Pre-lab discussion

1. Does everything move uniformly? (NO)
2. Give examples
    a. walking to class
    b. driving anywhere with stoplights/traffic/curves

3. What makes uniform motion different from these examples?
    a. Same chunk of distance, different time
    b. Faster or slower

Intro to Question

1. Same setup as yesterday, but we need to build a system to make the marble not have uniform motion.
2. Still record all data.
3. HINT: maybe start with same setup from yesterday, see how you can change it.

Our Questions for Walking Around

1. check student setup and data
    a. how do you know you don't have uniform motion
    b. how do you know this isn't a fluke

2. Pick your best 3 trials.

Our Questions for Group Discussion—STUDENTS TAKE NOTES

1. Why did you choose those data points and your "good" trials?
2. How does the data for the whole class compare?
    a. data should be more varied
3. How do the graphs for the whole class compare?
    a. position vs time: should not be linear, but have same general shape
    b. Why can't you find a slope for the position vs time graph.
    c. velocity vs time: should all be linear

4. How do values for slope compare?
5. What do the units mean?
    a. rise over run = velocity over time
    b. over is like per
    c. THIS IS acceleration
    d. acceleration was the same over the entire meter stick but VELOCITY IS NOT!!!!!! = NONUNIFORM MOTION
    e. EQUATION : A = V/T

3.

Final Data Table: ONLY put your data from your final 3 "good" trials here. If you did more than 3 "good" trials, add more rows. In the last column, record the total time that has elapsed since the marble started on the track.

Trial	Position	Time	Total Time
1			
2			
3			

Graph

Using your data from above, and only that data, create a line graph. Make a position vs. total time graph (y axis: position, x axis: total time). Label your axes!!!! Draw the line that best connects ALL data points (do not make 3 separate line graphs)

(graph paper)

Find the slope of the line (remember—slope = rise/run)

How is this graph different from the graph for uniform motion?

For each data point, find the velocity (remember, velocity = ….)
Record the velocity in the data table below.

Trial	Velocity	Total Time
1		
2		
3		

Make a velocity vs. total time graph (y axis: velocity, x axis: total time). Draw a line that best fits all data points.

(graph paper)

Find the slope of the line (remember—slope = rise/run)

What would the units of the slope be?

Compare this graph to the velocity vs. total time graph we made as a class for uniform motion. How can you explain the differences?

Organize your information so that you can present to the class

1. Your data
2. Your graph
3. What it all means

NOTES FROM CLASS DISCUSSION