

JUDGING GUIDE: SPEC SHEET

Materials List and Specs

REQUIRED MATERIALS	PROHIBITED MATERIALS/PRACTICES
<ul style="list-style-type: none"> • Provided Motor (see appropriate motor for ES/MS or HS) • Provided PV Module – Pitsco Ray Catcher 2.76V module • Switch (any that is safe – not provided) • Battery holder • 2 AA Batteries • Provided resistor – 6.2 Ω (*HS only) • 1 red LED (*MS and HS only) 	<ul style="list-style-type: none"> • Any vehicle deemed unsafe by any judge (Note: utilities are experts in electrical safety!) • Additional power sources beyond what’s included (required) • Modifying power sources (solar panel and batteries) • Tampering with motor (re-wound or disassembled) • Additional purchased materials beyond \$10 in cost (receipts for purchased materials must be included in documentation of design in notebooks)

IN THE KIT – ES	IN THE KIT – MS	IN THE KIT – HS
<ul style="list-style-type: none"> • 1 PV Module (Pitsco Ray Catcher Solar Module, 2.76V, 1A) • 1 small DC motor (Pitsco Motor 280) • 1 2-AA battery holder • 2 rechargeable AA batteries • 2 metal axles • 4 rubber bands (2 thick, 2 thin) • 8 gears (2 mm hole) • 8 gears (1/8” hole) • 4 nylon spacers • 4 wheels (2 large, 2 small) • 2 balsa wood sheets • 1 solar panel blank (cardstock) • 12 pack mini alligator clip leads • 2 small metal alligator clips • 2 screw eyes 	<ul style="list-style-type: none"> • 1 PV Module (Pitsco Ray Catcher Solar Module, 2.76V, 1A) • 1 small DC motor (Pitsco Motor 280) • 1 2-AA battery holder • 2 rechargeable AA batteries • 2 metal axles • 4 rubber bands (2 thick, 2 thin) • 8 gears (2 mm hole) • 8 gears (1/8” hole) • 4 nylon spacers • 4 wheels (2 large, 2 small) • 2 balsa wood sheets • 1 solar panel blank (cardstock) • 12 pack mini alligator clip leads • 2 small metal alligator clips • 2 screw eyes • 3 red LEDs 	<ul style="list-style-type: none"> • 1 PV Module (Pitsco Ray Catcher Solar Module, 2.76V, 1A) • 1 2-AA battery holder • 2 rechargeable AA batteries • 2 metal axles • 4 rubber bands (2 thick, 2 thin) • 8 gears (2 mm hole) • 8 gears (1/8” hole) • 4 nylon spacers • 4 wheels (2 large, 2 small) • 2 balsa wood sheets • 1 solar panel blank (cardstock) • 12 pack mini alligator clip leads • 2 small metal alligator clips • 2 screw eyes • 3 red LEDs • 1 5V DC Motor • 1 6.2 OHM Resistor

VEHICLE SPECIFICATIONS FOR QUALIFICATION

- Vehicle size: maximum length of 38 cm, width of 30 cm, and height of 30 cm.
- The solar panel cannot be used as the body of the vehicle.
- The solar panel cannot be altered (e.g. drilled, sanded, or cut).
- Vehicles must be powered by 2 AA batteries provided during the day of the challenge. The batteries must be connected to a working switch that can be turned off. (Note for high school teams: batteries should be connected in series with the provided resistor.)
- The solar panel is not required to be connected to the on/off switch.
- There must be an available 5 cm square of free space for team number sticker.
- Middle school and high school teams must include a minimum of one red LED in their design that lights up when vehicle is running.
- High school teams must also include the resistor and use the 5V DC motor.