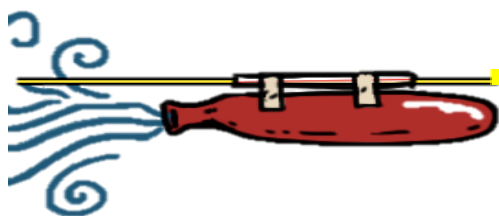


Horizontal Balloon Rocket Race (TE) Build and Launch Challenge

2027 Nebraska Science Olympiad Trial Event (B & C Divisions)



DESCRIPTION: Given a length of fishing line stretched across the room, teams will design, build, and launch an air-powered tram to carry as many provided items to the farthest distance possible.

A TEAM OF UP TO: 3

CALCULATOR: NO

APPROXIMATE TIME: 50 MIN

SUPPLIES: All supplies will be provided by Event Supervisor, including:

- Fishing line stretched taut across the room, parallel to the floor, fastened at each end of the line
- 2 Balloons (*note: potential latex allergy exposure*)
- A variety of materials, including drinking straws, paper clips, plastic bags, paper bags, tape
- A defined cargo item announced at the event (could be pennies, washers, pencils, or another item)

EVENT PARAMETERS:

- a. Specifications will be announced prior to the start of the design and build period.
- b. Teams will have up to 15 minutes to design and build one tram.
- c. At the end of the build period, all entries are impounded. The total length of the device will be measured.
- d. Each entry will be randomly assigned a place in the queue to launch their tram device.
- e. The participating team will have 2 minutes to retrieve their tram device and load their tram device on the fishing line system. The line can be detached and reattached.
- f. The tram device must fit into the “starting area” that is 60 cm from the object holding the line in place. The farthest forward solid connection (“the reference point”) to the fishing line must align with the “starting line” 60 cm from the object holding the line in place.
- g. The team will release the hold on the balloon.
- h. The distance from the front of the reference point travels on the fishing line will be used to measure back to the starting line for total distance.

SCORING

- a. The distance traveled multiplied by the number of cargo items after coming to rest. High score wins.
- b. Ties will be broken by the higher total number of cargo items attached to the rocket in its final resting location. If still tied, the shortest total length of the uninflated device will rank higher
- c. Points will be deducted if a team pops more than two balloons, disfigures the cargo items, and/or exceeds 2 minutes to prepare for launch

RESOURCES:

- Highlight video from a previous year: https://youtu.be/FSfKWWG_wCA
- How to make a balloon rocket: <https://sciencebob.com/make-a-balloon-rocket/> and <https://www.scientificamerican.com/article/under-pressure-launch-a-balloon-rocket/>