



How to Make a Chair - Part 1

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In this video, you will learn how to make a chair.

The tools that you will need are: a pencil, a ruler, a measuring tape, a try square, a marking knife, a screwdriver, masking tape, a marking gauge, a mortise gauge, a clamp, 5 mm screws, chisels, a brush, a mallet, a hammer, a file, hand saws, hand planes, a spoke shave, a router, a sander and a power drill.

The materials you will need are: 2 pieces of wood for the back legs of the dimensions 10x3.8x105 cms, 2 pieces for the front legs of the dimensions 5x5x45 cms, 7 pieces for the back slats and rails of the dimensions 5x3.8x45 cms and 6 pieces for the seat slats of the dimensions 7.5x2.5x45 cms.

You will also need adhesive, sealer, and thinner.

The four key steps are: The Front Legs, Assembling the Front, The Back Legs and Assembling the Back.

STEP 1: The Front Legs.

This chair shall be made using the mortise and tenon joint held together with square pegs.

For more information, refer to the video [How to Make a Mortise and Tenon Joint](#).

Start by choosing the best sides of the timber for the two front legs that will be visible once the chair is assembled.

Draw a line to mark of a section to be removed from either end of one leg so that you are left with 45 cms to work with.

Extend both lines onto the remaining sides.

Repeat the steps on the other front leg.

Now, saw both pieces down to size.

Place the front legs together and the front rail flush with their end grain, as shown.

Now, draw a line to mark one end of the mortises using the thickness of the rail.

Draw a line one and a half centimeters from the edge to mark the other end of the mortises.

Extend the line to the remaining sides of both pieces.

Mark a point a centimeter from either edge of the narrower side of the rail to set the thickness of the tenons.

Set the scribes of a mortise gauge to the two points and adjust the stalk so the scribes are centered.

Scribe two lines from one side between the lines marked earlier, as shown, to set the width of the mortise.

Now, turn the piece over to the next side and repeat the process to mark the mortise connected to the side rail.

Do the same for the second front leg.

Use a router to remove a part of the mortise.

Use a chisel and mallet to cut the remaining depth and clean up the sides.

STEP 2: Assembling the Front.

Place the front legs on the front rail so that the outer edges are 46 cms apart.

Use a second piece for support.

Draw a line marking the thickness of the legs.

Extend the line to all sides.

With the mortise gauge still set to the thickness of the mortise, scribe the tenon on either end of the front rail.

Set the router to the depth of the cheek and cut out the tenon.

Clean up the tenon with a chisel.

Use a marking gauge to scribe the length of the mortise on all sides of both tenons.

Saw off the extra length from the tenons.

Use a chisel and mallet to clean the sides.

Measure the depth of the mortise and use it to mark the height of the tenons.

Here, it measures 3.4 cms.

Clamp the piece and saw off the extra height from the tenons.

Since the two mortises meet inside the leg, the tenons need to be tapered so they sit flush with each other from their respective mortises.

Mark the edge of the side rail mortise on the cheek of the front rail tenon.

Clamp the front rail and cut along the width of the tenon.

Do the same for the second tenon.

Apply adhesive on both tenons of the front rail and clamp them into the mortises of the two front legs.

Make sure the pieces are square and leave to dry.

STEP 3: The Back Legs.

Draw a line near one end of the piece to mark one end of the back leg and transfer the line to all sides.

Measure 86.5 cms from the line to set the full height of the back leg piece.

Mark the length of the front leg on the back leg by measuring 45 cms from one end.

Place the side rail on one side of the line and mark out its thickness.

Next, mark out the width of the seat by placing a slat on the other side of the line.

Transfer both lines onto all sides of the back leg.

Measure the width of the back leg piece.

Here, it is 9.7 cms wide.

Mark 6.5 cms for the top of the back leg.

Draw a diagonal line from this point to the front edge at the seat line.

Mark 2.5 cms past the 6.5 cms mark at the top of the back leg.

Mark a point 5 cms from the front edge on the seat line and another on the rail line.

Place a ruler between the 5 cm mark on the seat line and the 2.5 cm mark at the top and draw a line to set the thickness of the piece along the backrest.

Mark 4 cms from the inside edge at the line marking the bottom of the leg.

Place the ruler between the 4 cm point and the front edge along the rail line and join them.

Mark another point 3 cms past the 4 cm point on the base line.

Draw a line joining this point to the 5 cm point on the rail line.

Draw an arc joining the inner ends of the two diagonal lines nearer to the back edge.

Leave some extra length as you saw the base of the leg.

Clamp the leg and transfer the lines onto the endgrain.

Saw along the front and back faces of the leg piece.

Position the cut slightly into the waste wood for planing later.

Use a keyhole saw or coping saw to cut along the arc at the center of the back leg.

You can also use a spokeshave to round the centre.

Plane the sawn edges to shape and smoothen the leg.

Once you have completed planing all sides you can cut off the extra bits on both sides of the back leg so that it is 86.5 cms in length.

Clamp the completed back leg over the workpiece that will be made into the second back leg.

Transfer the dimensions and proceed to cut it down to size.

STEP 4: Assembling the Back.

Place a back rest slat across the back leg and mark out its width for the mortises that will hold the the three back slats in place.

Leave a gap equal to the width of the slat between each position.

Now, place the back legs on the back rail piece to find the shoulder of the tenons.

The width is 45.5 cms between the outer edges of the back legs.

Next place the front legs and front rail on the back legs.

Transfer the shoulder line of both tenons to all sides of the back rail.

Use a router to cut 1.2 centimeters from either side of both tenons.

Use a chisel to smoothen the cheeks and shoulders of the tenon.

Cut out tenons for the three back rest slats in the same way.

Mark a line 1.5 cms below the top edge of the back leg so that the topmost mortise has four walls to enclose the tenon of the top slat from the back rest.

Set the scribes of a mortise gauge to the thickness of the tenon and mark out the thickness of the mortises, as shown.

Use a chisel and mallet to cut out the mortises to a depth of 2 cms.

Next, mark the width of the mortise that will hold the tenon of the back rail.

Chisel out the mortise and proceed to cut out all 4 mortises on the second back leg in the same way.

Set the scribes of a mortise gauge to the distance between the top of the back leg and the mortise that will hold the top slat.

Scribe a line across the tenons of the topmost slat and saw them down to length.

Use a chisel to clean up the cheeks and shoulders.

Mark the 2 cm depth of the mortise on the tenons of the back rest slats, Saw the tenons down to height.

Clamp the two back legs together and plane them so they are levelled uniformly.

Use a spokeshave along the arc.

Use a saw to ensure that the ends of both the back legs are uniform.

Apply adhesive into the mortises of the back legs.

Do the same for the tenons of the back slats and fit them one by one into their respective mortises.

Now, place the other back leg onto the open tenons and use a mallet to fix them into position.

Clamp the joints in place and ensure that the pieces join at a right angle.

Drill a hole into the tenons of the upper back slat through the walls of the mortises, using a 6 mm bit.

Hammer square pegs into both holes.

This is done to strengthen the joint.

Do the same for the tenons of the back rail.

Saw off the protruding parts of all the square pegs.

For the remaining steps, continue watching How to Make a Chair part 2.

Watch the Video How to Make a Chair Part 2

<https://www.sikana.tv/en/diy/woodworking/how-to-make-a-chair-part-1>