

Mouse Trap Car Project

Goal: To construct a car that will be powered by only a mouse trap.

Construction RULES

1. Each team will be permitted one entry; a team can have up to two (2) members.
2. The device must be powered by a single mousetrap.
3. The mousetrap cannot be physically altered except for the following: four holes can be drilled only to mount the mousetrap to the frame and a mousetrap's spring can be removed only to adjust the length of its lever arm.
4. The device cannot have any additional potential or kinetic energy at the start other than what can be stored in the mousetrap's spring itself. (This also means that you cannot push start your vehicle.)
5. The spring from the mousetrap cannot be altered or heat-treated.
6. The spring cannot be wound more than its normal travel distance or 180 degrees.
7. Vehicles must be self-starting. Vehicles may not receive a push in the forward direction or side direction.
8. The vehicle must steer itself in a straight line for a minimum of 5 meters.
9. Distance will be measured from the front of the tape at the starting line to the point of the vehicle that was closest to the start line at the time of release.

COMPETITION:

1. Prior to racing, each group needs to determine mass of car and measure torque / horsepower of car in lab room. THIS WILL BE DONE THE DAY BEFORE THE RACE!
2. Each group will be given 2 trials, no practice runs are permitted.
3. Each group will place their vehicle on the starting line one at a time and the runs will be video recorded by the group to determine distance and time traveled.
4. The group that travels the given distance of 5 m the fastest will be declared the class winner.

Grade Rubric:

I. MOUSETRAP CAR PERFORMANCE: 40%

40 points: Travels 5 meters in a straight line.
32 points: Travels 3-4.9 m in a straight line.
24 points: Travels 2-3.9 m in a straight line.
12 points: Travels 1-2.9 m in a straight line.
0 points: Travels less than 1 m in a straight line.

II. MOUSETRAP CAR PROJECT SELF-ASSESSMENT: 60%

60 points: Completes the project self-assessment showing all work, units, and essay is thorough.
48 points: Completes the self-assessment showing some work, units, and essay is not thorough.
36 points: Completes self-assessment but shows no work, units, OR essay is missing.
18 points: Completes self-assessment but shows no work or units AND essay is missing.
0 points: Does not complete self-assessment.