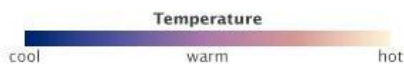
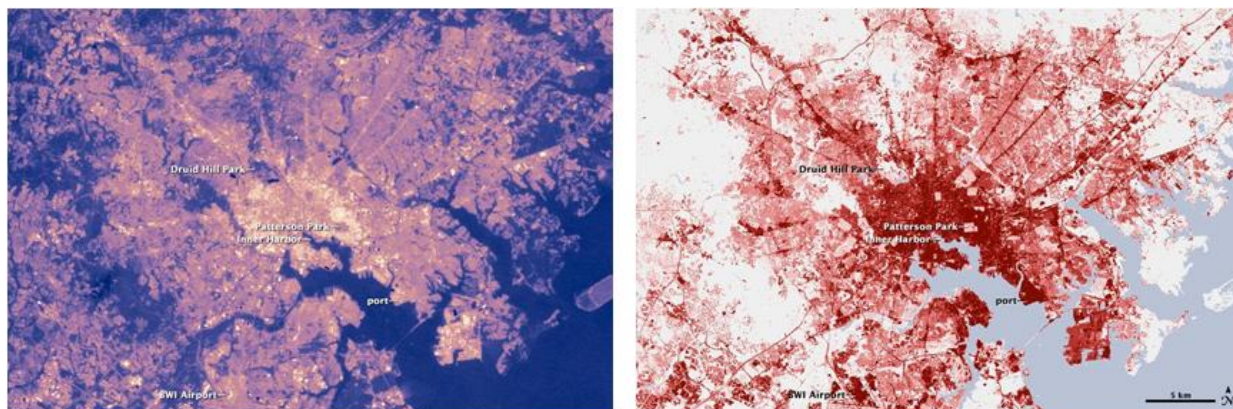


LESSON 8: REDUCING THE URBAN HEAT ISLAND



Left image: land surface temperature in the Baltimore region, August 2, 2001. Right image: developed area, January 1-December 31, 2001.

Source: Zhang et al, 2008.

URBAN HEAT ISLAND MODULE

Lesson 8 – REDUCING THE URBAN HEAT ISLAND

ACKNOWLEDGEMENTS

ICE Leadership Team

- Alan R. Berkowitz, Head of Education, Cary Institute
- Joshua Gabrielse, Director of Science, City Schools
- Kevin Garner, Coordinator of Science, City Schools
- Kia Boose, Secondary Science Specialist, City Schools
- Vonceil Anderson, Curriculum Writer, City Schools
- Jonathon Grooms, Assistant Professor of Curriculum and Pedagogy, George Washington University
- Kevin Fleming, Graduate Research Assistant, George Washington University
- Mary Ellen Wolfinger, Doctoral Student, George Washington University
- Bess Caplan, Ecology Education Program Leader, Baltimore Ecosystem Study
- Tanaira Cullens, Education Assistant, Baltimore Ecosystem Study
- Chelsea McClure, Education Assistant, Baltimore Ecosystem Study
- Martin Schmidt, Upper School Science, McDonogh School

The following lesson and associated materials are part of the Integrating Chemistry and Earth science (ICE) Urban Heat Island Module. The Module brings together important concepts from Earth science and chemistry to help students build an understanding of why urban areas have higher temperatures both during the day and at night, than their rural counterparts.

ICE Partners



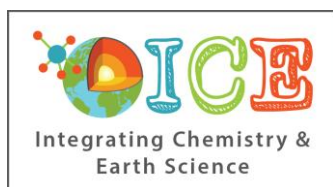
Cary Institute
of Ecosystem Studies

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THE GEORGE
WASHINGTON
UNIVERSITY
WASHINGTON, DC



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URBAN HEAT ISLAND MODULE

Lesson 8 – REDUCING THE URBAN HEAT ISLAND

Lesson 8: Reducing the Urban Heat Island

Driving Question: *How can we reduce the impacts of the Urban Heat Island effect?*

Summary: This is day two of the lesson. Students will, in teams, develop their proposed solutions for neighborhoods within Baltimore City and present them to the class.

Activity Description:

• Opening Activity

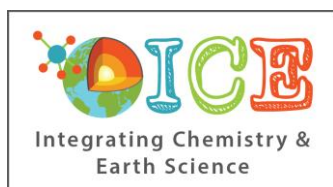
- Show a news clip or have students read an article on heat related deaths in Baltimore
 - [Worst Heat Wave in Decades is Upon Us \(WJZ-2:04\)](#) is a news report from June 2016
 - [Heat Wave Affecting People Around Baltimore \(YouTube 1:53\)](#) from July 2017.
 - [Forecast through Monday calls for region's most intense heat wave in years](#), is a Baltimore Sun article from July 22.
 - [Marylanders grapple with oppressive heat in Baltimore](#), this Baltimore Sun article, from July 23, 2016, also has a 18s clip of children splashing in a fountain near the Inner Harbor.

• Identify solutions to heat in Baltimore

- Jigsaw Part 2: Form groups of four, with one person who has read each article (assigned for homework the previous night) present in each group.
 - Additional Resource: [Near record breaking and dangerous heat later this week](#). Including impacts on human health, car temperatures and surface temperatures.
- Students share the different options municipalities can use for reducing the Urban Heat Island Effect.
- Design a Plan: How can Baltimore decrease the temperature in its neighborhoods?
 - Students can use one or more of the options discussed.
 - Students will create a sign showing their proposed plan for cooling Baltimore.
 - Include reasoning for design.
 - Include drawing/diagrams.
 - Discussion Prompt: Be prepared to describe the structures in your solution. Describe the function of your solution. What is important about the relationship between structure and function in your solution that make it a successful design?
- Gallery walk the finalized signs and have students use sticky-notes to give feedback.

• Urban vs Rural Model: Students will update their models.

- Students will update their models showing energy motion in each of the following:
 - model of Baltimore City
 - model of rural area (Baltimore County)



URBAN HEAT ISLAND MODULE

Lesson 8 – REDUCING THE URBAN HEAT ISLAND

- **Review:** Invite students to share their Baltimore energy models and ask each other questions about their models.