

2027 Hot Rod CO2 Car



Hot Rod CO2 Car provides technology students with another opportunity to use their knowledge and skills in problem solving and the fun and excitement of racing competition. The goal of Hot Rod is to encourage students to design and build realistic looking one-fourth mile hot rod car models. The project has been carefully planned to allow students to create realistic scale models of dragsters, funny cars, pro-stock cars and trucks and still have a chance to win races. The vehicle should be built of several parts or sub-assemblies rather than carved out or 3D printed as a single unit.

Theme:

2027: Hot Rod/Classic Gasser must include an engine, seat, exhaust, removable body shroud or hinged hood to expose the engine compartment, and roll cage.

Rules

- Hot Rod must be powered by one 8 gram CO2 cart ridge.
- Hot Rod must fit onto a standard CO2 track.
- If a car fails the initial weigh in, the race officials may provide the student with an opportunity to bring the Hot Rod up or down to weight limits.
- Any Hot Rod 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 and guide lugs may be metal, plastic or wood.
- All decisions of weight, size limits, or safety are the responsibility of the judges. The judge's decisions are final.
- A car must remain in safe and operable condition after all racing and be capable of safely racing again to be eligible for an award.

Specifications

Length	8 inches minimum and 12 inches maximum
Width	2 5/8 inches minimum and 4 1/4 inches maximum
Weight	100 grams minimum
Power Plant Chamber Wall Thickness	1/8 inch minimum
Power Plant Chamber Depth	1 7/8 inches minimum and 2 1/8 inches maximum
Center of Power Plant to Race Surface	1 1/8 inches minimum and 1 7/8 inches maximum
Required Number of Guide Lugs	2 (Minimum of 4 in apart)

Required Equipment:

Front mounted engine with side exhaust pipes

Optional Equipment:

Driver, pinstripes, decals or stickers, engine wiring and anything else to enhance the realistic look of the truck.

Documentation

The competitor will provide an Engineering Portfolio that will be submitted in a three brad clear front portfolio cover (No binders allowed. [Example portfolio](#)). The Event Coordinator will provide each competitor a sticker for their portfolio and Hot Rod. The competitor will place the stickers 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 #, Category Name and a 3"x5" picture of Hot Rod
- Table of Contents
- Research on the yearly theme
- Detailed design drawings to scale, no larger than 11" X 17", of all parts, sub-assemblies or final car with appropriate dimensions
- Student explanation of their design
- Pictures documenting the process the build process (2 pages maximum)
- Professionally Cited Sources for Research

Judging

- 25% Appearance: Quality of craftsmanship and appearance
- 25% Engineering Portfolio: Completeness and detail level of the required elements
- 50% Race Results: Points will be awarded based upon race times

Each Hot Rod will be judged based on the rubric for this event. For race results, 1st place will receive 10 points, 2nd place will receive 9 points, 3rd place will receive 8 points... points continue decreasing by one point per place through 10th place. In case of a tie, the Hot Rod with the highest engineering portfolio score will place higher.