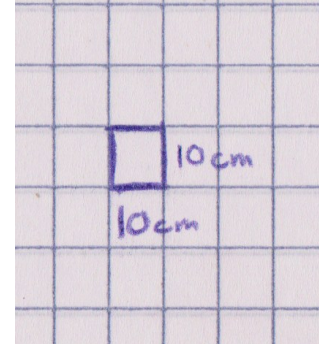


Designing and Cost Planning

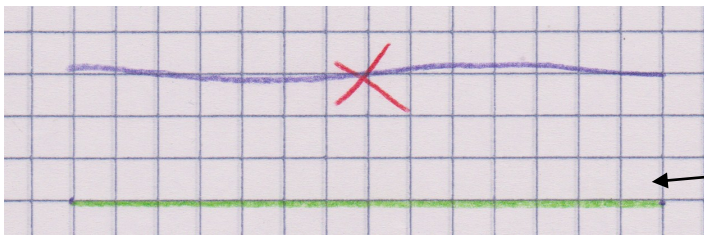
The Basics for Carpentry

Before anything can be built or priced out, a detailed design must be made. Using **graph paper**, a **ruler**, and a **pencil** to draw your designs takes time, but will make building and pricing much easier.

The **First Step** is making a scale for your graph paper. ➡

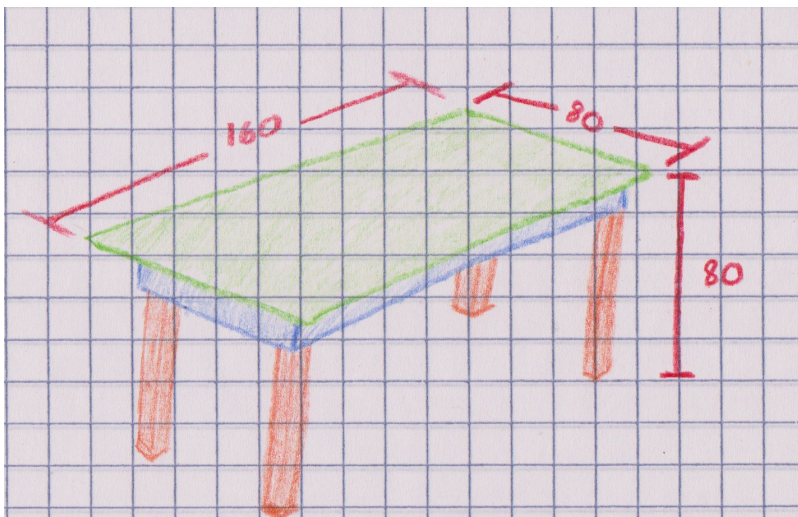
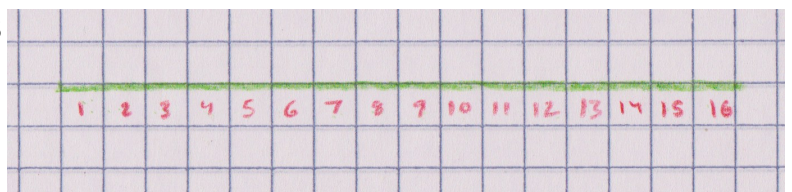


For Example: For this design, it made sense to make each box be equal to 10 centimetres.



Make Sure to use a ruler or straight edge to draw all lines!

This shows why a scale is useful. This line is 16 boxes long. Because each box equals 10cm, this line is 160cm long. This **dimension** is its length.

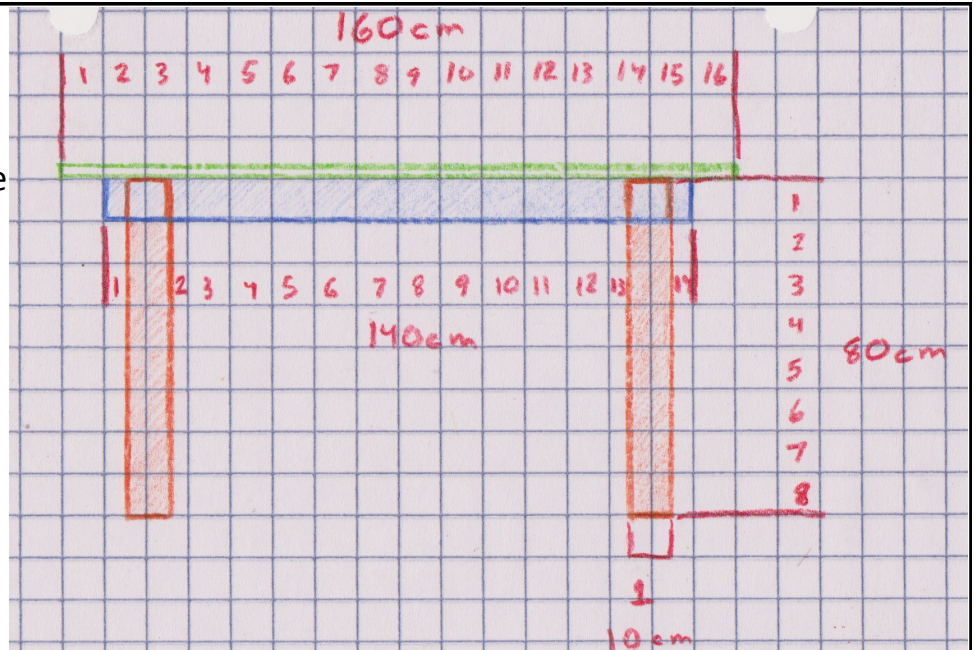


This is an example of a quick design. It is a simple drawing to show what the object being built will look like. Once it is drawn, basic dimensions can be added.

For Example: This is a table, and this is what it will look like. In **Red** is drawn basic dimensions. The table will be 160cm long, 80cm wide, and 80cm tall.

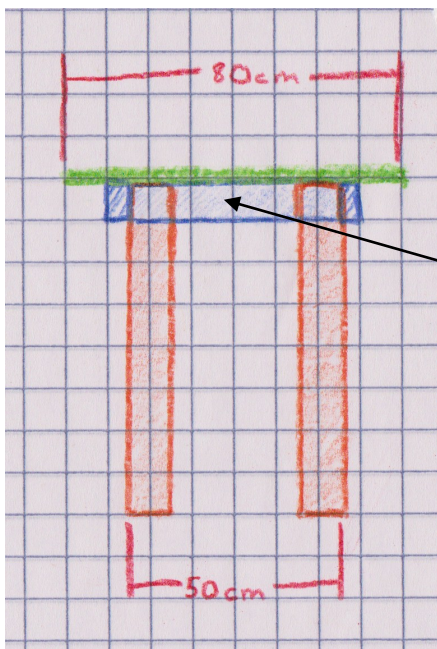
[DRAW A BASIC SKETCH WITH BASIC SIZES]

Now that a rough sketch with basic dimensions has been made, more accurate drawings from multiple views must be made. This drawing is a **SIDE** view of the table. As an example the boxes have been numbered to show how the scale works. All the pieces of the table are given dimensions. This gives every piece a size.



[DRAW OBJECT FROM THE SIDE WITH SIZES]

[DRAW OBJECT FROM OTHER SIDES WITH SIZES]

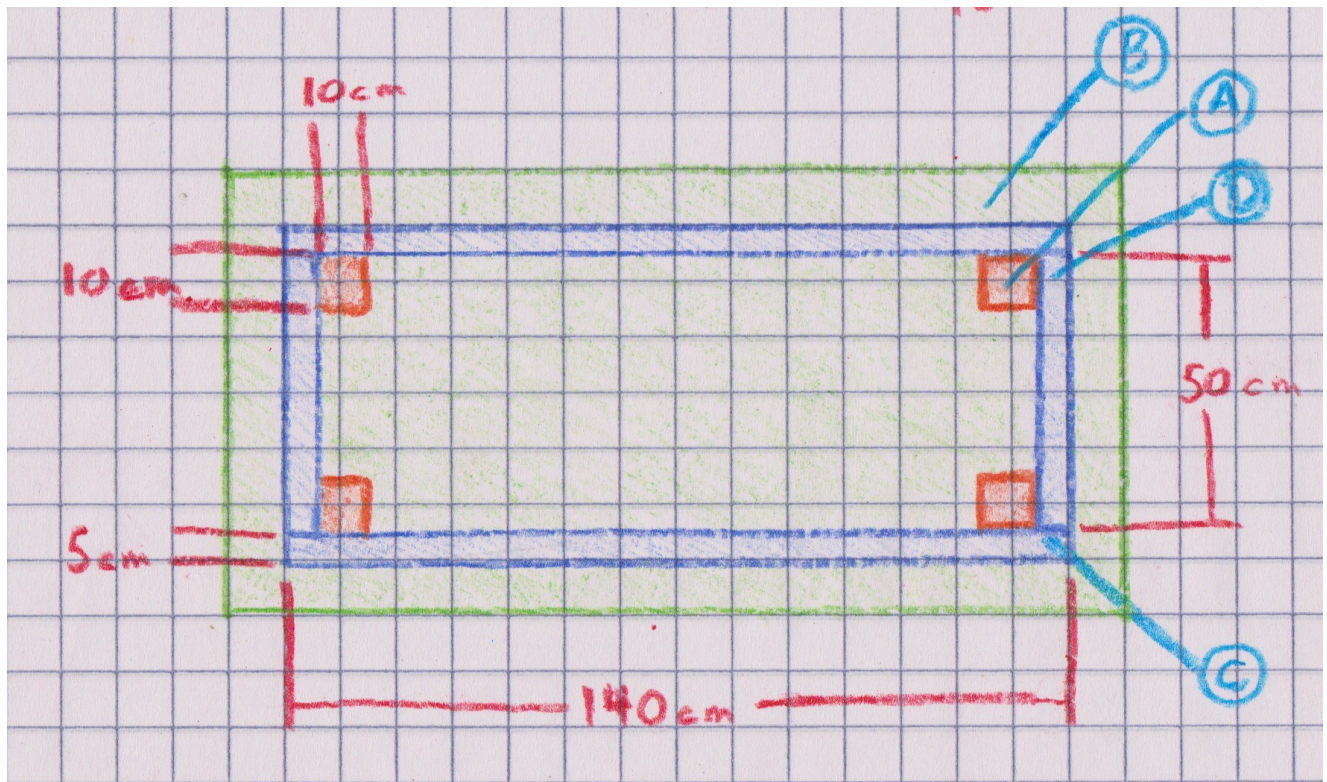


Because you cannot see every piece that will make up this table from one side, it needs to be drawn from other views. This is a **FRONT** view of the table.

THIS piece is not visible in the SIDE view. Also, the 80cm dimension is not clear in the SIDE view, but it is clear in the front view. Even this FRONT view does not cover everything, a

BOTTOM view would also be helpful to see how the legs attach.

[DRAWING MORE VIEWS AND LABELING THE PIECES OF THE OBJECT]



This is a **Bottom view** of the table. It shows how the legs fit on the table. It also gives the different pieces of the table letters. The four legs are part A, the flat board that is the top of the table is part B. Part C is the long support beam, and part D is the shorter support beam.

[HOW BIG ARE THE PIECES OF WOOD I NEED, AND HOW MANY OF THEM DO I NEED?]

4 x	A	=	10cm x 10cm x 80cm
1 x	B	=	160cm x 80cm x 2cm
2 x	C	=	140cm x 5cm x 10cm
2 x	D	=	50cm x 5cm x 10cm

Now that the pieces are labeled with letters A B C D:

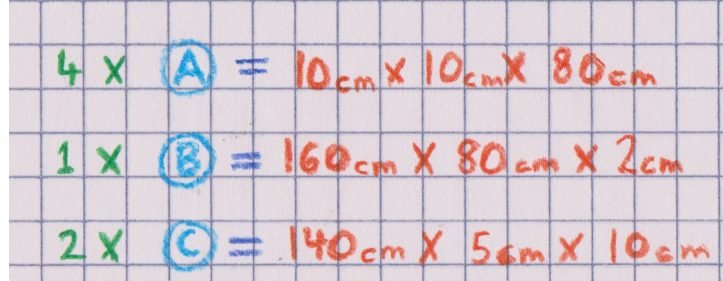
Determine **how big** those pieces are.

Then write down **how many** of each piece is needed.

Estimating Costs

The Basics for Carpentry

Now that you have estimated how much of each type of wood you will need, you must estimate how many nails, screws and other minor materials you will use.



Your ability to estimate the amounts of each of these will grow as you complete more jobs. For now, think that for each piece of wood being used, you will need at least 2 nails or 2 screws. For the table we are building, we could guess that we need 18 nails. 9 pieces of wood X 2 = 18 nails.

Item	Price	Quantity	Cost	Sample Job Cost Table: List Item, Price of item, amount needed. Use this to calculate the total cost of the materials needed. (Price X Quantity)= Cost When you add all the costs together you have the estimated total cost of your project In this case, R 780
10x10x80	R 80	4	R 380	
160x80x2	R 100	1	R 100	
140x5x10	R 50	2	R 100	
50-100mm Nail	R30	1	R 50	
300 ml Varnish	R 100	1	R 100	
Sandpaper	R 20	1	R 20	
40 ml Woodglue	R 30	1	R 30	
Total Cost:	-	-	R 780	

At first you must travel to the hardware store to figure out the prices of all these items. Keep a booklet of the costs of materials needed so that you no longer have to visit the store before being able to estimate job costs.

Payment Options

The Basics for Carpentry

The Carpenters must decide if they will charge a deposit fee. A deposit fee is typically either used to cover the cost of materials or a percentage of the total job value. If a deposit is set too low, you risk losing money if someone doesn't pay after the job is started. If it is too high, potential customers won't buy your product.

Example Deposits:

A job is worth R 1000:

A 30% deposit would be R 300

Or

The job's materials cost R 400

A cost deposit would be R 400

Cost of Job	% Profit	Profit
R 500	10	R 50
R 500	20	R 100
R 500	30	R 150
R 700	10	R 70
R 800	20	R 160

Determining how much to charge for a job is one of the most difficult pieces of this process. You can charge by

percent profit desired:

20% profit desired on a project that costs R 500 would give you R 100

Or Hourly Rate:

A job takes 4 hours with a cost of R300. A R 100 per hour would give you R 400 - R 300 giving you R 100 in profit

Profit =

Sale Price - Cost to Complete Project

If you have a low sales price, many people will want to buy from you but you will make little money each job.

If you have a high sales price, fewer people will want to buy from you but you will make more money each job. There must be a balance between these