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.
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.

The cars do not have to have 4 wheels but all cars must have at least 1 wheel.

Establish a starting line on a bare floor, and make a mark at 2 meters and 4 meters on the floor.

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.)

The distance that each car moves should be measured and recorded for each trial.

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 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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<thead>
<tr>
<th>Name</th>
<th>Distance moved (M)</th>
<th>Time for 4 meters (sec.)</th>
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<tbody>
<tr>
<td></td>
<td>Trial Number</td>
<td>Trial Number</td>
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<tr>
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<td>1</td>
<td>2</td>
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