City Heat Clues

Use context, word parts, and audience to analyze precise vocabulary.

11.L.V.2 "Word Analysis: Use word knowledge and word analysis skills to determine the meaning of unfamiliar words and phrases and to communicate effectively for a variety of purposes."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline four words or phrases whose meanings you can infer from nearby clues. Circle the words or phrases that provide a clue for each meaning.

Mapping City Heat

1 On a July afternoon, volunteers in Phoenix drove assigned routes with small sensors clipped to their cars. The sensors recorded air temperature every few seconds, creating a detailed map of neighborhood heat. Researchers wanted to identify microclimates, small areas whose conditions differ from those nearby. A shaded block with irrigated trees can be noticeably cooler than an exposed parking lot only a few streets away. This variation matters because people who wait for buses, work outdoors, or lack reliable air conditioning experience the hottest places most intensely.

2 One cause is the prevalence of impervious surfaces, such as asphalt roofs and paved roads, which do not absorb rainwater or support plant growth. During the day, these dark materials take in solar energy and later release it as heat. Their low albedo, or limited ability to reflect sunlight, helps explain why a black roof becomes far hotter than a pale one. City planners can mitigate this effect by planting trees, installing reflective roofs, and replacing some pavement with surfaces that allow water to soak into soil.

3 Heat maps also reveal an equity issue. Historically, some neighborhoods received fewer public investments in parks and tree cover, while highways and industrial sites were more often placed nearby. As a result, heat exposure is not distributed evenly across a city. When officials describe a cooling project as equitable, they mean it should direct benefits toward residents facing the greatest heat burden, rather than simply improving already comfortable districts. Clear language matters in public meetings: a technical report may use the term mitigation, but a flyer might say "ways to reduce dangerous heat."

2 ANSWER WITH EVIDENCE

Use the passage

1. What does microclimates mean as it is used in paragraph 1? Identify the context clue that supports your answer.

2. What does impervious most nearly mean in paragraph 2? Use the examples and description in the paragraph to support your answer.

3. How does the phrase “limited ability to reflect sunlight” help you determine the meaning of albedo?

4. Why might a public flyer use “ways to reduce dangerous heat” instead of mitigation?

3 YOUR TURN

Your own words

Read this sentence: “Permeable pavers would replace part of the blacktop so rain could soak into the ground.” In two sentences, explain what permeable means using a context clue, then rewrite the idea for a family newsletter without using the word permeable.

ANSWER KEY

City Heat Clues

GRADE 11 · 11.L.V.2

PART 1 · READ AND MARK

Underline four words or phrases whose meanings you can infer from nearby clues. Circle the words or phrases that provide a clue for each meaning. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	What does microclimates mean as it is used in paragraph 1? Identify the context clue that supports your answer.	**Microclimates are small areas with conditions that differ from nearby areas. The passage directly explains this with "small areas whose conditions differ from those nearby."**
2	What does impervious most nearly mean in paragraph 2? Use the examples and description in the paragraph to support your answer.	**Impervious means not allowing water to pass through or be absorbed. Asphalt roofs and paved roads "do not absorb rainwater."**
3	How does the phrase "limited ability to reflect sunlight" help you determine the meaning of albedo?	**It shows that albedo means a surface's ability to reflect sunlight. Low albedo means the surface reflects little sunlight and takes in more heat.**
4	Why might a public flyer use "ways to reduce dangerous heat" instead of mitigation?	**The flyer uses plain, direct language that is easier for a broad public audience to understand, while mitigation is a technical term suited to a report.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Permeable means able to let water pass through, as shown by rain soaking into the ground. The school could use paving that lets rain drain into the soil instead of collecting on the surface.

Accept accurate meanings supported by specific context clues, including reasonable synonyms. For Part 3, accept two sentences that infer the meaning of permeable and adapt the idea into clear, nontechnical language for families.