

Bridges *pre-activity*



Frank Lloyd Wright is one of the world's most famous architects, creating more than 1,000 designs and completing nearly 500 buildings in his lifetime. Along with designing a tremendous amount of structures in his lifetime, many people don't know that Wright also designed more than 40 bridges. Wright's bridge designs ranged in size, shape, and color, and were designed for clients across the world. However, many of these bridges were never built!

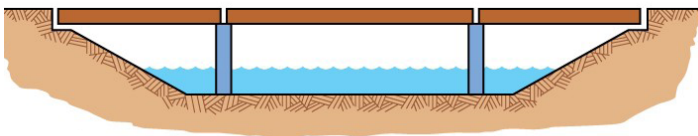
As a pre-visit activity to your educational tour of Frank Lloyd Wright's Taliesin West, your students will explore different bridge types designed by architects and engineers.

PART 1

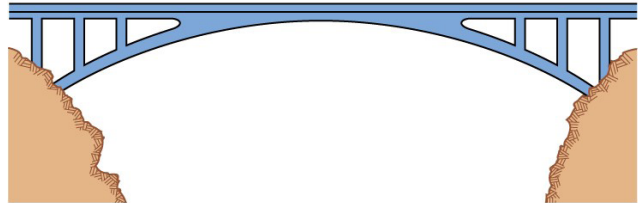
Assign working groups of students, have each group research one type of bridge from the chart below. Each group should find one example that matches the design of their assigned bridge from books or internet searches. Print out a picture of the selected bridge and have students answer the following questions.

- What is used to support the span of the bridge?
- Can you identify what geometric shapes are used in the design of the bridge?
- What obstacle(s) is the bridge crossing over?
- Who or what uses this bridge for transportation?

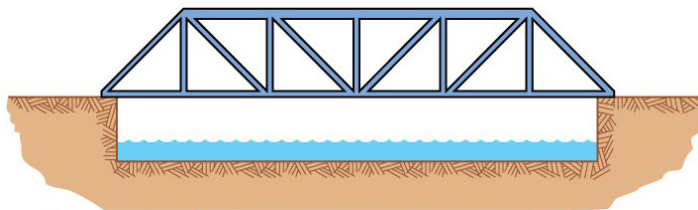
BRIDGE TYPES



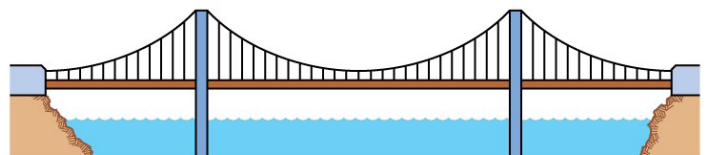
BEAM



ARCH



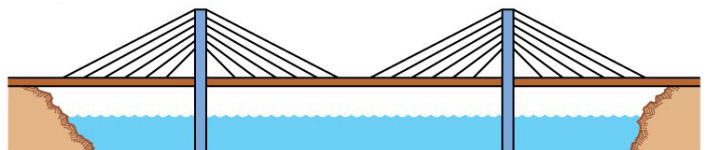
TRUSS



SUSPENSION



CANTILEVER



CABLE-STAYED

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PART 2

Once the groups have answered the exploration questions, have groups draw a design of a bridge to go over a river. Please have them measure their bridge with a ruler to see how long it is.

PART 3

Conclude the activity by having each group share their assigned bridge type, the bridge they researched, and their drawing of a bridge design.

Bring the researched bridge photo and group design with you to your tour at Taliesin West.

BRIDGE RESEARCH RESOURCES FOR STUDENTS

<https://unsplash.com/search/photos/bridge>

<http://www.historyofbridges.com/famous-bridges/list-of-famous-bridges/>

https://en.wikipedia.org/wiki/List_of_bridges

https://en.wikipedia.org/wiki/List_of_bridge_types

Richardson, Joy. Bridges, 1994.

Adkins, Jan. Bridges: From My Side to Yours, 2002.

Dupre, Judith. Bridges: A History of the World's Most Spectacular Span, 2017.

AZ STANDARDS

Fourth Grade: G.A, E1U2

Fifth Grade: MP.1, MD.A.1

Sixth Grade: MP.4, L2U3.11

Seventh Grade: MP.4

NGSS STANDARDS

Third-Fifth Grade: ETS1-2.

Sixth-Eighth Grade: MS-ETS1-2.