

## Mouse Trap Car Race

**PURPOSE:** To construct a "car" that can be run on one mouse trap power that can either travel the greatest horizontal distance or achieve the fastest speed.

**Objectives:** The student will:

- (1) Use problem solving skills in the construction of a device that will satisfy given conditions.
- (2) Calculate speed of an object when time and distance are measured.
- (3) Apply knowledge of force and friction in satisfying a given set of conditions.

**Materials:**

- (1) Mouse trap (must be purchased from the teacher)
- (2) Wheels.
- (3) Other optional features.

**Procedure:**

- (1) Purchase enough mouse traps so that each participating student will have 2 traps. (The teacher may wish to sell the traps to the student for a nominal charge.) It is very important that all students use exactly the same kind of trap so that no one has the advantage of having a stronger trap.
- (2) Review all rules with the class emphasizing that all of the power must come from the trap. The spring on the trap may not be altered in any way.
- (3) The use of elastic, rubber bands, electricity, etc. is **not** legal because some of the power is coming from a source other than the trap's spring.

- (4) Students should work at home with parents and/or other students to build the "car". Most students will use 1 trap for research and development and the other trap for the final product.
- (5) The cars do not have to have 4 wheels but all cars must have at least 1 wheel.
- (6) Establish a starting line on a bare floor, and make a mark at 2 meters and 4 meters on the floor.
- (7) Two students with stopwatches should stand at the 4 meter mark and record the time that it takes for each car to move the 4 meters. (The fastest car will have the lowest time over the 4 meter distance.)
- (8) The distance that each car moves should be measured and recorded for each trial.
- (9) Each student will be given 3 chances to make the car move. The best try will count for points.

**Rules:**

- (1) Build a car that will move when a mouse trap is sprung (the trap must be part of the car and move with the car)
- (2) Winners will be the cars that move the farthest and/or the fastest
- (3) No other means of locomotive power are legal.
- (4) Each class will have "time trials" during class.
- (5) The finals will be held outside of the room, in the main hall, right after school.
- (6) No team efforts. (You may work together but each must have his/her own car.)
- (7) Rubber bands, elastic, etc. are not legal.
- (8) The fastest car will be determined by measuring the time over a distance of 4 meters.

Credit:

- (1) Any car that moves at least 2 Meters... 25 points
- (2) Any car that moves 4 Meters or more.... 50 points
- (3) Fastest car in a class ..... 75 points
- (4) Fastest car in all classes ..... 100 points
- (5) Longest distance car in a class ..... 75 points
- (6) Longest distance car in all classes ..... 100 points

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