

# Heat Map Detectives

Track how an informational text moves from a problem to evidence and responses.

**9.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** In the margin, label each paragraph Problem, Investigation, or Response, and circle transition words or phrases that help you follow the shift in ideas.

### Mapping City Heat

- ① On a July afternoon, two blocks in the same city can feel surprisingly different. Dark roofs and asphalt absorb sunlight, while trees and parks provide shade and release moisture. This pattern, called the urban heat island effect, can make some neighborhoods much hotter than nearby rural areas. Heat is not only uncomfortable. It raises the risk of dehydration and heat illness, especially for older adults, outdoor workers, and people without air conditioning. City leaders therefore need more than a single weather report. They need to know where heat concentrates and when residents face the greatest danger.
- ② To locate those hot spots, researchers combine several kinds of evidence. Satellites measure land-surface temperature, showing how hot pavement, roofs, and grass become in sunlight. However, surface readings do not tell the whole story because people experience air temperature at street level. Teams also place sensors on buses, bicycles, or lamp posts and record temperatures along daily routes. When scientists compare these measurements with maps of tree cover, income, and housing, they can identify patterns. For example, an area with few trees may stay warmer after sunset, when buildings and pavement slowly release stored heat.
- ③ These maps can guide practical decisions, but they do not solve heat problems by themselves. A city might use the findings to plant shade trees near bus stops, require cooler roofing materials, or open cooling centers during heat waves. Yet each response has limits. Young trees take years to provide deep shade, and cooling centers help only if people can reach them and know they are open. For that reason, planners often combine long-term changes, such as adding tree canopy, with immediate steps, such as sharing heat alerts. The central goal is to reduce exposure where the risk is highest.

**2 ANSWER WITH EVIDENCE** \_\_\_\_\_ Use the passage

**1** What is the organizational role of each paragraph, and how does that structure help you understand the text?

**2** How does the word “However” in paragraph 2 help you monitor your understanding of the researchers’ evidence?

**3** Write a 25- to 35-word summary of the passage that includes the problem, the investigation, and the response.

**4** After reading the sentence “Yet each response has limits,” what question should you ask to check your understanding? Answer your question using details from the next two sentences.

**3 YOUR TURN** \_\_\_\_\_ Your own words

Choose a challenging paragraph from another class text. In exactly three sentences, name its organizational pattern and cite one signal word or phrase, ask and answer one question that helped you understand it, and write a 20- to 30-word summary.

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**PART 1 • READ AND MARK**

In the margin, label each paragraph Problem, Investigation, or Response, and circle transition words or phrases that help you follow the shift in ideas. Accept any marking that follows this job and points at the right text.

**PART 2 • ANSWERS**

| # | QUESTION                                                                                                                                                                             | ANSWER                                                                                                                                                                                                                                |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | What is the organizational role of each paragraph, and how does that structure help you understand the text?                                                                         | <b>Paragraph 1 presents the heat problem, paragraph 2 explains the investigation and evidence, and paragraph 3 describes possible responses and their limits. This order shows why cities need heat maps before choosing actions.</b> |
| 2 | How does the word “However” in paragraph 2 help you monitor your understanding of the researchers’ evidence?                                                                         | <b>It signals a limit or contrast. Satellite surface readings are useful, but researchers also need street-level air-temperature measurements because people experience heat there.</b>                                               |
| 3 | Write a 25- to 35-word summary of the passage that includes the problem, the investigation, and the response.                                                                        | <b>Cities map heat with satellites and street sensors, then compare results with neighborhood conditions. The maps support combined actions that reduce dangerous exposure in the hottest places.</b>                                 |
| 4 | After reading the sentence “Yet each response has limits,” what question should you ask to check your understanding? Answer your question using details from the next two sentences. | <b>Question: What limits do these responses have? Answer: Young trees need years to provide deep shade, and cooling centers work only when people can reach them and know they are open.</b>                                          |

**PART 3 • YOUR TURN (SAMPLE ANSWER)**

The paragraph about coral reefs uses cause and effect, signaled by the phrase “as a result.” I asked, “How does warmer water affect coral?” and the paragraph explained that heat can cause corals to expel the algae that feed them. Warmer water can make corals lose algae, reducing their food supply and sometimes causing bleaching that weakens reef ecosystems over time.

Accept equivalent labels for the paragraph roles, such as issue, evidence or method, and solutions. For the open task, accept accurate organizational analysis, a text-based question and answer, and a summary between 20 and 30 words.