

Chapter 2 The Land We Call Alabama

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Introduce the chapter using the steps outlined on page viii.

Preview Terms

The vocabulary words (terms) for each chapter are listed at the beginning of that chapter. The terms for each section are listed in the “As You Read” box at the beginning of that section. To introduce the vocabulary, start each section by reading each word to the students. Have them repeat the word after you. You will find the suggested vocabulary exercises on page viii in To the Teacher.

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

Chapter 2

The Land We Call Alabama

Chapter Preview

TERMS

natural environment, natural resource, weather, climate, pioneer, geology, mineral, swamp, fertile, surface water, wetland, waterway, aquifer, groundwater, salt marsh, delta, estuary, subtropical, temperature, precipitation, natural hazard, drought, flash flood, lightning, tornado, hurricane, evacuate, natural vegetation, evergreen tree, deciduous tree, ecosystem, technology

36 **Alabama: Our Beautiful Home**

Course of Study for Chapter 2

Standard 1 Compare historical and current economic, political, and geographic information about Alabama on thematic maps, including weather and climate, physical-relief, waterway, transportation, political, economic development, land-use, and population maps.

- Describing types of migrations as they affect the environment, agriculture, economic development, and population changes in Alabama

Standard 4 Relate the relationship of the five geographic regions of Alabama to the movement of Alabama settlers during the early nineteenth century.

- Identifying natural resources of Alabama during the early nineteenth century

You can find the full text of the standards at this website:

alex.state.al.us/standardALL.php.



If you were the first person to come to Alabama, what might you have seen? What was Alabama's natural environment like? (The **natural environment** is the things that are part of nature.) What did the land look like? How was the landscape formed? What natural resources did the first people find to help them live in Alabama? (**Natural resources** are things in the natural environment that people can use.) American Indians (Native Americans) came first. Then later, the explorers and settlers arrived. They all found a land rich in plants and animals. They needed these things. These people discovered an ideal place for hunting and farming. They found plenty of good water to drink. They found rivers to travel. Many people stayed to make their lives in this land.

The people living here found that Alabama has four distinct seasons. It has very warm summers and cool, brisk falls. Winters are slightly cold while springs are bright and sunny. This kind of weather made it a good place to live and farm. **Weather** is what is going on outside. It includes how hot or cold it is, cloudiness, rain, snow, and wind. The weather in Alabama can be almost anything! Snow may fall unannounced. A storm may take an unexpected path. You may take your umbrella, but only see sunshine. People who predict the weather do the best they can from available information.

The people in Alabama have enjoyed the climate for thousands of years. (**Climate** is the average weather over a long time.) Many people—American Indians, Europeans, Africans, and Asians—have lived in Alabama. Each of these groups made its mark. They brought different arts, foods, customs, religions, and languages.

In this chapter, you will learn about Alabama's land regions, weather, and climate. You will also discover the different cultures of Alabama. You will see how they set the stage for historic events. It all will come together in the Alabama of today.

Chapter Preview

In this chapter, students will learn about the geologic regions of Alabama and the factors that drew settlers to each region. Students will explore how the land, natural resources, and waterways of Alabama influenced its past and present.

Students will also learn about the state's weather and climate and the natural hazards, including tornadoes, hurricanes, and droughts. Alabama's four distinct seasons and variable weather have affected plant, animal, and human life over thousands of years and created ecosystems for abundant plants and wildlife. The landscape of Alabama is shaped by its people. A look at human environments formed by many cultures concludes this chapter.

Chapter Objectives

- Compare and contrast the geologic regions of Alabama, and assess how the state's geography and natural resources affected its settlement and economic development.
- Read and interpret the main parts of a physical-relief map.
- Identify energy and mineral resources found in Alabama.
- List and locate Alabama's major rivers and waterways.
- Describe how Alabama's weather and climate have changed the state.
- Assess how Alabama's ecosystems contribute to the variety of plants and animals.
- Analyze the effects of changing technology on the culture of Alabamians.

Notes:

Defining the Reading Skill: Reading a Map

Direct students to the Atlas of Alabama in the back of the text-book and locate the physical-relief map of the United States on pages 490-491, or use individual desk maps if available. Read aloud the review of the parts of the map.

Practicing the Reading Skill: Reading a Map

Recite the instructions for reading the map, and have students follow along as you read. You can also appoint a student leader to read them, or allow small groups of students to do this activity as teams.

Alabama Facts

Students should use the relief map to answer the following about Alabama: What part of the state is most likely to have mountains? (*top third*) Name the state that borders Alabama and has no mountains. (*Florida*)

Critical Thinking

Why do students think maps were important to early explorers? We often use familiar landmarks to determine routes and locations. How hard would it be to make a map without knowing anything about the surrounding area?

Why are maps important to us today? Help students think about the different kinds of information a map might show. For example, a relief map shows elevation, a climate map shows weather and temperatures, a topographical map shows landforms and physical features, and a political map shows cities and towns.

Focus on Reading Skills

Reading a Map

Maps are very important in our study of many subjects. A map is a picture or drawing of a larger place. Maps show landforms such as lakes, rivers, and mountains. Maps can show where people live. They can show the kinds of crops grown. They can even show where events took place.

If you can read a map's parts, you can read a map. A map might show the height of the land. Such a map is called a *relief* map. Different colors can be used to show different land heights. Land height above sea level is its elevation. The colors might show other things like where crops are grown.

The compass rose shows which way is north, south, east, or west. It usually points to the top for north, but not always. If you cannot find a compass rose on the map, the top of the map should be north.

Now we will read a map. Find the relief map of the United States of America in the Atlas of Alabama. The leader will read the instructions. Everyone will perform the task. You may play on teams or individually.

1. Does the map have a compass rose?
2. Determine and point to which direction is north on the map. Which direction is south? Which direction is east? Which direction is west?
3. Point to Alabama.
4. What large lakes are north of Alabama?

5. What large body of water is directly south of Alabama?
6. If you were going to drive to California, in which direction would you go? To Indiana? To South Carolina?
7. Study the difference in colors on the map. Can you tell that the tan, brown, and orange show land at higher elevations? Which part of the United States appears to have more mountains? The eastern part? The western part?
8. Study the difference in colors in Alabama. Which area of Alabama appears to have lower altitude? The southern part? The northern part?
9. Now close your eyes. Point to the north without opening your eyes. Keep your hands pointing and open your eyes. Is everyone pointing in the same direction?
10. With your teacher, determine which way is north. You may use a compass.



Map Analysis

Have each student bring a map of any kind to class (roads, amusement park attractions, store aisles, city streets, airport terminals, fishing areas showing features of a lake bottom, zoning divisions, etc.). Walk students through an analysis of the maps by asking these questions: Does the map have a name? Who would use it and for what purpose? Is there a key or legend? Is there a compass rose? What is the scale of the map? What does the map show?

Section I

Regions

As you read, look for

- what the explorers and pioneers found in Alabama;
- regions of Alabama;
- natural resources;
- human environments in settlements;
- terms: **pioneer, geology, mineral.**

Explorers and pioneers (early settlers) were the first Europeans to come to Alabama. Some came from settlements in Virginia, Georgia, and the Carolinas. Their land was worn out from years of farming. These farmers wanted fresh land to grow better crops. Some of them decided to move to Alabama to start new farms.

Below: In the early 1800s, Alabama was considered to be the western frontier. Settlers followed roads, rivers, and valleys looking for farmland.



Section I: Regions 39

Section I Regions

INTRODUCE

Outline

- A. Choosing Where to Settle
- B. Land Regions of Alabama
 1. The Coastal Plain
 2. The Piedmont
 3. The Ridge and Valley
 4. The Appalachian Plateau and the Interior Plateau

Materials

Textbook, pages 39-49

Activity Sheets

It Begins with Words!, 15
Alabama's Land Regions, 16

Teacher Tech Website

Lesson Plan

Visual Aids

2. Geographic Terms

3. Alabama in the United States

4. Alabama Land Regions with

County Outlines

Guided Reading, 2-1

TEACH

Building Background

Tell students to imagine they lived in an early pioneer settlement in a nearby state and needed to find a new home. Ask students: Why would you come to Alabama? What resources would you look for? How would you travel? How would you decide where to settle? Have students complete a KWL (What I Know, What I Want to Know, What I Learned) chart. After reading the section, tell students to return to the chart to complete the last column.

Notes:

Answer to Map 2 Skill

Florida and Mississippi

Where in the World?

Tell students to look at Map 2 and the other maps in this chapter and identify the region in which they live. Then, ask them to think about what advantages their region has to offer. Guide them to consider the geographical features of their region. Are there rivers that provide transportation for industrial growth? Are there lakes or coastal areas that could be used for recreation or tourism? Does the region have any disadvantages? Have students do an Internet search to find out more about their region.

Torn Paper Mosaic Map

Duplicate an outline map of Alabama on a sheet of paper for each student. Provide glue sticks and five half-sheets of construction paper in different colors for each student. Students should tear each sheet of colored paper into small pieces. Have students color the five land regions on their map by gluing paper pieces of one color to fill in each region. For example, the Coastal Plain might be covered with blue pieces, the Ridge and Valley with red, etc. The pieces of paper should completely cover the area of the region. Display the finished mosaic maps in the classroom or hall.

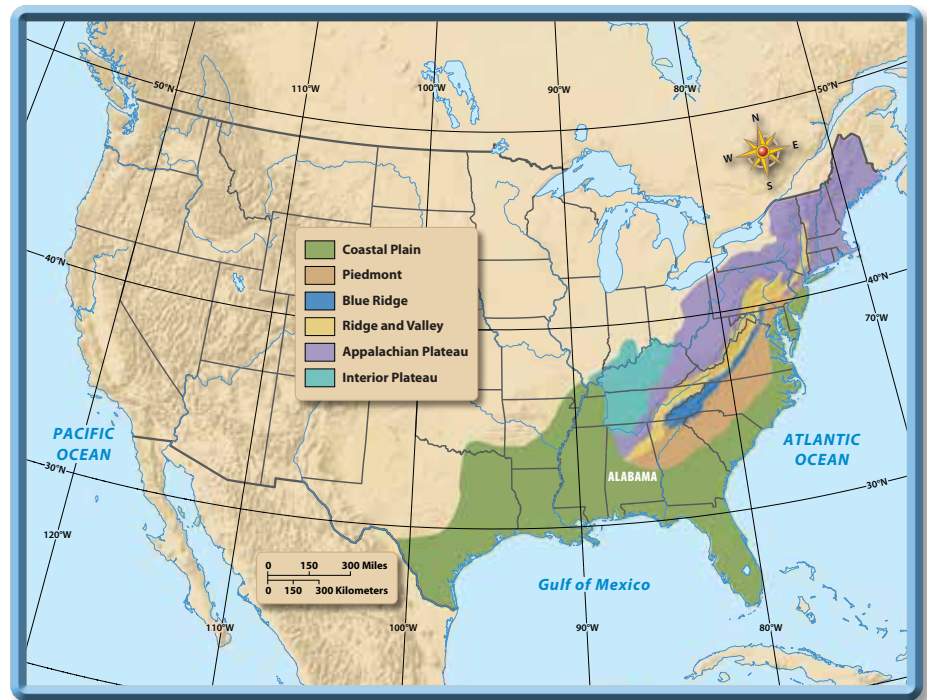
Alabama's Neighbors

Have students use Map 2 to identify the states that border Alabama. (*Florida to the south, Tennessee to the north, Georgia to the east, and Mississippi to the west*)

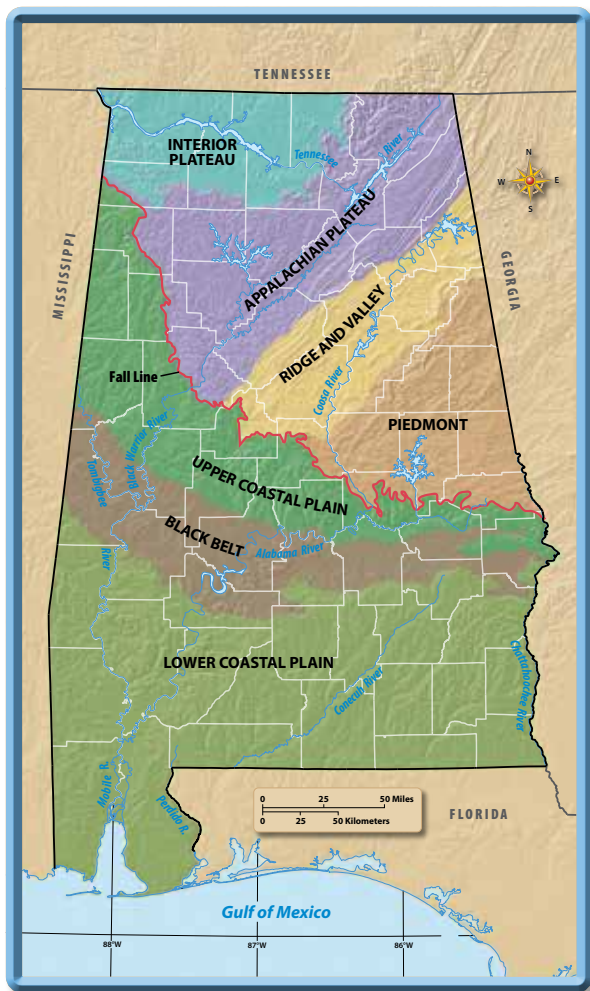
Choosing Where to Settle

These people had to decide where in the new territory to settle. They found five different kinds of land in Alabama. They also had to decide the best way to get there. As time passed, travelers told one another about roads to Alabama. People who came back told others the easiest routes for travel. Word was also passed on about where the best farmland was located.

Farmers were not the only people coming to Alabama. Some of the settlers brought their black slaves. There were also a few free blacks among the settlers. Later, other people came as storekeepers, miners, builders, and laborers. They also had to know how to get here and where they could work. The settlers had to decide where to move in the new territory. The regions of Alabama were an important part of their decision. It was harder to travel to some of the regions than to others. And the land was better for farming in certain regions.



Notes:

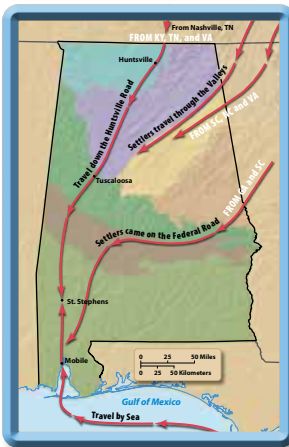


Land Regions of Alabama

Alabama's land is divided into regions based on the geology of the rocks. **Geology** deals with the history of Earth, especially the history recorded in rocks. The land regions in Alabama do not stop at the state line. They are also in neighboring states. The five regions are the Coastal Plain, the Piedmont, the Ridge and Valley, the Appalachian Plateau, and the Interior Plateau.

Map 3 Land Regions of Alabama

Map Skill: Which land region appears to be the largest?



Map 4 Settlers' Routes into Alabama

Map Skill: Looking at maps Map 3 and 4:
1. Which region seems best for traveling through the valleys?
2. What states did most people using the Huntsville Road travel through?

Answer to Map 3 Skill

Coastal Plain

Maps and Math

Have students locate the Coastal Plain region on Map 3. Look for the “Black Belt” just south of the Fall Line. Because of the area’s fertile soil, many farmers rented land to grow crops there.

Tell students to imagine that they are renting 40 acres for growing cotton. Assume each acre will yield 2.75 bales of cotton, which will sell for \$400 a bale. The landowner will charge them \$200 an acre for rent. They will have to pay the farm supply store \$4,000 for seed. Have students calculate their profit. $(40 \text{ acres} \times 2.75 \text{ bales} = 110 \text{ bales} \times \$400 \text{ per bale} = \$44,000 - \$8,000 \text{ rent} = \$36,000 - \$4,000 \text{ seed} = \$32,000 \text{ profit})$

Answers to Map 4 Skill

(1) Ridge and Valley (2) North and South Carolina, Virginia, Tennessee, Kentucky

More Maps

Ask students to use Maps 3 and 4 to answer these questions also.

- (1) The Fall Line lies to the north of what region? (*Coastal Plain*)
- (2) The Black Belt lies in what Alabama region? (*Coastal Plain*)

Geology and Geologists

Do students know what a geologist does? Geology is the study of Earth’s physical history, which includes climate changes over time. Geologists study Earth’s processes, including volcanic eruptions, earthquakes, and landslides. They study Earth’s materials, such as oil, natural gas, metals, water, and rocks.

Invite a Guest

Invite a geologist to speak to your class about his or her work or the geology of Alabama.

Notes:

Alabama Land Regions

What body of water borders Alabama's Coastal Plain on the south? (*Gulf of Mexico*) Using Map 2 on page 40, point out to students that Alabama has a wider variety of land regions than many other states.

Travel Time

What is the longest trip your students have taken? How many miles was it? How long did it take? Remind students that early travelers came to Alabama on foot, in wagons, and on horses or mules—not in cars and airplanes.

Have students compare travel times for a 500-mile trip on foot and in an automobile. Assume that they would travel for about 8 hours per day, at 4 miles per hour on foot, and 60 miles per hour in a car. (*On foot: 500 miles divided by 4 mph = 125 hours divided by 8 hours per day = 15.6 days. By automobile: 500 miles divided by 60 mph = 8.3 hours.*)

Land Region Alphabet

Designate a number (1-5) to the land regions of Alabama. Then have students “number off” from 1 to 5 until all students have taken a number. Assign land regions to students by their corresponding numbers. Have students write the name of the assigned land region vertically down the left side of their paper. For each letter, tell students to write an adjective beginning with the letter that describes that region. Students can work individually or in groups by their number.



Below: Many kinds of aquatic life breed in the waters off Alabama's coast.



The Coastal Plain

The southern part of Alabama seems almost flat. But part of this area is made of gently rolling hills. It lies in a region called the Coastal Plain. Notice that the Coastal Plain stretches all the way from Texas to New Jersey. Rivers that flow across the Coastal Plain run toward the ocean. Elevations in Alabama's Coastal Plain range from about 500 feet inland to sea level (0 feet) at the Gulf of Mexico. Oil and natural gas are found in this region. More than half of Alabama's land lies in the Coastal Plain.

Remember, these settlers did not have cars or trucks to take them to Alabama. There were no paved roads to make travel easier. They came in wagons and carts or riding horses or mules. Some even came on foot. Because the Coastal Plain is flatter, it is easier to travel through than mountains. Many settlers moved into this area because they could travel by river or over flat land. They came to the Coastal Plain mostly from South Carolina and Georgia. They traveled on or near the Federal Road. Some came by ship into Mobile Bay and then up the Alabama and Tombigbee Rivers.



FYI

A good resource for teaching about oil and natural gas is <https://adventuresinenergy.org>. The website has segments about different aspects of fossil fuel exploration and production.

Note:

The Fall Line is at the northern edge of the Coastal Plain. This imaginary line separates the Coastal Plain from the other regions. Elevations in the northern part of the state are higher than on the Coastal Plain. Where rivers flow from the higher land onto the Coastal Plain, you usually find waterfalls or rapids.

Why would people later build cities like Wtumpka on the Fall Line? At that time, there was no electricity. People had to use other ways to make machinery work. Settlers who had factories needed waterpower to run their machines. Those who planned gristmills for grinding grains into flour and meal also needed power. So these people moved along the Fall Line to harness the power of the swift-flowing water.

The Black Belt is an area with deep, rich soil that is very dark. It is located between the Upper and Lower Coastal Plains. Many settlers wanted a farm in the Black Belt. This soil grew bigger crops than other soils. Most of these settlers wanted to grow cotton.



Above: *The Black Belt, between the Upper and Lower Coastal Plains, is still primarily an area of farmland and small towns.*



Science Investigator

The Black Belt gets its name from the very dark soil found in that region. This soil grows bigger crops than other soils. Ask students to hypothesize some reasons why this black soil grows larger crops.

Students might work in groups to develop a hypothesis, and then test its validity through research about the soil. Have students research to determine black soil's components and why these ingredients result in larger crops. Each group should report its findings to the class.

Using Photographs and Illustrations

Do students recognize the crop shown in the photograph on page 43? Is cotton grown in your area of the state? Have any students ever walked through a cotton field or tried to pick cotton from the plants?

Water Power

Students may be unfamiliar with the concept of harnessing the power of water to run machinery or create energy such as electricity. To help them visualize the power and force of water, ask students to bring to class a picture from a magazine, newspaper, or online source that illustrates the power of water. Let students make a bulletin board or a collage of their pictures to post in the classroom.

Notes:

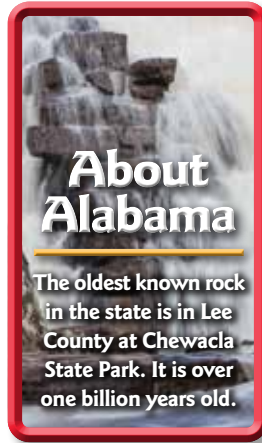
The Answer Is?

Review facts about Alabama's land regions by playing a game of "Jeopardy." Allow students to take turns giving the "answers," while other students form their responses as questions.

You might allow students to work in groups, using the textbook as reference, to create a list of "answers" for their review.

Here are some examples:

1. The highest point in Alabama.
(answer)
What is Mt. Cheaha?
(response)
2. The area in the Coastal Plain that has rich, dark soil.
(answer)
What is the Black Belt?
(response)
3. Plateau region named for a mountain range. (answer)
What is the Appalachian Plateau? (response)
4. The region where Alabama's Gulf beach is located.
(answer)
What is the Coastal Plain?
(response)
5. Region in which iron ore, coal, and natural gas are found.
(answer)
What is the Ridge and Valley?
(response)
6. Region that is sometimes called the Highland Rim.
(answer)
What is the Interior Plateau?
(response)



The Piedmont

Another region begins in east-central Alabama. The Piedmont extends through Georgia and the Carolinas all the way to New Jersey. It is a rolling landscape with low hills and broad valleys. The hills of the Piedmont are all that are left of an old mountain range. Over time, wind and rain have worn away most of the mountains. Mount Cheaha, the highest point in the state, lies in the Talladega National Forest in the Piedmont region.

Settlers moved into the Piedmont where there was good land. The river valleys were ideal for growing cotton and other crops. The success of farming there made the Piedmont attract more settlers. These new people needed supplies. Villages and towns were built to meet the settlers' needs. These settlements provided ways for others to make a good living. The towns might have a general store and a blacksmith shop. Some villages had a gristmill. There were even some sawmills that made lumber from the area's many trees. With all of these changes, the settlers created human environments.

Below: *The valleys of the Piedmont are good for farming.*



Notes:



Some of the rocks in this area changed long ago to marble. These natural resources attracted new settlers to work in the Piedmont's stone quarries.

Above: The Piedmont has broad valleys like this one in Talladega County.



Sylacauga Marble

Sylacauga marble is prized around the world for its creamy whiteness and translucent quality. Alabama's marble was formed by layers of shellfish deposits that were compacted and heated during the continental collisions that formed the Appalachian Mountains. The Sylacauga marble belt is 32 miles long, almost 5 miles wide, and up to 600 feet thick.

Bring a sample piece of marble to class for the students to examine. *(You may be able to get a sample from a local home improvement store or building contractor.)*

FYI

Sylacauga marble was used in the Lincoln Memorial and the Washington Monument in Washington, D.C. The bust of Lincoln in the U.S. Capitol rotunda and the famous *Head of Christ*, which is now housed at Vulcan Park in Birmingham, were carved of Sylacauga marble by the famous sculptor, Giuseppe Moretti.

Notes:

Ridge and Valley: Making Predictions

Before students read this section, write the heading “Ridge and Valley” on the board. Let students make predictions about the features of this region, based on the heading. Students should verify their predictions as they study the section.

Ridge and Valley Art

Let students draw a picture of the geographic features they expect to see in the Ridge and Valley region. (*mountains, ridges, valleys, rivers, etc.*) Students might create a three-dimensional map of the Ridge and Valley region by transferring their drawings to boards and molding the features from modeling clay, paper mache (*papier-mâché*), or salt plaster.

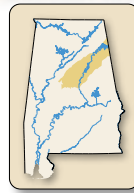
Mineral Color Wheel

Do students know the color of iron ore? (*red*) Coal deposits? (*black*) Limestone? (*yellow or gray*) Natural gas? (*colorless*)



Above: *Cheaha Mountain is the highest in Alabama and offers spectacular views.*

Opposite page, below: *State Road 281, known as the Talladega Scenic Drive, runs the crest of the Talladega Mountains.*



The Ridge and Valley

The Ridge and Valley region begins just south of Birmingham. It extends all the way into Pennsylvania.

The Ridge and Valley region is rich with natural mineral resources. (**Minerals** are ores or other substances found naturally in the earth.)

Iron ore, coal, and natural gas are found in this region. Later, people came to Alabama to work in the coal and iron ore mines.

The major landscape features in this region are Red Mountain, Lookout Mountain, Oak Mountain, Shades Mountain, and Jones Valley.

Many settlers brought their wagons and animals through these valleys. They came from Virginia, North Carolina, and Tennessee to live in Alabama. They found that the rich soils in the river valleys were good for all kinds of farming. The Tennessee and the Coosa River Valleys were also good for growing cotton. But not all parts of Alabama were suitable for that important crop.

Notes:



Group Fun

Place students in five groups according to the land regions of the state: the Coastal Plain, the Piedmont, the Ridge and Valley, the Appalachian Plateau, and the Interior Plateau. Tell each group to keep its land region identity a secret from the rest of the class.

Students should research the characteristics of their region that distinguish it from the other regions (type of rock, soil, crops, mineral and energy resources, water resources, etc.). Have students use a chart, Venn or circle diagram, or other graphic to organize the information. Instruct students to use the information to create a profile of their region that they will present to the rest of the class. But instruct them *not to tell* the name of the region.

Let each group present a profile of their region without using its name. Ask the rest of the class to try to identify the land region based on the characteristics in the profile.

Notes:

Using Maps: The Tennessee River

Have students locate the Tennessee River on a physical map of the United States. Trace the Tennessee River from end to end, identifying its origin and its ending point in Alabama's Interior Plateau. Through which states does this river flow? (*Tennessee, Alabama, Mississippi, Kentucky*)

Drawing Conclusions

Call students' attention to the photograph of the waterfall at DeSoto State Park in the Appalachian Plateau. What conclusions might they draw from this picture? Is the water cold, or warm? Would they expect the rocks to be slick or rough? What kind of plants would grow here? Would they feel cool here, even on a hot day?

Ask students to think of and share a descriptive word or phrase to describe the feeling that this photograph brings to mind. For example: refreshing, cool, calming, solemn, loud, frightening, powerful, etc.



The Appalachian Plateau and the Interior Plateau

North and west of the Ridge and Valley are two plateau regions. A plateau is a higher area made of layers of rock that are nearly flat.

The Appalachian Plateau region begins in Alabama around Jasper. It extends north through Tennessee and Kentucky into western New York. Coal is found in this region. The Interior Plateau begins in northern Alabama and extends north to the Ohio River and into southern Indiana. The Tennessee River has made a wide valley that runs through the Interior Plateau region. People sometimes call this part of Alabama the Highland Rim.

Settlers moved into these regions mostly through the valleys of the Ridge and Valley region and the Huntsville Road. Many of these people came from North Carolina, Virginia, Tennessee, and Kentucky to seek new land.

Many farmers moved to the river valleys of the region to grow cotton. Some moved to other land to grow other crops. Later, miners and quarrymen came to work in the coal mines and stone quarries.

Notes:



About Alabama

Little River Canyon is the deepest gorge east of the Mississippi River.

Think It Through!

1. Name the five land regions in Alabama.
2. What routes did settlers travel to get to Alabama?
3. How can mineral natural resources bring people into an area?

Top: The Interior Plateau is sometimes called the Highland Rim. **Above left:** Little River Falls is located in the Little River Canyon National Preserve. **Opposite page:** DeSoto State Park in the Appalachian Plateau has beautiful waterfalls.

Anytown

The state's natural physical features form its natural environment. When settlers began building villages and towns, "human environments" were created. On each student's desk, place a sticky note on which you have written either a feature of the natural environment (such as mountain, lake, river, waterfall, or gorge) or a feature of human environments (such as mill, farm, store, or road). Then write on the board two headings: Natural Environment and Human Environment. Have students come to the board, one or two at a time, to place their sticky notes under the appropriate heading.

ASSESS

Answers to "Think It Through!"

1. Coastal Plain, Piedmont, Ridge and Valley, Appalachian Plateau, and Interior Plateau
2. Answers may vary, but should include the Federal Road, Huntsville Road, and the Alabama and Tombigbee Rivers.
3. People will come to find work in coal and iron mines, stone quarries, and industries that use mineral natural resources.

Notes:

Section 2 Mineral, Energy, and Water Resources

INTRODUCE

Outline

- A. Soil
- B. Water Resources
 - 1. Surface Water
 - 2. Aquifers

Materials

Textbook, pages 50-57

Activity Sheets

The Three R's, 17

Mapping for Understanding, 18

Teacher Tech Website

Lesson Plan

Visual Aids

1. Hydrologic Cycle

6. Alabama Rivers and Lakes

Guided Reading, 2-2

TEACH

Building Background

Bring a pitcher of water into the classroom. Use it to water plants, pour a glass to drink, dampen a cloth to clean the board, etc. Point out the many ways in which you are using one of our most valuable natural resources. Have students brainstorm other ways that water is used today.

Mining Alabama's Minerals

Ask students to imagine what it would be like to work in a mine. What kind of conditions would a miner encounter? Guide them to think about safety, working conditions, and health issues. Allow students to share their thoughts in a general discussion.

Section 2

Mineral, Energy, and Water Resources

About Alabama

Hematite—red iron ore—is the official state mineral.



As you read, look for

- types of resources;
- types of water resources;
- Alabama's major rivers;
- terms: **swamp**, **fertile**, **surface water**, **wetland**, **waterway**, **aquifer**, **groundwater**.

Why did large numbers of settlers come to Alabama?

The area's natural resources made it a great place to live. The weather and rich soil were good for farming. Because of Alabama's climate, most of the state had a growing season of over 200 days. The area also had a good supply of water and many kinds of minerals. These were all important reasons for choosing Alabama as home.

The layers of rock in Alabama contain many minerals that people use. Sand and clay are used to make pottery and glass. Rocks are used to make everything from arrowheads to skyscrapers. Some of the more important rocks are limestone, sandstone, and marble. You will learn later how iron ore helped Birmingham grow "magically."

Some of these rocks give us clues about Alabama's prehistoric (before written history) environment. Limestone formed at the bottom of a saltwater sea. Wherever you find limestone, you know that the land was once under an ocean. Coal is made of plants and animals that once lived in a swampy environment. So where you find coal, you know that there once was a **swamp** (flooded forest) in that area.

Notes:

Water Journal

Tell students that the world, like our bodies, is mostly water. Water is everywhere and important to our survival. To emphasize the importance of water in our lives, have students keep a water journal for one day. They should keep a running list of every way in which they use water during a single day (obvious as well as obscure uses). Have them make a second list of everything in their homes that contains or needs water.

After they have completed their journal entries, allow students to compare their lists and share. Are they surprised at the importance of water in their daily lives?

Answer to Map 6 Skill

Answers will vary depending on your location.

Water Resources

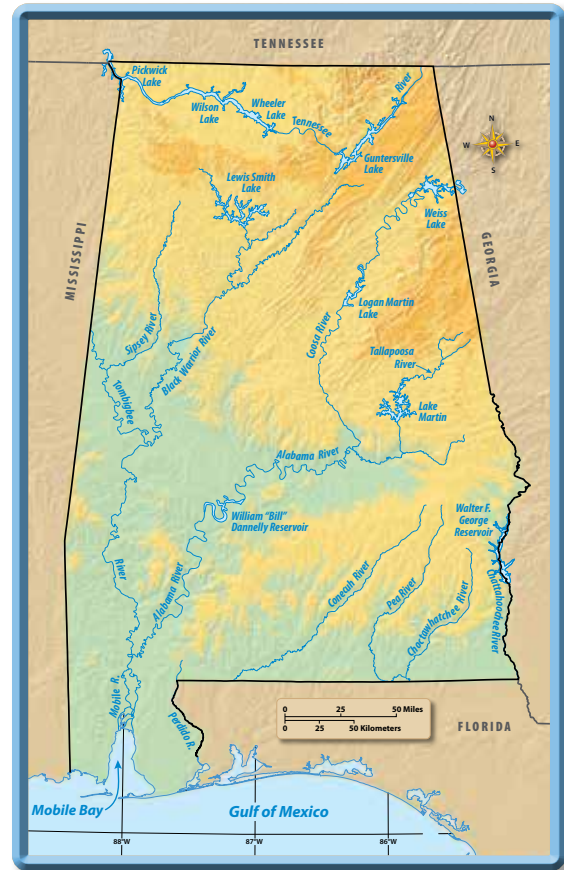
Freshwater is an important part of the natural environment. Plants, animals, and people could not survive without water. Alabama's water resources are found on the surface of the land and underground.

Surface Water

Surface water is found in rivers, streams, lakes, and wetlands. (**Wetlands** are places that are wet all or part of the year.) Alabama has more than 77,000 miles of rivers and streams. The state

Map 6
Alabama Rivers and Lakes

Map Skill: From your home, which river(s) would you travel to get to the Gulf of Mexico?



Notes:

Figure 4 Major Alabama Rivers

River	Source	Location	Direction of Flow
Alabama	Formed by Coosa and Tallapoosa Rivers; flows into Mobile River	Southwest Alabama	Southwest
Black Warrior	Northeast Alabama; flows into Tombigbee River	Central and western Alabama	Southwest
Cahaba	Origin is north of Birmingham; flows into Alabama River	Central Alabama	South
Chattahoochee	Flows into state from Georgia, then borders Georgia and Alabama; flows into Florida	Southeast Alabama	South
Choctawhatchee	Forms south of Eufaula; flows into Florida	Southeast Alabama	Southwest
Conecuh	Forms east of Montgomery; flows into Florida	South-central Alabama	Southwest
Coosa	Flows into state from Georgia; flows into Alabama River	East-central Alabama	Southwest
Mobile	Formed by Alabama and Tombigbee Rivers; flows into Mobile Bay	Southwest Alabama	South
Pea	Formed north of Eufaula; flows into Choctawhatchee River	Southeast Alabama	South
Tallapoosa	Flows into state from Georgia; flows into Alabama River	East-central Alabama	Southwest
Tennessee	Flows into state in northeast and exits northwest	Northern Alabama	West
Tombigbee	Flows into state from Mississippi; flows into Mobile River	Western Alabama	South

Research Using Technology

Have students use the Internet to research the origin and meaning of the names of three of Alabama’s rivers. Allow them to share their findings with the class. Can they see any common factors or patterns in the names? (*Many Alabama rivers were named by, or for, the early American Indian tribes of the region.*)

Bonus Map Skill

Students can use Map 6 and Figure 4 to answer the following.

In which other southeastern state do three of Alabama’s rivers have their source? (*Georgia*) What are the names of these rivers? (*Coosa, Chattahoochee, and Tallapoosa*)

Go with the Flow

Students should use Figure 4 to determine in what direction(s) Alabama’s rivers flow. (*11 flow south or southwest, 1 flows west*) Why do all except one of the rivers flow south or southwest? Why don’t any of them flow north? (*Students should make the connection between the elevation of the land and the direction of flow.*)

Waterways

Ask students to name any waterways or bodies of water found in their area. How would the area be different if these did not exist? In what ways was water important in the early days of the state? Record their ideas on the board for everyone to copy into their notebooks. Keep the list and repeat this activity at the end of this chapter to see what they have learned.

Notes:

Critical Thinking

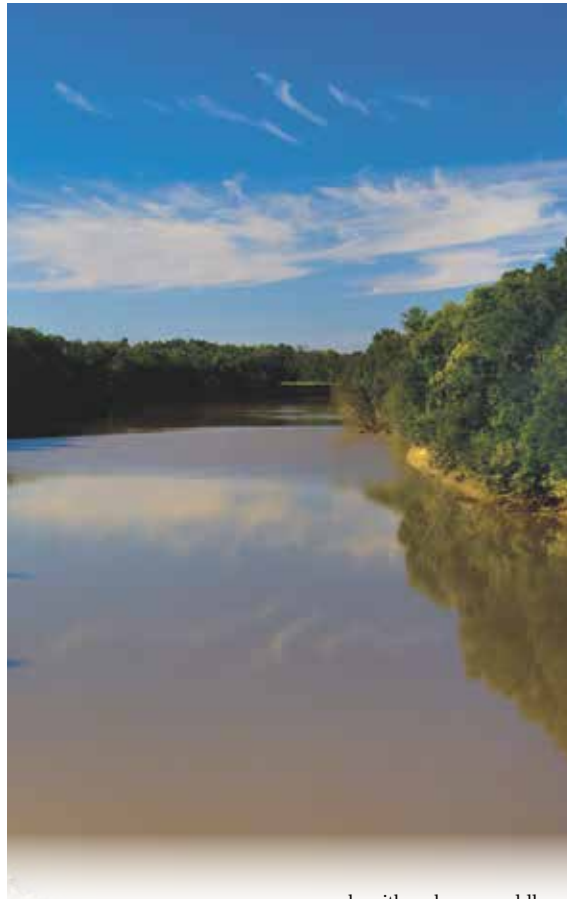
Pollution is a major problem with some waterways. Ask students to think of some of the possible sources of water pollution. What do they think average citizens can do to help with this problem?

Geography's Impact

Why did early settlers travel through river valleys as they moved to new territory? Students should brainstorm as many reasons as they can. (*land was flat, fewer obstacles, plentiful water, access to resources, etc.*)

Do You Know?

Ask students these questions: Which of the Alabama resources you have studied are located in your county or region? Is anyone in your family employed in jobs that depend upon, or are related to, the use of these resources? How do these resources affect the economy of your county or region?



Above: Rivers below the Fall Line are usually broad and slow moving. The Black Warrior River flows by Moundville.

has 6 rivers that are deep and wide enough for large boats. Rivers used for transportation are called **waterways**. Indians, settlers, traders, farmers, miners, and others used the waterways to travel and carry supplies.

Surface water could also be a problem. Settlers in wagons had no bridges to cross rivers, creeks, or swamps. They had to find other ways to cross the water. Sometimes they could use rafts to cross the river. Others used extra horses to pull wagons across creeks. Many just carried their belongings across on foot.

Study the chart on page 53 to find how settlers could use these rivers for travel. It is important to find where the river begins (source). You should also notice the direction of the flow. Keep in mind that these early settlers had no motors on their boats and canoes. Most of the river travel was *with the river's flow*. It was hard to

push with poles or paddles against the flow.

Three of Alabama's rivers form parts of the state's borders. The Tennessee River, the state's largest river, is part of our border with Mississippi. The Chattahoochee River is part of our dividing line with Georgia. The Perdido River is part of the border between Alabama and Florida.

Aquifers

Did you wonder where the water in a spring or well came from? A great amount of water is stored beneath the surface of the earth. When it rains, some of the water soaks into the

Notes:



Above: The Conecuh River in Gantt is used to make power for many Alabamians.

ground. It fills up tiny spaces in layers of gravel and rock. These layers act like sponges and are called **aquifers**. Water stored in the aquifers is called **groundwater**. Groundwater seeps out of aquifers and forms springs.

Early settlers needed water close to the surface for drinking and watering their livestock. They got their water from wells, springs, creeks, and rivers. One of the reasons they chose a place to stay was a good supply of water. Notice that many cities and towns are on creeks and rivers.

There are 20 large aquifers in Alabama. They are located under the Coastal Plain, the Ridge and Valley, and the Interior Plateau regions of the state.

Think It Through!

1. What is coal made of?
2. Which river is part of the border between Alabama and Florida?
3. Why was a good supply of water important to settlers?



About Alabama

Half of the state's population depends on groundwater for their drinking water.

Science Investigator

An artesian well is a deeply drilled well that taps water in an aquifer. Pressure from underground causes the water to rise to the surface. Water from artesian wells is very cold, clean, and free of impurities. Students can do a demonstration using small plastic bags, straws, and water. Insert a straw into a bag half filled with water, and seal the opening around the straw. Reinforce the seal around the straw with tape. Squeeze the bottom of the bag, and water will rise through the straw and out the top of the straw. *(You might want to do this demonstration outdoors!)*

Aquifers

Ask students: Have you ever dug a deep hole in the sand at the beach, and watched the hole fill with water seeping in from deep layers of sand below the surface? That process is a good illustration of how an aquifer holds water.

ASSESS

Answers to "Think It Through!"

1. Plants and animals that once lived in a swampy environment
2. The Perdido River
3. Settlers needed water for drinking, watering crops and animals, and travel.

Notes:

FYI

CLEAN (Children Linking with the Environment Across the Nation) is an innovative national program offering hands-on environmental activities for students. In Alabama, CLEAN is sponsored by the Cahaba River Society. Students can enjoy participating in activities while canoeing or walking trails in the Cahaba River watershed.

Group Fun

Have students work in groups to brainstorm reasons for protecting Alabama's wetlands. Each group should list all the reasons they can for protecting and preserving our wetlands. Students can find more about the wetlands mentioned in this Focus on Nature at www.outdooralabama.com/rivers-and-mobile-delta/sipsey-river, www.alabamaforeverwild.com/lillian-swamp-complex, and www.alabamawildlife.org/wetland-and-habitat (Mobile-Tensaw River Delta). Students who present the most reasons are Class Conservation Champions!

Class Project: Help Alabama's Wetlands

Your class can get involved in protecting and preserving Alabama's wetlands by developing or joining an existing community service project. To find out more, go to the Alabama Department of Conservation and Natural Resources website at outdooralabama.com. Another good resource is the United States Fish and Wildlife Service, Southeast Region, at fws.gov/alabama.

Focus on Nature

Alabama's Wetlands

Wetlands are a special type of surface water. Sometimes beavers create wetlands when they build a dam across a small stream.

The most common type of wetland in Alabama is a swamp. There are two large wetlands in the northern part of the state. The Sipsey River has created a swamp as it flows through northwest Alabama. The Tennessee River has also created a large wetland along its floodplain near Huntsville and Decatur. You can also find freshwater swamps in the coastal area. Lillian Swamp lies in Baldwin County.

Alabama's coastal region has other very large and important wetlands. Along the Gulf Coast are **salt marshes**. These grassy areas stay wet all year. Salt marshes are flooded with saltwater each day when the sea level rises with the tide. The water drains away after each tide, showing the soil.

Wetlands in Alabama range from salt marshes on Dauphin Island (above) to the vast Mobile-Tensaw Delta (opposite page, above) to swamps filled with birds near the Tennessee River (opposite page, below).

These marshes are home to animals like insects, crabs, birds, and raccoons. As you move away from the coast, there are freshwater marshes.

One of the most important wetlands in Alabama is the Mobile-Tensaw Delta. (A **delta** is an area where a river divides before flowing into a larger body of water.) The Delta begins at Mobile Bay. It goes north to where the Alabama and Tombigbee Rivers meet. It is the second-largest delta in the continental United States! At least 126 kinds of fish and 30 kinds of amphibians live there. There are also 69 kinds of reptiles and 40 kinds of mammals. Some of the trees have

Notes:



adapted to life in wet soil by growing “knees.” These knees give the tree extra support to stand up straight in water.

Mobile Bay and the Delta form an area called an estuary. An **estuary** is a place where freshwater from rivers mixes with saltwater from the ocean. This special mix of water is an ideal place for many water animals to live. Shrimp, blue crabs, and oysters need this kind of water when they are young. As they get older, they can live in saltier water. Many people along the Alabama coast depend on fishing to make a living. We would not have as many fish if we did not have coastal wetlands.

A deepwater oil-drilling rig exploded in April 2010. This accident in the Gulf of Mexico killed 11 people. It took BP, the company that drilled the well, 3 months to stop the oil from gushing.

The oil rose to the top of the water. It floated to the shore of the Gulf. The oil polluted the sand and wetlands of Louisiana, Mississippi, Alabama, Florida, and Texas. Many animals were killed by the oil.

People along the coast lost money because of the oil spill. The people who fish for a living could not fish. Restaurants could not serve fresh seafood. Vacationers did not come to the beach to play. The oil spill was a terrible event for Alabama and its neighboring states.

Human activity can destroy wetlands. Scientists believe that one-half of Alabama’s wetlands have been destroyed over the last 200 years. What caused this destruction? Trees were cut down. Ditches were dug to drain away the water. The water became polluted. Pollution in a river is carried to the coast where it can harm wetlands. It will take the help of people all over Alabama to protect the water.



Family Involvement

Ask parents to get involved with their children in recycling materials at home and in other efforts to protect the environment, such as a neighborhood or community cleanup day. Organize a Campus Cleanup Day to involve families and students.

Gulf Oil Spill

Tell students to imagine they were dolphins or whales swimming in the Gulf of Mexico. They rise above the surface of the water to take a breath of air and find themselves covered with oil. Oil gets into their blowholes, and they cannot breathe. They are poisoned by the oil on the fish that they eat. Or imagine they were seabirds. The oil in the water coats their feathers and seals their eyes. They cannot fly or swim. In 2010, many people worked to rescue and clean animals caught in the oil spill in the Gulf of Mexico, but many animals were killed by the oil.

Demonstrate what an oil spill does to animals. Fill a shallow container(s) halfway with clean water. Mix a cup of cooking oil with a tablespoon of cocoa, to make “oil.” Slowly pour the oil mixture on top of the water. The oil will spread across the surface. Let students dip small plastic animals (fish, birds) into the containers(s) to see how the animals become coated with oil. Students may “rescue” the animals by washing them in containers of clean water with dish detergent.

FYI

BP was formerly called British Petroleum. You can find more student-oriented information about the oil spill by searching BP Oil Spill for Kids.

Notes:

Section 3 Weather, Climate, and Natural Hazards

INTRODUCE

Outline

- A. Temperature and Precipitation
- B. Natural Hazards
 - 1. Frozen Hazards
 - 2. Water—Too Much or Not Enough
 - 3. Thunderstorms
 - 4. Tornadoes
 - 5. Hurricanes

Materials

Textbook, pages 58-65

Activity Sheets

Rain or Shine, 19

Teacher Tech Website

Lesson Plan

Visual Aids

1. Hydrologic Cycle

Guided Reading, 2-3

TEACH

Building Background

Tell students that weather and climate are possibly the most talked about topics in the world. Ask them to test this assertion by listening for the next few days to see how many times people around them mention the weather in some way. (“We really need the rain.” “Hot enough for you today?” “This cold makes my joints hurt.” “You’ll need your jacket today.”) Revisit the discussion after a few days and allow students to share notes and tally their observations.

Invite a Guest

Invite a local meteorologist to speak to your class about Alabama weather. Have students prepare by listing things they want to know about; for example, how Doppler radar helps predict weather, or what training a meteorologist needs.

Section 3

Weather, Climate, and Natural Hazards



Mentone, in the mountains of northeast Alabama, was once a popular tourist spot. Rich people traveled there to avoid the summer heat. They arrived by train and in horse-drawn carriages. Mentone is still a cool place to visit!

As you read, look for

- the climate zone for Alabama;
- types of precipitation;
- terms: **subtropical, temperature, precipitation, natural hazard, drought, flash flood, lightning, tornado, hurricane, evacuate.**

Every television and radio station has people who talk about the weather each day. They discuss how hot or cold it is and what the chances are that it will rain. They tell you what it is going to be like tomorrow and the next day. This information helps you plan what to wear.

Understanding your area’s climate can be very useful too. It helps your school principal plan for how many snow days you may need this year. Knowing average amounts of rainfall helps farmers decide which crops to plant.

Temperature and Precipitation

Alabama is located just north of the Tropic of Cancer. The state’s climate is **subtropical** or temperate. The winter months are colder than the summer months. Alabama summers are long and very warm. Average monthly summer **temperatures** (how hot or cold it is) are in the low-80s°F (Fahrenheit). Winters here are short and mild with average temperatures in the mid-40s°F.

The mountainous areas of the state are at higher altitudes. These parts of Alabama are usually cooler year round. They have more winter days with temperatures near freezing, which is 32°F.

Note:

Science Connection

Alabama is among the top ten states for precipitation amounts. Place students in four learning groups. Assign one of the four forms of precipitation—rain, snow, sleet, and hail—to each of the groups. Each group should research to find the conditions and temperatures required for the formation of the assigned precipitation.

Climate Consensogram

Ask students what they think an “ideal” climate is. Encourage them to be descriptive and specific in their answers. Record their responses on the board, omitting duplicate responses. Allow each student to come to the board and put check marks beside all the descriptors that they agree with. Tally the check marks to determine the climate that most students would prefer. Can students come to a consensus on the ideal climate?

Engage Your Students

Have students find local weather forecasts on the Internet at sites such as weatherbug.com or weather.gov. Students should chart the five-day forecast for their area, including high and low temperatures, precipitation, winds, etc., then enter the actual conditions for each day on the chart. At the end of the week, students can compare the forecasts with the actual weather they recorded.

Thinking Further

Ask students to use the weather forecast charts they completed to answer these questions: How accurate were the forecasts? What are possible reasons for the discrepancies they noted? (For example, a rainstorm may have cooled temperatures more than expected.)

Below: *The weight of snow and ice on branches and power lines can cause them to break. Bottom: A snow-covered road is hazardous. Snow is uncommon in Alabama and usually does not last very long.*



Precipitation is water in the form of rain, snow, sleet, or hail. It falls from clouds to the earth’s surface. Because Alabama’s temperatures are usually warm, most of its precipitation falls as rain. Some places in Alabama receive 50 to 60 inches of precipitation a year. That puts it in the top 10 among the states for precipitation amounts.

Natural Hazards

Certain kinds of weather can cause harm and are called **natural hazards**. Natural hazards that occur in Alabama include ice storms, heavy snows, droughts, flash floods, thunderstorms, tornadoes, and hurricanes.

Frozen Hazards

Ice storms occur when drops of rain fall on frozen surfaces. They spread out and freeze into layers of ice. The ice can become thick and heavy. Ice on roads or on bridges can cause accidents.

Snow is another frozen hazard. When just a few snowflakes fall from clouds, we call them flurries. When a large amount of snow falls, we call it a snowstorm. Most of the snow that falls on Alabama melts when it hits the ground. Both snow and ice have weight and can knock down trees and power lines.



Notes:

Water—Too Much or Not Enough

Water is necessary for life. But too much or too little water can cause big problems. A **drought** is a period of weeks or months with almost no rainfall. Too little water can mean lower crop yields and higher food prices.

Drought also increases the risk of fires. These fires can destroy wildlife habitat and homes. With less rainfall to fill up reservoirs, the supply of drinking water shrinks. Water shortages affect everyone at home, work, and school.

Flash floods can happen when there is heavy rainfall. Water in ditches and streams may rise very quickly. Then it spills over onto the land. It can knock people down when they try to walk in it. Even people in cars are in danger and can drown in the fast-moving water.



Thunderstorms

Thunderstorms occur often in Alabama. Some bring heavy rains that cause flash floods. The biggest danger is from the lightning they produce. **Lightning** is electricity moving from cloud to cloud or from a cloud to Earth. Lightning strikes injure and kill people in Alabama.

Hailstones are small balls of ice that can even fall in summer thunderstorms. Hail can damage cars and roofs.



Above: A dry lake bed is a sure sign of drought. **Below:** A supercell is a powerful thunderstorm. It can produce strong winds, torrential rainfall, and flash floods. It has a rotating updraft that can produce tornadoes.

Tornadoes

Tornadoes also begin in very bad thunderstorms. (A **tornado** is a storm with swirling winds and a funnel-shaped cloud.) Tornadoes are the most powerful and dangerous storms in Alabama. They form very quickly. People have just a short time to take action when there is a tornado warning. Tornadoes often form at night. There are fewer people listening to their televisions or radios then. This can mean that they miss the warnings.

A tornado's funnel-shaped cloud may reach all the way to the ground. Winds can move toward the funnel at speeds of over 300 miles per hour! Tornadoes destroy almost everything they touch. Loose objects blowing through the air are a big danger to people.

FYI: Lightning Safety

If you are outdoors:

- Avoid water.
- Avoid high areas.
- Avoid wide-open spaces like ball fields.
- Avoid being near tall objects like trees, flagpoles, or light poles.
- Avoid metal objects such as fences and electric wires.
- Move away from a group of people.
- If caught on open ground, crouch down, put your feet together, and cover your ears.
- Seek shelter in a large enclosed building or a hard-topped metal vehicle like a car. Shut all windows.

If you are indoors:

- Do not stand near a window or door.
- Do not use the telephone.
- Turn off, unplug, and stay away from appliances, computers, and televisions.

Pair, Share, and Write

Ask students to pair and share any stories they may have about experiences with a severe weather event, such as a flood, tornado, lightning, ice storm, hurricane, etc. Students might interview parents or grandparents about experiences with severe weather. After they share, have students do a *quick write* using this prompt: "I remember when"

Notes:

Graphing Tornadoes

Have students create a graph illustrating the number of tornadoes rated EF2 and above that affected Alabama in the last five years. The graph should be designed to show which year had the most tornadoes and which had the least. Students can use the Internet to search Tornadoes Alabama, or search the weather archives at the website of a local television station.

FYI

Tornadoes are most likely to occur in the afternoons or evenings. Over 80 percent of all tornadoes occur between noon and midnight.

Sirens

Do students know where the nearest tornado warning siren is located? Can they hear the siren when they are at school? At home? Most counties do regular tests of the warning sirens. Does your school conduct drills when the sirens sound? Do students know what to do and where to go when they hear the warning siren?

Tornado in a Jar

For a classroom demonstration, make a tornado in a jar. Using a jar with a lid, fill the jar almost full with water. Add a small amount of liquid dishwashing detergent (the grease-cutting kind). Add a drop of food coloring and 10-15 small aluminum foil pellets. With the lid on securely, whirl the jar around in a circular motion to make the water swirl in the jar. Let students look closely to see the “tornado” funnel.

Figure 6 Enhanced Fujita Tornado Intensity Scale

Rating	Miles/Hour	Expected Damage
EF0	65-85	Light: Loose debris
EF1	86-110	Moderate: Broken windows and doors
EF2	111-135	Considerable: Trees broken
EF3	136-165	Severe: Outer walls collapse
EF4	166-200	Devastating: Structure damage
EF5	Over 200	Total: Structure destroyed

In Alabama, there are two tornado seasons. Most tornadoes form between February and May. Tornadoes also form in late November and early December.

The National Weather Service gives watches and warnings for flash floods, thunderstorms, and tornadoes. Special weather radios are available to warn you in case bad weather is coming.

On April 27, 2011, weather sirens wailed and radios warned Alabamians of coming tornadoes. Many powerful funnel clouds and strong winds caused a lot of damage in our state that day. Over 240 people died in Alabama because of the tornadoes. Forty-three Alabama counties were declared disaster areas.



62 Chapter 2: The Land We Call Alabama

Critical Thinking

On a T chart, let students brainstorm items they would put in a home emergency kit for use in severe weather or a natural disaster. Put essential items and nonessential items on separate sides. Have students list in their notebooks items they would place in their own kit. They should give reasons for their choices.

Family Involvement

Ask parents to work with their children to put together home emergency kits using the list their child created. For a complete list of recommended supplies for a home emergency kit, go to redcross.org.

The tornado that hit Hackleburg was an EF-5. An EF-4 tornado hit the Tuscaloosa-Birmingham area. Those two storms ranked sixth and seventh in the deadliest tornadoes in United States history. The four counties with the highest death tolls were Tuscaloosa, DeKalb, Franklin, and Marion.

After the terrible storms, Alabamians came together to help each other clean up and rebuild. People from other states and the Federal Emergency Management Agency (FEMA) came to help too.

Hurricanes

Hurricanes are powerful storms that form over warm seas. These circle-shaped storms can be 300 miles wide. Hurricane wind speeds can be over 200 miles per hour. But water causes most of the damage in a hurricane. Buildings and highways near the coast are often flooded or even destroyed.

Hurricane season lasts from June through November. The National Hurricane Center puts out watches and warnings about hurricanes. Because these storms move so slowly, people have time to evacuate low coastal areas. (**Evacuate** means to leave the area because of danger.)

The weather and climate of a place can change its history. Without enough rain, crops would not grow. Some crops, such as cotton, need a long growing season. Some plants, such as orange trees, need very warm temperatures.



Above: Tuscaloosa was badly damaged by a huge EF-4 tornado on April 27, 2011. The storm was so powerful that it traveled more than 60 miles north to Birmingham. It destroyed many neighborhoods there and the Smithdale Estates in Pratt City (below).



Hurricane Names

Hurricanes are also called tropical cyclones. Why are hurricanes given names? Who names them? Have students research to learn more about naming hurricanes. Good websites on the topic include www.nhc.noaa.gov (search Naming Hurricanes) and [enchanted learning.com](http://enchantedlearning.com).

FYI

A major hurricane hits Alabama about every 7-1/2 years. Hurricane Ivan hit Gulf Shores in 2004, causing damage costing over \$3 billion. Frederick and Danny are 2 other hurricanes that caused major damage in Alabama.

Do You Know?

How fast is a storm moving before it becomes a hurricane? The Saffir-Simpson Hurricane Wind Scale measures the wind speed of storms. Storms with wind speeds of 39–73 miles per hour are called tropical storms. Storms with wind speeds of 74 miles per hour and above are hurricanes.

Group Solutions

Place students in collaborative groups and assign each group a different natural disaster common in Alabama. Have each group develop a safety plan for their particular disaster, including the steps necessary to prepare and protect themselves. Students might prepare a PowerPoint or other presentation to share their plan with the class.

Safe at School

Review your school's safety plan and procedures for natural disasters with students. Conduct a mock tornado or evacuation drill with your class.

Notes:

Answer to Map 8 Skill

Answers may vary between three and six.

Critical Thinking

Ask students: Why and how do climate and weather make a difference to the economy of the state? How do Alabama's climate and weather affect tourism, agriculture, and recreation? Have students brainstorm a list of events they remember that affected Alabama's economy in one of these areas. (Examples are hurricanes, tornadoes, summer droughts, etc.)

Assessing Risks

Ask students how weather might be a factor in whether a farmer makes a profit from a crop. Discuss reasons why farming is called a "risky" way to make a living. Have students make a COOL and CRAZY T chart. They should list three reasons why it would be "cool" to be a farmer and three reasons why it would be "crazy" to be a farmer.

ASSESS

Answers to "Think It Through!"

1. Weather is what is going on outside today—temperature, precipitation, etc. Climate is the average weather over time.
2. Winter months are colder than summer months. Winters are short and mild with average temperatures in the 40s°F. Summers are long and very warm with average temperatures in the 80s°F.
3. Answers may include droughts, floods, tornadoes, or hurricanes.
4. Lightning

Map 8 The Paths of Hurricanes

Map Skill: Study the paths of hurricanes. The number of hurricanes and their paths are different every year. On this map, how many hurricanes were a danger to Alabama?



About Alabama

In 1997, Hurricane Danny (above) struck Alabama. It produced heavy rains that set the state's record rainfall for one day—32.52 inches.

64 Chapter 2: The Land We Call Alabama

Early settlers chose land that was good for farming. They grew crops that would do well on their land. But Alabama's weather sometimes made American Indians, explorers, and settlers change their plans. Droughts made crops die. Dry trees and grasses brought forest fires. Floods caused Alabama to move its center of government. Hurricanes made settlers in Mobile change their minds. The weather could be extreme: very cold or very hot. This made travel hard for explorers and settlers.

Think It Through!

1. What is the difference between weather and climate?
2. Describe Alabama's subtropical or temperate climate.
3. Name three natural hazards.
4. In thunderstorms, what is the greatest danger?

Notes:

Spotlight on Nature

Alabama Weather Extremes

Daily weather conditions can be extreme. The following tables show the highs and lows in Alabama's weather.

Figure 7 Temperature and Precipitation Records

Event	Value	Date	Location
Highest temperature	112°F	September 5, 1925	Centreville
Lowest temperature	-27°F	January 30, 1966	New Market
Most precipitation in 24 hours	32.52 inches	July 19-20, 1997	Dauphin Island
Most precipitation in one year	98.22 inches	1961	Citronelle

Figure 8 Monthly Alabama Maximum/Minimum Temperatures

Month	High	Year	Location	Low	Year	Location
January	88°F	1898	Mount Willing	-27°F	1966	New Market
February	89°F	1901	Livingston	-18°F	1905	Valley Head
March	94°F	1916	Evergreen	2°F	1993	Birmingham
April	98°F	1894	Union	19°F	1992	Valley Head
May	105°F	1964	Chatom	29°F	1976	Valley Head
June	109°F	1933	Brewton	35°F	1966	Valley Head
July	111°F	1930	Madison	41°F	1947	Valley Head
August	109°F	2000	Centreville	39°F	1968	Waterloo
September	112°F	1925	Centreville	29°F	1967	Valley Head
October	103°F	1954	Troy	19°F	1968	Waterloo
November	92°F	1922	Selma	-2°F	1950	Valley Head
December	88°F	1971	Livingston	-10°F	1983	Heflin

FYI

During a thunderstorm, about 5 million drops of water fall on an acre of land! According to NOAA, on average, 13 inches of snow equal 1 inch of rain.

Using Information

Have students use Figures 7 and 8 to answer these questions.

1. What location has recorded the lowest temperatures in the most months? (*Valley Head*) Did this location record the lowest temperature on record? (*No*)
2. What locations recorded the three highest temperatures on record? (*Centreville, Madison, Brewton*) Look at a map of Alabama to see if these cities are all located in the same area of the state. (*No*)
3. What is the oldest record shown on the charts? (*April 1894, in Union*)
4. What is the lowest temperature on record, and where was it recorded? (*-27°F, at New Market*)

Journal Writing

Let students choose one of these writing prompts: "The hottest day I remember was...." or "The coldest day I remember was...." Have students write a narrative description of the day in their journals. Encourage students to think in terms of their senses—taste, touch, smell, sight, and hearing—as they describe the day. You may want to provide a writing rubric.

Writing

Ask students to reflect on the differences in the four seasons. Have students write a paragraph that describes their favorite season and why they like it.

Notes:

Section 4 Natural Vegetation and Wildlife

INTRODUCE

Outline

- A. Types of Plants
- B. Ecosystems

Materials

Textbook, pages 66-68

Activity Sheets

*Alabama's Plants and
Animals*, 20

Teacher Tech Website

Lesson Plan

Visual Aids

Guided Reading, 2-4

TEACH

Building Background

Take students on a nature walk around the campus or in a nearby park or field. Group students by fours or fives, and have each group collect leaves or blooms from as many different plants and trees as they can. Have them observe and take note of any birds or other wildlife they see. When you return to the classroom, allow each group to share briefly what they saw. Ask them to predict whether any of the plants or animals they observed are found only in Alabama.

KWL

Have students create a KWL chart for this section. Students should list what they already *know* (K) about Alabama's plants and wildlife and what they *want* (W) to learn. After completing the section and the research activities, students should write what they *learned* (L) in the last column.

Section 4

Natural Vegetation and Wildlife



*Above: DeSoto State Park is famous for its rhododendrons.
Below: Deciduous trees provide beautiful colors in the fall.*

As you read, look for

- types of vegetation in Alabama;
- types of animals in Alabama;
- terms: **natural vegetation**, **evergreen tree**, **deciduous tree**, **ecosystem**.

Alabama's warm, wet climate creates a good environment for plants. Before the first people ever arrived, the land was covered with a blanket of vegetation. Plants growing naturally in an area are called the **natural vegetation**.



Notes:



Types of Plants

Long ago, trees covered Alabama. Forests of evergreen trees grew across the southern two-thirds of the state. (Evergreen trees keep their leaves throughout the year.) Along the coast were live oaks and long-needle pines. Inland, the forests were mostly pines—longleaf, loblolly, slash, Virginia, pond, and sand. In the northern third of Alabama, winters are colder. Evergreen forests gradually gave way to deciduous trees (trees that lose their leaves each winter). The hills and mountains are covered with oak, poplar, gum, hickory, and dogwood trees. The leaves of these trees are very colorful in the fall. Most of Alabama is still covered in trees. The trees have been important to people living in Alabama since the very beginning. Today, both types of trees supply the state's very large timber industry.

Thousands of kinds of bushes, flowers, and grasses are also native to Alabama. Ponds, streams, sand dunes, and rocky ridges all support plants. A number of things decide which plants will grow in a place. Is the soil wet or dry? Is the land flat or hilly? Is the place sunny or shady?



Top: This is an ancient live oak on Dauphin Island. It has survived many hurricanes over the centuries. **Above:** Pine trees are often harvested for lumber.

Notes:

FYI

The Cane Creek Canyon Nature Preserve is located in Colbert County. The forest there is like the one that covered north Alabama during the Ice Age 10,000 years ago. Many rare plants grow there including the showy five-foot-tall columbo. Medicinal flowers, such as goldenseal, ginseng, and mayapple, are also found in the canyon.

Art Activity

Have students use sources such as books, magazines, and newspapers to find pictures that show something about Alabama's plants and animals. They may trace the pictures from books or cut them out of magazines and newspapers. Tell students to create a poster or collage using their pictures. Or students could write a short story about Alabama and use the pictures as illustrations for it.

Alabama the Beautiful

Have students use media center resources to identify Alabama's state bird, flower, tree, wildflower, fruit, insect, reptile, mammal, amphibian, game bird, freshwater fish, and saltwater fish. Students can also find this information at alabama.gov by searching Symbols. Let students create booklets illustrating the state symbols with labeled drawings or pictures. Display their booklets in the classroom. (Information about Alabama's symbols and emblems can also be found in Chapter 15 of the textbook.)

ABC Animals

Have students write the letters of the alphabet from A to Z vertically down the side of their paper. Students should write all the animals found in Alabama that they can think of that begin with that letter. Have them pair and share to check and make sure all the animals listed are found in Alabama. Ask students to put a check mark beside each animal they have personally seen.

Research Using Technology

Have half the class go to alapark.com and research the eagle habitat at Lake Guntersville State Park. Students might plan a weekend trip to Guntersville to view the eagles.

Let the other half of the class research the native birds of Alabama at audubon.org. Students might find out about any local Audubon projects or events in which they could participate.

Critical Thinking

Ask students to define the terms *endangered* and *extinct*. Remind them that the bald eagle was once an endangered species in Alabama. Have students list the kinds of things that might cause a species to become endangered or extinct. Let the class brainstorm ways that they can help prevent the extinction of species.



White-tailed deer (top) and tri-colored herons (above) are adapted to different ecosystems.

About Alabama

An unusual thing happens on eastern Mobile Bay. Sometimes late at night, crabs, fish, and shrimp come to the shore. People love to scoop up these seafood treats. It is called a *jubilee*.

Ecosystems

All of this vegetation is part of Alabama's many ecosystems. An **ecosystem** includes living things such as plants, animals, and insects. It also includes nonliving things such as air, water, soil, and climate. Plants provide food and shelter for other living things in each ecosystem. Wildlife such as deer and squirrels eat acorns. Mice and rabbits eat grasses. Beetles and grubs live in decaying logs.

Alabama has more kinds of animals than many other states. This is because it has so many different kinds of ecosystems. Alabama is home to about 850 kinds of vertebrates (animals with backbones). Fish, birds, and deer are vertebrates. Nearly 300 kinds of freshwater fish live in the state's rivers, streams, and lakes. Invertebrates are animals without backbones, such as insects and snails. No one knows exactly how many thousands of kinds of invertebrates there are in the state.

Birds play a vital role in ecosystems. Some birds eat plant seeds and insects. These insects include many that are pests to farmers and gardeners. Hawks and other birds of prey eat rodents and small snakes.

All the living and nonliving parts of each ecosystem work together to keep it going. When something happens to any of the parts, the system may not be able to survive. As the story of Alabama is told, watch for how people changed ecosystems. Look for the links between people and the environment. These things are important parts of Alabama's history.

Think It Through!

1. What is the difference between evergreen and deciduous trees?
2. How can Alabama have so many different types of animals?

ASSESS

Answers to "Think It Through!"

1. An evergreen tree keeps its leaves all year. A deciduous tree loses its leaves in the winter.
2. Because it has so many different kinds of ecosystems

Family Involvement

Ask parents to visit an area zoo or wildlife habitat with their child. Ask them to look especially for endangered species and to talk about these animals with their child. Encourage discussions about the importance of protecting these animals and the value of all living things to the world's ecosystems.

Note:

Section 5

Culture

As you read, look for

- what a culture is;
- how culture changes;
- term: **technology**.

You now know about Alabama's physical geography. Before you read about the people who first came to Alabama, it would be good to learn more about something called culture. In Chapter 1, we learned that it is the beliefs and customs of a group of people. Culture is that and much more.

Some things you were born with—such as the color of your eyes, hair, and skin. Some things you were taught—like what to eat, what to wear, and how to behave. You have also learned how to use things. You probably know how to ride a bicycle. You might have already learned to use a hammer, screwdriver, or computer. You have been taught things at home, at school, and in your place of worship. All of these things are now a part of your culture.

Every group or person you meet as you read the story of Alabama had a culture. Each culture had different ideas about how to dress and what foods were good to eat. They had ideas about how to make a living. They had tools and knew how to use them to do various jobs. These tools and skills are known



Above: Many people, like these Native Americans, go to great lengths to preserve the traditions of their culture.

Notes:

Section 5 Culture

INTRODUCE

Outline

- A. How Cultures Change
- B. Technology Changes Culture

Materials

- Textbook, pages 69-71
- Teacher Tech Website
- Lesson Plan
- Visual Aids
- Guided Reading, 2-5

TEACH

Building Background

Have students think back to what they learned in Chapter 1 about *culture*—the beliefs and customs of a group of people. Write CULTURE on the board with two columns beneath it. Have students list in the first column characteristics they were born with, such as hair or skin color. In the second column, they should list parts of their culture they were taught. This list could include what to eat, how to dress, and what language to speak.

3-2-1

After students have read this section, they should fill out a 3-2-1 chart (3 important details, 2 connections, 1 question I still have). They can do this individually, with a partner, or in small groups. Debrief with students the questions they still have. Have them use the important details from their charts to summarize the section.

Critical Thinking

Have students think about how culture develops and changes as the result of many influences. Have them list in their notebooks things about their own culture that have been changed or influenced over time by other cultures or by developments in technology (e.g., food, clothing styles, music, or words from another language).

Illustrating Changes in Technology

Ask students to interview parents, grandparents, or other adults about the changes in technology they have seen. Remind students that technology is much more than computers and can include the tools and skills that help us live and work better. Have students create a chart or graph that illustrates some of the technologies developed (1) in their own lifetime, (2) in their parents' and/or grandparents' lifetimes, and (3) in the last 100 years.

That's Entertainment

How do students entertain themselves today? As students call out their favorite forms of entertainment, write responses on the board. How many of these did not exist when their parents or grandparents were young? How many are technology-based? Movies, TV, radio, computers, telephones, video games, iPods, etc., all use technology. How has changing technology changed our pastimes? Can students think of any negative effects of these changes? (Example: We are less physically active due to "indoor" technology.)

as **technology**. The story of the state is the story of people from many different places. They came to Alabama at different times. They brought their cultures with them.

How Cultures Change

When people from different cultures meet, they often share parts of their cultures. Most people in Alabama are not part of the Asian or Hispanic cultures, but they enjoy eating Chinese and Mexican food. Some of the ideas you have may be from another culture.

Sometimes your culture changes from one year to the next. Do you like the same songs this year that you did last year? What about the clothes you wear or the food you like to eat? Have your favorites changed? Think of all the new things you learned in the last year. You probably know how to do things now that you did not know how to do then. Watch for changes in the culture of Alabama's people through time.

Every person has a basic need for food, shelter, and clothing. Quite a few people are able to grow their own food. Some can even build a house and make clothing. Others get jobs so they can earn the money to buy food and clothes and pay for a place to live. Over time, ideas change as to how people make a living. Some of the earliest Alabamians hunted and fished. Later, many were farmers. Many people then left their farms to work in factories. Today, many Alabamians work in offices, stores, or restaurants.

Technology Changes Culture

Technology changes too. In the past, people used simple tools. Now they may use power tools and machinery. People traveled by horse and wagon. Now they drive cars and SUVs (Sport Utility Vehicles) and ride in airplanes. Computers are used in homes, schools, and businesses today. But few people had even seen one 40 years ago.

Each way of making a living needs different resources. As the people of Alabama change jobs, they need different resources. Technology must have resources. The farmer needs good soil. Machinery usually uses electricity. Electricity is often made from coal or waterpower.

Alabama's many resources made it possible for people from different cultures to live well. People who wanted to farm found



Notes:



flat land and good soil. Other people wanted to make things in factories. They found resources to turn into products such as making cloth out of cotton. The land also had the energy resources needed to run the factories.

As people came to Alabama, they began creating human environments. They named places and built houses. They formed villages, towns, and cities. People linked places with trails, roads, and railroads. They connected places with telegraph and telephone wires. People cut down trees to make space for farm fields and pastures. They even made places to play, such as golf courses and playgrounds.



A hundred years ago, most people lived on farms, or in small towns like Mooresville (above). Now, the majority of people live in cities and large metropolitan areas like Birmingham (top).

Think It Through!

1. Name two things included in a culture.
2. What is technology?

Predicting Your Future

Our culture has changed in many ways since people first settled in Alabama. Technology has created great changes in the way we live today that our grandparents would not have imagined. Tell students to think about their own futures. In ten years, they will have graduated from high school. Some will be working, some will be in college, and some may be married. Ask students to imagine what their lives will be like in ten years. What changes in technology do they predict? What does their future look like to them?

Art Activity

Allow students to brainstorm all the things they enjoy that originated in a culture that is different from their own. (Examples: foods, sports or recreational activities, clothing or hairstyles, music) Have students collect or draw pictures that illustrate these things, and then let them make collages on poster board to show the influences of other cultures on their lives. Display the illustrations in the classroom.

ASSESS

Answers to “Think It Through!”

1. Examples will vary, but should include things you are born with and things you learn or are taught.
2. All the tools and skills we use to live and work better

Notes:

Remember

Extreme Weather

- Drought
- Hurricane
- Tornado

Land Regions

- Appalachian Plateau
- Coastal Plain
- Interior Plateau
- Piedmont
- Ridge and Valley

Water Terms

- Aquifer
- Groundwater
- Surface water
- Waterway

Wetland Terms

- Delta
- Salt marsh

Reviewing the Facts

1. A natural resource
2. Weather is the condition outside in an area for a short period. Climate is the average weather in an area over a long period.
3. Settlers chose land that was easy to travel to and good for farming.
4. Based on the geology of the rocks
5. Mt. Cheaha
6. Alabama has more kinds of ecosystems that support a wide variety of animals than many other states.
7. Plant life that grows naturally and is not planted by man

Chapter Review

Summary

Alabama lies at the meeting point of five different land regions. The Coastal Plain covers the southern half of the state. The Piedmont is in east-central Alabama. Northwest of that is the mountainous Ridge and Valley region. The Appalachian Plateau lies northwest of the Ridge and Valley. The Interior Plateau (Highland Rim) is in northern Alabama.

The first settlers moved into Alabama to farm. They traveled to the Black Belt and the valleys of the Tennessee, Coosa, Tombigbee, and Alabama Rivers for the rich soils. The settlers moved into Alabama from the southeast on the Federal Road. Those from settlements farther north came through the valleys of the Ridge and Valley region. They traveled from Tennessee and Kentucky on the Huntsville Road.

Alabama has many mineral and energy resources. The energy resources are coal, oil, and natural gas. Mineral resources include iron ore, limestone, sandstone, and marble. The different types of soil determined the richness of the land. Settlers first moved to land where it was easy to grow crops. Later, miners, quarrymen, and others came to Alabama for its natural resources.

Alabama has a subtropical climate with four distinct seasons. The state gets a lot of precipitation. Natural hazards include ice storms, droughts, tornadoes, and hurricanes. The state has a long growing season and a good water supply. These qualities make it ideal for many types of plants. All of these plants give food and shelter to many different kinds of animals. The

climate, plants, animals, and landscapes form different kinds of ecosystems.

Everyone has a culture. Culture is all the things in your life. It is your clothes, language, religion, food, games, work, home, and so on. Cultures change one another, and they change over time. Alabama is the home of different cultures that make our state even more special.



Remember

On a separate piece of paper, write the title for each group. Place each word or term from the Word Bank with like meanings in the group where it belongs. Add extra words or terms if you know them.

Group Titles

- | | |
|-----------------|---------------|
| Extreme weather | Water terms |
| Land regions | Wetland terms |

Word Bank

- | | |
|---------------------|------------------|
| Appalachian Plateau | Interior Plateau |
| Aquifer | Piedmont |
| Coastal Plain | Ridge and Valley |
| Delta | Salt marsh |
| Drought | Surface water |
| Groundwater | Tornado |
| Hurricane | Waterway |



Reviewing the Facts

1. When people find a use for something natural, what is it called?
2. What is the difference between weather and climate?

Notes:

3. How did the settlers choose which region to go to?
4. How are land regions divided?
5. What is the highest point in the state?
6. Why does Alabama have more kinds of animals than many other states?
7. What is natural vegetation?



Using Critical Thinking Skills

1. Why was it an advantage for farmers to live near a river?
2. Why is a long growing season important?
3. What happens when something in an ecosystem changes? For example, what would happen if all the acorns that deer feed on disappeared?



Making Decisions

1. The Little River Canyon is a lovely natural area. If someone wanted to build an amusement park in or near it, would you be for or against the plan?
2. What animal would you introduce into Alabama? Why? Can you think of any bad things that could happen if that animal lived wild in Alabama?
3. Cultures have differences in foods, languages, entertainment, clothes, art, and so on. If you could adopt parts of other cultures, what would they be?



Projects

1. Make a relief map of Alabama's natural land regions.
2. Design a PowerPoint presentation about early settlers. Explain one of the following: (a) how they came to Alabama, or (b) how they chose which area to settle in.



Writing

Write a letter to someone who does not live in our state. In the letter, describe Alabama's natural environment. Tell the person about the state's regions, resources, and water. Explain how the landscape can be changed.



Preparing for Tests

Multiple Choice—These questions are like those you may see on a test. Write your answers on a separate sheet of paper.

1. The northern part of Alabama is sometimes called the Highland Rim. What natural region is that?
 - A. Interior Plateau
 - B. Appalachian Plateau
 - C. Ridge and Valley
 - D. Coastal Plain
2. Why does Alabama have many more animals than many other states?
 - A. It is in the South.
 - B. It has evergreen trees.
 - C. It has many different ecosystems.
 - D. It has different cultures.



Using Technology

You are going to find out how much rainfall your area received recently. Using the Internet, go to the website of the Alabama Office of State Climatologist (AOSC) <https://www.nsstc.uah.edu/aosc/>.

Look under Moisture Indices and find the Lawn and Garden Index—Alabama. This map shows how much precipitation the state received in the last week. Find the district where you live and look at the map key. How much rain did your area receive in the week shown?

Using Critical Thinking Skills

1. Farmers needed a good supply of water for drinking, watering livestock, irrigating crops, and transporting goods to and from markets.
2. Answers will vary, but should refer to the ability of farmers to grow and harvest more crops over a longer period of time, which benefits the economy, and could mention that some crops, like cotton, need a long growing season.
3. Answers will vary, but should state that all parts of an ecosystem must work together in order for it to survive. If oak trees died and there were no more acorns in the forest, deer that eat the acorns for food would not survive.

Making Decisions

1. Answers will vary. Have students give reasons to defend their answers.
2. Answers will vary.
3. Answers will vary.

Projects

1. A relief map can be made of paper mache (*papier-mâché*) or flour and salt using a board as a foundation. It can be colored and labeled when it is dry.
2. Assist students in learning how to create a PowerPoint presentation. Presentations will vary.

Writing

Letters will vary. Have students share their letters with the class.

Preparing for Tests

1. A. Interior Plateau
2. C. It has many different ecosystems.

Using Technology

Answers will vary based on time and location.

Notes: