Science Olympiad Tower Building Template and Guide
Div B
2025 Season
Based on rules as of 1/22/2024

General instructions for building a 2025 Tower to span a 20 cm by 20 cm opening. Reference the "***2025 Tower Div B Template Construction & Test***" video to be posted on the SO YouTube series for Towers. Bonus points can be obtained by redesigning this layout to span a 29 cm circle. See rules.

- Print out template (use 100% scaling in PDF print menu) and verify the reference square measure 5 cm in both directions.
- Obtain materials for building the Tower:
  - Foam building board, or flat tabletop.
  - At least 3 pieces of 1/8" x 1/8" x 36" balsa wood pieces.
  - At least 7 pieces of 1/8" x 1/16" x 36" balsa wood pieces.
  - Recommend "Gap Filling" 5-10 second cure Cyanoacrylate glue (handle with caution).
  - 24" Ruler (with metric); Sharp cutting tool; pins/tape.
- Tower ***Top Portion***:
  - Pin or glue template page 2 to flat foam building board or tabletop, cover with wax paper or several ~2" strips of clear packing tape. This will help prevent gluing tower members to template paper.
  - Creating 1st Side:
    - Cut two pieces of 1/8" x 1/8" wood to length illustrated in the template. These will be the "Long Members".
    - Using tape or pins to secure the two "Long Member", and glue in-place several pieces of 1/8" x 1/16" supporting cross/diagonal members to form the 1st Side.
    - When dry, carefully remove 1st Side from board. Clean-up and remove excess glue.
  - Creating 2nd Side:
    - Repeat process used for the 1st side to create the back side (or 2nd Side).
  - Assembly to Create 3rd Side:
    - Pin or tape the 2 sides onto page 2 of the template in a vertical orientation so that one "Long Member" is on the template (on the Long Member line) and one "Long Member" is up in the air (perpendicular to Layout Board).
    - Glue additional 1/8" x 1/16" cross/diagonal members across the top to create the 3rd Side. Allow to dry.
  - Assembly to Create 4th Side:
    - Flip the assembly onto its newly built 3-sided structure, and place additional 1/8" x 1/16" cross members forming the 4th Side to enclose the structure.
  - Visually inspect and adjust the 4-sided ***Top Portion*** assembly for squareness/perpendicularity.
  - Remove the entire Tower ***Top Portion*** from template; Allow to dry; Remove excess glue.
  - Carefully level the ***Top Portion*** legs and top for positioning the Load Block for testing.
- Tower ***Base Portion***:
  - Similar to the process steps for the ***Top Portion*** assembly, pin or tape page 3 of the template and cover with wax paper or packing tape.
  - Create 1st Side as illustrated in the page 1 template.
  - Create 2nd Side (same process as ***Base Portion*** 2nd Side)
  - Assemble 3rd Side (same process as ***Top Portion***)
  - Assemble 4th Side (same process as ***Top Portion***)
  - Visually inspect and adjust the 4-sided ***Base Portion*** assembly for squareness/perpendicularity.
  - Remove the entire Tower ***Base Portion*** from template and allow to dry.
  - Carefully level the ***Base Portion*** legs, and then the ***Base Portion*** top for ease of attaching the ***Top Portion*** assembly.
- ***Tower Assembly***:
  - Glue the ***Top Portion*** legs on top of the ***Base Portion*** to create the complete ***Tower Assembly.***
  - Ensure that the entire ***Tower Assembly*** is level for placement of the Load Block for testing.
  - Allow the Tower to dry.

2025 Tower Div B Template
Top Portion
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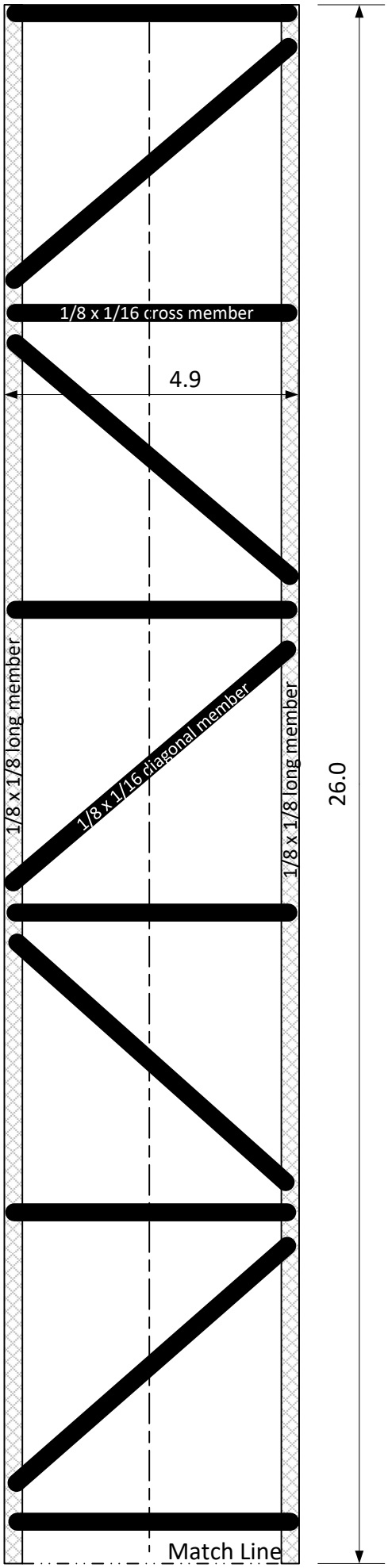
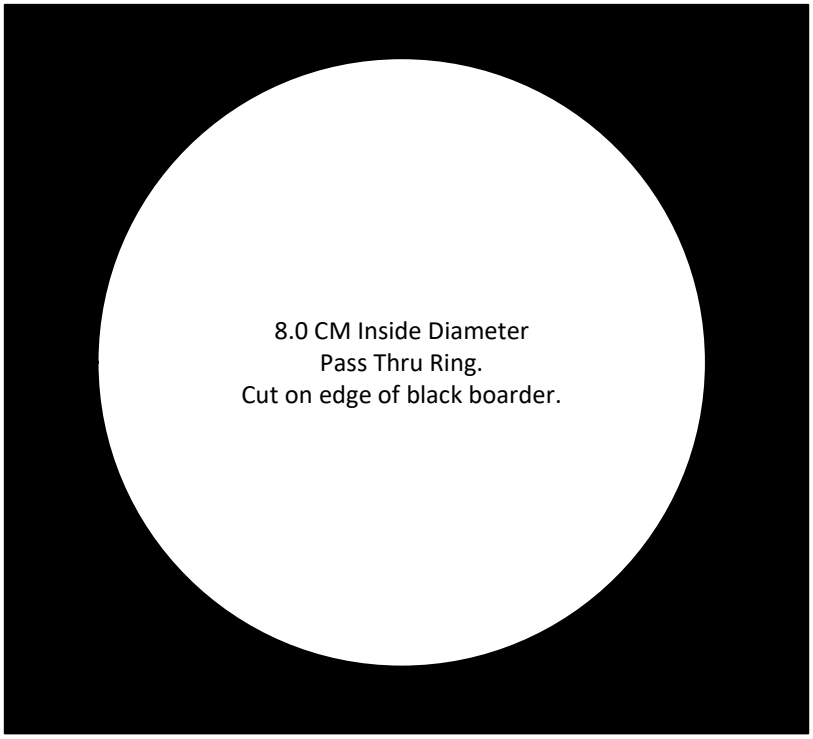
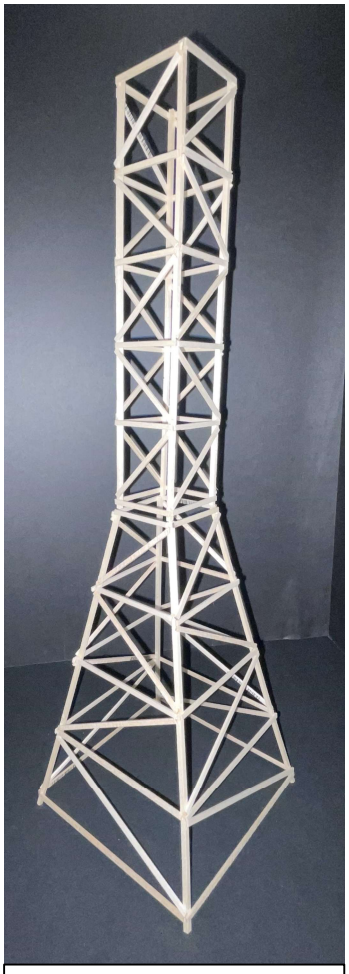




5.0 cm x 5.0 cm
Reference Block



Reference Photo

2025 Tower Div B Template
Base
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