

Buggy Lab Report

Lily Orlando

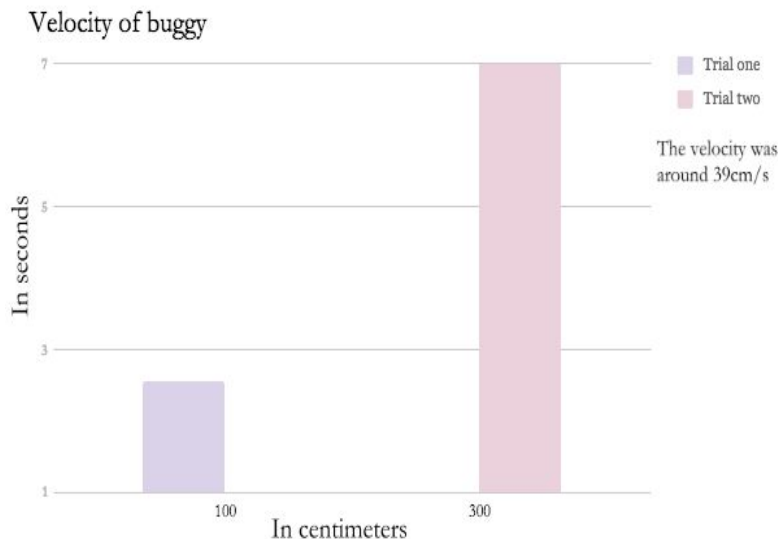
Buggy Lab v1.0 partners: Gigi and Jayden

Buggy Lab v2.0 partners: Anna, Maddie, and Gigi

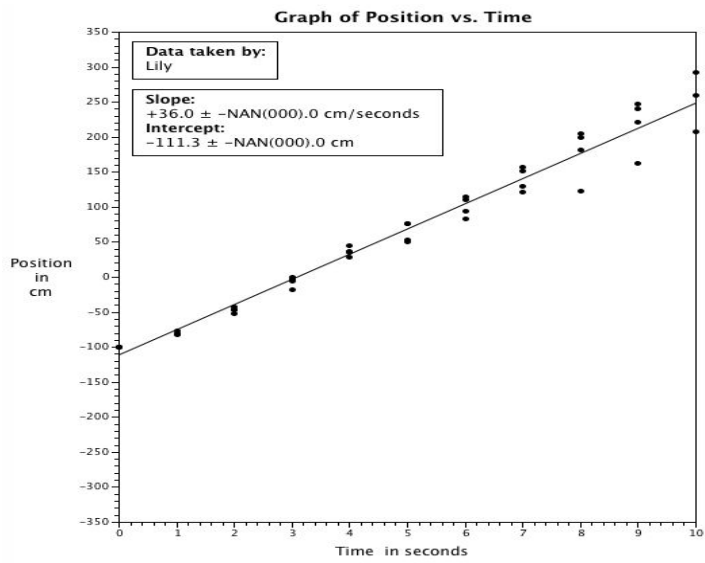
In Buggy Lab v1.0 we had to figure out if our buggy moved at a constant velocity or not. My group's procedure consisted of two data points; one trial the car would be traveling 100 cm to measure how long it took per second. The second trial, the car would be traveling 300 cm and we would measure again, how long it took per second. Then we will compare the velocities of each trial by using the velocity equation ($V=DT$). After performing both trials we gathered the data; the first trial, 100 cm in 2.55 seconds. The second trial, 300 cm in 7.52 seconds. Our independent variable was the distances (100 cm and 300 cm) because we, the experimenters, set and changed it. Our dependent variable was the time the buggy took to travel the distances because it changed according to what the independent variables are. Our constant variable was the buggy because it didn't change throughout the entire lab. The velocities were 39.2 cm/s for the first trial and 39.9 cm/s for the second trial. Both averaged out to be about the same, give or take a few seconds for human error. We can to the consensus that the buggy traveled at a constant velocity. In Buggy Lab v2.0 we had to figure out if the buggy moved at a constant velocity, again. Although the challenge questions for both buggy labs v1.0 and v2.0 were the same the procedures were different for each. In Buggy Lab v2.0 our procedure was to have the buggy drive for as long as it could while listening to a metronome and placing a washer down next to the buggy every time a beat on the metronome was heard. Our procedure consisted of 4 trials. After gathering our data we put it into a graph and found out that the buggy did travel at a constant velocity. Our independent variable was the time because we set the metronome to be at a certain beat 60 beats/ minute. The dependent variable was the position of each washer because it was placed in a certain place due to when the beat was played. The constant variable was the buggy because it stayed the same throughout the entire procedure.

Clearly, Buggy Lab v1.0 and Buggy Lab v2.0 were very similar. They both included the same challenge question and outcome. I think that we had to do Buggy Lab v2.0 for two specific reasons. The first reason is that there is a different procedure that we have to learn about and go through. The second reason is that the graph and data were different and recorded differently. My conclusions from Buggy Lab v1.0 is that the buggy moved at a constant velocity. I know this from using the equation $V= D/T$ and from using the graph to see the difference of

both distances and compare them to see if they had similar velocities, which they did. The graphs vertical axis represents the seconds the buggy took to travel and the graphs horizontal axis represents the distance the buggy was traveling. There are two data points; trial one and trial two. My conclusions for Buggy Lab v2.0 were that the buggy moved at a constant rate. I know this from using the data that was gathered, plugging it into Linreg, figuring out the slope and intercept, and then finding out the BF line equation. I also know this from looking at the graph and realizing that the points all appear to fall on the same line, they are linear. This graphs vertical axis represents the position the buggy was in at a certain time and the horizontal axis represents the time (in seconds) the buggy traveled. Every data point represents a different washer that was placed down (for every metronome beat) throughout all 4 trials. Overall, both Buggy Lab v1.0 and Buggy Lab v2.0 created different experiences so we could learn different things from both. I learned a lot from both labs. I learned how to gather data in two different situations, BF line equations, IV, DV, and constant variables, and graphing.



Buggy Lab v1.0



Buggy Lab v2.0

Buggy Lab v2.0: BF Line Equation: $x = 36 \text{ cm/s } (t) + -111.3 \text{ cm}$