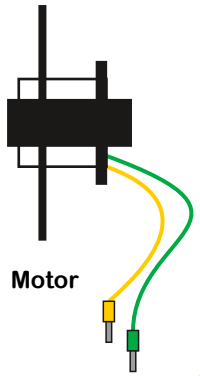
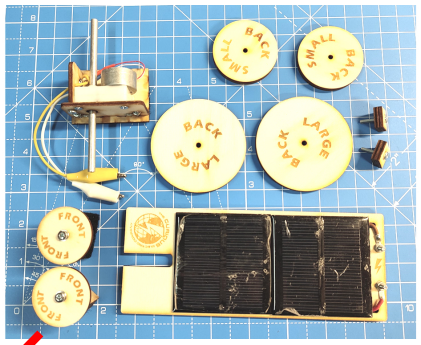
Aim

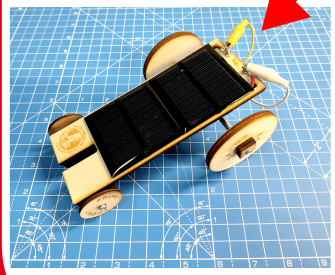
Help understand solar power, solar cells, energy conversion and basic electronics.

Objectives

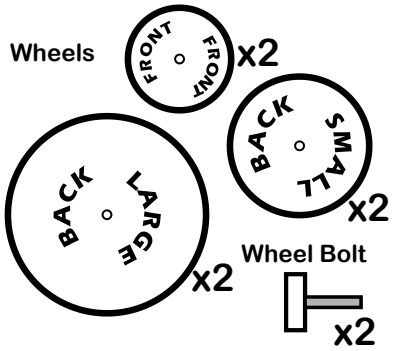
Build a kit car.
Investigate different methods of assembly.
Try different wheel configurations.
Build a basic electronic circuit.
Investigate solar power.
Make the car travel a specified distance as quickly as possible.

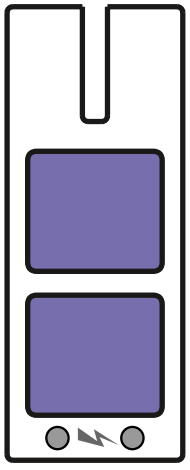




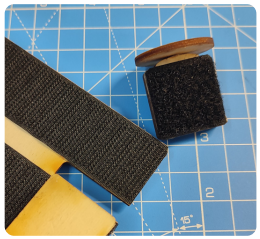


Kit Contents



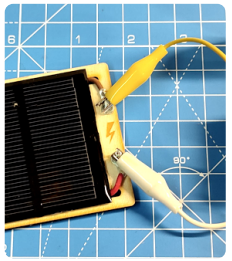


Front wheels and motor connect to solar base using hook & loop tape.



Wheels fit onto the motor axle then are held in place using the wheel bolts.
Turn the square head with your hands.

Clip the wires from the motor to the connections on the solar base.

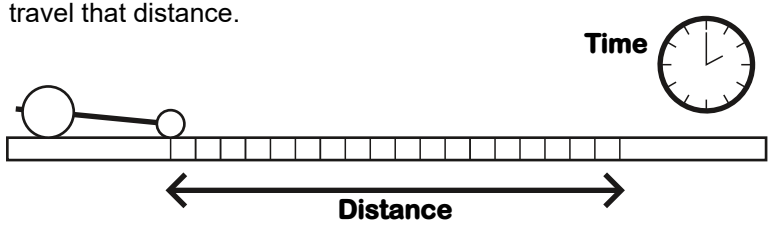


Activity Ideas

How do solar cells produce electricity?
Where have you have seen solar cells before?
How is energy transferred?
(Light energy –> Electrical energy -> Mechanical energy)
How do we measure speed?
(Distance over time, link to maths)
Which wheel size goes faster?
(Larger wheels go further per revolution)
What gradient can the car climb?
(This will be a measure of its power)
Will the car go in reverse?
(Turn motor round or swap terminals)

Speed & Distance

Speed is the **distance** travelled within a certain **time**.If the car travels 1 metre in 1 second then the car is travelling at 1 metre per second.You can test this by measuring the length of your racecourse.You can then time the car using a stopwatch.The **speed** of the car is the **distance divided by the time** taken to travel that distance.



Each car is raced along the racecourse. The times taken is measured.You should take several measurements to see how this varies.
Try to calculate an average of the times.

Problems?

Are the wheels aligned correctly?
Problems with friction:
Are wires in the way?
Are wheels sticking or rubbing?
Are the back wheels tightened correctly?
Is there enough light hitting the solar panels?
Are the wheels aligned correctly?
Is the race surface flat and level?

Kit developed by:
The Curious Electric Company
We hope you enjoy your kit.
Comments or suggestions?
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