

Mouse Trap Racer PROJECT



A mouse trap racer is a vehicle in which the sole source of power comes from a common mousetrap.

Objective:

The primary goal of this project is for you to demonstrate your understanding of linear motion in one dimension (horizontal). The secondary purpose is to develop your research abilities by designing a vehicle, collecting certain data and analyzing that data. The final objective is to help you develop presentation skills by presenting your results to the class using either Google Slides, Keynote or PowerPoint.

Assignment:

Each person will construct a mouse trap racer that is compliant with all rules and must move on its own. There will be two (2) competitions: velocity and displacement. Both contests will be held in the Fieldhouse on the same day. You may only enter one racer, but you may make changes between contests.

Rules:

- You may NOT use a kit. You must design and build your OWN racer.
- The vehicle must be powered by a single mouse trap (1 3/4" X 3 7/8").
- The spring from the mousetrap cannot be altered or heat treated.
- The vehicle cannot have any additional potential or kinetic energy at the start other than what can be stored in the mousetrap's spring itself.
- The mousetrap cannot be physically altered except for the following:
 - the lever arm may be altered and extended.
 - the mousetrap's spring can be removed only to alter the lever arm.
- The spring cannot be wound more than its normal travel distance of 180 degrees.
- Vehicles must be self-starting. Vehicles may not receive a push in any direction.
- The vehicle must steer itself. Measurements of distance will not measure the total distance traveled only the displacement distance.
- Displacement will be measured from the front of the starting line to the point of the vehicle that was closest to the start line at the time of release.
- Mr. Causey has the final decision as to the appropriateness of any additional items that might be used in the construction of the racer.

The Speed Contest:

- The race will be held in the Field House.
- There will be only one heat.
- The winner will be the vehicle that crosses the finish line first.

NOTE: Any tie will be decided by a single run-off between the vehicles that tied.

The Distance Contest:

- The race will be held in the fieldhouse.
- Each contestant will be given two attempts.
- The farthest straight distance wins. Curves will not be measured.

Prohibited Materials:

Any type of hobby kit
Legos™
K'Nex™
Brackitz™

Motors of any kind
rubber bands
bungee cords

PRESENTATION:

- Your presentation should explain the purpose of your project
- Describe with pictures, how you planned, designed and built your racer.
- Your presentation should contain a minimum of 20 slides including title and ending slide.
- It should contain clipart, drawings and lots of pictures.
- It should have pictures of your racer.

Grade

The mouse trap racer itself will be a test grade and the presentation will be a test grade. A working mouse trap racer will get you a minimum of 75%. A completed presentation will get you a minimum of 75%. How much higher you go depends how well YOU design your project and presentation.

Due date: _____

“The foundation of scientific knowledge is experimentation.”