

Reflect

How far of a trip have you taken away from your house? Maybe you were in a car and went over a bridge. Have you seen hills? Have you been to the beach? Whether or not you have traveled much in Florida, or even out of the state, you may have noticed that the shape of the land changes and there are different features.

Earth's Surface

There are a variety of landforms across Earth's surface. *Landforms* are the physical and natural features of the surface of Earth. Some examples are valleys, rivers, coastlines, dunes, and deltas. The United States is part of the North American continent, and there are a total of seven **continents** on Earth. Florida is a peninsula that is considered part of the Atlantic and Gulf Coastal Plains. Over millions of years, Florida has been submerged under the ocean water and has resurfaced to create the present-day landforms. There are many peninsulas that are part of the United States. Florida is the largest peninsula that is part of the **contiguous** 48 states, which are all the states except Hawaii and Alaska.



Across the globe, there are many different forms that the land takes. Some are so big that they are visible from space.

continent – a large mass of land on Earth

contiguous – connected, touching, or sharing common borders

Florida Landforms

There are a lot of different landforms we see in Florida that influence many aspects of our state, from agriculture, to recreation, even to where we build roads and homes.

Coastlines

Florida has about 1,200 miles of coastline, the most of any state other than Alaska. A *coastline* is a narrow strip of land where the land meets the ocean or other body of water, and coastlines change. The nonstop wave action causes the coastline to constantly change. This wave action is due to the ocean's tides that rise and fall depending on the interaction of the Sun, Earth, and the Moon. Plate tectonic movement also contributes to the changing coastline. A coastline can also be where the land meets the water in a lake or pond, too.



Barrier islands are found just off the coast all around the state of Florida.

- **Barrier islands:** In many places just off of the coast of Florida, you can find barrier **islands**. These long and narrow islands have formed naturally and protect the coastline during major storm events such as **hurricanes** and **tropical storms**. They also protect **habitats** often found along the coast, including dunes (see below) and wetlands. They are usually parallel to the coastline.

island – a piece of land completely surrounded by water

tropical storm – a very serious storm, with winds between 39 and 74 miles per hour

habitat – the natural environment of an organism

hurricane – a major storm, with winds in excess of 74 miles per hour

- **Dunes:** A dune in Florida is a structure that is always part of a beach. Often, they run parallel to the coastline and are very sandy. They are important protectors of the beach itself. Most dunes in Florida have plant life growing on them, and that helps to keep them, and the sand that makes them up, in place.



Coastal dunes are part of a healthy beach.

What Do You Think?

Florida is known to be full of fun and sun, which attracts many tourists to our beaches. As the tourism industry grew, people were disappointed that there were hilly dunes blocking their view of the beach. There were also plants growing on the dunes. Many places removed the plants and flattened the dunes so visitors could see the ocean water as they walked up to the beach.

In the last few decades, scientists have discovered that hilly dunes with plants on them actually did a big job of protecting the beach and the sand on it. When a big storm comes in, the plants help hold the sand in place so it will not wash out to the ocean.

Do you think we should keep natural dunes? Should we replant them in areas where they were removed? Is the health of the beach more important than the preferences of visitors to the beach?

Lakes and Ponds

Florida is home to many lakes and ponds. Lakes and ponds are both stable, nonmoving bodies of water, but lakes are generally larger than ponds. In addition, lakes are often deeper, may have a bit of a coastline similar to a beach, and often have cooler temperatures.

Many of Florida's ponds and lakes occur naturally, meaning they were shaped by nature, with little or no interference by humans. This means their shape, water flow, and other factors are very similar to how they were when Florida began to be inhabited by European settlers. We might use this water for our own purposes, but the structure and existence has not been altered much at all.

What Do You Think?

Lake Okeechobee has been changed some by humans, but it is still the largest, freshwater lake in Florida. You may know it because, when you look at a map of Florida, it is very noticeable. It also used to provide most of the water to the Everglades (see the **Rivers** section).



Lakes and ponds are stable, nonmoving bodies of water that often provide important habitats for organisms.

Rivers and Deltas

Rivers and streams are both natural flows of water. The biggest difference, like with lakes and ponds, is their size. Both do an important job. They deliver sediment to Earth's surface. As water and wind break rock down, rain falls and often moves these particles into rivers and streams. For this reason, the land around rivers and streams is often very high in nutrients.

A delta is the place where a river connects to and flows into the ocean. Sometimes this is a direct connection into the ocean, but other times there is a specific type of habitat that grows there and slows the water flow. These habitats are always very sensitive to pollution and provide an important habitat to a variety of organisms.



Nutrients are deposited primarily in the delta of a river basin.

- **Freshwater springs:** In Florida, we have many freshwater springs in the central part of the state. The water comes from underground, where it was filtered in rock over many miles before coming to the surface. The pressure is gentle. If you visit one, you could barely see a ripple at the surface of the body of water these come up into. This water is often very cool because of it having traveled so long underground.
- **Everglades:** The Everglades is a very special kind of river. The water in it is exceptionally slow moving, sometimes only a foot or two per day. However it is also very wide, up to 60 miles in some places. Because the water does move, it is not considered a true swamp, but it is a wetland, which is a unique type of habitat. Now that Lake Okeechobee does not provide all the water it used to before humans changed the flow, there are some impacts to the habitats there.

Look Out!

Other Important Landforms

Florida is a very special state, but it does not have all the major landforms of the world within its boundaries.

Look Out!

Glaciers

You may not have ever heard of a glacier, and you probably have never seen one if you have lived in Florida for most or all of your life. They are not found anywhere near the state. They are most common closer to Earth's poles, where the temperature stays very cold during most of the year. They consist of very large bodies of ice that do not melt away in the summers. Snow in the winters often replaces most or all of the ice that is lost during the summer melt. Because these masses of ice are miles and miles in size, they move across the land due to their weight, removing soil and other structures in their way and revealing bare rock after they pass.



A glacial bed with mountains in the background.

Mountains and Valleys

A mountain is a large landform that reaches high above the surrounding landscape. Usually, it comes to a peak, and on some mountaintops there is snow that stays on that peak year-round, because they are so tall that the temperature does not get warm enough to melt the snow.

Mountains form either because of volcanoes or because of tectonic plates pushing together. Because Florida is not an area where plates are moving together or where there are volcanoes, we do not have mountains within the state.



Mountains and a valley with big, healthy trees and a river at the bottom

Valleys are the areas between the mountain peaks. In many cases, trees grow large in valleys because there is a lot of water available. Water runs off the mountains and into the valleys, bringing high levels of nutrients with it. This causes very healthy plant populations in valleys. They are frequently long and narrow and may have a river running through them.

What Do You Think?

In the table below, describe some characteristics of each landform. Then, list an example for each landform.

Landform	Characteristics	Example
Coastlines		
Dunes		
Rivers		
Mountains		
Glaciers		
Deltas		
Lakes		

Try Now

To see how a barrier island works to protect the coastline, you can make a simple model in your kitchen. Find a large pan or dish with some edges, such as a cookie sheet, a shallow bowl, or even a plate that has sides that rise a bit. Find a small container that fits in your larger one and will not be damaged by water. If you are using a cookie sheet, you could even use a butter knife from your silverware drawer. Place the item in your container, then pour just enough water in the container so the smaller item is not submerged and still touches the bottom of the larger container.

Now, drop a single drop of water in the middle of the large container. You can try this several times. You will see ripples move outward until they encounter an obstacle. In some cases, this will be the edge of the large container. In some cases, this will be your model barrier island.

What do you notice when the ripples reach the edge of the large container? What landform is this like? How does the small container change what the ripples do? Explain how the “barrier island” in your model protects the section of large container behind it.



By looking at ripples, or wave action, on a small scale, you can see how barrier islands might provide protection to the beach area behind them.