

## Rules

- Racer must be powered by one 8 gram CO2 cart ridge.
- Racer must fit onto a standard CO2 track.
- If a car fails the initial weigh in, the race officials may provide student with an opportunity to bring the racer up or down to weight limits.
- Any racer deemed unsafe by judges will not be raced.
- All parts must be made of either wood or plastic. Glass and/or metal parts will be deemed unsafe. Exceptions: axles may be metal, plastic or wood.
- All decisions of weight, size limits, or safety are the responsibility of the judges. Judge's decisions are final.
- In order to qualify for judging and placing, a car must remain in safe and operable condition after all racing and be capable of safely racing again.

## Specifications

- Length: Minimum 6 inches
- Width: Must fit within a single lane of a standard CO2 car track
- Weight: (not including CO2 cartridge) minimum 28 grams maximum 58 grams
- Power Plant Chamber Wall Thickness: minimum 1/8 inch around the CO2 cartridge
- Depth: minimum 1 7/8 inches maximum 2 1/8 inches
- Center: Power Plant Chamber Center to Race Surface: 1 1/8 to 1 7/8 inches
- Guide Lugs: minimum 2, must be spaced at least 4 inches apart

## Documentation

- Student will provide an Engineering Portfolio that will be submitted in a three brad folder (no binders allowed). Place the State Contest sticker received at registration on the outside of the folder at the top right corner of the front cover. The Engineering Portfolio must include:
  - Cover page with Student ID#, Category #, and Category Name.
  - Table of Contents
  - Research for the design concept
  - Detailed design drawings to scale, no larger than 11" X 17", of all of the parts, sub-assemblies or final car with appropriate dimensions.
  - Student explanation of their design
  - Pictures documenting the process the build process
  - MLA Cited Sources for Research

## Judging

- 25% Appearance: Quality of craftsmanship and appearance. Awarded 1st through number of valid entries.
- 25% Engineering Portfolio: Completeness and detail level of the Engineering Portfolio. Awarded 1st through number of valid entries.
- 50% Race Results: Points will be awarded based upon race times.

Each racer will be awarded 1st through the number of valid entries for appearance, engineering portfolio and race results. The lowest combined score wins 1st Place, the second lowest combined score wins 2nd Place, and so on. In case of a tie, the car with the better appearance and engineering portfolio will place higher.