**CAR CONSTANT MOTION LAB**

**Purpose**: In this lab, you will examine and graph the velocity of an object moving at constant speed.

**Materials:**

* Masking Tape
* Timer
* Meter Stick
* Calculator
* Test Car

**Procedure:**

* 1. Prepare a cardboard ramp approximately 10 cm wide and 60 cm long.
	2. Prop the ramp up and tape the top of the ramp to the object you are using to prop it up.
	3. Starting after the bottom of the ramp measure out 5 meters and mark with tape at 1-meter intervals.
	4. When you begin the trials, you will use the ramp to launch the car. You will then time how long it takes for the care to reach distance. For each measurement, make sure that you place the car at the same height

**Part I**: 2 Toy Cars Trials **(5 point each table)**

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| ***Lab 1. Car Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*** |
| **Distance** **[m]** | **Time****[s]** | **Speed = Distance/Time****[m/s]** |
| 1m |  |  |
| 2m |  |  |
| 3m |  |  |
| 4m |  |  |
| 5m |  |  |
| X | Average Speed |  |

Repeat the test with a different car (swap with another group):

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| ***Lab 2. Car Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*** |
| **Distance** **[m]** | **Time****[s]** | **Speed = Distance/Time****[m/s]** |
| 1m |  |  |
| 2m |  |  |
| 3m |  |  |
| 4m |  |  |
| 5m |  |  |
| X | Average Speed |  |

**Part II: Line Graph** (5 points total)

In the graph below, set up your scale and plot your results of your two cars. Finally, draw a line of best fit.

\*\*\*Use different colors to represent each different average lab test. Create a key to label each line that is graphed; so, we can tell which car is shown by each line.

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| **Speed: Distance v. Time** |
| Distance (meters) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | Time (seconds) |

**Questions (2 points each):**

1. How long did it take for each of your cars to reach 5 meters?
2. What was your average speed of the two cars together?
3. Was there any difference between the speeds of each car? – **What could explain the difference? (Please explain!)**
4. If you were to increase the speed of the car, what would the graph look like?
5. What does a flat line mean on a graph?

6. What does a curved line mean on a graph?