



Junior Solar Sprint Rules

Spirit of the Sprint

Junior Solar Sprints (JSS) offers students the opportunity to learn by means of a friendly competition against their peers. Students design, construct and race a model solar powered vehicle. The role of the educator is to nurture the spirit of excitement and the joy of discovery and learning that awaits students. Educators should let students assume the responsibility for decisions, building and performance on race day. Students will submit a Video Journal as their first entry for competition. If their Video Journal scores enough points, the team will be notified and invited to the in person Finals race. Please see Video Journal rubric for more information. For important dates and resources, visit the JSS webpage: <https://avenuesinmotion.org/environmental-education/junior-solar-sprints/>. Any questions can be emailed to our Environmental Education Coordinator, Amelia Hoskins at ahoskins@avenuesinmotion.org

NOTE: Avenues in Motion is no longer requiring a soda can passenger. Those wanting to participate in the Technology Student Association's (TSA) Solar Sprints must consult with TSA regarding rules and regulations.

Materials and Vehicle Specifications

1. The Ray Catcher solar panel sold by Pitsco is the official solar panel to be used for this race. No homemade panels or other commercial panels can be used. If your team moves on to the finals, panels can be kept until after finals. Solar panels are Avenues in Motion's property. In the event you lose your panel, you must pay back Avenues in Motion the retail value of the panel, \$38. You are allowed to purchase your own panels, but they must be the Pitsco Ray Catcher, product ID W37942. Only 1 solar panel per vehicle is allowed. The solar panel can't be part of the structure of the vehicle. It must be easily disconnected from the vehicle as solar panels are shared. The use of Velcro is recommended.
2. The motor provided by Avenues in Motion must be the only motor used in the vehicle design (Pitsco, motor 280, product ID 54428). Motors may not be rewound or disassembled. Only 1 motor per vehicle is allowed. Besides the Pitsco 280 motor and Pitsco Ray Catcher panel, all other options in the Avenues in Motion build kit are optional.
3. The vehicle with its solar panel must be powered solely by the sun's energy. **No energy storage devices may be used in conjunction with the solar panel.** If the weather is not conducive towards solar only races, the races will switch to battery power. The participants will be provided with faux panels that are made to be similar size and weight to the actual solar panel. The faux panel will have a positive and negative lead and various pieces of Velcro on the back. It will be powered by a single AA battery that will be provided. The panel has an on/off toggle switch and a micro switch. The students will connect the leads to their motor and switch the toggle to on. Then they will hold down the micro switch and wait for the "Ready, Set, Go" instructions, releasing the micro switch on "Go." Students will be shown the panel in advance and informed on how to use it before their race. The construction of this faux panel is based on an example provided by the originators of JSS, the Northeast Sustainable Energy Association (NESEA).

4. The vehicle will be attached to a guide wire in the center of the lane and runs the length of the track, with no free end. The attachment device must not be potentially damaging to the line. The wire will be a small diameter line such as 60# fishing line. The wire will be no higher than 1.5cm above the track surface. Included in the kits are paperclips that can be used to connect the vehicle to the guide wire. Using the provided paperclips is optional. You can create your own way of attachment so long as it doesn't damage the wire or require the wire to be disconnected.
5. The race track is 66 feet long. The tracks are set on asphalt.
6. The vehicle must be a student team's own design and manufactured from the current school year. Teams cannot use prefabricated gear boxes or chassis. **No vehicle or major component from a previous year will be allowed to compete.** Solar panels, motors and other individual parts may be reused in a new design.
7. The name of the vehicle must correspond with the team registration paperwork submitted prior to race day.
8. Student model cars must be no larger than 12"x24"x12".

Conduct of the Final Competition Race:

1. The Junior Solar Sprints has 1 in person event with the date published on Avenues in Motion's website, traditionally held in mid/late May. **This event is invitation only.** Teams are considered for the Final based on their Video Journal. Please see the Video Journal .pdf located on the Materials & Resources page for more info on that component.
2. Teams will consist of 1 to 4 participants max. Participants must be middle school students (6th-8th grade) or children ages 11 – 13. If you have a mixed grade group please contact Amelia to confirm participation eligibility, ahoskins@avenuesinmotion.org.
3. The races will be divided into heats. A scoreboard will detail who is racing now and who is up next, referred to as "on deck." The announcer will alert the crowd over the loudspeaker who is racing and who is on deck. It is the responsibility of the participants and educators to listen to all announcements. There will be opportunity to move your team out of the first heat to a later position if needed. This option will only be allowed in the first heat. The races need to stay on schedule so you are expected to be ready to race once you arrive. We understand that issues can come up and will try to accommodate last minute emergencies but please be aware this flexibility is only allowed in heat 1. Failure to show up to your race results in an automatic loss.
4. Teams that are not announced as racing or on deck should go to the Judges Table to be scored in the following categories: Craftsmanship, Engineering, and Upcycled Materials. Teams that are not racing or on deck may also visit the Fix-It table if their vehicle needs repairs. Note: Video Journals are scored ahead of race day. No journals are scored or viewed at the Final competition.
5. The races will be run in a double elimination format. Teams must lose twice before being knocked out of the Speed competition. Winners will be announced as races complete and it is the responsibility of your team to keep track of their wins and losses. Please do not harass the staff or volunteers at the scoreboard regarding your team's position. It is distracting and can result in mistakes at the scoreboard. We recommend teams bring a notebook or use their cell phone notes app to keep track of their wins/losses. Any issues perceived by the competing team can be addressed with official Avenues in Motion staff and should be brought up immediately.

6. A vehicle needs to be one of the first 3 vehicles to cross the finish line to count as a win in a heat. If not all vehicles cross the finish line, the winners are the 3 vehicles that went the furthest down the track.
7. The following counts as a loss: being in the bottom 3 in a heat, the vehicle disconnecting from the guide wire, pushing/touching the vehicle or any attempts at cheating.
8. One team member at the start and one team member at the finish line is allowed. No extra team members are allowed in the race track area.
9. The vehicle will start from behind the starting line with all wheels touching the track. The solar panel will be completely shaded by a supplied opaque cover (cardstock/folder, etc.) held above the panel by a team member. No member of the team can touch their vehicle. The team will wait for the "Ready, Set, Go" call and remove the cover so the panel is exposed to sunlight. Once the race is started, no member of the team can touch the vehicle. Please see rule 3 under material and vehicle specification for the faux panel use.
10. One team member at the finish line will catch the vehicle after it crosses the finish line. Participants aren't allowed to touch their vehicle until after the race is officially called by the announcer. Participants can remove their vehicle from the guide wire when told to do so by the announcer. Teams that remove their car early can cause confusion in the race area and sometimes races need to be repeated due to issues at the start line. Please wait to remove your car until an official Avenues in Motion staff member says to do so.
11. The Speed competition will begin at 9am and will continue until a clear winner is determined. If your group is concerned about running late please talk to Kristen in advance of race day to discuss potential solutions. We recommend arriving at 8:30am to avoid tardiness at the start line and so teams can get situated in the competition space.