Urban Ecology: Introduction to Stormwater: "Flow" Simulation

Brooklyn College City as a Lab GK-12 Program
Academy for Urban Planning
A. Lamb; S. Stempel

Time: 90 min (2 class Periods)
Hands On? Yes; Internet? No

Standards Met: ***Living Environment: Standard 1; PI 1.4, 2.1, 2.2, 2.3, 2.4, 3.1, 3.2, 3.3 Standard 1; PI 1.4, 2.1, 2.2, 2.3, 2.4, 3.1, 3.2, 3.3; Standard 4; PI 1.1, 6.1, 6.3, 7.1, 7.2; Earth Science: Standard 1; Key Ideas 1, 2, 3 : Standard 2; Key idea 1 Standard 1; Key Ideas 1, 2, 3 : Standard 2; Key idea 1 Standard 4: PI 1.2***

Title: Introduction to Stormwater
Grade and Subject: 11th (Urban Ecology)
Number of Days for Completion: 1
Overreaching Goals/ Outcomes: Students will understand the basic concepts of stormwater and be able to trace the flow of rainwater through the urban environment
Learning Goals/Outcomes: SWBAT- Trace rainwater flow through the urban environment, identify stormwater pollutants, and understand how best management practices work to control stormwater pollution.
Materials: Intro worksheet and simulation datasheet (see file "stormwaterWksheet")**;** dry erase markers or chalk, sticky notes, signs depicting types of stormwater pollution (yard waste, animal waste, oil, heavy metals, etc); signs depicting best management practices (green roofs, permeable pavement, bio-retention, etc), and signs for students who will be representing water.
Introduction: This is a 1day classroom activity introduce a series of stormwater studies
Instruction/Direct Experience: A brief introduction about stormwater will be given, students will follow along using page 1 of the stormwater worksheet. Instructions for the simulation will be reviewed (see file "FLOWinstructions"). After all three trials have been completed, the class will discuss the results collectively.
Independent Activities: After the group discussion, students will be asked to individually prepare a graph of the results, and come up with conclusions as to the best way to manage stormwater pollution. They should note how the level of pollution decreases with the introduction of each best management practice.
Assessment: Worksheets, Graphs, and conclusions will be handed in for a grade.
Connections: This lesson will be built upon in later sections including, urban water cycle, urban air quality, and urban carbon cycle; connections will also be made in discussions about global climate change.