PS Physics **Name (s) _____ Period _____**

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Measuring Acceleration

Objective: Calculate speed, construct a graph to show acceleration, make prediction about acceleration.

Materials: Toy car, stop watch, meter stick, tape, graph paper, plank, text book.

Procedure:

1) Set up a track for your car as follows:
   - ·Place a plank as a slight incline by setting one end of the plank on a text book.
   - ·Place marking with a small piece of tape at the 20 cm, 40 cm, and 60 cm.
   - ·Place a plastic track on the incline (or use two meter stick the width of your car)
2) Place your car at the start, 0 cm.
3) Give your car a gentle push. At the same time, your partner should start the stop watch.
4) Record the time without stopping the watch or the car at the 20 cm mark, 40 cm mark and 60 cm mark (Trial 1).
5) Repeat the procedure two more times (Trial 2 & Trial 3). Record data each time.
6) Calculate average time for each trial
7) Using your average time, calculate speed at the start, 20 cm mark, 40 cm mark, and 60 cm mark.

Data:

Distance	Trial 1	Trial 2	Trial 3	Average Time	Speed
0 cm					
20 cm					
40 cm					
60 cm					

Analysis:

1. Using your calculations, was there a point in the "trip" when the car had a faster speed?

2. If so, what do you think caused the speed to increase and/or decrease?

3. Calculate your car's acceleration from start to the 60 cm mark.

Making Predictions:

1. How could you predict how fast the car will be "driving" if you extended your track to 100 cm?

2. Make a prediction of the car's speed at 100 cm.