

EVENT 4: Collapsing Tower

OBJECTIVE: To cause a domino from a tower of dominos to land in a collapse zone as far away from the base of the tower as possible.

RULES:

- a. The tower is to be built from up to 100 dominoes, supplied by the team, of the following sizes:
 - **Mini Dominoes** - About 1-3/16" long by 9/16" wide by 3/16" thick
 - **Standard Dominoes** - About 1-7/8" long by 15/16" wide by 1/4" thick
 - **Professional Dominoes** - About 2" long by 1" wide by 3/8" thick
 - **Jumbo Dominoes** - About 2" long by 1" wide by 1/2" thick
 - **Tournament Dominoes** - About 2-3/16" long by 1-3/32" wide by 1/2" thick
 - **White Porcelain Dominoes** - About 2" long by 1" wide by 5/16" thick.
- b. Each team will design and build their tower during the event.
- c. Multiple team schools may use the same dominoes.
- d. The tower will be constructed behind a taped line on a tile floor that is similar to most high school classrooms.
- e. The base of the tower must be entirely behind the taped line.
- f. The team will fasten a string, provided by the team, around one of the dominos.
- g. The string may *not* be attached to or wind around any of the other dominoes.
- h. The domino with the attached string must be located somewhere within the tower structure.
- i. No additional materials can be used to build the tower or to cause the tower to collapse (e.g. glue, tape etc.)
- j. The tower must be free standing: no part of the tower may be *attached* to any surface.

COMPETITION AND SCORING:

- a. The competition area may either be an all-purpose room cafeteria or a typical high school classroom or hallway.
- b. The team will have twenty (20) minutes to construct their tower and alter the judge(s) that they are ready to collapse their tower.
- c. The team will cause the tower to collapse by pulling on the string attached to one of the dominoes.
- d. The string must be pulled in a direction opposite to the collapse zone.
The collapse zone is defined as the area beyond the taped line behind which the tower must be built.
- e. The tower cannot be touched while undergoing collapse
- f. The distance from (measured perpendicular to) the taped line to the furthest edge of the furthest domino within the collapse zone determines your score. Distance precision: 1mm.
- g. The team with the greatest distance wins.
- h. In case of a tie, the tower built with the fewest dominoes wins.
- i. If the tie breaking procedure is used, the winning team with the greatest distance will have their distance increased by 10%. Their adjusted distance will then become the new winning distance. For example, a team having a winning distance of 50.0 cm and also using the fewest dominoes would have their winning distance increased to 55.0 cm.

$$\text{SCORE} = \frac{(\text{Team distance})}{(\text{Greatest distance})} \times 100$$

Testing procedures & scoring may need to be modified if the Olympics is held virtually

Updates to the rules and Forum discussion / questions with answers are available by going to the NJAAPT website: njaapt.wildapricot.org (top menu, "Events" and "Forum"). It is the team's responsibility to periodically check in or inquire about changes and clarifications to the rules.

Note: This event was adapted from the Yale University Physics Olympics