



# STUDY GUIDE

## Chapter 20, Section 1

For use with textbook pages 499–504.

### The Land

#### Terms to Know

**escarpment** A steep, often jagged slope or cliff (page 500)

**cataract** A towering waterfall (page 500)

**rift valley** A large crack in the earth's crust formed by shifting tectonic plates (page 500)

**fault** A fracture in the earth's crust (page 500)

**delta** A triangular section of land formed by sand and silt carried downriver (page 503)

**estuary** A passage where freshwater from a river meets seawater (page 503)

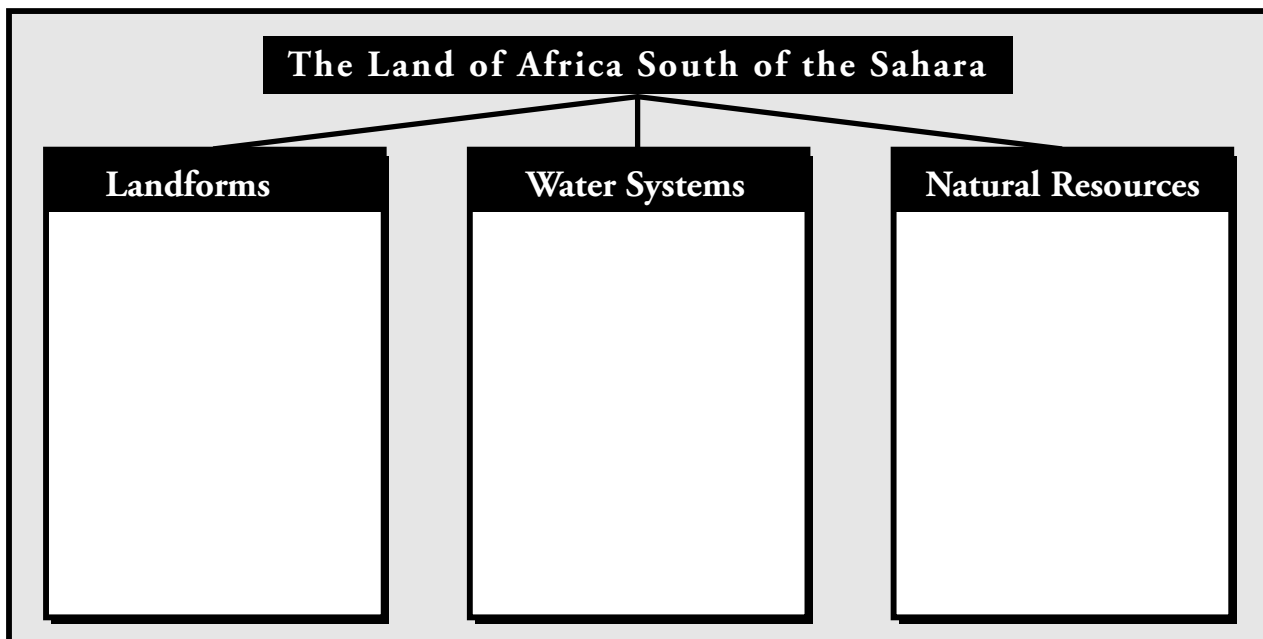
#### DRAWING FROM EXPERIENCE

Have you ever admired jewelry made of gold and diamonds? Where are deposits of these natural resources found?

This section focuses on the physical features and natural resources of Africa south of the Sahara.

#### ORGANIZING YOUR THOUGHTS

Use the diagram below to help you take notes as you read the summaries that follow. Think about the physical features and natural resources of Africa south of the Sahara.



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**STUDY GUIDE****Chapter 20, Section 1****READ TO LEARN****Introduction** (page 499)

Africa south of the Sahara has dramatic physical features and is rich in natural resources. Among the features are the Great Rift, volcanic mountains, and lakes.

1. What are three physical features of Africa south of the Sahara?

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**Landforms** (page 499)

Africa south of the Sahara covers about 9 million square miles. It is bordered on the north by the Sahara, on the northeast by the Red Sea, on the west by the Atlantic Ocean, and on the east by the Indian Ocean. This region has many different physical features:

- A. A series of plateaus rise in steps from the coast inland and from west to east. The edges of these plateaus have **escarpments**, or steep, jagged cliffs. Rivers flowing down these plateaus create cataracts, or long waterfalls, when they plunge down the sides of the escarpments.
- B. Highlands in the region include the Eastern Highlands, an area that stretches from Ethiopia almost to the Cape of Good Hope. These highlands contain the **Ethiopian Highlands** and volcanic peaks such as **Kilimanjaro** and **Mount Kenya**. The **Ruwenzori Mountains** divide Uganda and the Democratic Republic of the Congo. The **Cape Mountains** are in the southern part of the region.
- C. A **rift valley** is a large crack in the earth's surface formed by shifting tectonic plates. The Great Rift Valley stretches from Syria in Southwest Asia to Mozambique in the southeastern part of Africa. Plate movements created the system of **faults**, or fractures in the earth's crust, between which the Great Rift Valley lies. Volcanic eruptions and earthquakes created the valley's landscape.

2. What are the major landforms in Africa south of the Sahara?

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### **Water Systems** (page 500)

The landforms influence the water systems of the region. The lakes and rivers are located in huge basins formed by the uplifting of the land on all sides. The rivers start high in the plateaus and make their way to the seas. Escarpments and ridges often break the rivers' paths to the ocean, forming rapids, waterfalls, and cataracts. This makes it impossible to navigate most of the region's rivers from mouth to source.

There are many important lakes in the region:

- A. Most of the lakes, including Lakes Tanganyika and Malawi, are in the Great Rift Valley. The largest lake in Africa, Lake Victoria, lies between the eastern and western branches of the Great Rift. Lake Victoria is the source of the White Nile River.
- B. Lake Chad, in west-central Africa, is shrinking because of droughts and the dry climate.
- C. Lake Volta in West Africa was formed by damming the Volta River. The dam provides hydroelectric power to Ghana. Lake Volta supplies farms with irrigation and is stocked with fish.

Several rivers are also important to the region:

- A. The Niger River in western Africa is important to agriculture and transportation. In southern Nigeria, the Niger River splits into a large inland **delta**. A delta is a triangular section of land formed by sand and silt carried downriver.
  - B. The Zambezi River of south-central Africa meets the Indian Ocean in a delta. Along its course, the Zambezi River has many waterfalls, including Victoria Falls.
  - C. The Congo River is the longest river in the region. It is located in central Africa and reaches the Atlantic Ocean through an **estuary**. This is a passage where freshwater from a river meets seawater. Ocean vessels can sail on the Congo's estuary, so the Congo is an important commercial waterway. There are several cataracts, however, that make inland parts of the river difficult to navigate.
3. How are the water systems of Africa south of the Sahara important to the region?

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**STUDY GUIDE****Chapter 20, Section 1****🌐 Natural Resources** (page 503)

Mineral resources found in Africa south of the Sahara include metals such as chromium, cobalt, copper, iron ore, and zinc.

- A.** Angola, Nigeria, Gabon, and Congo have plentiful oil reserves.
- B.** South Africa supplies about half of the world's gold. Gold is also found in Zimbabwe, the Democratic Republic of the Congo, and Ghana.
- C.** Uranium is abundant in South Africa, Niger, Gabon, the Democratic Republic of the Congo, and Namibia.
- D.** Major deposits of diamonds are in South Africa, Botswana, and the Congo River basin. Diamonds are also found in Angola, the Democratic Republic of the Congo, and Sierra Leone.

Water is an important and abundant resource in parts of the region and has great potential for agricultural and industrial uses. In the west and near the equator, rainfall is abundant. Controlling water is difficult because rainfall often is irregular. These problems, along with lack of money, cause Africa south of the Sahara to have a large amount of unused hydroelectric power potential.

- 4.** What are the main natural resources of Africa south of the Sahara?

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# STUDY GUIDE

## Chapter 20, Section 2

For use with textbook pages 505–509.

### Climate and Vegetation

#### Terms to Know

**leach** Dissolve and carry away (page 506)

**savanna** Tropical grassland with scattered trees (page 507)

**harmattan** A northeast trade wind that brings warm, dry air from the Sahara to western Africa (page 507)

**desertification** A process by which productive land turns into desert after vegetation has been destroyed by overuse (page 508)

#### DRAWING FROM EXPERIENCE

What animals have you seen in zoos that are found in Africa south of the Sahara? What climate regions support these animals?

In the last section, you read about the physical features of Africa south of the Sahara. This section focuses on the climate and vegetation of the region.

#### ORGANIZING YOUR THOUGHTS

Use the chart below to help you take notes as you read the summaries that follow. Think about the climate regions and their locations, rainfall, and vegetation.

Climate region	Location	Rainfall	Vegetation

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## STUDY GUIDE

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### READ TO LEARN

#### **Introduction** (page 505)

In many parts of Africa south of the Sahara, water is so scarce that the words for rain and life are the same. Rain determines the climate, and thus the vegetation, in the region's deserts, steppes, savannas, and tropical forests.

1. Why is rain important in Africa south of the Sahara?

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#### **Tropical Climate** (page 505)

Rainfall is the most important factor in the climate of Africa. Ocean currents and prevailing wind patterns also influence weather. Africa's tropical climate can be divided into two climate regions.

- A. Tropical rain forest**, located near the equator, is the wettest climate in Africa. Rain falls daily. Average annual rainfall is more than 60 inches. This climate region supports several layers of vegetation. Shrubs, ferns, and mosses grow at the lowest level of the rain forest. Next is a layer of trees and palms that reach as high as 60 feet. Over these two levels is a canopy of leafy trees rising up to 150 feet.

Heavy rains in the tropical rain forest **leach**, or dissolve and carry away, nutrients from the soil. Even so, large plantations grow cash crops such as bananas and coffee. Agriculture is a threat to rain forests because farmers clear more and more trees from the land. In addition, loggers threaten the rain forest by clear cutting timber.

- B. Savanna**, or tropical grassland with some trees, covers almost half of Africa. Many species of animals, such as lions, zebras, and giraffes, live in the savanna climate zone's alternating wet and dry seasons. In areas near the Equator, six months of daily rain is followed by a six-month dry season. In areas of western Africa, hot, dry air streams in from the Sahara on a northeast trade wind known as a **harmattan**. At the same time of year, humid air blows in from the southwest in a monsoon. The clash of harmattan and monsoons can cause tornadoes.

2. What three factors influence the tropical climate of Africa south of the Sahara?

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### **Dry Climates** (page 508)

There are two dry climate regions in Africa south of the Sahara.

- A.** The **steppe** climate region forms a border between the tropical savanna climate region and the desert climate region. The south steppe region extends across the southern tip of the continent. The north steppe, called the Sahel, extends from Senegal in the west to Sudan in the east. The Sahel has low-growing grasses, shrubs, and acacia trees. The average yearly rainfall is 4 to 8 inches, which all falls from June to August.

The Sahel suffers from soil erosion and **desertification**. This is a process by which productive land turns into desert after the destruction of vegetation. Droughts, growing populations, and increased livestock grazing all contribute to desertification of the Sahel. People use trees for firewood and clear the land for farming. Livestock eat the short grasses. These activities use up the land and erode the topsoil.

- B.** Desert climate regions are found in some areas of southern Africa. In the east, much of Kenya and Somalia are desert. Along the Atlantic coast of Namibia lies the Namib Desert. The Kalahari desert covers eastern Namibia, most of Botswana, and part of South Africa. Most of the Kalahari desert is sand. Some parts of the desert support grass and trees. Little rain falls in the desert. Average monthly temperatures are very high. The Kalahari ranges from 120° F in the day to 50° F at night.

3. Where are the steppe climate and the desert climate found?

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### **Moderate Climates** (page 509)

Moderate climate zones exist in coastal areas of South Africa and highlands regions in East Africa. These climates have comfortable temperatures and get enough rainfall for growing crops. There is a variety of vegetation in moderate climates.

4. Where are the moderate climate regions in Africa south of the Sahara?

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