



# Solar Car Race Rules and Regulations

## Spirit of the Race

The Solar Car Race offers middle and high school students an opportunity to learn about renewable energy through a friendly competition with their peers. Students take responsibility for the design, construction and performance of model solar vehicles. Teachers/Mentors should allow the students to assume the responsibility for the design decisions, construction and maintenance of their vehicle.

Schools must be in SMUD's service territory to participate in the race.

Students may begin registration at 9 a.m. and use the track for practice runs. Racing begins at 10 a.m. Trophies will be awarded, once all vehicles have raced.

## Material and Vehicle Specification

1. SMUD will provide you with practice solar panels to use for the construction and testing of your cars. **New this year:** During the race day contestants will use solar panels provided by SMUD. For that reason, you must build your car so that you can quickly remove your original panels and install the official race day panels. We will provide alligator clips to wire to your motor so that it can quickly be attached to the race day panel. You are responsible for making sure that panel can be securely mounted to your car. Practice and race day panels are approximately 114 mm x 330.2 mm and 10 mm thick.
2. You must use the craft motors supplied by SMUD. Motors may not be rewound or disassembled.
3. Only one motor and one solar panel may be used per car.
4. Any of the gears supplied by SMUD may be used.
5. The remainder of the vehicle may be made from any material. Vehicles constructed using all the materials provided by SMUD will be eligible for the Stock trophy award.
6. The vehicle may not be larger than 30 cm (12 in) wide by 60 cm (24 in) long by 30 cm. (12 in) high.
7. The solar vehicle must be structurally sound without the solar module. The solar module must be easily removed from the vehicle and easily disconnected from the motor.
8. A 2 cm x 2 cm surface must be available for the adhesive label which will give the car an identifying number. The label will be provided during the vehicle inspection, prior to the race.
9. The vehicle must be powered solely by the sun's energy. No storage devices may be used in conjunction with the solar panel.



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## Solar Car Race | Rules and Regulations *continued*

10. The vehicle will be steered with a guide wire that runs the length of the track (fishing line). The vehicle must be attached to the guide wire by a minimum of one attachment point on a center point of the chassis. The vehicle must be easily attached (and removed) from the wire without disconnecting the guide wire. You can use small eyehooks.
11. The vehicle must be of the students' own design and construction from the current school year; no car or major part thereof from a previous year shall compete.
12. The track will be approximately 70 feet and each lane will be about 12" wide.
13. The guide wire will be located in the center of the lane. The wire will be no higher than 1.5 cm above the track surface. The wire will be a small diameter line such as fishing line. There will be no free end on the guide wire, thus the cars must be hooked onto the wire, not strung on it.

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### Race Information

1. If the sun's energy is insufficient, then the race judges will interview the race participants and judge the vehicles based on design.
2. The races will run in elimination format. Each car will get at least one opportunity to race.
3. Only two members of the race team will be allowed on the track during the race: one at the starting line and one at the finish line.
4. The vehicle will start behind the starting line with all wheels touching the track. The solar panel will be covered by an opaque sheet (like a manila folder), which will be held by the starting member of the race team to block the sunlight. The vehicle should not be touched by the sheet or any member of the team at this time. When the line judge gives the signal to start the race, the team member will remove the sheet so the panel will be exposed to sunlight.
5. There will be a 1-minute limit to prepare your vehicle to race in your lane. This should be enough time to attach the vehicle to the guide wire. The race will start at the end of this time regardless of whether the vehicle is ready to compete.
6. Once the race has begun, team members are not allowed to touch their vehicle or be in the race lanes until their vehicle has crossed the finish line and the judges have determined the heat completed. Pushing the vehicle after the race has begun may result in disqualification.
7. Any car becoming unattached from the guide wire and leaving the race lane will be disqualified from the heat in question. If the car leaving its lane interferes with any other cars, those cars whose run was interfered with will be allowed an additional opportunity to race.
8. Winner of the heat will be the first vehicle to cross the finish line or the vehicle traveling furthest down the track. In the event of a tie, the judges may determine multiple winners and admit additional cars to advance to the next round of competition.
9. Awards will be given for:
  - First Place Time
  - Second Place Time
  - Third Place Time
  - Innovative Engineering and Design
  - Sustainability Award (using recycled, renewable, or reusable parts, etc.)
  - Stock Award (using only the standard parts from the kit)
  - Judges Award
  - Artistic Award (using the most creative design)
  - Grit and Gumption Award

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### Material Links

Gears and accessories - [solarmade.com/store/category/junior-solar-sprint](https://solarmade.com/store/category/junior-solar-sprint)

This event is made possible by SMUD's [Community Education & Technology Center](#).

For more information, contact [etcmil@smud.org](mailto:etcmil@smud.org)