Storm Water Activity - Project WET Guide, p. 395



Materials

- 12 sponges (made of six standard kitchen sponges cut in half)
- 2 plastic bags filled with 4 half-sponges each
- 2 plastic bags filled with 2 half-sponges each
- 100 ml graduated cylinder
- Cup to store water
- 1 Aluminum tray 9 x 13 with a red stripe (cut a ½-inch diameter hole where the short side meets the bottom in one end).
- 1 Aluminum tray 9 x 13 with a black stripe
- <u>Stormwater Worksheet.Google Doc</u>
- <u>Stormwater Worksheet.pdf</u>
- Storm Water Best Management Practice Cards.pdf

Background

In the **Storm Water** lesson in the Project WET Curriculum Guide 2.0 students will discover and explore ways to manage rainwater by experimenting with runoff. They will demonstrate and quantify the effect different surfaces have on the flow of water.

<u>Setup</u>

- 1. The top pan with drainage hole will be nested into the second pan with one side propped onto the edge of the second pan so that it slopes down inside the pan. The storm drain should be on the lowest side.
- 2. Follow the picture above to set up the Before and After scenarios.

[Bracketed text provides ideas for facilitating classroom learning]

Blue text provides definitions

Directions

1) Look at the model. If the sponges represent the natural land, what do you think the plastic bags represent?

2) "Do the sponges in the bag represent an impermeable surface or permeable surface?"

3) On the *Stormwater Worksheet* STEP I list examples of permeable and impermeable surfaces.

4) Pour 250 mL of water on the upper slope of the model with the sponges still in the plastic bags. This represents a rainstorm. Let the pan drain and collect into the second tray for one minute. Measure how much water ran off (the amount in the bottom tray) with a graduated cylinder, recording it on the data table on Step II of *Stormwater Worksheet*. Calculate the amount of water that was left (retained) in the model by subtracting the amount of runoff from the original amount (250mL) added. Record the result on their data table and any observations made during the investigation.

5) Use the *Storm Water Best Management Practice Cards.pdf* for 10 minutes. **Best Management practices can help manage storm water and reduce runoff.**

a) Draw a card from the stack and read the entire card, removing the number of sponges indicated by the card from the bag and placing back in the tray separate from the plastic bag.

b) On Step III of the *Stormwater Worksheet* record the Best Management Practice and check if you have seen this practice in your school or community.

c) Repeat steps **a** & **b** for 10 minutes.

d) After 10 minutes, if there are sponges remaining in the bag, they should be kept in the bag. Place the bag with remaining sponges back in the tray alongside the sponges that are not in the bag. If the plastic bag is empty, take it out of the tray.

6) Pour 250 mL of water on the top portion of the tray following Step IV of the *Stormwater Worksheet*. Repeat the same procedure as Step 4 above while entering data in Step IV of the *Stormwater Worksheet*.

7) In Step V of the *Stormwater Worksheet* compare the results from Step I (impermeable landscape) to the results from Step IV (permeable landscape),

8) In Step VI of the *Stormwater Worksheet* record claims based upon the evidence from your experiment.