



Arizona Science Olympiad Student Build Day

Arizona Science Olympiad in conjunction with
National and State Event Supervisors is offering a
Build Workshop focused on

Tower, Air Trajectory, and Wind Power

Saturday, October 21, 2023

Hosted by: Empire High School, 10701 E Mary
Ann Cleveland Way, Tucson, AZ. 85747

8:00 am – Noon, Check In begins at 7:30 am

Please Register at: www.azscienceolympiad.org

Arizona Science Olympiad Student Build Day

Saturday, 21 October 2023

Agenda & Details

- ♦ Check In: Beginning at 7:30 am
- ♦ Track 1: Tower, 8:00 am – noon
- ♦ Track 2: Wind Power, 8:00 am– 9:30 am
- ♦ Track 3: Air Trajectory 9:45 - noon
- ♦ Registration Deadline 18 October 2023
- ♦ Students must have a parent, Event Coach, or Head Coach with them
- ♦ Students should bring their materials, pre-work required for the Tower workshop
- ♦ Code of Conduct will be enforced

Tower Workshop

PURPOSE: Provide beginner & experienced Middle School & High School Science Olympiad students insight into the new Tower event, including an instructor lead presentation and rules discussion, followed by a hands-on build & test session. This workshop will be a unique opportunity for learn special building skills and receive guidance/tips for improved performing Towers, including:

- Grasp the concept of the Tower Event with a good understand of the Rules, Specifications, and testing
- Build Towers using the Provided Div B and Div C Templates as a reference
- Gain insight into “critical skills” and “attention to details” for improved performance in the Tower Event
- Experience an Official Tower test on completed Towers and/or example Towers built by the Event Supervisor
- Experience actual fault diagnoses of tested Tower using a Smart Phone with Slo-Mo video capture & editing, and capture recommendations for design/construction improvements (i.e Scientific Method and typical Design Log entries)
- Real-time discussion and Q&A throughout the workshop with the Event Supervisor

AGENDA: (Time critical activities to conclude with Tower testing)

8:00-9:00am Presentation/Overview of event and open Q&A discussion from homework assignment

9:00-11:00am Build Session (use of the SO Templates, or students to initiate build own unique designs)

11:00-12:00pm Test activities (on any completed Towers,... and/or Towers built by the Tower Event Supervisor)

REQUISITES & LOGISTICS:

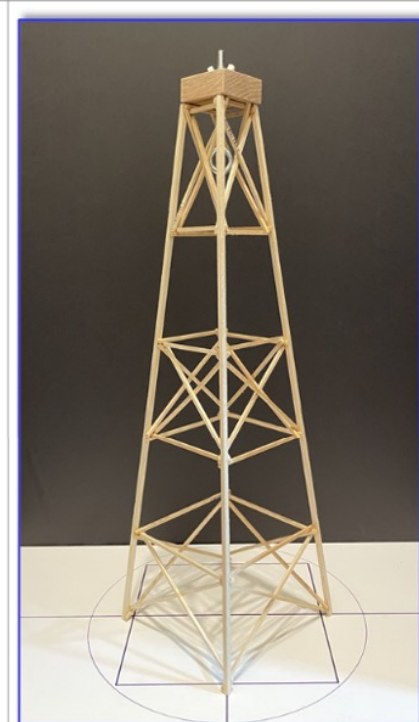
1. Up to 2 Students from each school, who will be participating/competing in this event during this season
2. Adults must be present, either an Event Coach, Team Coach, or Parent that would represent the attending school
3. Large room to host 10 sets of two students (Minimum of 4 schools, maximum of 10), with tables and chairs arranged in a pseudo Workshop setting, with large tables for teams to perform Tower construction activities.
4. Projector with HDMI cable available for presentation of materials and videos
5. Students must perform pre-work/homework on the event, to include thoroughly reading the Tower rules, and watching the ~8 minute YouTube Template build video posted on the SO Tower webpage

MATERIALS (Students should bring ...):

1. Balsa wood materials (Qty 4 pieces of $3/16" \times 3/16" \times 36"$; Qty 7 pieces of $1/8" \times 1/8" \times 36"$, ... optional Qty 7 pieces of $1/16" \times 16" \times 36"$). **NOTE:** Students may bring other wood pieces that they plan to use if not building to the SO Template
2. Small bottle (1/2 oz) Cyanoacrylate Gap filling 5-10 sec cure glue
3. Safety glasses for each participating Student

MATERIALS (Supervisor will bring ...):

1. Multiple copies of the official SO Div B & C Tower templates
2. Various Wood Cutting tools
3. Various Pins, Tape, blocks, sand paper, nail files
4. Layout/Pin boards
5. Scales/rulers/levels
6. Testing Apparatus (Hopper system), with sand, Load Block assembly



Wind Power

- Going over the rules and differences between B and C div
- Building propeller designs with manila folders and CDs
- Testing designs
- The importance of data collection and presentation
- Supervisors will provide all the materials. Students may take home the cd with their propeller design attached if they would like.

Air Trajectory

- Going over the rules and differences between B and C div
- Foot powered pneumatic launch build
- Testing
- Concept design of possibilities for stands, weights, and launchers
- Importance of data collection and presentation
- How to practice for a competition tips
- Materials - Supervisor will provide supplies, however if students want to begin working on their launcher, they need to bring their own supplies.