

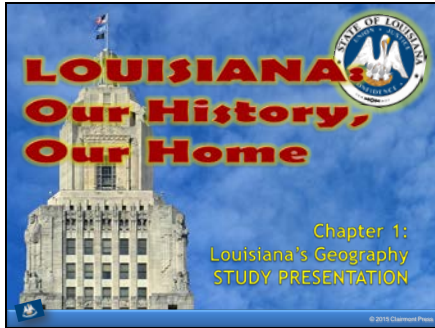


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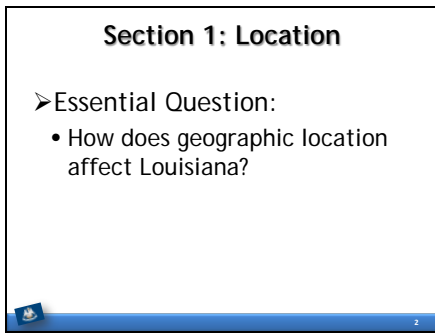
Chapter 1: Louisiana's Geography

Quick Notes

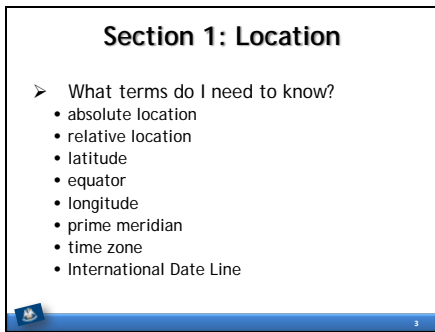
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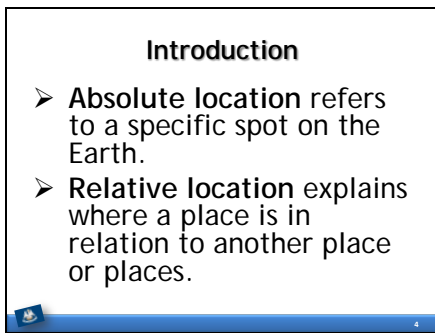
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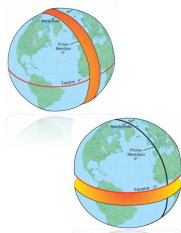
Louisiana in the United States

- Latitude measures distance north or south of the equator.
- The equator is an imaginary line that divides the Earth in half evenly between the North and South Poles.
- Longitude measures how far east or west a location is from the prime meridian.
- The prime meridian at 0° separates the eastern and western hemispheres.
- Latitude and longitude are used to find the absolute location of a place.
- The Earth is divided into 24 time zones, 7 of which are in the United States.
- The International Date Line is an imaginary line, located mainly on the 180° meridian, that marks the divide where the date changes by one day.

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Where in the World is Louisiana?

- Louisiana is:
 - in the Western hemisphere,
 - and
 - in the Northern hemisphere



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Where in the World is Louisiana?

- Louisiana is:
 - in North America
 - in the southeastern United States
 - bounded by the states of:
 - Mississippi
 - Arkansas
 - Texas



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Boundaries

- The boundary that runs east to west between Louisiana and Mississippi is near 31°N latitude.
- The boundary that runs east to west between Louisiana and Arkansas is along 33°N latitude.
- The meridian at 94°W separates Louisiana from Texas.
- The Mississippi and the Pearl Rivers are used as boundaries between Mississippi and Louisiana.
- The Sabine River and Toledo Bend Reservoir separate southwestern Louisiana from Texas.
- The Gulf of Mexico is Louisiana's southern boundary.

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Section 2: Natural Regions

- Essential Question:
 - How do the characteristics of each region affect the lives of those who live there?

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Section 2: Natural Regions

- What terms do I need to know?
 - physical geography
 - elevation
 - relief
 - alluvial soil
 - estuary
 - loess soil
 - erosion
 - salt dome
 - geologist
 - uplift

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Introduction

- Louisiana has a diverse natural environment.
- **Physical geography** is the study of the terrain, relief, soil, vegetation, and climate of a place.
- Louisiana is in the Gulf Coastal Plain.
- **Elevation** is the height of a place above sea level; **relief** is the difference between the highest and lowest places in an area.
- Louisiana is made-up of five natural regions: the Mississippi Floodplain; the Red River Valley; the Terraces; the Marshes; and the Hills.

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Mississippi Floodplain Region

- A floodplain is the flat land along a river that is likely to flood.
- The floodplain of the Mississippi is made of **alluvial soil** (sediment from the river).
- The soil is fertile and good for farming.
- There are three parts to the floodplain:
 - natural levees
 - swamp
 - passes



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The Natural Levee

- Natural levees (10 -15 feet high) form when a river floods and silt is deposited on the banks as the flood recedes.
- They cannot reliably stop river flooding, so man-made levees were built.
- Only trees that can stand flooding can live on the levee.
- Switch cane is a grass that once thrived on the natural levees but is now rare.





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The Swamp

- A swamp is the lowest part of a river basin and may be thought of as a seasonally flooded forest.
- The invention of pumps in the early 1900s allowed swampland to be drained and people to build on the lands at the edge of New Orleans.
- Cypress and tupelo gum trees grow well here along with Spanish moss.




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The Passes

- The passes are the paths the Mississippi River takes to the Gulf of Mexico (also called the delta).
- The **estuary** is where the river meets the sea and freshwater mixes with saltwater.
- Marsh grasses grow best here.




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Red River Valley Region

- This region borders the Red River as it flows from the northwestern corner to central Louisiana.
- The region is similar to, but smaller than, the Mississippi Floodplain.
- Soil here is reddish and was deposited by the river's floods.
- Shreveport, Bossier City and Alexandria are in this region.



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Terraces Region

- Landforms here were formed by changes in the course of the Mississippi River to the Gulf of Mexico.
- Activity during every ancient ice age caused the river to change course.
- The Terraces region is divided into three parts:
 - blufflands
 - prairies
 - flatwoods




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The Blufflands

- The blufflands are the highest part of the Terraces region.
- The area formed the natural levee of the old river path.
- The blufflands' height increased as fine soil (**loess**) was blown onto the bluffs.
- Because the soil here is light and contains silt, wind and water can easily cause **erosion** (wearing away of soil) making steep slopes.
- The area naturally has forests of holly, ash, oak, dogwood, and magnolia trees.





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The Prairies

- This area is flat and was once covered by tall (up to 6 feet) grasses covering 2.5 million acres in southwest Louisiana.
- Rich soil and easily cleared land encouraged farming.
- Only about 200 acres of natural prairie remain.
- Efforts are being made to restore parts of the original prairie land and protect wildlife.


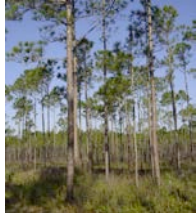


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The Flatwoods

- The flatwoods region is flat, but it is covered in forests of pine, hardwoods, palmetto, and wire grass.
- The area is also known as the "piney woods."



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Marsh Region

- Found along coasts, a **marsh** is covered by grasses with shallow roots that grow in the muck and peat soil.
- This area is a transition zone between the land and the Gulf of Mexico.
- There are about 2.5 million acres of marsh in the state.
- About 180 different species of birds live in the marshes at some time during the year.




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Salt Marsh

- The salt marsh is closest to the ocean.
- The water is brackish (a mixture of fresh and salt water).
- Salt grass, cord grass, and mangrove live here.



Tides in Salt Marsh Animation





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Freshwater Marsh

- This area of marsh has freshwater from the river.
- Plants here like iris and cattails cannot live in brackish water.
- If saltwater enters a freshwater marsh, freshwater plants will die. This is called saltwater incursion.




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Salt Domes

- **Salt domes** are found in the salt marsh. They rise above the surrounding area in a dome shape.
- Salt, sulfur, petroleum and other minerals may be found here.
- The five largest domes are Avery Island, Weeks Island, Cote Blanche, Belle Isle, and Jefferson Island.



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Hills Region

- This region is mostly in northern Louisiana, as well as in a small area of the southeast.
- The land is rough and of higher altitude than the rest of the state: the soil is reddish due to iron.
- **Geologists** (people who study the Earth) have observed differences in the rock formations here.
- **Uplifts**, such as the Sabine Uplift and Dolet Hills, are formed as rocks push against each other and are lifted. Ridges (wolds) are formed when these uplifts erode.
- The Kisatchie Wold (NW Louisiana) has the state's highest point, **Driskill Mountain** (535 feet).
- Pine trees grow well here naturally and on pine tree farms.

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Section 3: Waterways

- Essential Question:
 - What role do waterways play in the lives of people in Louisiana?

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Section 3: Waterways

- What terms do I need to know?
 - navigable
 - drainage basin
 - sediment
 - cutoff lake
 - raft lake
 - marsh lake
 - bayou

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Introduction

- The dominant physical feature of Louisiana is the nearly 5,000 miles of **navigable** waterways.
- Waterways were a major part of the state's history and are important today for trade and transportation.
- The Mississippi River ends its journey through the U.S. in Louisiana at the Gulf of Mexico.

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Rivers

- The Mississippi is the most important river in Louisiana.
- The **drainage basin** (an area of land that drains into tributaries and rivers) of the Mississippi is over 1.2 million mi² and extends to 31 states and two Canadian provinces.
- The basin extends from New York to Montana and carries 375 million gallons of water daily through Louisiana.
- **Sediment** (matter that settles to the bottom of liquid) from floods created rich farmlands.
- Flood control systems now direct this sediment to the Gulf of Mexico.

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Rivers (Continued)

- Red River: second largest river drainage system in Louisiana; begins in New Mexico and flows into the Atchafalaya and Mississippi Rivers.
- Ouachita River: begins in Arkansas; merges with the Tensas and Little Rivers to form the Black River.
- Atchafalaya River: cleared in the 1830s for navigation; the Army Corps of Engineers controls the flow of Mississippi River water into the Atchafalaya.
- Pearl River: runs from east-central Mississippi into Lake Borgne; the river splits into the East and West Pearl River branches surrounding Honey Island Swamp.

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Rivers (Continued)

- Calcasieu River: flows from east of Leesville to Lake Charles; a deepwater channel connects Lake Charles to the Gulf of Mexico.
- The port at Lake Charles is successful because of its location near the Gulf Intracoastal Waterway.
- Sabine River: part of the border with Texas; the Toledo Bend Reservoir was formed on the river by a dam to generate hydroelectric power.

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Lakes

- Louisiana has several man-made lakes (e.g. Toledo Bend, Lake D'Arbonne, Lake Claiborne, Sibley Lake, and Lake Chicot).
- Pontchartrain is a large, shallow natural lake and is crossed by the 24-mile-long Causeway Bridge. The lake is a tidal lagoon with brackish water connected to the Gulf of Mexico.
- Lake Maurepas is another lake and tidal lagoon with brackish water connected to Lake Pontchartrain.
- **Cutoff lakes**, such as Cain River Lake and False River, are formed when a river changes course leaving behind water-filled bends.

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Lakes (Continued)

- Raft lakes were created as a result of rivers blocked by logjams which flooded nearby swamps (e.g. Caddo Lake and Lake Bistineau).
- Marsh lakes were created behind low groups of ridges which retain water after floods (e.g. White Lake, Grand Lake, and Calcasieu Lake).




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Bayous

- Bayous are waterways that are associated with Louisiana; sometimes the state is called the Bayou State.
- Some bayous are short and shallow, others long and navigable.
- Hundreds of bayous spread across the state (e.g. Bayou Lafitte and Bayou Lafourche).




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Section 4: Climate

- Essential Question:
 - How has climate played a role in the development of Louisiana?




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Section 4: Climate

- What terms do I need to know?
 - weather
 - climate
 - precipitation
 - tornado
 - hurricane
 - growing season



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Introduction

- **Weather** measures the atmospheric conditions of a particular day.
- **Climate** is the average weather of a place over a long period of time.
- The climate of Louisiana is humid subtropical (summers are hot but there are winter freezes).
- Louisiana has two climate regions: North Louisiana and South Louisiana.
- Temperature, precipitation, and wind are the atmospheric conditions described by climate.

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Temperature

- North Louisiana has higher average temperatures than South Louisiana because the South is cooled by the Gulf of Mexico.
- Record high: 114°F (1936) at Plain Dealing
- Record low: -16°F (1899) at Minden
- Average July temperature: 73°F-93°F
- Average January temperature: 32°F-55°F

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Precipitation


- **Precipitation** is any form of water that falls from the atmosphere and reaches the ground.
- Rain is the most common precipitation in the state.
- Hail and sleet (frozen or partially frozen rain) are more common than snow.
- Southwest Louisiana receives the most rainfall, while northwest Louisiana receives the least.

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Wind

➤ Tornadoes and hurricanes are two types of windstorms that affect the state's people and property each year.



Tornado touchdown near Alexandria, LA (1981)



Hurricane Isaac targets Louisiana (2012)

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Tornadoes

- Tornadoes are dark, funnel shaped clouds with swirling winds that can measure over 100 yards wide and move at 50 mph.
- They form from the clouds of a thunderstorm when cool air meets warm.
- They can develop quickly - sometimes in less than five or ten minutes.
- Weather radar and other technology help to protect people from these violent storms.



Northwest High School, St. Landry Parish, LA after 2002 tornado

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Hurricanes

- A hurricane is a violent storm that forms in the Atlantic Ocean during the summer or fall with winds that extend hundreds of miles.
- The storm rotates counterclockwise around the central "eye" with wind speeds from 74 to over 157 mph in the most powerful storms.
- As a hurricane moves to the shore, high winds and high water cause a storm surge - walls of water 10 feet high or more.
- Flooding and tornadoes are possible side effects of hurricanes.
- Major hurricanes: Audrey (1957); Betsy (1965); Andrew (1992); Katrina & Rita (2005).
- The 2005 hurricanes did over \$150 billion in damage and killed over 1,400 people.

[Click for satellite image of Hurricane Katrina](#)

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Climate and Agriculture

- Weather affects the state's farm crops.
- Damage from Hurricane Katrina included:
 - citrus trees killed by saltwater;
 - broken trees in forests and tree farms;
 - flooded rice fields and pastures.
- A benefit of the state's location is the long growing season (the number of days between the last killing frost (32°F) in spring and the first killing frost in fall). In the north it is 210 days while in the south it's 290 days.
- Strawberries, sugar cane, and cotton thrive in our state's climate.

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Section 5: People and the Environment

- Essential Question:
 - How has human activity affected the environment of our state?



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Section 5: People and the Environment

- What terms do I need to know?
 - wetlands
 - subsidence
 - nutria




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Introduction

- Native Americans hunted animals for food, grew crops, and moved soil to build large mounds.
- Henry Shreve (1830s) worked for years to clear the Red River Raft to make the river navigable for trade.
- Much effort has gone in to trying to control the Mississippi River's flooding and course.




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Flood Control

- Spring floods are a part of the Mississippi River's annual cycle. Levees have been built to protect people and property from floods.
- The flood of 1927 was a huge disaster which led the Army Corps of Engineers to add dams, canals, spillways and reservoirs to help control the river floods.
- A negative consequence of controlling the floods is that silt is no longer deposited, which has led to gradual, but significant, land loss along the Gulf Coast.



Gibson, LA flood (1973)




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Coastal Erosion

- Coastal erosion is a serious environmental issue in Louisiana.
- The state has 40% of America's wetlands, but it is losing wetlands to erosion at a high rate.
- Wetlands are swamps, marshes, and other areas with a natural supply of water and are covered or soaked with water at least part of the year.
- Fish, birds, and plants depend on the wetlands, and many people's jobs depend on a healthy wetland environment.
- Highway 1 is an example of a road threatened by coastal erosion.



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Causes of Coastal Erosion

- > There are many causes of coastal erosion, that are both natural and man-made.
- > Subsidence is the slow sinking of land into the sea, and is worsened by lack of silt due to levees.
- > The slow rise of sea levels has made subsidence worse.
- > Storms, like hurricanes, can damage coastal areas.
- > The introduction of non-native plants and animals (e.g. nutria - large rodents brought to Louisiana in the 1930s) can damage vegetation.
- > Canal construction cuts through wetlands and can create saltwater incursion.

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Crisis and Response

- > The Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) is a federal law designed to protect and rebuild wetlands.
- > The Deepwater Horizon disaster (2010) affected over 300 miles of Louisiana coastline.
- > Companies are now fined for damaging the coastal environment.
- > Local, state, and national leaders will need to work together to solve the problem of coastal erosion and land loss.
