

A STEM in the Park Take Home Activity

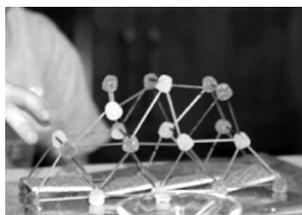
STEM in the PARK

Science, Technology, Engineering, and Mathematics

Gumdrop Bridge

What You Need

- Gumdrops/Marshmallows/Fruit Snacks
- Toothpicks



What To Do

1. Design a bridge using a style of bridge you think would be the best to span over a distance. Draw a picture of your bridge on the back.
2. Set up your bridge support structures – such as two stacks of books spaced apart. (Start with spacing the books about 4 inches apart.)
3. Insert the toothpicks into the gumdrops to create a bridge structure to match your picture.
4. Test the bridge structure by placing it on the supports spanning across the gap between them. Test the bridge by placing sheets of paper to see how well the bridge will stand up to the weight. See what effect increasing the space has on the strength of the bridge.
5. When done, remove the toothpicks and enjoy the candy!

Continued on back

Bridge Design *(Draw a picture below of the bridge you will build)*



Observe...

What bridge design can span the farthest gap? Does increasing the number of toothpick pieces have any effect on the strength of the bridge? What other materials can be used to make a stronger or weaker bridge?

Learn...

Construction of bridges often involve using the same set of materials such as concrete and steel, however each bridge design and the supporting structure vary depending on the span of the bridge and what weight the bridge will be subjected to. Engineers use those factors to design a bridge that both meet the aesthetic (the look of the bridge) and structure (the weight the bridge supports) needs.

Investigate...

Try alternate bridge designs to see which can support the most weight. Make a chart of each bridge style. For each, measure the distance between the bridge supports and how many pieces of paper each can support. What effect does additional weight have to the bridge? Does it bend or break? What happens when the span of the bridge increases ?

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