**SPH 3U Lab # 2: Uniform Motion**

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Problem:** Is it possible for a person to move with uniform motion?

**Materials:** recording timer, carbon disc, 1 m ticker tape, meter stick

**Procedure:**

1. Set up the timer and thread one end of the tape into it.
2. Holding on to the end of the tape, walk several steps while your partner operates the ticker timer. Pull the tape as smoothly and steadily as possible.
3. Analyze the tape as follows:
4. Select a convenient unit of time. A timer may have a period of 1/60 s. Then six dots would represent 0.10 s, a convenient unit.
5. Draw a line across the tape through the first dot on the tape.
6. Draw a line through every sixth dot all the way along the tape. This space represents 0.1 s.

**. . . . . . . . . . . . .**

1. Determine the position at the end of each 0.10 s interval. This is done by measuring from the first dot to the end of the interval in question.

**. . . . . . . . . . . . .**

position 1

position 2

1. Record this information in a data table similar to this:

|  |  |  |
| --- | --- | --- |
| Time (s) | Position (cm) | Position (m) |
| 0.0 | 0.00 | 0.0000 |
| 0.1 |  |  |
| 0.2 |  |  |
| 0.3 etc. |  |  |

1. Construct a position-time graph. Make the graph as large as possible and draw a line of best fit. Find the slope of your graph with units.

**Observations:**

1. Was your velocity uniform? How can you tell?
2. Find the average velocity for your motion. (Recall: average velocity of a curve is slope of a line joining the first point and last point).
3. How would the graph change if you repeated the experiment but moved more quickly? More slowly?