

Title: Walking Lab

Objectives:

- to calculate normal walking speed
- to construct position vs time graphs
- to calculate speed (velocity)
- to determine (velocity) and acceleration from a graph (Δ slope)

Procedure:

1. Measure out 40 meters.
2. Mark positions at 5 m intervals.
3. Station students with stop watches will at 5 m, 10 m, 15 m, 20 m, and 25 m positions.
4. Students take turns walking the straight line path.
5. Record time (s) as students pass the successive 5 meter marks.
6. Rotate through until each one has had a turn.
7. Repeat with student skipping, running, walking backwards, etc.
8. Record individual data in data chart below.
9. Determine velocity per interval.
10. Construct a position (y-axis) vs time (x-axis) graph for each data set.
 - a. Connect the end point (40 m) with the 0 m point in a different color! (this will be average velocity)
 - b. Record the values for velocity per interval and average velocity in a data chart.

Results: Data Charts and Graphs

Discussion/Analysis:

1. Describe the position time graph:
 - a. Did you measure velocity or speed? (explain)
 - b. Was velocity constant or did it change in different time intervals? (How can you tell?)
 - c. When did you walk/move the fastest? slowest?
 - d. What was your average velocity?
 - e. At this velocity, how long would it take you to travel 400 m? (Note: it is about 400 m between Butler and Cantwell)

Conclusion: 1 sentence testable statement

Reflection: Personal statement about what you learned from the lab.



Table 1: Walking Data									
Distance	0 m	5 m	10 m	15 m	20 m	25 m	30 m	35 m	40 m
Time (s)	0								
Time per Interval (s)									
Velocity (m/s)	0 m/s								
<i>To determine velocity per interval, you need to determine the time for each interval</i> $\frac{5 \text{ m}}{\text{time interval}}$					Average Velocity → (calculation) $\frac{40 \text{ m}}{\text{total time}}$				
					Average Velocity → (slope) $\frac{\Delta y}{\Delta x}$				
<i>A = calculated value for velocity</i> <i>O = value for velocity determined from slope</i>					Graphing Error $\frac{A-O}{O} \times 100$				

Table 2: _____ Data									
Distance	0 m	5 m	10 m	15 m	20 m	25 m	30 m	35 m	40 m
Time (s)	0								
Time per Interval (s)									
Velocity (m/s)	0 m/s								
<i>To determine velocity per interval, you need to determine the time for each interval</i> $\frac{5 \text{ m}}{\text{time interval}}$					Average Velocity → (calculation) $\frac{40 \text{ m}}{\text{total time}}$				
					Average Velocity → (slope) $\frac{\Delta y}{\Delta x}$				
<i>A = calculated value for velocity</i> <i>O = value for velocity determined from slope</i>					Graphing Error $\frac{A-O}{O} \times 100$				

