Heat Map Detectives

Read closely to trace a central idea across an informational text.

7.DSR.B "Proficiently read and comprehend a variety of literary and informational texts that exhibit complexity at the mid-range of the grades 6-8 band..."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline one sentence in each paragraph that seems most important, then write 1, 2, or 3 beside details that explain or support that paragraph's main point.

Why Cities Stay Hot

1 On a hot summer afternoon, a city can be several degrees warmer than nearby farmland. This pattern, called an urban heat island, develops when dark roofs, streets, and parking lots absorb sunlight and release heat slowly after sunset. Tall buildings can also block breezes that would carry heat away. The extra warmth is not spread evenly, however. A shaded park, a tree-lined block, and a wide asphalt lot may have very different temperatures, even when they are only a few blocks apart.

2 Scientists study these differences with sensors placed on sidewalks, rooftops, and grassy areas. They also use thermal images, which show surface temperatures with colors. The maps help researchers identify places where heat may pose the greatest risk, especially for people without air conditioning or reliable transportation. Yet a map does not explain every result by itself. Researchers compare temperature readings with information about tree cover, building materials, traffic, and local weather before deciding why one neighborhood is hotter than another.

3 Cities can reduce heat, but no single change works everywhere. Planting and caring for trees can shade pavement and cool the air through evaporation. Light-colored roofs reflect more sunlight than dark roofs, while shaded bus stops can make waiting safer during heat waves. Because construction and tree care cost money, city leaders must choose where improvements are most urgent. Temperature maps and community observations can guide those choices, helping planners focus on places where residents face both high heat and fewer ways to escape it.

2 ANSWER WITH EVIDENCE

Use the passage

1. What is the central idea of the passage?

2. How does paragraph 2 deepen the explanation in paragraph 1?

3. Why do researchers compare thermal maps with information about tree cover, building materials, traffic, and weather?

4. According to paragraph 3, how can temperature maps and community observations affect city decisions?

3 YOUR TURN

Your own words

Using your annotations, write exactly three sentences. State the passage's central idea, explain the role of paragraph 2, and explain the role of paragraph 3 in your own words.

ANSWER KEY

Heat Map Detectives

GRADE 7 · 7.DSR.B

PART 1 · READ AND MARK

Underline one sentence in each paragraph that seems most important, then write 1, 2, or 3 beside details that explain or support that paragraph's main point. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	What is the central idea of the passage?	**Cities can become unevenly hotter than nearby areas, and evidence about where and why heat builds up can help cities reduce risks.**
2	How does paragraph 2 deepen the explanation in paragraph 1?	**Paragraph 1 describes why temperatures can differ across a city, while paragraph 2 explains how scientists measure and investigate those differences.**
3	Why do researchers compare thermal maps with information about tree cover, building materials, traffic, and weather?	**A thermal map shows surface temperatures, but it cannot by itself explain why one neighborhood is hotter than another.**
4	According to paragraph 3, how can temperature maps and community observations affect city decisions?	**They can help planners focus improvements on places where residents face high heat and have fewer ways to escape it.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Urban areas can hold extra heat, and understanding where it gathers can help protect people. The second paragraph explains how researchers collect and compare evidence to find hotter places and their possible causes. The third paragraph presents practical ways cities can lower heat and use evidence to decide where help is needed.

Accept accurate paraphrases that connect city heat, evidence, and decisions to reduce risk. For Part 3, accept any three-sentence response that correctly states the central idea and explains the contributions of paragraphs 2 and 3.