

Erosion Mitigation Experiment



Name :

In this experiment you are going to build models of three erosion control structures using the arroyo model. Look back at the notes you took in the arroyo as you make your models.

As you plan, keep the following questions in mind:

- What successes did you observe in the arroyo?
- What failures did you observe?
- How will your structure deal with sediment from upstream?
- How will your structure function when there is a flood?

Materials:

- Model with sediment from the erosion experiment
- Watering can with shower-type head
- Water
- Additional rocks and other recycled materials for erosion control structures (you will collect these). List these materials by each plan.

Procedure:

- Work with your lab group to look back at the structures you observed in the arroyo. Discuss what did and didn't seem to work. Think about why some structures are more successful than others.
- Work together to plan three different erosion control structures. Make a list of materials you will need. These materials should be items that you can collect or recycled materials.
- Describe the procedure you will use to test each device below. Remember to minimize variables. Each structure should be tested at least twice, allowing your lab group to make improvements to the design.

- _____

Hypothesis: What do you think will happen?

Erosion Mitigation Structure 1:

Draw and label your plan. Show how you think the water will flow.

Materials for structure 1: _____

Describe what happened when you tested this structure:

What improvements should be made to improve this structure?

Describe how the improved structure worked.

Erosion Mitigation Structure 2:

Draw and label your plan. Show how you think the water will flow.

Materials for structure 2: _____

Describe what happened when you tested this structure:

What improvements should be made to improve this structure?

Describe how the improved structure worked.

Erosion Mitigation Structure 3:

Draw and label your plan. Show how you think the water will flow.

Materials for structure 3: _____

Describe what happened when you tested this structure:

What improvements should be made to improve this structure?

Describe how the improved structure worked.

Reflection questions:

Which structure was the most effective? Why was it more successful?

How would this structure work in the arroyo near your school?

Would this structure work well in flood conditions?

How would your structure deal with sediment from upstream?

What would you suggest that our community should do to prevent our arroyos from continuing to grow deeper and wider?