*The Spaghetti Bridge*

# Goal

* In teams of 2, make a bridge out of spaghetti that holds as much weight as possible.

# Materials

* You may **only** use **spaghetti** (no tubular or flat pastas) and **glue** (any kind of glue is fine)
* The maximum allowable mass of the bridge is **2000 g**

# Dimensions

* Your bridge must span a **100 cm gap** between two tables of the same height.
* Maximum bridge height is **50 cm above** the table height.
* Maximum bridge depth is **10 cm below** the table height.
* Maximum bridge **length is 110 cm**.
* Maximum bridge **width is 10 cm**.
* Every bridge must have a solid **deck** (for cars, of course!) that passes between the two tables:

The deck may not rise or fall more than 5 cm.
No gaps or spaces larger than 0.5 cm are allowed in any part of the deck.

A test car (6 cm x 6 cm x 10 cm) must fit and pass freely across your entire bridge deck.





test car

# Bridge Design Resources

To test your design ideas *before* you start making your bridge, try out the great engineering program *West Point Bridge Designer*—it’s free! [**http://bridgecontest.usma.edu/**](http://bridgecontest.usma.edu/)

* On the day of the competition, every bridge will have a U-bolt installed in the centre (see diagram below). Weights will be hung from this point during testing. A “platform” will also be installed that is the same size as the bottom of the test car (6 cm x 10 cm) and is designed to stop the U-bolt from tearing through your bridge deck when weight is added.



platform

# Testing

* The mass of your bridge will be recorded.
* The dimensions of your bridge will be checked.
* The deck will be inspected for gaps and the test car must pass freely across the entire deck.
* Weights will be hung from the centre of your bridge as follows:

1) one team member will add mass (minimum 100 g)

 2) a judge will determine if the bridge is still stable

 3) if the mass is held, it “counts” towards your score—you may go on

 4) mass is added until your bridge is destroyed!

# Scoring

 Mass held by bridge (more is better)

 Mass of bridge (lighter is better)

Example: A 1250 g bridge that holds 3200 g has a score of 3200 ÷ 1250 = 2.56

 A 650 g bridge that holds 1800 g has a score of 1800 ÷ 750 = 2.77

**Due Dates**

1. Sketch/diagram of your bridge due for a lunch time meeting on **Friday, November 2nd (W205)**
2. Picture of your prototype due for a lunch time meeting on **Thursday, November 8th (W205)**
3. **Competition Day Thursday, November 29th starting at lunch and extending into block 2-4 (C207)**
4. Reflection Assignment - due **Friday, December 7th**