

Step by Step Procedure to Construct the CO2 Race Car

- 1.** Draw thumbnails (10 sides, 10 top views)
- 2.** Draw rough sketch (half-scale drawing)
- 3.** Draw final drawing - full scale - outline and color in
- 4.** Trace designs, cut out top & side patterns
- 5.** Select styrofoam - weigh it (SBC) - fill in calculating sheet
- 6.** Trace top and side pattern & cartridge hole on styrofoam
- 7.a** Drill 2 holes (3mm) for axles on the drill press
- 7.b** Mortise inside wheels or drill front and/or rear fenders
- 8.** Cut out side view using jig saw or band saw
- 9.** Tape all cut off material back to styrofoam
- 10.** Cut out top view using jigsaw or bandsaw
- 11.** Remove excess styrofoam, shape and sand smooth

12. Weigh styrofoam (SAC) - fill in calculating sheet
13. Weigh wheels & axles on calculating sheet. Calculate **WAC**
14. Complete calculating sheet, calculate WBC - Select wood
15. Trace top and side pattern onto wood
- 16.a Drill 2 holes (3mm) for axles on the drill press
- 16.b Mortise inside wheels or drill front and/or rear fenders
17. Cut out side view on jig saw, or band saw - use relief cuts
18. Tape all cut off material back to wood
19. Cut out top view using bandsaw - see teacher for help
20. Remove all excess wood, shape and sand smooth
21. Double check **WAC** with wheels, axles, etc.
Car should weigh **WAC** before primer painting.
22. Apply light coats of primer - let dry - sand smooth w/220

- 23.** Apply body filler if necessary - let dry - sand smooth w/220
- 24.** Clean and prime until car is evenly painted
- 25.** Double check for smoothness and weight
- 26.** Apply finish paint - light coats (2-4) - Let it dry overnight
For multiple color car painting or designs, see your teacher
- 27.** Measure & complete sections of R&D sheet
- 28.** Assemble car - 45 to 50 grams to be competitive
Change or modify car, wheels, or axles to adjust car weight
- 29.** Complete R&D specific tolerance sheet
- 30.** Time Trials to determine fastest cars
- 31.** Race Day - Spartan 500 Qualifiers - top 2 from each class
- 32.** Spartan 500 - Late May of each year. Top 16 race