Heat Map Clues

Trace how organization turns heat evidence into action.

ELA.9.R.2.1 "Analyze how multiple text structures and/or features convey a purpose and/or meaning in texts."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline at least two words or phrases in each paragraph that connect ideas, such as words that show a reason, contrast, or order. In the margin, number the paragraphs 1-3, name the structure you infer in each one, and circle one detail that shows why the author used that structure.

Heat Between City Blocks

1 On a July afternoon, pavement can make a city feel far hotter than nearby fields. Asphalt and dark roofs absorb sunlight, then release stored heat slowly after sunset. Buildings also block breezes, while air conditioners add warm exhaust outdoors. In neighborhoods with few trees, these effects can raise local temperatures and make hot nights especially dangerous. Heat does not land evenly across a city. A block with wide tree canopies may offer cooler sidewalks, but a nearby block of parking lots can leave walkers searching for shade. This uneven pattern is often called an urban heat island.

2 To find the hottest places, researchers combine satellite images with measurements taken on streets. Satellite sensors show surface temperatures, so a sunlit roof may appear much hotter than the air a person breathes. Street instruments add another view by recording air temperature and humidity where people wait for buses or walk home. These two kinds of evidence answer different questions. A playground covered by mature trees can have a cooler surface than an unshaded playground nearby, yet both sites may still have high afternoon air temperatures. Looking at both measurements helps planners avoid treating one number as the whole story.

3 Several cities are responding by using heat maps to guide investments. First, staff members identify blocks where high temperatures overlap with limited shade, older residents, or long walks to transit. Next, they can plant trees, build shade structures at bus stops, or replace some dark pavement with lighter materials. Each choice has limits. Young trees need water and years of growth, and pale pavement cannot protect a person waiting in direct sun. For that reason, planners often pair long-term projects with immediate steps, such as opening cooling centers and extending library hours during heat alerts. The plan connects evidence to action.

2 ANSWER WITH EVIDENCE

Use the passage

1. What relationship organizes most of paragraph 1? Use two details from the paragraph to explain how that organization helps the reader understand urban heat islands.

2. Why does paragraph 2 place satellite measurements beside street measurements? Explain what each type of evidence contributes.

3. How do the words “First” and “Next” shape paragraph 3? What do they help the author explain?

4. How does the order of the three paragraphs help convey the author’s purpose?

3 YOUR TURN

Your own words

Write 4 or 5 sentences for a city newsletter about a different neighborhood safety or environmental issue. Use two different text structures, include transition words that show each relationship, and label each sentence or group of sentences with the structure you used in brackets.

ANSWER KEY

Heat Map Clues

GRADE 9 · ELA.9.R.2.1

PART 1 · READ AND MARK

Underline at least two words or phrases in each paragraph that connect ideas, such as words that show a reason, contrast, or order. In the margin, number the paragraphs 1-3, name the structure you infer in each one, and circle one detail that shows why the author used that structure. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	What relationship organizes most of paragraph 1? Use two details from the paragraph to explain how that organization helps the reader understand urban heat islands.	**Cause and effect. Dark surfaces absorb and release heat, blocked breezes and air-conditioner exhaust add warmth, and areas with few trees can become hotter and more dangerous.**
2	Why does paragraph 2 place satellite measurements beside street measurements? Explain what each type of evidence contributes.	**The comparison shows that the measurements answer different questions. Satellites show surface temperature, while street instruments record air temperature and humidity where people are outside.**
3	How do the words “First” and “Next” shape paragraph 3? What do they help the author explain?	**They organize the response as a sequence of steps. They show that planners identify high-risk blocks before choosing actions such as planting trees or adding bus-stop shade.**
4	How does the order of the three paragraphs help convey the author’s purpose?	**The text explains why some city blocks are hotter, shows how researchers study the heat, and then describes how planners can use that evidence to respond.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

[Cause and effect] When rain falls on a parking lot, water cannot soak into the ground, so it rushes toward storm drains. [Cause and effect] If drains fill quickly, water can cover sidewalks and enter low buildings. [Sequence] First, the city can clear leaves from drains before storms. [Sequence] Next, it can add rain gardens that hold water and let it sink slowly.

Accept equivalent structure labels supported by the passage, such as causal explanation for paragraph 1, comparison for paragraph 2, and sequence or solution process for paragraph 3. For Part 3, accept any accurate issue and response that uses two clear structures, transition language, and the required number of sentences.