Visionmaker Module 2: Introduction and background information for teachers

Module 2 focuses on the water EPI. For the purposes of the Visionmaker website, the water EPI represents the varying ways in which the water cycle performs environmentally within an urban context. Water parameters include input measures (such as piped water and rainfall), stored water measures (such as standing water, mud, and water held on plants), and output measures (such as water vapor, runoff, and leaky pipes). For the purposes of the sample lessons, we are exploring the various ways in which water flows through and is stored within ecosystems. Additionally, we will explore water absorption rates and run-off patterns. Throughout the unit, students will be working towards creating visions with reduced water run-off rates.

In Lesson 1, students will engage in a mapping activity that requires them to physically map 1mX1m sections of their local environment and then use graph paper to recreate scale versions. This activity is designed to increase spatial awareness and thinking and reinforce the relationship between mathematics and science. Students will then introduce water to their mapped area. This will allow them to make predictions and then use real world observations to notice patterns in water flow and water storage. Finally, students will translate this real-world application to the Visionmaker platform by working within groups to develop strategies for water management in their local context.

In Lesson 2, students will explore water absorption and the effects of urbanization on run-off. Students will begin by comparing historic and contemporary data on run-off within one area of New York City. They will work collaboratively to predict the relationship between urbanization and run-off patterns. They will then compare water absorption rates by running a first-hand experiment that looks at absorption rates as affected by soil compaction. Finally, students will be modifying visions in Visionmaker in order to reduce run-off in an urban setting through informed, purposeful decisions.

Throughout these lessons, students will be combining hands-on scientific explorations with simulations in the Visionmaker NYC platform. Students will explore mathematics skills, such as quadrant studies, measurements, and quantitative data collection. Connections should be drawn explicitly for students around the localized context (i.e. the area surrounding the school where they do their data collection) and larger urban ecological concepts (such as urban planning strategies for stormwater runoff).