Derby Racecar

Physical Science and Technology

In this project, you will design and build a racecar, which you will use to examine the concepts of displacement, velocity, and acceleration. After your racecar is built, we will use computers and sensors to make measurements as it rolls down a ramp and you will analyze those measurements with an Excel spreadsheet that will be posted to your web site.

The specifications for your racecar are as follows:

1. You must design and build the chassis for your racecar (the wheels, axles, and underlying support). If you choose, you may use pre-made parts for the top of your racecar.
2. Your racecar should be no wider than 15 cm, no longer than 25 cm, and no taller than 25 cm (including wheels and axles).
3. Your racecar should roll freely and will be powered only by gravity.

Here are the steps you should follow to build your racecar:

1. Individually, make eight thumbnail sketches of different ideas you have for your racecar. (*8 points – due in class on Wednesday, October 8*)
2. Individually, make a drawing of your racecar on a clean, unlined sheet of 8.5 x 11 inch paper. Use rulers and curve templates to make your drawing precise. (*10 points – due at the end of class on Friday, October 17*)
3. Individually, make orthographic drawings of the top and side of your racecar on separate sheets of clean, unlined 8.5 x 11 inch paper. These drawings should be full-scale. Again, use rulers and curve templates. You should include all relevant measurements in centimeters. (*10 points – due at the end of class on Monday, October 20*)
4. Choose a partner and report to Mr. Kirsch or Mr. Bregar. We will approve your partner choice, check your drawings, and assign you materials. Then, with your partner, you can begin building your racecar. (*25 points – due date TBA*)