

Engineering Notebook Requirements

TSA Dragster Design

1. Cover page (5 pts)
2. Table of Contents (5 pts) (Can be combined with Cover Page)
3. Print outs from Solidworks of the design your team built (10 pts)
4. Hand drawings from each team member on graph paper of the final car (20 pts)
 - a. Showing top and side views full scale
 - b. Label with a key in the lower corner
5. Visual inspection criteria for actual car. This sheet should be included in the notebook with the actual dimensions filled in for the car you built: (30 pts)
 - a. For this project, the criteria were not required. Print this sheet and write the actual measurements in the chart.

Item	Criteria	Actual Car (filled in by Student)
Length	200-305mm	
Height with wheels	25-75mm	
Width of Body at front axle	35-42mm	
Width of Body at rear axle	35-42mm	
Total Width with wheels	25-90mm	
Mass without CO2 cartridge	30g-100g	
Bottom of front axle hole from bottom of car	5-10mm	
Bottom of rear axle hole from bottom of car	5-10mm	
Rear axle hole from car rear	9-100mm	
Wheelbase (distance between axles)	105-270mm	
Hole Depth	48-54mm	
Wall Thickness	minimum 3mm	
Lowest point of CO2 hole to race surface	26-40mm	
Eye Screws distance apart	150-270mm	

6. Written Report by each student (30 pts)
 - a. Explain Newton's Three laws and describe how each applies to your CO2 dragster
 - b. Draw a free body diagram of the car showing all forces acting on the car.
 - c. Print a copy of the Bill of material for your car (using Excel) and include in report.
 - d. Show the calculations you made to determine the average speed of the race car.
 - e. What is the average speed of your car in feet per second and miles per hour?
 - f. Describe in detail how the car you built compares to the actual car that was designed by you or your teammate.
 - g. How could you improve your car's performance?
 - h. Which team built the fastest car?
 - i. Why was their car the fastest?
 - j. Which team built the slowest car?
 - k. Why was their car the slowest?
 - l. Describe the roll that each of your team members had in the construction of the car