

**Lesson Objective:**

1. Students will evaluate the overall score of the schoolyard urban heat assessment.
2. Students will identify ways they could take action towards changing the issue.

**Curriculum Standards:**

- NGSS ESS3.C Human Impacts on Earth's Systems
- MD E-Lit Standard 5 Topic A: Human Impact on Natural Processes  
Indicator 1: Analyze the effects of human activities on earth's natural processes.
- MD E-Lit Standard 7 Topic B: Individual and Group Actions and the Environment

**Materials Needed:**

- Data and Schoolyard Scores from:
  - Intro Lesson 3
  - Surface Lesson 4
  - Air Lesson 4
  - Water Lesson 4
- Calculator(s)
- Access to internet to research corrective action to root causes (or provide Reflection 3, a powerpoint lesson, or similar, on the various methods to reduce urban heat)

**Teacher Directions**

In this lesson, students will compile the scores from the program issue definition lesson (Intro Lesson 3) and all the modules you have completed.

1. Have the students transcribe the schoolyard's score from each lesson into the table in this reflection piece.
2. Calculate the % in the right hand column, for each urban heat item.
3. Calculate the totals and calculate the overall schoolyard urban heat score.
4. Using the table below the calculations, determine your school's urban heat impact to the environment.
5. Have the students work in small groups to synthesize the results and research potential corrections to the root causes of issues. Encourage discussions reflecting back on the cause and effects dialog from earlier modules.

You may also present a lesson on various methods to reduce and/or prevent the impacts from urban heat.

**Consider this:** *Root causes are generally policies or practices that cause an issue. Students can focus on addressing change to these policies or practices as potential action projects based on your classroom criteria.*

Compile the student's ideas and use the results of the idea list as a starting point on defining an action project for your class in Reflection Lesson 2.

In this activity you will compile the schoolyard urban heat scores and information you gathered to identify areas of concern and brainstorm with you class potential solutions to the problems.

**Materials Needed:**

- Data and Schoolyard Scores from Intro Lesson 3
- Surface Lesson 4
- Air Lesson 4
- Water Lesson 4

**Directions:**

1. Compile the schoolyard scores

Urban Heat Item	School Score	Total Available	Calculate the %score: (School score ÷ Total Score)*100%
#1 %IS		5	
#2 Surface		3	
#3 Air (Day)		3	
#3 Air (Night)		4	
#4 Stream		3	
#5 Runoff		3	
<b>TOTAL:</b>			<b>Overall Urban Heat Score</b>

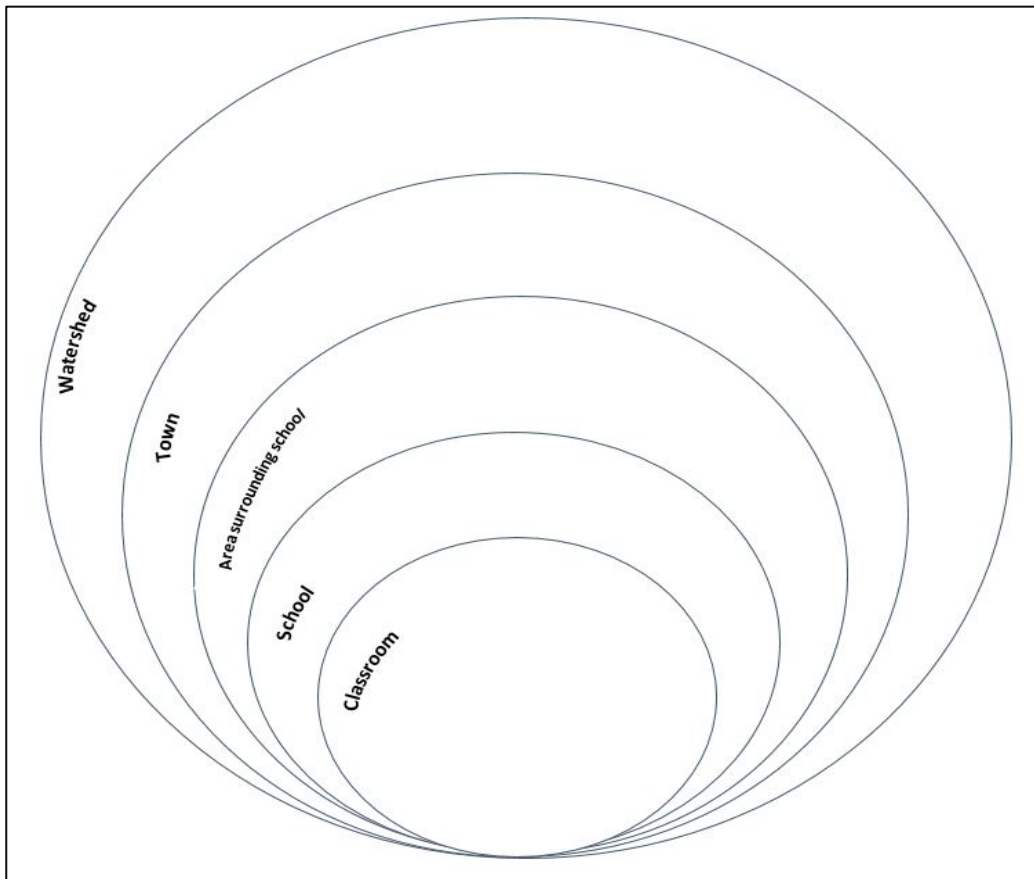
Circle the row below for your school's result.

TOTAL SCORE	URBAN HEAT IMPACT ASSESSMENT
75-100%	The schoolyard property has minimal thermal impact on its local environment and stream. Policies should be in place to maintain good management practices to prevent increase of urban heat in the future.
50-74%	The schoolyard property is experiencing noticeable effects of thermal impacts. Consider implementing better land use strategies to reduce the UHI effect to protect the local environment.
25-49%	The schoolyard property has considerable thermal impact on its local environment and area waterways that may impact biological habitats and water quality. Better land use strategies are recommended to mitigate UHI effect.
0-24	The schoolyard property has substantial thermal impact on its local stream. Better land use strategies to reduce UHI effect is highly recommended.

1. Which urban heat item did your school have the lowest score?
2. Break into groups to discuss what can be done to improve your school's score.

Use the table provided to record:

- A. Revisit the root causes and effects tables at the end of each module (Surface Lesson 4, Air Lesson 4, Water Lesson 4) to identify the root causes of your schoolyard's urban heat issues.
- B. Research how the root causes could be corrected? Consult the internet for ways to reduce urban heat impacts.
- C. Consider the different of levels of communities for your class, and recall the people who can influence change in each. How can you educate these people to promote change?



*Various "communities" that each student belongs and how these communities overlap.*



Brainstorm in your group how your class could make a difference by completing the idea list below:

<p>A. <b>Root Causes of our urban heat issues</b> <i>(policies or practices causing an issue)</i></p>	<p>B. <b>Research and list an idea to change a policy or practice to improve the issue</b></p>	<p>C. <b>Who in our various communities could help or be influential in making this idea happen? How will we discuss the issue with them?</b></p>