**Lab – Acceleration Due to Gravity**

Objective:

* Measure the freefall of a book and make and use graphs
* To experimentally measure the value of *g*, the acceleration due to gravity

Materials

* Computer
* Motion Sensor
* Book

Procedure

* Hook up your motion sensor to the laptops. Open LoggerPro (icon is a pink diamond with a Vernier caliper on it). Pay attention to the demo on how to use LoggerPro
* Test out the system by taking a few sets of data. Become familiar with how it works.
* When ready, hold the motion sensor as high as you can, and have it face down.
* Put a book at the sensor, begin taking data, then drop the book.
* If your data is not nice (maybe the book bumped something on the way down), take another set of data. Try it a few times, you’ll get something then.
* Print the Data Table and Graphs, if the printer isn’t working in the print menu there is an option to save the data as a PDF. Do this and either email it to yourself to print, or get Mr. Westergaard to bring his USB so he can print it.

Data

* State clearly where your data is good and where it is not valid (after starting the sample, the book was held for a second, after the book landed more data was recorded for a few seconds)
* Analyze your valid data to find the acceleration of the book.

Results

* Present your findings as a short paragraph.
* Make a comparison to the known value 9.80m/s2. Find your percent error.

Conclusion

* One paragraph to explain if your results agree with your hypothesis and discuss your results
* One paragraph to discuss legitimate errors that may have caused inaccuracies.