

Rain Plan Puzzle

Study how a model explanation combines sources, details, and transitions.

ELA.8.C.1.4 "Write expository texts to explain and analyze information from multiple sources, using relevant supporting details, logical organization, and varied purposeful transitions."

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB In paragraph 1, underline the EPA explanation of permeable pavement. In paragraph 2, underline the research finding about stronger storms. Circle In addition, However, and Therefore. Explain how the sources work together in the questions below.

How Trees and Pavement Manage Rain

- ① Source A - U.S. Environmental Protection Agency (EPA). In Types of Green Infrastructure, the EPA describes several ways to manage stormwater. Permeable pavement lets rain soak through its surface into layers of soil and gravel. Water can then enter the ground or leave through a drain beneath the system. In addition, the EPA describes trees and planted features as parts of streets that can store or filter stormwater. These details explain different tools, not a promise that any one tool prevents every flood. Educational summary: epa.gov/green-infrastructure/types-green-infrastructure.
- ② Source B - research published by Eric Kuehler, Jon Hathaway, and Andrew Tirpak in 2017 and hosted by the U.S. Forest Service. Their review describes trees holding rain in their crowns, delaying runoff, and helping urban soil take in water. However, tree canopies are most effective during short, low-intensity storms and less effective as rain becomes heavier or more intense. The authors recommend considering trees as part of a broader stormwater network and acknowledge gaps in the research. Educational summary of the abstract, Quantifying the benefits of urban forest systems as a component of the green infrastructure stormwater treatment network: research.fs.usda.gov/treesearch/54846.

- ③ Reading the sources together suggests a connected plan. The EPA explains how water can move through a permeable surface; the Forest Service-hosted review explains what trees can do and when their canopy benefit is more limited. Therefore, a city could consider both features instead of claiming that trees alone will handle every storm. This is a synthesis: it connects distinct evidence and identifies a limitation. It does not provide local measurements or a final engineering design. An effective explanation tells readers which fact comes from which source and why the facts belong together.

2 ANSWER WITH EVIDENCE Use the passage

- 1 What happens to rain in the permeable pavement system described by Source A?

- 2 What limit does Source B place on the benefit of tree canopies?

- 3 How do However in paragraph 2 and Therefore in paragraph 3 connect ideas differently?

- 4 How does paragraph 3 synthesize the sources rather than simply repeat their names?

Write an 85-110-word expository paragraph explaining why a city might combine trees and permeable pavement to manage stormwater. Use accurate information from both supplied sources, explain how the features work together, include the tree-canopy limitation, and use at least three purposeful transitions.

Name the EPA and the Forest Service-hosted review or its authors. Connect relevant details instead of listing source names. End with a conclusion that respects the evidence; do not invent local measurements or promise to prevent all flooding.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

PART 1 • READ AND MARK

In paragraph 1, underline the EPA explanation of permeable pavement. In paragraph 2, underline the research finding about stronger storms. Circle In addition, However, and Therefore. Explain how the sources work together in the questions below. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What happens to rain in the permeable pavement system described by Source A?	It passes through the surface into soil and gravel layers, then either enters the ground or leaves through a drain beneath the system.
2	What limit does Source B place on the benefit of tree canopies?	Canopies are most effective in short, low-intensity storms and less effective as rainfall volume or intensity increases.
3	How do However in paragraph 2 and Therefore in paragraph 3 connect ideas differently?	However introduces a limit to the benefit of trees; Therefore introduces a conclusion drawn from considering both sources.
4	How does paragraph 3 synthesize the sources rather than simply repeat their names?	It connects EPA information about permeable surfaces with research about tree benefits and storm limits to explain why a city could combine features.

PART 3 • YOUR TURN (SAMPLE ANSWER)

First, a city could combine trees with permeable pavement to manage rain in different ways. The EPA explains that water passes through permeable surfaces into soil and gravel layers. In addition, the Forest Service-hosted review describes trees holding rain in their crowns and delaying runoff. However, it finds canopy benefits decrease as storms become heavier or more intense. Therefore, pairing these features could give water several paths for storage or slower movement. The sources support a connected approach, but they do not show that a specific city plan will prevent every flood.

Accept accurate paraphrases with attribution to EPA and the Forest Service-hosted review, or Kuehler and colleagues. The review is a synthesis of research with acknowledged gaps, not a local experiment. An 85-110-word explanation should connect the mechanisms, analyze the storm-intensity limitation and use at least three meaningful transitions. Soil infiltration and an underdrain are alternative paths described for pavement systems. Reject guarantees that any particular design eliminates floods. No outside sources are needed.