

Ticker Tape Timer Lab

Team Names: _____

Objective: Using Graphical Analysis. Determine the acceleration of a weight on the surface of the earth due to gravity.

Procedures

Phase 1: Determine the period of your timer.

Step 1: Set up the ticker tape timer as instructed. Be sure it is secure and level. Draw a diagram of the set up in the diagram section.

Step 2: Cut a large section of tape (approximately 1m) and pull it through the timer at a constant speed while timing the pull with a stop watch. Do this at least three times and record your information in the first table in the data table.

Phase 2: Use an accelerating weight

Step 1: Set up the ticker tape timer as instructed. Be sure it is secure and level.

Step 2: Drop the weight with the tape attached and the timer on.

Step 3: With a ruler, measure the distance from your starting point to each dot and record it in the table on the next page with the calculated time (Use your average period to calculate the time).

Step 4: Calculate the Instantaneous velocity for each dot. Provide a sample calculation of this in the calculations section.

Step 5: Plot a Velocity verse time graph

Step 6: Draw a best fit line between your points and calculate the slope of the line. Compare this slope to the theoretical value of 9.8m/s^2 in your discussion and errors section.

Step 7: Make a conclusion based on the evidence of your experiment.

Data

Trial #	Time (s)	Number of Dots	Frequency (dots/sec)	Period (sec/dot)
1				
2				
3				

Average Period = _____ sec/dot

Dot Number	Time to Dot	Distance between last Dot	Instantaneous Velocity (Distance between/average period)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Lab Diagram

Sample Calculations

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are no margins, text, or other markings on the paper.
