

# Bridge Design — Two Evidence Options

NAME \_\_\_\_\_ DATE \_\_\_\_\_ PERIOD \_\_\_\_\_

## Constraints and Evidence Boundary

- 12-inch clear span between secured supports
- same fictional material limit for both options
- one marked load point
- same fictional staged loads and stop rule in the Day 4 dataset
- fixed-data analysis as the complete Day 4 route

This classroom prototype does not validate a real bridge. Real work requires licensed analysis, codes, materials testing, geotechnical evidence, public review, and longer validation.

## Bridge Systems

- **Beam:** deck/member spans supports; performance depends on geometry, material, connections, span, and loading.
- **Truss:** connected members form triangular units that can stabilize an idealized pin-jointed frame; joint/member behavior still matters.
- **Arch:** curved form transfers compression toward supports/abutments; support behavior matters.

**Word bank:** span · support · member · joint · load point · load path · weak point

**Design question:** How will the complete system carry the marked load toward the supports?

**Option A — Top and Side Views**

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Label 12-inch span, supports, members, joints, and marked load point.

**Top view**

**Side view**

Expected load path and predicted weak point:

**Option B — Top and Side Views**

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Label 12-inch span, supports, members, joints, and marked load point.

**Top view**

**Side view**

Expected load path and predicted weak point:

Critique, Choice, and Career Role

Evidence-based strength of Option A:

Evidence-based strength of Option B:

Chosen option and reason:

Career/role responsible for the next step, evidence needed, and work product:

**Use this frame:** I selected Option [A/B] because [evidence]. Next, a [role] would use [evidence] to produce [work product].