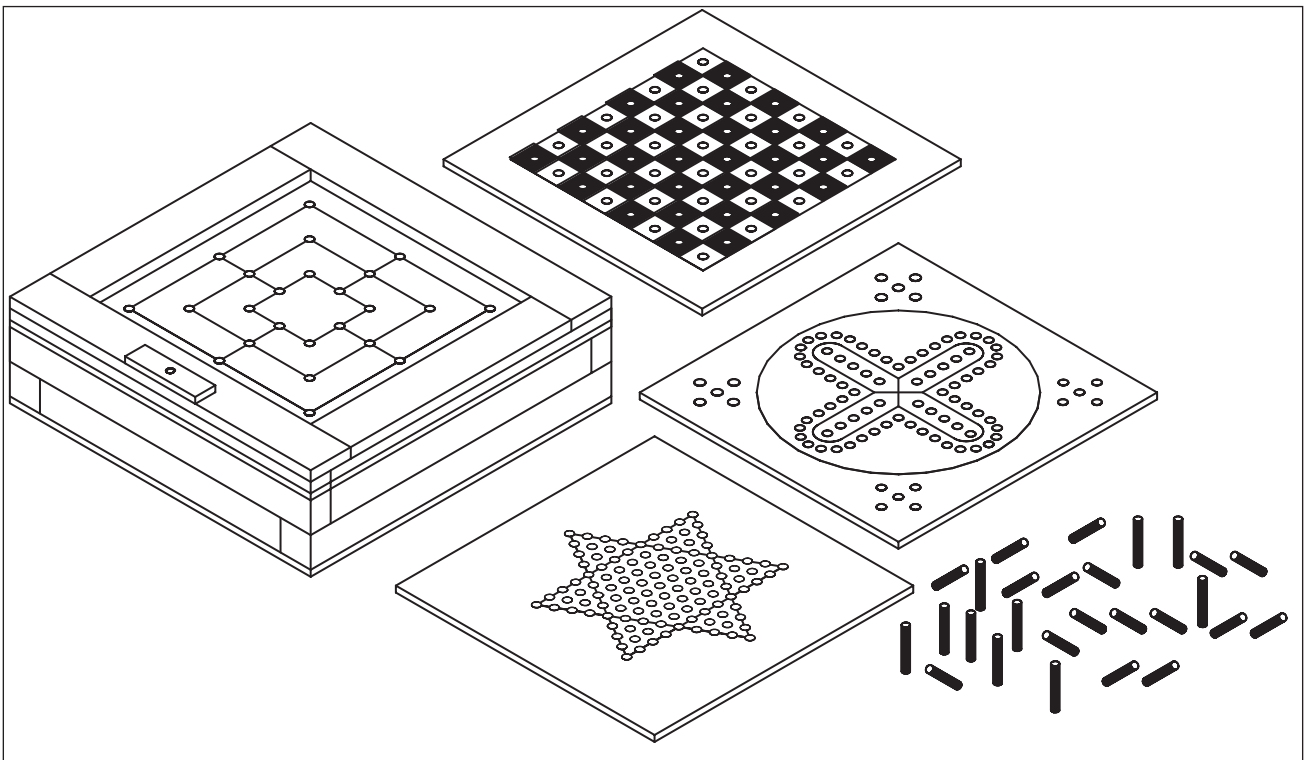


OPITEC

Hobbyfix

1 0 4 . 1 7 5

Games box



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: Games Compendium in project pack format:

Use: In Design Technology, Key stage 3

2. Product Information:

2.1 Material: Pine (Coniferous) softwood,
Gabun plywood, multi layered, glued, with each layer set in a different direction
Beech (Deciduous) hardwood.
Wood should be relatively dry before use

Working: The wood will need to be sawn, shaped, drilled and sanded.

Joining: Glue (PVA white wood glue)

Finish: Wax (liquid or solid)
Wood varnish (Base coat and top coat or spray)
Stain (Colour water soluble- then varnish)
Linseed oil

3. Tools:

Saws: Use a Fretsaw for circles and curved shapes that cannot be cut with a normal saw.

Please note! The saw blades are inserted into the bow with the teeth facing forward, away from the handle.

Use a Fretsaw board and saw with slow constant strokes turning the wood as you go.

Use a fine toothed saw backsaw for all straight cuts and dowel.

Please Note! Clamp the work down or use a sawing board, bench hook.

Rasps and Files: Choose the correct grade of rasp or wood file for the work in hand

Note: Rasps and files only cut on the forward stroke

Sanding: Use a sanding block and glass paper for all flat surfaces and loose sheet on curves and round edges.

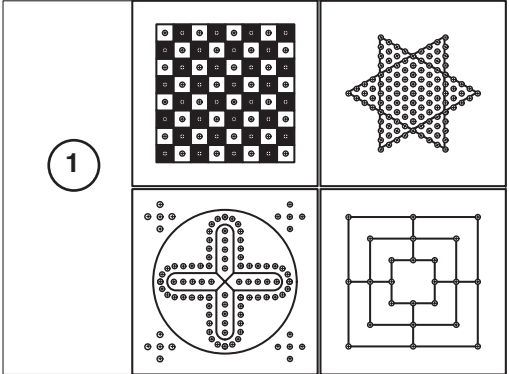
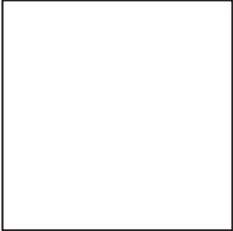

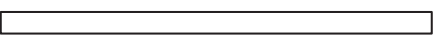
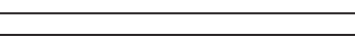
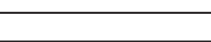

Drilling: Use an electric stand drill

Note! Adhere to the safety rules (Long hair to be tied back, remove all rings and jewellery, wear safety and an apron). Hold the work to be drilled in a machine vice

Choose the correct size drill bit and only use sharp drills

Clamping: Use G Clamps or similar to hold the work whilst the glue is drying

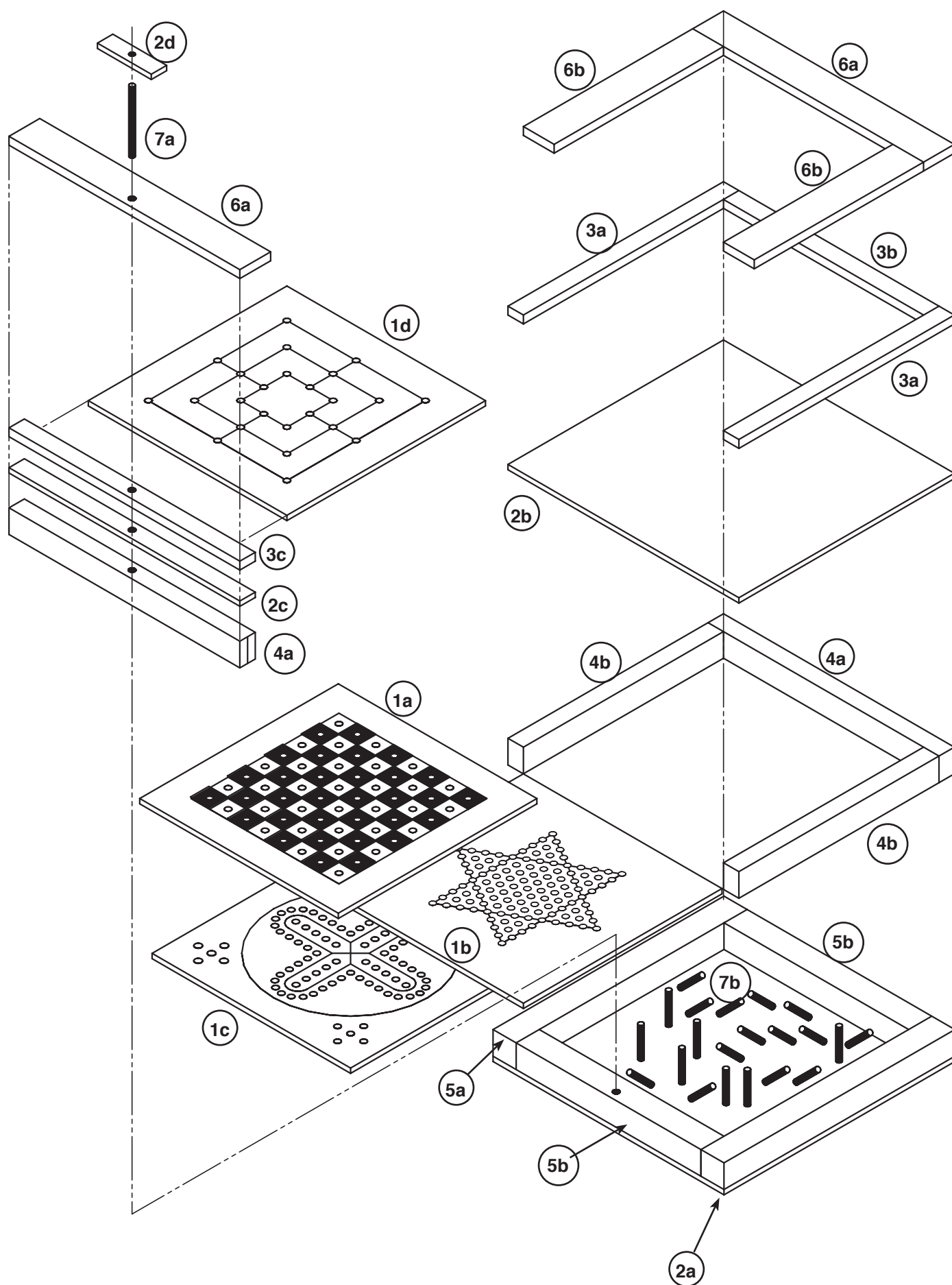
4. Parts list:

Part	Material	Quantity	Size	Diagram
Playing field	Plywood, printed	1	4 x 260 x 350 mm	
Separator- and Baseplate	Plywood	2	3 x 160 x 160 mm	
Guide rails	Pine	2	5 x 10 x 350 mm	
Basic frame	Pine	2	10 x 15 x 300 mm	
Basic frame	Pine	3	15 x 15 x 250 mm	
Top frame	Pined	4	5 x 20 x 150 mm	
Playing pieces	Dowel	5	ca. ø 3 x 245 mm	

Please note

A dice is not included!!!

5. Exploded diagram:



6. Planning overview

6.1 Making the playing fields

6.2 Making the box

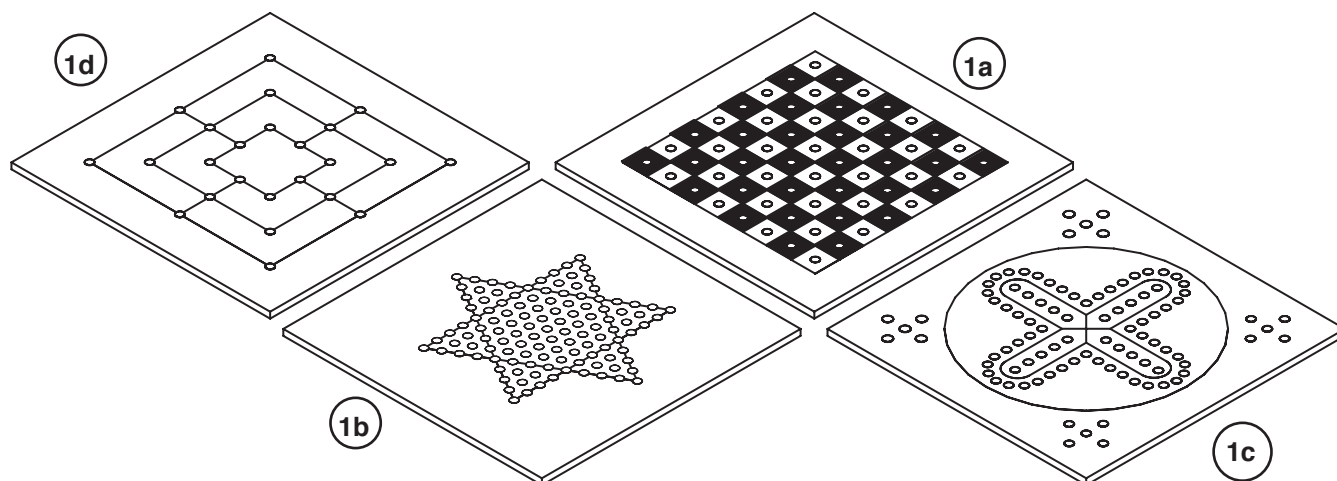
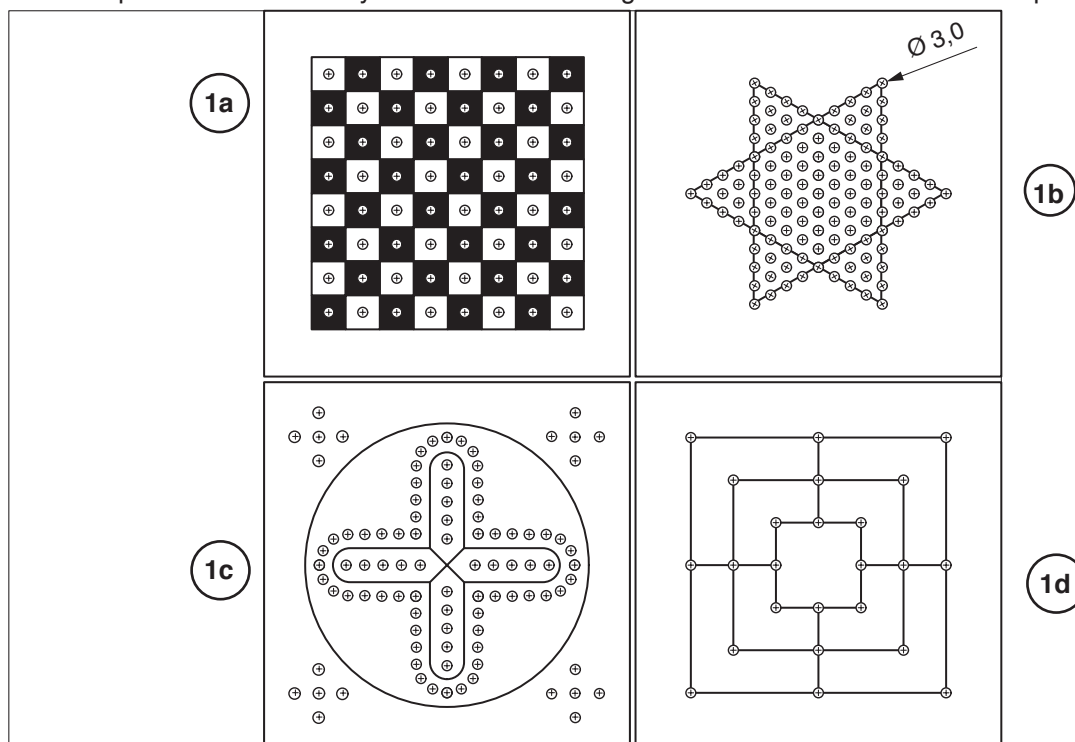
6.3 Designing and making the game pieces

6.1 Making the playing fields

6.1.1 Saw out the playing fields (1a/1b/1c/1d) from the printed plywood sheet (1) Finally drill all the holes 3mm holes.

Note: Use a pillar drill or similar

6.1.2 Lay a piece of scrap wood underneath your work when drilling so that the drilled holes do not split on the re-

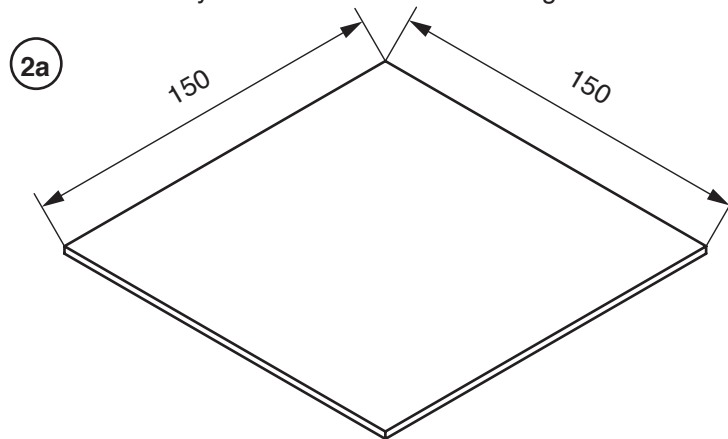


verse side of the wood as the bit goes through.

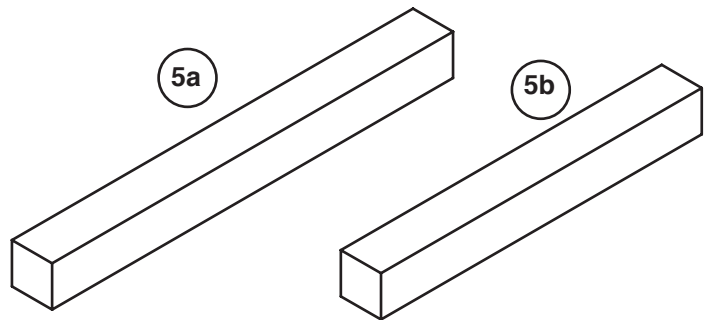
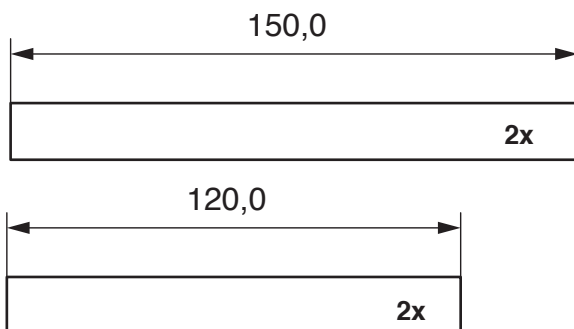
6.2 Making the box

6.2.1 For the base, the plywood piece (2a) needs to be trimmed down from 3 x 160 x 160mm to 3 x 150 x 150mm and sanded to shape.

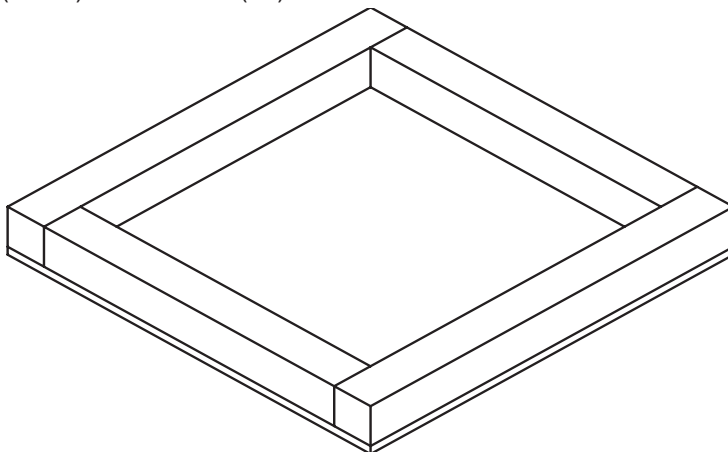
Note: Keep the off cuts as they will be needed at a later stage!



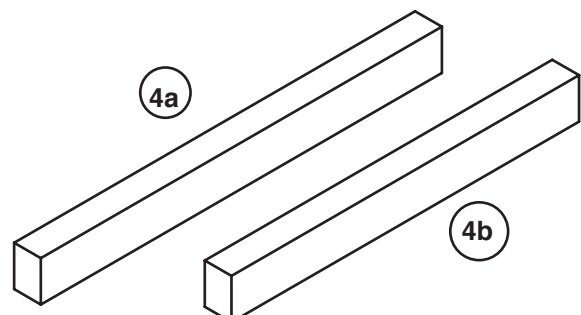
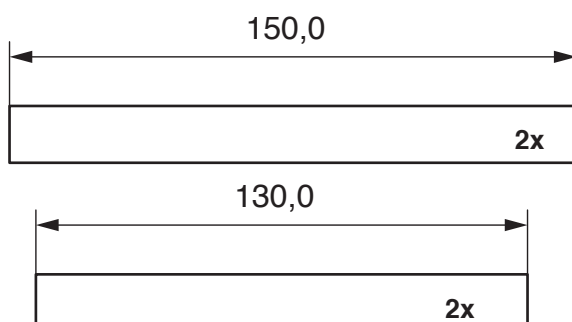
6.2.2 Saw two pine strips (5) 15 x 15 x 250mm to 150mm long (5a).
From the third strip (5) saw to strips 120mm long (5b)



6.2.3 Glue the strips (5a/5b) on the base (2a) as shown

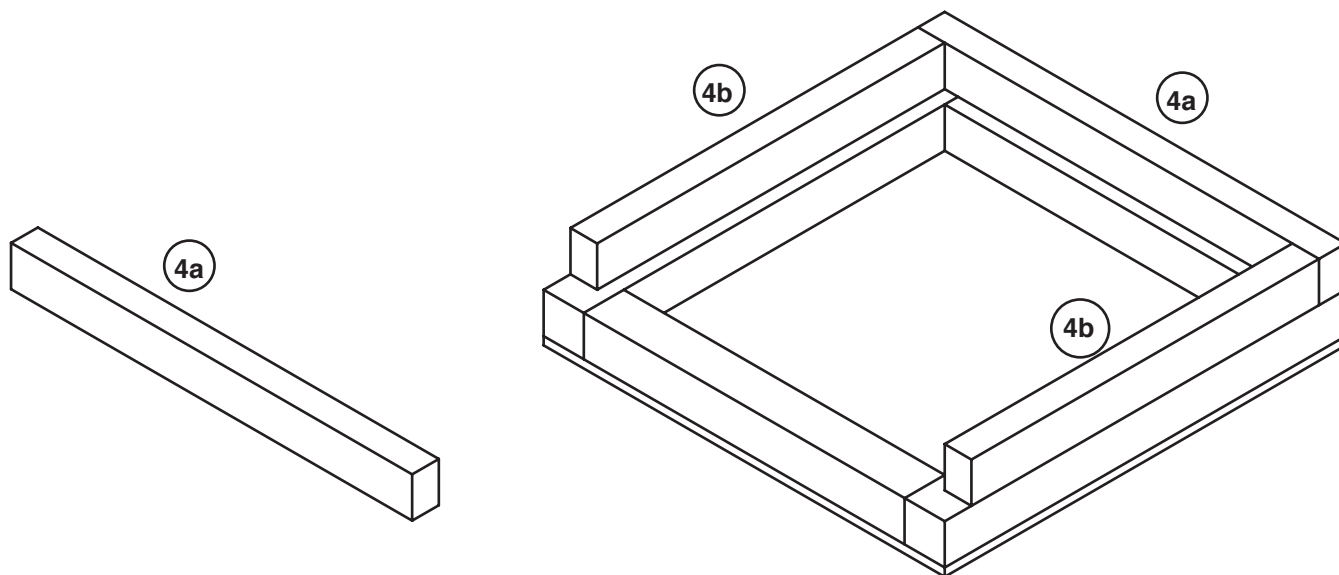


6.2.4 From the two pine strips (4) 10 x 15 x 300mm saw one piece 150mm (4a) and one (4b) 120mm long, sand the ends square.



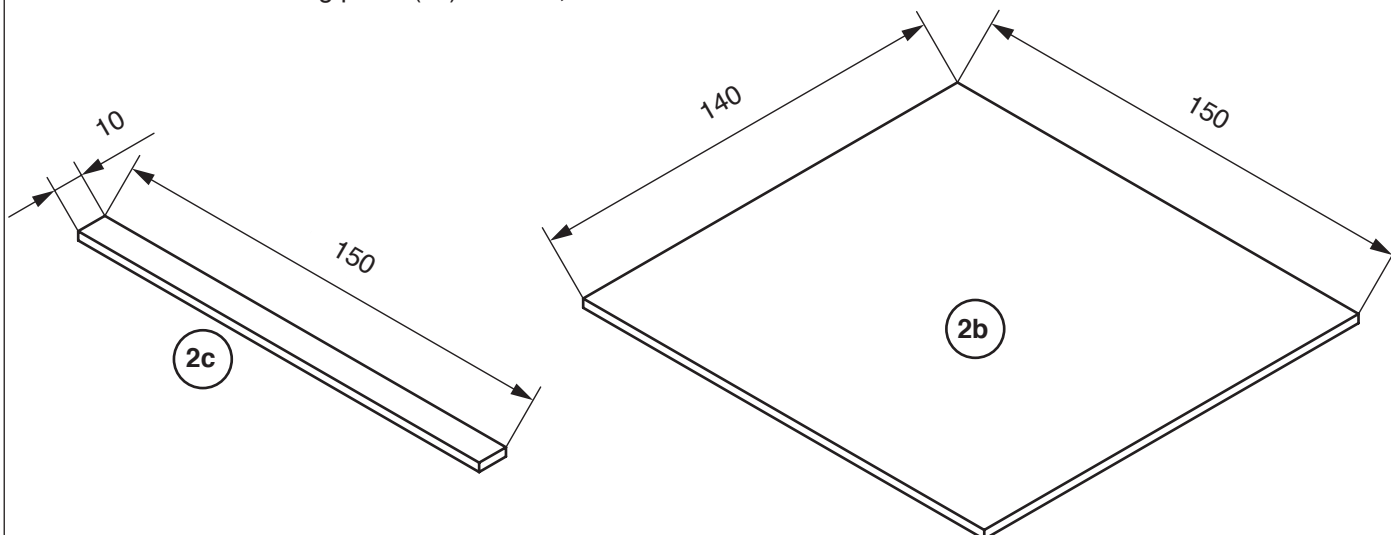
6.2.5 Glue the strips (4a/4b) on top of the other strips (5a/5b) .

Note: one of the parts (4a) must NOT be glued as this time. It will be glued to the top at a later stage!



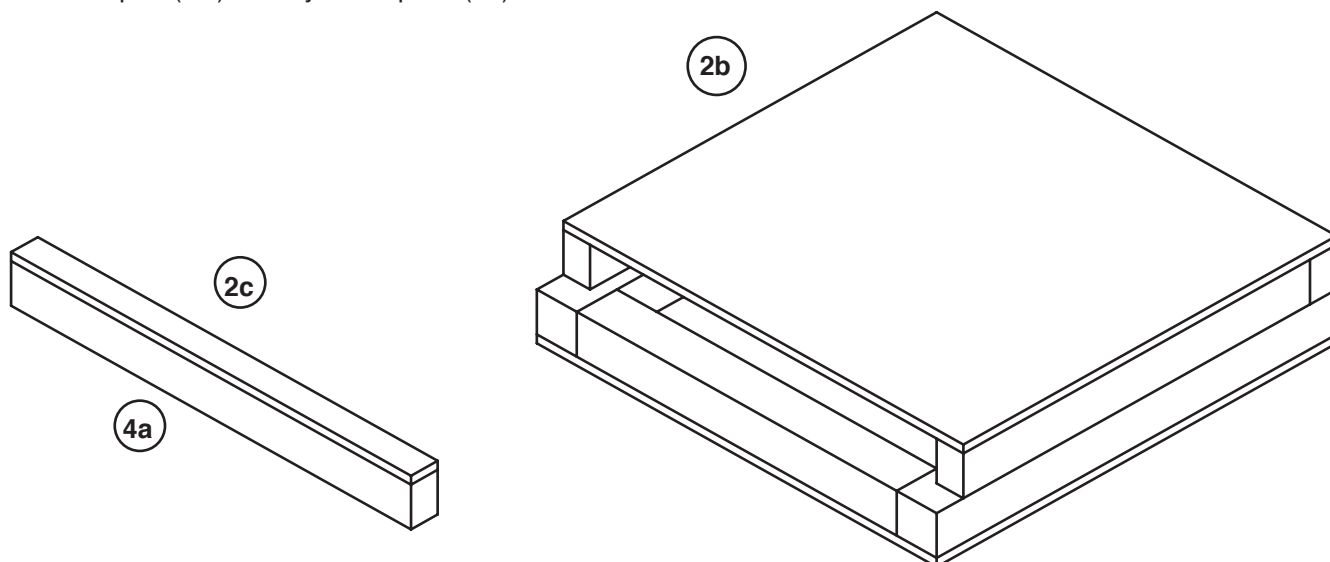
6.2.6 As a separator piece (2b) the plywood sheet (2) is cut down from 3 x 160 x 160mm to 3 x 140 x 150mm.

From the remaining piece (2c) is made, size 3x10 x 150mm and sanded

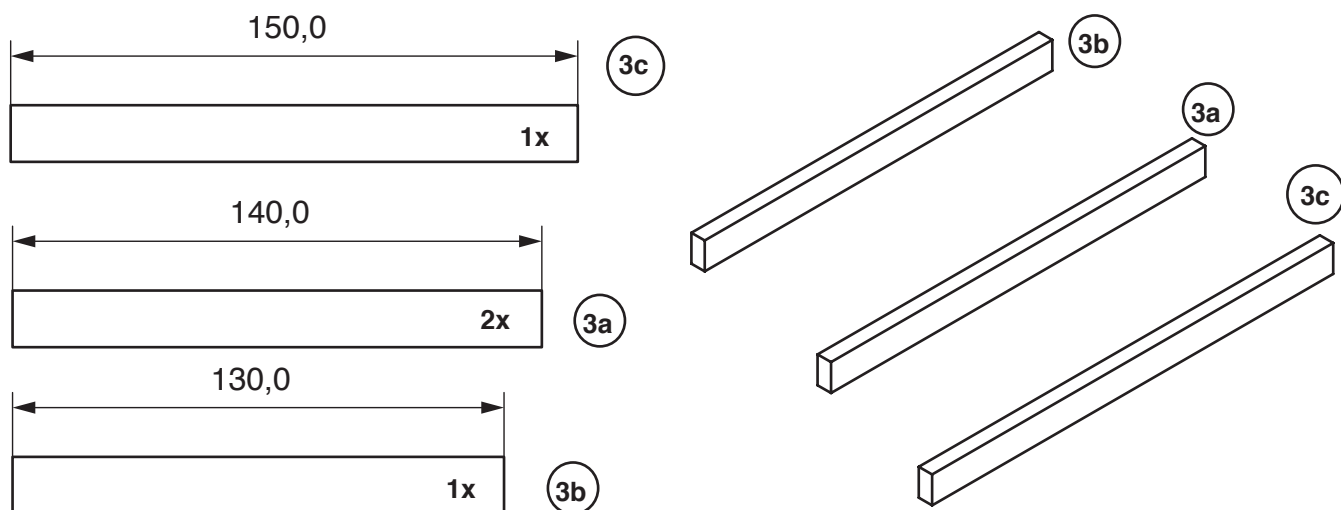


6.2.7 Glue the separator (2b) on top of the strips (4a/4b)

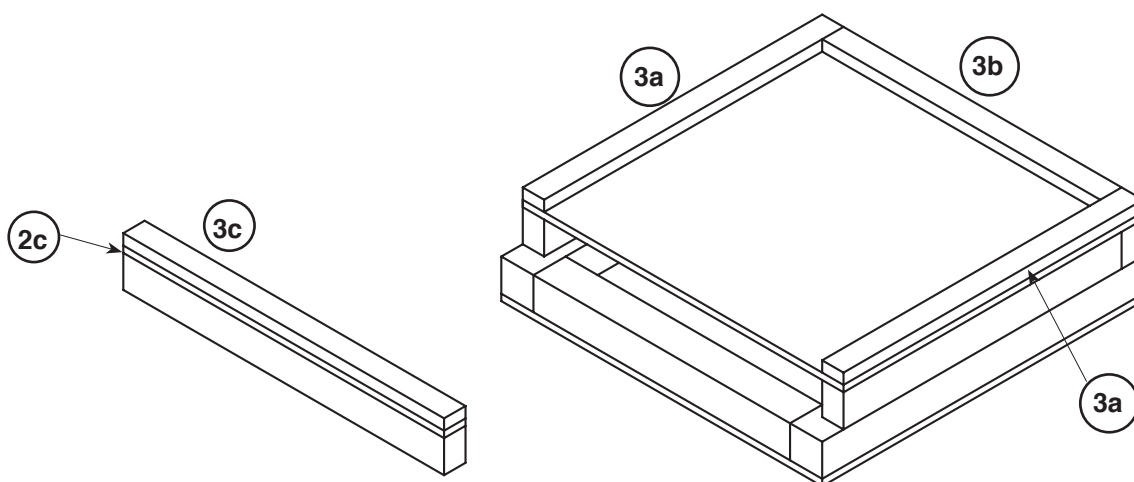
Glue part (2c) directly on top of (4a)



6.2.8 From the two pine strips (3) 5 x 10 x 350mm saw 2 pieces 140mm (3a) and one strip 130mm (3b) and one piece 150mm. sand the ends square



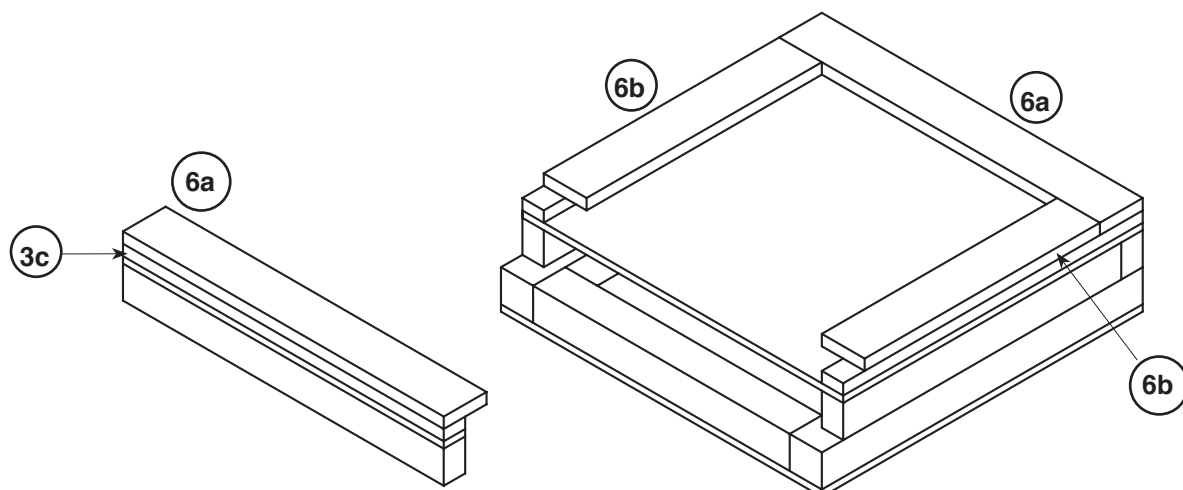
6.2.9 Glue the strips (3a/3b) as guide rails on top of the separator
Glue strip (3c) on top of the piece (2c)



6.2.10 Saw two strips (6) 5 x 20 x 150mm to 110mm long (6b) sand the ends

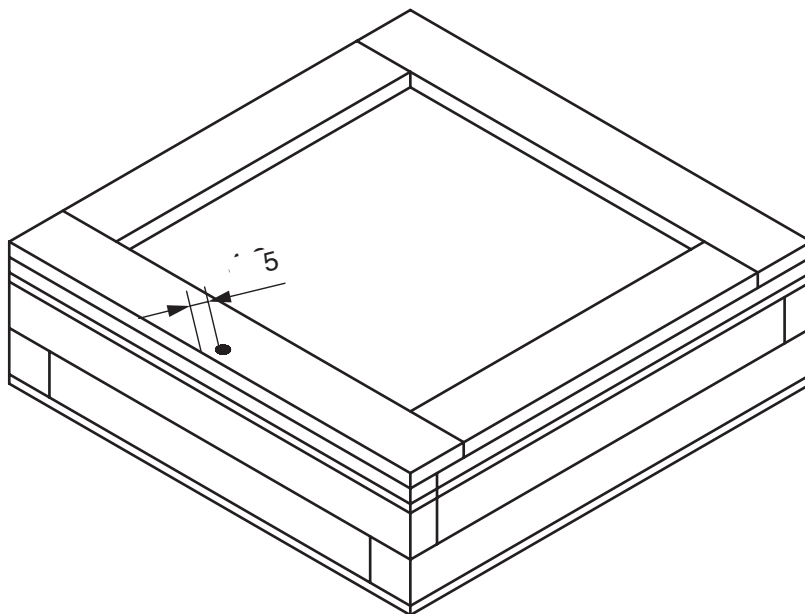


6.2.11 Glue the guide rails (6a/6b) as shown in the diagram and one strip (6a) on the top of piece 3a as shown

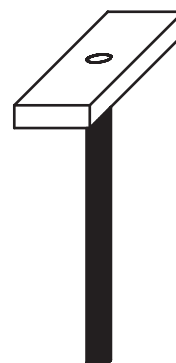
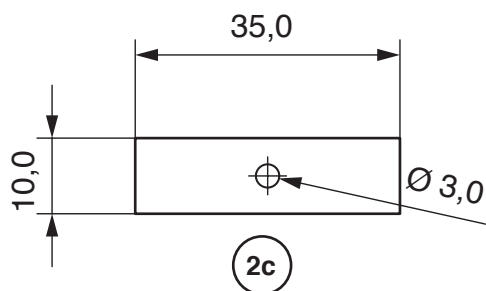


6.2.12 Once the box has been constructed mark out a hole 5mm in on the front edge of the frame. Drill a hole 3mm diameter x 40mm deep in the completed box

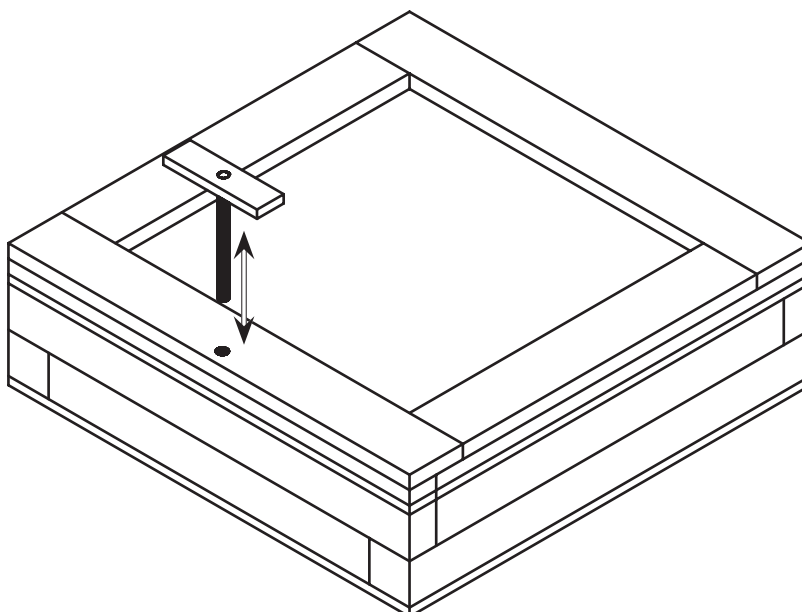
Note: Make sure that this drilled in one go otherwise the lock will not work properly



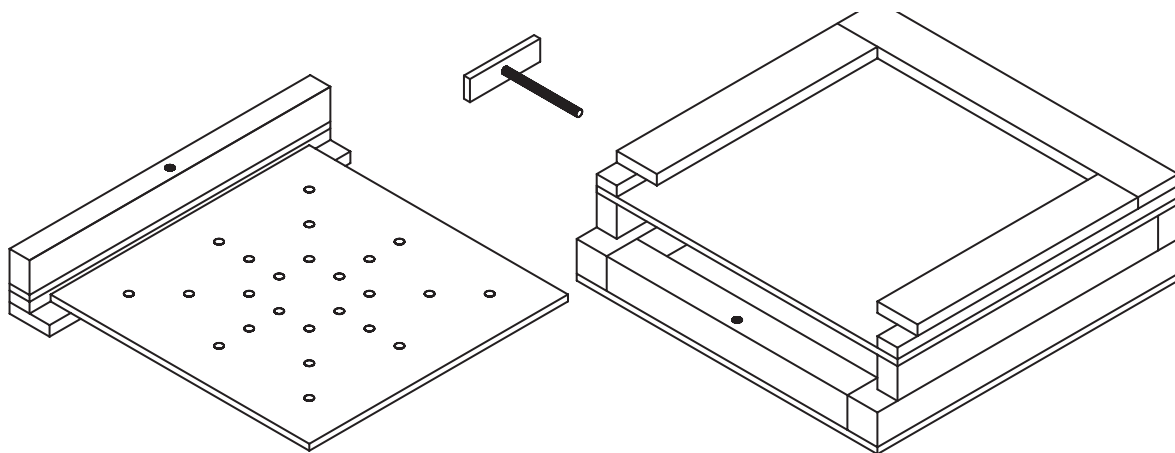
6.2.13 From the remainder of the plywood (2) cut off a piece (2c) 3 x 10 x 35mm and drill a 3mm diameter hole in the middle as shown. Saw off a 40mm length from the dowel (7) 3 X245mm. sand the ends and assemble the parts (2c) and (7a) as shown



6.2.14 Check that the key fits into the lock. If it's tight you can sand the dowel or enlarge the hole to 3.2mm dia

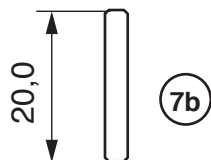


6.2.15 Choose the board for your favourite game and glue it onto the part shown



6.3 Making and colouring the game pieces

6.3.1 Saw the dowel (7) into 51 pieces (7b) each 20 mm long. Sand the ends as shown

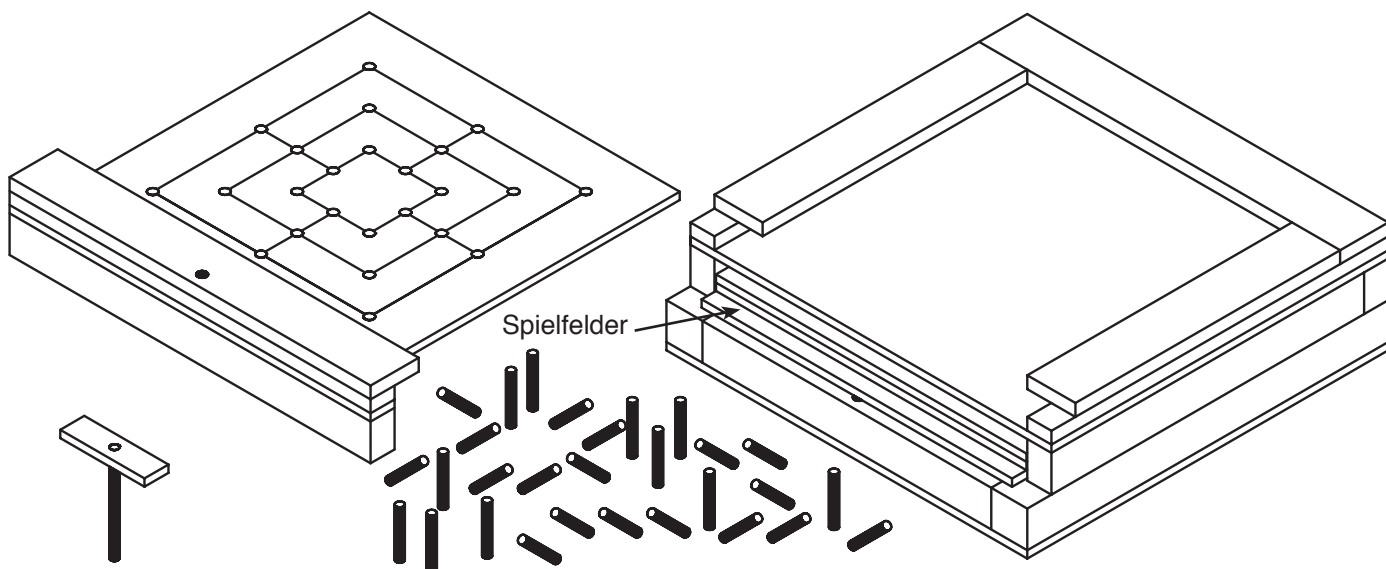


6.3.2 Paint 15 pieces in a different colour each (eg blue and red). Paint a further 6 pieces in another colour (eg.Black) The remaining pieces can be left natural or painted in a further colour (eg. yellow)

Note: If you have finished the pieces as suggested you should have a spare from each colour

6.3.3 Colour the playing fields in to fit with the pieces

Note: Before colouring the playing field designs check to see if the boards will slide on the runners in the box.
If not sand the edges of the boards to fit.



6.3.4 Finish the box according to your own design

The rules of the games

Muehle (Nine Mens Morris)

This is an interesting game for two people.

You will need 18 pieces, 9 of each colour.

For example one player has white pieces, the other blue

The main aim of the game is to block your opponent (Similar to noughts and crosses)

This block is made when you have 3 pieces in a row of the same colour. When you have achieved this you can remove one of your opponent's pieces. At the same time the opponent cannot take a piece away from your block.

As the pieces need to be moved the intention is to open the block by moving one of the pieces forwards, sideways or backwards and then re-form the 3 in a row pattern so that the block is re-made allowing you to take another piece from your opponent.

You can also try to create two blockades which can be open and shut at will.

The winner is the person who collects as many as their opponents pieces as possible.

Dice game

Each player has 5 pieces of one colour.

The aim of the game is to be the first person to get their 5 pieces home.

Game rules

Each contestant has a dice which he/she throws. The one who throws the highest number (6) starts, after placing their pieces in the outer playing field. The game goes around in a clockwise direction.

Whoever throws a '6' can release their piece on to the black playing field, has second throw of the dice and can then move the piece the number of points thrown.

If he/she throws another '6' the piece must be moved on '6' places leaving the start free to take another piece out. If all the pieces are in play the pieces themselves must be moved '6' places and then another throw made.

If one piece lands on top of an opponents, that piece must go back to the outside field and '6' must be thrown for it to be started again.

Once a piece has been all round the game it must go down its own colour lane. Here only 1,2,3 can be thrown and moved. If a player throws a larger number and doesn't have another piece to move, they must keep trying until they reach a suitable number. For example a player throws a '1.' and two of their pieces are in holes 1 & 3 and they have a piece just outside the home run, they must move 1 into 2 to allow the third one in. If they then throw another '1' they can move last piece forward.

Halma: (Chinese Chequers)

Each player takes 15 pieces, colour to suit one of the coloured triangle playing fields.

The goal is the same coloured field on the opposite side. You must try to get all your pieces home. Whoever manages it first is the winner. Each player has a go one after the other

You can use other fields to move your pieces forward, the main aim being to reach your goal.

You can jump over any pieces in your way as long as the spaces are clear. The first one to bring all their pieces home will be the winner. Remember to try and keep your eye on all the pieces and try not to have any stragglers.

Dame: (Draughts)

Each player has 12 pieces of the same colour and 5 of another colour (Damen).

The game is set up so that each player has a white square in the corner to the right of him/her

The pieces are only placed on the black squares and fill up the first three rows, so that two rows in the middle are free.

You can only move in a forwards direction (diagonally). The player with the lighter pieces start. You move the pieces forward until you meet your opponent, which if they have a space behind them, their piece can be 'taken' This piece is then removed from the board. You can 'take' more than one piece at a time if it is possible. Once you have taken your opponents piece you can change it for one of the coloured pieces (Dame) With the 'Dame' you can move forwards and backwards and cover empty spaces as you wish. This way you can take your opponents remaining pieces. Remember the Dame can also be 'taken' by your opponent just like the other pieces.

Each player tries to take all their opponents pieces or trap them so that they cannot move