Heat Study Files

Trace how questions and sources shape a supportable analysis.

11.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 the investigation questions, circle each source or evidence type, and number two statements that limit what a researcher can claim. These marks show how questions, evidence, and caution work together.

Mapping Evening Heat

1. In one neighborhood, summer heat can vary block by block. To investigate this pattern, a student team asks, "Which places stay hottest after sunset, and how do tree cover and pavement relate to those temperatures?" The questions are narrow enough to study but complex enough to connect environmental conditions, public health, and city planning. They also lead the team to seek measurements, maps, and perspectives rather than one quick answer alone.

2. First, the team uses temperature readings gathered at the same time of evening over several days. It compares those readings with a city tree-canopy map and land-cover data from a government mapping agency. These sources provide methods and data that can be checked. A neighborhood resident's interview offers useful experience about walking home in the heat, but it cannot by itself establish temperatures across the area. The team records each source's author, date, purpose, and evidence.

3. When results show that hotter blocks have less tree cover, the team does not claim that pavement alone caused the difference. Evening temperatures can also be affected by building shade, traffic, wind, and the locations of sensors. The team checks whether its sources are current and whether the map's categories match its question. It then frames a supportable analysis: areas with less canopy were associated with higher recorded evening temperatures in this investigation, while further research could test causes.

2 ANSWER WITH EVIDENCE

Use the passage

1. What two ideas do the team's guiding questions connect?

2. Why are the temperature readings and government mapping data useful sources for this investigation?

3. Which source adds a useful perspective but cannot establish temperatures across the neighborhood? Why not?

4. Why does the team describe tree canopy and temperature as associated instead of claiming that pavement caused the difference?

3 YOUR TURN

Your own words

Choose a complex school or community topic. Write two guiding research questions, name two credible sources you would use, and explain one limit on the claim your evidence could support.

ANSWER KEY

Heat Study Files

GRADE 11 · 11.T.RA.1

PART 1 · READ AND MARK

Underline the investigation questions, circle each source or evidence type, and number two statements that limit what a researcher can claim. These marks show how questions, evidence, and caution work together. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	What two ideas do the team's guiding questions connect?	**They connect which places remain hottest after sunset with how tree cover and pavement relate to temperature.**
2	Why are the temperature readings and government mapping data useful sources for this investigation?	**They provide checkable measurements, methods, and land-cover data relevant to the questions.**
3	Which source adds a useful perspective but cannot establish temperatures across the neighborhood? Why not?	**A neighborhood resident's interview. It provides personal experience, not temperature measurements across the area.**
4	Why does the team describe tree canopy and temperature as associated instead of claiming that pavement caused the difference?	**Other factors, including building shade, traffic, wind, and sensor locations, may affect evening temperatures.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

How do later high school start times affect attendance in our district, and do effects differ by bus route? I would compare dated district attendance records with a peer-reviewed sleep study, using the records for local patterns and the study for context, while recognizing that attendance data cannot prove sleep caused any change.

Accept equivalent guiding questions that are researchable and connected to a complex topic. Sources should be credible and relevant, and the limitation should show that evidence may support an association without proving a cause.