Lesson 8: Reducing the Urban Heat Island


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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

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