

NAME _____
 PHYSICS A/R -- PERIOD ____

DATE _____
 MR. LEACOCK

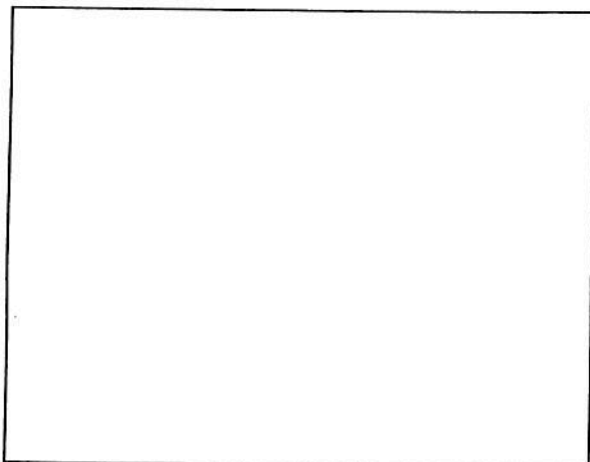
LABORATORY 7 Accelerated Motion

Objective

To determine (using a spark timer) which accelerates faster down an incline, an empty cart or a cart loaded with mass.

Diagram

Please draw a sketch of the lab set up below.



Procedure

1. Clamp the vertical clamp to the table.
2. Fasten a 1 meter rod vertically into the clamp.
3. Place a 90 degree clamp onto the bar approximately 20 cm above the table.
4. Clamp the board to the horizontal bar.
5. Place the spark timer at the top of the ramp.
6. Attach the timer tape to the car.
7. Thread the timer tape through the spark timer.
8. Press the button on the spark timer and hold it, at the same time releasing the cart and allowing it to accelerate down the ramp.
9. The timer makes 60 dots per second. Find the distance the cart traveled in 1 second, and calculate the acceleration of the cart down the ramp. You will need your velocity / acceleration equations to do this.
10. Repeat the experiment steps 6 through 9 except place a 1 kg mass on the cart before allowing it to roll down the ramp.

Data and Calculations

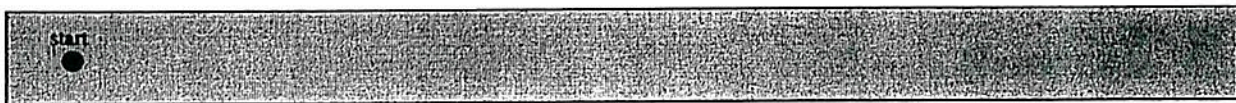
Trial	Distance	Initial Velocity	Time	Acceleration
Empty Cart				
Cart + 1.0 kg				

Show All Work on Next Page!!!



Work**Questions**

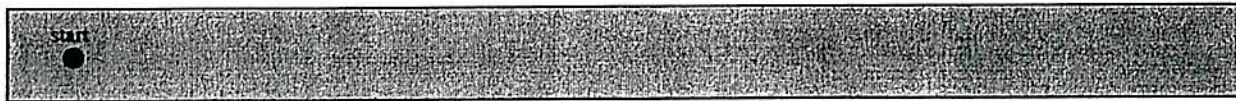
1. Roughly draw the dot pattern for the first 10 dots on your timer tape. Your spacing does not have to exactly match your tape, but the relative distance between the dots must show the correct behavior.



2. If the cart was rolling along a horizontal surface at a constant speed, show how the dot pattern would appear.



3. If the angle of the plane to the horizontal was increased, show how this pattern would now appear.



4. From the results of this experiment, would you expect a 100 g mass or a 500 g mass to hit the ground first if dropped from an equal height? Why?

5. Will a feather or a bowling ball hit the ground first if dropped from the same height? Why? What if the earth had no atmosphere?

