

Heat Map Detectives

Notice confusion, reread strategically and explain what became clearer.

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 Label each paragraph Problem, Investigation or Response. Circle a signal of contrast or cause. Put ? beside a sentence you need to reread.

Mapping City Heat

- ① On a July afternoon, two blocks in one city can feel different. Buildings and pavement absorb and later release heat, while trees provide shade and release moisture. Urban areas can therefore be warmer than nearby rural areas, and temperatures can also vary within a city. Heat islands can increase heat exposure and reduce nighttime cooling. A single weather report cannot show every neighborhood difference. City leaders need to know where heat concentrates before deciding where to focus their response.
- ② To locate hot spots, researchers combine evidence. Satellite instruments measure surface temperatures, such as those of pavement and roofs. However, a hot surface is not the same thing as the air people experience. Monitoring stations and sensors carried along routes can measure air temperature. Each method has limits: a satellite passes at particular times, while a sensor route covers only part of a city. Combining measurements can provide a fuller picture than either method alone. Researchers should also record when and where they measured so readers can judge what the data show.
- ③ These findings can guide action, but a map does not cool a neighborhood. A city might plan more trees or cooler roofs for the long term and provide cooling centers and heat alerts during extreme heat. Yet each response has limits. Newly planted trees need time to grow, and a cooling center is useful only if residents know about it and can reach it. For that reason, a response plan can combine immediate help with longer-term changes. Planners must check both where help is needed and whether people can use the proposed response.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 Label the organizational role of each paragraph. How does this sequence help a reader?

2 How does "However" in paragraph 2 correct a possible misunderstanding?

3 Summarize the passage briefly in your own words, including the problem, investigation and response.

4 Reread the sentences beginning "Newly planted trees" and "For that reason" in paragraph 3. How do the limits explain combining responses?

3 YOUR TURN _____ Your own words

Choose a sentence in the supplied passage that needs careful reading. Use the stages below to show how rereading, asking a question and noticing structure improve your understanding. Give paragraph locations. Finish with a brief summary in your own words; no fixed word or sentence count applies.

Notice and question

Copy or accurately paraphrase your chosen sentence and name its paragraph. Explain a possible confusion, then ask a question that would help resolve it.

Reread and connect

Use nearby details and a signal word or organizational pattern to answer your question. Explain how your understanding changed or became more precise.

Summarize and check

Briefly summarize the paragraph in your own words. Check that the summary preserves its main relationship and does not add an unsupported claim.

PART 1 • READ AND MARK

Label each paragraph Problem, Investigation or Response. Circle a signal of contrast or cause. Put ? beside a sentence you need to reread. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	Label the organizational role of each paragraph. How does this sequence help a reader?	Paragraph 1 establishes the problem, paragraph 2 explains investigation, and paragraph 3 describes responses. The sequence connects the need for evidence to decisions about action.
2	How does "However" in paragraph 2 correct a possible misunderstanding?	It distinguishes surface temperature from air temperature. A reader should not treat a satellite surface reading as the same measurement as the air people experience.
3	Summarize the passage briefly in your own words, including the problem, investigation and response.	Heat varies across cities. Researchers combine measurements to understand it, and planners use those findings to connect immediate help with longer-term changes.
4	Reread the sentences beginning "Newly planted trees" and "For that reason" in paragraph 3. How do the limits explain combining responses?	Trees need time to grow, and cooling centers depend on awareness and access. The next sentence explains the response: combine immediate help with longer-term changes. Together they connect practical limits to the strategy.

PART 3 • YOUR TURN (SAMPLE ANSWER)

Notice and question. In paragraph 2, "a hot surface is not the same thing as the air people experience" made me ask whether satellite images tell us the temperature a person feels at a bus stop. **Reread and connect.** "However" signals a contrast. The next sentence says stations and route sensors measure air temperature. I now understand that surface and air readings describe different conditions; combining them adds information. **Summary and check.** Researchers combine surface and air measurements, recognizing each method's limited coverage and recording the measurement context. This preserves the comparison and does not claim that either method measures every place at every time.

TEACHER ASSESSMENT NOTES

Accept different points of confusion, accurate questions and evidence-based clarifications. Assess the strategy and the resulting understanding, not a word quota. Question 4 names the two sentences to connect: the practical limits beginning "Newly planted trees" and the combined response beginning "For that reason." The open model uses the supplied passage; outside class texts are optional extensions only. This is an original educational synthesis, not a quotation. Background sources: EPA, What Are Heat Islands? <https://www.epa.gov/heatislands/what-are-heat-islands> ; Measuring Heat Islands, <https://www.epa.gov/heatislands/measuring-heat-islands> ; Adapting to Heat, <https://www.epa.gov/heatislands/adapting-heat> .