

# Stormwater: How Does it Flow And Where Does It Go?

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# **Teacher Resource Page**

<u>Grade Level</u>: 4-6

Time: 1 class period

Adapted From: Save the Bay's San Francisco Bay Watershed Curriculum

<u>Objective</u>s:

- Identify which land surfaces cause runoff and which cause water to soak into the ground
- Locate rain gutters and storm drains in the schoolyard and determine the flow of rain water into or over the land.

#### Rhode Island Grade Span Expectations Addressed:

	ESS1 - The earth and earth materials as we know them today have developed	
	over long periods of time, through continual change processes.	
Science	ESS1 (K-4) - 2	Use results from an experiment to draw conclusions about how
		water interacts with earth materials
	ESS1 (5-6) - 2a	Diagramming, labeling and explaining the processes of the
		water cycle including evaporation, precipitation, and run-off,
		condensation, transpiration, and groundwater.
	ESS1 (K-4) - 4	Explain how wind, water, or ice shape and reshape the earth.
	ESS1 (K-4) -6	Given information about earth materials explain how their
		characteristics lend themselves to specific uses
Written and Oral	W – 11 Demonstrates the habit of writing extensively	
Communication	W – 9 Writing Conventions: Applying Rules of Grammar, Usage, and Mechanics	
	OC – 1 Oral Communication Strategies: Interactive Listening	
	C&G 3: In a democratic society all people have certain rights and responsibilities.	
	C&G 4: People engage in political processes in a variety of ways.	
	C&G 4 (3-4) −3	Students participate in a civil society by identifying problems,
		planning and implementing solutions, and evaluating the
Civics and		outcomes in the classroom, school, community, state, nation, or
Government		world and explaining how individuals can take responsibility for
		their actions and how their actions impact the community
	C&G 5: As members of an interconnected world community, the choices we	
	make impact others locally, nationally, and globally.	
	C&G 5 (3-4) -3	Students demonstrate an understanding of how the choices we
		make impact, and are impacted by an interconnected world

### Materials:

- Metal can (or other cylinder) with two open ends
- Beaker or measuring cup
- Pitcher or empty jug for pouring water
- Stop watch
- Student worksheet

#### Preparation:

- Prepare the materials
- Determine how much water the students will pour into the can, when the students will start timing.
- Walk around the school and make note of where gutters, storm drains, impervious materials, and potential sources of stormwater contamination (i.e. litter, exposed dirt/sediment, any soapy water from cafeteria, oil stains in parking lots, etc).

#### Part I: Percolation Test – How does it Flow?

- 1. Find various land surfaces around your schoolyard: grass, gravel, packed dirt, loose dirt, pavement, etc. Students should record these in data chart.
- 2. Either as a class or in separate groups, have students place the cylinder on a land surface. If possible, twist the percolation cylinder into the ground slightly so that water will not flow out the edges.
- 3. Measure an amount of water and pour it into the cylinder. Students record amount of water in data chart.
- 4. With a stopwatch, have students time how long it takes for all the water to soak into the ground. Students record this in data chart.
- 5. Students should record any other observations made at the site, if water leaked out from under the can, etc.
- 6. Repeat steps 2-5 for each land surface.

## Part II: Where does it go?

- 1. Have students locate the rain gutters attached to the school building and answer the questions on the student sheet for each (or some) of the school's gutters.
- 2. Have students locate the storm drains nearby and answer the questions on the student sheet for each (or some) of the school's gutters.

#### Extension:

- Students should use what they learned in this activity as well as the "Model Watershed" activity to write answers to the extension questions.