Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date \_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_\_

Lab Partner(s) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The Buggy Lab

**Objective:** Create a graphical representation to analyze an object in motion.

**Materials:** Buggy Car, meter stick, timer, masking tape

**Procedure:**

1. Mark a starting line with masking tape
2. Run the Buggy Car from the start line
3. Put a piece of tape at the position of the car location every second for 10 seconds
4. Measure the distance **from the start line** to each car location (piece of tape)
5. Repeat steps 2 - 4 for trial 2.
6. Calculate the average positions of the two trials

**Data Table**

|  |  |  |  |
| --- | --- | --- | --- |
| **Time (seconds)** | **Trial 1**  **Position (meters)** | **Trial 2**  **Position (meters)** | **Average position**  **(meters)** |
| **1** |  |  |  |
| **2** |  |  |  |
| **3** |  |  |  |
| **4** |  |  |  |
| **5** |  |  |  |
| **6** |  |  |  |
| **7** |  |  |  |
| **8** |  |  |  |
| **9** |  |  |  |
| **10** |  |  |  |

**Data Analysis:**

1. Use a piece of graph paper to construct a position vs. time graph. Use the average position. Place time on the x axis and position on the y axis. Be sure to include labels and a title.
2. Draw a line of best fit through your data points.
3. Find the slope of the line. Include units. Show your work on the graph.

Slope = rise or change in y value

run change in x value

4. What are the units for the slope?

5. What does the slope represent? Write an equation for motion using this information.

6. Scientist use patterns and trends to make predictions about the world around them. Based on the data you collected predict how far the buggy would travel after 25 seconds? Show all work.

4. Write a short description of what is being compared in the graph and what your data shows. Explain what the relationships is between the two variables. (at least 2 or 3 sentences)

5. What is the relationship between the two variables in this lab? Explain what that means.

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Section \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Conclusion:**

Based on your data analysis and experiences in this lab, write a well-constructed conclusion. Be sure to describe what was learned as it pertains to the objective statement.

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