned in the chapter, write a brief description of the Piney Woods area of Texas, including its geographic features and high-interest locations. 228, 220

Need Extra Help?

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<th>3</th>
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<td>4</td>
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DBQ SHORT RESPONSE

“The country is like a bowl, so that when a man sits down, the horizon surrounds him all around. . . . [A]nd even if a man only lay down on his back he lost sight of the ground.”

—Pedro de Castañeda

17 Drawing Conclusions Why did Castañeda compare the High Plains to a bowl? Support your response with information you learned about the High Plains. 21a, 21b, 22b

18 Comparing and Contrasting Suppose that Castañeda were to visit the High Plains Region for the first time today. How would the region be the same as it was when he visited? How would it be different? 21a, 22b

EXTENDED RESPONSE

19 Descriptive Writing Write a brief description of a Texas city you learned about in the chapter for a travel brochure. Name the city and its Texas region. Describe the climate, the landforms, the resources, and any other information about the area. Think of the five senses to help you include vivid, descriptive words. 22b, 22d

STANDARDIZED TEST PRACTICE

DBQ ANALYZING DOCUMENTS

Study the chart and answer the questions that follow.

20 Comparing In terms of population, how does Houston compare to Dallas? 8a, 21c, 21h

A. Houston is larger than Dallas by about 2 million people.
B. Dallas and Houston are about the same size.
C. Houston is larger than San Antonio by about 1 million people.
D. Dallas is slightly larger than Houston.

21 Analyzing Charts Of these cities, which two are in the same region? 8a, 21c

F. Houston and Fort Worth
G. El Paso and Corpus Christi
H. Fort Worth and Laredo
I. Austin and Corpus Christi

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<thead>
<tr>
<th>City</th>
<th>Region</th>
<th>Population</th>
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<td>Coastal Plains</td>
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<td>Laredo</td>
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<td>248,187</td>
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Source: TexasAlmanac.com, Texas Historical Association

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