

Mouse Trap Car Project RUBRIC 5/3/11

Date _____ Car Name _____

Student(s) _____ Class _____

Most if not all of the work on this project can be done during class, USE YOUR TIME WISELY!

I. MOUSETRAP CAR CONSTRUCTION AND DESIGN (5 pts possible)

5 points: Excellent application of design, construction and assembly.

4 points: Very good construction and assembly and very good attention to detail.

3 points: Good construction and assembly and some attention to detail.

2 points: Fair construction and assembly. Minimal attention to detail.

1 point: Last minute project. No attention to detail.

0 points: Car is not homemade i.e. purchased kit was used without prior approval: car is disqualified from race.

II. 2 CHECKPOINTS (5 pts possible per checkpoint)

5 points: All required checkpoint work completed.

0-3 points: Less than all work accomplished at checkpoint.

CHECKPOINTS

CHECK-POINT 1: (Wednesday May 11th)

You must have completed your finalized design and gathered/purchased all component parts and materials for assembly. You must bring in all component car parts to school for approval...be prepared to answer any construction questions presented to you (after examining your materials, I might ask questions that pertain to your car design... make sure you can explain what you are going to do with all the parts and construction materials and how your design works). Some car construction may have begun at this point.

CHECK-POINT 2: (Monday May 16th)

You must provide proof of construction progress on your project... you will bring to class either your partially finished car or your finished car for approval. Finished cars can be tested and modified if necessary for performance improvement. Modifications can be made as often as desired up to the day the project is due.

III. MOUSETRAP CAR PERFORMANCE (15 pts possible)

15 points: Final displacement is 10 m or greater

14 points: Final displacement is at least 9 m

13 points: Final displacement is at least 8 m

- 12 points: Final displacement is at least 7 m
- 11 points: Final displacement is at least 5 m
- 10 points: Final displacement is at least 3 m
- 0-9 points: Final displacement is less than 3 m

IV. MOUSETRAP CAR PHYSICS ANALYSIS (20 pts possible)

- 18-20 points: Demonstrates excellent conceptual understanding of the physics principles behind a mousetrap car. Applies this understanding in conducting an excellent, meaningful investigation.
- 15-17 points: Demonstrates good conceptual understanding of the physics principles behind a mousetrap car. Applies this understanding in conducting a good investigation.
- 12-14 points: Demonstrates minimal understanding of physics principles behind a mousetrap car. Conducts a basic investigation.
- 0-11 points: Demonstrates poor conceptual understanding of the physics principles behind a mousetrap car. Does not fully apply this understanding in conducting a meaningful investigation.

V. AWARDS

Award will be given for greatest distance traveled, best engineered vehicle, most artistic design, fastest vehicle.

50 points possible	
NET PROJECT GRADE	

Physics analysis:

1. How did friction affect the performance of your vehicle?
2. What problems related to friction did you encounter and how did you solve them?
3. What factors did you take into account to decide the number of wheels you chose in your design?
4. What kind of wheels did you use in each axle? What is the effect of using large or small wheels in terms of simple machines?
5. Explain how Newton's first, second and third laws apply to the performance of your vehicle.
6. Discuss the effect of the length of the lever arm in the pulling force of your vehicle.
7. How does the distribution of weight of the vehicle affect the traction of the wheels?
8. Discuss the major problems encountered in the performance of your vehicle and what did you do to solve them.