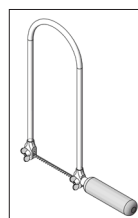
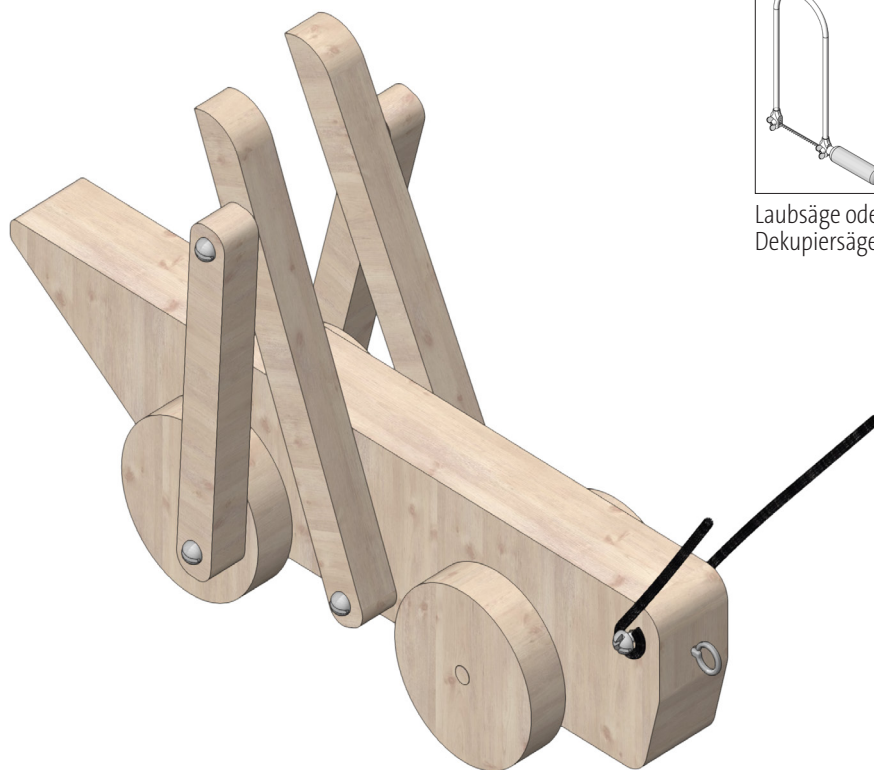
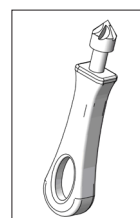


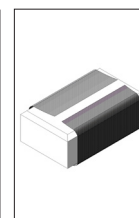
111.644

# Mechanical Grasshopper „Flip“

## Necessary tools:

Laubsäge oder  
Dekupiersäge

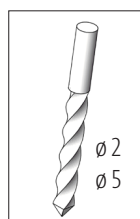
Countersink



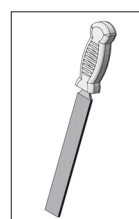
Sandpaper



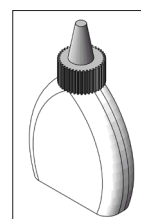
Ruler



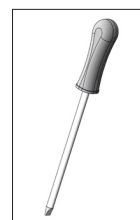
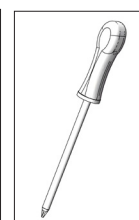
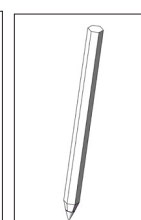
Drills



File



Wood glue

Screwdriver  
(slot)Screwdriver  
(Crosshead)

Pencil

### Please Note

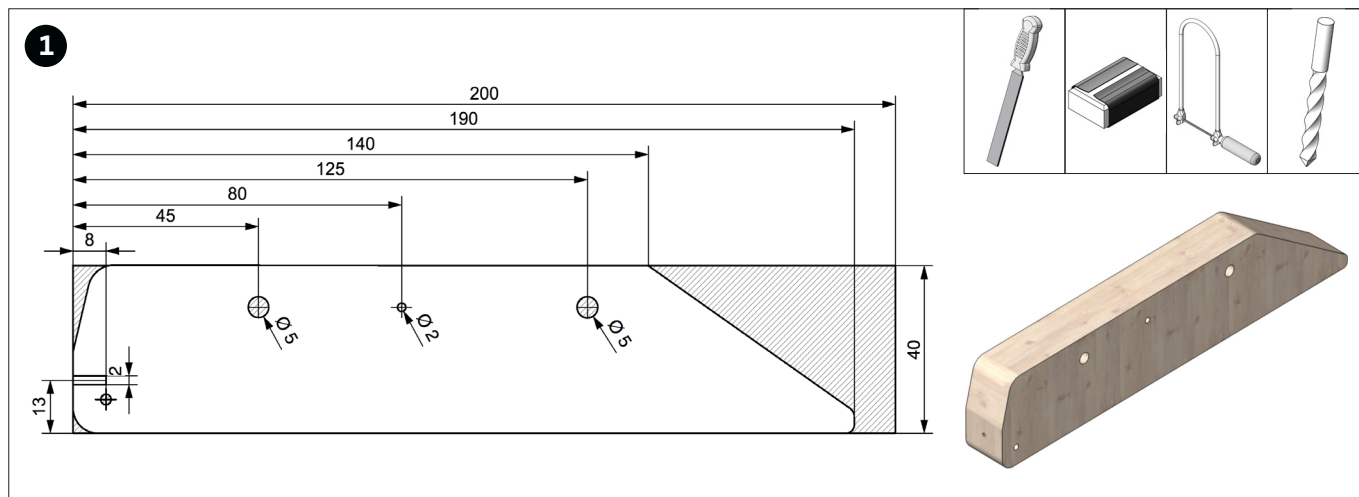
The OPITEC range of projects is not intended as play toys for young children. They are teaching aids for young people learning the skills of Craft, Design and Technology. These projects should only be undertaken and tested with the guidance of a fully qualified adult. The finished projects are not suitable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



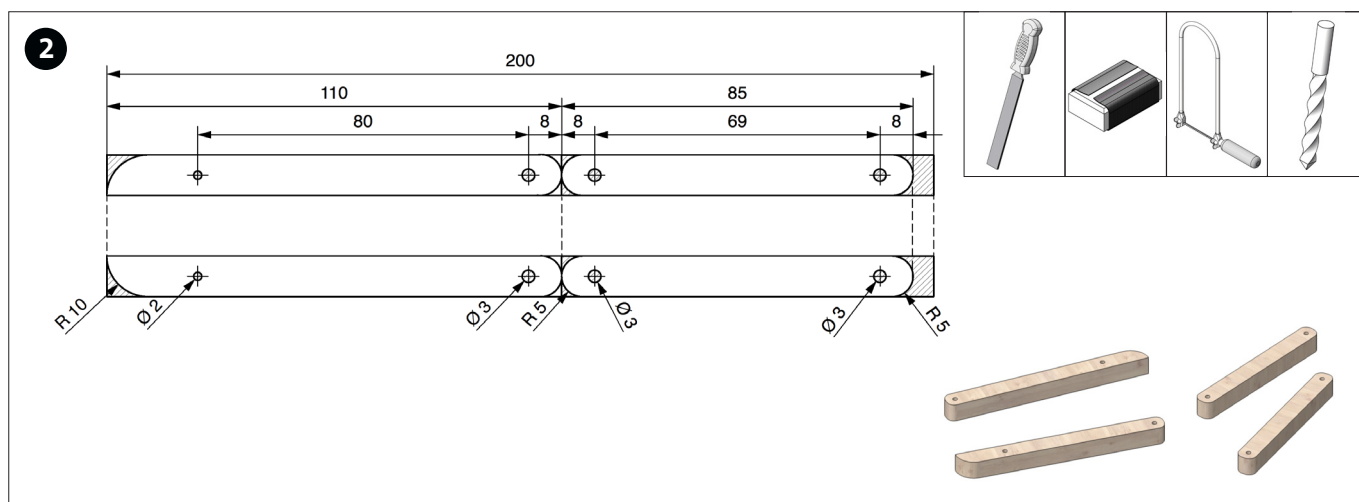
side cutter

Parts List	Quantity	Size in mm	Description	Part.-Nr.
Wooden block	1	200x40x20	Body	1
Wooden strip	2	200x10x10	Legs	2
Wooden wheels	4	ø40x10	Wheels	3
Dowel	1	ø4x100	Axles	4
Screws	6	3x20	Leg fixing	5
Screws	2	2,9x9,5	Feeler fixing	6
Pipe cleaner	1	50x8	Feelers	7
Screw eyelet	1	16	Tether	8

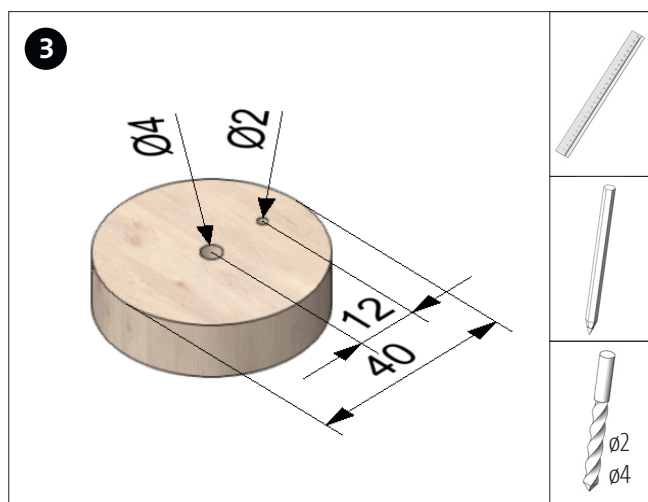
**Instructions 111.644**  
**Mechanical Grasshopper „Flip“**



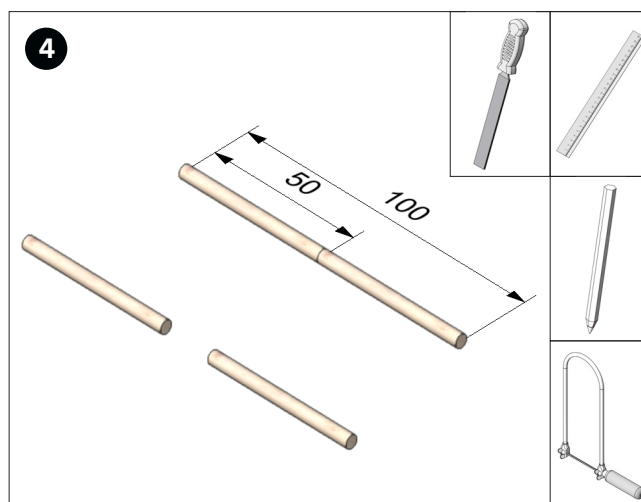
Trace the shape of the body ( Page 5) on to the pine block 200x40 x 20mm ( Part 1) Mark out the position of the holes. Use a pillar drill to drill the holes. Then lightly countersink the holes. Use a fretsaw to cut out the sloping shape of the back and the rounded front File/ rasp and sandpaper the shape to finish



Cut the wooden strip into four parts according to the pattern (5). Drill the 2mm holes with a drilling machine as according to the plan. Round the ends of both parts (2a) with a file. Round the ends of the 110-mm part with a file as shown ( Careful with the holes )

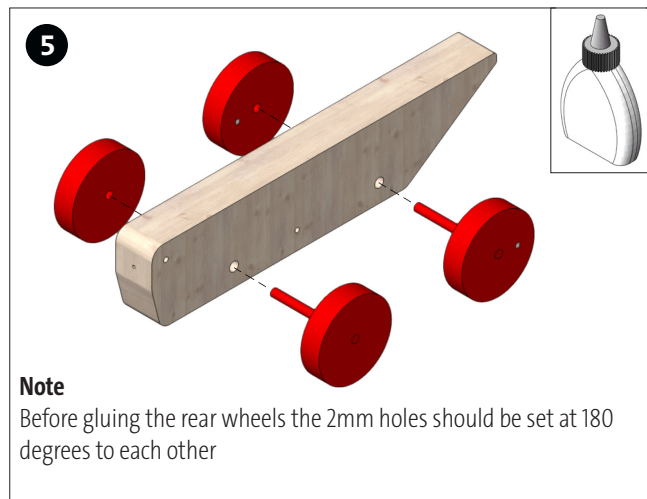


On the two wooden wheels (3, rear wheels) alongside the 4mm hole drill a further 2mm hole as shown in the diagram

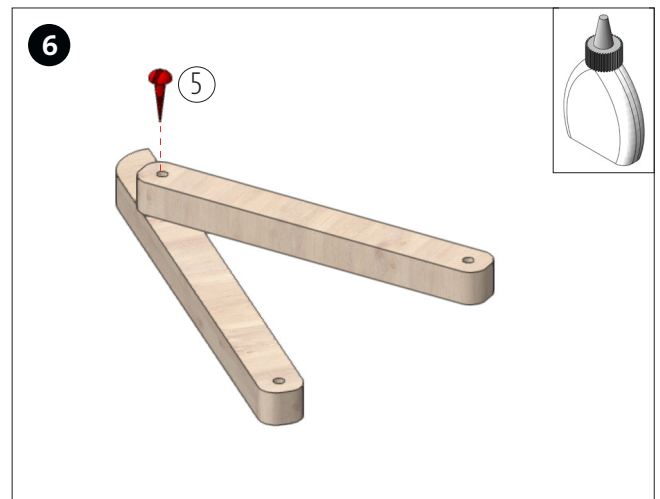


Saw the dowel (4) in two equal parts (50 mm) and sand the cuts ( See diagram 6)

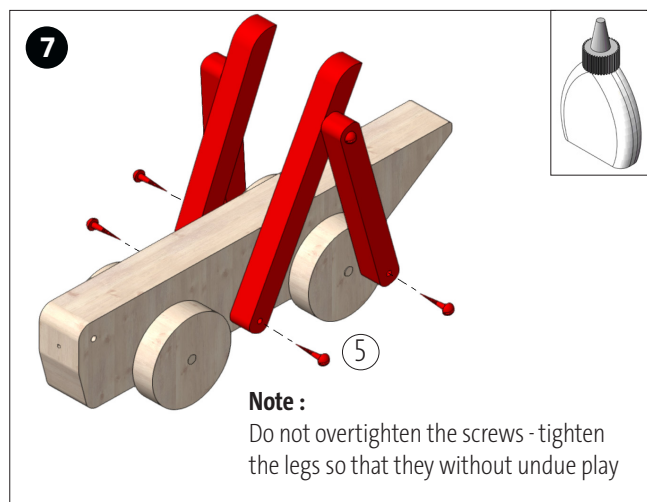
**Instructions 111.644**  
**Mechanical Grasshopper „Flip“**



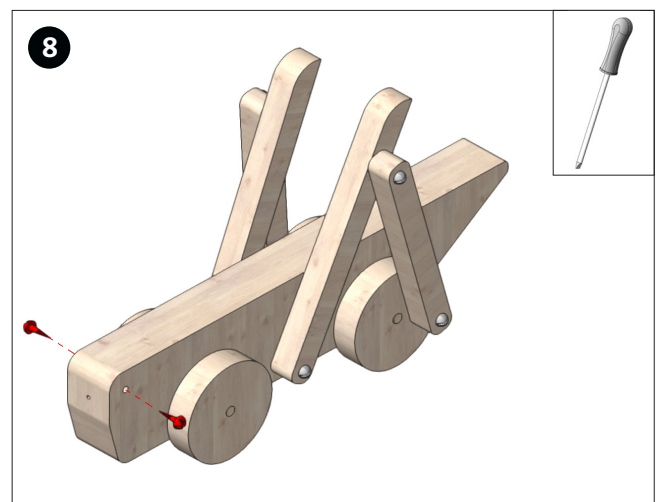
Place the wooden wheels on the axles as shown in diagram 7, glue them and insert the axles through the body of the grasshopper. Finally mount and glue the wheels on the other side of the grasshopper.



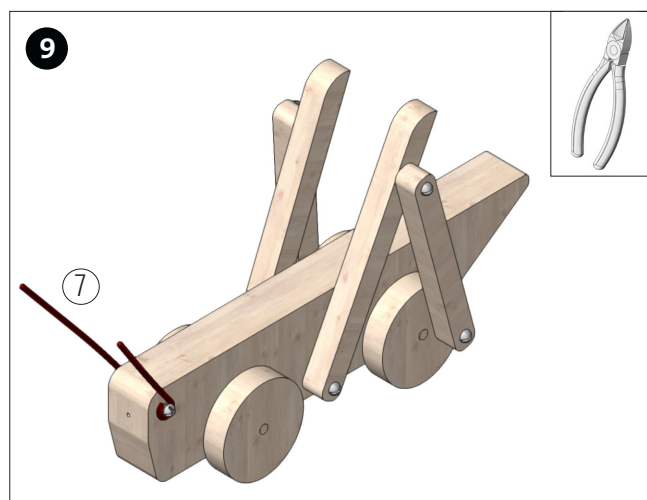
Join the parts (2a+2b) as shown in dia 8 with a screw (5)  
 Note: that the legs on either side should be the mirror image of each other.



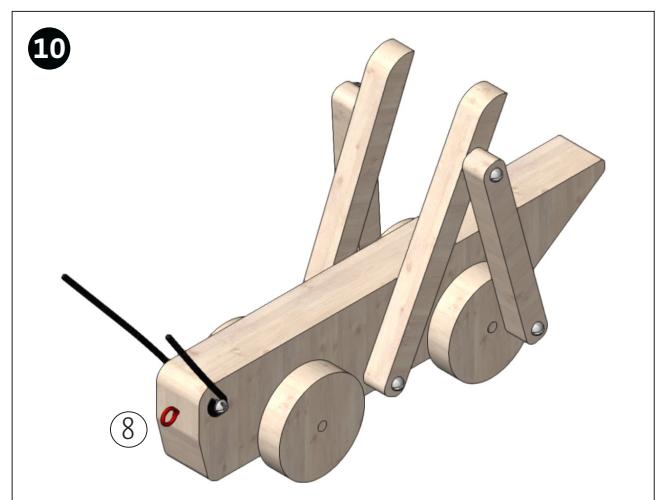
Take the legs and mount them with two screws (5) to the side of the body. The long piece (2b) is screwed to the body, the shorter length (2a) is screwed to the rear wheel



To fix the feelers use 2 screws (5) in the pre-made holes in the head carefully about ca. 3-4mm (dia 10)



Cut two pieces 80mm long from the pipe cleaner (7) wind these around the screws and the finally tighten them in position



Screw the eye (8) in the head end in the pre-made hole!. Finished!



