Egg Drop Project
Air Resistance Model and Drag Coefficient Determination

Name _____

1.) From the trials done with different mass eggs, you should complete the following data table:

Mass of Empty Egg Drop Vehicle (g): _____

Mass Added to Vehicle – Egg (g)	Terminal Velocity (m/s)			Average Terminal Velocity (m/s)	Force of Gravity on Vehicle and Egg = Force of Air Resistance when at Terminal Velocity (N)
	Trial 1	Trial 2	Trial 3		
0					

2.) Make a graph of Force of Gravity (Air Resistance at Terminal Velocity) vs. Average Terminal Velocity. Examine how well the graph matches a linear relationship by doing a linear fit on the data and recording the R^2 value.

3.) Make a graph of Force of Gravity (Air Resistance at Terminal Velocity) vs. Average Terminal Velocity Squared. Examine how well the graph matches a linear relationship by doing a linear fit on the data and recording the R^2 value.

4.) Evaluate which graph (or the 2 made in steps #3 and #4) is a better linear fit. If the graph from #2 is a better fit, than the model for air resistance for your vehicle is:

$$F_{Air} = av$$, where a is the drag coefficient (the slope of the linear fit of the graph from #2)

If the graph from #3 is a better fit, than the model for air resistance for your vehicle is:

$$F_{Air} = bv^2$$, where b is the drag coefficient (the slope of the linear fit of the graph from #3)

5.) State the value of the drag coefficient for your vehicle. Be sure to provide evidence to support your answer (screenshots of the graphs with linear fits and a comparison of the R^2 values).