Mystic River
WATERSHED ASSOCIATION

Stormwater Pollution & Water Quality Curriculum for K-8 students

Objectives:	**Define the problem**: Stormwater runoff is the biggest source of water pollution today. It's an invisible problem and so easily overlooked, but knowledge of the problem can lead to actions that can help reduce the pollution. Students will learn about the history of uses of the Mystic River, and identify various types of pollutants that threaten their local water bodies and their sources. Students will also learn how pollutants impact water quality, how to test for pollutants in various samples of water, and/or how to interpret changes in water quality over time. **Develop a solution**: Students will learn about new technologies and engineering projects that help curb the problem of stormwater pollution in their community and throughout the Mystic River watershed. As a result, students will have an understanding of local actions that help reduce pollution by modelling solutions or designing public service announcements around the issue. **Students will be able to describe the impact of stormwater pollution in the Mystic River watershed and develop community-based solutions to help solve the problem.**
MA State Standards:	Grades K-8 (1.K-2-ETS1-1): Ask questions, make observations, and gather information about a situation people want to change that can be solved by developing or improving an object or tool. (1.K-2-ETS1-2): Generate multiple solutions to a design problem and make a drawing (plan) to represent one or more of the solutions. (K-ESS3-3): Communicate solutions to reduce the amount of natural resources an individual uses.

	(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 constraints of the design problem. (4.3-5-ETS1-5): Evaluate relevant design features that must be considered in building a model or prototype of a solution to a given design problem. (5-ESS2-1): Use a model to describe the cycling of water through a watershed through evaporation, precipitation, absorption, surface runoff, and condensation. (5-ESS3-1): Obtain and combine information about ways communities reduce human impact on the Earth's resources and environment by changing an agricultural, industrial, or community practice or process. (5-ESS3-2): Test a simple system designed to filter particulates out of water and propose one change to the design to improve it. (6.MS-ETS1-5): Create visual representations of solutions to a design problem. Accurately interpret and apply scale and proportion to visual representations. (6.MS-ETS1-6): Communicate a design solution to an intended user, including design features and limitations of the solution. (7.MS-ETS1-7): Construct a prototype of a solution to a given design problem.
Key Vocabulary:	Clean Water & Biodiversity Vocabulary List (Spanish, Portuguese)
Activating Background Knowledge: Do Now *No more than 5 minutes*	MyRWA Educators ask students at the beginning of the lesson: • What do you know about 'stormwater'? • Where do you think stormwater goes? • Is stormwater 'clean'?

	• How does stormwater runoff become polluted?
Learning Strategies and Activities:	1. MyRWA Educators present an overview of stormwater pollution via a PowerPoint below to discuss the problem of stormwater pollution and local management solutions. 2. MyRWA Educators lead pairs or groups of students through one to more activities below. Presentations (adapted for grade level and location) • Intro to Stormwater Pollution • Introduction to Water Quality in the Mystic (5th grade) • Tree Trenches: A Solution for Stormwater Storm Drain Design Challenge (5-part engineering classroom activity) • Designing Solutions for Stormwater Pollution (4th & 5th grade) Activities (usually 30 minutes in the classroom) Grades K-5: • Pollutant sorting activity • Watershed Modelling (DCR) • Model of a Natural System (Spanish, Portuguese) • Plastic Bottle Puzzle Activity • School Campus Cleanup Extension Activity (NOAA) • Water Quality Testing Activity (requires La Motte Water Monitoring Kit) Grades 6-8: • MyRWA Report Card Map Activity

Sample Guiding Questions:	What does ‘stormwater’ mean to you? Why is clean water important in the Mystic River?
Additional Resources:	• MyRWA Stormwater Pollution webpage • Pollution Solutions: Stormwater Infiltration Trenches in the Mystic River Watershed (MyRWA YouTube video) • Mystic Monitoring Network Water Quality Manual • Adopt-a-Drain Programs in the Mystic • Clean Swell App (Ocean Conservancy) • A Drop’s Life (DC is Water)