



# Utilizing Parent Experts to Increase Engagement



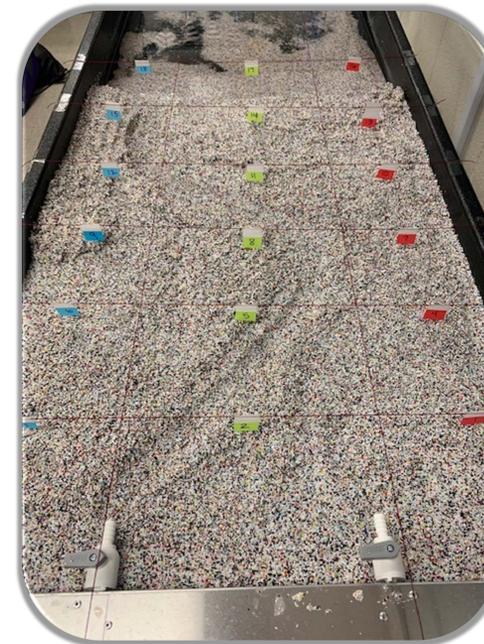
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## Challenge:

You have purchased a plot of land along the river and need to design methods to prevent soil erosion due to rain and the river. You will have access to experts in the field of erosion prevention and a stream table to explore river erosion. Will your structure survive?



## Project Description:

This project utilizes a stream table, parent volunteers and Ozobots to teach students about the rock cycle, human impact on erosion and methods used to slow erosion. Students will explore the processes that change rock types from one kind to another. Using an Ozobot, students will create codes that represent processes that occur to rocks. In groups, they will create a rock cycle path that the Ozobot can follow moving from one rock to another. This project moves into using the stream table to explore how the speed of river differs on the inside and outside of a curve. Students can use that to hypothesize how the speed of water will impact erosion. They design an experiment to test that hypothesis. iPads will be used to create time lapse videos that students can analyze to create observable data and measurable data points. Once students have the background knowledge needed, they will be able to "purchase" a plot of land to protect using the methods they have learned about. Classes will meet with an engineer to discuss methods used to prevent erosion based on their plans and location. We will test how well their plots of land withstand the stream.

## Parent "Experts":

Having an authentic audience increases student engagement. Parent volunteer opportunities were promoted during Curriculum Night and on the homepage in Canvas. This specific project was mentioned along with the need for "experts" in the field of building permits and soil erosion prevention. Later in the year "experts" in the field of meteorology will be used when students create their weather reports for assigned locations.

## Experiment Material List:

### Self-contained stream table-

- having it on a cart makes it easier to have students move around it.
- larger size would make it easier to assign plots of land.

### plastic media-

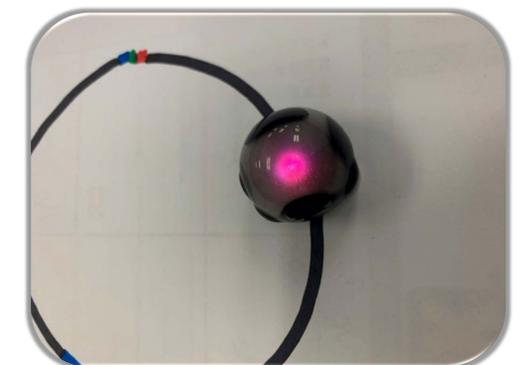
- dries out faster than real sand allowing for the next class to participate equally.

### Ozobots (3 additional bots to support rock cycle investigation)-

- Ozobots increase student engagement

### 2 iPads mini or other (allow for collaboration with experts and create videos of results)

- Allow students to create videos of stream erosion



## Objectives

- Describe the steps for rocks to change from one type of rock to another.
- Describe how the speed of water impacts erosion (outer curve of rivers have more erosion and inner curves have more deposition).
- Describe how human actions (removal of native vegetation) affect erosion.
- Describe the methods used to limit erosion.