Heat Island Detective

Connect what you know to new evidence and unanswered questions.

8.P.EICC.3.c "Draw from, compare, build, and integrate prior knowledge with the material in the text, addressing inconsistencies or gaps and adding to knowledge repertoires as appropriate. (I)"

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline one idea that connects to something you already knew, circle one detail that adds to or changes that knowledge, and number one sentence that shows information still needed. These marks will help you build a fuller understanding of city heat.

Why Cities Stay Hot

1. On a July afternoon, a city block can feel much hotter than a nearby park. Dark roofs and asphalt absorb sunlight, then release stored heat slowly after sunset. Scientists call this pattern the urban heat island effect. Trees can reduce the effect by shading pavement and cooling air as water evaporates from leaves. Many people already know that shade feels cooler, but the text adds an important reason: plants do not simply block sunlight. They also move water from soil to air, which uses heat energy.

2. One response is to paint roofs with light-colored coatings. Because these surfaces reflect more sunlight than dark roofs, they often stay cooler. At first, this may seem to conflict with the idea that every city surface makes heat worse. The earlier explanation helps solve the conflict: the strongest heating occurs when materials absorb and store solar energy. Light roofs do not erase every source of city warmth, such as cars and air conditioners, but they can lower one major source. A useful reader connects both ideas instead of choosing only one.

3. Cooling plans also raise questions that the first explanation does not answer. A city may plant trees, install light roofs, or create shaded bus stops, but each choice has limits. Young trees need water and care before they provide broad shade. Renters may not control roof materials, even when their apartments are hottest. Maps of temperature can reveal which blocks need attention, yet temperatures alone do not show who can pay for changes. To build a fuller understanding, readers need the science of heat, evidence about local conditions, and information about whose choices are limited.

2 ANSWER WITH EVIDENCE

Use the passage

1. You may already know that shade feels cooler. What new explanation does paragraph 1 add to that prior knowledge?

2. Why do light-colored roofs not contradict the idea that dark roofs and asphalt heat city areas?

3. What important gap do temperature maps leave, according to paragraph 3, and why does that gap matter?

4. What three kinds of knowledge does the passage say readers need to understand cooling plans fully?

3 YOUR TURN

Your own words

Think of a hot place you know, such as a bus stop, playground, or parking lot. Write exactly three sentences: connect one observation to an idea from the passage, propose one cooling change, and name one piece of local information you would need before deciding on the change.

ANSWER KEY

Heat Island Detective

GRADE 8 · 8.P.EICC.3.c

PART 1 · READ AND MARK

Underline one idea that connects to something you already knew, circle one detail that adds to or changes that knowledge, and number one sentence that shows information still needed. These marks will help you build a fuller understanding of city heat. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	You may already know that shade feels cooler. What new explanation does paragraph 1 add to that prior knowledge?	**Trees cool air not only by blocking sunlight but also by moving water from soil to air. Evaporation uses heat energy.**
2	Why do light-colored roofs not contradict the idea that dark roofs and asphalt heat city areas?	**Dark materials absorb and store more solar energy, while light-colored roofs reflect more sunlight. Light roofs reduce one source of heat but do not remove every source.**
3	What important gap do temperature maps leave, according to paragraph 3, and why does that gap matter?	**Maps do not show who can pay for changes. This matters because people may have limited control over whether cooling improvements can be made.**
4	What three kinds of knowledge does the passage say readers need to understand cooling plans fully?	**Readers need the science of heat, evidence about local conditions, and information about whose choices are limited.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

The bus stop near my apartment feels hotter than the small park where I wait under trees. Because the passage explains that shade and evaporation cool air, I would add trees and a shaded shelter there. Before choosing a plan, I would find out whether the site has enough water and space for trees and who is responsible for paying for the shelter.

Accept accurate connections between prior knowledge and passage evidence, including explanations of how new details add to or qualify an earlier idea. For Part 3, accept varied places and solutions if the response has exactly three sentences and includes an observation, a text-based change, and needed local information.