Mouse Trap Car Project



**Purpose:** In groups of 4, students will create a car that is powered from the energy of a mouse trap to explore forces of motion such as speed and acceleration.

**Rules:**

1. You can only use the power of the mousetrap car.

2. SAFETY: You must never put your finger in the way of the mousetrap! You will get hurt!!!

3. Each team member must submit this packet at the end of the project. The ONLY things turned in as a whole group is the “Online Research Paper” and the “Sketches”. Each team member must create their own graphs, fill in the data tables, and complete their own “Final Report” paper.

Project OUTLINE:

Day 1: Online Research and Car Design Sketches Due: Research Paper and sketches

Day 2 and 3: Building of mousetrap cars

Day 4: Test Day and Collecting Data/Graphs

Day 5: Final Report and Peer Evaluations Due: PACKET with Final report and peer evaluations





Page\_\_\_

Car Design

Sketches

Page\_\_\_

Graphs

Page\_\_\_

Data Table

Page\_\_\_

Research Report



Page\_\_\_

Peer Evaluation

Page\_\_\_

Research Report

**Design and Building Phase**

**Day 1: Online Research and Car Design Sketches**

Research will need to be done prior to the assembly of the car. A one page report for the group will need to be in each member’s spiral and approved before designing the car. **(Stamp 1)** You must have a minimum of 3 resources with detailed information about what was found behind the groups design considerations.

Groups will then design sketches of their potential mouse trap car from both top view and side view. This will go on the left hand side of the spiral opposite the research. Dimensions need to be included in the drawings. Any special design aspects should be emphasized. If students wish to bring in extra materials, they may. **(Stamp 2 and 3- side and top view)**

Possible resources for research and design:

* <http://www.docfizzix.com/help.htm>
* <http://en.wikipedia.org/wiki/Mousetrap_car>
* <http://www.hometrainingtools.com/mousetrap-physics-newsletter/a/1576/bhcd2/1258601236/>
* <http://can-do.com/uci/ssi2002/gallery.html>

**Day 2 and 3: Materials Building of Mouse Trap cars. Redesign if necessary.**

You will build the mouse trap cars out of materials provided and brought in by students. Students will redesign their cars if needed. Make sure to note why you needed to redesign it for your final report. **(Stamp 4 and 5 for participation in building)**

**Testing Phase**

**Day 4: Testing mouse trap Cars and Collecting Data**

You will be testing your mouse trap cars in the hallway and in the classroom.

Data on time, average velocity, distance, instantaneous velocity, and acceleration will be measured, calculated, and graphed. One graph will be a distance/time graph. The other graph will be a speed/time graph. **(1 stamp for the data table and one stamp for each graph- Stamp 6, 7, and 8)**

**Analysis Phase**

**Day 5: Final Reports and Peer Evaluation**

Each team member will write a 1 page paper in their spiral describing their test results and explaining (in their opinion) what engineering or scientific variables were most significant in the performance of their car and providing suggestions on improvement. **(Stamp 9)** You will also need to fill out peer evaluations for each member of your group. **(Stamp 10)**