



# YALE NATIONAL INITIATIVE

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

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## **Building a Heat-Resilient Community in Richmond, Virginia**

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The effects of excessive heat and climate change are being felt by people all over the world, yet some are more vulnerable to adverse outcomes than others. People who live in poverty residing in low-income areas across the United States experience urban heat more intensely than others who live in neighborhoods that are built to better resist heat. Factors contributing to the urban heat island effect include the amount of tree canopy, impervious surfaces, and reflective materials used in buildings.

In this unit, students will investigate the effects of heat in different case scenarios. Students will be exposed to the inequitable gap in resources that people of color who live in low-income areas experience every day. They will learn how to mitigate these effects with research-based strategies in their own communities where they feel the increasing heat. To demonstrate their learning and become active change participants, students will design a response to combat urban heat in various Richmond neighborhoods and then write persuasive essays to their local city councilors

(Developed for Science, Math, and English, grade 5; recommended for Math and Science, grades 6-7)

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