

Challenge 1: Bring Home the Bacon

Suggested Resources

BOOKS

Johmann, C. A., & Rieth, E. J. (2004, January 20). *Bridges! Amazing structures to design, build & test*. Charlotte, VT: Williamson Publishing.

Prince, A. J. (2005, September 26). *Twenty-one elephants and still standing*. New York, NY: Houghton Mifflin Company.

Simon, S. (2005). *Bridges*. San Francisco, CA: Chronicle Books LLC.

Sturges, P. (1998, October 26). *Bridges are to cross*. New York, NY: G. P. Putnam's Sons.

VOCABULARY

- **Beam:** a horizontal structure that supports a load and resists bending
- **Bridge:** a structure designed to allow vehicles and people to move over an obstacle
- **Deck:** the surface of the bridge on which the vehicles and people travel
- **Flexibility:** the ability to bend or move
- **Load:** weight put onto a bridge; may come from gravity, wind, vehicles, and more
- **Material(s):** the things used to build a bridge such as steel, concrete, wood, etc.
- **Physical properties:** characteristics used to describe objects
- **Span:** the length of the bridge; the space between the two supports of the bridge
- **Support:** a vertical structure that holds up the deck of a bridge
- **Unstable:** characteristic used to describe a bridge or a part of a bridge that falls apart, collapses, or is unable to support a load

There are four types of bridges. Which type of bridge would be best for this challenge?

BEAM



made with a horizontal beam and supported by piers

TRUSS



made with a combination of triangles

ARCH



made of arches that support the bridge deck; naturally strong

SUSPENSION



long bridges supported with a system of cables and towers

Challenge 3: Outdoor Learning Rocks!

Suggested Resources



WEBSITES/BLOG POSTS

Preview each site before teaching the challenge to determine what you will share and what you will use for your reference.

Hermansen-Baez, A. (n.d.). *Creating an outdoor classroom: Things to consider* [Blog post]. Retrieved from <https://www.plt.org/educator-tips/creating-an-outdoor-classroom-things-to-consider/>

Science academies for grade K–4, part 2 (Participants) [Online guide]. (n.d.). Retrieved from <https://www.texasgateway.org/resource/science-academies-grade-k-4-part-2-participants>