

Questions Get Sharper

Track how researchers focus, connect, and extend an inquiry.

CCSS.ELA-Literacy.W.9-10.7 "Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject..."

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each research question, number the questions in the order they appear, and circle the words that show why the group narrowed or broadened its inquiry.

Measuring Heat Around School

- ① When a student group noticed that their school parking lot felt much hotter than the nearby soccer field, they began with a broad question: How do paved surfaces affect summer temperatures in our town? The question could lead to a large project, so the group narrowed it. They decided to compare afternoon surface temperatures at three school locations during one week in June. This smaller inquiry gave them a clear place, time, and measurement. Before collecting data, they listed what they still needed to learn, including how shade, pavement color, and cloud cover might affect their results.
- ② To build background knowledge, the group used two sources with different strengths. A National Weather Service webpage explained that dark, dry surfaces can absorb more solar energy than lighter surfaces, while shade can lower surface heating. A city planning report mapped tree canopy near schools and identified blocks with little shade. Neither source measured the group's exact locations or week. Together, however, the sources suggested a useful prediction: the unshaded dark parking lot would likely be warmer than grass beneath trees. The group recorded each source's author, date, purpose, and relevant details so they could return to the evidence later.
- ③ During the week, the students used an infrared thermometer at 3:00 p.m. and took three readings at each location. Their data showed that the parking lot was hottest on four clear days, but the difference shrank on a cloudy day. This result supported the prediction from both background sources, yet it did not prove that pavement alone caused the difference. The group broadened its next question: How do pavement, shade, and weather conditions interact to affect surface temperatures at our school? They proposed a longer study across several months, with repeated measurements and notes about clouds, recent rain, and air temperature.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 How did the group change its first question to make the investigation more manageable?

2 What prediction did the two background sources support, and what limitation did the sources share?

3 What finding led the group to broaden its next question, and why could the group not claim that pavement alone caused the temperature difference?

4 Name two features of the proposed longer study that would help the group investigate its broader question.

3 YOUR TURN _____ Your own words

Choose a school or community issue. In exactly three sentences, write a research plan with one narrow research question, two credible sources and what each would contribute, and one result that could make you narrow or broaden the inquiry.

PART 1 • READ AND MARK

Underline each research question, number the questions in the order they appear, and circle the words that show why the group narrowed or broadened its inquiry. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	How did the group change its first question to make the investigation more manageable?	They changed a town-wide question about paved surfaces into a comparison of afternoon surface temperatures at three school locations during one week in June.
2	What prediction did the two background sources support, and what limitation did the sources share?	They supported the prediction that the unshaded dark parking lot would be warmer than grass beneath trees. Neither source measured the group's exact locations or the specific week.
3	What finding led the group to broaden its next question, and why could the group not claim that pavement alone caused the temperature difference?	The temperature difference shrank on a cloudy day. The data and sources suggested several possible factors, including shade and weather, so they did not isolate pavement as the only cause.
4	Name two features of the proposed longer study that would help the group investigate its broader question.	Accept any two: studying across several months, taking repeated measurements, recording cloud conditions, noting recent rain, or noting air temperature.

PART 3 • YOUR TURN (SAMPLE ANSWER)

My question is: How does the amount of sleep students get on school nights relate to their first-period alertness during one month at our school? I would compare an anonymous student sleep-and-alertness survey with guidance from the American Academy of Sleep Medicine, using the survey for local patterns and the medical source to explain recommended sleep amounts. If students with similar sleep amounts report different alertness levels, I would broaden the inquiry to include commute time and breakfast.

Accept equivalent descriptions of how the inquiry changes, how the sources work together, and why the evidence has limits. For Part 3, accept a relevant narrow question, two credible and distinct sources with clear roles, and a logical reason to adjust the inquiry.