

Name: _____

Date: _____

Let it Rain

What are best management practices? What is turbidity? What does it tell us? What does water quality mean? In this activity you will determine the best ways to minimize soil erosion.

Do ... the activity

1. Set up your rainboxes as a group using materials you have brought in, found outside on the school grounds or are available in the classroom. These materials can be anything that would be used to prevent or lessen the impacts a raindrop may have on bare soil. These items can be anything from grass to stone to straw.
2. Remember that the purpose of these types of cover is to give the seed time to germinate and establish a healthy stand that will be a permanent erosion prevention measure. Keep objects off the plots that would essentially prohibit grass from growing.
3. After all the groups have finished, one group should volunteer to go first and nominate someone to present the materials they used and explain why they believe their idea will work.
4. Each group should share their hypotheses about what they think will happen.
5. A container should be placed at the end of the rainbox to collect all runoff.
6. Runoff samples will be collected and analyzed for turbidity and for total suspended solid levels in a later lesson. Three samples (1, 1-quart sample, 1, 8 oz sample, 1, 4 oz sample) should be collected and each labeled with your group's name.
7. Once ready, a student should be selected to "rain" on the box.
8. Using the same method in the bare soil demonstration, establish a consistent height from which to "rain" from the watering can onto the soil. Three feet above the box tends to provide good rain coverage.
9. Move the watering can up and down the box to wet all of the soil. The watering can simulates a heavy rain event, keeping a consistent volume for each group.
10. If any of the rainboxes become plugged, briefly stop raining and clear the drainage line. Sometimes pebbles or soil aggregates can block the water flow.



11. After each rainbox experiment, using the collection jars, collect two samples of your runoff water to analyze later. Observe the samples. What do you see? Is the water clear or cloudy?
12. Be sure to take photographs and video (optional but also very effective for blogging) of the rainbox experiment.

Talking it Over: Rainbox Experiment

Share ...what you did

What happened? How did the different treatments from each group impact the runoff?

What did they like about the activity? How did you decide what design to choose? In what ways did students communicate their ideas and form a consensus for a design?

Reflect ...on the results

Which group had the best design? Why? What were the key elements they used? What did you learn in a group that you might not have learned alone? As students were presenting, how did they articulate their ideas?

Generalize ...to your community

How can a design be generalized to a larger scale? Would it be practical? Is it cost effective? Why is it important to think about solutions you can implement in your own community? What are some ways that you like to learn?

Apply ...to your community

Is there an environmental impact from your design? (Are you using sustainable materials or something that would persist in the environment, but could be reused?) How might you strike a balance between cost and environmental benefits? How might treatments vary between different land users? For example, how would a site being developed for recreation or wilderness differ from one being developed for commercial or residential use? What would treatments for agricultural lands look like? Why do they think it is important to share their ideas with peers? What did you learn about your own skill in communicating with others?

