**Analyzing Gravity Lab**

**Purpose**: To determine the acceleration of gravity at the surface of the Earth.

**Materials**:

* Droppable mass
* Video recording device
* Laptop with Tracker program

**Procedure**:

1. Set up a recording station where you will be able to clearly see the dropping object and include a meter stick in the frame of your video for reference of size.
2. Drop the object while recording the event. (Slow motion recording may help with getting consistent results)
3. Import the video file into the Tracker program.
4. Use the program to track the motion of the object and make a velocity-time graph of the motion.
5. Print out your graph and put a best fit line on the graph.
6. Use your best fit line to determine the acceleration of the object.

**Analysis:**

1. What value did you get for the acceleration due to gravity?
2. What is the accepted value for acceleration due to gravity?
3. Was your value larger or smaller than the accepted value? Does this make sense? Why?
4. Determine what sources of uncertainty you may have in your determination of the acceleration of gravity.