# Shade and Evidence

How different disciplines explain the same city blocks

**12.CL.8** "Read, analyze, and evaluate texts from science, social studies, and other academic disciplines and explain how those disciplines treat domain-specific vocabulary and content and organize information."

NAME _____ DATE _____

## 1 READ AND MARK

Read it twice

**YOUR JOB** Circle two science terms and two history or planning terms in the passage. Underline one sentence in each paragraph that shows how evidence is organized or used.

### Why Is One Block Hotter?

1 On a July afternoon, two blocks can feel like different seasons. An environmental scientist might measure surface temperature, the temperature at a material's surface, using a thermal sensor. Asphalt often registers warmer than a shaded lawn because dark pavement absorbs more sunlight, while plants cool nearby air through evapotranspiration, the release of water vapor from leaves and soil. Surface temperature is not the same as air temperature, so a reading from pavement cannot tell us exactly what a person breathes. To explain the contrast, scientists move from measurements to physical processes, then check whether shade, wind, and time of day change the pattern.

2 A historian asking why shade differs between those blocks would start with records rather than a sensor. In many US cities, twentieth-century redlining maps labeled neighborhoods as risky for mortgage lending; those labels reflected racial discrimination and helped restrict investment. Historians compare those maps with loan records, city budgets, and residents' accounts to trace decisions across decades. A planning document might use the term canopy cover for the share of land covered by tree crowns when viewed from above. Lower canopy cover today does not prove that one old map caused every missing tree. Streets were also shaped by later building projects, maintenance choices, and local advocacy.

3 Suppose a city council must decide where to plant trees. A scientist can identify hot pavement and estimate where additional shade may reduce surface temperature, but a thermal image alone cannot explain unequal planting. A historian can document past investment patterns, but an archive cannot predict how much a new tree will cool a sidewalk. A planner can combine these findings with canopy cover estimates and ask residents which streets need shade most. The report should separate a measured pattern from a proposed cause and a policy choice. That order makes clear which claims come from physical measurements, historical records, and public priorities.

## 2 ANSWER WITH EVIDENCE

Use the passage

1. How do the terms “surface temperature” and “canopy cover” help answer different questions about the blocks?

2. Why does the scientist distinguish surface temperature from air temperature before explaining the contrast between the blocks?

3. How does the historian organize evidence to investigate unequal shade, and why would a canopy cover estimate alone be insufficient?

4. How does the final paragraph bring evidence from the three fields into a policy decision without treating every claim as equally certain?

## 3 YOUR TURN

Your own words

Imagine a city deciding where to build flood barriers beside a river. In 80 to 110 words, explain how a hydrologist and a historian would each define and use one specialized term, organize different evidence, and identify a limit of that evidence before recommending how the city should decide.

ANSWER KEY

# Shade and Evidence

GRADE 12 · 12.CL.8

## PART 1 · READ AND MARK

Circle two science terms and two history or planning terms in the passage. Underline one sentence in each paragraph that shows how evidence is organized or used. Accept any marking that follows this job and points at the right text.

## PART 2 · ANSWERS

| # | QUESTION | ANSWER |
|---|---|---|
| 1 | How do the terms "surface temperature" and "canopy cover" help answer different questions about the blocks? | **Surface temperature names what the scientist measures at a material's surface. Canopy cover names the share of land covered by tree crowns, which helps a planner assess where trees are present.** |
| 2 | Why does the scientist distinguish surface temperature from air temperature before explaining the contrast between the blocks? | **A pavement reading does not establish the air temperature a person experiences. The distinction keeps the explanation within the limits of the measurement.** |
| 3 | How does the historian organize evidence to investigate unequal shade, and why would a canopy cover estimate alone be insufficient? | **The historian compares redlining maps with loan records, budgets, and residents' accounts to trace decisions over time. Present-day canopy cover shows a condition, not which past decisions caused it.** |
| 4 | How does the final paragraph bring evidence from the three fields into a policy decision without treating every claim as equally certain? | **It separates measured heat patterns, historical explanations, and residents' priorities. It also states what measurements and archives cannot establish on their own before describing the planner's choice.** |

## PART 3 · YOUR TURN (SAMPLE ANSWER)

A hydrologist might define runoff as water that flows over land instead of soaking into it. The study could begin with rainfall measurements, then compare stream levels before and after storms. A historian might define a primary source as a record made during the period being studied, then compare council minutes across years to trace decisions about riverfront construction. Rainfall data alone cannot show who faces the greatest risk, and meeting records cannot predict the height of a future flood. The city should use both kinds of evidence and hear from residents before deciding where barriers belong.

Accept other accurate specialized terms and evidence sequences in Part 3. Look for a clear distinction between what each discipline can establish and what remains uncertain.