

Read the short story and answer each question.

How Bridges Stay Strong

Bridges connect places that would otherwise be hard—or impossible—to reach. From simple log crossings to giant steel spans over oceans, bridges help people and vehicles move safely. But how do these enormous structures stay strong?

The main idea is that bridges are built using smart designs that balance weight and force. Engineers study how bridges carry heavy loads, handle wind, and stretch across long spaces. Every part of a bridge has a job to do.

Some bridges use **triangles** in their structure. Triangles are one of the strongest shapes in nature. Truss bridges use metal or wooden triangles to spread weight evenly, making the bridge stable and tough.

Arch bridges use curved shapes that push weight down into the ground at both ends. This design has been used for thousands of years—even in ancient Rome.

Suspension bridges hang from thick cables. The cables stretch across towers and hold up the bridge deck, allowing it to cross rivers, bays, or valleys. The Golden Gate Bridge is one famous example.

Engineers also study **forces** like compression (pushing) and tension (pulling). By balancing these forces, they prevent the bridge from bending or breaking.

Even the materials used—like steel, concrete, or rope—are chosen for strength and flexibility. In the end, strong bridges aren't just about size. They're about smart, careful design.





Name:

How Bridges Stay Strong

2. Which detail supports the main 1. What is the main idea of the idea? passage? Bridges are fun to walk on Α. Α. Some bridges are blue Β. Bridges are strong because Β. Truss bridges use triangles to they're made of only steel spread weight C. Bridges stay strong because С. Bridges are only for cars of smart design and careful D. People invented bridges balance during the Ice Age Bridges are useful but unsafe D. in storms

3. Fill in the blank:

Suspension bridges use ______ stretched over tall towers to hold up the road below.

4. Give two examples from the passage that show how bridges are designed to stay strong.

5. Write a short summary of the passage using the main idea and at least two supporting details.



Guide Reading Level: R Lexile Level: 790L-940L Grade Level: 4th Grade, Middle of the Year Genre: Informational Nonfiction - Engineering

Introducing the Text

"In this passage, we'll explore how animals use sound in the wild to help them survive. As we read, we'll focus on finding the main idea of the text and the important facts that support it. We'll also practice summarizing the passage by putting the most important points into our own words."

Vocabulary: communicate, echolocation, predator, signal, bounce

Before Reading Discussion Questions

- 1. What types of bridges have you seen before?
- 2. What do you think makes a bridge strong enough to hold people and vehicles?
- 3. Why might bridges need different shapes and designs?

During Reading Discussion Questions

- 1. How do truss bridges use triangles to stay stable?
- 2. What makes arch bridges different from suspension bridges?
- 3. Why do engineers think about both pushing and pulling forces?

After Reading Discussion Questions

- 1. What is the main idea of the passage?
- 2. Which details helped you understand how bridges stay strong?
- 3. How would you explain this passage in 2–3 sentences to someone else?

Activity Idea

Give students images of four different bridges (truss, arch, beam, suspension). Have them label the type and write one sentence about how the design helps the bridge stay strong. Then have them build a simple model using craft sticks or paper, and test which design can hold the most weight (using coins or washers). Ask them to write a short paragraph summarizing what they learned.



