

Cooler Streets Claim

Evaluate evidence, limits, and outside corroboration in a local heat study.

11.RI.1.B "Analyze the hypotheses, data, analysis, and/or conclusions in informational, historical, scientific, or technical texts, verifying the data when possible and corroborating or challenging conclusions with other sources of information."

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline the hypothesis and conclusion, circle every numerical datum, and number two details that limit or test the conclusion.

Do Trees Cool the Sidewalk?

- ① In July 2025, a student research team investigated whether shade trees lower afternoon sidewalk temperatures in Riverton, a midsize city. Their hypothesis was that blocks with more mature tree canopy would have cooler pavement because leaves block sunlight and release water vapor. The team selected twelve blocks, six with at least 40 percent canopy cover and six with less than 10 percent. At 3:00 p.m. on three cloudless days, they used an infrared thermometer to measure five shaded or unshaded sidewalk spots on each block. They also recorded air temperature from the city weather station.
- ② The high-canopy blocks averaged 21.4 degrees Celsius at the pavement surface, while the low-canopy blocks averaged 34.8 degrees Celsius. The weather station reported air temperatures from 29.1 to 30.0 degrees Celsius during the measurements. The team concluded that tree canopy was associated with substantially cooler sidewalks. However, their design cannot prove that canopy alone caused the difference. Older high-canopy neighborhoods may have lighter pavement, different building shade, or more irrigated soil. In addition, the researchers took measurements only in July and only at one afternoon hour, limiting how broadly they can apply the result.
- ③ To check the conclusion, a reader could compare the team's canopy categories with Riverton's public tree inventory or aerial canopy map. A reader could also examine National Weather Service records to confirm that the measurement dates were cloudless and near 30 degrees Celsius. Evidence from other cities supports a cautious version of the claim: the U.S. Environmental Protection Agency explains that trees and vegetation can reduce surface and air temperatures through shade and evapotranspiration. That source supports the proposed mechanism, but it does not verify Riverton's measurements or rule out pavement and building-shade differences. A stronger study would measure matching pavement types across more seasons and times.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 What was the team's hypothesis, including its proposed reason for cooler pavement?

2 Calculate the difference between the two average pavement temperatures. How does this result support the team's conclusion, and what does it not prove?

3 Name one outside source identified in the passage that could verify a specific weather-related detail. What detail could it verify?

4 Identify two factors or limits that could weaken the claim that tree canopy alone caused cooler sidewalks. Explain why they require a cautious conclusion.

3 YOUR TURN _____ Your own words

Write a 90-120 word evidence check of the team's conclusion. Use the passage and one source named in it to explain whether the conclusion is corroborated or limited, name one fact you would verify, and recommend one improvement to the study design.

PART 1 • READ AND MARK

Underline the hypothesis and conclusion, circle every numerical datum, and number two details that limit or test the conclusion. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What was the team's hypothesis, including its proposed reason for cooler pavement?	Blocks with more mature tree canopy would have cooler pavement because leaves block sunlight and release water vapor.
2	Calculate the difference between the two average pavement temperatures. How does this result support the team's conclusion, and what does it not prove?	The difference is 13.4 degrees Celsius. It supports an association between greater canopy and cooler sidewalks, but it does not prove that canopy alone caused the difference.
3	Name one outside source identified in the passage that could verify a specific weather-related detail. What detail could it verify?	National Weather Service records could verify whether the measurement dates were cloudless and near 30 degrees Celsius.
4	Identify two factors or limits that could weaken the claim that tree canopy alone caused cooler sidewalks. Explain why they require a cautious conclusion.	Possible factors include lighter pavement, different building shade, and more irrigated soil in high-canopy neighborhoods. Measurements were also limited to July and one afternoon hour. These factors mean other conditions may have affected the temperatures, so the study shows association rather than proof of causation.

PART 3 • YOUR TURN (SAMPLE ANSWER)

EPA information corroborates the team's cautious conclusion because it says vegetation can lower temperatures through shade and evapotranspiration. It does not establish that canopy caused Riverton's 13.4 degree Celsius pavement difference, since pavement color, building shade, and irrigation could also affect surface readings. I would compare the team's block categories with Riverton's public canopy map and check weather records for each measurement date. A better follow-up would compare blocks with similar pavement and building layouts, measure both shaded and sunlit points, and repeat the work in several seasons and at more than one time of day.

Accept accurate paraphrases of the hypothesis, conclusion, limitations, and external-source uses. For the open response, accept defensible reasoning that uses a named source, identifies a verifiable fact, and proposes a design improvement within the required word count.