

Regional Science Consortium

Erosion – Teacher Guide

Mitigation Mission Answer Key

Table 1: Average percentage of sand remaining in trough for various erosion mitigation scenarios.

Scenario	Mitigation Material(s)	Percentage of Soil Eroded (Average)	Additional Comments
1	None	This scenario should have the least percentage of sand remaining	
2	Gravel	Answer varies, but should be higher than scenario 1 and less than scenario 4	
3	Rocks	Answer varies, but should be higher than scenario 1 and less than scenario 4	
4	Gravel and rocks	This scenario should have the greatest percentage of sand remaining	

1. What scenario appeared to be the most effective method of erosion mitigation? Why do you think it is the most effective?

Scenario 4 was the most effective form of erosion mitigation. This is likely due to the fact that it included the greatest number of erosion mitigation materials.

2. How would you mix mitigation methods, or change the ratios of materials added to make the most effective method of preventing erosion?

There is no one correct answer to this question. Students can each create their own ideal method.

3. How might your design look if scaled up to full size in the real world?

Students can be very creative here and draw pictures and designs. They can also compare their erosion mitigation materials to real-world methods they learned about such as groins, plants and breakwaters.

4. How might plants affect the erosion of the sand if they were added into our solution?

Plants help hold sand and sediment in place with their roots. They function as a method of erosion mitigation and would help reduce the erosion of sand. A great example of this is sand dunes!

Lesson Tips and Tricks

PowerPoint Presentation

- This lesson contains terms that may be new to students. We recommend giving students access to the vocabulary sheet before starting the lesson to help promote understanding.
- This presentation allows for great discussion with students on a variety of topics including:
 - What examples of erosion have you seen in person? What force was causing that erosion (water, wind, etc.)?
 - Have you seen any of these erosion mitigation structures at Presque Isle State Park?

Activity

- This activity can be easily adapted for larger groups of students by having them work in teams.
- If you have additional time, students may refill their troughs with sand and attempt other erosion mitigation methods.
 - Note: the sand may not behave in the same way once it is wet.
 - Students are welcome to incorporate other materials as mitigation materials in their troughs.
- Please do not package materials back up until they are fully dry if possible.