Question Pathways

From broad concerns to focused research plans.

10.T.RA.1.a "Generate questions to guide research, make connections between complex topics, explore creative solutions, narrow focus, and/or refine text creation. (I)"

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline every research question in the passage. Number the questions 1 through 4 in the order they move Maya from a broad topic toward a focused research plan.

From Heat to a Plan

(1) When Maya noticed that the blacktop behind her school felt much hotter than the nearby grass, she considered researching heat on campus. Her first question, "How do surface materials affect afternoon temperatures in our schoolyard?" connected science ideas about absorbing sunlight with a daily student experience. The question was still broad, however. It could lead her toward playground equipment, parking areas, roofs, or sidewalks. Before collecting sources, Maya decided to identify one location, one time of day, and one possible change she could realistically examine.

(2) She revised her focus to the south playground between 2:30 and 3:30 p.m., when students used it after classes. Then she wrote, "Would adding shade sails over two sections of blacktop lower the surface temperature during that hour?" This question gave her a measurable comparison: shaded and unshaded blacktop. It also invited creative solutions without assuming that shade sails were the only answer. To investigate fairly, Maya planned to find city heat maps, studies about shade structures, and local temperature readings. She also asked, "What limits, such as cost, wind safety, or maintenance, would affect this choice?"

(3) Maya expected some sources to disagree. A company selling shade sails might emphasize cooling benefits, while a city report might focus on budgets or safety rules. Rather than treating one source as final, she planned to compare evidence and note each source's purpose. After reading, she could refine her question again. If the playground already had tree-planting plans, for example, she might ask whether temporary shade structures would help until young trees grew large enough to provide shade. Her research questions would guide each decision, from selecting evidence to designing a practical recommendation for the school.

2 ANSWER WITH EVIDENCE

Use the passage

1. Which research question first connects a science idea to a school experience? Explain the connection.

2. How does Maya's second research question narrow her first question? Give two details.

3. What comparison would Maya make, and why does that comparison make her research question measurable?

4. How does the third paragraph show that Maya might refine her question after research? State her new possible focus.

3 YOUR TURN

Your own words

Choose a school issue that interests you. Write three connected research questions: one that connects two topics, one that narrows to a specific place or group and can be measured, and one that tests a creative solution while naming a possible limit.

Question Pathways

PART 1 · READ AND MARK

Underline every research question in the passage. Number the questions 1 through 4 in the order they move Maya from a broad topic toward a focused research plan. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Which research question first connects a science idea to a school experience? Explain the connection.	**"How do surface materials affect afternoon temperatures in our schoolyard?" It connects sunlight absorption by materials to students' experience in the schoolyard.**
2	How does Maya's second research question narrow her first question? Give two details.	**It focuses on the south playground, the 2:30 to 3:30 p.m. time period, and shade sails over two blacktop sections.**
3	What comparison would Maya make, and why does that comparison make her research question measurable?	**She would compare the surface temperatures of shaded and unshaded blacktop. The temperatures can be measured during the same hour.**
4	How does the third paragraph show that Maya might refine her question after research? State her new possible focus.	**If tree-planting plans already exist, she could focus on whether temporary shade structures would help until the young trees provide shade.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

1. How do lunch-period schedules and food waste connect to school nutrition costs? 2. During the 25-minute ninth-grade lunch period, how many unopened items are discarded each day? 3. Could a share table reduce that waste, and how would health rules and staff supervision limit its use?

Accept equivalent explanations that use details from the passage. For the open task, accept varied topics when all three questions are connected, focused, researchable, and include a realistic constraint for the proposed solution.