

■ ■ Bridge Builder

Guided Notes Activity

Grades 3–5 | myschoolhero.com

Name _____

:

—

Date: _____

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Class: _____

■ **How to use these notes:** As you play each level of Bridge Builder on MySchoolHero, fill in the blanks and answer the questions below. Use what you discover IN the game — no guessing needed!

PART 1 — What Makes a Bridge Work?

Before you play, think about what you already know. A bridge must carry a **load** (weight) across a **gap** (opening).

1. In your own words, what is the job of a bridge?

2. Name **two** things a bridge has to be strong enough to hold:

a) _____

b) _____

Key Forces — fill in what each force does to the bridge material:

Force	What it does	Symbol
Compression	_____	■ ■ ■ ■
Tension	_____	■ ■ → ■

PART 2 — Play the Levels (fill in as you go)

Level 1 — First Beams

About this level: A flat beam spanning a small gap.

1. The beam carries the load by bending. The top is under _____ (squeezing) and the bottom is under _____ (pulling).

2. Did your bridge hold the truck? ■ Yes ■ No ■ Almost!

3. One thing I tried: _____

Level 2 — Triangle Power

About this level: Triangles added to the beam frame.

1. Why do triangles make a bridge stronger? _____

2. A triangle shape is called a _____. (Hint: it starts with "tr")
3. Did your triangle bridge hold? ■ Yes ■ No
4. What happened when you used squares instead? _____

Level 3 — Arch & Cables

About this level: Two new designs: the arch and the cable bridge.

1. An arch pushes the load _____ (outward / inward) into the ground.
2. A cable bridge hangs the road from towers using _____.
3. Which design looked stronger to you? ■ Arch ■ Cable ■ Same
4. Why? _____

Level 4 — Choose Your Design

About this level: Pick any design and build efficiently.

1. I chose the _____ design because _____

2. Efficiency means using the _____ beams possible while still holding the load.
3. My efficiency score: _____ Was that good or could it improve? _____

Level 5 — Build All Four

About this level: Build one of each type with a heavy load.

1. List the four bridge types you built: 1) _____ 2) _____ 3) _____ 4) _____

2. Which was hardest to build? _____ Why? _____

3. Which bridge type do you think engineers use MOST in real life? _____

PART 3 — Bridge Types (use "Bridge Types" mode in the game)

Click the **Bridge Types** button in the Learn & Play section. Then fill in the table below:

Bridge Type	Main feature	Real-world example	Best for...
Beam	_____	_____	_____ —

Arch	_____	_____	_____
Truss	_____	_____	_____
Suspension	_____	_____	_____
Cable-Stayed	_____	_____	_____

PART 4 — Great Engineers (use "Great Engineers" mode)

Explore the **Great Engineers** section, then answer:

Name one engineer you found and the bridge or structure they are famous for:

Engineer name: _____ Famous work: _____

When did they live? _____ Country: _____

What challenge did they have to solve? _____

What is one thing that surprised you about this engineer? _____

PART 5 — Vocabulary (use "Vocabulary Quest" mode)

Match or define these bridge-engineering words:

Word	My definition
Load	_____
Span	_____
Compression	_____
Tension	_____
Truss	_____
Deck	_____
Abutment	_____
Cantilever	_____

REFLECT — Big Thinking Questions

1. If you were a real engineer building a bridge over a wide river canyon, which type would you choose and why?

2. How is building a bridge in the game *similar* to real bridge engineering? How is it *different*?

3. What is one thing you would change about bridge design to make bridges safer or more efficient?
