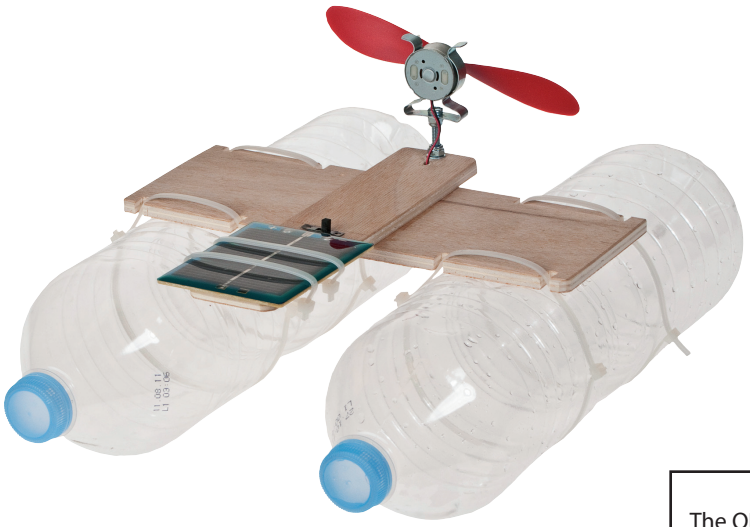
OPITEC

111.714

Solar-Catamaran



Necessary tools:

Pencil and ruler
Fretsaw
Pillar drill
Screwdriver
Spanner M4
Drills 4,5 8mm diameter
Sandpaper,file
Craft knife or chisel
Side cutters
Soldering iron, solder
All purpose glue or waterproofPVA
Varnish or paints ,brush

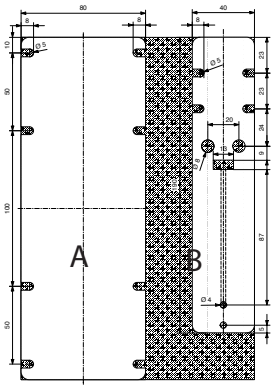
Please Note

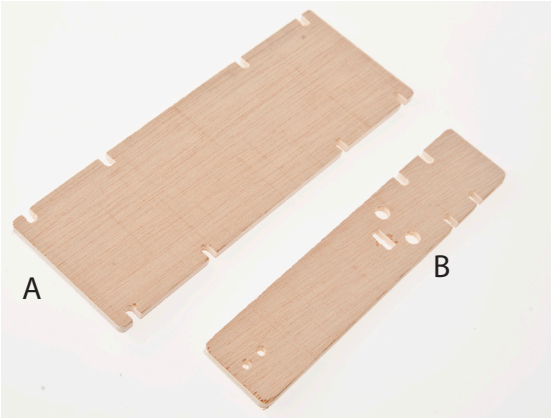
The OPITEC range of projects is not intended as play toys for young children.They are teaching aids for young people learning the skills of Craft, Design and Technology.These projects should only be undertaken and tested with the guidance of a fully qualified adult.
The finished projects are not suitable to give to children under 3 years old. Some parts can be swallowed. Danger of suffocation!

PARTS LIST				
Plywood	1	220x150x6	Base	1
Spring clip	1	Ø23-27	Motor holder	2
Machine screw	1	M4 x30	Fixing	3
Nut	2	M4	Fixing	4
Washer	2	M4	Fixing	5
Wing nut	1	M4	Fixing	6
Solarmotor	1	Ø24	Drive	7
Micro switch	1	19x6	Circuit	8
Cable,black	1	500	Circuit	9
Solar cell	1	1,5V/300mA	Power source	10
Propeller	1	130	Drive	11
Cable binder	6	3,5x345	Fixing	12

INSTRUCTIONS

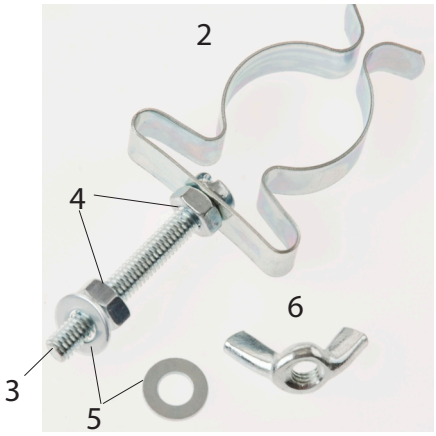
1. Trace the pattern (s. Seite 5) on the plywood sheet (1) and cut out the shapes.
   Cut and drill PART A and PART B. Sand to finish
   Teile (A) und (B) bohren, aussägen und verschleifen.





2. Mark and cut out the cable chanel with a craft knife or a chisel (B) between the 4 mm hole and the sitch
   (Pattern broken line)

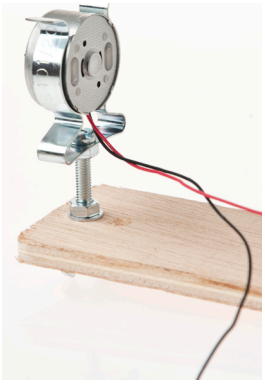
3. Make up the motor holder from a spring steel clip (2) machine screw(3) uts (4) washer (5) and wing nut (6)



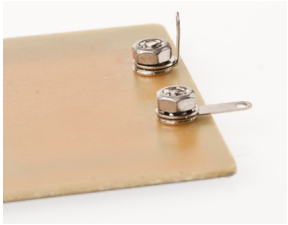
4. Insert the holder through the 4mm hole in part B add from underneath a washer (5) Fix the holder with a wing nut (6) underneath

INSTRUCTIONS

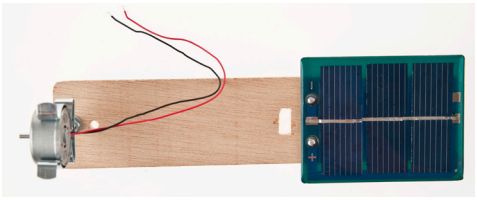
5. Insert the solar motor (7) in the spring clip mounting(2) with the shaft facing forward (2) and adjust the motor so that the cables lead downwards

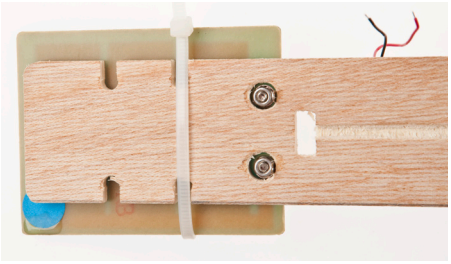


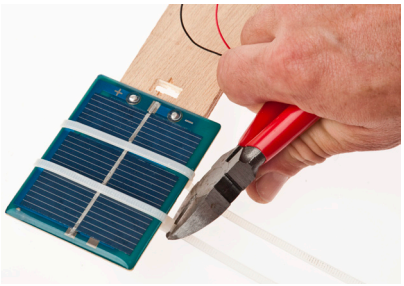
6. Use the connections with the solar cell (10) to fix it in place. The cell must be with the active side uppermost



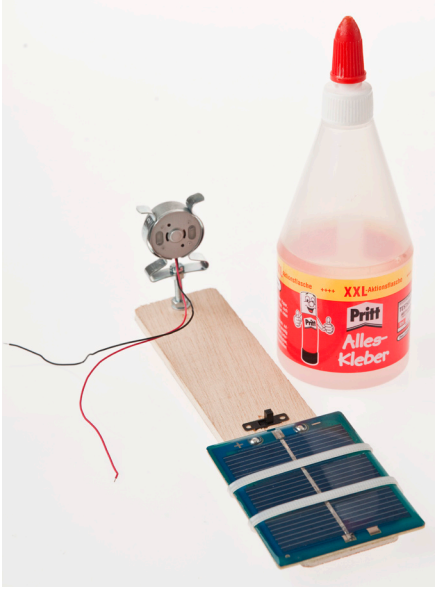
7. Lay the solar cell on part B, so the the connections are in the 8mm holes. Fix the solar cell with two cable binders (12) to part B .To do this ensure that cable binder lays in the join and connects with the nothches in part B . Tighten and clip off the remainder





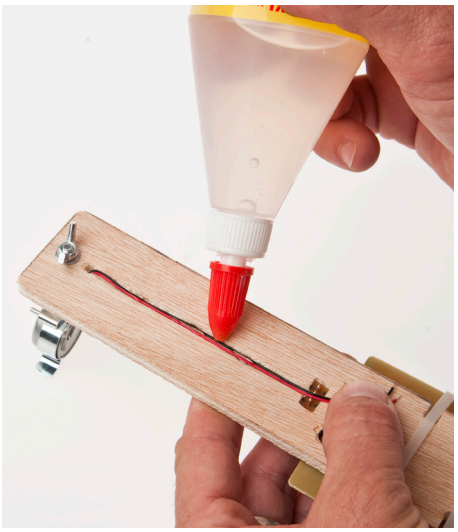


8. Insert the slide switch (8) from above in the cut out in part B and glue it in place

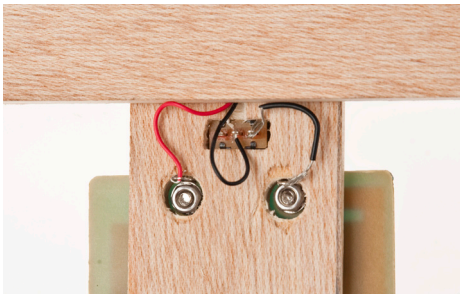


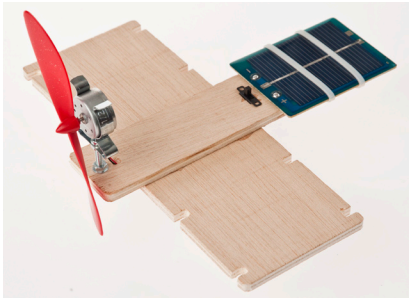
INSTRUCTIONS

9. Thread the motor cable through the free 4 mm hole in part B in the direction of the switch. Finally glue part B on to part A. Make sure that the cable does not slide out of the canal . Leave glue to dry well



10. Take the black motor cable from and connect it with the middle connection on the switch (Tin an solder the end) From the cable (9) cut a 40mm long piece- remove 10mm insulation form the ends and solder one end to right hand connection on the switch and the right hand connection on the Solar cell (The cable can be carefully soldered or wound around the connector)
Join the red motor cable wit the left hand connection on the solar cell Turn the catamaran over. place a propeller on the motor shaft Hold the cell near a lamp (60Watt) or in sunshine .Switch the micro switch on and the motor should turn . If not re-check the connections



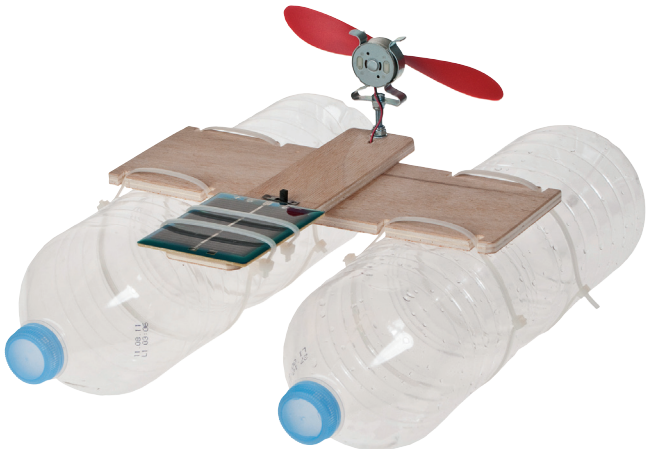


11. Protect the plywood with a coat of varnish to protect from water spray

12 Join the power unit to two empty plastic lemonade bottles05Litre
1.Ltre or 1.5 Ltre with cable joiner and cut them to length

Make sure the the bottle ends face the motor and propeller

Now you can try it out in water



INSTRUCTIONS

Patterns
M 1:1