

Question Under Construction

Trace how a focused question guides reliable research.

ELA.10.C.4.1 "Conduct research to answer a question, refining the scope of the question to align with findings and synthesizing information from multiple reliable and valid sources."

NAME _____

DATE _____

1 READ AND MARK _____

Read it twice

YOUR JOB Investigate the bus-stop decision using three fictional source records. Underline findings, circle each source's limits, and label evidence A, B or C. Use the records themselves to refine and answer a question.

Cooling the Bus Stop

① **Source A: city field team's shade trial.** These are invented records for a research simulation, not claims about Phoenix. On three clear July afternoons, a team used the same instrument to measure bench-surface temperatures at adjacent shaded and unshaded bays of one bus stop at 2 p.m. The table reports the results. The bays had similar pavement and faced the same direction. The team did not measure air temperature, humidity or riders' health. The paired observations help compare surfaces under those conditions, but three afternoons at one location cannot establish effects at every stop or prove a health benefit.

SOURCE A: SIMULATED BENCH-SURFACE MEASUREMENTS AT 2 P.M.

Afternoon	Unshaded bench	Shaded bench
1	51 C	37 C
2	49 C	36 C
3	52 C	38 C

- ② **Source B: transit facilities estimate.** A fictional agency memo estimates \$12,000 to install a shade structure at one stop, plus \$600 yearly maintenance. Planting three young trees would cost \$3,000 plus \$900 yearly watering and care. The trees would take several years to shade the waiting area; the structure could provide shade this summer after a site and accessibility inspection. The available first-year budget is \$15,000. The agency prepared these estimates to seek project approval. They are relevant to feasibility but are not independent bids, and the cost and inspection assumptions need checking.
- ③ **Source C: riders' voluntary feedback.** In this invented record, volunteers asked 40 afternoon riders at the trial stop about priorities. Twenty-eight wanted immediate shade, eight wanted more seating and four wanted arrival-time signs. The sample excludes morning riders and people who avoid that stop. It can identify concerns among respondents but cannot represent the whole transit system. Begin with 'How can cities reduce heat?' and narrow it using these sources. Investigate a decision that the supplied evidence can address, distinguishing immediate shade from long-term tree benefits, first-year cost from later maintenance, and observed surfaces from unmeasured comfort.

2 ANSWER WITH EVIDENCE Use the passage

- 1 Calculate the shaded-unshaded temperature difference on each afternoon. What limited finding do the data support?

- 2 What is the first-year cost of each option in B, including maintenance or care? Which could address immediate shade within the budget?

- 3** Identify a strength and a limitation of A or C. How does its method affect the claim you can make?

- 4** Write a focused research question that A, B and C can jointly address. Explain how their findings narrowed the broad question.

3 YOUR TURN

Your own words

Write a 120-160-word research finding that answers your focused question using A, B and C. Cite one relevant detail from each, explain why their methods or purposes affect reliability, and qualify your recommendation. End with one further source or measurement needed before acting; clearly distinguish it from evidence already supplied.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

PART 1 • READ AND MARK

Investigate the bus-stop decision using three fictional source records. Underline findings, circle each source's limits, and label evidence A, B or C. Use the records themselves to refine and answer a question. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	Calculate the shaded-unshaded temperature difference on each afternoon. What limited finding do the data support?	The shaded bench was 14 C, 13 C and 14 C cooler. Its surface was cooler on these three afternoons at this stop; this does not establish air-temperature or health effects.
2	What is the first-year cost of each option in B, including maintenance or care? Which could address immediate shade within the budget?	Structure: \$12,600. Trees: \$3,900. Both are within \$15,000, but only the structure is described as providing shade this summer, subject to inspection.
3	Identify a strength and a limitation of A or C. How does its method affect the claim you can make?	A uses paired readings at the same time with the same instrument, but only at one stop on three clear days. Or C records actual simulated respondents' preferences, but its voluntary afternoon-only sample is not representative.
4	Write a focused research question that A, B and C can jointly address. Explain how their findings narrowed the broad question.	Example: Should this trial stop seek a shade structure this summer within a \$15,000 first-year budget? A narrows the setting and measured outcome, B adds timing and cost, and C identifies respondents' concern about immediate shade.

PART 3 · YOUR TURN (SAMPLE ANSWER)

The trial stop should investigate installing a shade structure this summer, subject to a site inspection and confirmed costs. Source A found shaded bench surfaces 13-14 C cooler than the adjacent unshaded bench on three afternoons. These paired measurements support a local surface-cooling finding, not a claim about air temperature or health. Source B estimates \$12,600 for installation and first-year maintenance, within the \$15,000 budget, and says trees need several years to shade the waiting area. The agency wants approval, so an independent quote should check its estimate. In Source C, 28 of 40 respondents wanted immediate shade, but the voluntary afternoon sample cannot represent every rider. Together, the sources justify a provisional local recommendation. Before acting, the city needs an accessibility/site inspection and evidence from additional times and stops.

Accept other well-supported recommendations, including gathering more evidence first. Require actual use of all three supplied records, a question narrowed to their scope, correct first-year arithmetic, and separation of findings from proposed research. The source packet is explicitly fictional; source roles and sampling limits model reliability without inventing real publications or results.