

Trees Beat Heat

Read for the author's message and supporting details.

CCSS.ELA-Literacy.RF.4.4a "Read grade-level text with purpose and understanding."

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline one sentence in each paragraph that tells its main idea. Circle two details that help you understand why city planners might plant trees.

How Trees Cool Cities

- ① On a hot summer day, a sidewalk can feel much warmer than the air. Trees can make nearby places cooler. Their leaves block sunlight, creating shade on pavement, grass, and benches. In shade, surfaces do not absorb as much heat. A row of trees can give people a cooler place to walk, wait, or play.
- ② Trees also cool the air through a process called transpiration. Water moves from a tree's roots to its leaves. Then some water leaves the tiny openings in the leaves as water vapor. Changing liquid water into vapor uses heat from the air. This process can make the area around a tree feel cooler, especially when many trees grow together.
- ③ Scientists use temperature tools to compare shaded and sunny spots. They measure the same kinds of surfaces at about the same time of day. These careful comparisons help city planners decide where trees could be most useful. For example, planners may choose a bus stop or a schoolyard with little shade. Planting and caring for trees can help make those places safer and more comfortable during heat.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 What is the author's purpose for writing this passage?

2 Why does the author include the explanation of transpiration in paragraph 2?

3 Why do scientists measure the same kinds of surfaces at about the same time of day?

4 A planner can choose one schoolyard for new trees. Which is a stronger choice, a schoolyard with little shade or one with many trees already? Explain.

3 YOUR TURN _____ Your own words

In exactly three sentences, explain why a city planner should use both shade observations and temperature comparisons when deciding where to plant trees. Include one detail from each paragraph.

PART 1 • READ AND MARK

Underline one sentence in each paragraph that tells its main idea. Circle two details that help you understand why city planners might plant trees. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What is the author's purpose for writing this passage?	To explain how trees cool places and how planners use this information to choose where trees are needed.
2	Why does the author include the explanation of transpiration in paragraph 2?	To show another way that trees cool an area, besides making shade.
3	Why do scientists measure the same kinds of surfaces at about the same time of day?	So they can make a careful comparison of shaded and sunny places and help planners decide where trees could be most useful.
4	A planner can choose one schoolyard for new trees. Which is a stronger choice, a schoolyard with little shade or one with many trees already? Explain.	A schoolyard with little shade, because the passage gives it as a place where trees could be useful.

PART 3 • YOUR TURN (SAMPLE ANSWER)

City planners should look for places with little shade because tree leaves block sunlight and keep surfaces from absorbing as much heat. They should also remember that trees cool air when water leaves their leaves as vapor. By comparing shaded and sunny spots at about the same time, planners can decide where trees could be most useful.

Accept responses that state the passage explains tree cooling and tree-placement decisions. For the open task, accept three sentences that accurately use one relevant detail from each paragraph and connect those details to a planting decision.