

Newton's Laws Lab: Useful Guidelines

There will be 3 *different sensors* used throughout the lab. **Read the lab manual** to determine which sensor(s) to use for the different experiments. They are:

- Force sensor (first one listed; *not* the student one)
- Motion sensor
- Smart pulley (note this sensor is needed for the Atwood experiment)

Change the settings for the following sensors as stated:

1. Force sensor → set sample rate to 50 Hz
2. Motion sensor → under Measurement tab, select Velocity plot only; under Motion Sensor tab, set trigger rate to 50

NOTE: Do NOT print unless your graph has been approved by your TA!

Guidelines:

- Turn on monitor and computer (use the right most vertical silver button)
- Select the lab section as stated by your TA
- Turn on Interface box (small on/off switch on its back)
- Double click on **DataStudio** icon on the desktop and select “Create Experiment”
- Scroll through *Sensor Column* to find the appropriate sensor; double click on the sensor to set it up with Interface box and see how to connect it correctly
- Double click on the actual sensor icon and change settings as stated above, when needed
- To start a run, click on START button; to end click STOP
- To view the generated plot, double click on GRAPH in the bottom, left column section; **Never delete any runs!**
- **Check with your TA before editing your graph**
- To edit the graph, highlight unnecessary data points and delete them (either use small red X button on the screen OR the delete button on the keyboard); this will create an Edited version of the graph
- To fit a best fit line, click on FIT button, and select *Linear Fit*; **Get approval from your TA before printing**
- To print, go to File → Print... *Note:* the printer is right below the keyboard
- To reset the system, go to File → New Activity → “Create Experiment.” Do not save unless required. Remember to change the sensor settings as stated above
- When finished, exit **DataStudio**, unplug all sensors from the Interface box, shut down the computer, and turn off both the monitor and Interface box