**Force Cart Lab – Virtual Lab**

**Purpose**:

To calculate the total amount of friction slowing a system down.

**Materials**:

* String
* Mass Set
* Wood board
* Pulley
* Cart
* Ticker-tape

**Procedure**:

1. Measure the mass of the cart.
2. Attach the pulley to the board and tie a length of string to the force cart.
3. Set up the board and materials as seen in the diagram



1. Attach the tickertape to the back of the cart and start the machine.
2. Release the mass hanging from the pulley and let it pull the cart.

**Data**:

**Mass of Cart:**

**Mass of Hanging Mass:**

**Ticker Tape Measurement Data Table:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Time** | **Position** | **Change in Position** | **Velocity****(Change in position ÷ Change in time)** |
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**Make a velocity vs. time graphs for the set of data.**

**Results**:

1. Find the acceleration for the run using the best fit line on your graph.
2. Draw and label a FBD of the system.
3. Use the net force to find the force of friction for the run of the cart.

**Analysis**:

1. Where are locations in the set up that may provide friction? List them and provide a short description of how each one provides friction.
2. Describe at least two sources of uncertainty. Include how they may affect your results numerically. Is there anything that could be done to reduce these changes?