



SOLAR POWERED CAR

SLRCR1

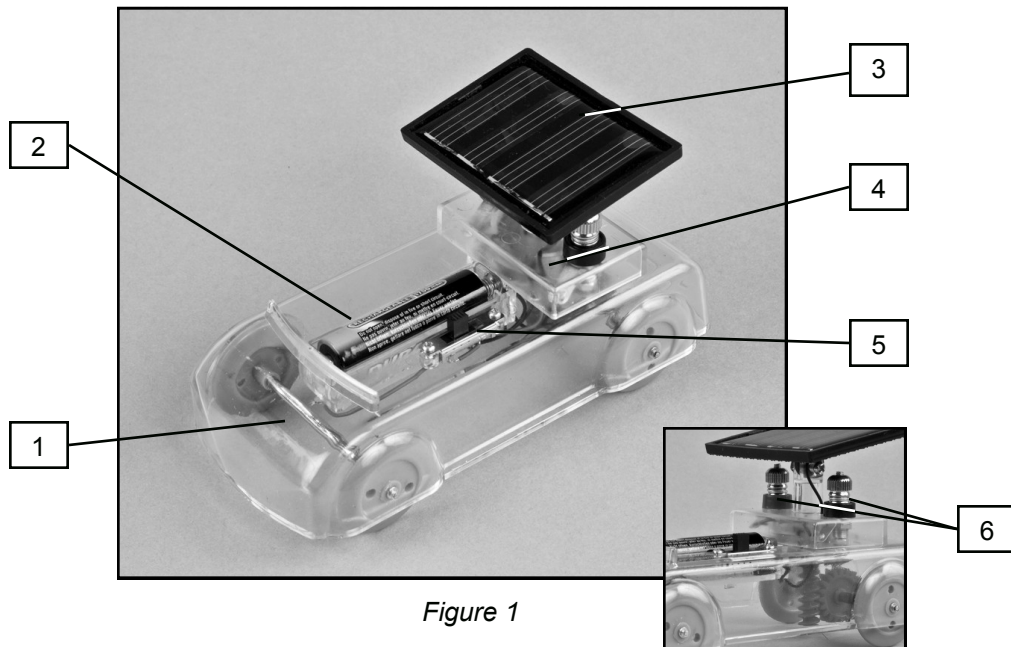


Figure 1

1. Description

The Solar Powered Car is an instructive and fun device that shows the application of photovoltaic panels to produce and use electrical energy. You can use the sun or a desk lamp to make the car run or to charge a battery. You can also measure the voltage produced by the photovoltaic panel and run the car on the electrical energy stored in the battery.

2. Components

Refer to *Figure 1*

- | | |
|----------------------------------|--------------------------------------|
| 1. Transparent car body | 4. Motor and drive gears |
| 2. Rechargeable AA battery | 5. Control switch (four positions) |
| 3. Photovoltaic panel—adjustable | 6. Terminals for voltage measurement |

3. Safety

- Do not use a non-rechargeable battery in the Solar Powered Car—it could overheat.
- Only charge the rechargeable battery in the Solar Powered Car. Do not attach it to any charging unit not specifically designed for it—it may overheat and cause a fire.
- If you need to dispose of the rechargeable battery, recycle it according to local regulations. Do not burn it or throw it in the trash.
- The Solar Powered Car does not produce or use any dangerous electrical voltages or currents.

4. Preparing the car for use

Insert the rechargeable battery into the recess on the top of the car body (see *Figure 2*). Make sure that the positive terminal of the battery faces the front of the car (the positive end of the battery recess is marked with a “+”)



Figure 2

5. Controls

The Solar Powered Car is controlled by a four-position switch on the top of the body next to the battery recess (*Figure 3*) The functions of the four positions are:

- “BATT” Runs the car from the rechargeable battery.
- “CHRG” Charges the battery from the photovoltaic panel.
- “S-CELL” ... Runs the car from the photovoltaic panel.
- “AUX” Disconnects the photovoltaic panel from the motor and the battery.



Figure 3

The photovoltaic panel is always connected to the pair of binding posts located below the panel (*Figure 4*) so you can connect other electrical items directly to the panel when the switch is in the “AUX” position. Also, the photovoltaic panel is fitted with a swiveling mount (*Figure 4*), so it can be adjusted to face the source of light.

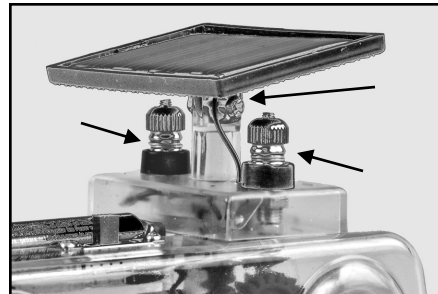


Figure 4

6. Exploring the Photovoltaic Panel

- Slide the switch to the “S-CELL” position.
 - Find a flat place in the sun to run your car and try out some experiments:
 - How fast does the car go when it’s powered by the photovoltaic panel? (*Try timing a measured distance with a stopwatch or watch with a sweep second hand*)
 - Does the car go faster in the morning, midday, or afternoon sun?
 - Does it matter which way the photovoltaic panel is pointing? Which way is better?
 - Does the car go slower if it’s cloudy? How much?
 - What happened if the car runs into a shadow area? (*Try using your hand to cast a shadow on various parts of the car*)
 - Take the car indoors and find out what happens if you light the photovoltaic panel with different lamps such as:
 - A regular desk lamp
 - A regular flashlight
 - An LED flashlight