Name Date

**Lab #2**

## The Relationship between Distance and Time

**Objective:** Examine the relationship between distance and time of a moving object.

**Materials:** Battery-powered car, stopwatch, masking tape, meter stick.

# Procedure

1. Design a system to measure the distance a car will travel and the time it will take to travel this distance.
2. Conduct your experiment. Try to be as precise as possible.
3. Record and analyze your data.

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| Time (s) | Distance (m) |
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# Observations and Data

1. Make a graph of displacement (dependent variable) vs. time (independent variable).
2. Draw the best fit line on the graph and use this graph to find the slope of the function.
3. Write the equation that describes the relationship between distance and time.

# Conclusion - Analysis

1. Find the slope of the best fit line (*show your work including units*). What does the slope mean?
2. Was the velocity of the car constant or were there changes in the velocity? Explain in detail.
3. Should all lab groups have the same type of graph? Explain in detail.

# Conclusion – Applications

Sketch the following graphs of an object’s motion:

* 1. Moving forward at a constant speed
  2. Moving backward at a constant speed
  3. Moving forward at a constant speed, stopping for a second, then moving backward at a constant speed.