

Heat Map Mission

Trace how an explanation and its details reveal an author's purpose.

CCSS.ELA-Literacy.RST.9-10.6 "Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, defining the question the author seeks to address."

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline the sentence that states the researchers' central question. Circle two procedure details, then write P beside one sentence that reveals why the author explains those details.

Mapping the Hottest Blocks

- ① On a clear July morning, volunteers in Richmond, Virginia, attached small temperature sensors to cars and drove assigned routes through the city. Each sensor recorded air temperature every second while the car moved from shaded streets to wide parking lots and industrial areas. The project was part of a nationwide effort to map urban heat, the extra warmth created when pavement, roofs, and limited tree cover absorb sunlight. Rather than report one temperature for the whole city, researchers wanted to learn how conditions changed from block to block. Their central question was simple: Which neighborhoods become hottest during a summer day, and what features might explain the differences?
- ② To answer that question, organizers gave drivers the same instructions and asked them to travel at roughly the same time of day. They selected routes that crossed neighborhoods with different amounts of trees, buildings, and paved surfaces. After the drives, researchers combined thousands of readings with maps showing land cover. They checked the data for unusual readings caused by a stopped car or a sensor problem. This procedure did not prove that any single tree or parking lot caused a temperature change. Instead, it allowed the team to compare patterns across many locations and to identify places where residents may face greater heat exposure.
- ③ The maps showed that temperatures could vary sharply within a few miles. Areas with dense pavement and little shade often registered higher temperatures than leafier blocks, although local weather and building patterns also mattered. City planners and community groups can use such maps to decide where shade structures, cooling centers, or tree planting may be most useful. By describing the method's limits as well as its results, the author is not trying to offer a quick fix for summer heat. The explanation helps readers understand why detailed measurements are needed before communities choose actions to reduce unequal heat risks.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 What question do the researchers seek to answer through the driving project?

2 Why does the author explain that drivers followed the same instructions and traveled at about the same time of day?

3 Why does the author include the statement that the procedure did not prove that one tree or parking lot caused a temperature change?

4 What practical purpose does the author give for explaining the maps, the procedure, and the method's limits?

3 YOUR TURN _____ Your own words

Invent a brief investigation about a different local problem, such as stream pollution, traffic noise, or cafeteria waste. Write exactly 4 sentences that state the investigation's question, explain the author's purpose, describe one procedure detail, and explain why the author includes that detail or a limitation.

PART 1 • READ AND MARK

Underline the sentence that states the researchers' central question. Circle two procedure details, then write P beside one sentence that reveals why the author explains those details. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What question do the researchers seek to answer through the driving project?	They seek to find which neighborhoods become hottest during a summer day and what features may explain those differences.
2	Why does the author explain that drivers followed the same instructions and traveled at about the same time of day?	These details show that the researchers tried to make the measurements comparable across locations so they could identify patterns.
3	Why does the author include the statement that the procedure did not prove that one tree or parking lot caused a temperature change?	The statement sets a limit on the experiment and shows that the study identifies patterns rather than proving a single cause.
4	What practical purpose does the author give for explaining the maps, the procedure, and the method's limits?	The author helps readers understand why communities need detailed measurements before choosing actions to reduce heat risks.

PART 3 • YOUR TURN (SAMPLE ANSWER)

An article about testing water quality in a local stream asks whether runoff after rain changes nitrate levels. Its purpose is to explain how repeated samples can reveal a pattern, not to blame one source of pollution. The author includes the detail that samples were collected upstream and downstream to make the comparison meaningful. A note that one week of data cannot establish a long-term trend keeps readers from treating the results as final.

Accept equivalent responses that distinguish the researchers' central question from the author's broader purpose. For Part 3, accept any plausible investigation if all four required ideas are present and the explanation connects a detail or limitation to purpose.