

Name:

Date:

Class:

Part B: Bayou Engineering Design Challenge Worksheet

Objective:

Design and build a structure that reduces sediment transport and erosion in a bayou model.

Materials:

- 1 large plastic bin (one per group)
- sand (to cover the bottom of the bin)
- water
- 1 measuring cup
- 1 ruler or measuring tape

Available Materials:

sponges	coffee filters
craft sticks	gravel
popsicle sticks	clay
cotton balls	small rocks
straws	

Design Plan:

1. Draw your structure in the space below. Label the materials you plan to use, and explain where you'll place each part of your structure in the bayou model.

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2. Explain how your structure will work to reduce sediment transport. Which parts of your design will slow down the water? Where will sediment get trapped?

Predictions:

3. Where do you think the most sediment will accumulate in your model? How much do you think your design will reduce sediment movement?

Building and Testing:

4. Use the materials provided to build your design in the bayou model.
5. Pour water slowly at one end of the bayou model and observe how well your structure reduces sediment movement.
6. Measure and record where sediment accumulates in the table below.

Observation Table:

Observation Point	Sediment Movement Without Structure	Sediment Movement With Structure
Start of the channel		
Middle of the channel		
End of the channel		

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Analysis:

7. Where did sediment build up the most with your structure in place? How did this compare to the bayou without a structure?

8. Did your design reduce sediment movement as expected? Why or why not?

9. Improve: If you could redesign your structure, what would you change to make it more effective?

Reflection Questions:

10. Why is it important to control sediment movement in real rivers and bayous? How might this help the environment and communities?

11. What engineering skills did you use in this challenge? Think about planning, problem-solving, and testing.