

Junior Solar Sprint Northeast Regional Competition

Rules and Regulations for 2010

Spirit of the Sprint

The Junior Solar Sprint offers students an opportunity to learn by means of a friendly competition against their peers where students take responsibility for the design, construction, and performance of a model solar-electric vehicle.

The role of the adult is to nurture the spirit of excitement and the joy of discovery and learning that awaits students. Adults should let students assume the responsibility for design decisions, construction, and maintenance of their vehicle, performance at a race, and winning or losing.

Materials and vehicle specifications:

1. The Ray Catcher solar panel sold by Pitsco and the JSS Solar Panel sold by Solar World may be used. Panels cannot be shaved, drilled or delaminated. The motors supplied with these panels (Mabuchi #280-2865 and Mabuchi #260-18130) may be used. Motors may not be re-wound or disassembled. Solar panels used in 1995-2008, and motors used in 1996-2008 may be re-used this year. Any other panels and motors may not be used in the competition. All parts mentioned here must be used without modification. One solar panel and one motor allowed per car. However, reflectors, supports, and power leads may be added to these components as needed.
2. The remainder of the vehicle may be made from any other materials.
3. The vehicle may not be larger than 30 cm. (12 in.) wide by 60 cm. (24 in.) long by 30 cm. (12 in.) high.
4. The solar vehicle must be structurally sound without the solar panel. The solar panel must be able to be removed from the vehicle, and easily disconnected from the motor.
5. Two 2 cm. x 2 cm. surfaces must be available for the car number, which should be easily visible when the vehicle is in the ready to race position.
6. The vehicle must be designed with a compartment to carry a payload of 1 empty 12 oz. aluminum soda can. The can may not be part of the vehicle's structure, and must be easily and rapidly removed or reinserted. The can will be supplied by Northeast Sustainable Energy Association before the start of the race, and must remain with the vehicle and unaltered during the entire event, and returned to the judges following the race if requested.
7. The vehicle must be powered solely by the sun's energy. No energy storage devices (e.g. flywheel battery, etc.) may be used in conjunction with the solar panel.
8. If the sun's energy is judged insufficient, a battery pack will be furnished for each race. Motor power leads should be readily accessible for easy attachment to a battery pack.
9. The vehicle will be steered via a guide wire that runs the length of the track (typically fishing line). The vehicle must be attached to the guide wire by a minimum of 1 attachment point. The vehicle must be easily attached (and removed) from the wire without disconnecting the guide wire.
10. The vehicle must be of students' own design and manufacture from current school year; no car or major part thereof from a previous year shall compete. Each team from a given school must have a unique car design.

The Race Track:

11. The race lane is 60 cm. wide and 20 meters long. The track is a hard flat surface such as an asphalt tennis court or

running track. The track may be oriented in any direction (e.g. North-South, East-West, etc.)

12. 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 small diameter line, such as fishing line (e.g. 60# test monofilament). There will be no free end on the guide wire, thus the cars must be hooked onto the wire, not strung onto it.

Conduct of the Race:

13. The races will be run in a double elimination format. Thus you will have a minimum of two opportunities to race before you are eliminated from competition.

14. 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. A non-team member may act as a catcher if necessary. Student non-team members will be chosen over adult non-team members if possible.

15. Each vehicle must have an assigned student team captain. No student shall be assigned team captain to more than one vehicle. No team shall consist of more than four students.

16. The vehicle will start from behind the starting line with all wheels touching the track. The solar panel will be covered by an opaque sheet which will be held above the panel by a 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 the sunlight.

17. There will be a 5 minute time limit to prepare your vehicle to race in your lane. This should be sufficient time to attach the vehicle to the guide wire. The race will start at the end of this time limit regardless of whether the vehicle is ready to compete.

18. Once the race has begun, team members are not allowed to touch their vehicle or be on 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 or a re-run of the race.

19. Any car that leaves its lane will be disqualified from the heat in question. However, the offending vehicle may compete in it's second trial if not having done so already. If the car leaving it's lane interferes with any other cars, those cars whose run was interfered with will be allowed an additional opportunity to run.

20. Loss of payload during a race will result in disqualification from the heat in question. However, the offending vehicle may compete in it's second trial if not having done so already. If the loss of payload interferes with any other cars those cars whose run was interfered with will be allowed an additional opportunity to run.

21. Winner of a heat will be the first vehicle to cross the finish line or the vehicle to travel the furthest down the track. Generally speaking, the top two finishers will advance to the next heat. In the event of a tie, the judges may determine multiple winners, and admit additional cars to advance to the next round of competition.

22. Awards will be given for speed and design (i.e. technical merit, craftsmanship, innovation and student knowledge, etc.).

Advancement from Area to Regional Competition:

23. Each area will be allowed to send at least six cars to the regional competition. The total number of invitations is based on the number of competing teams and will be determined by the Northeast Sustainable Energy Association.

24. It is left up to the area event coordinators to determine the eligibility requirements for filling that quota, and which teams will be invited to advance to the Northeast Regional Championship.