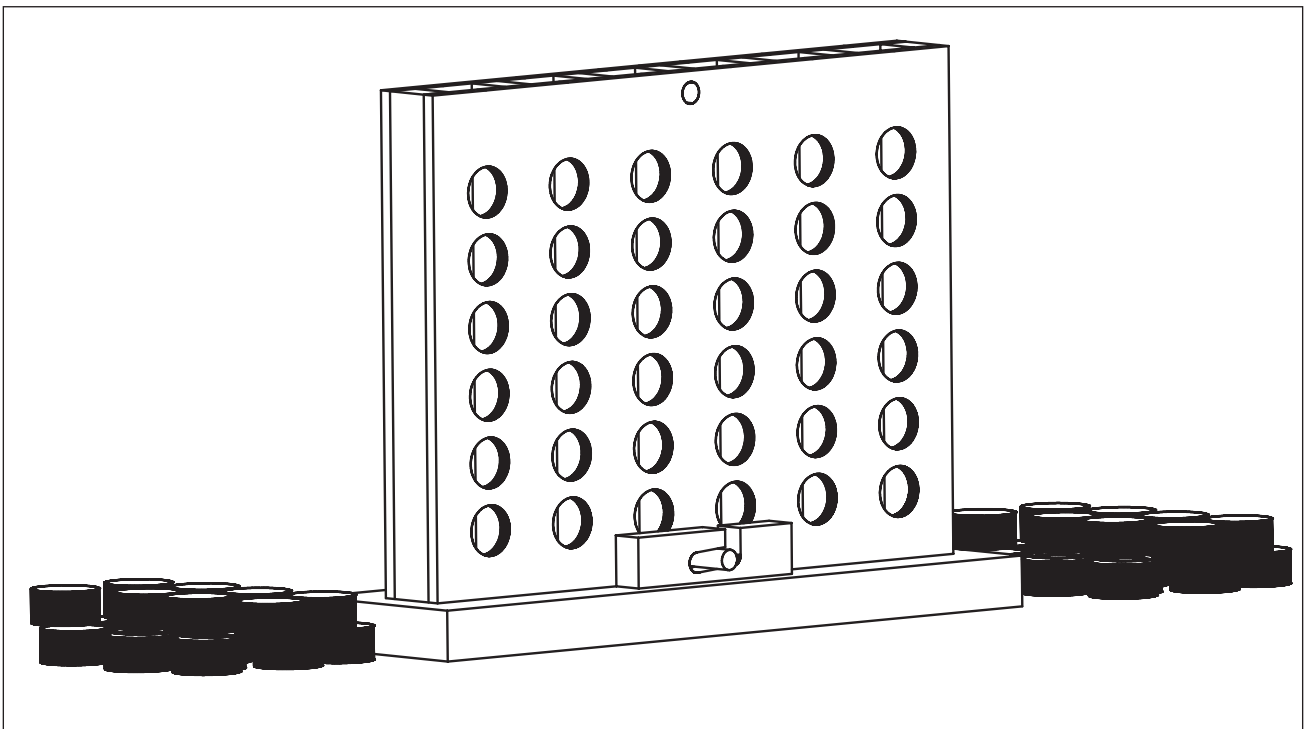


# OPITEC

## Hobbyfix

### 104.151

### *Four in a row*



#### **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!

## 1. Product information:

**Article:** \_\_\_ Game in project pack format

**Use:** In Design Technology, Key stage 3

## 2. Material information:

**Material:** Pine ( coniferous ) softwood  
Wood should be relatively dry before working.  
Plywood, multi-layered with each layer set in the opposite direction!

**Working:** Wood can be sawn , planed, drilled shaped and sanded.  
Mark out according to the plans or use paper patterns.

**Joining:** Gluing (PVA white wood glue)

**Finish:** Wax (liquid or solid)  
Wood varnish ( base coat plus top coat )  
Wood stain ( Coloured-water soluble then coat with clear varnish )  
Linseed oil.

## 3. Tools:

**Saws:** Use a **Fret saw** for all curves and round shapes that cannot be cut with a Dovetail saw or similar.

**Note !** Fret saw blades should be inserted with the teeth facing forward.

Use a Fret saw table and work with slow constant strokes turning the work as you proceed.

Use a **fine Dovetail** saw or similar for dowel and straight cuts.

**Note!** Hold the work to be sawn on a bench hook!

Use mitre saw for 45 degree and 90 degree work.

**Shaping:** Use the correct grade of file according to the job in hand.

**Note!** Rasps and files only cut on the forward stroke.

**Sanding:** Use a block and glasspaper on flat surfaces and loose sheet on curves

**Drilling:** Use a hand drill or a pillar drill.

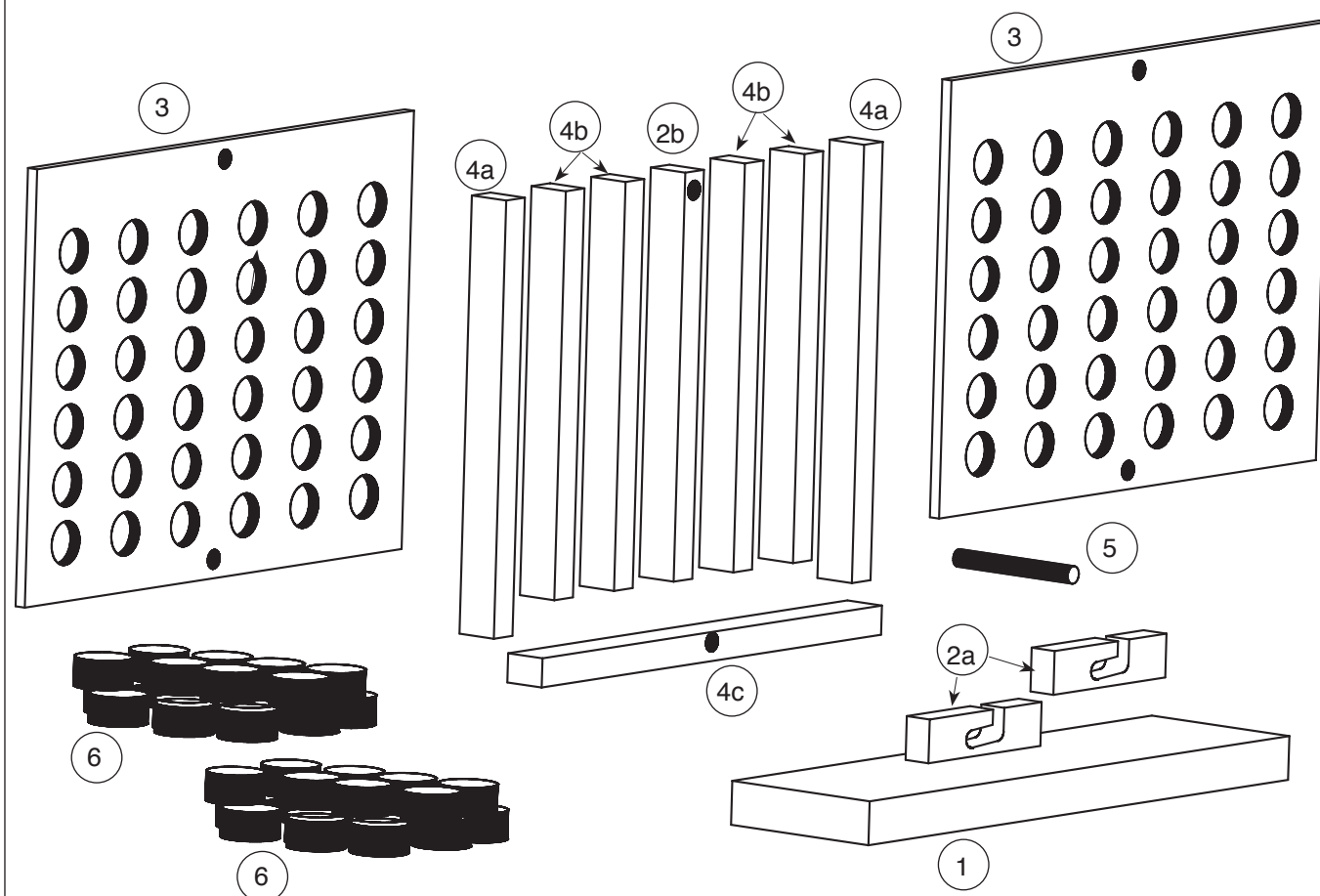
**Note!** Adhere to the safety rules, wear safety glasses, tie all long hair back, remove rings and jewellery, hold the work securely in a machine vice or clamp it down

**Clamping:** Use clamps to hold the work whilst the glue is drying ( do not overtighten otherwise they may leave marks on your work))

#### 4. Parts list:

Part	Material	Quantity	Size	Diagram
<b>Base</b>	Pine	1	15 x 60 x 225 mm	
	Pine	1	10 x 15 x 300 mm	
<b>Housing</b>	Plywood	1	4 x 210 x 300 mm	
	Pine strips	4	10 x 15 x 300 mm	
	Pine dowel	1	dia 6 x 50 mm	
	Pine discs	40	dia 20 mm	

#### 5. Exploded diagram



## 6. Planning overview

- 6.1 Designing and making the base
- 6.2 Making the playing field
- 6.4 Final assembly

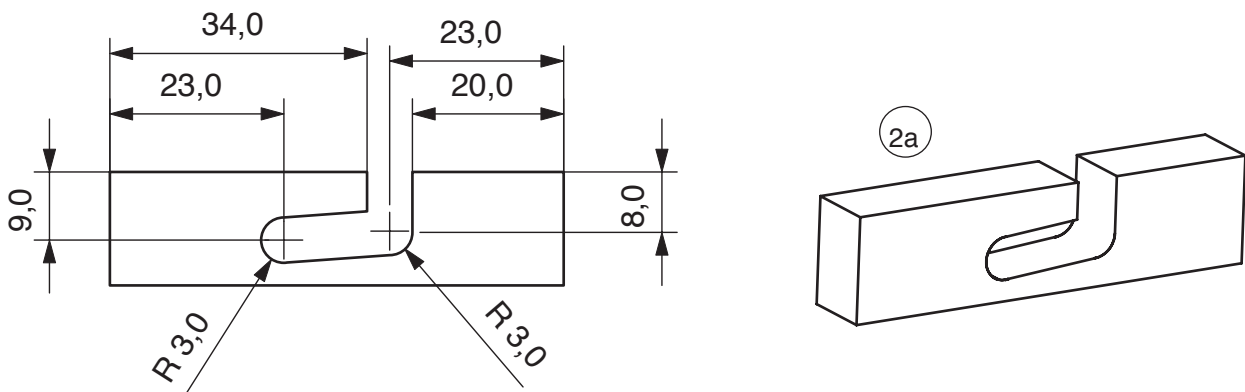
### 6.1 Making the base

6.1.1 Measure out and saw two pieces each 60mm long (2a) from the pine strip (2) 10 x 15 x 300mm. Sand the ends smooth!

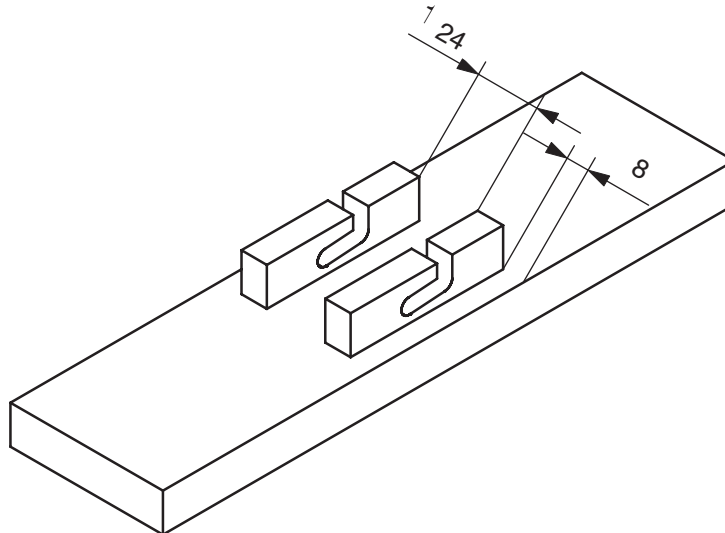
**Note:** The remaining pine strip will be used at a later stage!

6.1.2 Drill the pine blocks (2a) and cut out the slots as shown. Sand the parts.!

**Note:** Both the pine blocks will need to be identical.



6.1.3 Chamfer the sides of the pine (1) 15 x 60 x 255mm and sand the ends square. Glue the pine blocks (2a) in the middle as shown..



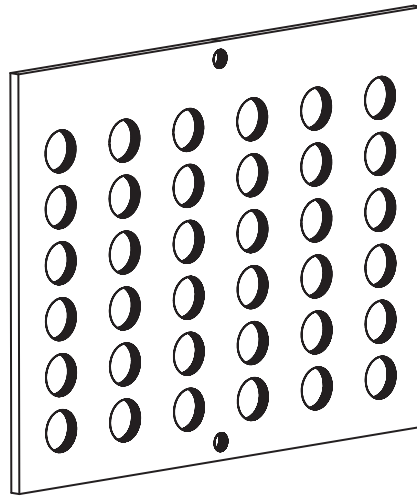
**Note:** The long slots must be in line with one another.

### 6.2 Making the playing field

6.2.1 Mark out and saw the plywood sheet (3) 4 x 210 x 300mm in half (4 x 150 x 210 approx). Now trim them so that they are both 4 x 150 x 202mm and clean up the edges!

6.2.2 Trace the pattern on page 7 on to the parts (3) and drill the holes as shown.

**Note:** Tape (double sided- one or 2 strips only) the plywood sheets together and drill the holes

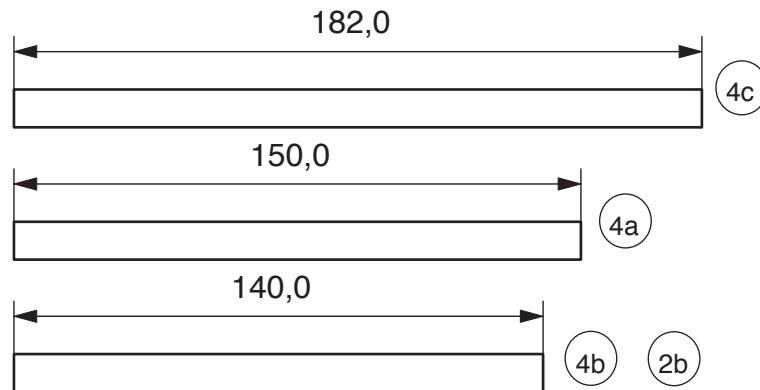


3

6.2.3 Shorten the remaining pine strip (2) to 140mm long to make (2b)

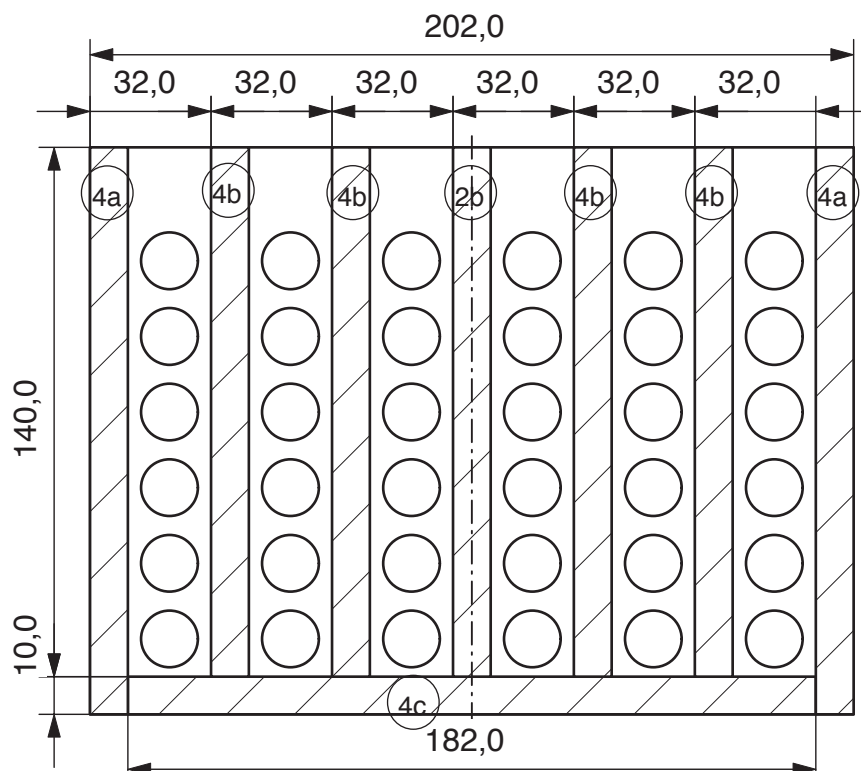
6.2.4 Saw a pine strip (4) 10 x 15 x 300mm in half (4a) so that there are two strips 10 x 15 x 150mm  
From strip (4) saw 4 pieces (4b) 140mm long  
Saw the remaining strip (4) to 182mm (4c)

**Note:** Check the measurements of the side parts (3) against the plan ( patterns on page 7)

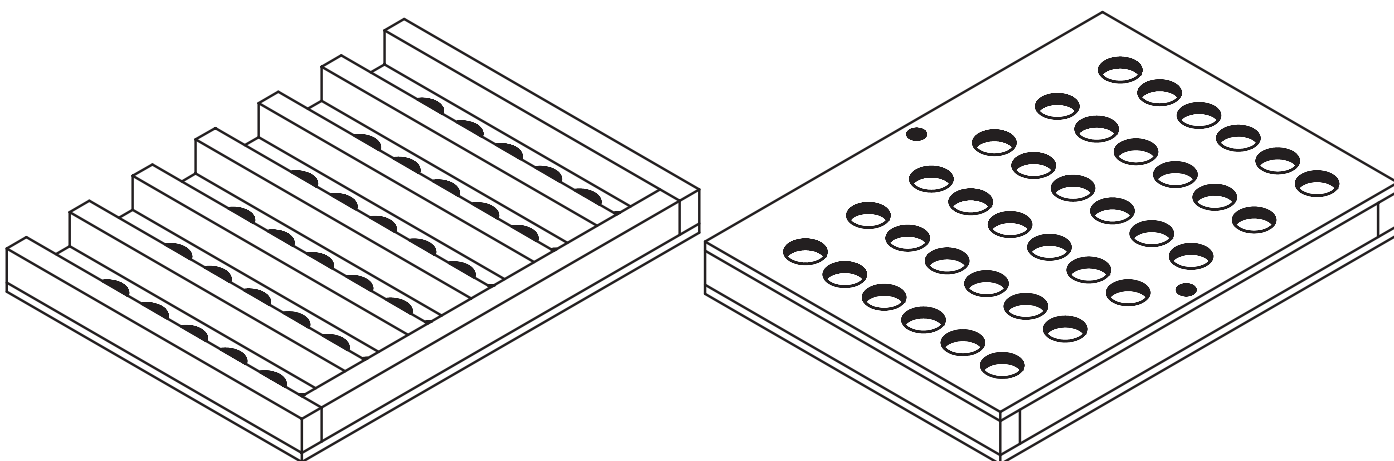


6.2.5 Glue the pine strips ( 2b/4a/ 4b/4c) on one of the sides (3) as shown

**Note:** Make sure that the top and bottom edges are not mixed up (distance between holes)



6.2.6 Glue the second side (3) in place and leave to dry

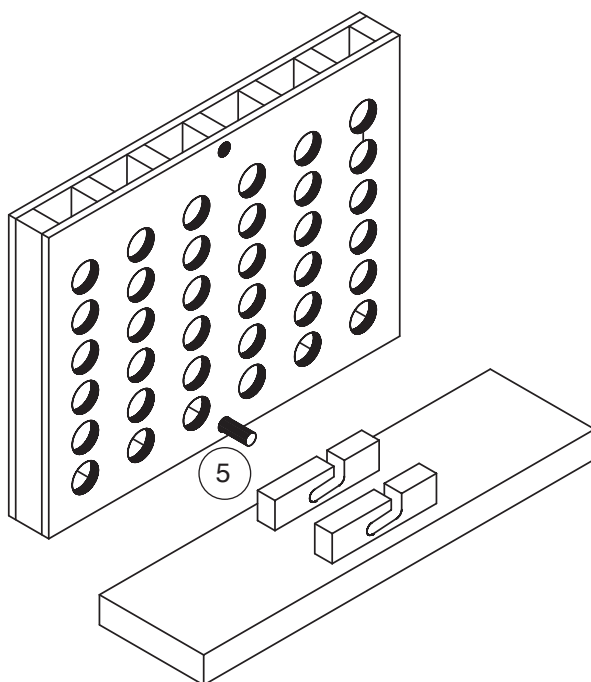


### 6.3 Final assembly

6.3.1 Drill the 6.5mm hole for the locating pin (5) in through the strips (2b /4c) enlarge if necessary .

6.3.2 Lightly sand the ends of the locating pin (5) with glasspaper.

6.3.3 Insert the locating pin (5) in the hole in the playing field and clip it into the slot on the base



6.3.4 The colour scheme of the discs is left up to you (6)

6.3.5 When you have finished with the game, simply unclip the locating pin out of its housing and store it in the top hole. Lift the playing field and the discs will simply drop out.

### **Rules of the game**

:

The game is intended for 2 players and has 6 x 6 holes in the playing field. Each player has 18 coloured wooden discs.(same colour ) Taking it in turns each player must try to get 4 discs of their colour in a row, either vertically , horizontally or diagonally. The first one to achieve this goal is the winner.

## 7. Patterns for the sides (3)

Scale 1 : 1

