



Habitat

Activity 1-1

# Barrier Islands

## Focus/Overview

This lesson introduces students to how barrier islands protect coastal Louisiana from the winds and waves of storms. Students make predictions of how barrier islands affect wave action during a simulated storm.

## Learning Objectives

The learner will...

- identify the land and water in two models of a coastline with and without barrier islands.
- state how barrier islands protect the coast of Louisiana.

## Louisiana Science Grade Level Expectations

K,1: GLE-3	Predict and anticipate possible outcomes (SI-E-A2).
K,1: GLE 8	Use a variety of formats to express ideas about demonstrations (SI-E-A6).
K: GLE 30	Distinguish between areas of Earth covered by land and water (ESS-E-A2).
2: GLE 4	Predict and anticipate possible outcomes (SI-E-A2).
2: GLE 9	Use a variety of formats to express ideas about demonstrations (SI-E-A6).
2: GLE 50	Describe ways in which habitat loss or change can occur as a result of natural events or human impact (SE-E-A5).

## BTNEP Connection Habitat

### Grade Level

K, 1, 2

### Duration

30 minutes

### Subject Area

science

### Setting

classroom

### Vocabulary

barrier island, hurricane, storm surge



[www.btnep.org](http://www.btnep.org)

## Materials List

- two estuary/barrier island models made from clay or play dough
- water in a pitcher (tinted blue, optional)
- electric fan
- journal
- Poster of the Barataria-Terrebonne National Estuary (see resource list)

## Background Information

Barrier islands are islands of sand that lie just off the Louisiana mainland. These islands are very important in protecting the bays and mainland of Louisiana from hurricane and tropical storm damage. Healthy barrier islands form a physical barrier that slows the winds and waters of tropical storms and hurricanes. Hurricanes bring in large amounts of water and strong winds, which create a huge rise in the water called **storm surge**. Barrier islands are natural buffer islands that protect the property of coastal inhabitants by reducing the height of storm waters pushed inland.

## Advance Preparation

1. Construct two models of the Barataria-Terrebonne Estuary. One model needs to have barrier islands – the other model should not have barrier islands. The models can be filled with blue water (optional).
2. Have an electric fan plugged in and ready to go adjacent to the models.

## Procedure

1. Display the satellite image of the Barataria-Terrebonne Estuary. Do you know what an **estuary** is? (An estuary is a place where the water meets the sea or ocean.) If we look at the Barataria-Terrebonne Estuary from a satellite picture, we can see small islands south of the estuary. These islands serve a purpose. Can you think how these islands can help the estuary? (*These islands protect the bays and marshes from large waves and strong winds.*) These islands are known as **barrier islands**. They help protect the estuary and main land from storms, like hurricanes, in the Gulf of Mexico.
2. The teacher will show the students the two models of a coast – one with barrier islands and one without barrier islands. What is a scientific model? (A model is an example or representation of something we see in nature.) What are the differences between these two models of the coast? (*One has barrier islands, the other does not.*) What is used to represent the land? (*Land is represented by clay.*) What represents the Gulf of Mexico? (*The blue water inside the pan represents the Gulf of Mexico and bay waters.*) The model should be filled with water.
3. Ask students to predict what will happen when the fan is turned on in each model. Have them write their predictions for each model at the top of the blackline master sheet entitled **Importance of Barrier Islands (Blackline Master #1)**. Have students share their predictions. Keep a tally of the student's prediction in columns on the blackboard.
4. Turn the fan on. What does the fan represent? (*A hurricane or tropical storm.*) Have student observe what happens in each of the models. Record the student observations in another chart on the board labeled OBSERVATIONS. Identify which predictions made in Step 3 were correct or incorrect. Have students orally summarize, or draw conclusions, what they learned from the demonstration. (*Students may conclude that without the barrier islands, there is nothing to stop water from moving far inland.*)
5. Lead students in a discussion of the importance of barrier islands in protecting the estuary. The islands help by creating a buffer to slow the wind and water that hurricanes and other storms push into the bays and onto the coast of Louisiana. What kinds of things do the barrier islands protect in the estuary? (*Barrier islands protect the marsh, fish, crabs, birds, flowers, wildlife, and humans.*)
6. Using the blackline master sheet entitled **Importance of Barrier Islands (Blackline Master #1)**, have the students write why barrier islands are important to Louisiana. Students may use inventive spelling. Ask students to illustrate their understanding of the importance of the barrier islands and to draw at least two animals that the barrier islands help to protect.
7. To close the lesson, the students will mix and share their writings and drawings with a friend. The friends will in turn share what they have learned with the entire class.

## Assessment

The students will write and reflect about the importance of the barrier island to the barrier islands. The students will be able to use inventive spelling and their writing should have some type of colored illustration that includes at least two animals that the barrier islands help protect.

## Blackline Master

### 1. Importance of Barrier Islands

## Extensions

### Language Arts:

The students will create a poem about the barrier islands and how they protect the estuary.

### Math:

Students will observe a map of coastal Louisiana and count the number of barrier islands around the southern part of Louisiana. Students can list the barrier islands and then sort the islands by length.

### The Arts:

Students will create their own Barataria-Terrebonne Estuary clay or play dough model.

## Resource

Wright-Frierson, Virginia. 1998. **An Island Scrapbook: Dawn to Dusk on a Barrier Island**. Aladdin Library.

*A beautifully illustrated picture book on the North Carolina barrier islands. The author and her young daughter describe the barrier island they spent the summer exploring. Reading level: Ages 4-8.*



*Aerial photo of Grand Isle, Louisiana.*

Name \_\_\_\_\_

## Barrier Islands Protect Our Coast

**Make your predictions.**

What will happen when the fan blows on the model with barrier islands?	What will happen when the fan blows on the model without barrier islands?

**In the box below, draw how barrier islands protect Louisiana's coast from storm winds and water. In your drawing, include at least two animals that the barrier islands protect.**

**Write how barrier islands help protect Louisiana's coast.**

---

---

---

---

---