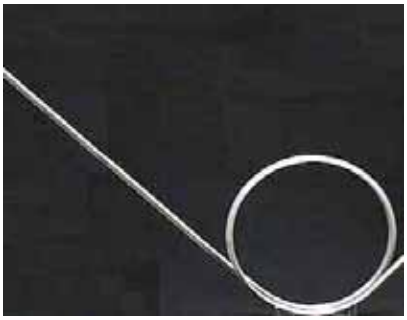
Roller Coaster of Statistically Likely Doom (Part 2)



The roller coaster has finally been constructed. Your group has taken some data to determine how the speed of the ball will be affected by outside factors. The data of the other groups, and the data from other sections, is also at your disposal. It's up to you now to determine the height from which to drop the ball. If you drop it too low, it won't make it around the loop. If you drop it too high, it won't be as scary a ride as it could be.

Question:

What is the minimum height at which you can release the ball in order for the ball to just make it around the loop? Extra credit will be awarded to the group that comes up with the lowest height that actually makes it over.

Examine the data carefully and come up with a height. Let your TA know privately what height you will use.

I. Introduction	**5 min**	**Whole class**
II. Data Analysis	**45 min**	**Groups of 4**
III. Group presentations	**40 min**	**Whole Class**
IV. The Test	**10 min**	**Whole Class**
V. Evaluate your experiment and analysis	**20 min**	**Groups of 4**

Turn in your lab report.

MAJOR GOALS:

- *Be able to estimate the uncertainty in data that you are not actually taking, based on your experience with similar experiments. Use that knowledge to compare experimental methods without implementing them.*
- *Identify the kind of uncertainty that can be minimized with experimental design or technique, and minimize it.*
- *Determine the uncertainty in a calculated result based on the uncertainty in experimental data.*