

SNACK BRIDGES

Did you know that you can build a bridge out of tasty things to eat? This simple activity will put your engineering skills to the test and let you enjoy a snack at the same time!

An **engineer** is a person who designs, analyzes, builds, and tests machines, systems, structures, and materials. A **civil engineer** designs safe structures for transportation, such as highways, bridges, tunnels, and freeway interchanges. A **bridge engineer** makes sure that the bridges they design can carry the weight of people and cars without breaking or collapsing.

First, learn about bridge design: <https://www.pbs.org/wgbh/buildingbig/bridge/basics.html>

It's important to start with a plan. Consider what you learned from the webpage listed above. You can, and should, modify your plan along the way as you discover what works well and what doesn't. You can sketch out your design first, if you wish. That's what engineers do.

Gather together these supplies:

- Marshmallows, grapes, apple pieces, cheese cubes, bread cubes, and/or gumdrops (mix and match or substitute with whatever similar items you have on hand)
- Thin pretzel sticks
- Small toy figures, toy cars, small plastic building blocks, etc. to use as test subjects for bridge crossing

Explore your supplies and make some test shapes before beginning on your bridge. Try some different snack materials and see how well they can hold together with the pretzel sticks. Which materials are strongest? Which ones are weakest?

Select your building (and snacking) materials, then start putting it all together. Test your bridge as you build to be sure it is stable – that it can stand or be propped up without collapsing.

Once you are satisfied with the final design, test the integrity of the bridge with the help of your test subjects. **Structural integrity** is the ability of an object to hold together under a load, including its own weight, without breaking or deforming. Walk, push, or roll your test subjects across the bridge. Is it still standing? Does your bridge have structural integrity? If so, then congratulations! Have a snack to celebrate! If not, have a snack anyway. You've earned it! Then go back to the drawing board to redesign, and try again.

ADDITIONAL RESOURCES:

<https://www.cbc.ca/kidscbc2/the-feed/seven-unbelievable-bridges-from-around-the-world>

<https://azdot.gov/adot-blog/adot-kids-activity-get-know-bridges>

http://aspirebridge.com/magazine/2010Winter/galena_creek_win10.pdf