

PA-TSA Alumni Association

ACS Challenge

The ACS Design Challenge consists of 2 charity events, and is open to all Students, Advisors, Chaperones, and Alumni of Pennsylvania TSA. The events are inspired by current TSA events, but with a modified set of rules to allow wider participation.

Participants are limited to 1 entry in each of the 2 competitions run this year. The fee to enter is a \$5 donation to the ACS for each event entered.

Winners of the event will be announced during the PA-TSA State Conference, and have their names added to the PA-TSA Alumni Trophy, along with the Event and Year of Competition.

Name: _____

School/Organization: _____

Entry Judging

Structure Weight: _____

Strength: _____

SWR: _____ (Weight / Strength)

ACS Structural Engineering Challenge

The ACS Structural Engineering challenge follows the Structural Engineering event, but with the following rules:

2025 Problem

The design solution will be a bridge that will span a gap of 15".

Length:	Minimum: 15.5"	Maximum: 16"
Width (interior):	Minimum: 2"	Maximum: 3"
Height:	Minimum: 0"	Maximum: 4"
Substructure:	Minimum: 0"	Maximum: 2"
Test Block:	6" long x 2" wide x $\frac{3}{4}$ " tall	
Span:	The structure tester will have a span of 16"	

Specifications

1. The solution must be made using the standard $\frac{1}{8}$ " x $\frac{1}{8}$ " or $\frac{1}{4}$ " x $\frac{1}{8}$ " balsa sticks used in competition.
2. Material quantity used for construction is at the discretion of the builder. There is no maximum quantity limitation.
3. The test block will be 6" long x 2" Wide x $\frac{3}{4}$ " tall (placed with length horizontal)
4. The test block will be placed on the solution in the center. There is no minimum measurement from the bottom of the solution to the top of the test block. The solution must accommodate the placement of the test block in the center of the solution from either end or top.
5. No part of the construction may extend above 3" above, and 2" below the abutment.
6. The solution may not contact the vertical surface of an abutment below the top at any time.
7. Both Substructures (below) and Superstructures (above) may be used for the construction, at the builder's discretion.
8. Lamination refers to the combining of two or more pieces of materials with the glue grain running in the same direction. Laminations of any kind are NOT allowed in the construction of the solution.
9. Lap joints of less than 15 degrees or more than 165 degrees are not permitted.

Judging

Judging for the event will consist of destructive testing of the structures and based on a Load / Weight efficiency. Assuming the above rules are followed, the structure that has the best Load to Weight ratio will win the competition.