



Curriculum Units by Fellows of the National Initiative
2020 Volume IV: Solving Environmental Problems through Engineering

Evaluating and Mitigating Stormwater Runoff Contamination

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During NE Oklahoma’s flood in early summer 2019, there was a lot of speculation about what various authorities should or shouldn’t have done to prevent the flooding, and what pollutants the floodwaters were carrying. This unit will focus on students learning about, then developing solutions for, stormwater runoff in order to reduce the flow of pollutants into natural waters. After learning about the basics of stormwater runoff, nonpoint source pollution, watersheds, and current methods of stormwater runoff containment and mitigation, students will gather and test fresh rain and stormwater runoff at various points. They will then speculate the reasons for their test results, and learn about various solutions to any environmental issues they anticipate. Ultimately, students will ideate and engineer a solution that mitigates an environmental problem caused by stormwater runoff. Their solutions will be implemented or installed at the appropriate level whenever possible.

This month-long unit on stormwater runoff was written for Gifted and Talented middle school/junior high students but is also recommended for high school Environmental Science students. It also features flexible elements to accommodate distance and virtual learning options.

(Developed for Gifted Education and Talent Development High School Environmental Science, grades 6-8; recommended for Gifted Education and Talent Development, grades 6-8, and High School Environmental Science, grades 9-12)

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