

# AP PHYSICS LAB 01

## Lab Reporting and Data Analysis

**Purpose:** To investigate a physical phenomenon and write a report on it. It will serve as a model on how AP physics labs should be performed and recorded. For your particular experiment, the question may or may not be a topic within the curriculum; it is the *experimental process* which you will graded on.

### **Procedures:**

1. You will be given a physics related question which you need to answer by conducting an experiment. You will collect, organize, and analyze the data; then form your conclusion based on the evidence.
2. Use the standard lab reporting format given to you earlier. Use **ink**. Remember, do not free hand lines! It is ok to sketch curves for data that is not linear.
3. The following elements are **mandatory to be followed and addressed** in your report:
  - a. Significant figures
  - b. Measurement precision (what value should you round to?)
  - c. Units of measurement and unit analysis of derived units
  - d. Percent error
  - e. Sources of error (Error analysis)
    - i. Measurement
    - ii. Systematic
    - iii. Random
  - f. At least one example of each type of calculation, when needed. Remaining may be put into a table.
  - g. All graphs should be properly labeled with a title, labels, and units. The scaling should be such as to maximize the size. Linearize nonlinear graphs.

### **AP PHYSICS 1 Questions:**

1. Does a falling object's mass matter?
2. When can you no longer ignore air resistance of a moving mass?
3. How does the steepness of a slope affect the velocity of a moving mass?

### **AP PHYSICS 3 Questions:**

1. Is the period of the pendulum affected by its length?
2. Is the period of the pendulum affected by the angle of its motion?
3. Is energy conserved in a pendulum?