Name:_____ Date_____ Period____

Materials & Construction:

Build a vehicle that is powered only by the energy stored in one standard-sized "Victor" brand mousetrap. You will be provided with one mousetrap.
You must follow the rules below.

Rules:

1. The vehicle must be powered by a single mousetrap
2. The mousetrap spring may not be tampered with (you cannot wind it tighter etc)
3. Cars must be self-starting (you cannot push it to start it)
4. Distance will be measured from the front of the car
5. All cars must travel at least 1.5 meters
6. The mousetrap must be attached to the car

WARNING: Wear protective eye gear when building and launching the mousetrap cars. Be careful of the "snap" of the mousetrap bar and use caution when opening, setting, and releasing the tension bar.

Grading:

The following assessment criteria will be used to evaluate the projects.

I. MOUSETRAP CAR CONSTRUCTION: (36 pts) – On e grade per team
(A): Neat construction and assembly. Excellent attention to detail.
(B): Good construction and assembly and good attention to detail.
(C): Car holds together, but looks like a last-minute project.
(D): Poor construction and assembly. No attention to detail.
0 points: No final product, or so little effort that mouse trap can't be tested

II. MOUSETRAP CAR PERFORMANCE: (36 pts) - One grade per team
(A+): Travels more than 1.5 meters in a straight line.
(A): Travels 1.5 meters but not in a straight line.
(B): Travels less than 1.5 meters but more than 1 meter, more or less straight line
(C): Travels between .5 meters and 1 meter, and/or not in a straight line
(D): Moves, but travels less than .5 meter
0 points: No testing completed, car does not move (REVISE!!)

III. MOUSETRAP CAR PHYSICS ANALYSIS: Individual Grade – EVERY team member must turn in separate papers, and each paper should NOT be identical – Use your own brain ☺ This portion includes prep worksheets, comprehension checks, calculations and graphs, interviews/discussions with the teacher & follow up questions. Each assignment will be graded separately.
Students are expected to work at or above a level 3:
4 - Demonstrate excellent conceptual understanding of the physics principles behind a mousetrap car. Apply this understanding in conducting an excellent, meaningful investigation.
3 - Demonstrate good conceptual understanding of the physics principles behind a mousetrap car. Apply this understanding in conducting a good investigation.
2 - Demonstrate minimal understanding of physics principles behind a mousetrap car. Conducts a basic investigation.
1 - Demonstrate poor conceptual understanding of the physics principles behind a mousetrap car. Does not fully apply this understanding in conducting a meaningful investigation.
0 – Demonstrate no understanding through worksheets, written assignments, and verbal communication.

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IV. MOUSETRAP CAR LABORATORY FOLLOW UP WRITTEN DISCUSSION --- 36 POINTS (1 per gp):
36 – 33 points (A): Demonstrates excellent conceptual understanding of the physics principles behind a mousetrap car. Communicates this understanding in a clear, concise laboratory DISCUSSION
32- 29 points (B): Demonstrates good conceptual understanding of the physics principles behind a mousetrap car. Communicates this understanding in a complete DISCUSSION.
28 – 26 points (C): Demonstrates minimal understanding of physics principles behind a mousetrap car. Communicates minimal understanding in an incomplete laboratory report.
25 – 22 points (D): Demonstrates poor conceptual understanding of the physics principles behind a mousetrap car. Does not communicate understanding in a understandable laboratory report.

MOUSETRAP Car Lab Discussion POINTS BREAKDOWN:
8 points – Design (research, how did you come up with this design, what made you choose your materials)
8 points – Construction materials and procedures
12 points – Operation (testing, successes and failures, modifications, data collected, graphs/charts)
8 points – Conclusion and recommendations (feelings about project, how you would change it)

V. MOUSETRAP CAR Design Technical Drawing -25 points - MUST INCLUDE:
1 points - Team Name and Team members' names
4 points - Label all parts
12 points - Three views (front, side, and rear)
4 points - Accuracy
4 points - Neatness (in pencil, and no eraser marks visible)

VI. EXTRA CREDIT
You may receive extra credit if:
- Your car wins the Mousetrap Car Distance, Velocity, or Accuracy Competition and/or
- Your team wins a Special Award

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