



Habitat

Activity 1-11

Demonstrating Destruction

Adapted from BTNEP/LSU AgCenter: *Coastal Land Loss and Restoration*

Focus/Overview

This activity involves students reviewing factors causing coastal land loss and then developing a model to demonstrate how this factor is involved in coastal land loss.

Learning Objectives

The learner will...

- research a causal factor of coastal land loss.
- plan and design a demonstration to show how this factor causes coastal land loss.
- use the demonstration to explain to the class how the researched causal factor contributes to coastal land loss.

Louisiana Grade Level Expectations

3: GLE-58	Describe how humans have had negative and positive effects on organisms and their environments (SE-E-A5).
4: GLE-63	Demonstrate and explain how Earth's surface is changed as a result of slow and rapid processes (ESS-E-A1, ESS-E-A5).
5: GLE-32	Demonstrate the results of constructive and destructive forces using models or illustrations (ESS-M-A7).
5: GLE-33	Identify processes that prevent or cause erosion (ESS-M-A7).
5: GLE-50	Describe the consequences of several types of human activities on local ecosystems (SE-M-A4).
8: GLE-53	Distinguish among several examples of erosion and describe common preventive measures (SE-M-A10).

Materials List

- **BTNEP Priority Posters 1-3** (contact BTNEP for copies)
 - #1: Hydrologic Modification
 - #2: Sediment Availability
 - #3: Habitat Loss & Modification
- **Thematic Map/Satellite image of the Barataria-Terrebonne Estuary** (contact BTNEP for copies)
- **Saving Our Good Earth: A Call to Action.** BTNEP Characterization Report (contact BTNEP for copies)
- **Land Loss in Lafourche Parish** brochure, Available from Lafourche Parish Council, 985/ 632-4666.
- **A Commitment to Louisiana's Coastal Wetlands** from Coastal Wetlands Planning, Protection & Restoration Act [CWPPRA] (available from LSU AgCenter and LA Sea Grant College Program).
- Access to the Internet
- Other resources on coastal land loss in Louisiana

Background

Modeling is an important scientific concept. For example, Louisiana State University unveiled a new model of the Mississippi River Delta in December 2003. The "Mini-Mighty" Mississippi River was built so scientists could better understand the outcomes of coast restoration activities. The researchers designed

BTNEP Connection

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Grade Level

3-5, 8

Duration

3- 40 minutes classes

Subject Area

science

Setting

classroom

Extension Area

science

Original Source

"Demonstrating Destruction" in BTNEP/LSU AgCenter: *Coastal Land Loss and Restoration*, Activity 2.



the model with a horizontal scale of one foot per 12,000 feet and a vertical scale of one foot per 500 feet. The model recreates the lower 76 miles of the Mississippi. Because of the physical and dynamic scaling, the model is able to simulate two years of river time in just one hour, which allows research to run experiments that would take decades in real life in a matter of just a day or two in the laboratory.

Procedure

1. To understand the causes of coastal land loss, it's helpful to demonstrate, with models, how coastal land loss happens. In this activity you will be inventors, engineers, designers and scientists as you figure out how to show your classmates how one cause wetland loss works. We will divide up into seven groups – each group will take one cause of wetland loss. You will research as many details as possible about how the factor causes land loss and then design a model to demonstrate what it learned.
2. Let's discuss what we mean by a model. For instance, if you wanted to demonstrate how the water cycle works, what kind of model could you make to show this to others? (After collecting ideas from the students, you could demonstrate the water cycle by using hot water in a glass container. Place an aluminum pie pan containing ice over the steam coming from the hot water. Watch the steam condense and water droplets drip back into the water in the glass container – you can modify this model to suit your needs.)
3. After you have plenty of information and have made notes about your cause of wetland loss, list ways you could make a model to demonstrate the cause. To choose the best method, think about practical questions such as: Are the materials readily available? Will it take a fairly short time to put together? Will it be easily transportable? Does it require a lot of cleanup afterward? Does it tell the story we want to tell? (Distribute **Researching and designing a Model to Demonstrate Cause of Land Loss in Louisiana - Blackline Master #1**)
4. When you do your demonstration for our class, you can use other visual aids to help explain how your topic contributes to coastal land loss. (Students use the handout to help formulate their model and guide their research.)

Blackline Master(s)

1. **Researching and Designing a Model to Demonstrate Cause of Land Loss in Louisiana**

Assessment

- Use the concept maps produced by students at the end of the lesson as a means of assessing their understanding of coastal land loss.
- Use a rubric to assess student demonstrations of land loss models.

Extensions

Science

Adapt the activity for making models to show restoration methods.

Build a stream table using a large shallow rectangular container raise slightly at one end. Introduce a source of water at the higher end and a drain pipe at the lower end. Fill the container with sand or diatomaceous earth, and experiment with demonstrating land building and erosion..

Resources

BTNEP Resources:

- BTNEP Priority Posters 1-3 (contact BTNEP for copies)
- Satellite image of the Barataria-Terrebonne Estuary (contact BTNEP for copies)
- **Saving Our Good Earth: A Call to Action.** BTNEP Characterization Report (contact BTNEP for copies)

Researching and Designing a Model to Demonstrate Cause of Land Loss in Louisiana



Mississippi River at the Head of Passes and Cubits Gap

Your group's cause of coastal land loss:

Do some preliminary research about your assigned cause of coastal erosion. List the five most important facts about how your topic causes coastal land loss.

1. _____
2. _____
3. _____
4. _____
5. _____

List your research sources of information:

1. _____
2. _____
3. _____
4. _____

What aspect of your topic do you want to highlight in your model or demonstration?

Designing the Demonstration

List three ways to do the demonstration.

1. _____
2. _____
3. _____

Circle the most practical (affordable, easy to demonstrate, etc.) and effective idea listed above.

List the materials you will need to do this demonstration.

List what each member of your group plans to bring to help with the demonstration or model. Each person should bring at least one item to bring to school in the next two days.

Person	Items that need to be brought to school

Sketch your demonstration and/or model on the back of this sheet. Gather the materials and practice the demonstration. Prepare other visual aids that explain how your topic contributes to coastal land loss. Assign tasks for the class presentation.