



MAKING A SOLAR-POWERED VEHICLE



Build it. Test it. Power it with the sun!

OVERVIEW

In this experiment, you will build a vehicle that uses solar energy from the sun to move. You will learn how solar panels convert sunlight into electricity to power a small motor.



MATERIALS

- 1 small solar panel (3V–6V)
- 1 DC hobby motor (3V–6V)
- 1 small gear (optional)
- 4 wheels (with axles)
- 1 craft stick base or cardboard (vehicle chassis)
- 1 straw or wooden dowel (axles)
- 2 wires with alligator clips or tape
- Hot glue or tape
- Scissors
- Ruler
- (Optional) small switch

SCIENCE BEHIND IT

Solar panels absorb sunlight and convert it into electrical energy. The electricity flows through wires to the motor, which converts it into mechanical energy (motion) to turn the wheels and move the vehicle.

PROCEDURE

- 1 Build the chassis using a craft stick base or sturdy cardboard.
- 2 Attach the axles to the base using straws or dowels. Make sure the wheels spin freely.
- 3 Attach the DC motor to the chassis. If using a gear, connect it to the motor shaft.
- 4 Connect the red wire from the solar panel to the positive (+) terminal of the motor.
- 5 Connect the black wire from the solar panel to the negative (–) terminal of the motor.
- 6 (Optional) Add a small switch in one wire to turn the vehicle on and off.
- 7 Place your vehicle in direct sunlight on a flat surface and watch it move!

TEST & OBSERVE

Test your vehicle under different conditions. Record your observations below.

Test Condition	Did It Move? Yes / No	How Far Did It Go? (Approx.)	Notes
Direct sunlight			
Partial shade			
Indoors (room light)			
Cloudy day			

THINK & ANSWER

1. What source of energy powers your vehicle? _____
2. What happened when the light was dim or blocked? _____
3. How could you improve your vehicle to make it go farther? _____
4. Where could solar-powered vehicles be useful in real life? _____



CHALLENGE!

Can you modify your vehicle to make it go faster or carry a small load? Try different gear sizes or lighter materials.



GO GREEN!

Solar energy is clean, renewable, and helps reduce pollution. Great job using the power of the sun!