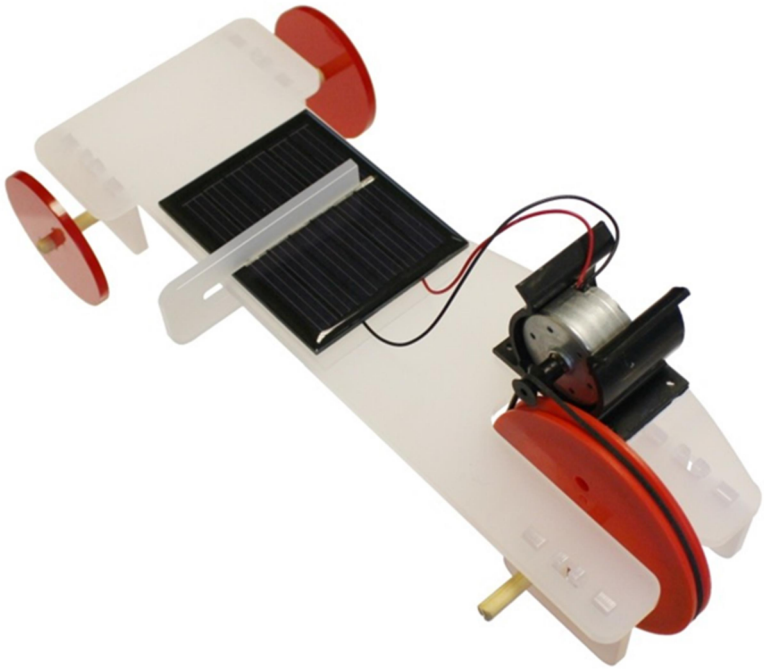
Kitronik

ESSENTIAL INFORMATION

BUILD INSTRUCTIONS
HOW THE BUGGY WORKS

EXPLORE SOLAR POWER WITH THIS

SOLAR POWERED BUGGY



Version 2.2

Solar Powered Buggy Essentials

www.kitronik.co.uk/2153

Build Instructions

1 INSERT REAR CLIPS

Push the rear two clips into the base of the buggy, these have centred holes so can go either way around. They do have to go on the correct face of the buggy, see the image right.

2 ATTACH MOTOR CLIP

Remove the plastic backing from the black motor clip to reveal the adhesive foam. Look for the small rectangular outline etched onto the buggy and stick the clip on.

Make sure that you stick it to the opposite side to the side you pushed the clips through. Look at the picture right if you are unsure.

3 PREPARE THE FRONT WHEEL

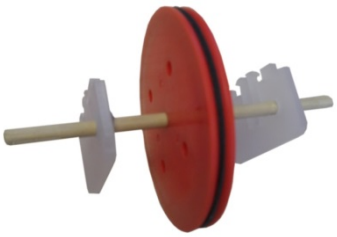
Put the rubber band around the big red wheel, it will fit into the recess in it.

4 PREPARE THE FRONT AXEL

Push one piece of the dowel through the big wheel. If it won't fit you may need to sand it down a little bit. There is some variance in the thickness of the wood so some kits may be stiffer than others.

5 PREPARE THE FRONT CLIPS

Push the two front clips onto the dowel, once on each side of the wheel. The front clips have off-centre holes and both clips need to go on in the same direction, as shown right.



Solar Powered Buggy Essentials

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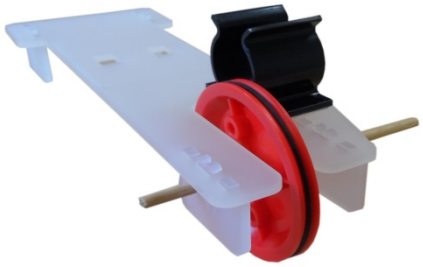
6 INSERT THE FRONT CLIPS

Push the two front clips into place, making sure that the dowel is closer to the middle of the buggy.



7 ATTACH THE MOTOR PULLEY

Push the small black pulley onto the motor shaft.

8 SOLDER THE MOTOR TO THE SOLAR CELL

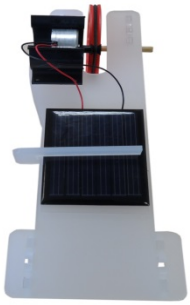
If your solar cell has wires attached already, cut them off. Solder the red and black wires of the motor onto the inner connection points on the solar cell.

The solar cell has markings '+' and '-' for positive and negative. Wire the red wire to '+' positive and the black wire to '-' negative.

9 ATTACH MOTOR AND SOLAR CELL

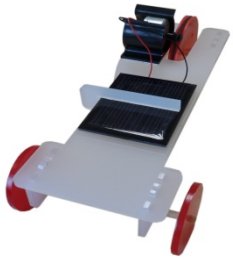
Push the motor into the black clip with the shaft facing inwards. Pull the rubber band that is around the red wheel over the black pulley.

Place the solar cell onto the large etched rectangle on the buggy's base making sure that the soldered connections are through the two holes (this lets the cell lie flat). Then slide the 'U' shaped clip over the solar cell to hold it in place.

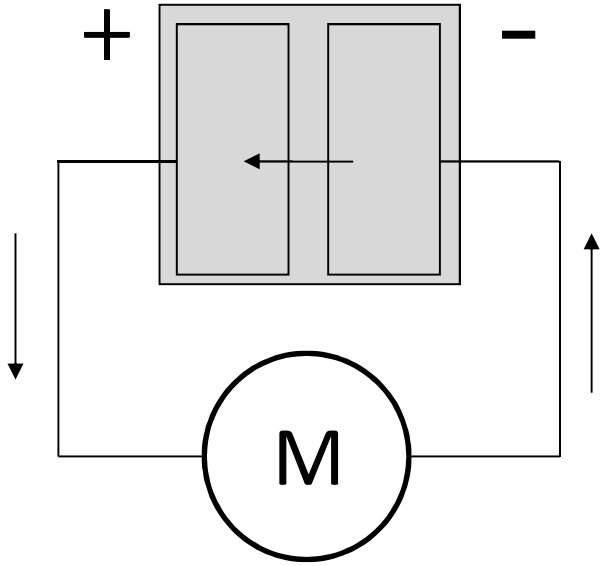


10 ATTACH REAR WHEELS

Put the second piece of dowel through the two holes in the rear clips and push a small red wheel onto each side. Your buggy is now complete!
Take it outside on a sunny day or shine a bright halogen lamp onto the cell to see it go.



How the Solar Buggy Works



The solar cell is wired in series with the motor so that the current generated by the solar cell can cause the motor to spin. The motor used is a low inertia motor; this type of motor tends to spin very quickly but with little torque. The advantage of this type of motor is that it requires very little current, making it suitable for use with low current power supplies like solar cells. This type of motor however cannot provide much pulling power; the motor shaft can be easily stopped by placing your finger on it even at full speed. For this reason a rubber band is used as a gearing pulley to convert some of the speed of the motor into additional torque.

Online Information

Two sets of information can be downloaded from the product page where the kit can also be reordered from. The 'Essential Information' contains all of the information that you need to get started with the kit and the 'Teaching Resources' contains more information on soldering, components used in the kit, educational schemes of work and so on and also includes the essentials. Download from:

www.kitronik.co.uk/2153

This kit is designed and manufactured in the UK by Kitronik

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