The Physics 500

I. Problem:

Part 1: Determine a method to find your average velocity of a person as he/she walks, hops, rolls, or moves in a straight line in one direction.
Part 2: Use information from Part 1 to determine a marked distance without a measuring tape or ruler.
Part 3: Gather data to create a graph to determine your speed using the graph and then compare to the speed you found in Part 1.

II. Materials/Methods/Data

Materials: _____, _____ ,_____ ,_____ ,_____

Methods:

Part 1: Drawing of how you will find average velocity of each member of your group.

Steps:

1) _____
2) _____
3) _____

Data:

Person: 5 step calc for velocity:

Trial		
1		
2		
3		
avg		

Person: 5 step calc for velocity:

Trial		

Person: _____   5 step calc for velocity:

Trial		

Person: _____   5 step calc for velocity:

Trial		

Part 2 Methods:

1. Use your data from Part 1 to determine a marked distance on the ground. You only get one trial so try to move just like you did for Part 1 for best results.
2. Record any information below you need to determine distance by YOU.
3. Make a 5 step calculation for distance
4. Check the actual distance from your teacher and record.
5. Calculate your % error.

Data: _____   _____ Path used: _____

5 step calc for distance:

Actual Distance: _____

% error = actual - calculated x 100% =   ***note make it positive***
                    actual

Part 3 Methods:

1. Find another group so you have at least 8 people.
2. Choose TWO people to be the "movers"
3. Mark off 1 meter intervals and station the other people (6 or more) at the interval marks with a stopwatch.
4. Have the "movers" race by the people at the marks and record the time and distances in the table below.

Data:

Station	Time(s)	Distance (m)
0	0	0
1		
2		
3		
4		
5		
6		

Station	Time(s)	Distance (m)
0	0	0
1		
2		
3		
4		
5		
6		

Graph your data by hand below and determine the speed of your "mover."

IV. Questions

      1.What did you need to measure to determine velocity?

      2. In words, describe how you can use a known velocity to find an unknown distance.

      3. What part of a position time graph represents the velocity of the object?

      4. How did the slopes of the lines for the graphs of the 2 racers compare? Which slope did the slower racer have (shallower or steeper)?

V.Conclusion:

Claim: _____

_____

Evidence: _____

_____

Reason: _____

_____