

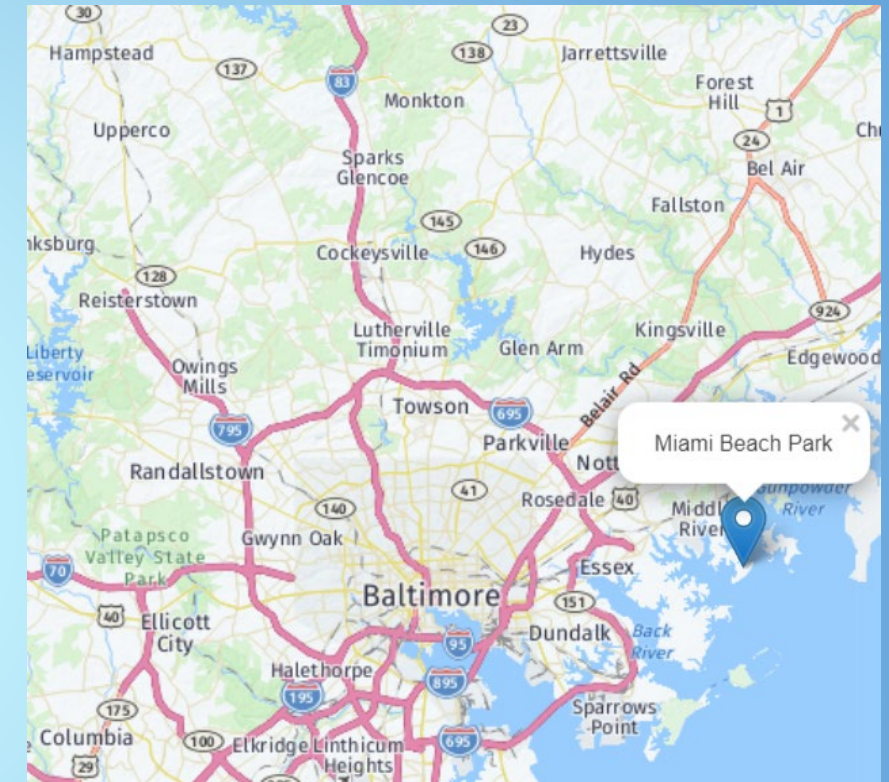
A Sandy Situation: Beach Erosion

1. Question & Research Task

Many of Earth's beaches are getting smaller because of **erosion**. Watch this [video clip](#) to see how beaches are eroded.

Miami Beach in Dundalk, Maryland is an example of a beach that has experienced erosion. As a result, Baltimore County residents can no longer swim at Miami Beach Park.

How could we repair the damage and prevent this from happening again?



Your teacher will click on the map to share more information about Miami Beach Park.

Image Source: [Maryland Maps](#)

In this Slam Dunk, you will do some research to answer the inquiry question:

How can we repair and prevent beach erosion?

2. Information Sources



This rock barrier is being constructed along the coast to prevent beach erosion.

Rock Barrier From [Discovery Education](#). Image. (accessed 08 July 2021).



This photo shows fencing that may prevent beach erosion.

Erosion Fence From [Discovery Education](#). Image. (accessed 08 July 2021).

What is erosion?

Look at some [pictures of weathering and erosion](#).

[Erosion](#) is an example of a **slow land change**.

- Watch the [BrainPop Jr. video](#) about slow land changes.
- Take the [Quiz](#) to check your understanding.



Then, use some of the sources below and on the right to learn about different methods communities and engineers have used to try to solve the beach erosion problem.

- [Methods Used to Stop Coastal Erosion](#)
*Your teacher will show this YouTube video.
- [Jetties](#)
- [Groins and Breakwaters](#)
- [Geotubes](#)
- [Coconut Coir Logs](#)

3. Student Activity

As you use the resources on Slide 2, think about:

- What methods have been used to prevent or repair beach erosion?
- Which methods have been most successful?

Use this [organizer](#) to keep track of your research findings. You will need these notes for the Assessment Activity on Slide 4.



4. Assessment Activity

How can we repair and prevent beach erosion?



Work with a group of fellow engineers to choose what you think is the best method. Use your research findings to help you decide!

- **Draw a diagram or picture to describe this method.**
- **Complete the chart to list the Pros and Cons of this method.**
- **Use this checklist to make sure your work is complete.**

How can we prevent beach erosion?

Which method are you describing? _____

Draw a diagram or picture in the box below.

Pros 	Cons 

Select the screenshot above to open your **Assessment sheet**

5. Enrichment Activities

Use the Engineering Design Process to design your own method or structure for repairing or preventing beach erosion.

Use materials provided by your teacher or librarian to **construct a model of your solution.**

Do an erosion experiment



Image Source: by subscription from [ClipArt.com](#)

SLIDE NAVIGATION

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2

3

4

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6

Next

Make your own sand bridge



Image Source: by permission from [Education.com](#)

6. Teacher Resources

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Learning Standards Alignment

Content Learning Standards

Next Generation Science Standards

2-ESS-2.1 Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.

Common Core State Standards for English Language Arts & Literacy

Reading: 1. Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.

Writing: 7. Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.

AASL Standards Framework for Learners Inquire: Build new knowledge by inquiring, thinking critically, identifying problems, and developing strategies for solving problems.

Think: Learners display curiosity and initiative by:

I.A.2 Recalling prior and background knowledge as context for new meaning.

Create: Learners engage with new knowledge by following a process that includes:

I.B.1 Using evidence to investigate questions. I.B.3 Generating products that illustrate learning.

Share: Learners adapt, communicate, and exchange learning products with others in a cycle that includes:

I.C.1 Interacting with content presented by others.

Grow: Learners participate in an ongoing inquiry-based process by:

I.D.2 Engaging in sustained inquiry.

P21 Framework: 21st Century Student Outcomes

3. Information, Media & Technology Skills: Information Literacy: Access information efficiently and effectively; Use information accurately and creatively for the issue or problem at hand.

ICT Literacy: Use technology as a tool to research, organize, evaluate and communicate information.

Grade 2 Science

Time Frame: 1-2 class periods

Differentiation strategies for this lesson:

- Have students use learning supports provided in BCPS Digital Content found in the [Apps Portal](#). Refer to [Digital Content Snapshot/Support pages](#) as needed.

Notes to the teacher:

- Collaborate with your school library media specialist to plan and implement this lesson.
- Provide students with login information as needed to authenticate BCPS Digital Content. Login information is available on the **BCPS Digital Content** page found via the [Apps Portal](#)
- Consider providing a variety of materials (listed in the Sandy Situation unit in Schoology > Grade 2 > Science) for students to construct a model of their own solution to the beach erosion problem.