



BRIDGE BATTLE

Build two different bridges to see which is strongest!

Materials

- 7 Straws
- Paper cup
- Tape
- Thread
- Scissors
- 4 Paper clips
- Coins, or something to use as weights

Procedure

- Cut one straw to make two 1 inch pieces. Place the short piece between 2 long straws and tape them together as seen in the image. These will be the towers for your bridge.



- Tape one tower to the edge of a desk or chair. The short piece should be at the bottom of the tower. Tape the second tower to another piece of furniture at the same height about 5 inches away from the first tower.
- Place a straw between the towers so that its ends rest on top of the short pieces. You have now built a simple beam bridge!
- Poke 2 small holes in the rim of your paper cup, directly across from each other. Twist a paperclip into an upside-down V shape and hook the ends into the holes. Tie a thread to the point of the upside-down V, then tie the other end to the middle of the horizontal straw.
- Start filling the cup with coins. See how many coins it can hold before it falls.
- Next, cut a 3 foot length of string. Tie the center of the string to the middle of the bridge. Pass each end of the string over a tower and down the other side. Once the string is taut on either side, tape the ends of the string down securely.
- Hang the paper cup from the bridge again and see how much weight it can hold this time.

Results

The suspension bridge can hold more weight than the beam bridge.

Why? The beam bridge collapsed when too much weight was added. The suspension bridge was able to hold more because the bridge was supported by "cables." The cables were under tension, which means they were pulling at the weight on the bridge. The towers were under compression, which means they were being squeezed down by the weight on the bridge. The cables and towers help share the weight, so the bridge is able to hold more.

This activity was adapted from Interactive Science