**Data Collection with a PC-I** Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
Partner(s):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Day/Time:\_\_\_\_\_\_
**A. Introduction:**



|  |  |
| --- | --- |
| Menu | Description |
| 1 |  |
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**B1. DATA for MOTION:** Smallest distance the motion sensor can detect = \_\_\_\_\_\_\_\_\_

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Using *x* vs. *t* Graph | Using *v* vs. *t* Graph | Using *a* vs. *t* Graph | % Difference |
| Describe the Graph |  |  |  | XXXXXXXXXXXXXXXXXXXXXXXX |
| Initial/resting position |  | XXXXXXXXXXXXXXXXXX | XXXXXXXXXXXXXXXXXX | XXXXXXXXXXXXXXXXXX |
| Final position |  | XXXXXXXXXXXXXXXXXX | XXXXXXXXXXXXXXXXXX | XXXXXXXXXXXXXXXXXX |
| Distance Travelled |  |  | XXXXXXXXXXXXXXXXXX |  |
| Initial Velocity |  |  | XXXXXXXXXXXX |  XXXXXX XXXXXX  |
| Final Velocity |  |  | XXXXXXXXXXXXXXXXXX |  |
| Acceleration | XXXXXXXXXXXX |  |  | XXXXXXXXXXXXXXXXXX |

**B2. Motion Investigations:**

**C. Coefficient of Kinetic Friction:**

 $f\_{k}=μ\_{k}F\_{N}$

The block will be pushed with a force sensor by overcoming and balancing the frictional force, as shown below. Draw a free-body diagram for the block, below.





**DATA TABLE I** Mass of the wooden block, Mb = ---------

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mass on TopMt (g) | M = Mb + Mt | Normal ForceFN (N) | Frictional Forcefk (N) | µk |
| 0 |  |  |  |  |
| 100 |  |  |  |  |
| 200 |  |  |  |  |
| 300 |  |  |  |  |
| 400 |  |  |  |  |
| 500 |  |  |  |  |
| 600 |  |  |  |  |
| 700 |  |  |  |  |

Also, plot a graph and determine the value of µk. Attach a copy of your graph to the report. List the value of µk from the graph, here\_\_\_\_\_\_\_\_\_\_\_\_\_ and in the conclusion.