

All Terrain Vehicle Mousetrap Car



Challenge: You need to construct a mousetrap-powered vehicle that will be able to travel the greatest distance on a rough terrain course.

Team Size: Teams may consist of up to 4 students, but only 2 will be allowed to be involved in launching the vehicle.

Course Size and Description:

The course will consist of a varied set of materials, possibly including any or all of the following: Rugs, Astroturf, sand, tile, linoleum, plywood, gravel, loose soil, water, grass, etc. The course may have hills or bumps, but all transitional areas between flat land and hills and between different kinds of terrain will be parallel to the starting line.

Restrictions on vehicle construction:

1. All vehicles must be constructed specifically for this event. No vehicles may be used that were used for any other event, although re-using IDEAS is fine.
2. All vehicles must be made using standard size mousetraps. No mousetrap car kits are allowed.
3. All movement of vehicles must take place while vehicle is in contact with the ground. No airborne movement, flight or flinging, etc is allowed

Teams will be asked to impound vehicles upon arrival, to ensure that later competitors don't have an unfair advantage in getting to work on their vehicles for more time than others. Teams will have 2 minutes to set up and launch their vehicle. The 2-minute set-up time will include an allowance for one re-launch of the vehicle. If the vehicle travels less than 1 meter from the starting point the team will be allowed to re-launch the vehicle within the 2 minutes. Only 2 students can be involved in this setup and launch.

Scoring:

Vehicles that travel the furthest on the course will score highest. Vehicles will be set up so that their "back ends" (the part that will be in the back as the vehicle moves forward through the course) are aligned with the starting line at the time of launch. The distance from the starting line to the closest point on the vehicle will be measured in meters if the vehicle comes to a stop for more than 5 seconds. If the vehicle leaves the course, the distance from the starting line to the point where the vehicle left the course will be considered the total distance that vehicle traveled.

Average speed of vehicles moving through the course will be used as a tiebreaker, with the fastest vehicle receiving the highest score. Speed will be calculated in the following manner:

$$\frac{\text{Distance (m)}}{\text{Time (s) that vehicle is in motion on course}}$$