

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*)
 - 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 be 40 centimeters in height. (*margin of error = 1 cm plus or minus*)
The base of the tower shall be no smaller than 10 cm x 10 cm and no larger 15 cm x 15 cm.
4. Total mass of the tower must not exceed 125 grams. 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.
5. The top of the tower must be flat and able to support a 20 cm x 20 cm board that will hold weights, and no part of this board may be less than 40 cm off the ground. The board will be provided at the science fair.
6. Toothpicks cannot be laid side by side for the entire length of the toothpick. A maximum of 2cm (*margin of error = 0.5cm plus or minus*) overlap is allowed between two toothpicks.
7. 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.
8. The glue must be dry, and the tower must be in one piece at the time of testing.
9. 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.

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

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:	
Failure Load:	a. Toothpicks: b. Glue: c. Thread:	

CATEGORY SCORE	POSSIBLE POINTS	ACTUAL POINTS
Weight of tower (125 grams max.)	1-20 points 1 point deducted for each gram over weight	
Project Notebook	1 – 20 points	
a. Plan to scale		
b. Log		
c. Contributions		
d. List of resources		
e. Materials used		
f. Typed and neat		
Strength of Tower	1 – 60 points	
Notes:		
		TOTAL SCORE:

