

Cooler Streets Claim

Check a reported result against a log and an outside explanation.

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 reported conclusion in A. Circle the measurements in B. In C, mark what the background source supports and what it cannot verify.

A Claim, a Log, and a Background Source

A • Student report: draft for review

This fictional class investigation asks whether tree-shaded pavement is cooler than pavement in direct sun. The team hypothesized that shade would reduce surface heating. Its draft says, “Our shaded site averaged 28°C and our sunny site averaged 42°C, a 14°C difference. These readings prove that planting trees will lower every sidewalk’s temperature by 14°C.” Use the supplied field log to check the arithmetic and the conclusion. The draft deliberately contains claims for you to test; do not assume they are correct.

B • Original field log: complete practice data

Scope: Two sidewalk sites on one fictional July afternoon. One site was under a tree; the other was in direct sun. These are surface readings, not air temperatures.

Readings at 3:00, 3:05, 3:10 p.m.: Tree-shaded site: 27°C, 28°C, 29°C. Sunny site: 40°C, 41°C, 42°C.

Notes: Same instrument used at both sites. Pavement color and material were not matched; soil moisture and other shade were not measured. No other sites, days, or seasons were sampled. These six numbers are the entire supplied log.

C · Outside background: EPA

Editorial summary of U.S. Environmental Protection Agency, Benefits of Trees and Vegetation: trees can reduce surface and air temperatures through shade and evapotranspiration. This explanation supports a cooling mechanism, but it does not verify this fictional log or predict an identical temperature change at every site.

Original source: <https://www.epa.gov/heatislands/benefits-trees-and-vegetation>

The background summary is supplied for this comparison; Internet access is optional. Checking report A against log B verifies its arithmetic, not whether the invented observations happened in the real world.

2 ANSWER WITH EVIDENCE Use the passage

- 1** What is the hypothesis? Which sentence goes beyond that hypothesis to make an unsupported universal claim?

- 2** Using all six values in B, calculate both site means and their difference. Which reported values need correcting?

- 3** What does source C corroborate, and what does it not verify?

4 Identify two limitations in B and explain a design change that addresses each.

3 YOUR TURN _____ Your own words

Write a 90-120 word evidence check using A, B, and C. Report the arithmetic you verified, distinguish outside corroboration from local verification, replace the overclaim with a supported conclusion, and propose a design improvement. Use only the supplied evidence; do not invent weather records or dates.

Evidence check

Write 90-120 words. Include the corrected means/difference, EPA's limited role, and a justified follow-up.

[illegible]

PART 1 • READ AND MARK

Underline the hypothesis and reported conclusion in A. Circle the measurements in B. In C, mark what the background source supports and what it cannot verify. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What is the hypothesis? Which sentence goes beyond that hypothesis to make an unsupported universal claim?	The hypothesis is that tree shade reduces surface heating. The assertion that planting trees will lower every sidewalk's temperature by 14°C is an unsupported universal prediction.
2	Using all six values in B, calculate both site means and their difference. Which reported values need correcting?	Shaded: $(27 + 28 + 29) / 3 = 28^{\circ}\text{C}$. Sunny: $(40 + 41 + 42) / 3 = 41^{\circ}\text{C}$. Difference: 13°C. Correct the sunny mean of 42°C and difference of 14°C.
3	What does source C corroborate, and what does it not verify?	It supports a general cooling mechanism through shade and evapotranspiration. It does not verify the fictional readings, isolate canopy as their cause, or predict every sidewalk's change.
4	Identify two limitations in B and explain a design change that addresses each.	Pavement is unmatched: compare similar materials/colors. Only one afternoon and two sites were sampled: repeat across sites, days, times, and seasons. Accept other changes tied to measured scope or missing controls.

PART 3 · YOUR TURN (SAMPLE ANSWER)

Evidence check

The log supports a narrower conclusion than the draft. Its shaded readings average 28°C, but its sunny readings average 41°C, so the observed difference is 13°C, not 14°C. EPA's explanation supports the possibility of cooling through shade and evapotranspiration; it does not verify these measurements or promise the same reduction everywhere. The sites also differ in unmeasured conditions, so the six readings cannot isolate a tree effect. I would revise the report to describe this one afternoon's association and correct its arithmetic. A follow-up should compare matched pavement at more sites, measure relevant conditions, and repeat observations across times and seasons.

TEACHER ASSESSMENT NOTES

The model is an evidence check, not a claim that the fictional log is real research. The deliberate draft errors are 42°C for the sunny mean and 14°C for the difference; the shaded mean is correct. Evaluate arithmetic separately from causal reasoning. All observations come from one pair of sites on one afternoon. More readings alone do not eliminate confounds: matching or measuring relevant site conditions matters.