OPITEC

Hobbyfix

106.669

Roman Catapult

Parts list

4 x Pine strip (1)	15 x 15 x 250mm
2 x Pine strip (2)	10 x 15 x 300mm
2 x Pine strip (3)	10 x 30 x 300mm
1 x Pine strip (4)	5 x 15 x 125mm
1 x Plywood (5)	3 x 160 x 160mm
1 x Dowel (6)	6dia x 250mm
1 x Dowel (7)	4dia x 100mm
1 x Dowel (8)	3dia x 150mm
2 x Wheels (9)	40dia x 10mm
10 x Nails (10)	20mm
3 x Round head screws (11)	2 x12mm
2 x Countersink screws (12)	3 x 30mm
1 x Rubber band (13)	1 x 1.5 x 700mm
1 x Thread (14)	3000mm

Recommended Tools and Equipment

Pencil, ruler, try square

Drills 2mm, 4mm and 4, 5mm diameter

Slot and cross screwdrivers

Fine saw, fretsaw, fretsaw board

File, sandpaper, wood glue

Machine vice

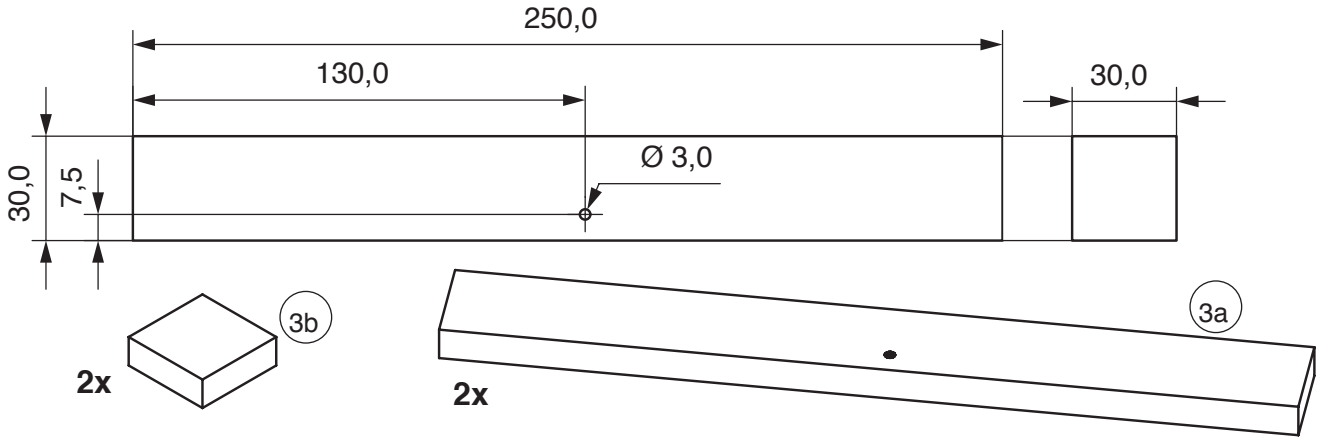
Hand drill

Please Note

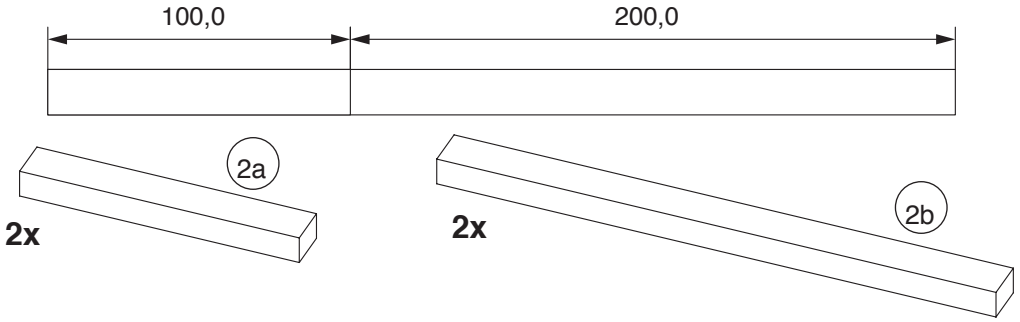
The OPITEC range of projects is not intended as play toys for young children.They are teaching aids for young people learning the skills of Craft, Design and Technolo- gy.These projects should only be undertaken and tested with the guidance of a fully qualified adult. The finished projects are not suitable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

Construction

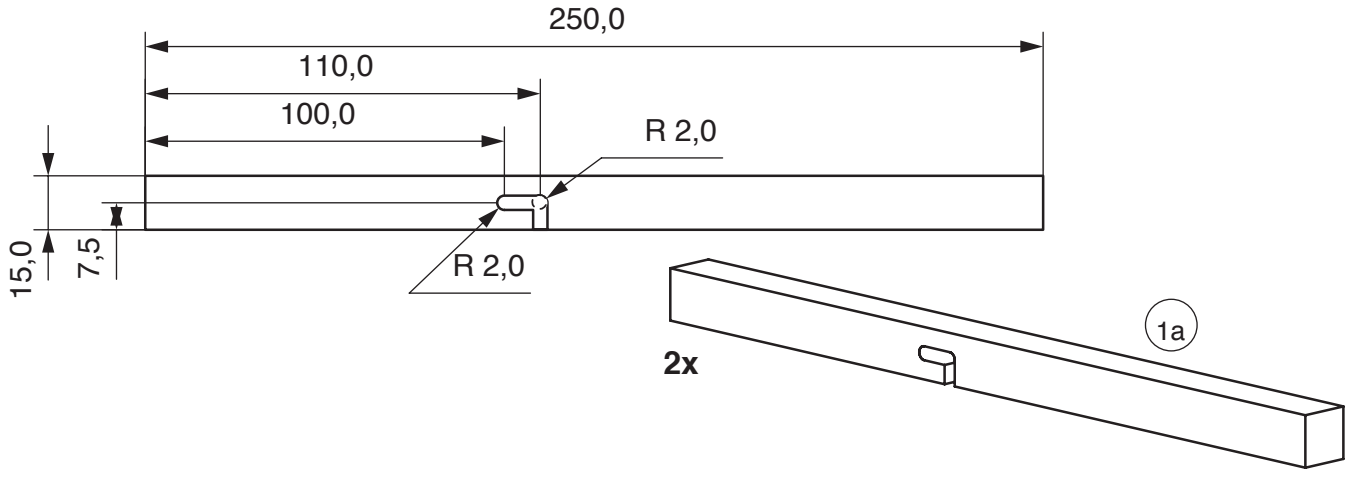
1. Cut off 2 longerons (3a) 10 x 15 x 300mm and 2 supports (3b) according to the plan from the from the pine strip (3) 10 x 30 x 300mm. Drill the 3mm hole in the pine (3a) .



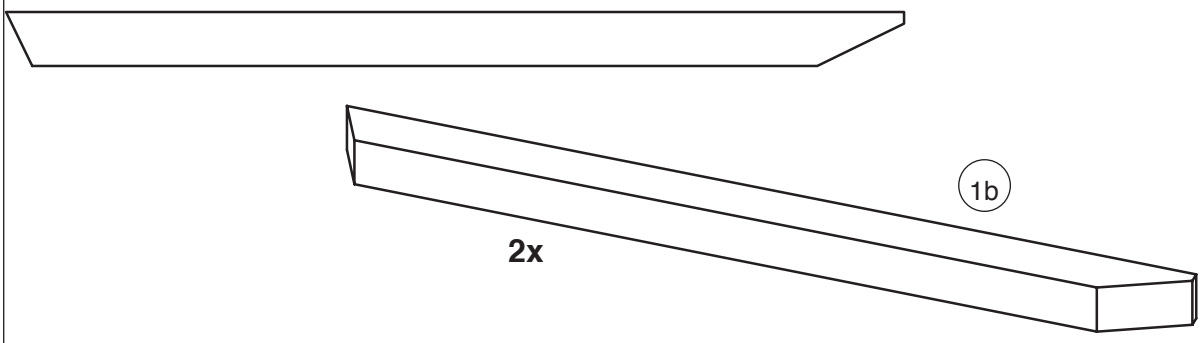
2. Cut from both the strips (2) 10 x 15 x 300mm as shown, (a cross member 2a) 10 x 15 x 100 and a long length (2b) 10 x 15 x 200mm.



3. Mark two strips (1) 15 x 15 x250mm as shown and drill 4mm. Saw and file out the slot .



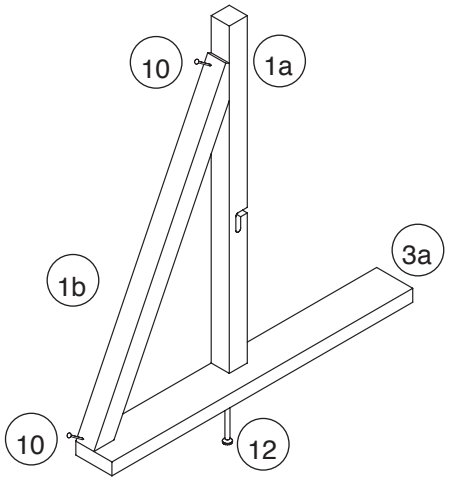
4. Saw two pine strips 15 x 15 x 250mm according to the plan (See page 7) and saw the ends at an angle (1b)



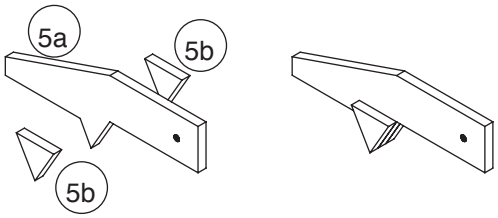
Construction

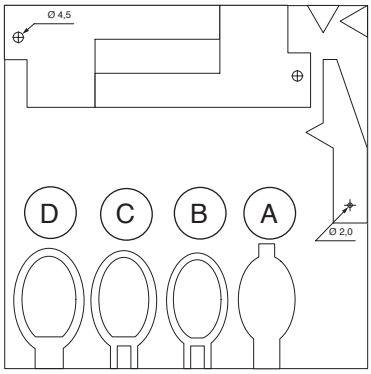
5. Next come the supports , mount them vertically (1a) on the base (3a) by gluing and screwing (Screw 12)
Then add the support (1b) by gluing and nailing (10)

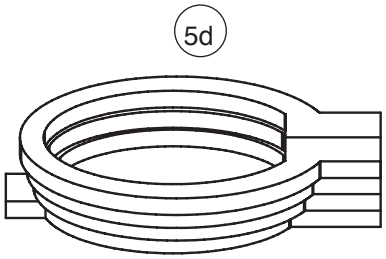
2x



6. Mark out the shapes carefully (see page 7) for the locking arm (5a) the stop (5b) the bearer (5c) and the catapult dish on the plywood sheet (5) 3 x 160 x 160mm





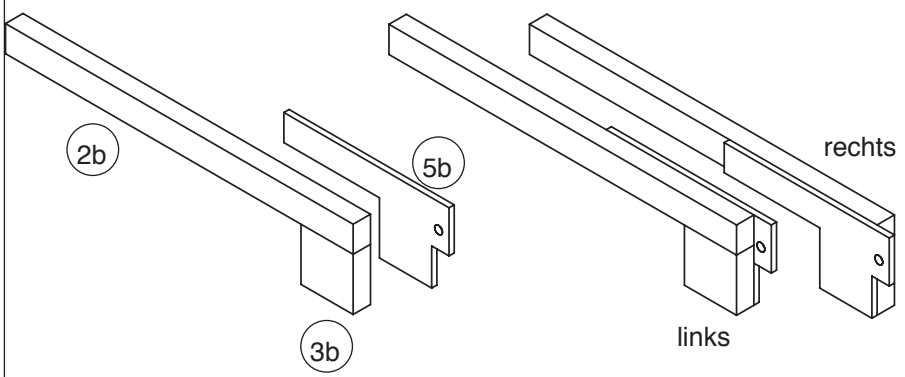


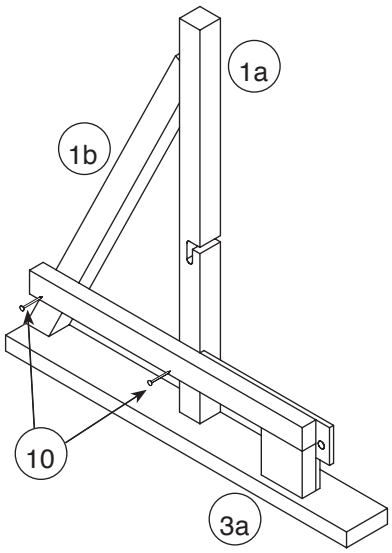
7. Glue the triangular stops on either side of the locking arm (See above)
8. Lay out and glue the parts for the catapult dish in order on top of each other (A-B-C-D) (See above, starting with A).

Note ! Do mix up the order (A-B-C-D !)

9. Glue together a bearer (5c) an long piece (2b) and a support (3b) as shown

Note : There is no left and right side The bearer must be always on the inside.
Once they are dry mount them on the supports. Glue the bearer on the base (3a)
Make sure that is can offered up to the support (1a) and is joined on the support piece (1b)
Fix by gluing and nailing (10)



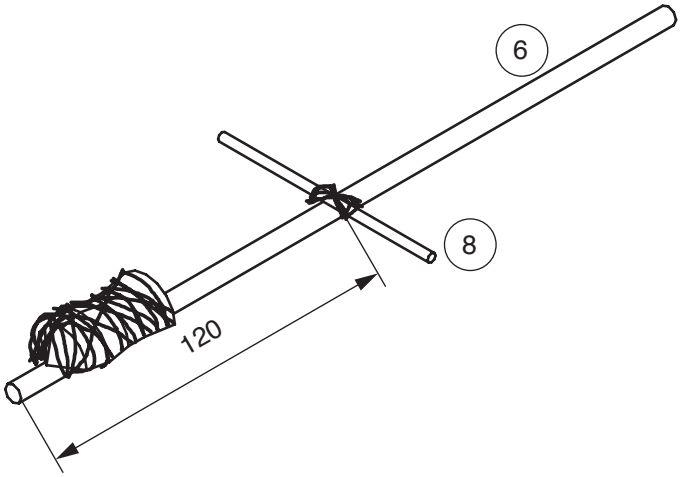


Construction

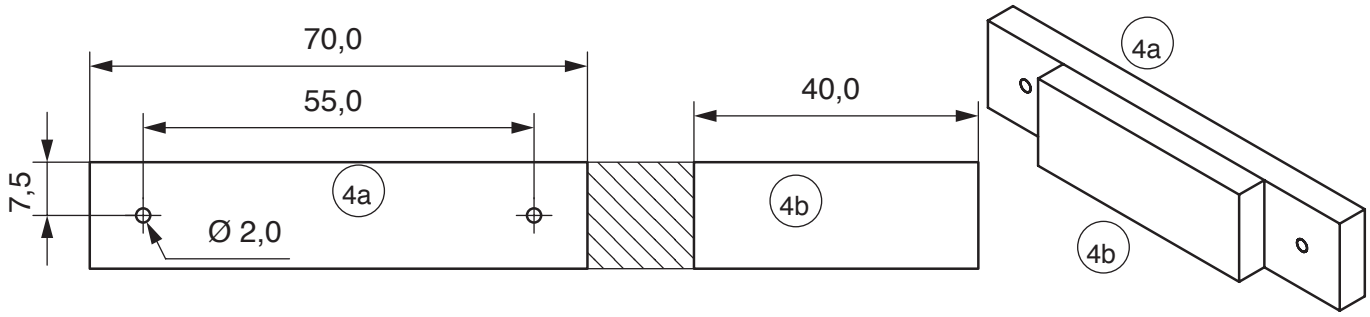
11. Shorten the Dowel (8) 3 x 150mm to 120mm . Glue the dowel across at 90 degrees to the dowel 6 .Bind and glue it in position and allow it to dry

Note! During the drying add a nail to make sure that the joint is held tightly

12. As weight add a stone (not in packet) binding it with 800mm thread (14) leave to dry
(See diagram)



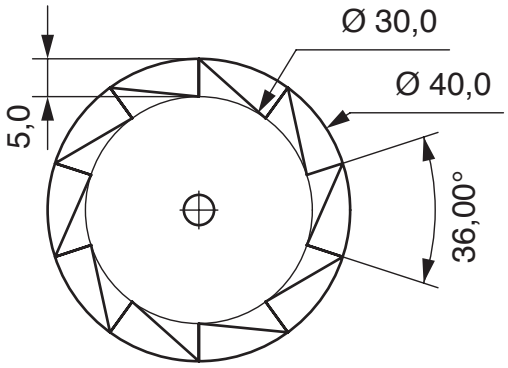
13. For the stop you will need to saw a pine strip 70mm (4a) and a pine strip 40mm (4b) from the strip (4) 5 x 15 x 125mm. Drill the part (4a) as shown with a 3mm hole.
Glue piece (4b) in the middle (4a)

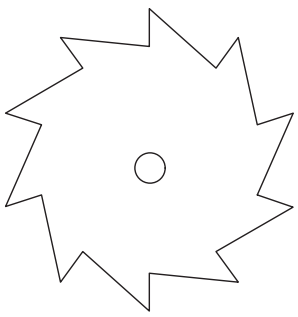


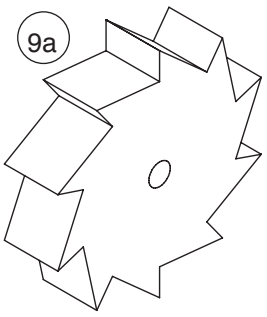
14 . Trace the teeth for the ratchet wheel on the wood wheel (9) 40mm diameter. x 10mm

Note : make this part as carefully as you can. Take you time to work accurately so that it will hold the strain

Plans Scale 1:1





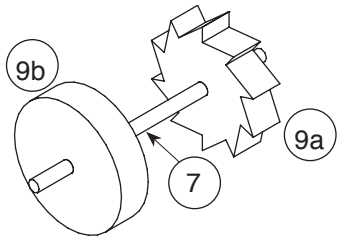


Construction

15. Mounting the ratchet and stop.

Shorten the dowel (7) 4 x 100mm to 80mm long.

Place the locking wheel and wheel on an axle so that it protrudes on each 10mm on each side



Do not glue the wheels on the axle !

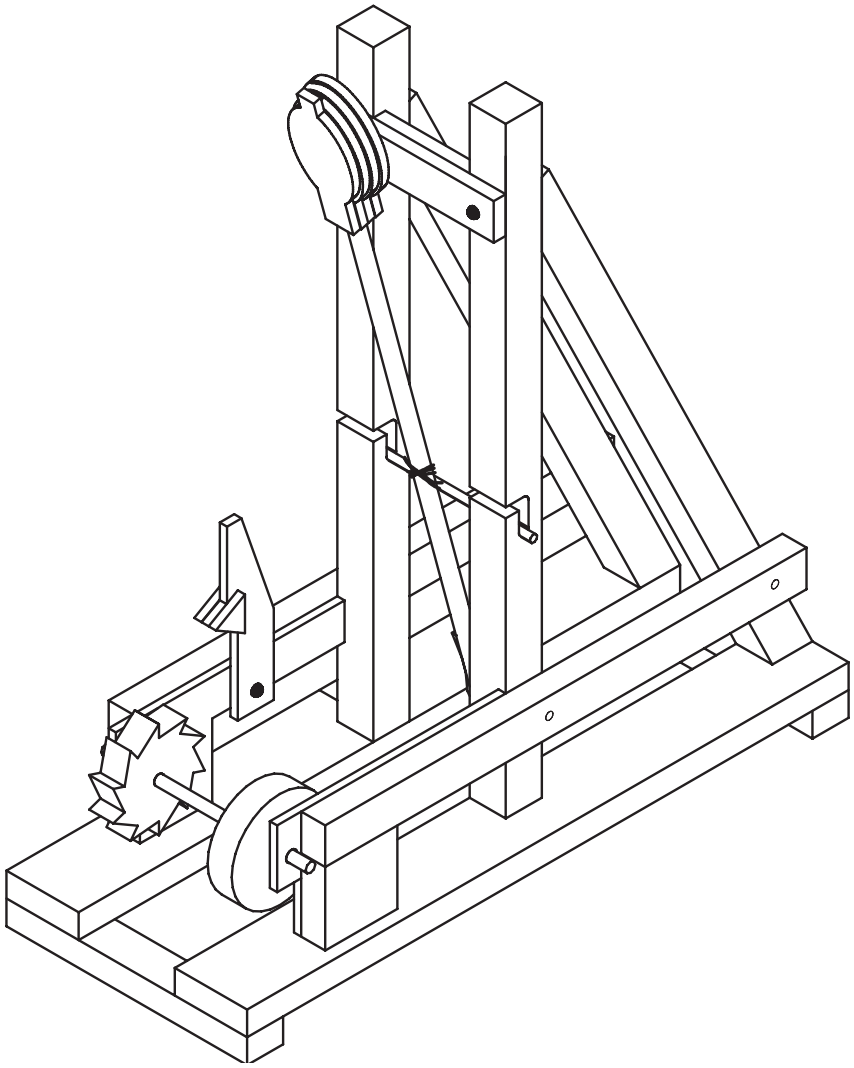
Glue the two supports together with the cross members (2a) and at the same time place the axle (7) in the bearer.

Note: the axle should turn easily

- Place the dish on the throwing arm (do not glue) Insert the arm in position

- Place the stop (4a+b) and fix two screws (11) 2 x 12 so that the it hits underneath dish (ca 30m from the top edge).

Note : The Wheel should turn easily!

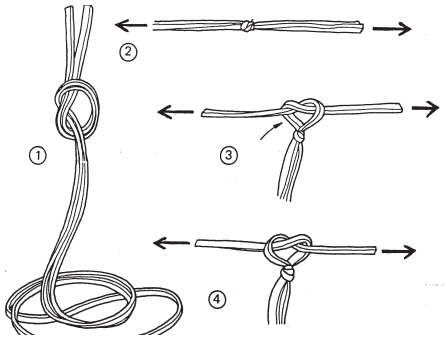


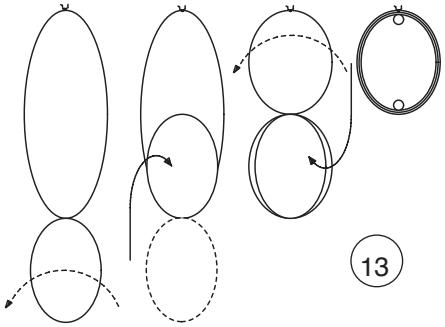
Construction

16. Mounting the rubber spring system

Tie a knot in the end of the rubber band (13) (see diagram)

Then form the loops as shown in the diagram so that is about 70mm long



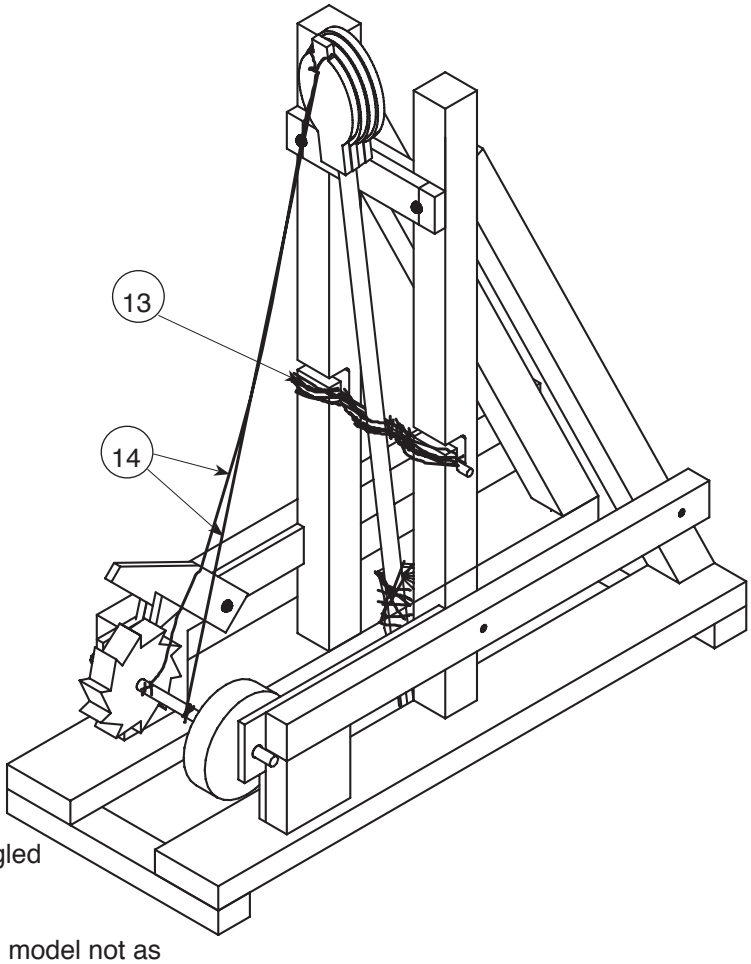


- Remove the catapult arm and take off the dish. Remove the ratchet wheel and the drive wheel (Slide the wheels together , slide and remove axle) Lay the loop in the bearing . Turn the arm in the direction of the locking arm. Make about 15 turns to tension the band . Mount the stop and check the action of the catapult arm. Once you are satisfied you can remount and glue the wheels and locking mechanism in place. Check that it turns easily and the catch locks in place Glue the dish in place.
- Cut 600mm from the thread (14) Double it and tie a loop in the closed end
- Tie this around the dish and guide the thread left and right on to the axle and tie tight

- Glue the knots and cut off excess thread

Function control – Tension the catapult arm
Lock the pin into the ratchet
Let the ratchet go and the catapult arm releases

17. Paint the finished project as you wish.

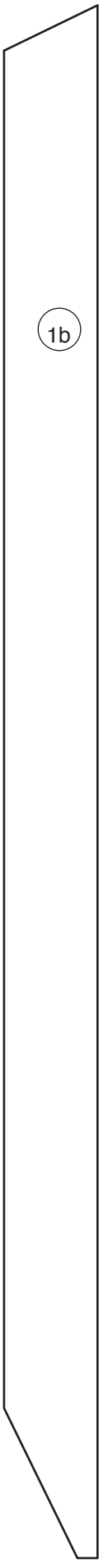


Safety notes:

- Do not shoot dangerous objects (Heavy sharp or angled objects)
- Do not aim at people or animals
- The catapult is meant to be used as a demonstration model not as a weapon

Patterns for the support (1b)

Scale 1 : 1



Patterns for the plywood sheet

Scale 1 : 1