Nashua River Watershed Investigations for Grades K-8

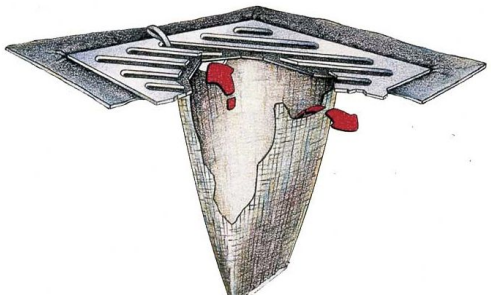
Lesson # 3-3

Title: 3-3 Storm Drains: Engineering a Solution

Grade level and Standard: Grade 3
3.3-5-ETS1-2 Generate several possible solutions to a given design problem. Compare each solution based on how well each is likely to meet the criteria and the constraints of the design problem. Example: designing a way to clear or collect debris or trash from a storm drain.

Objective: Students will learn about storm drains and what happens during a large storm event. They will then generate ideas about how to prevent trash from entering a storm drain or how to clean trash, sand, silt and other items from a storm drain (suction, large claw-like machine, silt bag, catchment "sock" around storm drain, other). Then students will build the device and test it.

(www.Aacounty.org)



(www.AbsorbentsOnline.com)

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Vocabulary:

- **Silt:** very small particles of soil. Silt is carried easily by water.

- **Storm drain:** a drain that carries water (such as rainwater) away from a street, parking lot, etc. Many storm drains were designed to carry storm water directly into water bodies such as rivers, lakes, ponds, and oceans.

(http://tyrone.org)

Materials:

- Cardboard
- Tape
- Scissors
- Cardboard tubes
- Pipe cleaners
- Wooden or plastic coffee stirrers
- Clay
- Medium sized cups
- Other misc craft objects
- Trash

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Procedure (2 day lesson):

1. Have students make a storm drain out of tall cups and toothpicks.
2. Set up each storm drain in a basin. with a large tray or paper plate as a “parking lot”. Students will need to hold this plate next to the storm drain.
3. Put trash and debris on “parking lot” and spray water to show how debris runs toward storm drain.
4. Discuss how to remove debris from top and bottom of storm drain.
5. Students should draw their plan.
6. In the next step, students will create their device that will clean trash from a storm drain. They can test it and then demonstrate to class.
7. Then write a paragraph and use evidence to explain how their device did or did not work.

Photo by Mary Marro

Data Sheet: “Storm Drain Heros!” data sheet

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“STORM DRAIN HEROS!” DATA SHEET **NRWI Lesson 3-3**

Name_____

1. Draw your storm drain with trash caught in it.

2. Now draw your design to clean out the storm drain.

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3. How did your device work? Did it clean out trash?
   NOTE: Use evidence to support your claim.

My device did or did not work to clean out the storm drain.

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