

# Junior Solar Sprint

## Rules and Regulations

*Updated April 14, 2004*

**Note:** These national rules and regulations may not be the most recent available. For the latest rules and regulations, visit <http://www.nrel.gov/education/student/natjss.html>. Some regional host sites may have additional rules and regulations. Please contact the host site where you plan to compete for a complete set of rules.

### Objective

The objective of the Junior Solar Sprint competition is to design and build a vehicle that will complete a race in the shortest possible time using the available power. Teams purchase a kit containing a solar panel and a motor. Using any other materials, competitors will design and build a solar-powered vehicle that will race on a 20-meter racecourse. The winner of the competition will be the team whose vehicle is the top finisher in a series of head to head elimination rounds.

### Materials

1. The motor and solar panel contained in the kit must be used without modification.
2. The remainder of the vehicle must be your own design and can be made from any other materials.

### Vehicle Specifications

1. The vehicle must be safe for contestants and spectators (e.g. no sharp edges, projectiles, and so forth).
2. The vehicle must fit within the following dimensions: 30 centimeters (cm) x 60 cm x 30 cm.
3. Decals of sponsoring organizations (provided by JSS) must be visible on the side of the car's body. A space of 3 cm x 3 cm must also be available on the side of the car where an assigned vehicle number can be placed.
4. Sunlight will be the only power source for the vehicle. No batteries or energy storage devices are permitted.
5. Any energy-enhancing devices, like mirrors, must be attached to the vehicle.
6. The vehicle must be steered by the guide wire using one or more eyelets affixed to the vehicle. The vehicle must be easily removable from the guide wire without disconnecting the guide wire.
7. The car must have a chassis that is three-dimensional. Teams will NOT be allowed to bolt the axles and wheels of the car directly to the solar module. The solar module cannot be used as the chassis of the car.

## Track Specifications

1. The length of the racecourse is 20 meters over level terrain.
2. Racing lanes must be at least 60 cm wide.
3. A guide wire will be located in the center of each lane of the track and will not be more than 1.5 cm above the track surface.
4. The track must be a hard, smooth, level surface such as a tennis court or running track. A large sheet of rolled material (e.g., plastic, heavy paper, roll roofing [half-lap], or hardwood taped or bolted together) may be used to cover an uneven surface.

## Race Conduct

1. At race time, vehicles will be placed behind the starting line with all wheels in contact with the ground.
2. The contestants must cover the solar module with an opaque material (e.g., a file folder) without touching the module.
3. At the start of the race, the contestants will remove the opaque covering to allow the solar module to generate electricity for powering the vehicles.
4. An early or push start may result in disqualification or re-running the race. The race judges will determine if a contestant is disqualified or if the race must be rerun.
5. The race will start when the official signal is given. The winner of the race will be the first vehicle to cross the finish line or the farthest car down the lane.
6. During initial heats, the judges may declare multiple wins or losses.
7. One member of each team must wait at the finish line to catch the vehicle.
8. Team members may not accompany or touch the vehicle while it is racing on the track. Vehicles stalled on the track may be retrieved after the end of the race has been declared.
9. Vehicles and team members must remain at the finish line until the winning order of the race has been established.
10. Vehicles that change or cross lanes will be disqualified (at the discretion of the race judges).
11. Challenges protesting the winning order of the heat must be made before the race judges begin the next heat. All challenges must come from the team members who are actively competing. The decisions of the race judges are final.
12. Judges have the option to inspect cars prior to the final heat or at any time during/after the heats are completed.

## Awards

1. The winning car from each individual school will advance to the designated host site's competition. The winning car may be selected by time trials, head-to-head races, or at the discretion of the teacher/principal.
2. Awards at regional competitions may be given to the five fastest cars and to the five best-designed vehicles (including awards for technical merit, craftsmanship, and innovation).

For additional information about participating in the Junior Solar Sprint at NREL, contact Linda Lung, Office of Education Programs, NREL, 1617 Cole Boulevard, MS 17/1, Golden, Colorado 80401. Call her at 303-275-3044 or e-mail at [linda\\_lung@nrel.gov](mailto:linda_lung@nrel.gov).