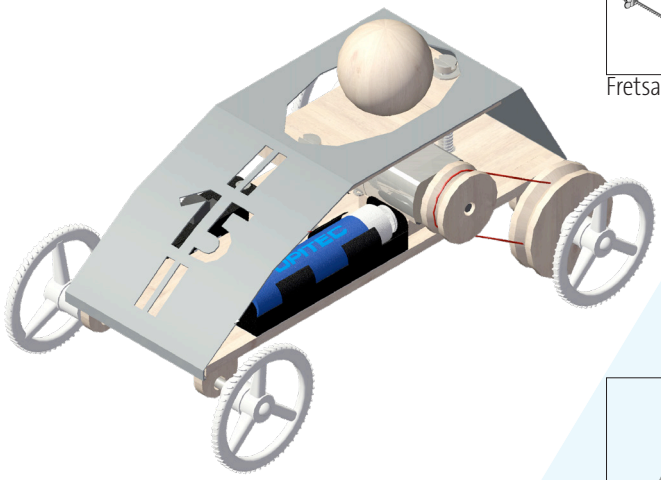
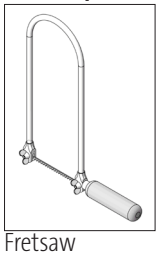
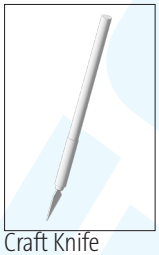
117.938

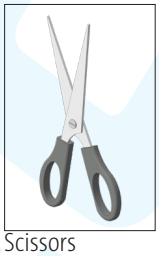
OPITEC Racer

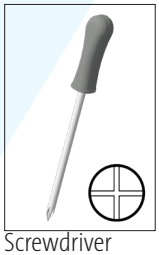


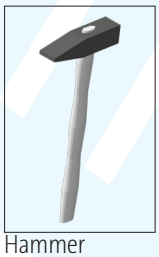
Tools Required:

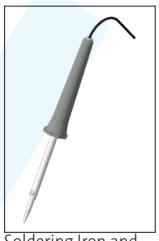

Fretsaw

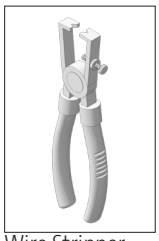

Craft Knife

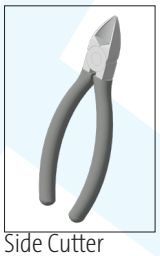

Scissors

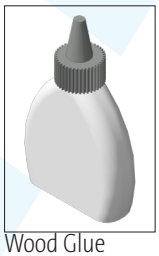

Screwdriver


Hammer

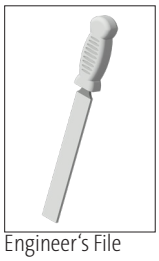

Soldering Iron and Solder


Wire Stripper


Side Cutter

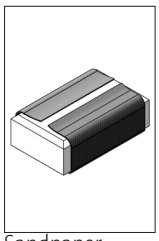

Wood Glue

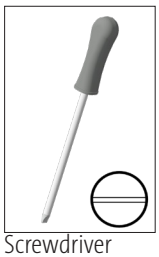

Drill


Engineer's File

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 operated 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!

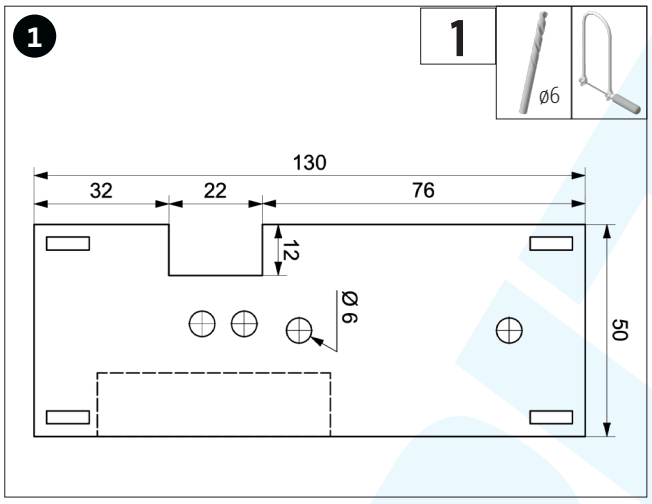

Sandpaper


Screwdriver

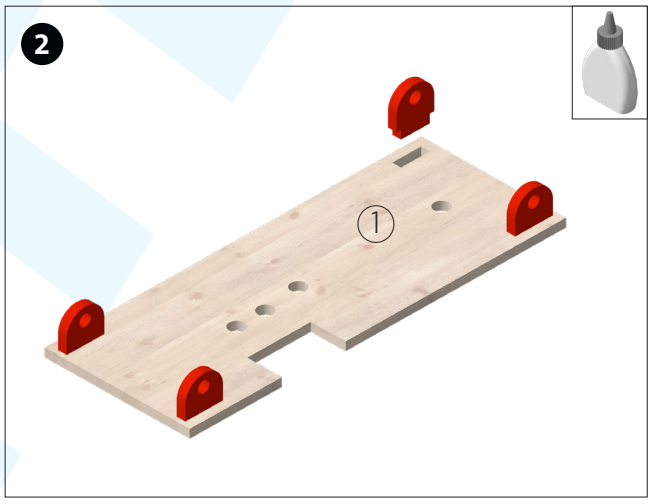

All Purpose Glue

Part List	Quantity	Size (mm)	Description	Part No:.
Plywood	1	60 x 45 x 6	Motor Holder	2
Wooden Ball	1	ø 25	Head	3
Cord Wheel	1	ø 30	Rear Wheel	4
Cord Wheel	2	ø 20	Motor Propulsion	5
Cord Wheel	1	ø 15	Motor Propulsion	6
Rubber Ring	1	ø 40	Propulsion	7
Steering Wheel	4	ø 37	Wheels	8
Reducing Part	2	4/3	Reduction Rear Axis	9
Distance Keeping Roll	2	7/3	Switch Assembly	10
Reducing Part	2	4/2	Reduction for Motor Axis	11
Electrical Wire Red	1	500	Wiring	12
Schaltlitze rot	1	500	Verkabelung	12

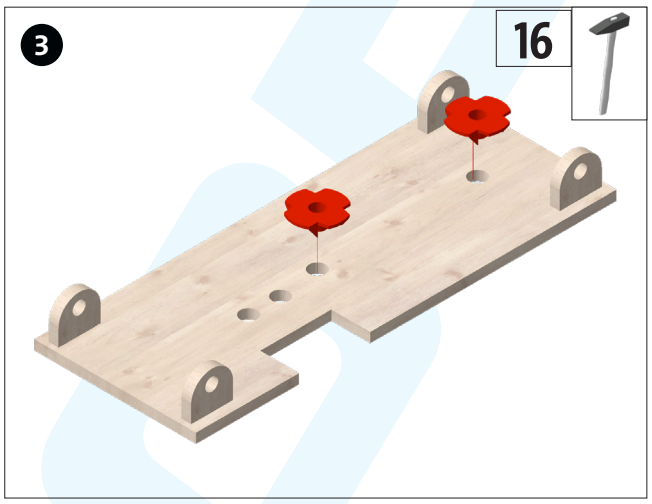
Part List	Quantity	Size (mm)	Description	Part No:.
Metal Axis	1	70 x 3	Front Axis	13
Metal Axis	1	95 x 3	Rear Axis	14
Cylinder Head Screw	2	30 x 4	Assembly	15
Impact Nut	2	M 4 x 6	Reception Screw	16
Washer	2	9/4,3	Assembly	17
Grey Cardboard	1	210 x 150 x 1	Vehicle Body	18
Miniature Slide Switch	1	36 x 13	Switch	19
motor	1		motor	20
battery holder	1		battery holder	21
countersunk Phillips screws	3		screw	22



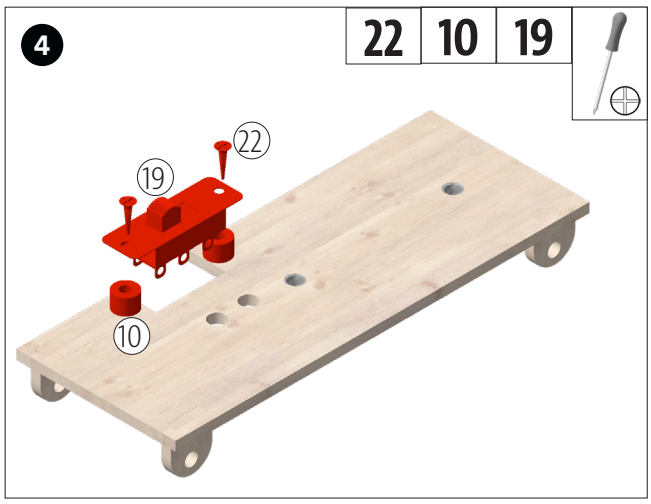
Transfer the openings for the switch as well as for the bore holes from the template (page 7) to the base plate. Drill through the ø 6 mm holes and saw the openings with the fretsaw.



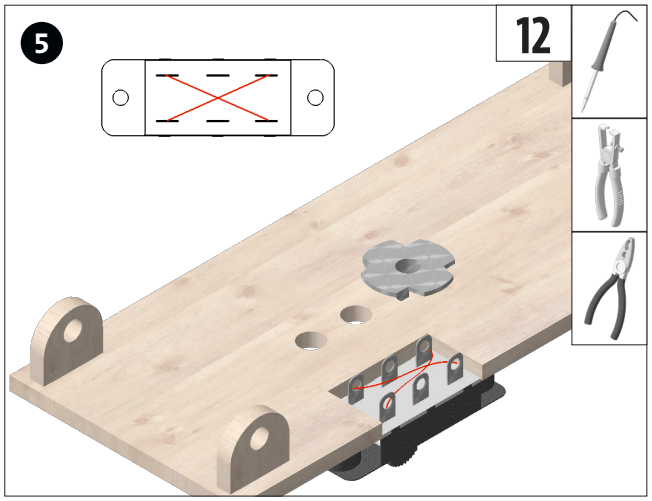
Insert or glue axis supports to the chassis from underneath as shown. Please note: Observe that the opening for the switch is placed on the correct side!



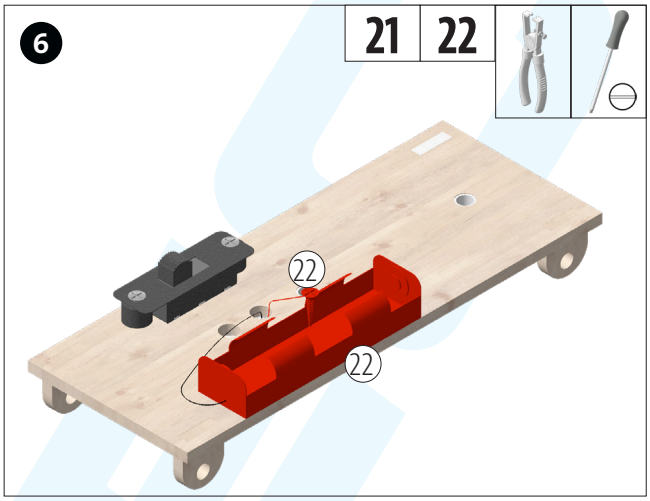
Fix the two drive-in nuts (16) to the holes of the base plate as shown using a hammer.



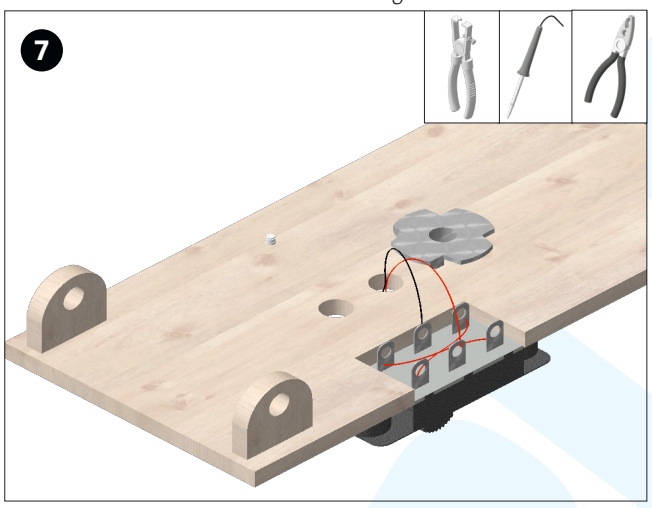
Attach the slide switch (19) with the distance keeping rolls (10) and the screws (22) to the chassis (1) inside the opening.



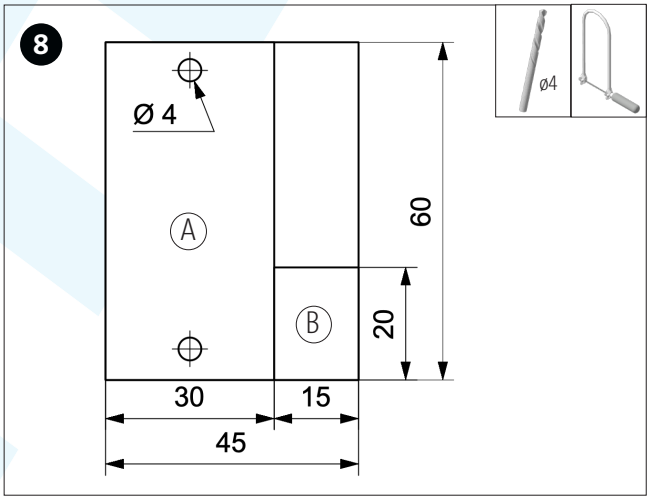
From the electrical wire (12) cut to length two approx. 20 mm long pieces and strip on both ends. Then solder them crosswise to the exterior connections of the switch. Observe drawing!



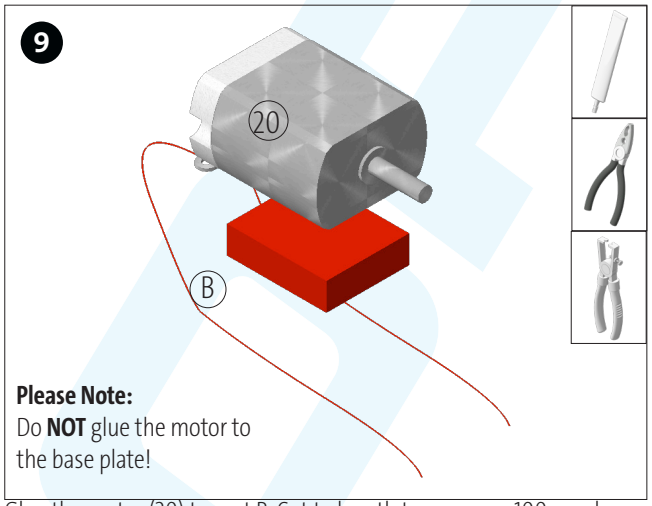
Attach the battery holder (21) with a screw (22) as shown (for the position observe template on page 7). Lead the two cable ends downwards through one of the two holes.



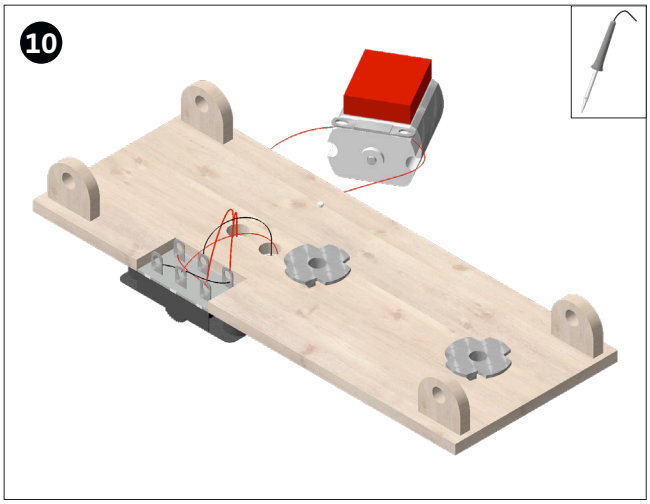
Solder the cables of the battery holder to the center connections of the switch (19) as shown. Cut off the exceeding part of the screw of the battery holder and deburr.



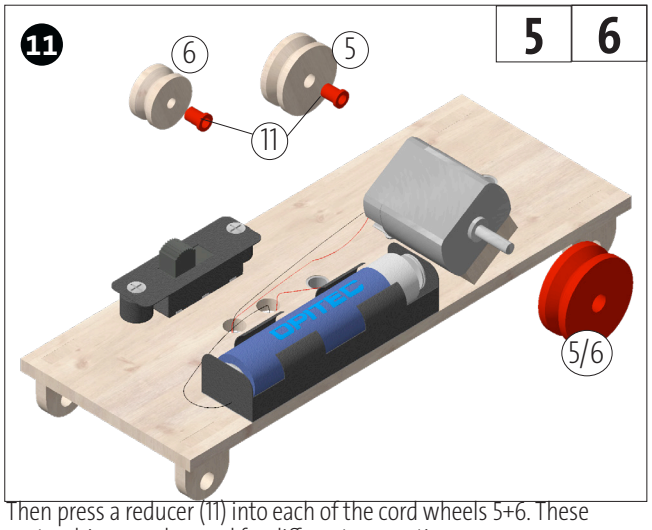
Transfer the template for the motor holder (page 7) to the plywood (2), drill ø 4 mm holes and saw out parts A + B with the fretsaw. Neatly clean saw cuts.



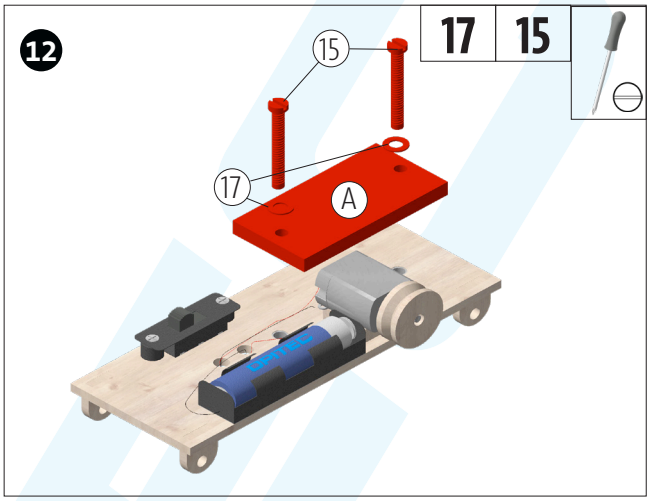
Glue the motor (20) to part B. Cut to length two approx. 100 mm long cable parts and strip on both ends. Solder one cable each to the motor connections.



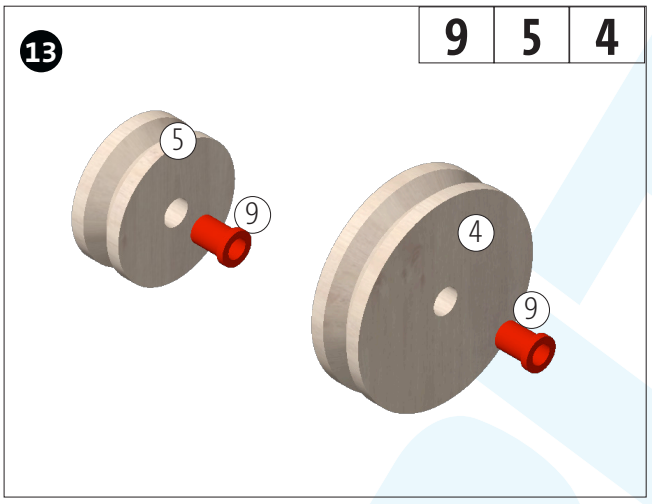
Lead the cables through the free holes in the chassis Solder the two cables arriving from the motor to the two exterior connections of the switch as shown.



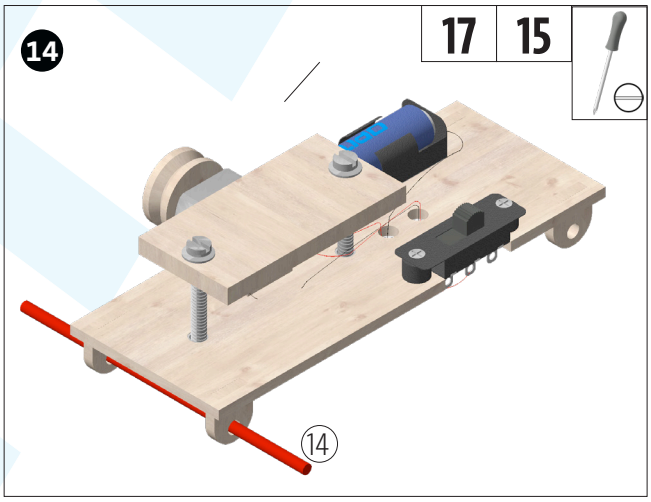
Then press a reducer (11) into each of the cord wheels 5+6. These motor drives can be used for different gear ratios.
Note: Insert the 1.5 V AA battery and carry out a function check.



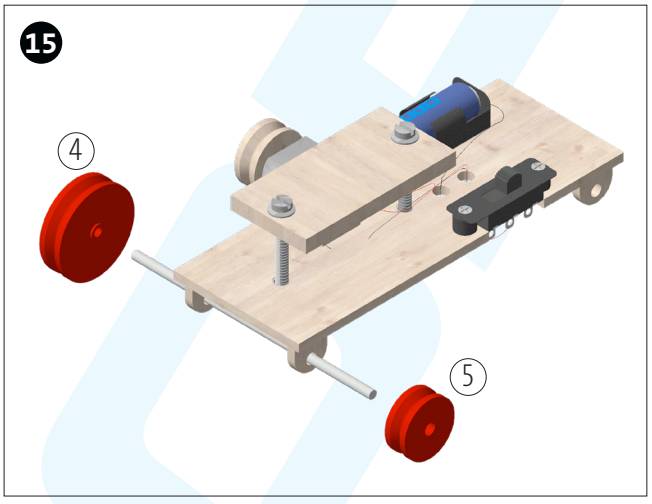
Take the plywood part (A) and screw it to the drive-in nuts using the two screws (15) and the two washers (17) in the way that the motor will be wedged and is fixed tight.



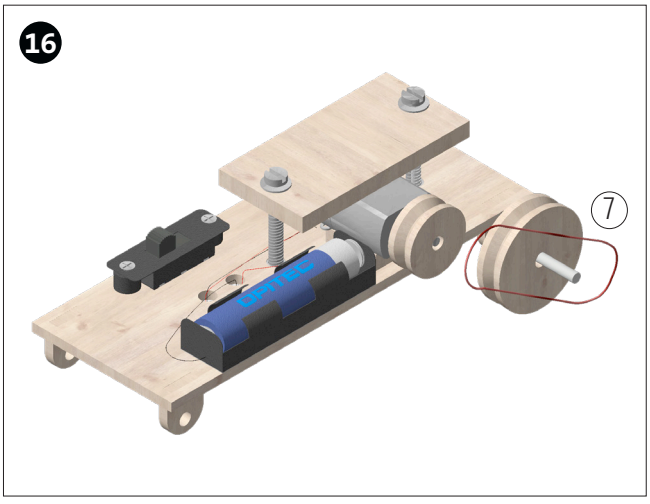
Insert a reducer part (9) into each of the cord wheels (4 + 5).



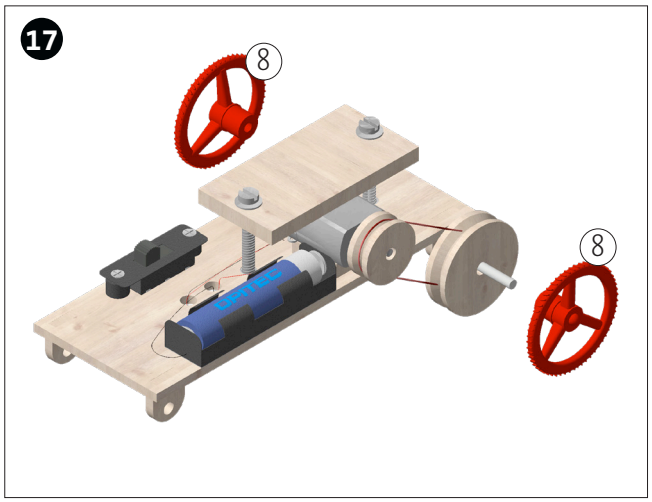
Insert and align the rear axis (14) as shown.



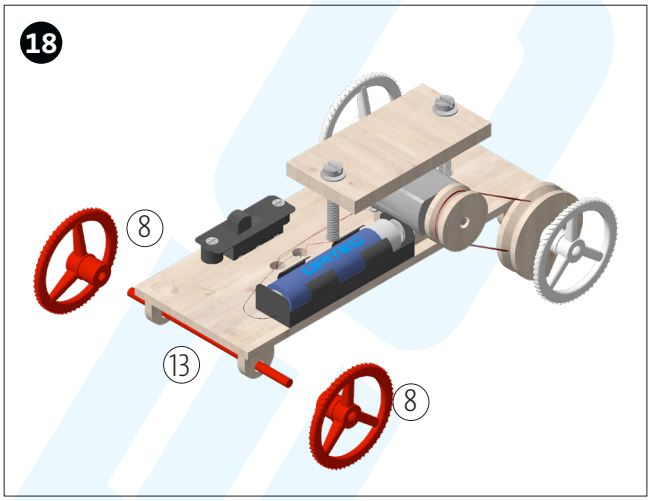
Then attach the two cord wheels (4 + 5) ensuring that the axis still can rotate easily.



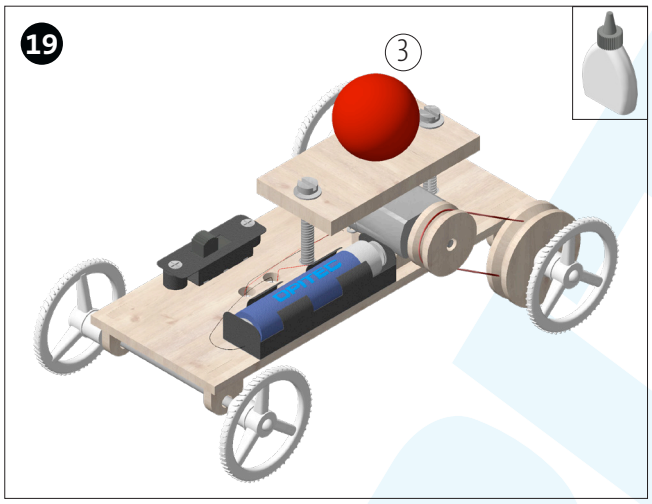
Attach the rubber ring (7) to the two cord wheels.



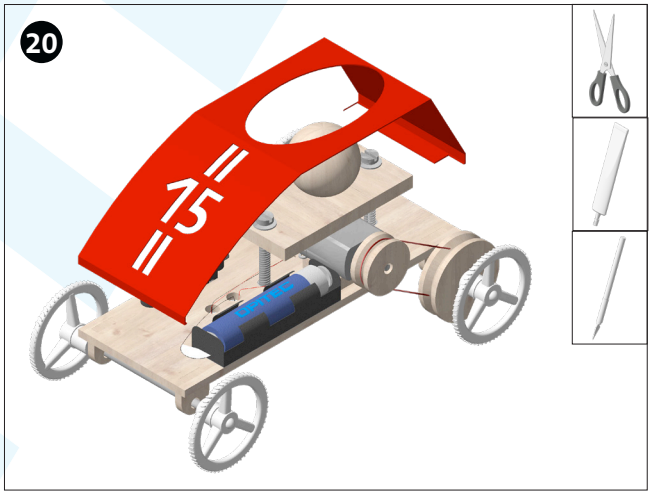
From both sides put on a car wheel (8) making sure that the axis still can rotate easily.



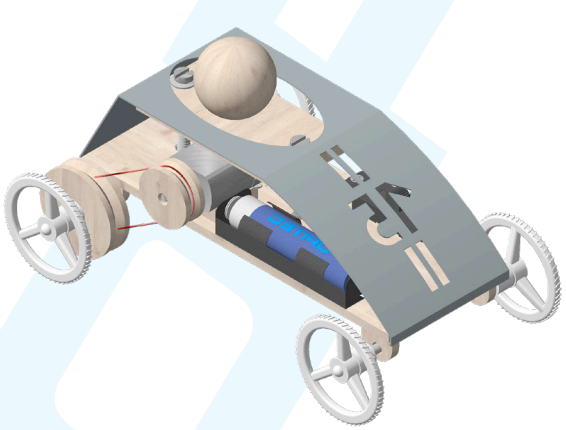
Insert the front axis (13) as shown and attach a car wheel from both sides ensuring that the axis still can rotate easily.

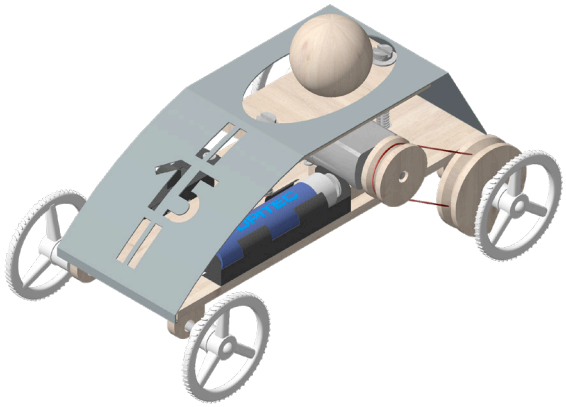


Glue the wood ball (3) to the motor assembly (A) as shown.



Cut out the chassis template (page 7) and glue it to the card board (18). Cut out the chassis and fold at the marked edges (dashed line). Glue as shown.

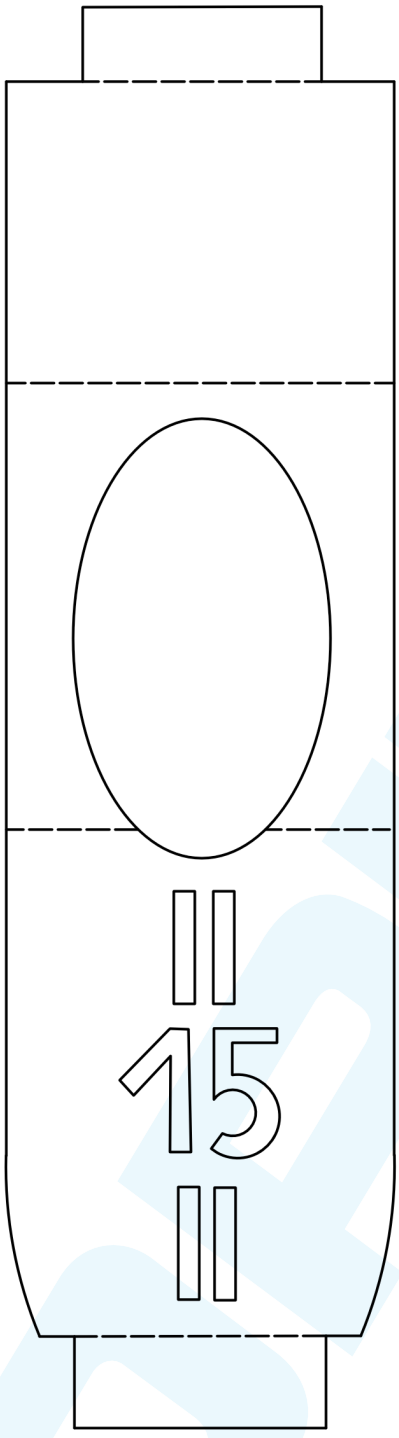




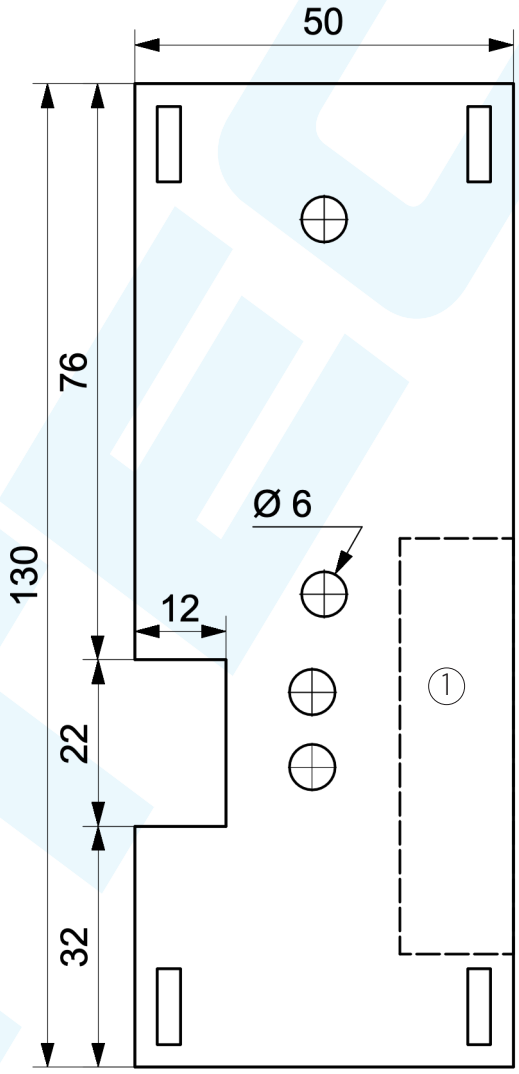
Please note: By changing the cord wheels of the motor axis speed can be reduced or elevated.
If the motor is turned to the other side, additional transmissions can be used.
The direction of motor rotation can be changed by means of the center of rotation switch.

OPITEC

Template Assembly
M 1:1



Bore Hole Template
M 1:1



Template Motor Assembly
M 1:1