

Spaghetti Bridge

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Objective: Build the lightest bridge capable of holding 2 kg using regular spaghetti.

Safety Equipment:

Teams are required to wear safety goggles throughout the setup and testing of their bridge. Teams are responsible for bringing their own goggles.

Materials:

Teams may use only raw **spaghetti** noodles (angel hair, fettuccini, lasagna, vermicelli, etc. noodles are not permitted).

Teams may use standard liquid adhesives, including white glue, hot glue, cyanoacrylate glues (Crazy Glue), etc. Tape and other non-liquid adhesives are not permitted.

Bridge Requirements:

1. Bridges must span between two abutments (sawhorses) 0.4 m apart. The bridges themselves may be longer.
2. The bridges must have a 'deck' to support a 5 cm x 15 cm x 0.5 cm loading platform.
3. The 'deck' must have a hole in the center allowing a loading string to pass from the loading platform down 0.25-0.5 m for loading purposes.
4. The lower portion of the bridge must have an open area allowing the loading string to pass through unimpeded.

Testing:

Teams will have 2 minutes to setup their bridge on the abutments, place the loading platform and apply a load of up to 2 kg. There will be an assortment of 0.05, 0.1, 0.2, 0.5 and 1 kg masses available for loading. Teams may not touch their bridges once loading has begun.

Teams may continue loading until either their bridge fails (breaking or ungluing of a piece of spaghetti) or they reach the weight limit. Bridges must support a weight for 10 seconds for that weight to be counted. The 10 second support time may extend beyond the 2 minute loading time.

Any team that continues loading after the 2 minute loading period will be scored in tier 2 as outlined below.

Scoring:

Bridges will receive a 'score' that is the strength to weight ratio of the bridge

$$Score = \frac{\text{Mass Supported}}{\text{Bridge Mass}}$$

Bridges will be ranked in the following order: (1) highest to lowest score supporting 2 kg without breaking, (2) highest to lowest score supporting less than 2 kg prior to breaking.