Mousetrap Vehicle Project

Background:
- Understand….
    - Distance
    - Change in time
    - Average velocity
    - Average acceleration
    - Percent Error
- The competition will be on a tiled floor

Materials:

2 – pre-drilled Balsa wood side rails	2 – Wooden Spools axles
1 – Balsa Wood Deck	4 – Rubber DVD/CD Spacers
2 – Brass Axles	4 – Metal Trust Washer
3 – 1/8" Brass Lever Arm	1 – Mousetrap
2 – Plastic Nut and Bolt Combo	2 – Zip Lock Axle hooks
4 – CD Wheels	1 - Kevlar String
4 - Balloons	

Problem:
1. Which axle produces the largest <u>average velocity</u> over a 5 meter displacement?
2. Which lever arm length produces the largest <u>average velocity</u> over a 5 meter displacement?
3. Which axle produces the largest <u>average acceleration</u> from 1 meter to 2 meters?
4. Which lever arm length produces the largest <u>average acceleration</u> from 1 meter to 2 meters?
5. Which axle produces the <u>largest displacement</u>?
6. Which lever arm length produces the <u>largest displacement</u>?

Requirements and Other Information:
1. Complete the "Mouse Trap Vehicle wkst" BEFORE starting labs
2. <u>Work as a team</u> when constructing the vehicle and recording the data
3. Complete the worksheets that accompany the labs
4. *Be Careful that you do not break your car when changing variables*
5. There will be 2 competitions
    a. A winner take all race between classmates vehicles
    b. Estimating the max distance your vehicle will travel
6. You *may* change items on your vehicle between the 2 competitions
7. See "Mouse Trap Vehicle Competition Information" handout

<u>Other information:</u>
1. Your MT vehicle will run in the carpeted hallway
2. The total distance will be measured in the straight line perpendicular to the START line