# UNIT #1 LABORATORY INVESTIGATION –ACCELERATION DUE TO GRAVITY IN FENELON FALLS

**Question:** What is the acceleration due to gravity in Fenelon Falls?

**Expected Value:**

**Equipment:** i-pad with Vernier Video Physics and Vernier Graphical Analysis, known mass, tennis ball, coffee filter, metre stick, coloured backdrop

**Procedure:**

1. Hang the coloured backdrop in the drop zone.
2. Have one student hold a metre stick in the picture.
3. Another student should drop the objects.
4. The third student should record the object using Vernier Video Physics. It is important that the metre stick is in the picture, and the screen does not move during the recording process.

**Observations:**

You will create d-t and v-t graphs for the vertical direction as your observations. Each group member needs both graphs.

**Calculations:**

None!

**Error Analysis**:

* As in the lab report outline

**Conclusion:**

Write one!

**Discussion**:

1. Compare the motion of the coffee filter to that of the other two masses. Explain why the motion is different.
2. Describe the velocity-time graph for an object in free fall for an extended period of time. What happens to the acceleration of the object during free fall? Why does this happen?
3. Describe the effect each situation would have on the terminal velocity of a falling object.
4. Increasing the mass, but keeping the cross-sectional area the same.
5. Increasing the cross-sectional area, but keeping the mass the same.