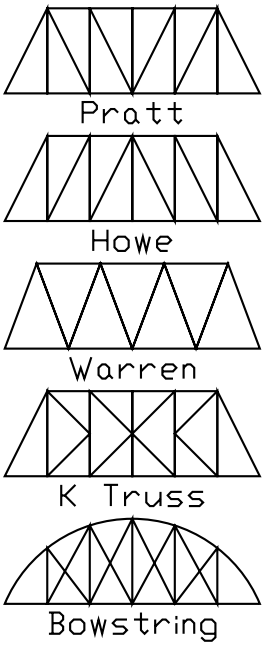
Tips

- Try drawing your bridge before you begin construction. It may take drawings from several directions to completely represent your bridge. If you make a full scale drawing of your bridge, you may be able to use the drawing as a pattern during construction.
- Your bridge will need to be longer than 42.23 cm to span or bridge the 42.23 cm opening. You might consider building your bridge about 50 cm long. If your bridge is longer than 64.77 cm, it will not fit in the testing machine.
- You could build your bridge using no more than 500 toothpicks and no more than 1¼ ounces of wood glue or white glue in order to stay under the weight limit. You could use any standard length round, square or flat wooden toothpicks. You could use either natural or colored toothpicks. You could use other kinds of glue.
- Joints made with hot melt glue are very flexible compared to joints made with wood glue. Toothpick bridges made with hot melt glue tend to deform significantly without breaking the toothpicks or the joints. Toothpick bridges made with white glue usually fail with broken joints and toothpicks. They tend to support greater loads than bridges made with hot melt glue.
- You could use any material or combination of materials to build bridges for the open-materials category. Consider materials such as balsa wood, paper, cardboard, plastic film and tape, foam-core board or foam, popsicle sticks, or anything else. Consider materials that are strong, easy to work with, and readily available.

Truss Types



Definitions

"**bridge**[1] (brij) n. 1. any structure built across a waterway, chasm, or other obstacle to afford passage."[1]

"**bridge** (brij) bridge[1] n. 1. A structure spanning and providing passage over a waterway, railroad, or other obstacle. 2. Something resembling or analogous to a bridge in form or function."[2]

What are the other nine definitions of bridge?

"**force** (fôrs) n. 2.a. strength, constraint, or power exerted upon an object: He used force to open the door. 8. Physics. that which causes bodies to move or change their motion: gravitational force."[1]

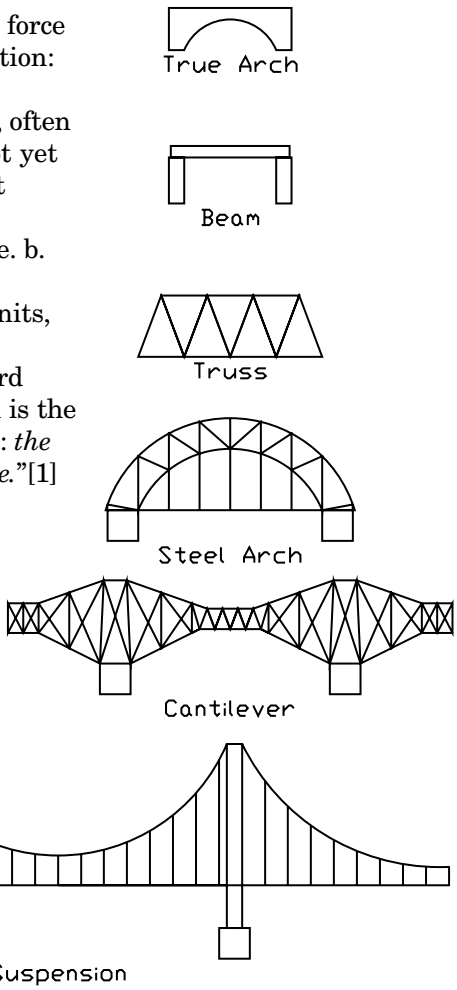
"**model** (mŏd´l) n. 1. A small object, usually built to scale, that represents another, often larger object. 2. A preliminary pattern serving as the plan from which an item not yet constructed will be produced. 3. A tentative description of a system or theory that accounts for all of its known properties."[2]

"**span**[1] (span) n. 3.a. distance between two supports, as of an arch, beam or bridge. b. part or section between two supports."[1]

"**truss** (trus) n. 2. framework of wood or metal, usually consisting of triangular units, used to span an opening or support a heavy load, as of a bridge or roof."[1]

"**weight** (wāt) n. 1. any quantity of heaviness expressed indefinitely or in standard units: *Her weight is only one hundred pounds.* 2. quality of any mass or body which is the result of gravitational force... tending to pull things toward the center of the earth: *the weight of helium is less than the weight of air, causing a helium-filled balloon to rise.*"[1]

Bridge Types



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