

Chapter 1

This Is Our Home

Pages 2-37

Section 1

What Is Geography?

Pages 5-7

Section 2

The Geographic Regions of South Carolina

Pages 8-25

Section 3

South Carolina's Waterways and Climate

Pages 26-35

Chapter Review

Pages 36-37

Getting Started

Write the term GEOGRAPHY on the board. Have students brainstorm all of the words that come to mind. (You may want to use a fishbone or tree graphic organizer.) Keep this posted throughout the chapter and make additions and deletions as you review text sections.

Setting the Scene

President John F. Kennedy said: "Geography has made us neighbors. History has made us friends. Economics has made us partners, and necessity has made us allies. Those whom nature has so joined together, let no man put asunder." What did he mean?

What Do You Think?

Suppose you were Mary Beaty and you were offered \$5,000 per tree. What would you do?

CHAPTER 1



CHAPTER PREVIEW

PEOPLE: Mary Beaty, Pat Conroy, Robert Mills, Tom Yawkey

PLACES: Blue Ridge region, Blue Ridge Mountains, Sassafras Mountain, Palmetto Trail, Piedmont region, Sandhills region, Upcountry, Lowcountry, Coastal Plain region, Inner Coastal Plain, Outer Coastal Plain, Congaree National Park, Coastal Zone region, Grand Strand, Santee Delta, Sea Islands, Intra-coastal Waterway

TERMS: geography, latitude, longitude, absolute location, relative location, environment, flora, fauna, elevation, precipitation, monadnock, kudzu, tributary, Fall Line, Carolina bays, fault, delta, sound, barrier island, black river, weather, climate, tornado, Bermuda high, hurricane, storm surge

Mary Beaty, a resident of Conway, South Carolina, understood the meaning of home and protecting her hometown for herself and future generations. In 1887, a railroad was to be built through the town, and two magnificent live oak trees were in its pathway. When workers came to cut down the trees, they were confronted by Mary, who was one tough lady. The rails were laid on a different route and the trees were saved. Why do you think Mary was so protective of the trees? Probably it was because live oaks, with their huge trunks and wide-flung branches draped with Spanish moss, represented home to this Lowcountry woman. Many species of birds found shelter in them, and, very likely, her children spent happy hours climbing on the limbs that swooped so low they often touched the ground. Mary Beaty was protecting the trees because they were a part of her neighborhood, and they made it seem like home to her.

Home is where we live; but home has several meanings. Home is the house or apartment we live in. It is also the nation and the state in which we live. America is our home. South Carolina is our home. It is small as a state, but very large as a home. There are parts of it we have not yet explored. There is much we do not yet know about it. Because it is our home, it is good for us to know about every room and corner of it. And it is good that we get acquainted with at least some of the people who have inhabited this home before us. Learning the story of those people is the main topic of this book. Getting acquainted with the home in which they lived, and which so influenced their daily lives, is our purpose in this chapter.



2 South Carolina: Our History, Our Home

State Standards

There are no specific standards that relate to Chapter 1.

Teacher Note

The excellent site <https://www.thoughtco.com/geography-4133035> covers a broad spectrum of geographic studies and has a collection of maps for downloading.



Above: The Angel Oak in Charleston is one of the largest and oldest live oaks in the South. It has a branch that is 105 feet long. **Opposite page, above:** Many of the oldest homes in South Carolina are in Charleston. **Opposite page, below:** A wild mink has found a home among the boulders around Fort Sumter.

Teacher Note

A feature called “In Other Words” will appear at the top of many pages. In it you will find words and phrases that are not part of the “Terms” for the chapter and are not defined in place but that may be unfamiliar to some students. The feature will not give complete definitions, but will show how each word or phrase was used in this context.

In Other Words

mink—a slender-bodied, meat-eating mammal with a short bushy tail and a soft thick coat; its fur has been used for making coats and other warm apparel

Learning Style Accommodations

Before you read more about your home state, prepare a brochure that has at least five pages. On the first page, outline a map of South Carolina and decorate as you see fit. As you complete this chapter, look for things that you think should go into the brochure that would entice visitors to visit or move to our state.

Note: Websites appear, disappear, and change addresses constantly. The Internet addresses included throughout this program were operative when the text was published.

Just Suppose

During the next few weeks, look carefully at your neighborhood, school grounds, home, etc. Find one or two things that you think are important to keep in your neighborhood. How would it change things if they suddenly disappeared? Why?

Writing Skills


Develop a word bank of fifty descriptive adjectives and adverbs. After reading about each region, use five or six words from the word bank to write a descriptive paragraph about that region.

Visualizing Words and Numbers


Using a blank map of South Carolina, label each of the Vital Statistics given in the Signs of the Times.

Using Geography

South Carolina's highest point of Sassafras Mountain is only moderately high, compared to the other forty-nine states. Can you guess which state has the highest peak and which has the lowest? Do some research to see if you made a good guess, and see where South Carolina "stands" among the fifty states.



SIGNS of the TIMES



VITAL STATISTICS

- TOTAL AREA**
31,113 square miles
- WATER SURFACE**
1,896 square miles
- COASTLINE**
185 miles
- SHORELINE**
(including islands, inlets, and bays)
2,876 miles
- GREATEST DISTANCE EAST TO WEST**
285 miles
- GREATEST DISTANCE NORTH TO SOUTH**
225 miles
- NUMBER OF COUNTIES**
46
- HIGHEST POINT**
Sassafras Mountain
3,554 feet above sea level
- LOWEST POINT**
Atlantic coastline, sea level
- MEAN ELEVATION**
350 feet above sea level

LOCATION

- LATITUDE**
Between 32° N and 35° 15' N
- LONGITUDE**
Between 78° 30' W and 83° 30' W
- LOCATION WITHIN UNITED STATES**
Southeast
- BORDERING STATES**
North Carolina, Georgia
- GEOGRAPHIC CENTER OF THE STATE**
Richland County
13 miles southeast of Columbia

The Saluda is a slow-moving river of the Piedmont. It is part of the Santee river system.

4 Chapter 1: This Is Our Home

Notes

What Is Geography?

AS YOU READ, LOOK FOR

- the role of maps in determining absolute and relative location;
- the size and shape of South Carolina;
- how geography helps us understand our environment;
- terms: **geography, latitude, longitude, absolute location, relative location, environment.**

Geography is a Greek word that literally means “earth description” (*geo-graphy*). It includes many topics such as landforms, soil, bodies of water, descriptions of places, and climate. Geography is concerned with how these physical features interact with one another and how humans live and relate to their surroundings. The geographer is also concerned with location, so a major tool is the map.

Mapping South Carolina’s Location

South Carolina is found on a map at a latitude between 32 degrees north (32° N) and 35 degrees, 15 minutes, north (35° 15' N) and at a longitude between 78 degrees, 30 minutes, west (78° 30' W) and 83 degrees, 30 minutes, west (83° 30' W). **Latitude** is the distance north or south of the equator, measured in degrees. **Longitude** is the distance east or west of the *prime meridian* (0° longitude), measured in degrees. These numbers define South Carolina’s **absolute location** (precise position by longitude and latitude). They make it possible for anyone to find South Carolina on a globe or a map of the world.



Above: Three students study the geography of South Carolina with the help of an interactive map at the South Carolina State Museum.

Section 1

What Is Geography?

INTRODUCE

Outline

- A. Mapping South Carolina’s Location
- B. South Carolina’s Size and Shape
- C. Understanding Our Environment

Materials

Textbook, pages 5-7

Student Workbook

3 Vocabulary Matching

4 South Carolina in the United States

5 Latitude and Longitude

Teacher Tech Website

Lesson Plan

Visual Aids

2 Geographic Terms

3 South Carolina in the United States

Guided Reading, 1-1

mystatehistory.com

Online Textbook

Think About It

Jot down five things you think of when you see the word *geography*. Then, jot down five reasons you like living in South Carolina. Do your lists overlap?

Vocabulary Development

Think of three things outside your bedroom door, three outside your home or apartment, and three around your school. Now you understand the term *environment*. It simply means our surroundings.

Teacher Note

Some students have a hard time remembering the difference between longitude and latitude. Latitude lines run east and west, so think of them as rungs of a ladder (ladder-tude). Think of longitude, which stretches from the North to the South Pole, as “long.”

Career Search

Google “Jobs in Geography.” After reading about each job (there are thirteen or fourteen), is there one geography-related job that is of interest to you? If so, conduct further research and describe things you would need to do to become involved in that career.

In Other Words

nestled—pressed closely

circumference of—distance around or encircling

Just So You Know

The geographic center of the North American continent is Rugby, North Dakota, located at 48° 10' North, 100° 10' West.

Answer to Map 1 Skill

Answers will vary.

Critical Thinking

How would your life be different today if South Carolina were nestled between North and South Dakota far away from the east coast? How does South Carolina's location impact its climate, history, and economy?

Just So You Know

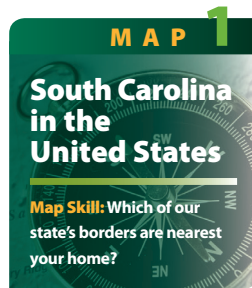
Approximately 71 percent of Earth is covered with water.

Character Development

One sign of a strong character is *respect for the environment*. Jot down three things you do today to show respect for the environment in which you live. Now think of two things you can do better and try them out for the next two weeks. For example, it could be as simple as picking up cans or bottles while walking home from school.

Group Learning

Form working groups and develop plans for helping the environment in which we live.



The **relative location** of South Carolina is where the state is located in relation to other places. Our state touches the Atlantic Ocean, which is an enormously important fact for its climate, history, and economy. It is nestled between the states of North Carolina and Georgia. It is in the southeastern section of the United States and is on the eastern coast of North America. All these relationships are important to the state.

South Carolina's Size and Shape

Our state is shaped like a triangle, with its base the Atlantic Ocean and its *apex* (uppermost point) the Blue Ridge Mountains in the very northwest corner. This triangle is one of the smaller states, ranked 40th out of the 50. It contains about 31,113 square miles, or over 19 million acres of land, the majority of which is covered with forests. The greatest distance from north to south is 225 miles; from east to west is 285 miles. The coastline along the Atlantic is about 185 miles long. But if you consider the circumference of all the islands and the shores of all the inlets and bays, the coastline would measure 2,876 miles!

Understanding Our Environment

Geography helps us to understand our **environment** (surroundings) and our relation to it. It teaches us how to properly use the environment and not

Critical Thinking

If you drove sixty-five miles per hour on interstate highways, how long would it take you to go from the most northern to the most southern border of South Carolina? How long would it take you to go from farthest east to farthest west in our state?

Notes



Above: Swamps and wetlands are an important part of South Carolina's physical environment, as well as its history and identity. Places like Cheraw State Park offer many opportunities for waterborne recreation.

abuse it. The environment, after all, helps to shape us as human beings and as a society. Pat Conroy, a South Carolinian and a major American writer, said about his teen years in the state: "I had no idea that geography itself could play such a large role in the shaping of a man's fate and character." In the past, a few historians have suggested that geography is *the* factor that determines our fate as individuals and as a society. We do not have to go that far, but we need to recognize the importance of the physical world in shaping our lives and attitudes. The studies of history and geography work in cooperation. They help us understand our social and physical environments, and how they affect us.

DO YOU REMEMBER?

1. Define in sentence form: geography, absolute location, environment.
2. Describe the absolute location and the relative location of South Carolina.
3. How does South Carolina rank in size among the 50 states?

Section 1: What Is Geography? 7

Notes

What Do You Think?

Explain what you think Pat Conroy meant by this statement about geography shaping character.

In Other Words

fate—destiny or future

wetlands—areas containing much soil moisture

Using Technology

Pat Conroy, who died in 2016, was one of the top southern writers. Find his website, and read about him and the books he has written. Then, answer these questions: In what way did his upbringing impact him as a writer? In what ways do you think the geography of South Carolina impacted his writing?

ASSESS

Answers to "Do You Remember?"

1. **Geography** is a study of Earth, including landforms, soil, bodies of water, descriptions of places, and climate. It is concerned with how these physical features interact with one another and how humans live and relate to their surroundings. **Absolute location** identifies a precise position on Earth's surface, stated in terms of latitude and longitude. **Environment** is another word for surroundings.
2. It lies between 32° N and 35° 15' N latitude and between 78° 30' W and 83° 30' W longitude. It lies between North Carolina, Georgia, and the Atlantic Ocean in the southeastern United States, on the eastern coast of North America.
3. It is 40th out of 50 in size.

Section 2

The Geographic Regions of South Carolina

INTRODUCE

Outline

- A. The Blue Ridge Region
- B. The Piedmont Region
- C. The Sandhills Region
- D. The Coastal Plain Region
- E. The Coastal Zone Region

Materials

Textbook, pages 8-25

Student Workbook

6 *The Regions of South Carolina*

Teacher Tech Website

Lesson Plan

Visual Aids

4 *South Carolina's Natural Regions*

5 *South Carolina's Natural Regions with County Outlines*

Guided Reading, 1-2

mystatehistory.com

Online Textbook

In Other Words

diversity—variety

gushing—fast flowing

landscape—geography, setting

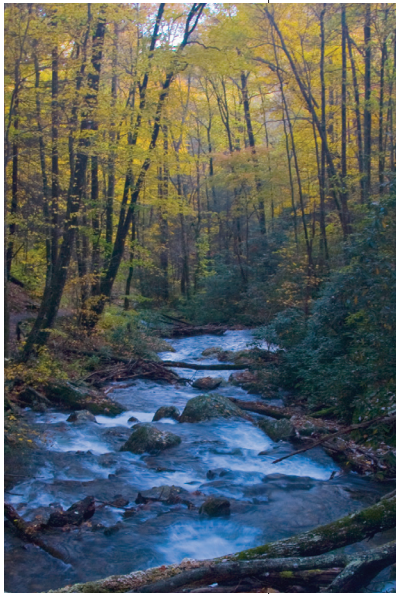
What's Your Opinion?

What are your three favorite types of flora and fauna? What were the reasons for your choices?

In which area of the state would you most like to live? Why?



Below: The Middle Saluda River is a fast-flowing mountain stream where it rises in Jones Gap State Park in Greenville County. The Middle Saluda joins the North and South Saluda Rivers to form the Saluda River in the Piedmont.



AS YOU READ, LOOK FOR

- the varying terrain, flora, fauna, weather, and waterways of the five geographic regions of South Carolina;
- the significance of the Fall Line in the history of our state;
- terms: **flora, fauna, elevation, precipitation, monadnock, kudzu, tributary, Fall Line, Carolina bays, fault, delta, sound, barrier island.**

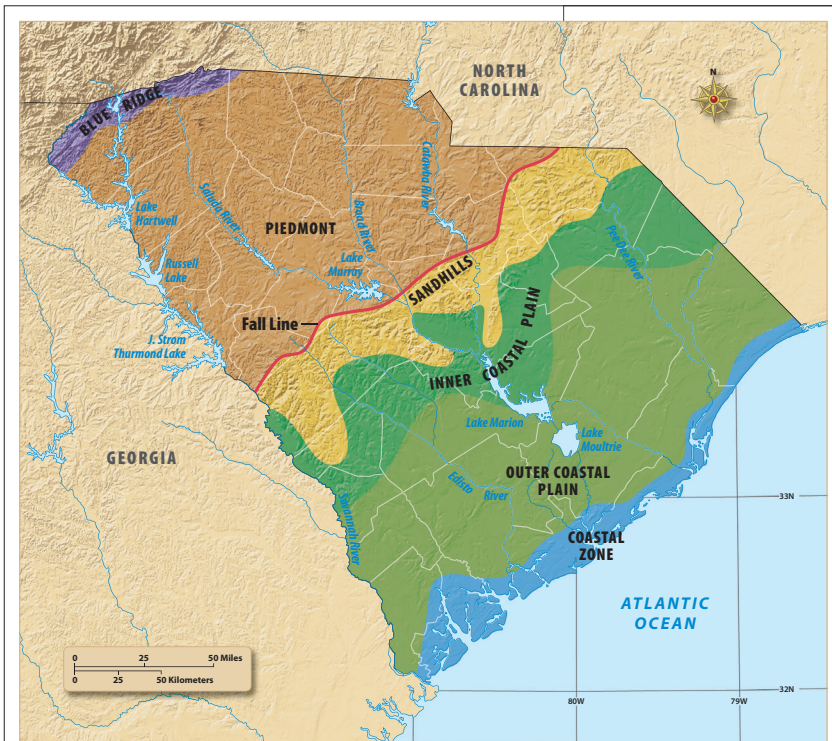
Although South Carolina is a small state, it is rich in diversity. Its land varies from mountainous to hilly to flat, from rocky to clay-filled to sandy. Its rivers range from gushing mountain streams to lazy, slow-moving black rivers near the coast. If you live in the mountains, you might never have swum in the Atlantic Ocean. If you live on the coast, you might be unaware of the cool heights of the mountains. One of the attractions of the state to visitors and newcomers is the variety of environments available in a rather small area.



The Blue Ridge Region

Let us begin our study of South Carolina's landscape in the northwestern section of the state. We can ride along Cherokee Foothills National Scenic Highway, SC Route 11, from Walhalla eastward until it crosses I-26, and see most of the Blue Ridge Mountains of South Carolina. The spectacular scenery will probably thrill you unless you live there and perhaps think you are bored with it. Maybe then you would be more

Notes

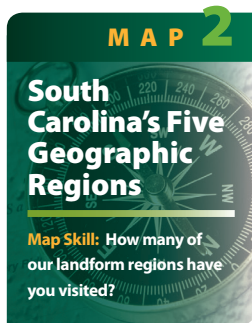


thrilled by the ocean. But there is something about the might and majesty of a range of mountains that has awed and inspired humans since the beginning of history.

Terrain

This narrow strip of rather low mountains we see from Route 11 comprises only 2 percent of the state's land area. That strip, though, is the southeastern edge of the oldest land formation in North America—the Appalachian chain of mountains that extends from northern Alabama northeastward into Canada. The age of the mountains contributes to their appearance today.

Some 350 million years of rain and wind, freezing and heating have eroded those peaks—made them more rounded and lower than the Rockies in the West. The highest peak in the South Carolina Blue Ridge range is Sassafras Mountain (about 3,554 feet above sea level), on the border with



In Other Words

majesty—magnificence,

splendor, grandeur

comprises—includes, is made up of

eroded—worn down

Writing to Express Feelings

Draw or write the feelings you can have when seeing a mountain range.

Check It Out

You can hike the Appalachian Mountain Range. If you enjoy hiking, check out the “Appalachian National Scenic Trail” on the Internet. The trail is 2,181 miles long and covers 14 states.

Critical Thinking

Why do you think the shape and contour of the mountains in the East are different from those in the West?

FYI

Sassafras Mountain is named for the sassafras tree. Sassafras leaves are an important food for deer, groundhogs, and black bears. During the winter, rabbits eat the bark. Many birds delight in the berries. If you have ever tasted root beer, you know what the root bark of sassafras tastes like.

Answer to Map 2 Skill

Answers will vary.

Notes

In Other Words

interspersed with—combined with, mixed with

tree canopy—a layer of tree leaves and branches that cover the ground when viewed from above

reclusive—tending to hide

Geography Skills

Google “Palmetto Trail Handbook.” Make a list of the towns and cities that are on the trail. Which are closest to you?

Critical Thinking

Why is this Blue Ridge region not suited for crops?

Check It Out

What types of trees grow in your schoolyard or neighborhood? You may have to ask for help in identifying them.

Check It Out

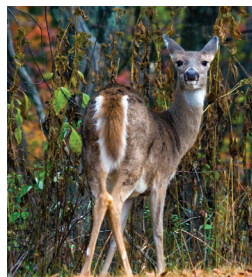
Google “South Carolina Songbirds.” Read the descriptions of some South Carolina songbirds, then click those you would like to hear. For each bird, describe how its song is different from the others. Just for fun, try to make the sounds.

Using Technology

Check out the peregrine falcon on the Internet. How does it compare with the bald eagle?

Only If You Are Interested

Google “South Carolina Snakes and Reptiles.” Draw the snakes and reptiles that are most common in South Carolina.



Top: Caesars Head State Park offers an unparalleled view of the Blue Ridge Mountains. **Above:** Whitetail deer are a common sight in the Blue Ridge region. **Opposite page:** Fly-fishing for trout (above) and kayaking the Chattooga River are popular Blue Ridge pursuits.

North Carolina. These older mountains appear soft, with their lush vegetation. Perhaps you will be enticed to hike a few miles on the Palmetto Trail, which is being completed between the Blue Ridge and the Atlantic coast. It has plenty of challenging terrain and strenuous climbs.

Flora and Fauna

The terrain and soils of the Blue Ridge are not very well suited to crops. Most of the land is utilized for forests and pastures. The **flora** (natural vegetation) is similar to that farther north because of the altitude. The forests are primarily oak and tulip poplar, interspersed with hemlock, birch, beech, and white pine. Along the streams, we might observe cottonwood, sycamore, and alder trees. Under the tree canopy grow very colorful stands of azaleas and rhododendrons. It's no wonder that Route 11 and the several state parks of the Blue Ridge are crowded with visitors enjoying the blossoming shrubs during spring and summer and the flaming foliage in the fall.

The abundance of **fauna** (animal life) in the Blue Ridge region includes numerous songbirds, hawks, occasional peregrine falcons, and even bald eagles. Birds closer to the ground, such as turkeys and grouse, delight the hunters. They will likely see whitetail deer, rabbits, squirrels, and maybe wild boars. They might not see the reclusive black bears—but they are there. So are beavers and otters, competing in the streams with rainbow and brown trout. The Blue Ridge also has its fair share of snakes and other reptiles.

Compare and Contrast

Using the Internet, find out the differences between black bears and brown bears. Use a Venn diagram to illustrate the differences and similarities.

Notes

In Other Words

quarries—open excavations (pits) for obtaining building stone

Using Geography and Maps

Using a blank U.S. map, shade in the Piedmont region and label each state that touches it.

Art and Information

Draw a monadnock formation and compare and contrast it to blue granite.

FYI

The term *monadnock* is taken from early Indians and means an isolated hill or lone mountain.

Check It Out

Google “South Carolina’s State Stone.” You will find various places in the state where blue granite can be mined or is used. Using a blank map of South Carolina, label each of those areas of the state.

FYI

The granite quarry named Rock of Ages in Barre, Vermont, is considered to be the largest quarry in the United States. Read about it and see if that’s true.



Above: Originally covered in forest, much of the Piedmont has been cleared for agriculture. Though not the richest soil, it has been productive. **Opposite page, below:** Table Rock is an example of a monadnock. Despite its granite surface, plants can still find a place to grow.



The Piedmont Region

If we ride on Route 11 east to I-26, we have already left the mountains and entered the Piedmont, a vast hilly region to the south and east of the Blue Ridge. This region, whose name means “foot of the mountains,” borders the Appalachian chain from Pennsylvania south to Alabama.

Terrain

The Piedmont makes up approximately one-third of South Carolina. Its elevation varies from about 1,200 feet near the mountains to about 300 feet near the middle of the state. The very hilly northwestern Piedmont gradually gives way to more gently rolling hills as we travel southward on I-26 or perhaps on the more scenic US 321 or US 76. If you are hiking on the Palmetto Trail, you will certainly notice the trail getting easier.

In a few places, there are breaks in the rolling hills. Granite outcroppings appear here and there. Examples are Kings Mountain in York County, Forty Acre Rock in Lancaster County, and Paris Mountain in Greenville County. Geologists call these formations **monadnocks**. Granite quarries have been important factors in the local economies of several communities of the Piedmont. Especially prized is the blue granite from Fairfield County, which the South Carolina legislature designated as the state stone.

DID YOU KNOW?

Pied is the French word for “foot,” and *mont* is the French word for “mountain.”

Notes

Flora

Long ago, the Piedmont was one large continuous forest. In the nineteenth century, much of the land was cleared of oak and pine for the growing of cotton and a few other agricultural products. Soils here were not the richest, but they produced good crops of cotton or corn for many years.

Gradually, in the twentieth century, much of the worn-out land was returned to forest, either naturally or by planting for timber and paper pulp. Much land has also been sown in grasses for pasture and for holding the soil in place. In the 1930s and 1940s, **kudzu**



MAP 3

The Palmetto Trail

Map Skill: The Palmetto Trail runs beside which two major South Carolina lakes?

DID YOU KNOW?

Conceived in 1994, South Carolina's Palmetto Trail is the state's largest bicycle and pedestrian project. It is one of only 16 cross-state trails in the United States. The Palmetto Trail is almost three-fourths complete with 350 miles open to the public.

In Other Words

paper pulp—soft wood, often pine, used in making paper

Using Technology

Google “Kudzu.” Although it is a nuisance plant, list the many uses of kudzu. Based on your reading, can you think of any way to eliminate kudzu from the Deep South?

Answer to Map 3 Skill

Lakes Marion and Moultrie

Notes

FYI

A tributary never empties into the ocean or sea.

Vocabulary Development

Draw or describe *silt*.

Map Skills

Using the maps in this chapter along with a blank map of South Carolina, insert and label South Carolina's major rivers.

You Be the Judge

For years, Alabama, Florida, and—recently—South Carolina have been in a dispute with Georgia over water rights. The fight is based on Georgia's belief that rivers on Georgia land can be shared when Georgia is ready. However, the other three states that have these rivers as a boundary with Georgia feel they are entitled to share in the water at will. Research "Water Rights between Georgia, South Carolina, Florida, and Alabama." Then, you be the judge and settle the dispute.

Teacher Note

The water rights fight lends itself nicely to group learning through debates.

Writing Skills

Google "Landsford Canal State Park." After reading about the various activities there, write a letter (using correct format) encouraging a friend to come to the park, or make up a brochure enticing people to visit the park.



DID YOU KNOW?

The Landsford Canal State Park in Lancaster County has the world's largest colony of rocky shoals spider lilies (below). This endangered species thrives only in the rapids of shallow, rocky rivers. The thousands that bloom in the Catawba River (above) in late May and June are truly a sight to behold.



was widely planted to control erosion and restore soil. That was before this Japanese import came to be considered a nuisance that grew over and choked tall trees and covered abandoned houses. No kudzu has been planted in decades, but it continues to thrive in the Piedmont.

Rivers

Besides the forests and pastures, the most noticeable feature of the Piedmont is its rivers—which are quite different from those of the Blue Ridge. Piedmont rivers are usually broad, with gently sloping banks rather than the V-shaped valleys of the mountainous region. The rivers have many **tributaries** (smaller creeks and streams that feed into the main rivers). As the waters wash off the land, they carry silt into the rivers, giving most rivers a muddy appearance. For many centuries, these waterways have been important for humans' use: for water and food supply, for transportation, and as a source of power to do work.

Fauna

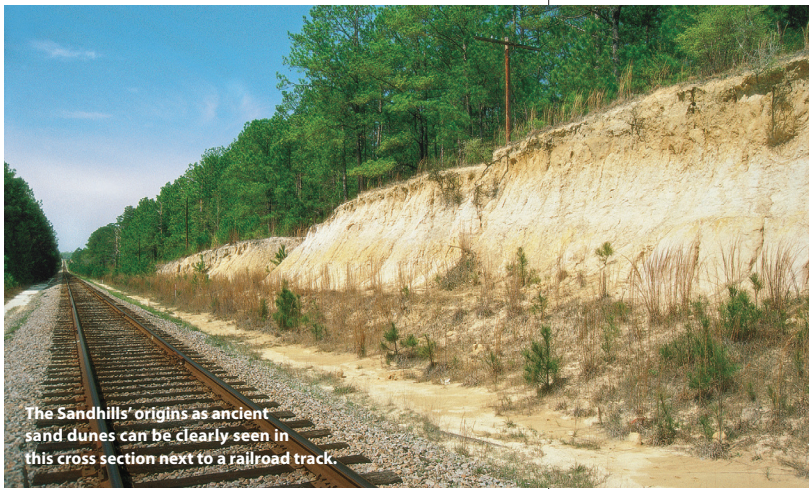
Wildlife roaming the woodlands of the Piedmont include deer, turkeys, bobcats, foxes, many varieties of snakes and reptiles, and even flying squirrels. Quails, wood thrushes, warblers, wrens, and sparrows inhabit the forests and pastures. At Landsford Canal State Park, while observing the very rare and wondrous rocky shoals spider lilies in early June, you will probably spy on the eagle's nest in the park and see ospreys, hawks, and herons, which are common in the Piedmont.

FYI

There are fifty rocky shoals spider lily colonies in South Carolina, Georgia, and Alabama.

Using Technology

Describe and draw or scan pictures that show the differences between ospreys, hawks, and herons.



The Sandhills' origins as ancient sand dunes can be clearly seen in this cross section next to a railroad track.



The Sandhills Region

Columbia is approximately the geographic center of the state. It sits like a buckle on the belt of the Sandhills region, which stretches northeast and southwest across the state and into neighboring states. These are low, rolling hills composed

of sands and clays washed down from the mountains and Piedmont during millions of years of erosion. These soils collected along this belt in sand dunes, because this is where the ocean shore was 50 or 60 million years ago. The ocean's churning action shaped these hills, and other forces of nature have continued to shape them.

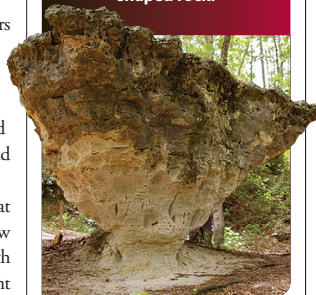
The Fall Line

Also along this belt is the **Fall Line** or Fall Zone, the places on the rivers where rocks and rapids make navigation impossible for a mile or two. To continue boat travel up or down the river, boatmen had to *portage* (carry between two navigable waters) their boats around the rapids. In the nineteenth century, governments dug canals that channeled water around the rapids so boats could continue their journeys. The canal water could also be used to power mill machinery.

Because of the activities associated with the rapids, towns grew up at those points along rivers. North Augusta, Columbia, Camden, and Cheraw are important examples. The Columbia Canal, designed by famous South Carolina architect Robert Mills, opened in 1824. A walk along Waterfront

DID YOU KNOW?

The Peachtree Rock Heritage Preserve in Lexington County, maintained by the Nature Conservancy, was in the ocean millions of years ago. You can see fossilized seashells in the sand and lodged in the tree-shaped rock.



In Other Words

- buckle on the belt**—the midpoint of this strip of land
- channeled**—carried, guided, routed
- fossilized**—preserved from ancient times; converted to stone

Just Suppose

Suppose the ocean shore was still located today where it was 50 or 60 million years ago. How would your life be different?

Research the Answer

Google "Fall Lines." List southern Fall Lines and give the names of the towns and cities along the rivers.

Who Was He?

Research the life of Robert Mills. Using the 5 W's and H (Who, What, Where, When, Why, and How), describe his accomplishments.

What Do You Think?

Visit the Internet site for the "Peachtree Rock Heritage Preserve." Why do you think it's important to keep the preserve?

Using Illustrations

Illustrate the difference between a fossilized seashell and one that is new.

Notes

In Other Words

leaching out—causing to drain or leak out

barren—bare, empty

habitat—a place where a plant or animal naturally lives and grows

incubate—hatch

Learning Style Accommodations

Make a picture representation of the Sandhills or draw a picture of—or actually make—a terrarium.

Dig a Little Deeper

Go to www.hiltonpond.org. Search the website for “Hot Spots for Birds in South Carolina.” Which one is closest to your home? List at least three types of birds that inhabit the area where you live.

Using Technology

Search “North American Migration Flyways.” Review each map and find the one that crosses the state. Describe the type of migration.

What’s in a Name?

What is the difference between a cockroach and a palmetto bug?

Using Maps and Illustrations

Write a geographic description of the Upcountry and Lowcountry. Then use a Venn diagram to compare and contrast the two sections of the state.

DID YOU KNOW?

Bird-watchers have documented sightings of 390 species of birds in South Carolina. Some of these species are not permanent residents but are among the millions of birds that pass through the state each spring and fall in their north-south migration.

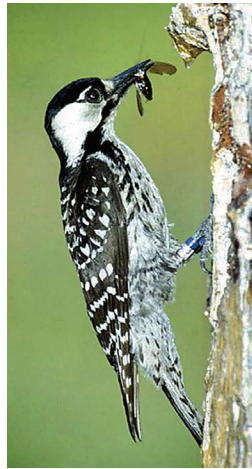


Park in Columbia between the Broad River and the canal is a healthy way to gather a sense of what has happened there over many centuries.

Sandy Soils, Flora, and Fauna

The soils of the Sandhills are generally not very productive. The sandy soils are so porous that water drains through quickly, leaching out even the small amount of organic matter that might have accumulated. The surface dries rapidly, leaving some areas barren, but most are covered by pine trees or scrub oaks, sparkleberries, sand myrtle, and even cactus plants. The pines were originally longleaf pines, but more recently loblolly and slash pines, grown for the paper mills, predominate.

The red-cockaded woodpecker became endangered because of the decline of longleaf pine forests. The Sand Hills State Forest and the Carolina Sandhills National Wildlife Refuge are providing longleaf pine habitats, and the red-cockaded woodpecker is beginning to make a comeback. Other birds in the Sandhills include warblers, nuthatches, bluebirds, owls, hawks, and the beautifully colored wood duck. Mammals in the area include bobcats, foxes, an occasional coyote, and many smaller animals on their menu, such as rabbits, squirrels, rats, and mice. Mention must also be made of the cockroach or palmetto bug. The insect is everywhere in South Carolina and unstoppable—the kudzu of the animal kingdom.



Top right: Bobcats live in the Sandhills region, but are not easily seen as they usually hunt at night.

Above: The red-cockaded woodpecker is unique among woodpeckers because it lives in groups with only a single breeding pair. Male offspring from the previous year help to incubate the eggs and raise the young.

Upcountry and Lowcountry

The Sandhills belt marks the Midlands, about a halfway point in the state. For convenience, South Carolinians usually refer to the section of the state containing the Piedmont and Blue Ridge regions as the Upcountry or Upstate. From the Sandhills to the coast is referred to as the Lowcountry. These terms are to have great political and emotional power at certain critical points in South Carolina history.

FYI

From the top row of seats in Williams-Brice Stadium in Columbia, you can see the contrast between the flat Coastal Plain stretching out beyond the south end zone and the slope of the Sandhills and Piedmont past the north goalpost.

Amazing Fact

At the end of every South Carolina Gamecocks football game, the hymn “Amazing Grace” is played. No other songs are played in the stadium until the next football game.

In Other Words

axis—main line of direction

orientation—direction

meteor—material from the solar system that glows when it falls through the atmosphere; a “shooting star”

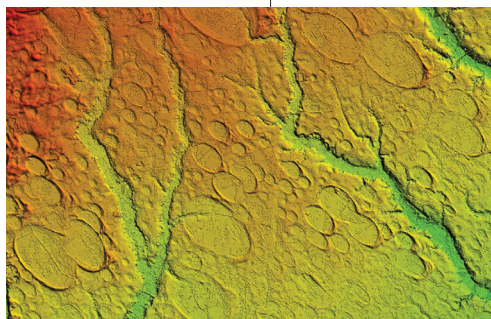
meteorite—a meteor that reaches Earth’s surface

Using Technology and Critical Thinking

Google the term “Carolina Bays.” Write the names of other states where Carolina bays exist. Where is the largest Carolina bay? How do you think these mysterious bays formed? Some people say they were formed by meteors that hit the earth, but others think it could be something else. What do you think?

Close to Home

Google the term “Carolina Bays in South Carolina.” Based on the information given, is there a bay close to you? If so, use a map to plan a trip to that bay, or bring up “Yahoo Directions.” Insert your starting point, which would be your home, and your ending point, which would be the community with the closest Carolina bay, and hit “Directions.” How long will it take you to get there?



Top: Woods Bay State Park preserves a large Carolina bay.
Above: This satellite image shows a large group of Carolina bays in their characteristic northwest to southeast orientation. The origin of the bays remains a mystery.

in the land, with the axis of each running northwest to southeast. They vary in size from three acres to thousands of acres. Some of them are now lakes, some swamps, some dry grasslands. Many have been drained and cultivated to take advantage of their rich organic soil. Once, there were thousands of them, located mainly in South and North Carolina.

Only a few hundred have been preserved in their natural state. Their distinctive shape and uniform orientation gave rise to the theory that Carolina bays

were caused by a large meteor breaking up in the atmosphere and peppering the earth with meteorites, leaving these distinctive scars on the landscape. Thorough investigations have failed to support this speculation, but no satisfactory answer has been found for this mystery.

Rivers

The rivers that we noticed gushing in the mountains and flowing strongly in the Piedmont slow to a sluggish pace in the flat Coastal Plain. They meander, forming many curves and often creating broad floodplains and

Notes

swamps, especially in the Outer Coastal Plain. You can closely observe the floodplains and swamps if you hike the Swamp Fox Passage of the Palmetto Trail below Lake Moultrie. I-26 from Columbia to Charleston or US 521 from Sumter to Georgetown will offer good views of the numerous rivers and swamps of the Coastal Plain.

Flora and Fauna

The wildlife population in the Coastal Plain, and especially in the swampy areas, is enormous and varied. Many of our state's familiar species—such as deer, turkeys, Canada geese, mallard and wood ducks, songbirds, and foxes—appear in much greater abundance in the Coastal Plain.

The gray foxes in this area can climb trees, in contrast to red foxes, which cannot. Congaree National Park, the only national park in South Carolina, is in the Inner Coastal Plain only a few miles south of Columbia. It is preserved as one of the few remaining old-growth river bottom hardwood forests. A hike along the Boardwalk Loop or a canoe ride through the swamp will reveal some of the park's *champion trees* (the largest of their species in the world). All across the Coastal Plain you might find beavers, muskrats, minks, coyotes,

turtles, snakes, bald eagles, golden eagles, and ospreys. Lakes Marion and Moultrie are famous for their bass, bream, and catfish.

A Geological Fault

The Coastal Plain lies on a geological **fault** (a fracture in Earth's crust) that has caused serious earthquakes, notably the Charleston Earthquake of 1886, whose *epi-center* (the part of Earth's surface directly above the earthquake's focus) was actually a bit inland near Summerville. The most damage was in the city, where eighty-three people died and nearly one-fourth of the value of buildings was lost. The tremors were felt for hundreds of miles, with reports of chimneys falling in Kentucky and Ohio and lighthouses swaying in New York.

DID YOU KNOW?

South Carolina has the second-most wetlands acreage in the United States. Only Georgia has more.



Top: The handsome gray fox has hooked claws that enable it to climb trees, both to hunt and to escape predators. **Above:** The 1886 Charleston Earthquake is estimated to have been between 6.6 and 7.3 on the Richter scale, which is used to measure the strength of earthquakes.

DID YOU KNOW?

In Charleston, you can even today see steel plates (below) on buildings securing "earthquake rods" through the structures to help protect them against future quakes.



In Other Words

old-growth—consisting of old, large trees

predators—animals that hunt other animals

Map Skills

Using a blank South Carolina map, trace your way on the Swamp Fox Passage. Don't forget to label towns and cities. In what ways do rivers help us?

Critical Thinking

Why is it important to maintain wetlands?

Art and Technology

After surfing the Internet for descriptions of gray foxes and red foxes, draw or explain the differences between the two foxes. Have you ever seen a fox? If so, where and when? Why are they hard to find?

Close to Home

Go to www.clemson.edu/champtree. Under "SC Champion Trees," click on your county. Do you have champion trees in your county?

Using Geography and Maps

Using a South Carolina map, locate the site of the Coastal Plain's geological fault.

FYI

The Charleston Earthquake of 1886 measured between 6.6 and 7.3 on the Richter scale. Is that a high level or low level? How do you know?

Plan Ahead

Go to www.ready.gov/earthquakes. Based on the information given for before, during, and after an earthquake, develop a plan of action for your family should you be warned ahead of time by a series of small tremors.

FYI

The Charleston Earthquake of 1886 caused over \$6 million in damage. Pull up "The Inflation Calculator" to find the loss in dollars today.

In Other Words

arc—curve

Research the Answer

The sand at Myrtle Beach is different from the sand at the more northern beaches. Can you think why?

Using Technology

Google “Top 10 South Carolina Golfing Destinations.” List those close to your home.

Just for Fun

Design a golf course hole.

FYI

One of the attractions at Myrtle Beach is shared with North Carolina beaches, and that’s the shag! Look it up and use the 5W’s and H to describe this activity. If you’d like to learn the shag, go online and bring up “Shag Dance Steps.” It also has shag music to help you “get in step.” Most of your parents and grandparents who grew up in the Myrtle Beach area and off the North Carolina coast (e.g., Wilmington, Wrightsville Beach, or Southport) can still do the dance. Perhaps they can give you some pointers.



Above: Salt marshes protect our coastlines from erosion and provide nutrients for marine life.

Below: The golden beaches of the Grand Strand are a vital tourist attraction. This is Myrtle Beach.



The Coastal Zone Region

The final landform region is the Coastal Zone region, the thin strip of land and water from the ocean’s edge to a few miles inland. This is only a small percentage of South Carolina territory, but the coast has been a dominant factor in the state’s history since the coming of European settlers. It is still the fastest-growing part of the state in terms of population and tourism. The chief attractions are its beauty, its beaches, and the pleasant weather. The coastline of approximately 185 miles is divided into 3 very distinctive sections, each providing its own characteristics, charm, and challenges.

Grand Strand

From the North Carolina border for about sixty miles south is the Grand Strand, a gentle arc of coastline that is one beach, unbroken by rivers. Few places in the world offer such a phenomenal stretch of wide sandy beaches. The lure of the beach has led to intensive develop-



Notes

ment, with the highest concentration in Myrtle Beach. Many large hotels and condominiums built very close to the beach, and over a hundred golf courses built within a few miles of the beach, have added both recreational attractions and environmental challenges.

Santee Delta

The second section is the Santee Delta, which runs from Winyah Bay and Georgetown for about twenty miles to the south. It is the largest river **delta** (a place where rivers flow into the sea leaving soil deposits behind) on the Atlantic coast, but it has experienced serious erosion since 1942. That is when much of the Santee's water and sediment was diverted into the Cooper River. This diversion meant less of the soil that eroded from the Piedmont and Coastal Plain was deposited on the Santee Delta. Without large new deposits, the sea washed away several hundred feet of land at some points. The coast along the delta is largely marsh and mud rather than sand beaches.



Above: The Santee Delta has suffered serious erosion since the construction of the Santee Cooper Project.

Sea Islands

The third section of the Coastal Zone, stretching over one hundred miles to the border of Georgia, is largely composed of the Sea Islands. This section has many inlets, river mouths, and waterways weaving in and among dozens of islands. The islands and their surroundings are very diverse. Some are separated from the mainland by sizable **sounds** (arms of the sea reaching around an island). Some are separated by a narrow portion of the Intracoastal Waterway that provides a protected passageway for boats to navigate along the coast.

Other islands are separated from the mainland by marshlands. All these habitats are extremely important for thousands of species of plants and animals that depend upon the marshes, waterways, and beaches for their food, protection, and incubation.

The outermost of these islands are called **barrier islands**. They form a sand and vegetation barrier that protects inward islands and the mainland from the sea and winds. Some of these islands have fine, wide beaches similar to the Grand Strand but on a smaller scale. The attractive beaches have led to intensive development of many of these islands, including Isle of Palms, Folly, Sullivan's, Kiawah, Hunting, and Fripp.

Hotels, condominiums, restaurants, private houses, and roads have been crowded onto these platforms of sand. Most of the time the islands are beautiful, but beach erosion and storms cause major problems. The natural action of ocean waves, tides, and winds for thousands of years has shaped and

DID YOU KNOW?

Folly Island (below) gets its name from an Old English word referring to the dense foliage of the island, not to any act of foolishness.



In Other Words

condominiums—units in a multi-unit structure (like an apartment building) that have individual owners

sediment—deposit; solid material that settles to the bottom of a liquid

inlet—a bay or recess in the shore, or a narrow waterway between two land areas

Think About It

What causes serious erosion and what can be done to fix it?

FYI

Some sections of the Delta region were once rice fields.

Map Skills

Google "South Carolina Sea Islands." Using a blank map of South Carolina, identify each of the islands. Teacher Note: They will use this information later in this section.

FYI

The U.S. Army Corps of Engineers maintains an Intracoastal Waterway for about three thousand miles along the Atlantic Coast, utilizing natural inlets, sounds, and artificial canals to provide protection from the open ocean for small boats and barges.

Career Search

Google the "U.S. Army Corps of Engineers." Read about the various jobs available. Do any interest you? If so, dig a little deeper and find out more.

Learning Style Accommodations

Choose one of the barrier islands and, after researching it, develop a brochure to encourage people to visit there. Or you may want to make a presentation on the computer.

FYI

There are one hundred islands on the coast of South Carolina, Georgia, and Florida.

Check It Out

Folly Island had a role in the Civil War. Find out what it was.

In Other Words

havens—places of protection; refuges

What's Your Opinion?

On which barrier island would you most like to live? Why?

What Can You Tell Me?

On which island would you find a boneyard?

Think About It

Google "Yawkey Foundations." After reading about each one, discuss which foundation is most important in your mind and why. On the same site, click "Thomas A. Yawkey." How did baseball and South Carolina come together?

Why?

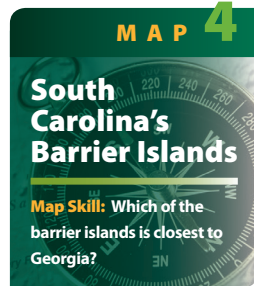
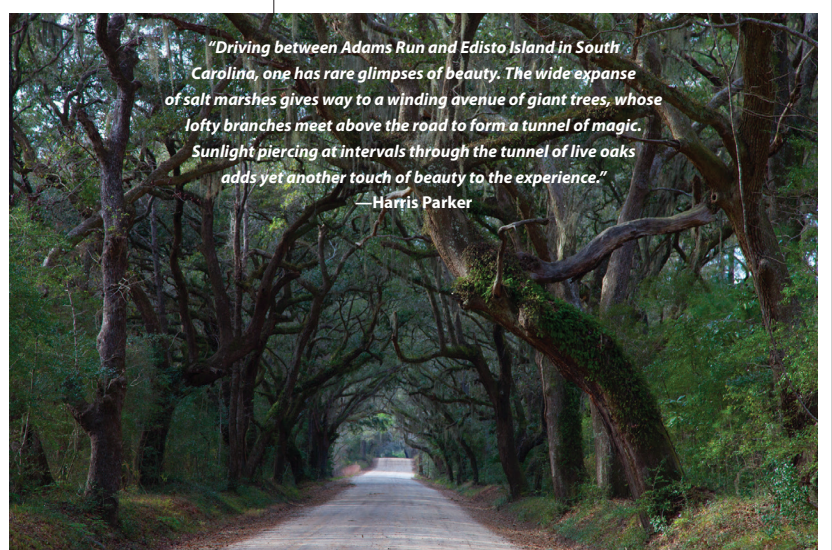
Why did Tom Yawkey make such a generous donation? If you had a great deal of money and wanted to leave some to an environmental cause, what would it be and why?

Art and Illustrations

Draw the birds that live on the beach. In what ways are they similar?

Answer to Map 4 Skill

Hilton Head Island



reshaped these islands and will continue to do so, regardless of human intervention. Some residents accept such danger as the price for living in such scenic places.

A few of the barrier islands have been preserved from development and are maintained by the state government as havens for beach vegetation and wildlife. To walk on either Bulls or Capers Island, a few miles north of Charleston, is to experience what visitors must have seen centuries ago. The living vegetation is thick and untamed. Along the islands' outer coasts lie dead trees that were felled by natural beach erosion. The wildlife is rich in varieties and numbers.

Two other examples of conserved barrier islands are North and South Islands near Georgetown. These islands were willed to the state by Tom Yawkey, owner of the Boston Red Sox, who was an avid outdoorsman and conservationist. His gift is one of the greatest contributions to conservation in American history. The marshes, forests, and beaches provide an undisturbed habitat for hundreds of wildlife species, several of which are endangered.

Fauna

The wildlife in the Coastal Zone is almost the same as in the Coastal Plain, except the numbers of alligators, turkeys, raccoons, eagles, and ospreys increase dramatically, and we note several other species. Gulls, terns, pelicans,

Notes



plovers, and sandpipers live on the beach. In the marshes and along the beaches, you can find oysters, catch crabs, and observe bottlenose dolphins playing in the surf. At Little River, McClellanville, and other fishing villages, you can watch the fishing boats bringing in their catches of sea bass, red snapper, croaker, triggerfish, sea trout, grouper, and shrimp.

One sea creature of particular interest is the loggerhead turtle. This sea turtle is huge. An adult may weigh 300 pounds or more. It is also an endangered species because so many of its nesting places on the beaches of the southeastern United States have been disrupted by human development. South Carolina law protects the turtle and its nesting places from human intervention. The South Carolina Department of Natural Resources flags its nesting places, and residents are asked to turn out lights on the beach because the turtles always lay their eggs at night. Even with these precautions, the chances of a baby loggerhead surviving until it can begin reproducing are estimated to be 1 in 10,000. Undeveloped beaches, like North and South Islands in the Tom Yawkey Wildlife Center, are our best hope for the survival of the loggerhead turtle.

Above: The Coastal Zone of South Carolina is rich in birdlife. Here, a flock of royal terns takes to the air at Cape Romain National Wildlife Refuge near Awendaw. Opposite page: A country road runs through an avenue of live oaks on Edisto Island, one of the less developed of South Carolina's sea islands, with a population of less than 2,500.

DID YOU KNOW?

The loggerhead turtle is the official state reptile of South Carolina.



DO YOU REMEMBER?

1. Define in sentence form: precipitation, Carolina bays, delta.
2. What are the five geographic regions of South Carolina?
3. What is the importance of the barrier islands?

Believe It or Not!

The bottlenose dolphin has been very important to various armed forces. Research and find out why.

FYI

It takes a whole beach along the coastline to guard the lives of loggerhead turtles. Google "South Carolina's Loggerhead Turtle." Why is it important to protect this reptile? What can you do if you should come across a nest?

FYI

When one of the 100-125 turtles hatches, it will go toward the car lights thinking it is the horizon.

ASSESS

Answers to "Do You Remember?"

1. **Precipitation** is rain, snow, sleet, and hail. **Carolina bays** are oval-shaped depressions in the land, with the axis of each running northwest to southeast. A **delta** is a place where rivers flow into the sea leaving soil deposits behind.
2. They are the Blue Ridge, Piedmont, Sandhills, Coastal Plain, and Coastal Zone regions.
3. Barrier islands form a sand and vegetation barrier that provides some protection from the sea and winds to inward islands and the mainland. They also have wide, attractive beaches.

Notes

What's Your Opinion?

What is your favorite seafood? Why? What is your least favorite seafood?

In Other Words

clear-cut—remove all the trees in an area

old-growth—consisting of old, large trees

motley crew—a group of various, often dissimilar, people

bowels—remote or interior parts

Art and Information

Search for “Woodpeckers in South Carolina” and draw, color, and label the types common to the state.

Teacher Note

Should you have students who are budding ornithologists, have them search “Audio Evidence of Ivory-billed Woodpecker,” which is an NPR presentation that includes the actual call and status of this species.

I Wonder Why

If you have ever seen and heard a woodpecker pecking on a tree, you cannot help but wonder, “Why doesn’t that constant banging hurt the woodpecker’s head?” Research woodpeckers and find out. Teacher Note: <http://notesofranvier.blogspot.com/2011/12/can-woodpeckers-help-us-design-better.html> provides a good explanation, and it also shows pictures of the head bones.



How the Ivory-billed Woodpecker Saved the Swamp

When Alex Sanders and some fellow environmentalists made an expedition into the Santee Swamp in 1971, the results were heard around the world. This is his story.

“When word went out that timber companies had acquired the right to clear-cut the Santee Swamp in South Carolina, a few of us became alarmed. The swamp contained the largest tract of old-growth bottomland hardwood forest in the country and some of the tallest trees in the eastern United States. The environmental damage would be enormous. But the contracts had been signed. Lawyers said nothing could be done. Nevertheless, our small band of environmentalists were determined not to give up. In the early morning hours of an overcast spring day, almost forty years ago, this motley crew shoved off in flat-bottomed boats into the bowels of the Santee Swamp. Our announced purpose: a search to find the ivory-billed woodpecker.



There have been no confirmed sightings of the ivory-billed woodpecker since the 1930s. To this day, there are those who think that Alex Sanders staged an elaborate ruse in order to save the forest.

Notes



"Included was a biologist, a representative from the Audubon Society, duck hunters, catfish fishermen, and most important of all, a crew from a local television station. Nobody had any idea of actually finding the ivory-billed woodpecker. None had been seen for decades and most people assumed they were extinct. The real purpose of the expedition was to stir up publicity to save the forest and the swamp. We protestors thought that public opinion—the strongest force in any democracy—could somehow stop the cutting of the trees. Thus, the presence of the television crew was critical.

"The overcast day was not good for bird-watching. The swamp was covered by a thick fog, making the tops of the cypress trees barely visible. Except for paddles scraping the sides of the boats, not a sound was heard—not a chirp, not a rustle in the woods. The swamp was silent, absolutely silent. The setting was as spooky as a haunted house at midnight.

"The Audubon Society representative produced a battery-powered amplifier and the last-known recording of the call of the ivory-billed woodpecker. The recording was a copy from an antique wax cylinder by Thomas Edison. The call, shrieking with a sound like a child's Halloween horn, pierced the fog. The swamp returned to silence.

Above: The fight to save the Santee Swamp started a movement that led to the creation of the Congaree Swamp National Monument near Columbia in 1976. In 2003, it was enlarged by almost 5,000 acres and renamed Congaree National Park.

"But the silence did not last. Back came exactly the same shriek, even louder. The call was played again. Again the call was answered, over and over, at least a dozen times, circling us in the fog just outside of view. Then it stopped. Nobody said a word. The Audubon Society representative burst into tears. All of us did.

"Later, in an on-camera interview with the television crew, the Audubon Society representative, still weeping, characterized what we had experienced as comparable to finding a dinosaur. Others said the discovery was more like finding an angel.

"The story of the ivory-billed woodpecker was publicized around the world, from Paris, France, to Cairo, Egypt. The state and the timber companies sheepishly canceled the contracts. The trees were saved, and the environmental movement in South Carolina—a movement that later resulted in the establishment of the Congaree National Park—was off and running."

In Other Words

extinct—no longer existing; having died out

antique wax cylinder—an early device for recording and playing back sounds

sheepishly—with embarrassment

What Difference Does It Make?

Suppose steps were never taken to try and both find and protect this bird. What difference would it make?

FYI

South Carolina has only one "National Park" (Congaree National Park), but the National Park Service has eight other sites in South Carolina:

1 National Battlefield

1 National Monument

1 Cultural Heritage Corridor

1 National Military Park

2 National Historic Sites

1 National Historic Trail

1 National Heritage Corridor

Research and name them. Which is closest to your home? Now, using "Google—Directions," compute the number of miles and amount of time it would take to travel from your house to one of these National Park Service sites.

You Be the Teacher

After researching the Congaree National Park, plan a lesson you could use to take a group of students to the national park.

Notes

Section 3

South Carolina's Waterways and Climate

INTRODUCE

Outline

- A. Waterways
- B. Climate

Materials

Textbook, pages 26-35

Student Workbook

- 7 South Carolina Rivers
- 8 Graphing South Carolina's Temperature
- 9 Graphing South Carolina's Rainfall
- 10 Surfing the Internet for Weather

Teacher Tech Website

Lesson Plan

Visual Aids

- 1 Hydrologic Cycle
- 6 South Carolina's Rivers and Lakes

Guided Reading, 1-3

mystatehistory.com

Online Textbook

Vocabulary Development

You hear the word *climate* every day, but are you sure what it really means? Look up the word and define it while using it in a sentence. Do climate and weather mean the same thing?

What Do You Think?

You've heard a lot lately about other power sources than hydroelectric, nuclear, or natural gas. Now, people are talking about wind power. It would take the state in a different direction. What do you think?

SECTION 3 South Carolina's Waterways and Climate

DID YOU KNOW?

More than 30,000 miles of rivers and streams drain the land of South Carolina, emptying into the Atlantic Ocean.

AS YOU READ, LOOK FOR

- the significance of the different river systems in our state;
- unintended consequences of changing the rivers' flow;
- ways in which the climate affects life in different regions of our state;
- terms: **black river, weather, climate, tornado, Bermuda high, hurricane, storm surge.**



Above: The Savannah River forms most of South Carolina's southwest border with Georgia. The bottom part of the photograph is Georgia, near Augusta, and the top shows part of Aiken County, South Carolina.

If you enjoy swimming or water-skiing, you are probably already aware of some of the waterways within the state—rivers and lakes that are great for recreation but have so many other purposes as well. If you enjoy going to the beach on warm summer days, flying kites on breezy days, or playing in mountain snow, you are already tuned in to the varieties in weather and climate in South Carolina.

The landforms we examined in Section 2 are fundamental to making South Carolina what it is today.

Equally important are the waterways that drain these lands and the climatic conditions over the land and water. These factors help to determine what work and what recreation we can engage in within the state.

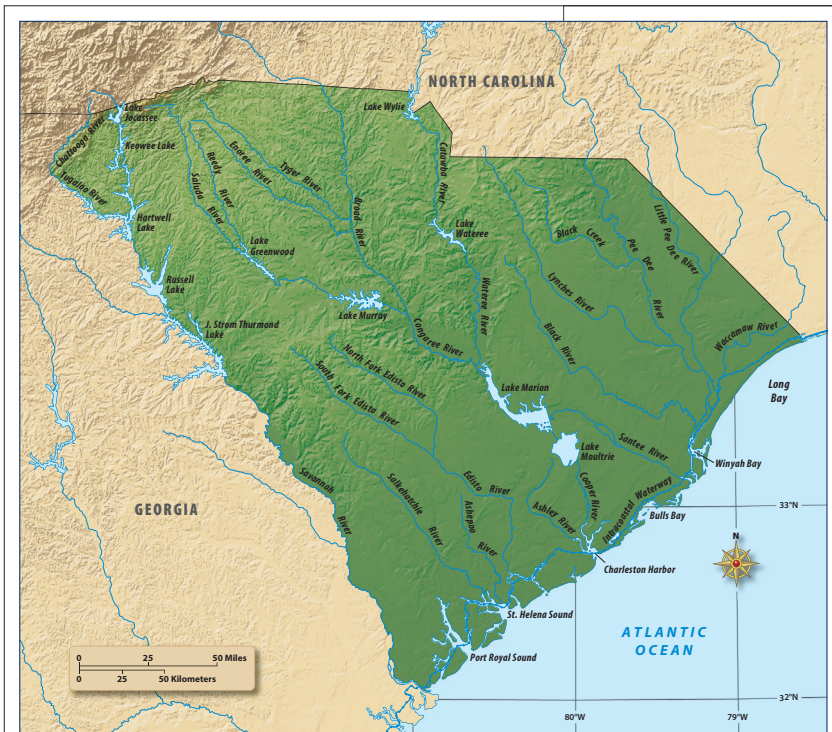
Waterways

South Carolina's magnificent system of rivers and lakes provides the state with adequate water supplies for its people and industries. The waterway system also powers electrical generating plants and provides very attractive recreational opportunities. Three main river systems drain the state, all running generally from northwest to southeast, following the tilt of the land.

Using Geography and Maps

On a blank map of South Carolina, identify the major rivers and lakes.

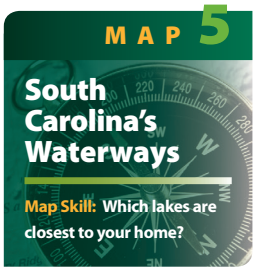
Notes



The Savannah and Santee Systems

The Savannah River and its tributaries, the Tugaloo and Chattooga, form South Carolina's border with the state of Georgia. The Savannah is wide and deep, and even large ships can navigate up the river for several miles. This system drains only about 15 percent of South Carolina's surface.

The most extensive system of rivers and lakes is the Santee system, which flows through the heart of the state and drains about 40 percent of South Carolina's land. The streams in the upper Santee system mostly arise in the mountains of North Carolina and enter our state as the Broad and Saluda Rivers. Farther south, the Broad is joined by the Pacolet, Tyger, and Enoree Rivers, which originated in the Blue Ridge Mountains of South Carolina. The Saluda is joined by the Reedy River before merging with the Broad River at Columbia to form the Congaree River. Farther east, the Catawba River flows out of North Carolina (where its name changes to "Wateree"), then merges with the Congaree to form the Santee.



Using Technology

Find out more about "Water Systems in South Carolina." Examine the map you completed of rivers and lakes. After reading this section, go back and add any you missed.

FYI

The Santee Cooper Regional Water System was the first regional approach to water distribution in the Lowcountry. The system has the capacity to draw 36 million gallons of water per day.

Answer to Map 5 Skill

Answers will vary.

Notes

In Other Words

tampering with—interfering with in a harmful way

divert—turn aside; turn from one course to another

unhindered—not held back

harness—put to work

turbine—an engine with a central driving shaft and a series of blades that spin around by the pressure of water or air

Plan Ahead

Would you like to paddle down the Congaree River Blue Trail? What would it take to have a successful adventure? Plan an outing, starting from Columbia and ending at the Bates Bridge Landing. Research to find out what kind of equipment you could rent, at what price, and what supplies you would need to bring from home. How long will it take to complete the trip? How can you get back to Columbia once the journey is over?



DID YOU KNOW?

The Congaree River Blue Trail (above) is a fifty-mile designated recreational paddling trail that extends from Columbia downstream through Congaree National Park to Bates Bridge Landing at Highway 601. In 2008, it was designated a National Recreation Trail by the U.S. Department of the Interior.

People began tampering with the water flow of the Santee and Savannah Rivers as early as the eighteenth and nineteenth centuries, diverting water into millponds and using it to power mills with waterwheels. Until the beginning of the twentieth century, though, the Santee and the Savannah flowed largely unhindered to the sea. Since then, more dramatic steps have been taken to harness the power of the rivers for the production of electrical power. Power companies have dammed the rivers in several places to make huge lakes—reservoirs of water that can be released at a regular pace to spin turbines that produce electrical power. These lakes also provide drinking water and recreation—swimming, boating, hunting, and fishing.

The most serious change in the flow of rivers began in 1934 in the Santee Cooper Project, a state-owned effort to generate electricity and distribute it to farms all over the state through electric cooperatives. The federal government helped with the project because it would put thousands of unemployed persons to work in the Great Depression. The workers built a dam on the Santee in Clarendon County, forming Lake Marion, and another on the Cooper River in Berkeley County, forming Lake Moultrie. Then they dug a canal between the two lakes, diverting most of the flow from the Santee into the Cooper River. The project went into operation in 1942.

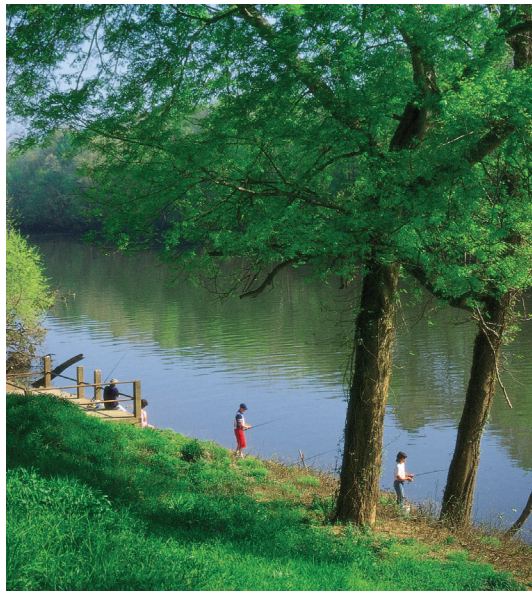
The production and distribution of affordable electricity was very successful, but the Santee Cooper Project had two very bad environmental effects. First, with the flow of the Santee River to the sea greatly reduced, the Santee carried less silt, thus less sand and soil were pushed out to renourish the

Notes

coastline. Second, most of the silt now ended up in Charleston harbor. Periodically, the silt would have to be *dredged* (dug) out of the harbor so large ships could come into port. Several decades later, a new channel had to be dug to connect Lake Moultrie with the Santee River and redivert water and silt back into the Santee. The lesson learned was that all of nature is connected in one way or another. When using or trying to improve one aspect, one has to plan very carefully so as not to cause havoc on another aspect. It's called the "law of unintended consequences."

The Pee Dee System

The third major river system in South Carolina, the Pee Dee, is the least engineered by humans. Most of its rivers arise in eastern North Carolina and drain the northeastern quarter of our state. The Little Pee Dee, Great Pee Dee, Black, and Lynches Rivers all pour their considerable flow into the Waccamaw just before the Waccamaw flows into Winyah Bay



Above: Lake Moultrie was created when the Santee Cooper Project was built in the 1930s. **Left:** The Great Pee Dee is the longest river in the Pee Dee system, originating in North Carolina. Because it is navigable up to the Fall Line at Cheraw, it has been an important transportation route since South Carolina was a colony.

In Other Words

havoc—great confusion or disorder

Critical Thinking

Can you think of any other situations where the "law of unintended consequences" has applied? Share your examples with your classmates.

Notes

In Other Words

flourished—succeeded, prospered, did well

floodplain—low flat land along a stream or river that may flood

hardwood—wood of a tree like oak or maple that has broad leaves, not cones and needles

FYI

The town of Canadys has tree houses to accommodate canoers on the Edisto River.

Check It Out

Google the “ACE Basin Project.” After reading its history, identify three purposes of the project. In what ways does their work help South Carolinians?

Drawing Conclusions

Research the names given in “Did You Know?” Why do you think these three men gave their time and money to the project? If you had money to spare, what type of conservation activities would you like? Click “Partners” at the “ACE Basin Project” site. Click any partner groups in which you are interested. What can you do to help?

DID YOU KNOW?

Proud Charlestonians reportedly believe the Ashley and the Cooper (below) come together at their city to create the Atlantic Ocean!



Right: The Edisto is the longest black river in the world, arising in the Sandhills and arriving at the ocean between Charleston and Beaufort. The dark brown color of the water is caused by tannin from decaying plants. Tannin also gives tea its brown color.

DID YOU KNOW?

The ACE Basin Project has over 200,000 acres of land protected by conservationists. Most of the land was privately held by such conservation-minded owners as Hugh Lane Sr., Ted Turner, and Gaylord Donnelley.

at Georgetown. These rivers do not flow rapidly through the Piedmont, picking up silt; therefore, they are relatively clear rather than muddy. They are called **black rivers**, or blackwater rivers, because the tannic acid released by decaying organic matter gives them a dark color. The tidal effects of the Waccamaw and the Great Pee Dee made possible the great rice culture that flourished in the area in the eighteenth and nineteenth centuries.

Other Rivers

Several other important rivers arise in the Sandhills or the Coastal Plain. They are usually black rivers and often run through wide, swampy floodplains. The Ashley and Cooper Rivers that flow into Charleston harbor are among these.

Other important blackwater rivers are the Ashepoo, Combahee, and Edisto (known as the ACE Rivers), which flow into St. Helena Sound between Charleston and Beaufort. This area was once dominated by rice plantations, but now is primarily used for timber production and hunting preserves. The ACE Basin Project is a combined private, state, and federal effort to conserve the floodplains of these rivers from intensive development. The ACE Rivers, along with the Salkhatchie and Coosawhatchie Rivers, with their hardwood forests, wetlands, and marshes, provide crucial habitats for many species of plant and animal life. The natural beauty of the area is also worth preserving.



Notes



South Carolina's Scenic Rivers

There are about thirty thousand miles of rivers and smaller streams in South Carolina. Most of them are pleasing to look at, but some segments of those rivers are particularly beautiful and significant. The state government is making a special effort to preserve those valuable assets to our state. The Scenic Rivers Act of 1989 is designed to protect the "unique or outstanding scenic, recreational, geologic, botanical, fish, wildlife, historic or cultural values" of selected rivers or river segments in the state.

The Act authorizes the Department of Natural Resources to work with voluntary community groups and local governments to preserve the character and scenic beauty of those stretches of rivers that have been selected. These groups develop a plan for the proper management of the scenic rivers.

The rivers and segments of rivers designated for special preservation are as follows: the whole length of



MAP 6

South Carolina's Scenic Rivers

Map Skill: Which scenic river is closest to your home?

Lynches River and segments of the Ashley, Black, Broad, Catawba (pictured above), Great Pee Dee, Little Pee Dee, Middle Saluda, and Saluda Rivers. Are you able to locate each of these scenic areas marked in red on the map? Have you visited any of them?

In Other Words

geologic—concerning the history of Earth as recorded in rocks

Another View

Go to <https://www.nps.gov/kids/webangers.htm>. Join and follow the activities.

What did you learn that you didn't know? Teacher Note: There is no cost to becoming a Web Ranger. The National Park Service also has good teacher materials.

Do the Research

Google "South Carolina Department of Natural Resources." Search for each of the rivers listed in this special feature. Write why you think it is labeled as a scenic river. Which river do you think has the best fishing, and why? Is one of the listed rivers endangered because of pollution? What can you do to help keep South Carolina's rivers both scenic and pollution free?

Answer to Map 6 Skill

Answers will vary.

Notes

In Other Words

altitude—elevation; the height above sea level

Using Technology

Google “Worldwide Climate Classifications.” What are the major categories? Describe each. In which would you most like to live? Why?

Give a Guess

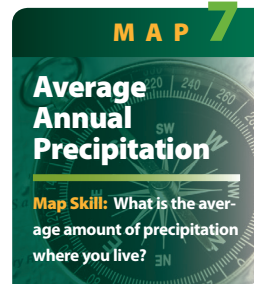
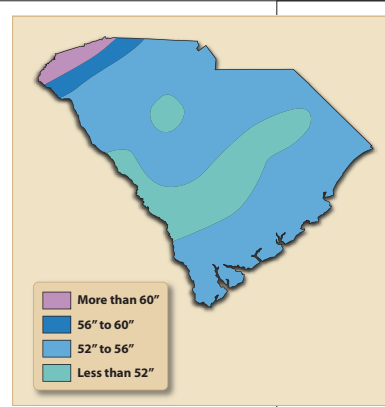
People in the southwestern states have far more high temperature days than we do in southern states. However, when they arrive here, they find the heat to be almost unbearable. Why?

Answer to Map 7 Skill

Answers will vary.

Dig a Little Deeper

Find out about Tetsuya Fujita, the Japanese American scientist whose name is on the Enhanced Fujita Scale.



Climate

“Everybody talks about the weather, but nobody ever does anything about it,” is a famous quotation often attributed to Mark Twain. It is likely that no one will ever do anything about it because **weather** refers to short-term atmospheric conditions that determine whether it is hot or cold, wet or dry, calm or stormy. **Climate** is a long-term view of atmospheric conditions—the sum of many days or years of weather.

Temperature and Precipitation

The climate of South Carolina is subtropical; that is, not quite tropical, but quite hot and humid in summer and mild in winter. This is true over most of the state, but there are some variations. The ocean moderates the temperatures along the coast. In summer, the land heats up more quickly than the water, so cool breezes from the ocean keep the coast a bit cooler. In winter, the warm Gulf Stream, which sweeps up from the Caribbean Sea and Gulf of Mexico, keeps the islands and Coastal Zone a bit warmer. Away from the ocean, the weather and climate are influenced by altitude. If you travel from the Lowcountry to the mountains, you will likely feel the air get cooler in any season of the year.

Precipitation, usually in the form of rain but occasionally in frozen form especially in the higher elevations, averages about 49 inches per year. Rain is fairly evenly distributed across the state, except the mountains are much wetter. Precipitation is also fairly well distributed throughout the year. Summer is usually a bit rainier than the remainder of the year, but not by very much.

FIGURE 1

Enhanced Fujita Scale for Tornadoes

Category	Wind Speeds (mph)	Potential Damage
EF0	65–85	Minor damage
EF1	86–110	Moderate damage
EF2	111–135	Considerable damage
EF3	136–165	Severe damage
EF4	166–200	Devastating damage
EF5	Over 200	Incredible damage

Notes

South Carolina's Four Seasons

South Carolina has four definite seasons, resulting from temperature changes. The average July temperatures across the state, except in the mountains, are around 80 degrees Fahrenheit (80° F). January temperatures are in the range of 40 to 50 degrees Fahrenheit (40° to 50° F).

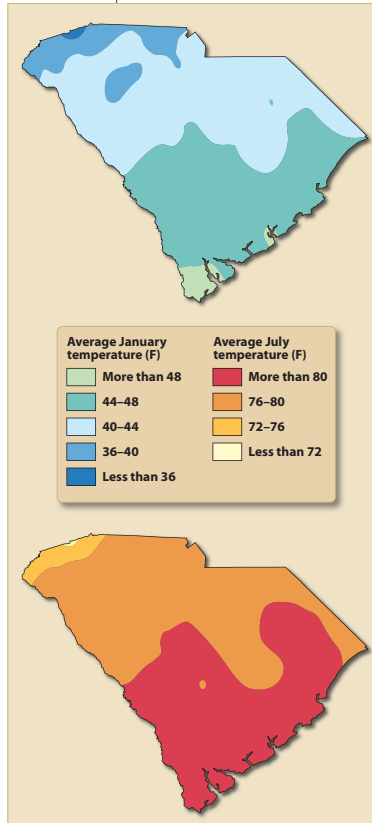
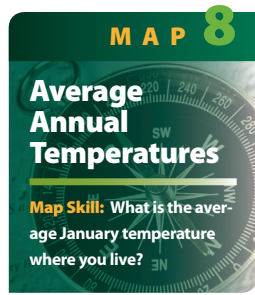
Winter, though mild, can have a few below-freezing days and an occasional snow—mostly in the mountains. The mild winters attract many tourists and new residents to the state. Visitors are often surprised to see flowers blooming in the wintertime. Especially beautiful are the camellias and sasanquas.

Spring is usually a season of warming, pleasant temperatures, gentle rains, and vivid colors of blooming azaleas, dogwoods, fruit trees, and, in the mountains, rhododendron and mountain laurel bushes. Spring is also the season with the most tornado activity. A **tornado** is a severe windstorm characterized by a funnel-shaped cloud, with winds that can reach speeds of over 200 miles per hour. About 10 tornadoes visit South Carolina annually, and they can be very destructive. In March 1984, several tornadoes tore through the middle of the state from McCormick County to Marlboro County, killing 21 people and injuring 448. Weather forecasters are becoming more skilled at predicting tornado conditions and bringing warnings in time for people to protect themselves.

In summer, South Carolina's weather is influenced by the **Bermuda high**, a huge high-pressure air mass that often forms over the Atlantic. Its clockwise rotation sends warm, moist southerly winds into the state causing thunderstorms and wet summer seasons. The Bermuda high can, though, become stalled and stagnant and actually produce drought.

In fall, the summer heat gradually lets up and the humidity declines. The annual growing season ends with the first freeze, which usually comes, in Walhalla near the mountains, in late October, and in Charleston, in early December. The brilliant red, yellow, and orange hues of the changing autumn leaves are visual delights not available in all areas of the world.

Summer and fall is hurricane season, with September being the most active month, on average. **Hurricanes** are large low-pressure air masses that generate high winds whipping counterclockwise around a calm "eye." The storms roar out of the warm Atlantic Ocean or Caribbean Sea, and sometimes come ashore in South Carolina. The winds of 74 miles per hour and higher can do great damage, but the greater damage to coastal areas is caused by



Notes

In Other Words

stagnant—not flowing; not active or brisk

Check It Out

Why is spring the season for tornadoes in our area?

Answer to Map 8 Skill

Answers will vary.

Protect Yourself

If there are tornado warnings on radio and television, where should you immediately go in your house? And should you then hear noise like a train, what should you do?

Research the Answer

Why do leaves change colors?

FYI

The wonderful fall foliage of multiple colors we enjoy can only be seen in eastern North America, western Europe, China, Japan, and small parts of South America.

Just So You Know

What are the dates of hurricane season in South Carolina?

Check It Out

If you live in the path of a hurricane, where would you and your family go in the event of an area evacuation?

See What It Was Like

Check out “Historical Hurricanes in South Carolina.” How does the strongest one compare with Hugo?

Writing Skills

Using an informal writing style, write to an imaginary pen pal and describe South Carolina’s location in at least four different ways.

ASSESS

Answers to “Do You Remember?”

1. A **tornado** is a severe windstorm characterized by a funnel-shaped cloud, with winds that can reach speeds of 200 miles per hour. A **Bermuda high** is a huge high-pressure air mass that often forms over the Atlantic. A **storm surge** is a tidal wave that accompanies hurricane winds. It could consist of a 15-foot-high wave flowing over islands and beaches at 50 to 60 miles per hour.
2. South Carolina’s three main river systems are the Savannah River and its tributaries, the Santee system, and the Pee Dee system.
3. Weather refers to short-term atmospheric conditions that determine whether it is hot or cold, wet or dry, calm or stormy. Climate is a long-term view of atmospheric conditions—the sum of many days or years of weather.

FIGURE 2

Saffir-Simpson Hurricane Wind Scale

Category	1	2	3	4	5
Sustained Winds (mph)	74–95	96–110	111–129	130–156	Over 156
Types of Damage	Some	Extensive	Devastating	Catastrophic	Catastrophic



Above: Hurricane Hugo, seen here crossing the South Carolina coast on September 22, 1989, was the most destructive storm to hit the state in recorded history.

the tidal wave or **storm surge** that accompanies the winds. In a major hurricane, the storm surge might consist of a 15-foot-high wave flowing over the islands and beaches at 50 to 60 miles per hour. These winds and waves are terrifying forces of nature.

In September 1989, Hurricane Hugo struck the South Carolina coast just north of Charleston and devastated the coast northward. Hardest hit were the coastal villages of Awendaw and McClellanville, where winds reached 135 miles per hour and a wave 20 feet high swept across the town. Eighteen people died in South Carolina, 64,000 were homeless, and 270,000 were left without jobs. Beach erosion was severe, and boats were crushed into one another. The storm continued in a broad swath

across the state. It uprooted much of Francis Marion National Forest, then damaged Sumter and Columbia before moving into North Carolina. The governor officially declared nearly half the counties in a condition of disaster. The destruction to the forests and other plant life and wildlife took many years to recover. Ask any South Carolinian over thirty years of age about Hugo, and they likely will have frightening and perhaps heroic stories to tell.

As Pat Conroy said, the geography and climate we live in are powerful influences on our individual lives. They also help shape the society and culture we live in. As you continue to read about South Carolina, watch for evidence of how the physical environment influences our development as a state.

DO YOU REMEMBER?

1. Define in sentence form: **tornado**, **Bermuda high**, **storm surge**.
2. What are the three main river systems in South Carolina?
3. What is the difference between weather and climate?

Notes



Of SPECIAL INTEREST

Remembering Hurricane Hugo in McClellanville

Rutledge and Katherine Leland and their two children, like so many citizens of South Carolina, remember vividly the day Hurricane Hugo struck our state. Rutledge Leland tells their story.

"The day of September 21, 1989, was spent with the shrimp boat captains preparing for the approaching storm. Most of the boats were unloaded and their shrimp shipped out. Some of the captains took their boats north to Georgetown; others stayed in McClellanville.

"School was suspended, and Kathy shopped for the supplies that are needed during and following a storm: nonperishable food, water, and batteries. Yard equipment and outside furniture was stored away. As the storm was predicted to come ashore south of McClellanville, we did not leave our home.

"By evening, the wind was very high and there were warnings that Hugo was a very serious storm. By nightfall, it was impossible to leave McClellanville due to driving wind and falling trees.

"Around nine o'clock, water began to spout up through the floor vents as a huge tidal surge hit. Water rose very quickly in the house. Our family, including our two dogs, quickly ran upstairs, grabbing what we could carry as we went. By this time, the water downstairs was chest high. Even though the water was rising rapidly, we felt our house was secure.

"The water rose to about the third step from the top. It was extremely dark and the wind was very loud. It sounded like train engines. We watched as the down-

stairs filled with water. A favorite teapot floated by and Kathy was able to retrieve it. From the back windows facing the creek, we watched as a large boat with all of its lights on sailed by. It looked like a low-flying plane. We spent the night feeling that we were safe, but not knowing what was happening outside.

"Only a few miles away from our house, Lincoln High School had been designated by Charleston County as a hurricane shelter. Around seventy-five people, many of them elderly and one in a wheelchair, had taken refuge in this one-story building. At the peak of the storm, they had to climb onto cafeteria tables to stay above the rising water. They were in total darkness. Thankfully, all of these people survived the ordeal.

"After the water went down and the sun came up, mud was everywhere. There were several inches in our house, and all of the furniture was muddy and turned over. Outside, there was mud everywhere as well. Fallen trees, limbs, and debris of all kinds covered the ground. A one-hundred-foot steel barge had nearly hit our house. Shrimp boats were flung into people's yards. All the homes were badly damaged by wind and water. Several buildings were destroyed. The village was now very quiet and there was no communication with the outside world. This was a lonely feeling.

"Help came quickly. Church groups, school groups, people from many places came to assist with the clean-up and repair. The months following Hugo involved many meetings with county, state, and federal officials as all worked to restore the areas that had been so badly damaged.

"Everyone was very thankful for the assistance they received. Most people were back in their homes in about six months. Although some things were changed forever, no one was seriously injured and McClellanville is once again a beautiful, peaceful coastal village."

In Other Words

nonperishable—not likely to spoil; able to be kept without refrigeration

FYI

The category 4 storm (130 to 156 miles per hour sustained winds) depleted 70 percent of the timber trees in the Francis Marion National Forest. By the time the hurricane was over, it cost \$9 billion for Puerto Rico and the continental United States.

Notes

CHAPTER REVIEW

Reviewing People, Places, and Things

1. Geography is a Greek word that means “earth description” (*geo-graphy*). Its topics include landforms, soil, bodies of water, descriptions of places, and climate. Geography is concerned with how these physical features interact with one another and how humans live and relate to their surroundings.
2. Relative location is where a place is located in relation to other places.
3. Flora is natural vegetation.
4. Fauna is animal life.
5. A fault is a fracture in Earth’s crust.
6. Barrier islands are outermost islands that form a sand and vegetation barrier that protects the inward islands and the mainland from the sea and winds.
7. A storm surge is a tidal wave that accompanies hurricane winds.
8. Hurricane Hugo was a powerful hurricane that struck the South Carolina coast in September 1989 just north of Charleston and devastated the coast northward.

Understanding the Facts

1. at a latitude between 32° N and $35^{\circ} 15' N$ and at a longitude between $78^{\circ} 30' W$ and $83^{\circ} 30' W$
2. Answers will vary, but students should relate each section to other sections and perhaps to other states and bodies of water.
3. Its elevation makes it the coldest and wettest region of the state with an average precipitation per year of 60 to 81 inches.
4. kudzu
5. Columbia, in the Sandhills



Chapter Summary

South Carolina is a beautiful state with a wide range of geographic features. The five regions of South Carolina are the Blue Ridge, Piedmont, Sandhills, Coastal Plain, and Coastal Zone.

Driving from the Blue Ridge Mountains in the north-west corner of the state through the rolling hills of the Piedmont to the beautiful Coastal Zone on the eastern boundary, people will see varying terrain, flora, fauna, waterways, and weather. Geographically, South Carolina is a small state where one could drive from the north-western corner to the coast in less than six hours. Upon reaching the barrier islands along the state’s southeastern coast, visitors can enjoy a rich experience of what life was like several centuries ago.

South Carolina has three major river systems: the Santee, the Savannah, and the Pee Dee. With its great system of rivers and lakes, there is an adequate supply of water for the people as well as the industries in the state. These rivers and lakes also provide South Carolinians leisure activities such as fishing, boating, and swimming.

South Carolina has a subtropical climate with four distinct seasons. We sometimes suffer from severe weather, like tornadoes and hurricanes. Hurricane Hugo, which struck in September 1989, was one of the most devastating weather events in our state’s history.

Considering the number of new residents the state gets every year, it is not just South Carolinians who realize what a great state South Carolina is.

Activities for Learning

Reviewing People, Places, and Things

Define each of the following in a complete sentence.

1. geography

2. relative location
3. flora
4. fauna
5. fault
6. barrier islands
7. storm surge
8. Hurricane Hugo

Understanding the Facts

1. What is South Carolina’s absolute location?
2. Describe the relative location in the state of each of South Carolina’s geographic regions. (Relative location may vary slightly.)
3. How does its elevation affect the Blue Ridge region of South Carolina?
4. What plant was introduced into the Piedmont to help with soil erosion?
5. Which South Carolina city is the approximate geographic center of the state, and in which region is it located?
6. Why is the soil in the Sandhills not very productive?
7. Which region of South Carolina is the largest?
8. Which major river, with its tributaries, forms the boundary between South Carolina and Georgia?

Developing Critical Thinking Skills

1. How do the five geographic regions of South Carolina make the state more interesting than it would be if it had the same topography throughout the whole state?
2. In which of the geographic regions would you most prefer to live? Why?

Notes
