City Heat Detectives

Track a problem-and-solution structure to monitor your understanding.

7.DSR.E "Use reading strategies as needed to aid and monitor comprehension when encountering challenging sections of text. These sense-making strategies attend to text structure, common organizational structures, summarizing..."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Number the paragraphs 1-3, underline one sentence in each paragraph that gives a key idea, and circle words or phrases that signal a cause, problem, or response, so you can track how the author develops the topic.

City Heat, City Choices

1 On a summer afternoon, a city block can be much hotter than a nearby park. This difference is called an urban heat island. Asphalt streets, dark roofs, and brick walls absorb sunlight during the day. Later, they slowly release that stored heat, even after sunset. Cars, air conditioners, and factories can add more warmth to the air. Because many city surfaces are hard and dark, they replace cooler soil, grass, and trees. As a result, some neighborhoods stay uncomfortably hot through the night.

2 Urban heat can create serious problems. High nighttime temperatures make it harder for people's bodies to cool down, especially for older adults and people without air conditioning. Hot pavement can also make walking and waiting for a bus unpleasant. In addition, when residents use more air conditioners, power demand rises. If electricity is produced by burning fossil fuels, that extra demand can increase pollution. City leaders therefore need ways to lower temperatures while also protecting people who are most affected by heat.

3 One response is to add surfaces that reflect sunlight or provide shade. Some cities paint roofs with light-colored coatings, which absorb less solar energy than dark materials. Planting street trees is another response. Their leaves shade sidewalks, and water released by the leaves can help cool the surrounding air. These projects take money and planning, however. A newly planted tree needs water and care before it gives much shade. For that reason, cities often combine several solutions, such as cool roofs, trees, shaded bus stops, and places where residents can get drinking water.

2 ANSWER WITH EVIDENCE

Use the passage

1. What cause-and-effect relationship does paragraph 1 explain?

2. How does paragraph 2 show that urban heat is a problem beyond simple discomfort?

3. Which words or phrases in paragraph 3 signal that the author is describing responses to the problem?

4. Write a 20-35 word summary of the whole passage.

3 YOUR TURN

Your own words

Choose one paragraph from "City Heat, City Choices." Write two questions you could ask while reading it, then write a 25-35 word summary of that paragraph that answers both questions.

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PART 1 · READ AND MARK

Number the paragraphs 1-3, underline one sentence in each paragraph that gives a key idea, and circle words or phrases that signal a cause, problem, or response, so you can track how the author develops the topic. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	What cause-and-effect relationship does paragraph 1 explain?	**Dark, hard city surfaces absorb and release heat, so some neighborhoods remain hotter, even at night.**
2	How does paragraph 2 show that urban heat is a problem beyond simple discomfort?	**It can make it difficult for people to cool down, raise electricity demand, and increase pollution when fossil fuels produce the extra electricity.**
3	Which words or phrases in paragraph 3 signal that the author is describing responses to the problem?	**"One response," "another response," and "For that reason" signal responses and the reason for combining them.**
4	Write a 20-35 word summary of the whole passage.	**Urban heat islands form when dark city surfaces hold heat and human activity adds heat, causing health and energy problems that cities can address with roofs, trees, shade, and water.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Question 1: Which responses can cities use? Question 2: Why do cities combine several responses? Summary: Cities can use reflective roofs, trees, shaded bus stops, and drinking water sites because each response helps, but projects such as tree planting need time, money, and care.

Accept reasonable marked key ideas and signal words, including cause-and-effect words such as "because" and "as a result." For Part 3, accept two text-based questions and a 25-35 word summary that accurately addresses both questions.