**Lab 1, Station 1: Free Fall**

Objects tossed up or down accelerate at a constant rate, in the absence of air resistance. This rate is called the free-fall acceleration, or acceleration due to gravity, and its magnitude is represented by ***g***. The value for ***g*** does not depend on the object’s mass or shape; it is constant for all objects.

For objects traveling at relatively low speed, air resistance is not significant and therefore will not be considered in this experiment. During this experiment you will record and analyze the motion of an object in free fall. This experiment is intended to help you better understand the concept of acceleration and the kinematic equations.

**OBJECTIVES**

* Record and analyze free fall motion using video technology
* Model the free-fall motion
* Compare the free fall model to the kinematic equations of the accelerated motion
* Determine the acceleration due to gravity.

**A. PRELIMINARY QUESTIONS**

1. Sketch a height vs. time graph for an object tossed straight upward.
2. Does the object stop moving at any point when it’s in the air? Explain your reasoning.
3. Does the object accelerate while it’s in the air? Explain your reasoning.