

Toothpick Tower



Objective: *To build a tower that will support the maximum amount of weight using only the approved materials and the following guidelines. The tower will be tested for strength by placing weights on the top until failure.*

1. The project requires a team of one or two students.
2. The tower should be built of the following:
 - Regular sized, uncolored wooden toothpicks (*round or flat*). No bamboo toothpicks allowed.
 - Wood glue (*such as Elmer's glue*)
 - Normal cotton sewing thread (*The original spool with some thread remaining on it should be provided to the judges.*)
 - No other materials are to be used in the tower.
3. The tower should meet the following requirements:
 - The tower should be 1 foot 3 inches in height. (*margin of error = 6/16th inches plus or minus*)
 - The base of the tower shall be no smaller than (4 inches) per side and no larger than 6 inches per side.
 - The base of the tower must have a minimum of 4 sides and a maximum of 6 sides.
 - Total mass of the tower must not exceed 4.5 ounces.
 - The tower must be "free standing". It may not have a base other than one made of toothpicks. In other words, it may not be attached to cardboard, wood, or any other material.
4. The top of the tower must be flat and able to support a 8 inch x 8 inch board that will hold weights, and no part of this board may be less than 15 and 12/16th inches off the ground. The board will be provided at the science fair.
5. Toothpicks cannot be laid side by side for the entire length of the toothpick. A maximum of 13/16th inches (margin of error = 3/16th inches plus or minus) overlap is allowed between two toothpicks.
6. Glue and thread should be used sparingly and should only be used to attach toothpicks to one another. Towers should not be saturated or covered in glue or covered in thread.
7. The glue must be dry, and the tower must be in one piece at the time of testing.
8. All entries must have a project notebook containing the following information:
 - Scale drawing or plan of the tower
 - Log of hours worked on project, problems encountered, and improvements made
 - Each member's contribution to the project. Teams may consist of no more than two members.
 - A list of resources used and what information was gained from each

- Amount of materials used (number of toothpicks, amount of glue, amount of thread). Contestants must provide the spool of thread that was used with thread remaining to verify the materials used.
- Notebook requirement should be typewritten. No project will be accepted without a notebook. No notebook will be accepted without a project. They must be checked in at the same time.

Towers that do not meet all of the above requirements will be disqualified.

Note: After the completion of the competition all projects must be removed from the Expo Center. An area will be designated outside the Expo fence (near the flag poles) for late pickup of projects on the same day. Students are responsible for moving their projects to this area prior to leaving on the day of competition. Projects in this area will be disposed of if still present the morning following competition. Any projects left in the competition areas will be disposed of by the cleanup crew at the Expo Center immediately following the event. The Angelina County Science & Tech Fair, George H. Henderson, Jr. Exposition Center, and the Lufkin/Angelina County Chamber of Commerce are not responsible for any projects left outside for late pickup.

Toothpick Tower Scoring Sheet

Team # _____

Division: _____ Middle School (grades 6-8) Specify grade: _____
 _____ High School (grades 9-12) Specify grade: _____

Name of school: _____

Name of participants: _____

TOWER SPECIFICATIONS	
Length:	Width: Height:
Weight:	Materials Verification: a. Toothpicks:
Failure Load:	b. Glue: c. Thread:

CATEGORY SCORE	POSSIBLE POINTS	ACTUAL POINTS
Weight of tower	1-20 points	
Project Notebook	1 – 20 points	
a. Plan to scale (0-5 points)		
b. Log (0-5 points)		
e. Materials used (0-5 points)		
f. Typed and neat (0-5 points)		
Strength of Tower	1 – 60 points	
Notes: <div style="float: right; background-color: #ADD8E6; padding: 5px; margin-top: 10px;">TOTAL SCORE:</div>		

