Derby Racecar Analysis

Physical Science and Technology

Using the data from your time trial, complete the following tasks:

1. Enter the data you collected and calculated (displacement, time, and final velocity) in class in a Google Sheets spreadsheet.

2. Calculate the **acceleration** of your derby racecar and add it to your data table. Use the formula we used in class for acceleration ($a = (v - v_0)/t$).

3. Create a Google Docs document and add a copy of your spreadsheet.

4. In your Google Docs document, answer the following questions:
   a. In general, what is more important in determining the speed of your car: its velocity or its acceleration? Why do you think this?
   b. In some trials we conducted, your acceleration may have been higher than the velocity. Explain how this makes sense (from a scientific point of view): how can something accelerate at a very high rate but still have a relatively low velocity?
   c. What kinds of changes do you think could be made to a derby racecar to increase its acceleration or velocity?
   d. In your own words, explain the difference between *displacement, velocity,* and *acceleration*.
   e. If you were to redo this project, what would you change about the way you built your derby racecar? Why?

5. **After having a teacher review your document**, print it and turn it in. Make sure your name is on your report!