**Unit 2 – Activity 2**

**Graphing Constant Velocity Motion**

1. Open the simulation found here: <https://tinyurl.com/yc3oumqu>. Complete the code so that it produces a simulation of a bus with an initial position of and a velocity of . Leave both produce-graph and produce-data-table on lines 7 and 8 as "no" for now.
2. Change delta-t to 5 seconds and edit line 7 so it reads produce-graph = "yes". Run the simulation and use the graph it produces to determine where the bus was at times and . Change delta-t to 1 second and re-run your simulation. Did where the bus was at times and change with the new delta-t? Does this surprise you?
3. Run your simulation a few more times with different values of delta-t. What happens to the graph of the bus’s position over time as delta-t gets smaller?
4. Set delta-t to 1 second and edit line 8 so that it reads produce-data-table = "yes". Fill in the data table below and plot the points.

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1. Use a ruler to draw the line which best fits your data. Then determine the equation of that line and write it below.
2. Change the values of initial position and velocity of the bus and run your simulation again. Write the initial position, velocity, data table, graph, and equation on a white board to share with the rest of the class.

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| **Initial Conditions:** | |
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| **Equation:** | |

1. What can you determine about the motions of your classmates’ busses from the graphs and equations they write? How do you know these things?