Investigation # 3 – Distance and Speed

1.   Using the slots in a sidewalk (or tiles in the floor or fence posts or markers on a field or parking lot spaces or light poles or any other regularly spaced marker), walk for 20 s at a steady pace. Have a second student note the number of sidewalk slots passed by the first student at the end of
       a. 0 s
       b. 5 s
       c. 10 s
       d. 15 s
       e. 20 s
2.   Make a table of time and slot number passed at that time.
3.   Measure the length between slots in meters.
4.   Add a third column to the table: total distance traveled.
5.   Add a fourth column to the table: distance traveled during the preceding 5 s.
6.   Make a plot of total distance traveled vs. time – plot the 4 data points.

Your average speed is how fast you've walked and can be calculated by dividing the total distance traveled by the time it takes to walk that total distance.

7.   Add a fifth column to your table: your speed.
8.   Calculate your average speed.
9.   Plot your average speed vs. time after 5, 10, and 15 s.
10.   Calculate your speed during a given time interval by determining how far you walked during that time period and dividing that distance by the time interval.
11.   Plot your speed during the interval vs. the time in the middle of the interval.
12.   Repeat parts 1-10 except stop between 5 and 10 s.
13.   How did the average speed and the speed during each time interval compare for these two experiments. Why did they differ?
14.   Using your typical average speed, calculate how long it will take you to walk:
       a. 100 m
       b. 1 km
       c. 1 mile
       d. 5 miles.