

1. DESCRIPTION: Teams must design and build in one hour, then test, a vehicle that uses solar energy as its sole means of propulsion to travel a required distance as quickly and with the maximum load possible, whilst producing a minimum of waste.

A TEAM OF UP TO: 2 EYE PROTECTION: None IMPOUND: None EVENT TIME: 2 hour

2. THE COMPETITION

- a. We will test 8 teams in every 2 hour period. Teams will sign up for a designated hour of building, which will be followed by no more than 1 hour of testing followed by a disassembly of their vehicle. Building will commence precisely at the top of the hour and end 10 minutes prior to the top of the following hour. Students who arrive late will be escorted to their build sites and be required to stop building at the same time as all other competitors. No one other than the judges and contestants will be allowed in the building/judging area.
- b. Each build time will be presented with a mixed table of items and tools. Examples of materials are: paper cups, drinking straws, paper clips, string, tape, paper, legos, thumbtacks, and Popsicle sticks. Materials are not limited to this list. The actual materials provided may be entirely different. Only the materials on the table may be used to construct your vehicle. No other materials or adhesives may be part of the finished device.
- c. The competitors are to construct a vehicle powered by an provided electric motor, provided energy through provided solar panels, which utilizes a non-direct drive transmission (i.e. the electric motor must be connected to wheels/axle through an intermediate step such as an automotive transmission).
- d. The competitors vehicle must carry a pre-massed load of the competitors designation.
- e. The competitors will be given a maximum of 45 minutes to construct and test their vehicle at which point the vehicle will be impounded.
- f. The competitors will be allowed to test their vehicle under similar circumstances to those on the actual course including a comparable energy source.
- g. The team will select a mass with which to test their vehicle between 10 g and 1500 g and send a representative to inform the judges or their selection within the first 40 minutes of the build. Failure to do so will result in the vehicle running with a minimum mass (10 g).
- h. Any materials that the competitors remove from the table are to be used in the construction of the vehicle or be impounded for scoring, no materials are to be returned once they enter the build area or are to be discarded.

2. THE TEST

- a. We will test 8 teams per hour. Teams will sign up for a designated hour of building and testing. Students should report to the event room 10 minutes before their designated time. No one other than the judges and contestants will be allowed in the building/judging area.
- b. The vehicle will be covered with a piece of paper so as to prevent any pretest locomotion.
- c. The test will occur on a 5-10 meter long track. The exact distance will be chosen by the event supervisor.

- d. The vehicles will start with the front of the vehicle parallel and adjacent to, but not breaking the plane of, the start line. Once the plane is broken timing will begin and end once the vehicle is completely through the plane of the finish line.
- e. In preparation for the test the judge will present the team with a pre-measured mass, of their previously designated amount, the team will then load the mass under judge supervision without adding or removing anything to/from the vehicle.
- f. During the test a team member will carry a lightbulb or flashlight along with the vehicle to provide the solar panels with the requisite energy. Any damage to the lightbulb or caused by the light bulb will result in event disqualification.
- g. Any locomotion of the vehicle while it is being tested that is not caused by the electric motor will result in disqualification.

3. THE TRACK:

- a. The event supervisor must clearly mark the Start Line, Finish Line and a one meter line beyond the finish line. There is no lane width requirement. It is recommended that three timers be used with the middle time being official.
- b. At the event supervisor's discretion, more than 1 track may be used. All tracks must be on a smooth, level and hard surface.

4. SCORING

- a. Scoring will be based on a formula published on the day of the event by the judge.
- b. The scoring formula will be based on 3 criteria, the mass of the load transported, the time the vehicle takes to complete the course, and the remaining material after the build is complete.
- c. The fastest of 2 runs will be used in scoring.
- d. The first tie breaker will be team with the lowest scored waste materials
- e. The second tie breaker will be the team with the shortest time to transverse the course
- f. The third tie breaker will be the team to carry the most mass
- g. Teams not completing any runs within the 10 mins. or have two Failed Runs receive participation points.
- h. If no vehicles cross the designated finish line, the event supervisor will measure the perpendicular distance traveled from the start line to the front of the vehicle to determine place. Teams filing an appeal must leave all impounded material with the event supervisor.