

Save the City

About This Lesson

Academic Question: How do engineers design structures to protect shorelines from storms and erosion?

Objective: The students will evaluate different types of shoreline stabilization devices and ultimately design a structure to protect their sea-side community.

Application:

Shoreline stabilization devices are used extensively in coastal areas. Many projects are large expansive seawalls and other may be used for small sections of individual property. Cost, material and labor are major factors in determining shoreline stabilization.

Getting Started

Materials:

- 2, 2-foot 2x4 boards
- 2 bricks
- Panty hose
- 2 Solo cups
- Ziploc bags
- Bamboo shishabob skewers
- Cup of pea gravel or small rocks
- 2x2 piece of plywood (or appropriate device for making waves)

Process:

Begin with a discussion or unit on shoreline erosion and storms in the gulf including the destruction caused by storms and the large amount of money spent on shoreline protection. 1. Develop an interrupted case study scenario appropriate to your region, based on the background information provided above, and present this to the students. Divide the class in to design teams of 5 or less. Have the teams chose a spot on a shoreline no more than a meter way from the water for their town site. Using the materials provided, have them evaluate what device works best to prevent destruction of their town area. Waves can be produced by the plywood provided in their materials. After some experimentation, the students are charged with building the ultimate structure to protect their city. They may use any/all combinations of their materials provided. When the structure is completed, the instructor will generate waves and determine the effectiveness of each groups deign.

Evaluation/Extension:

- Have the students collect pictures in their local area of different types of shoreline structures.
- Have the students do a short research project on various storms that have affected the coast.

This module was originally developed as part of the “Hurricane Recovery Workshops for Students”, held in Corpus Christi in 2017.