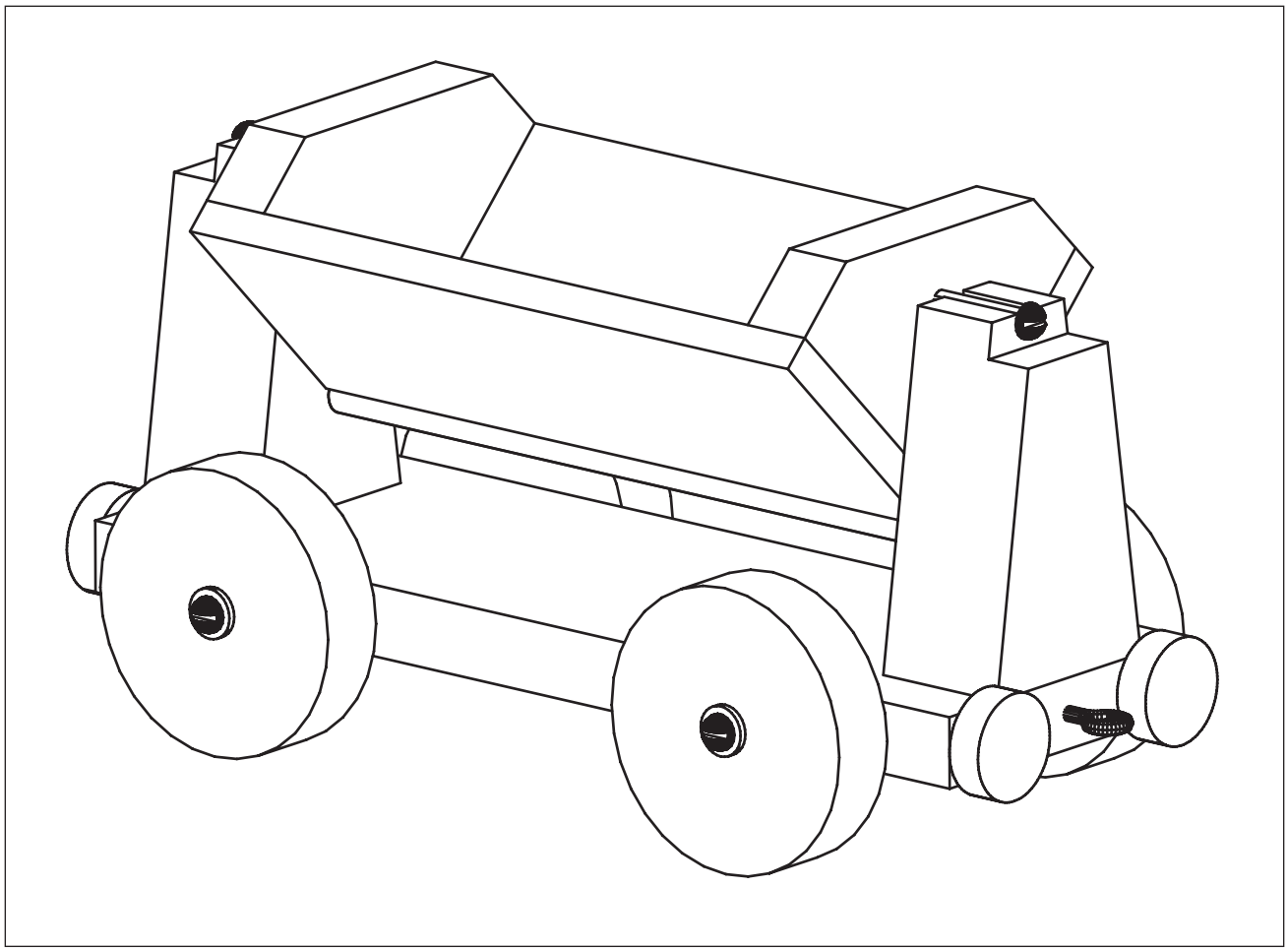
OPITEC

Hobbyfix

101.832

Tipper wagon



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!

1. Product information:

Article: Working toy in constuction pack format

Use: In Design Technology Key stage 2/3

2. Material information:

Material: Pine (coniferous), softwood
Beech (deciduous), hardwood
Wood should be relatively dry before working

Bearbeitung: Holz wird gesägt, geraspelt, gefeilt, gebohrt und geschliffen;
anreißen nach Maß - oder Schablone;

Joining: Screws; wood glue (PVA white glue)

Finish: Wax (liquid or solid)
Wood varnish (base coat/ top coat)
Staining (colour, water based then clear varnish)
Linseed oil

3. Tools

Saws: Use a **Tenon/ Dovetail saw** for straight cuts

Note! Use a sawing board, or clamp the work securely

File: Use a suitable grade of wood file / rasp

Note! Files only cut on the forward stroke

Sanding: Use a block and glasspaper for all flat surfaces and loose sheet for curves and individual forms.

Drilling: Use a handrill or electric pillar drill

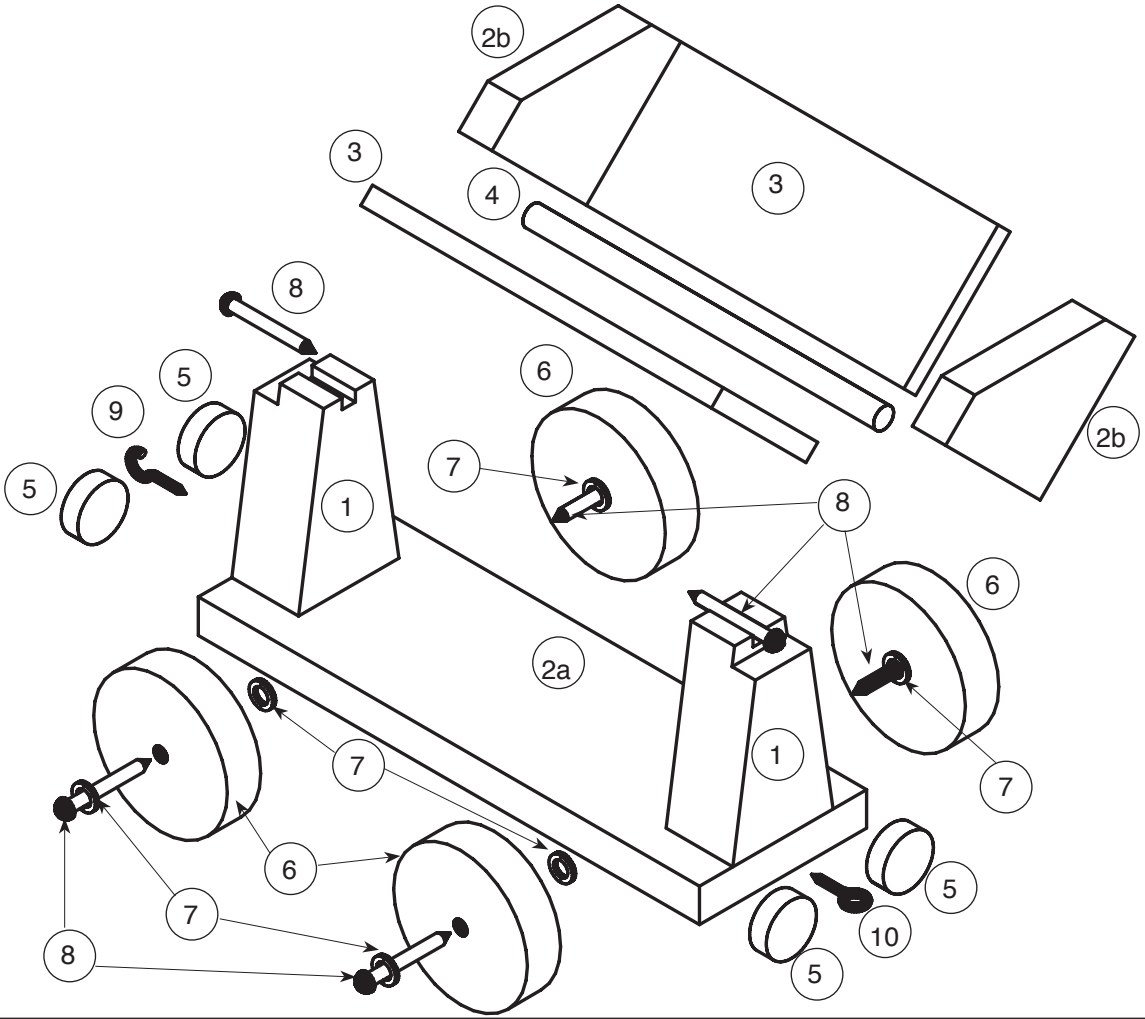
Note! Please take care with your safety: wear safety glasses, apron, tie all long hair back and remove all jewellery. Hold the work securely when drilling.

Clamping: Use a good quality clamps. Do not screw them too tight as they will leave marks.

4. Parts list

Part	Material	Quantity	Size	Diagram
Timber blocks	Pine strip	1	20 x 50 x 75 mm	1
Base	Pine strip	1	10 x 50 x 200 mm	2
Tipper cotainer	Pine strip	1	5 x 40 x 250 mm	3
	Pine dowel	1	Ø 6 x 250 mm	4
Buffer	Pine dowel	1	Ø 15 x 100 mm	5
Wheels	Beech	4	Ø 40 x 10 mm	6
	Washers	12	M4	7
Axles	Screws	6	3 x 25 mm	8
Coupling	Screw hook	1	20 mm	9
	Screw eye	1	12 mm	10

5. Exploded diagram



6. Planning overview

6.1 Planning and making the base, tipper bearings and buffers

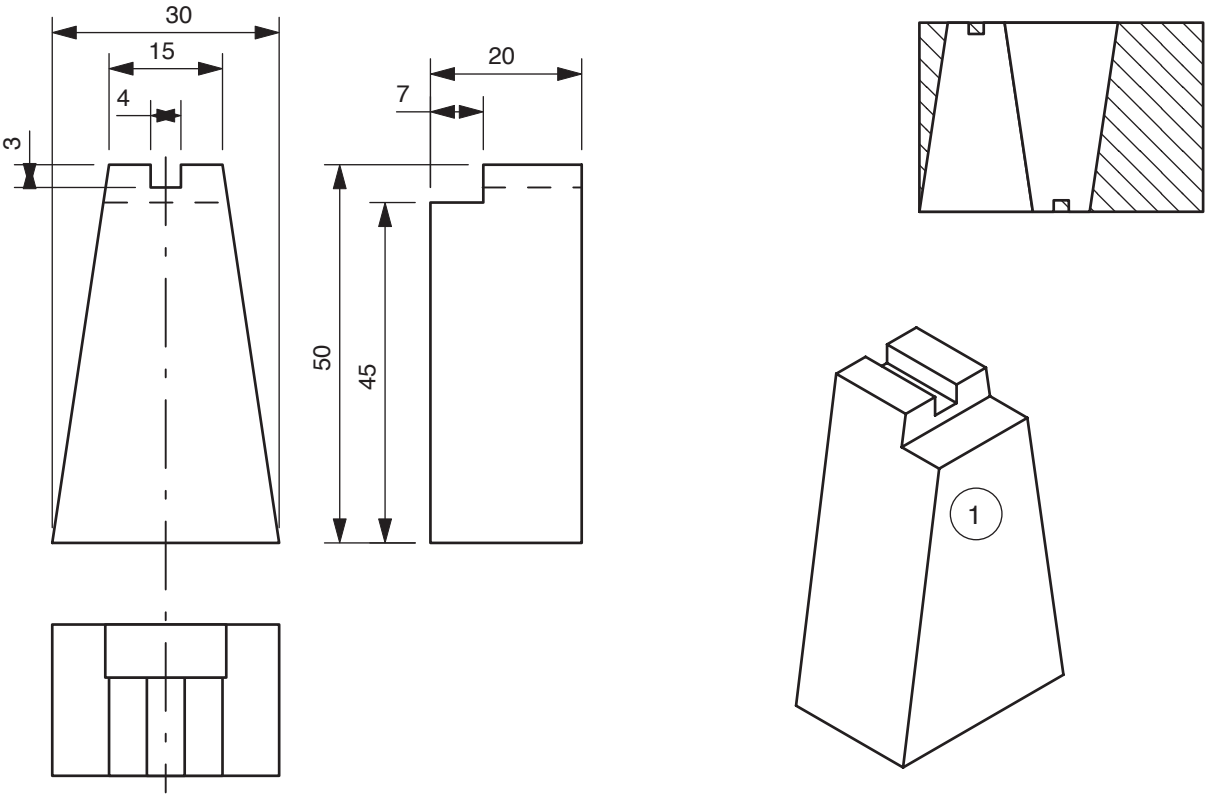
6.2 Assembling the coupling, buffers, wheels, bearings

6.3 Making and assembling the tipper container.

6.1 Planning and making the base, tipper bearings and buffers

6.1.1 Mark out and saw the tipper container bearings (1a) from the pine (1) 20 x 50 x 75mm.

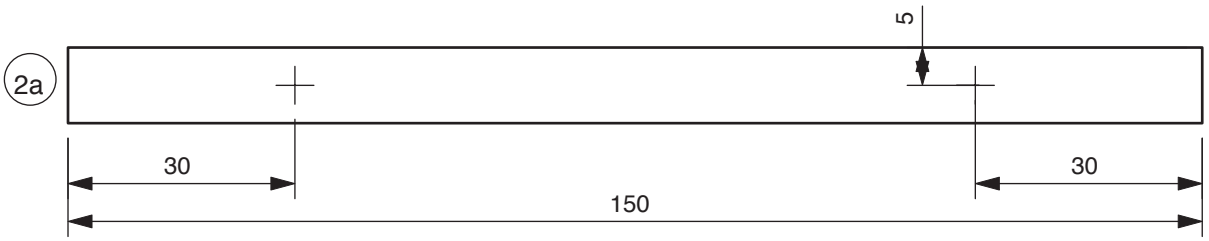
6.1.2 Mark out and cut the notches as shown.



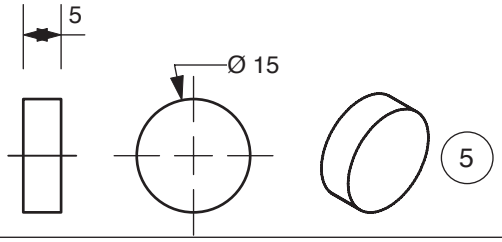
6.1.3 Saw the pine strip (2) to a length of 150mm. Sand the ends.

Note: the 50mm long remainder (2b) will be needed for the tipper.

6.1.4 Mark out carefully and drill the holes in the base with a 1.5mm size drill bit.



6.1.5 Saw 4 x 5mm long pieces from the pine dowel (5) and sand the ends



6.2 Assembling the couplings, buffers, wheel and bearings

6.2.1 Insert a screw eye (9) and screw hook(10) one in either end of the base (2a).

Note: make a pilot hole with a bradawl or drill!

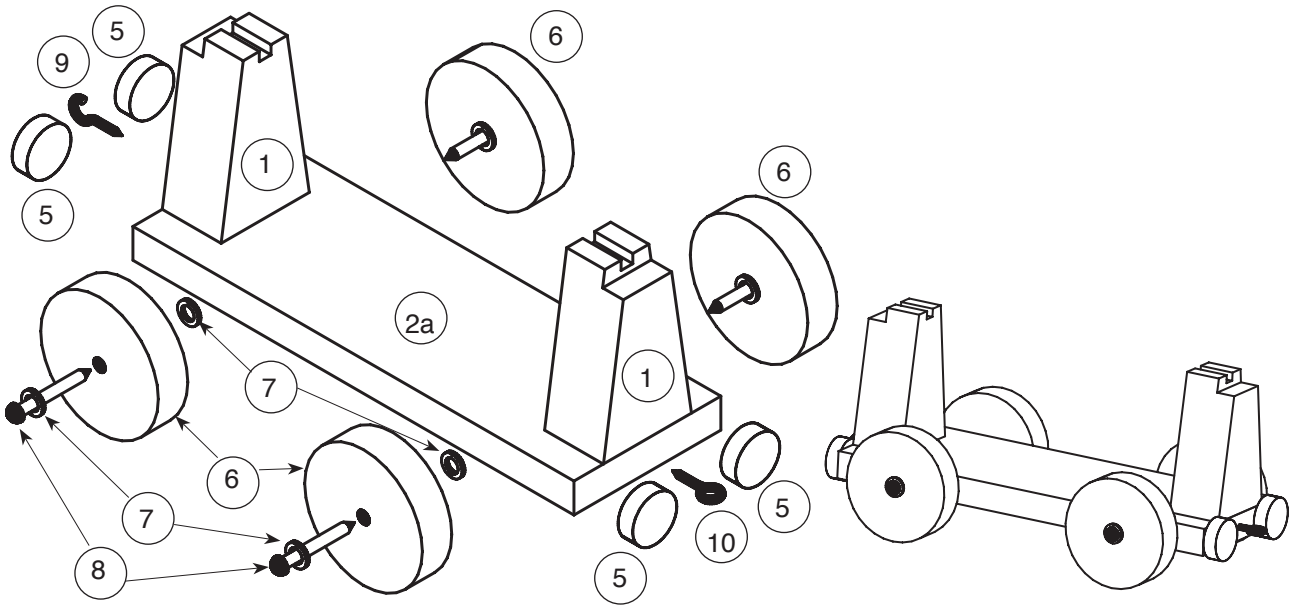
6.2.2 Glue a set of buffers on either end of the base.

6.2.3 Mount the wheels (6) using the screws (8) and the washers (7) be careful not to overtighten them , ensure that they rotate easily!

Note: Check to see if they are all level when the wagon is placed on the ground!.
Decorate the wagon before adding the wheels!

6.2.4 Glue the tipper bearing blocks (1) one at each end of the wagon.

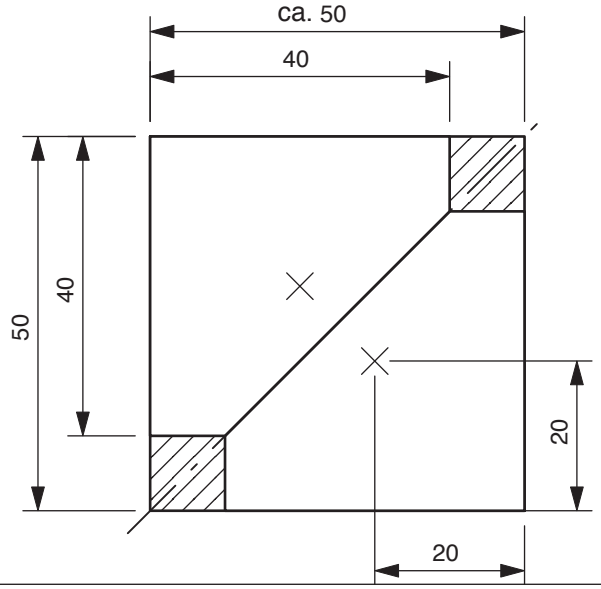
Note! the slot must face outwards.

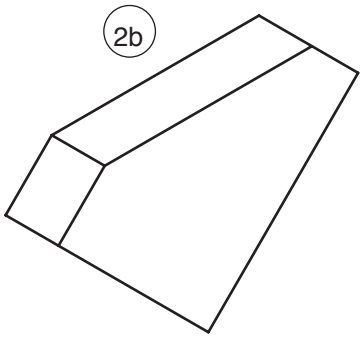


6.3 Making and assembling the tipper container

6.3.1 Mark out and saw the ends of the container (2b) from the pine remainder (2) 10 x 50 x 50mm (see step 6.1.3).

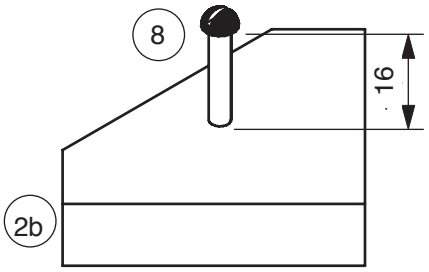
Note: Pre-drill the holes for the screws.



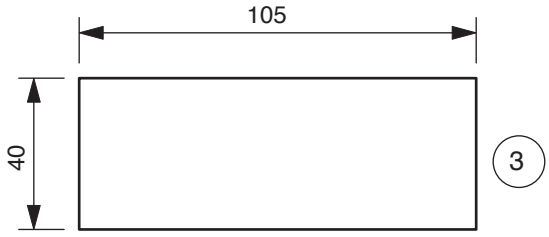


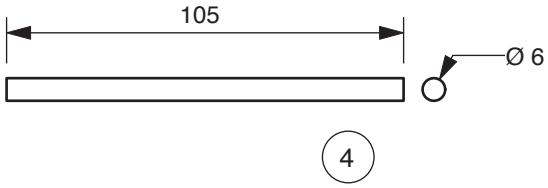
6.3.2 Insert a screw (8) in both ends of part (2b)
The screw should protrude about 16mm

Note: the screws should be at 90 degrees!

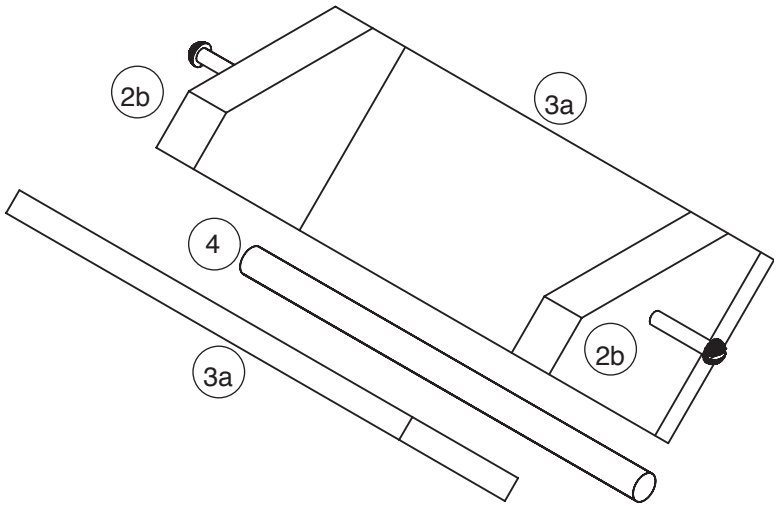


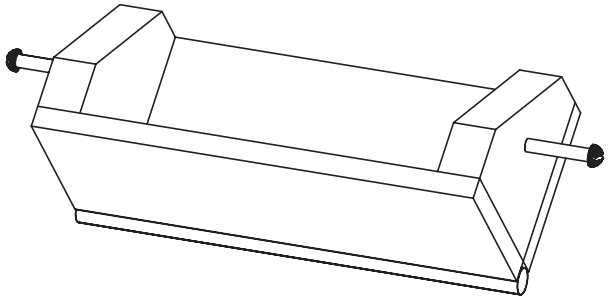
6.3.3 Cut off two pieces from the pine strip (3) each 5 x 40 x 105mm.
6.3.4 Cut off a length 105mm long form the pine dowel (4). Sand the ends.





6.3.5 Assemble and glue the parts (2b/3a/4) as shown to make the container.





6.3.6 Insert the tipper container into the bearing blocks and check the tipping function.

Note: Adjust the length of the screws in the ends of the container as necessary!