Questions Before Claims

Build a focused investigation with credible evidence.

10.T.RA.1 "Research & Inquiry: Conduct research, generating questions to guide investigations of complex topics of interest and using credible sources to support analyses."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline Maya's main research question, circle the two sources she treats as credible evidence, and number the details she uses to judge a source.

Shade on the Blacktop

1. Maya's school is considering shade trees in its paved courtyard. Her first question, "Are trees good for heat?" is too broad. She revises it: "How much can tree shade lower surface temperatures in a paved school courtyard during a summer day?" She adds: "Which tree designs produce the most shade?" and "How do hotter surfaces affect students during outdoor activities?" For background she would consider EPA heat-island information and a peer-reviewed study reporting measurements or health effects. A landscaping blog sells services and may omit methods or limits. She would check authorship, date, evidence, purpose and relevance. These are planned sources, not supplied excerpts; the two classroom sources below support a small actual practice inquiry.

2. **Source A: Courtyard observation log.** Classroom-authored simulated research record, not real measurements or an EPA quotation. A school science team recorded matched surface temperatures in degrees Celsius at noon on three practice days: shade/unshaded pairs were 42/54, 43/55 and 41/53. The same type of thermometer was used at the same time for each pair. This log concerns one courtyard and surface temperatures, not students' body temperatures or medical outcomes.

③ **Source B: Methods review memo.** Classroom-authored simulated memo from the science teacher reviewing Source A. Each unshaded reading is 12 Celsius degrees higher than its paired shaded reading. Matched times and instrument support comparison, but the spots may differ in other ways. Three days at one site cannot establish all causes or prove safety benefits. Consistently cooler shaded pavement could support a cautious local heat-exposure claim, not a claim that trees prevent every heat-related illness. More matched sites and days would strengthen the inquiry. This memo uses the same log, not an independent replication.

2 ANSWER WITH EVIDENCE

Use the passage

1. Why was Maya's first question too broad, and what makes her revised question more useful for research?

2. What are Maya's two smaller research questions, and how could they help her investigation?

3. Which source should Maya use for evidence about measured temperatures or health effects, and why is the landscaping company's blog weaker for that purpose?

4. State Maya's supported claim about shade and one reason she must limit that claim.

3 YOUR TURN

Your own words

Conduct a small inquiry using the supplied Source A and Source B, rereading both to find evidence. On extra paper, record a focused surface-temperature question and two smaller questions. Make two source-labeled notes, including a reading comparison and a methods limitation; explain why each source is useful and what it cannot establish. Then write a four-sentence answer supported by both sources, with a cautious conclusion and a next question. Keep simulated findings separate from verified real-world evidence.

ANSWER KEY

Questions Before Claims

GRADE 10 · 10.T.RA.1

PART 1 · READ AND MARK

Underline Maya's main research question, circle the two sources she treats as credible evidence, and number the details she uses to judge a source. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Why was Maya's first question too broad, and what makes her revised question more useful for research?	**The first question is general and does not identify what to measure. The revised question names a paved school courtyard, tree shade, a summer day, and surface temperature.**
2	What are Maya's two smaller research questions, and how could they help her investigation?	**She asks which tree designs produce the most shade and how hotter surfaces affect students during outdoor activities. They help her find evidence about shade design and heat effects on students.**
3	Which source should Maya use for evidence about measured temperatures or health effects, and why is the landscaping company's blog weaker for that purpose?	**She should use a peer-reviewed study. The blog sells services and may not report its methods or limits.**
4	State Maya's supported claim about shade and one reason she must limit that claim.	**She can claim that shade is likely to reduce heat exposure in that courtyard if shaded pavement is consistently cooler. Her data come from one location and limited times, so she cannot claim that trees prevent every heat-related illness.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

For these simulated courtyard days, shaded surfaces were cooler than paired unshaded surfaces. Source A reports pairs of 42/54, 43/55 and 41/53 degrees Celsius, each a 12-degree difference. Source B explains that matching time and instrument improves comparison, but different spots and one site limit causal conclusions. I would next ask whether additional matched sites show the same pattern; these records alone do not establish medical safety.

Accept accurate Part 2 source-analysis answers. For the actual supplied-card inquiry, collect the focused question, two smaller questions and two source-labeled findings; require consultation of both printed cards and an evidence-supported four-sentence answer. Source A provides transparent paired observations; Source B reviews methods and limitations using the same log, not independent evidence. All three unshaded-minus-shaded differences are 12 Celsius degrees. Accept equivalent cautious conclusions, and reject claims that these simulated records prove real-world safety or universal causation. Existing named EPA/study references in Maya's plan are background examples, not supplied authentic excerpts.