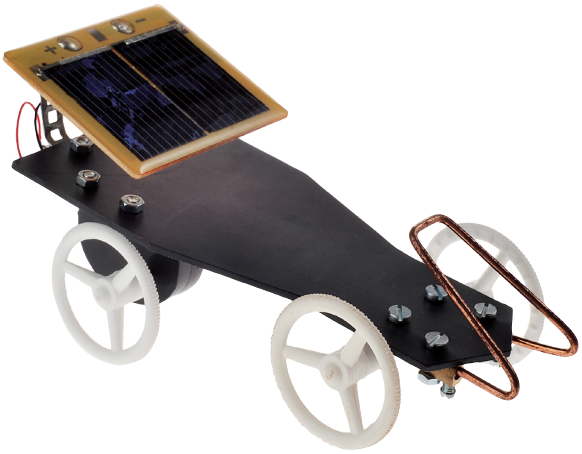
OPITEC

109.793

Solar Auto with gearbox



Please Note

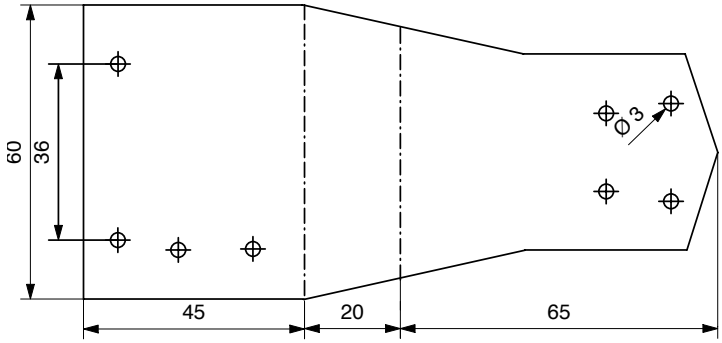
The OPITEC range of projects is not intended as play toys for young children.They are teaching aids for young people learning the skills of Craft, Design and Technology.These projects should only be undertaken and tested with the guidance of a fully qualified adult.
The finished projects are not suitable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

Necessary tools:
Pencil,ruler,
Fretsaw,sandpaper and block
File,Drill ø 3 mm
Plastc former
Screwdriver, Side cutters (Metal shears),
Spanner 5,5
Pliers, Round nose pliers

PART LIST				
			Description	
Polystyrol	1	130x60x2	Base chassis	1
Holed metal strip	2	150x10x0,5	Fixing	2
Welding rod	1	200x2	Axle & bumper	3
Motor & gearbox	1		Drive	4
Steering wheels	4	ø37	Wheels	5
Solar cell	1		Electricity source	6
Machine screws	2	10x3	Fixings	7
Machine screws	8	8x3	Fixing Drive/Axle/Solar cell	8
Machine screws	2	6x3	Fixing bumper/connector block	9
Solarmotor	1		Drive	10
Nuts	10	M3	Fixing	11
Connecter block	2		Fixing bumper	12
Reducers	4	3/2	Fitting Axle and wheels	13

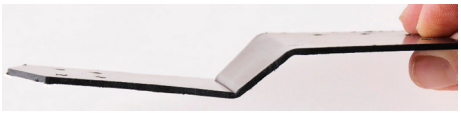
INSTRUCTIONS

1. Mark out on the chassis (1) the holes (See page 5 for patterns) Drill the 3mm diameter holes and cut out the shape with a Fretsaw. File the sawn deges to finish .

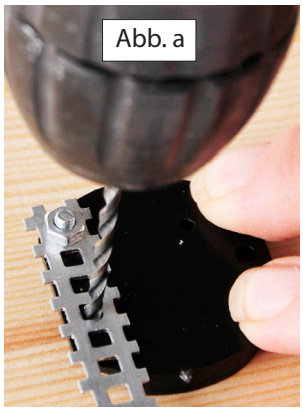


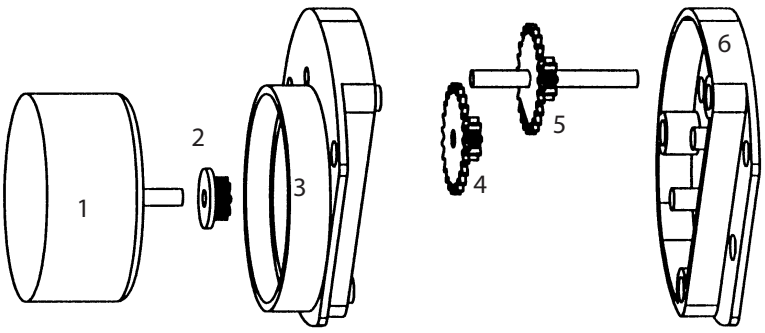
General :
The base chassis (1) can be folded or left flat. The instructions show how to fold the chassis.

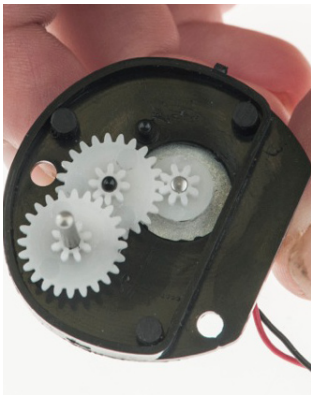
2. Use the pattern to fold the chassis (Seite 5). Bend the chassis at 45 degrees using a plastic former (Heated plastic forming machine)
Then bend the second fold in the opposite direction.



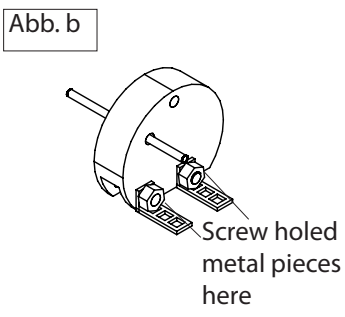
3. Before asembling the gearbox (6) mount the holed metal strip (2) with screws (See photo,a) Use the 4th hole of the holed strip to drill a 3mm hole through the gearbox housing (6) Assemble the the solar gearbox and test !

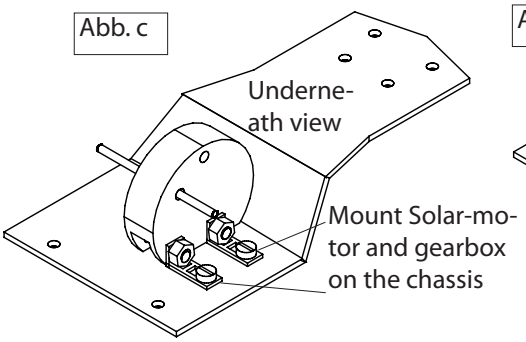


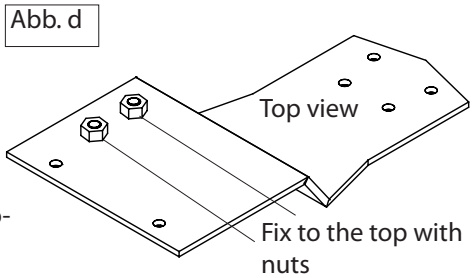




4. From the holed metal strip (2) cut 2 metal strips each 4 holes long- use metal shears. Bend each piece after 1 hole at 90 degrees . (See pattern on page 5)
Mount the strips (b) with 2 screws (8) and two nuts (11) on the solar gearbox.
Mount the solar gearbox on the chassis with 2 machine screws (8) &2 nuts(11) /







INSTRUCTIONS

5. From the square holed metal strip (2) cut two lengths each 9 holes long and bend them as shown in the pattern on page (5)

Mount the metal strips as shown (e) using a machine screw (8) and a nut (11) see abb. (f)

Abb. e

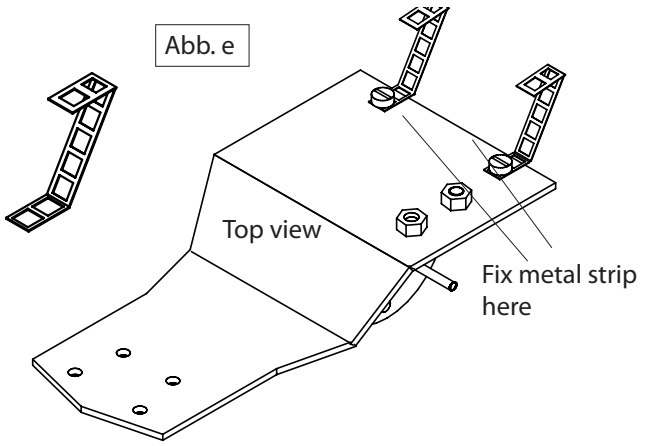
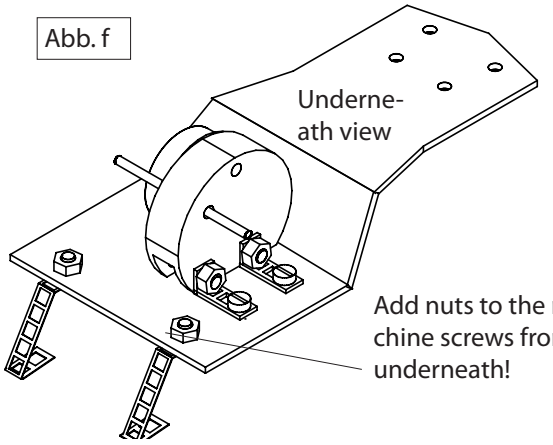


Abb. f



6. Cut fron the square holed metal (2) a strip 8 holes long.
Use the pattern on page (5) to make the "U" shaped axle holder.
Use the machine screw (8) to fit the axle holder fixing it with two nuts (11) from underneath (Abb i)

Abb. g

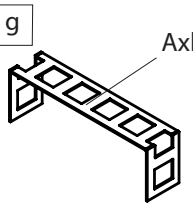


Abb. h

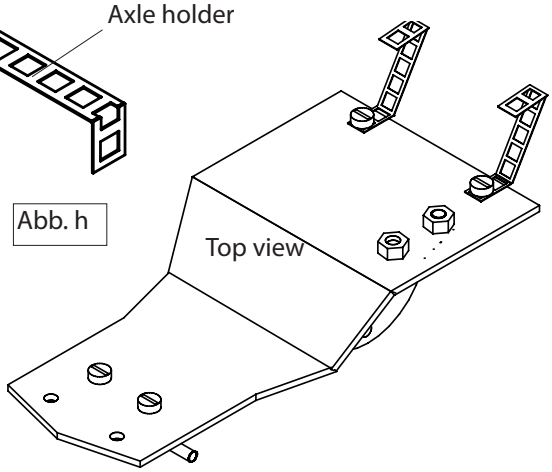
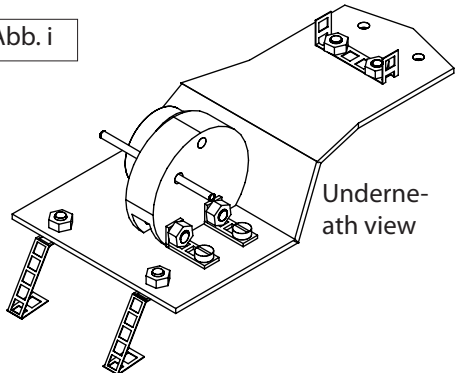
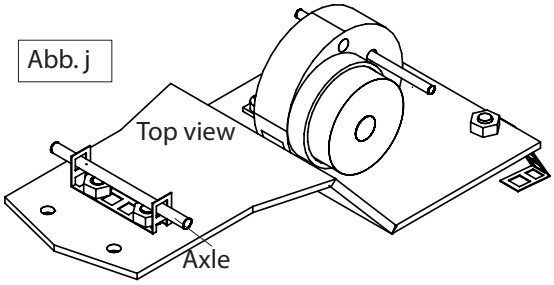


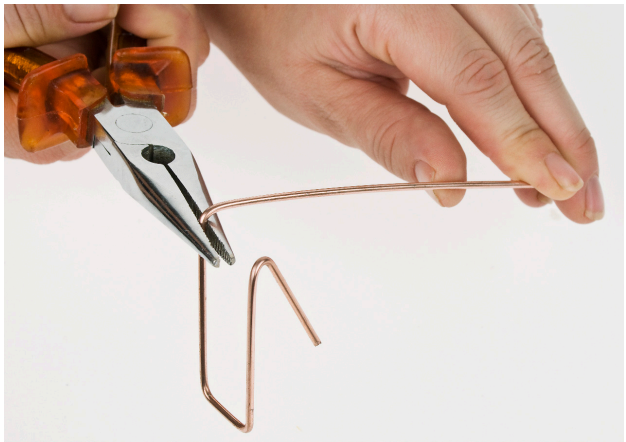
Abb. i



7. Cut from the welding rod (3) cut 40mm. File the ends to remove any burr. Insert the rod in the front axle holder (Abb. j)

Abb. j

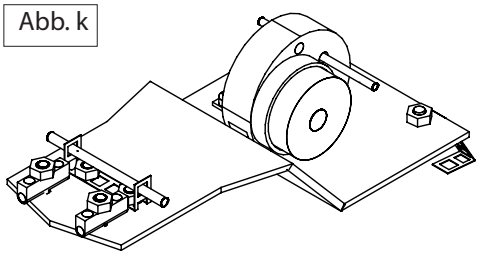




8. Use the remainder of the welding rod and bend it as shown in the pattern (page 5) with round nosed pliers.

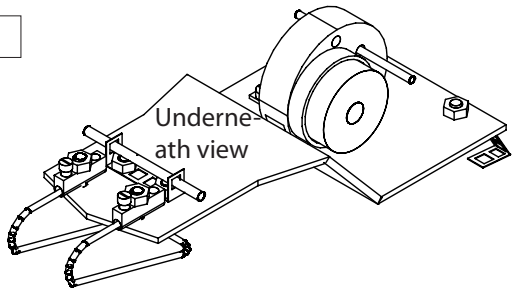
INSTRUCTIONS

Abb. k



9. Screw the connector block (12) as shown in Abb. (k) to the underside of the chassis with the machine screws (7) and nuts (11) tighten.

Abb. l



10.Insert the wire rod bumper in the connector block and screw in place (9) (siehe Abb. l)

11. Place a reducer (13) in the centre of each wheel (5) Place the wheels on a an axles (Abb. m)

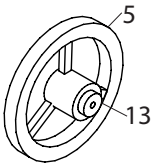
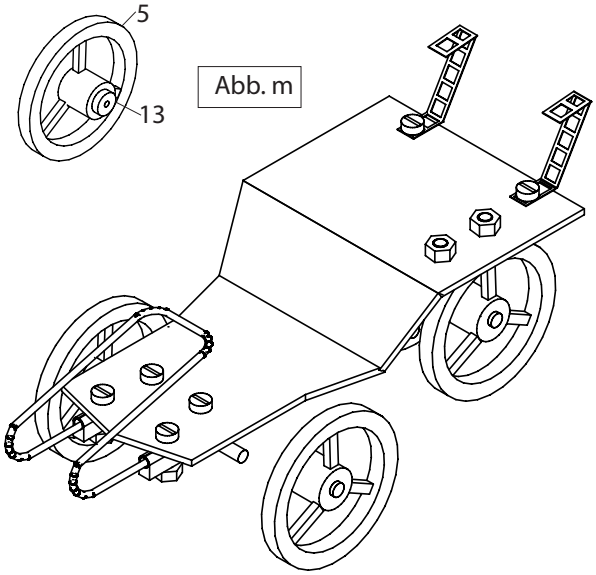


Abb. m



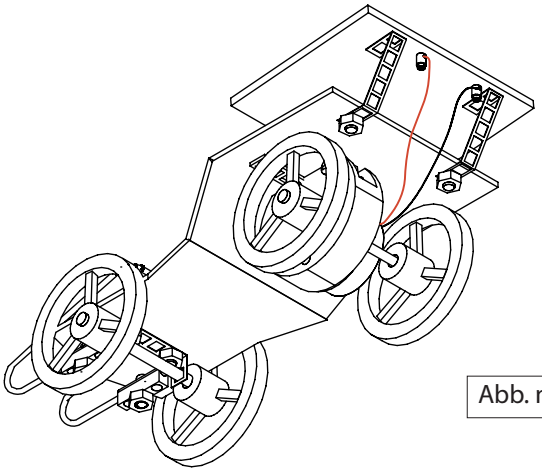
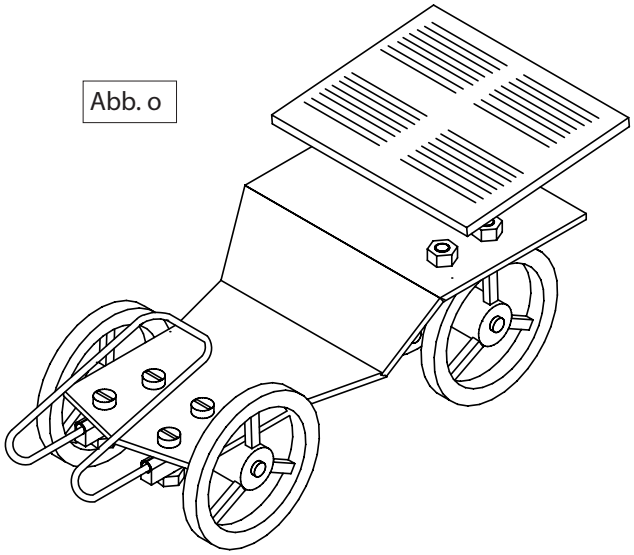


Abb. n

12. Remove 10mm of the insulation from the end of the red cable on the solar motor.
Thread it through the hole and connect it to the screw on the solar cell. The red cable is connected to the minus pole and the black cable to plus pole. (siehe Abb. n)

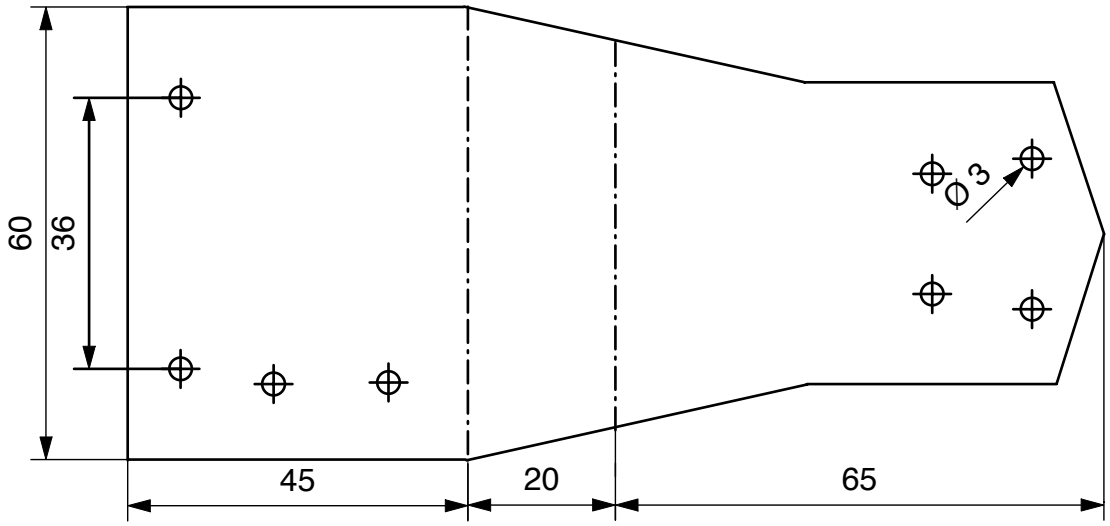
13. Check the drive direction before fastening the solar cell. If the drive rotates in a forward direction, the solar cell (6) can be to the holder using a hot glue gun

Abb. o

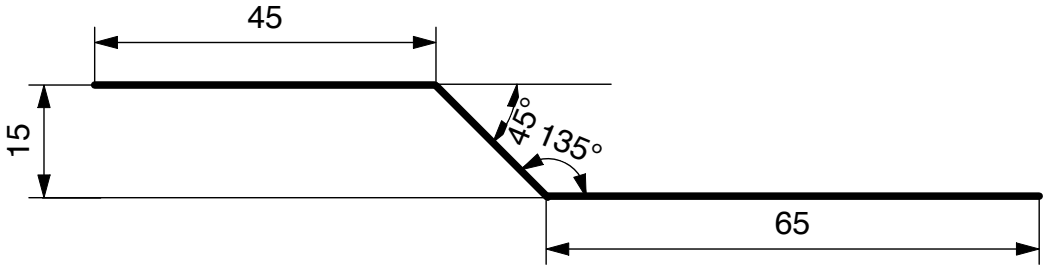


INSTRUCTIONS

Chassis plan M 1:1

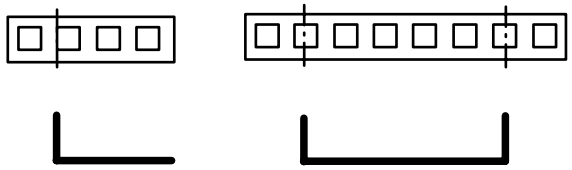


Bending patterrn for the chassis Scale 1:1



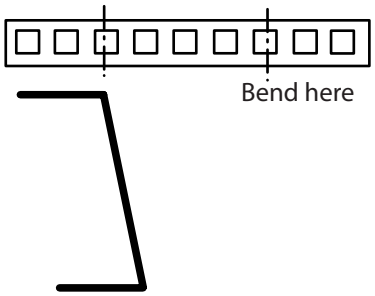
Bending pattern M1:1

Right angle for
fixing the motor



Axle holder

Solar axle holder



Pattern for the bumper M1:1