Most common errors on motorized car lab report:

- In hypothesis, stating the shape of the graph and then saying "because distance is directly proportional to time (or vice versa)" is the same thing. Make sure you back up your hypothesis with your observations about how the car moves.

  Distance is directly proportional to time because the car moves at a constant speed and will therefore go the same distance in each second.

- Procedure sections were often vague. Please look at the sample lab report I wrote. Someone should be able to repeat your experiment the way you did it by following your procedure.

- Make sure data tables are labeled and all data is shown, not just averages. In future labs, pay attention to sig figs., both in measurements and in averages (review *Unit 1 Reading – Significant Figures*).

Time (s)	**Distance (cm) for Blue Car**		
	Trial #1	**Trial #2**	**average**
1.0	12.14	12.34	12.2
2.0	24.31	24.11	24.2
3.0	36.40	37.41	36.9
4.0	49.02	51.03	50.0
5.0	59.81	60.03	59.9
6.0	72.34	70.34	71.3

- When making mathematical models for graph,

  - the slope and y-intercept need units.
  - use letters for variables that are more descriptive than "x" and "y."
  - don't forget the 5% rule for determining if the y-intercept can be called zero

  d = (12.1 cm/s) t

- In the conclusion, some of you said the blue car was faster than the red car. This is fine BUT this was not the purpose of the lab. You were supposed to determine the relationship between distance and time and how the graphs for the two cars were different. Also discuss the physical meaning of the slope and y-intercept.

  Distance is directly proportional to time as shown by the equation for the best fit curve for the red car, d = (12.1 cm/s) t and the blue car d=(24.2 cm/s) t. The blue car had a faster speed as shown by the higher slope. Both cars had a zero y-intercept corresponding to the starting position of 0 cm at 0 time.

- Be more specific about where experimental error occurred. For example:

  When my partner said "go", there was a delay in starting the stopwatch due to my reaction time.

  The car did not go straight, but curved so that it actually went a further distance that what I measured in a straight line with the measuring tape.

- Be more specific about how to improve experiment should you do it again. For example:

  Timing could be improved by using photogates at the starting line and at a set distance rather than using a stopwatch.

  Using metersticks to make rails on either side of the car's path could help it to go straight.

- Please follow the checklist on the *Lab Report Grading Sheet* to make sure you include everything you are supposed to, especially in the conclusion!!