



Design out the box

Time 60-90 mins approx

Level of difficulty ★★★★★

By the end of this tutorial you will be able to...

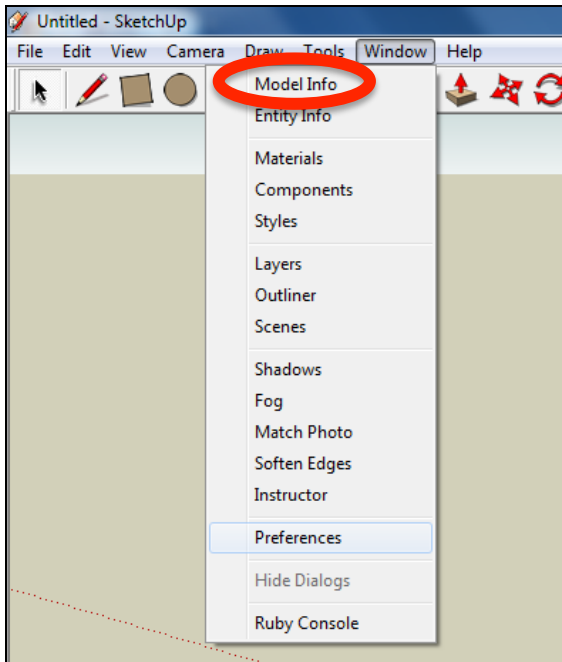
- Link basic shapes
- Use the Arc tool
- Use the Follow Me tool to produce a rounded edge
- Use construction lines/points
- Colour/render your finished storage unit

Skills to be used in this project...

Basic Skills	New and Higher Skills
Zoom tool	Construction lines and points
Orbit tool	Tape Measure tool
Pan tool	Arc tool
Line tool	Follow Me tool
Rectangle tool	Loading new toolbars
Circle tool	Paint Bucket tool
Eraser tool	
Push/Pull tool	

Basic skills are those required to do very basic drawings and are detailed as part of this presentation.

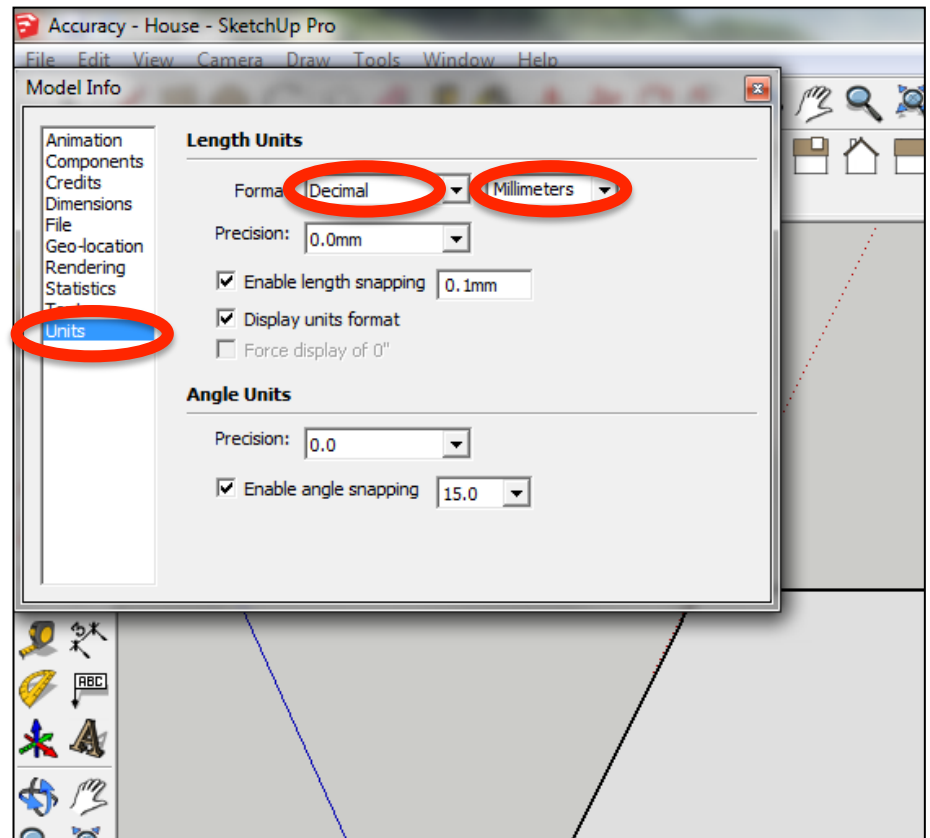
New and higher skills may be new to the novice and are the focus for learning in this presentation.



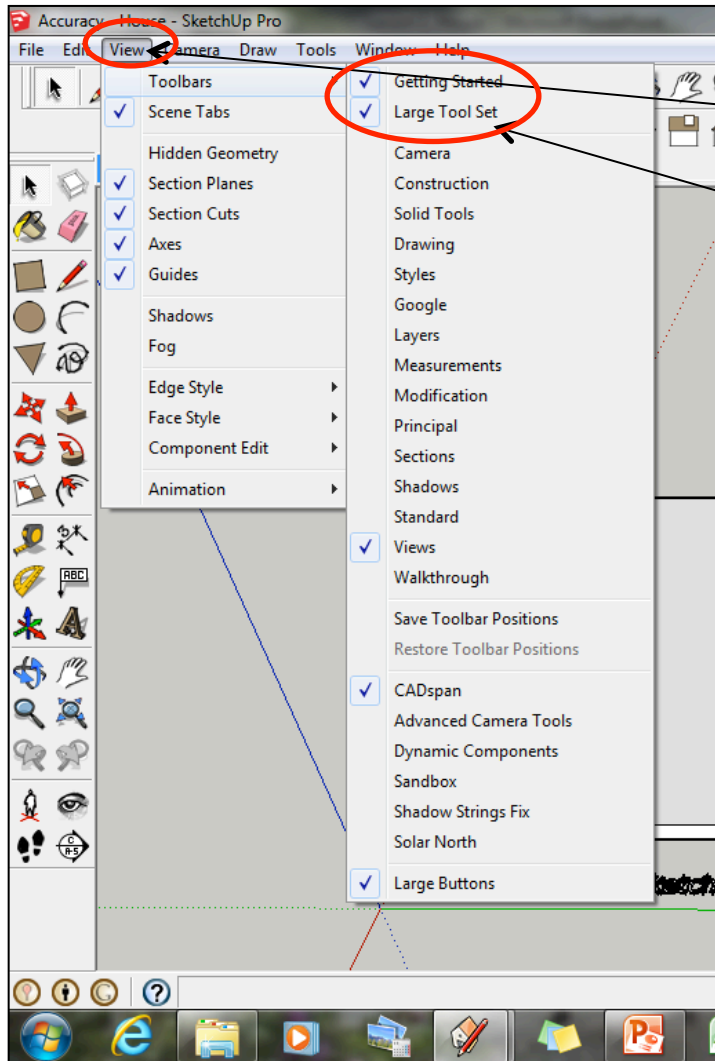
1. Open the sketch up drawing. Once you have opened SketchUp, go to **Window** and select **Model Info**

2. Select **Units** and choose **Decimal Millimetres**. We are using this template because we are doing a product design.

Note: It is often necessary to start a new file to use the new template. Go to **File** then **New**.



3. Now select the **View** then **toolbars** and ensure **Getting Started** and **Large Tool Set** are ticked

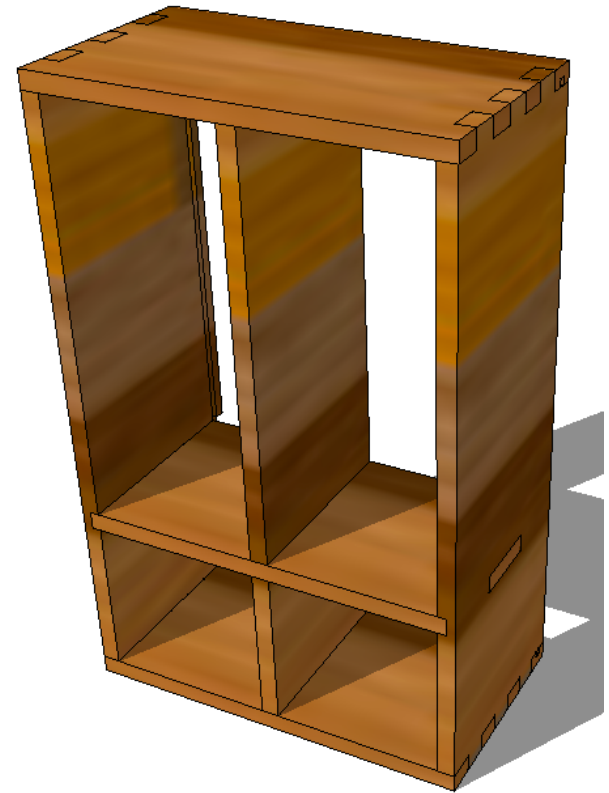
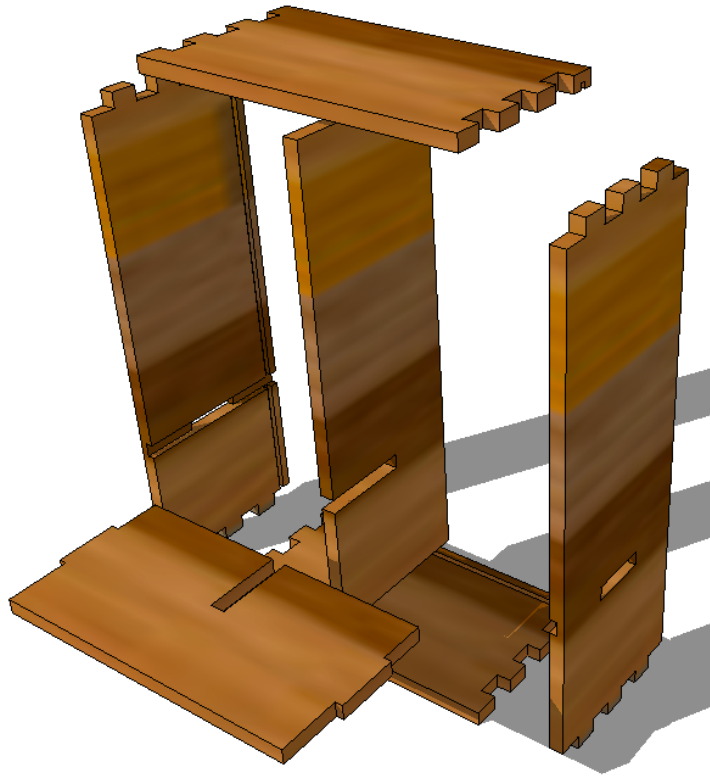


3a Select **View**

3b Tick Getting Started

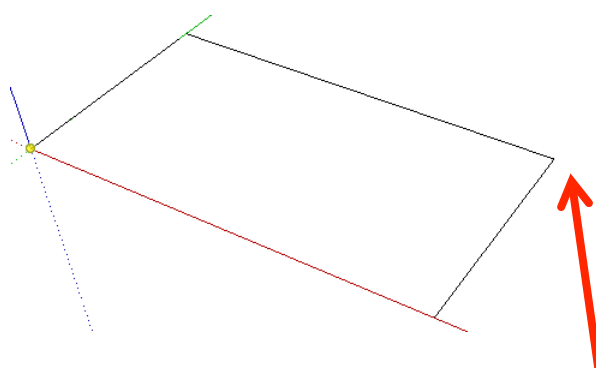
3c Tick Large Tool Set

Note: this will place a tool bar across the top (**getting started**) and the side (**Large Tool Set**)

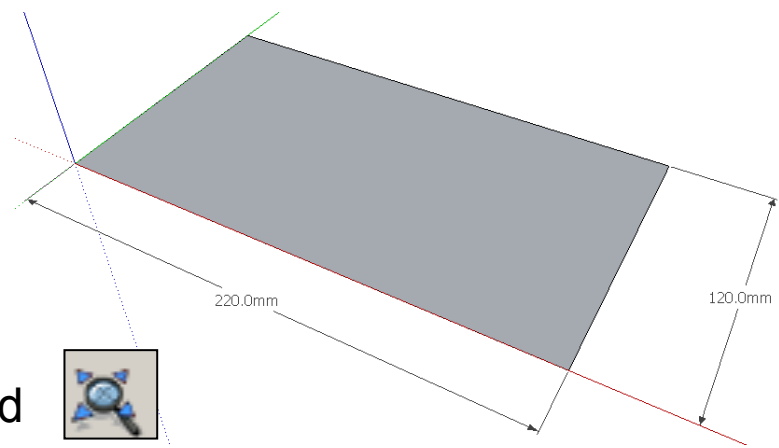
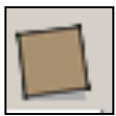


CAD Tutorial 20: Storage Unit

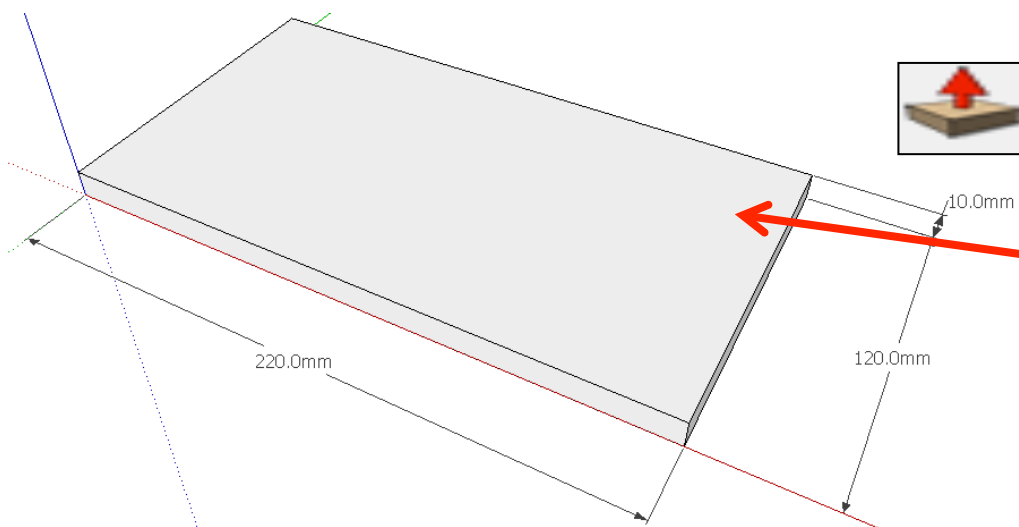
Carcass Construction



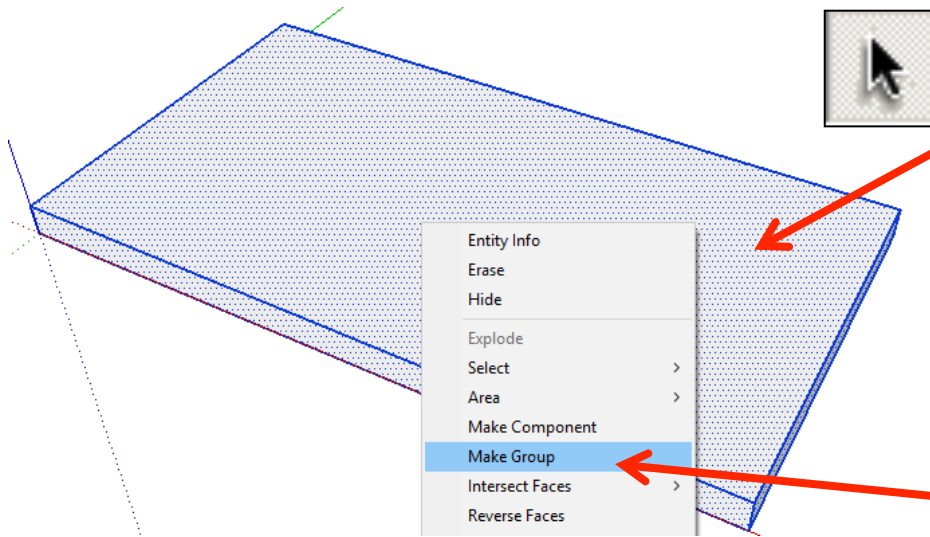
4. Select the **Rectangle tool** and draw a rectangle on the base by clicking and **dragging the cursor diagonally**.



5. Once you have drawn the rectangle, enter '**220,70**' and then press **Enter**. Click on the **zoom extents symbol**.

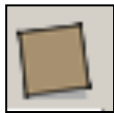


6. Use the **push pull tool** to raise the shape up. Type in **10 and press enter**.

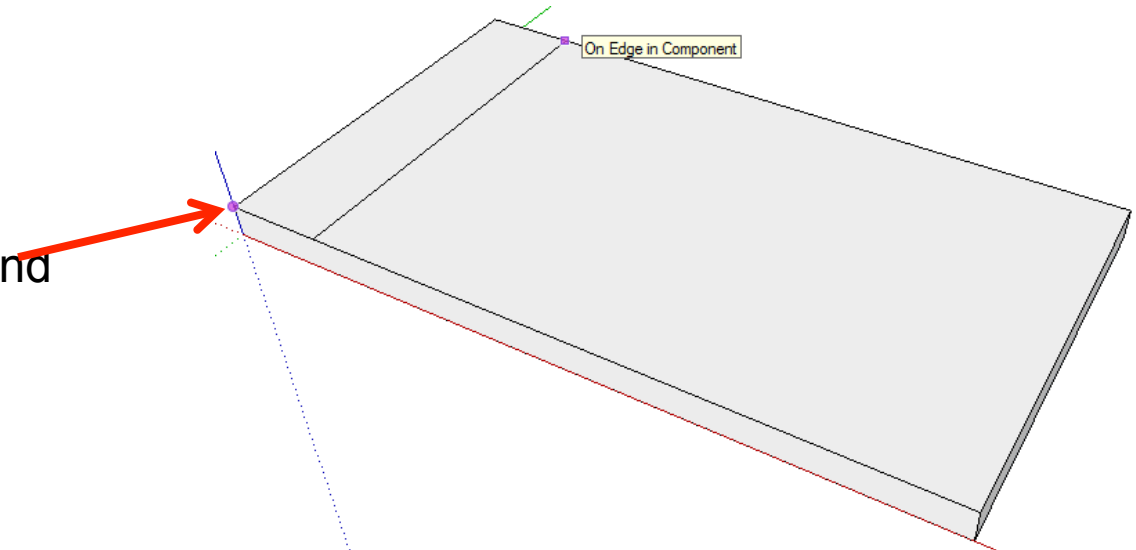


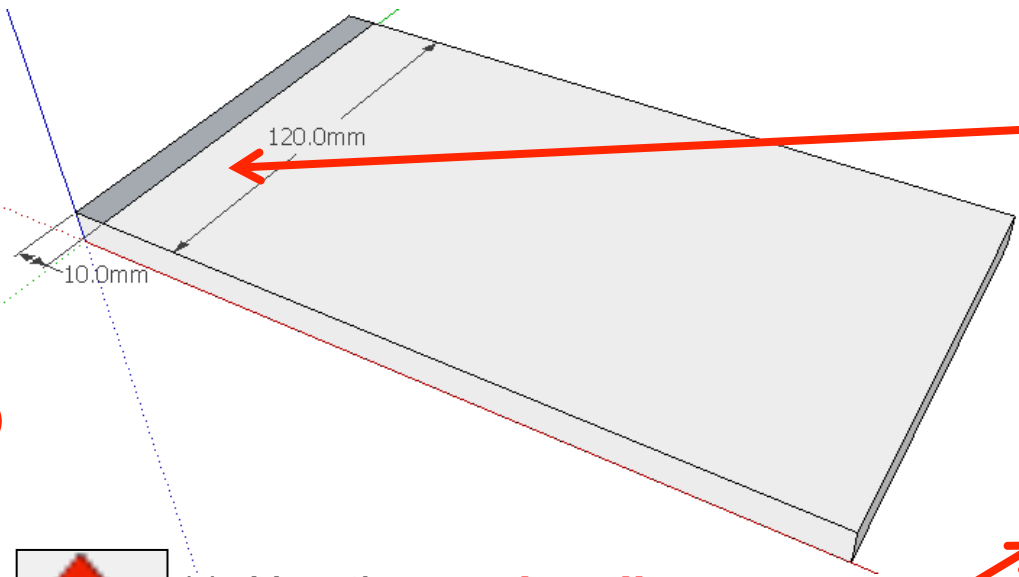
7. Use the **select tool** and keep clicking on the tank until it is all selected and highlighted in blue.

8. **Right click** on the mouse to produce the menu shown above and **click** on **make group**



9. **Click** on the **rectangle tool**. **Click** on the **corner shown** and pull it diagonally back to the far edge in the component.

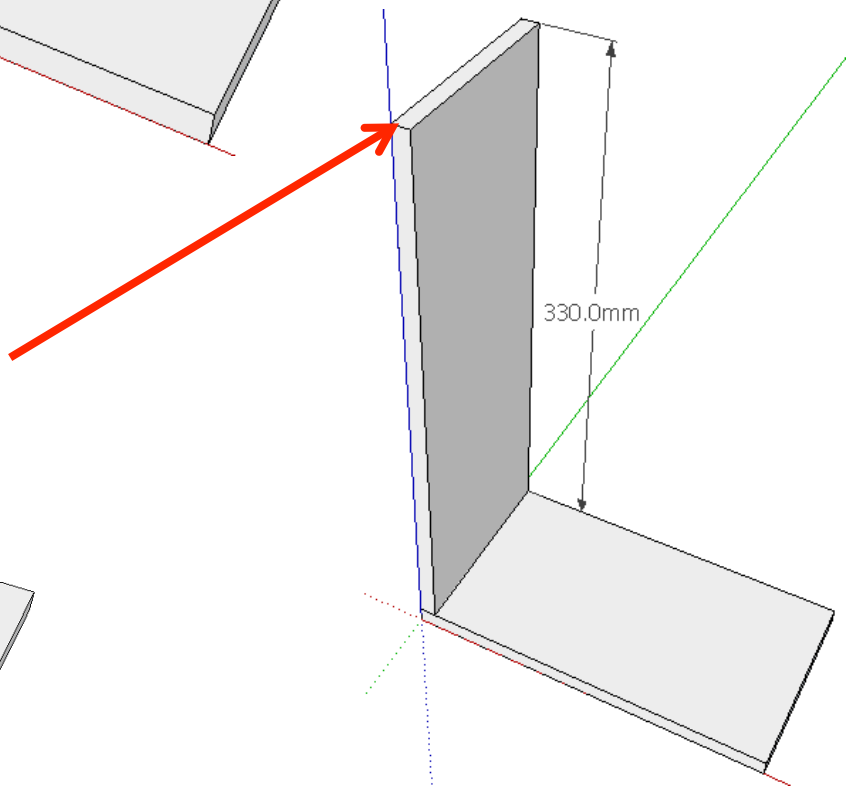
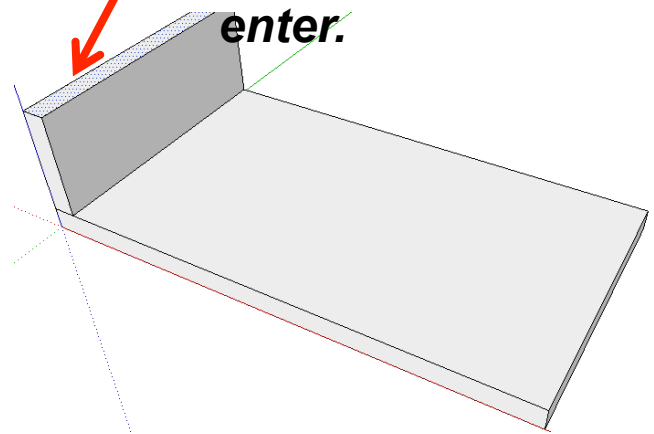




10. Once you have drawn the rectangle, enter **'10,120'**

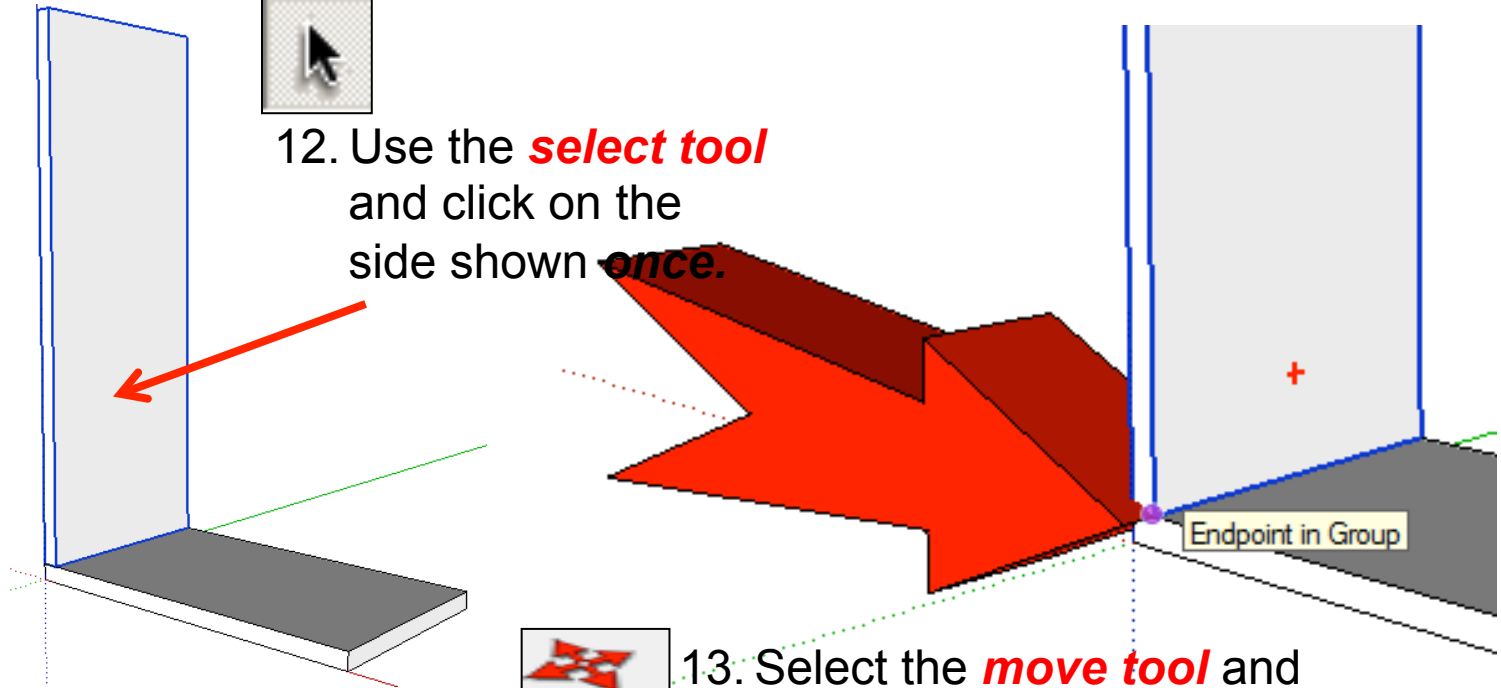


11. Use the **push pull tool** to raise the shape up. Type in **330** and press **enter**.

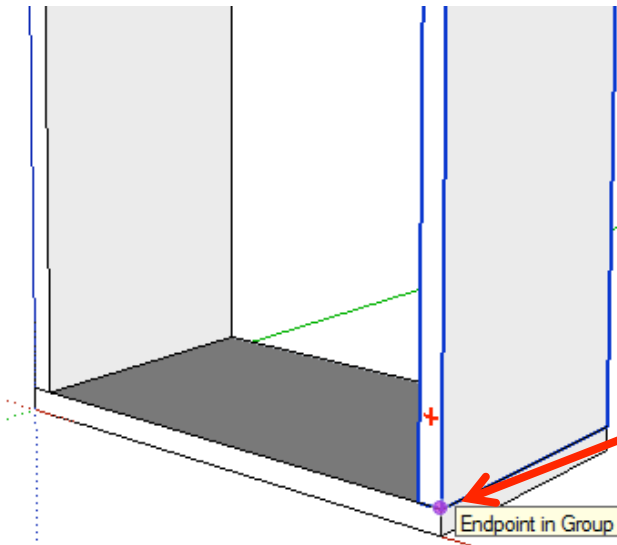




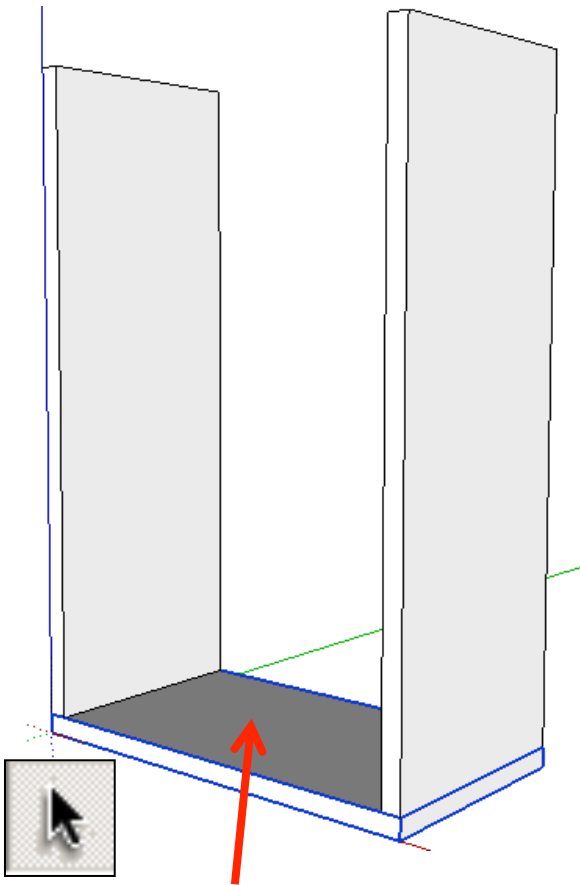
12. Use the ***select tool*** and click on the side shown ***once***.



13. Select the ***move tool*** and click on the middle endpoint shown.



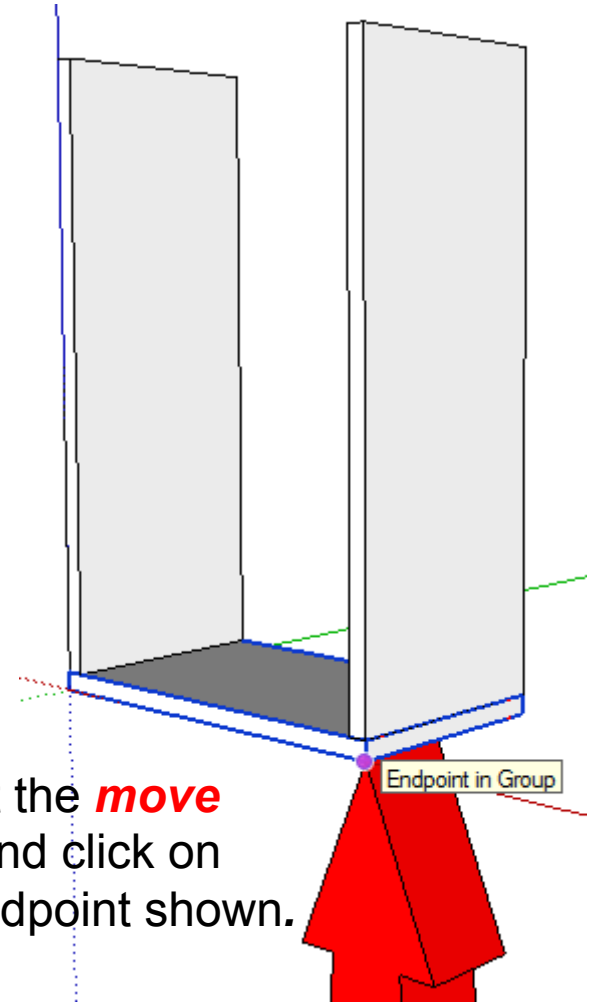
14. Press the ***Ctrl button*** (copy) found on the bottom left hand side of the keyboard once. Then move the copied shape so it ***touches the endpoint shown***.

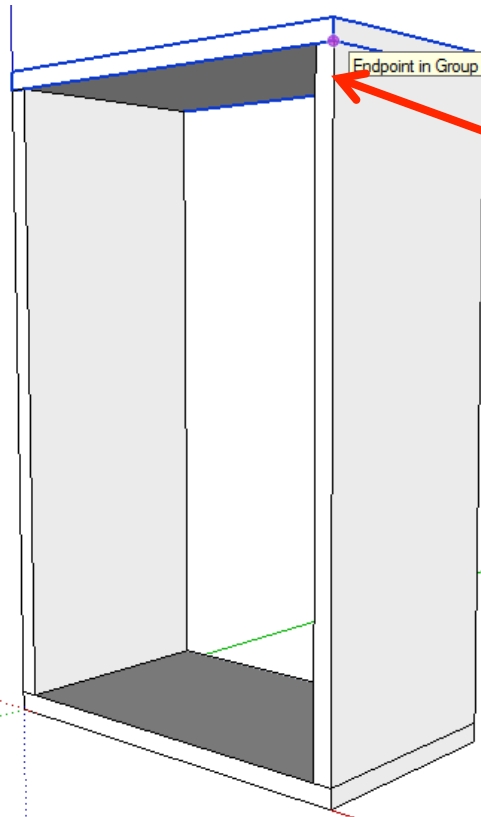


15. Use the **select tool** and click on the base shown **once**.



16. Select the **move tool** and click on the endpoint shown.

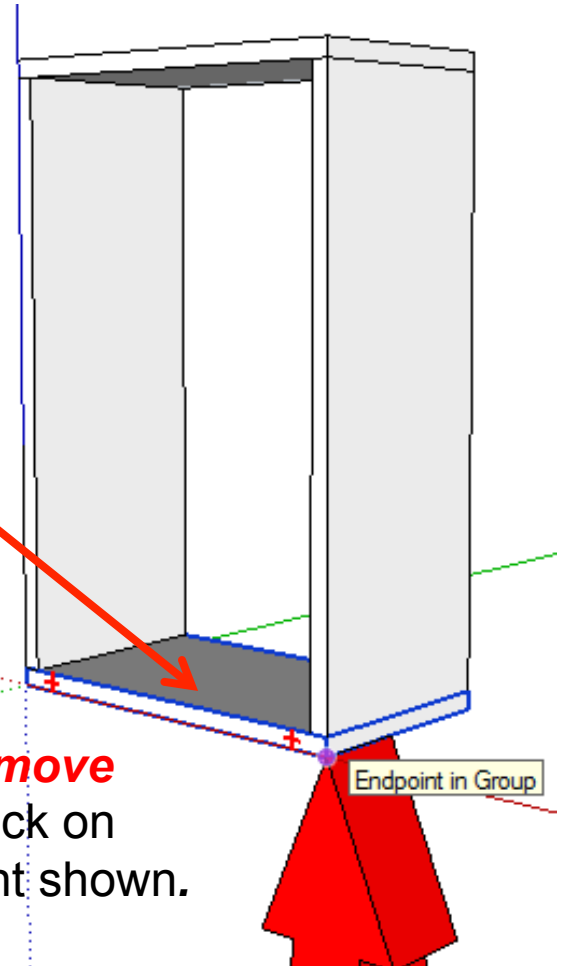




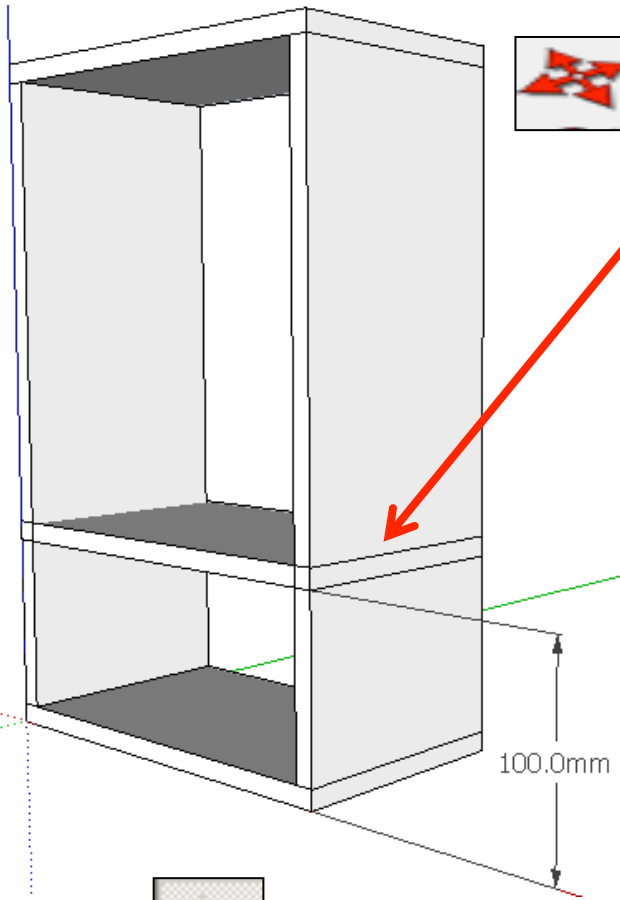
17. Press the **Ctrl button** (copy) found on the bottom left hand side of the keyboard once. Then move the copied shape so it **touches the endpoint shown**.



18. Use the **select tool** and click on the base shown **once**.



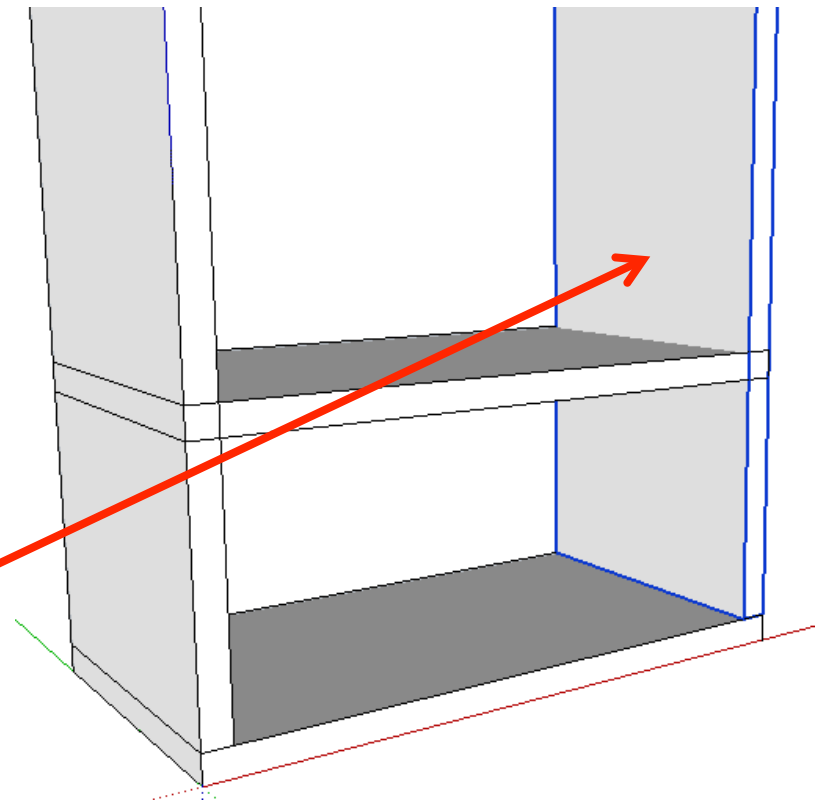
19. Select the **move tool** and click on the endpoint shown.

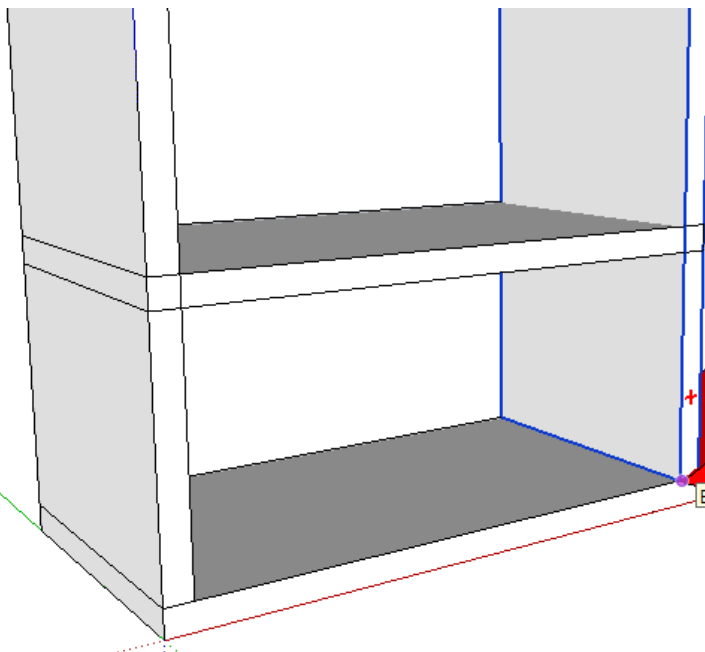


20. Press the **Ctrl button** (copy) found on the bottom left hand side of the keyboard once. Then move the copied shape. **Type in 100 and press enter** to raise the shape up 10mm



21. Use the **select tool** and click on the side shown **once**.

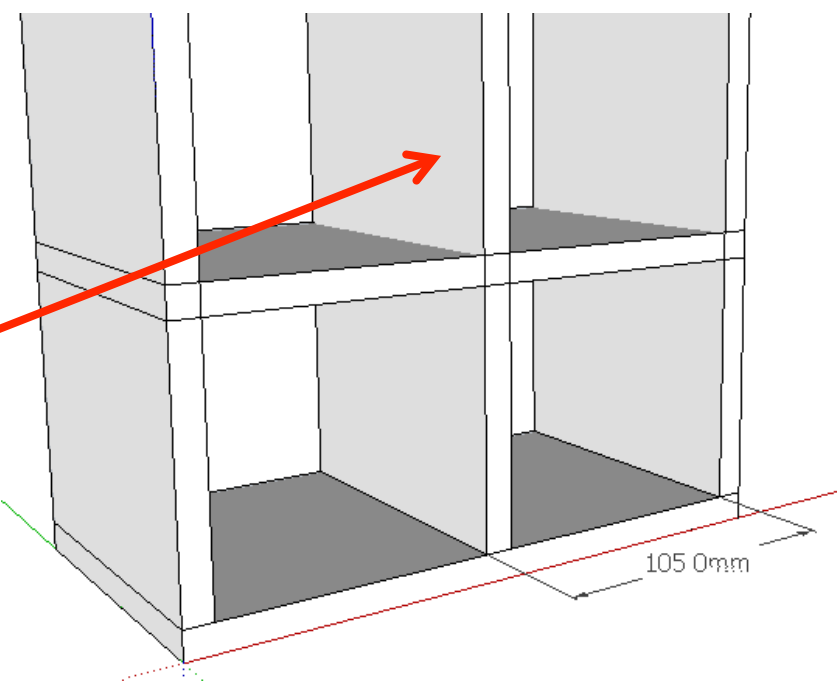


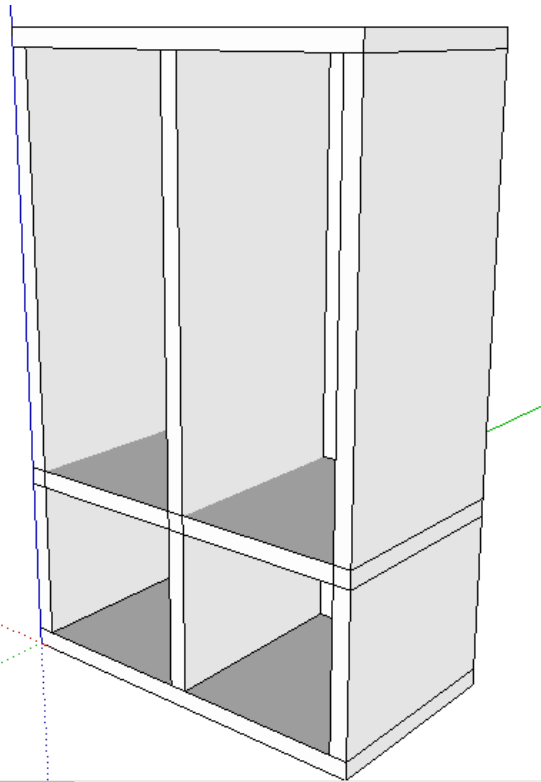


22. Select the **move tool** and click on the middle endpoint shown.



23. Press the **Ctrl button** (copy) found on the bottom left hand side of the keyboard once. Then move the copied shape along. **Type in 105 and press enter.**

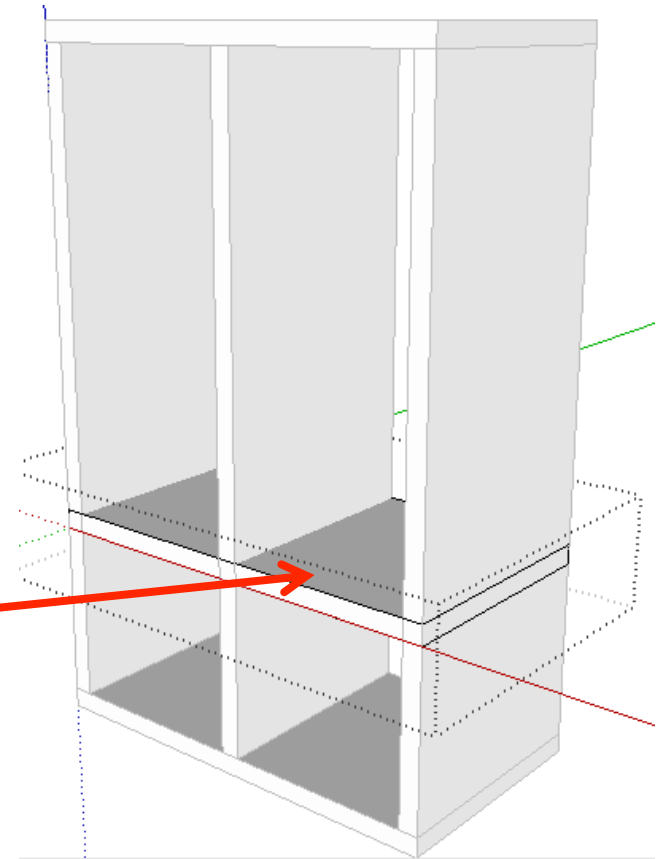


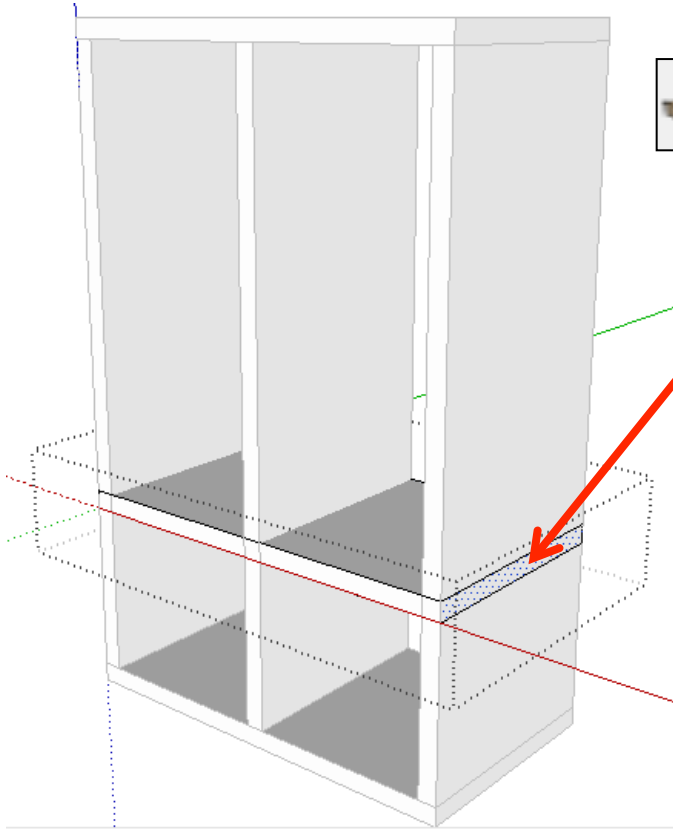


24. You should now have the outside carcass (box) and two dividing pieces.

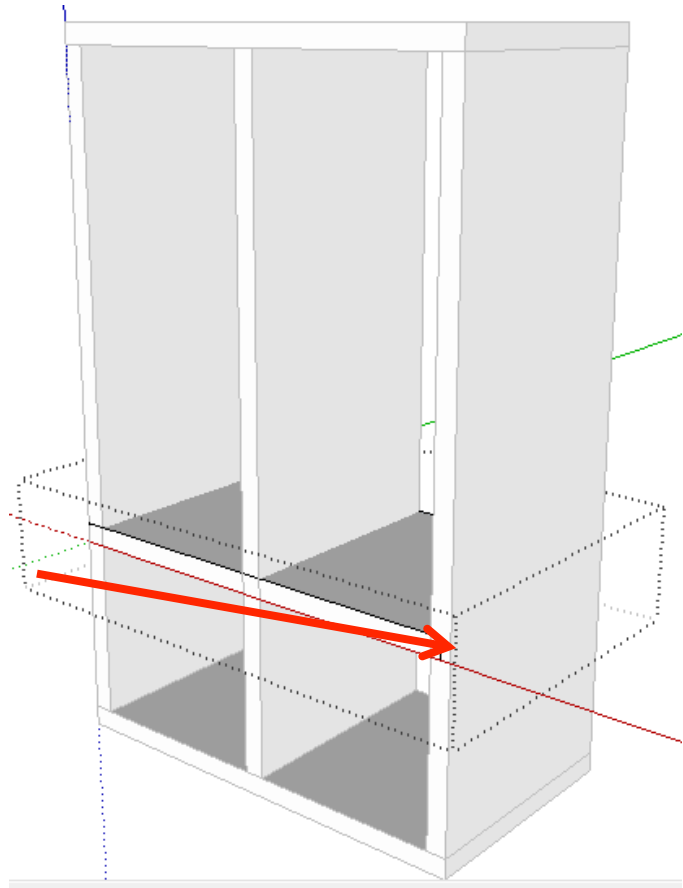


25. Use the ***select tool*** and click on the middle shelf shown ***twice to edit***. Everything else should be greyed out.

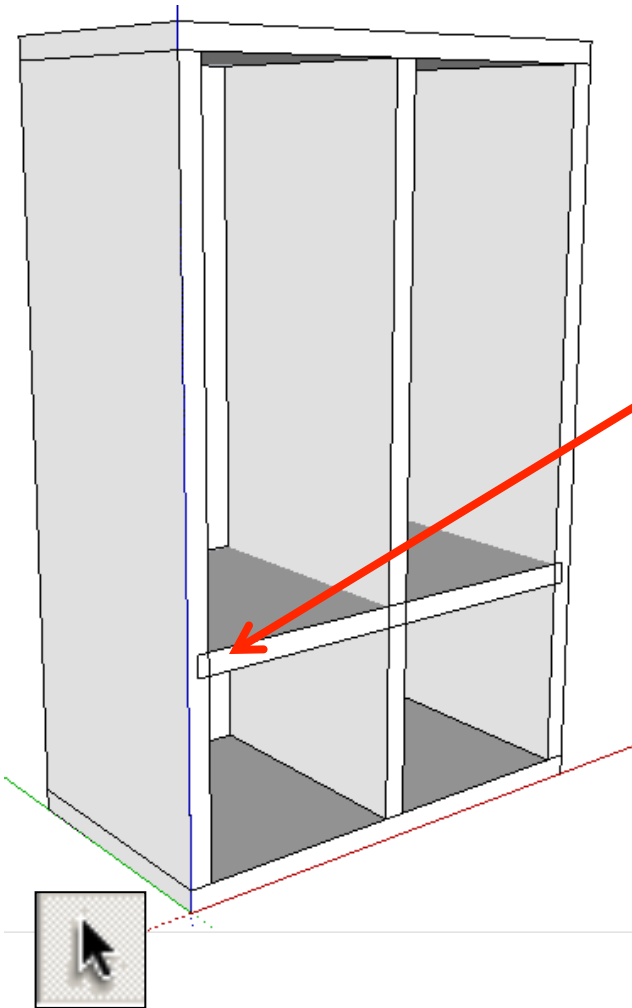




26. Use the push pull tool. **Hover over the edge shown.** It will indicate you are over it by going dotted.



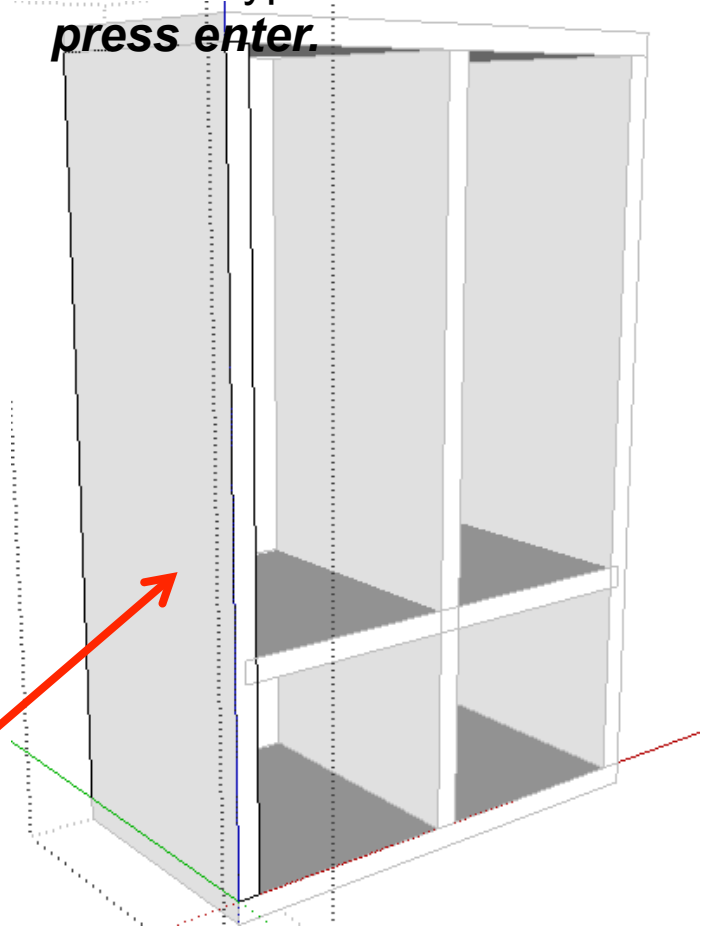
27. Using the **push pull tool** push the shape in. Type in **5** and press enter.



29. Use the ***select tool*** and click on the side piece shown ***twice to edit***. Everything else should be greyed out.

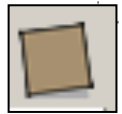


28. Use the orbit tool to move to the other side of the unit. Using the ***push pull tool*** push the opposite side in. Type in ***5 and press enter***.

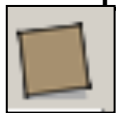




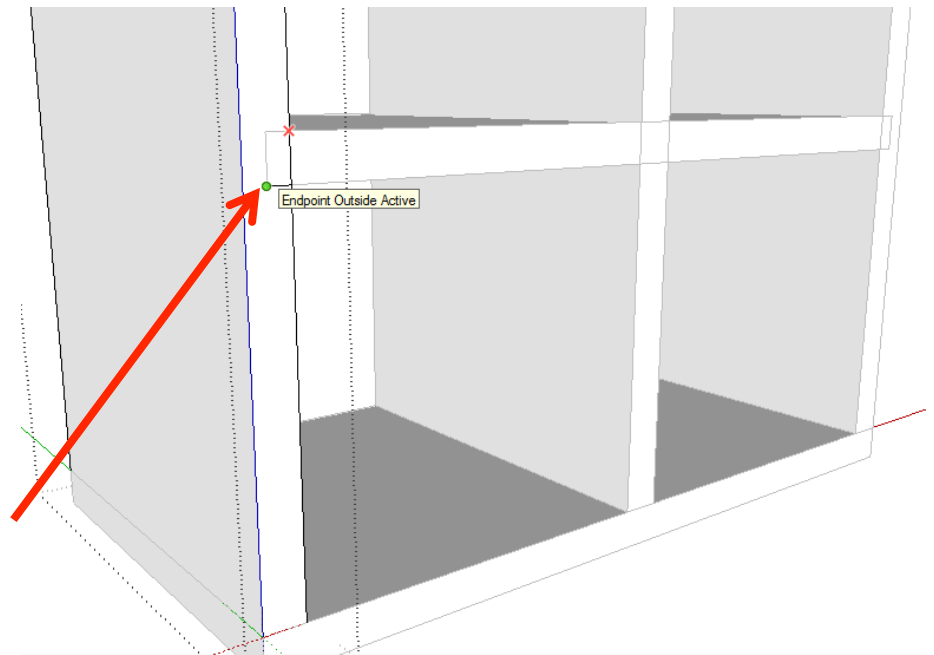
30. Use the zoom tool to move to zoom in closer on the shelf.

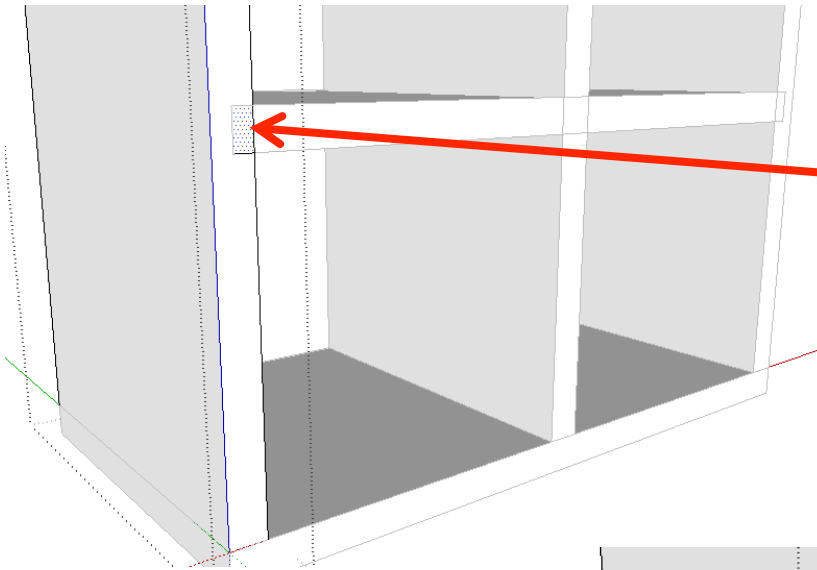


31. Use the **rectangle tool** to draw a square starting from the top right corner shown.



32. Using the **rectangle tool** to drag the square diagonally down to finish in the bottom left hand corner shown.

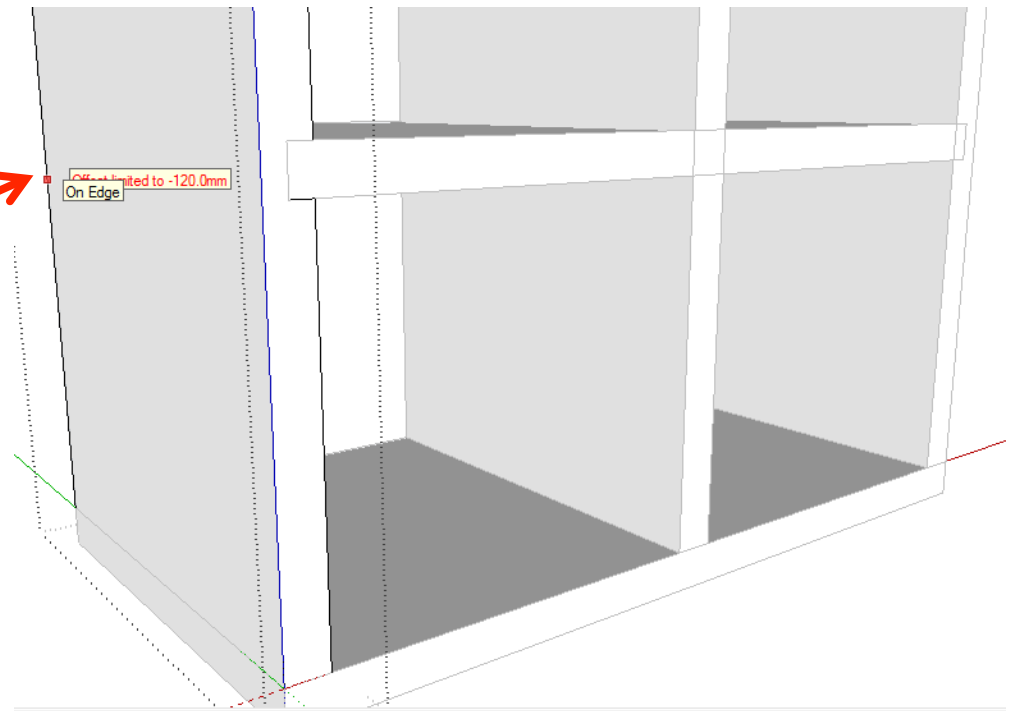


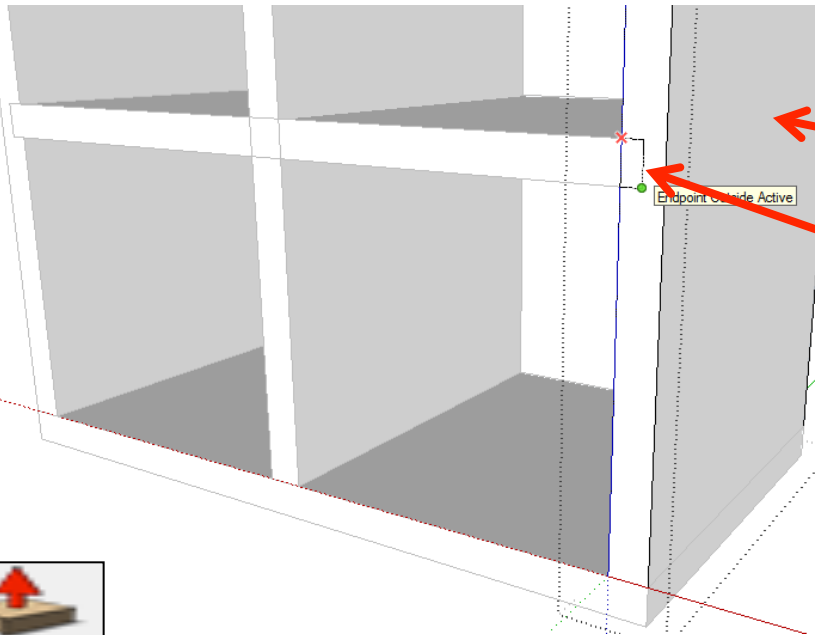


33. Using the **push pull tool** hover over the square you have just drawn. It will go dotted to indicate you are over it.



34. Using the **push pull tool** push the square back until you touch the back edge. Or type in **120** and press enter.





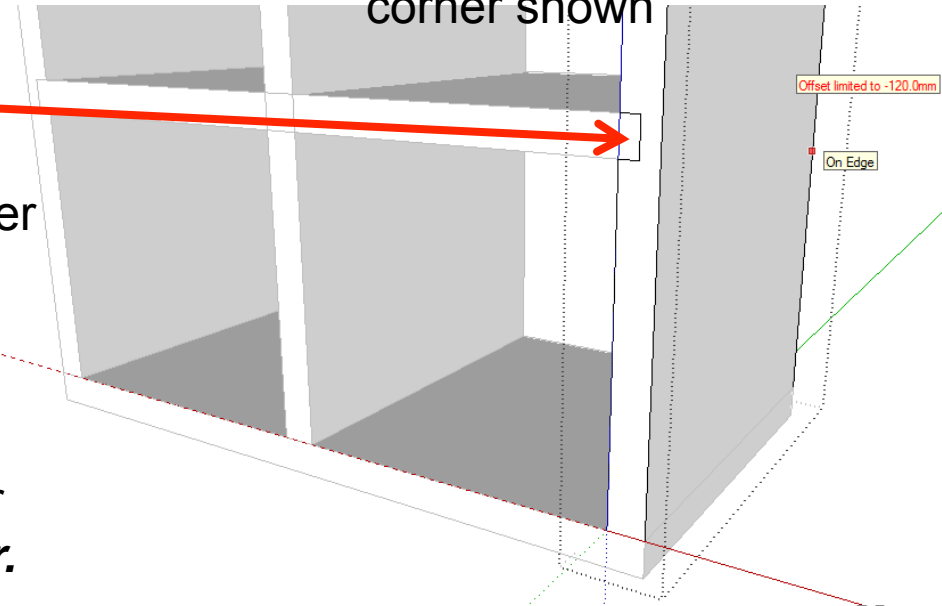
35. Use the **select tool** and click on the side piece shown **twice to edit**. Everything else should be greyed out.



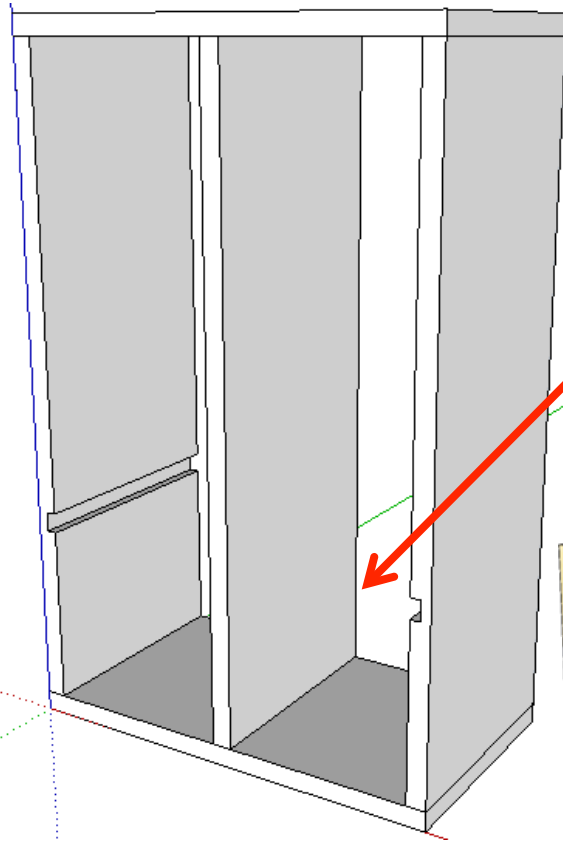
36. Use the **rectangle tool** to draw a square starting from the top left corner shown. Drag the square diagonally down to finish in the bottom right hand corner shown



37. Using the **push pull tool** hover over the square you have just drawn. It will go dotted to indicate you are over

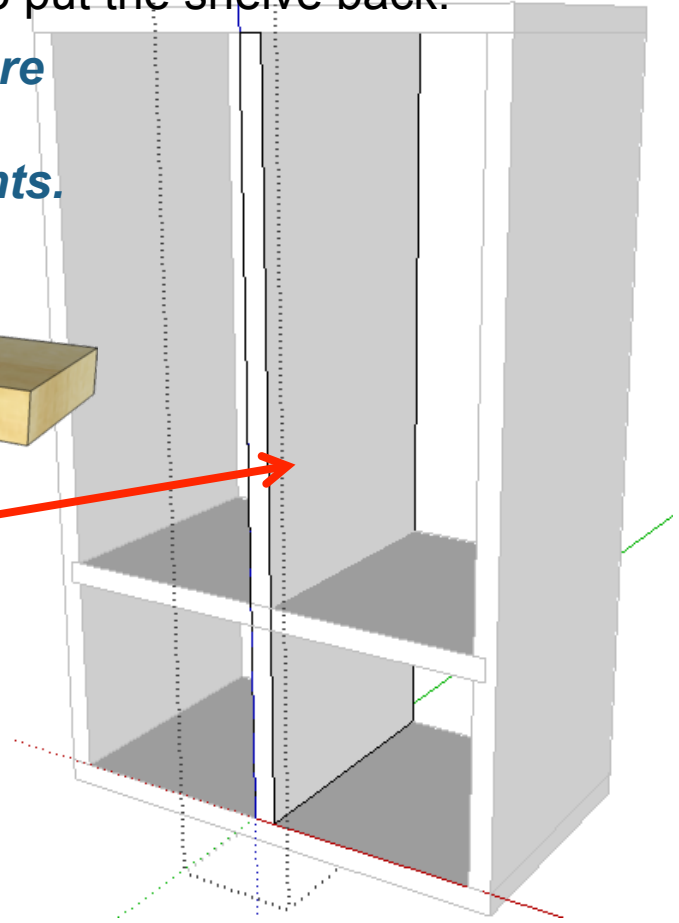
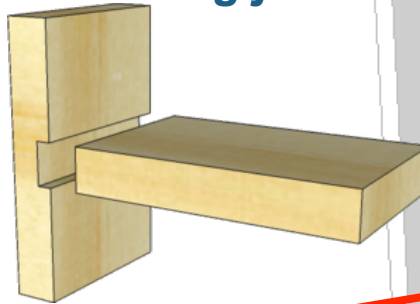


38. Using the **push pull tool** push the square back until you touch the back edge. Or type in **120 and press enter**.

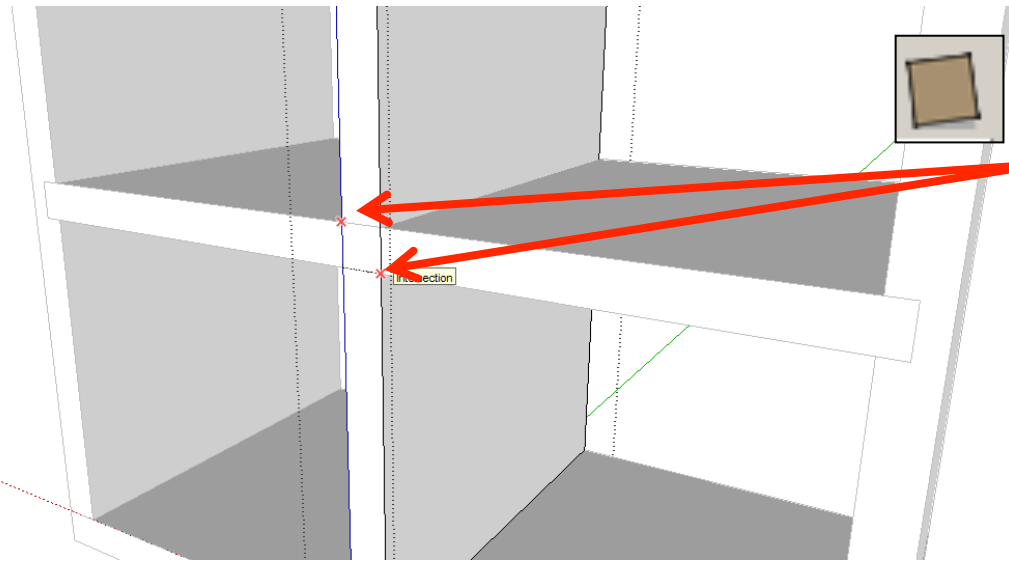


NB. These are known as housing joints.

39. Use the **select tool** and click on the shelf piece shown **once**. Right click and **press hide**. You should have drawn slots in for the shelf to sit in as shown. Click on **edit and unhide all** to put the shelf back.



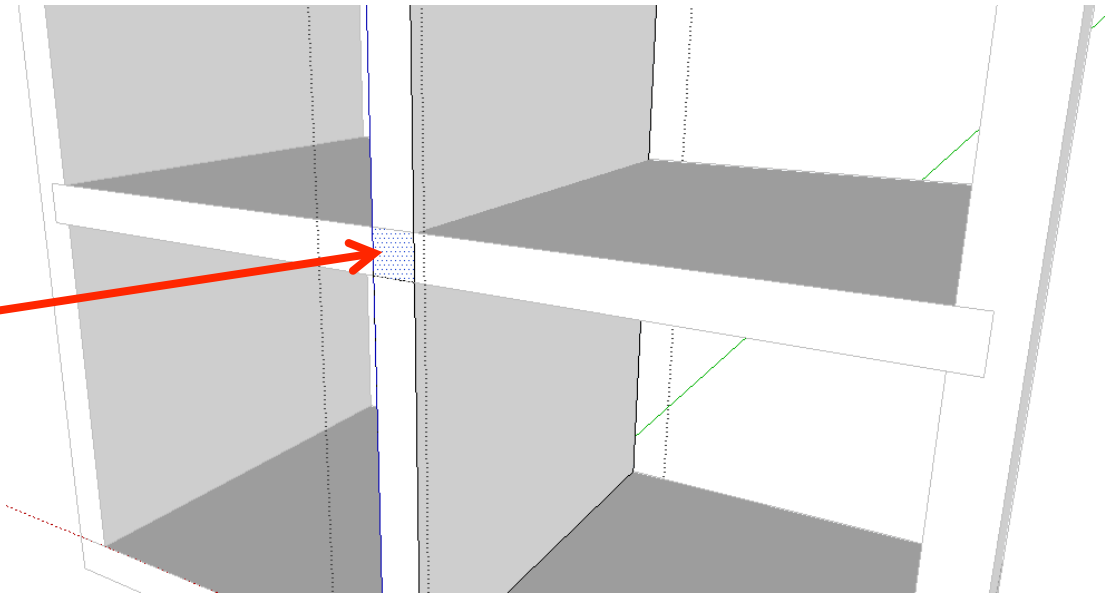
40. Use the **select tool** and click on the middle piece shown **twice to edit**. Everything else should be greyed out.

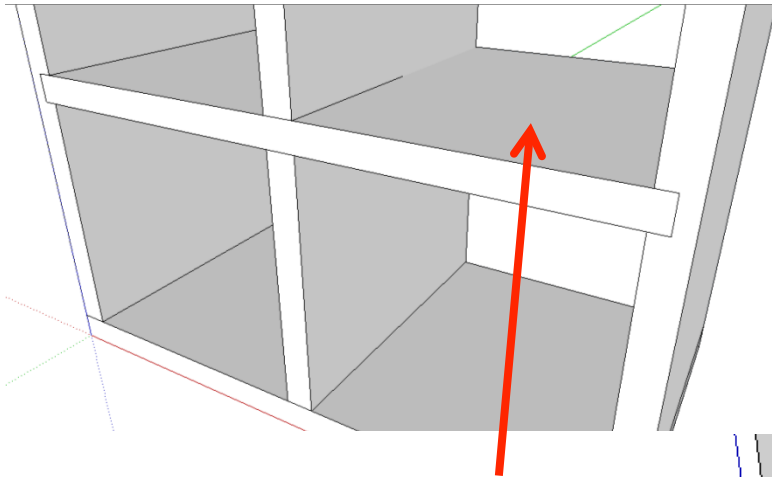


41. Use the **rectangle tool** to draw a square starting from the top left corner shown. Drag the square diagonally down to finish in the bottom right hand corner shown

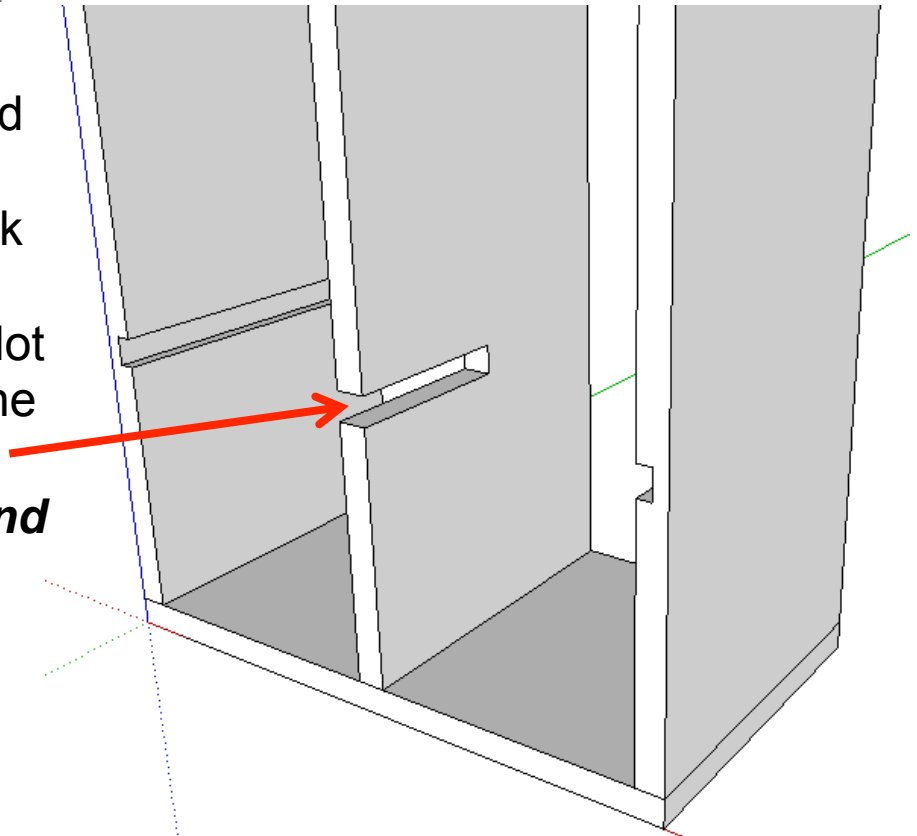


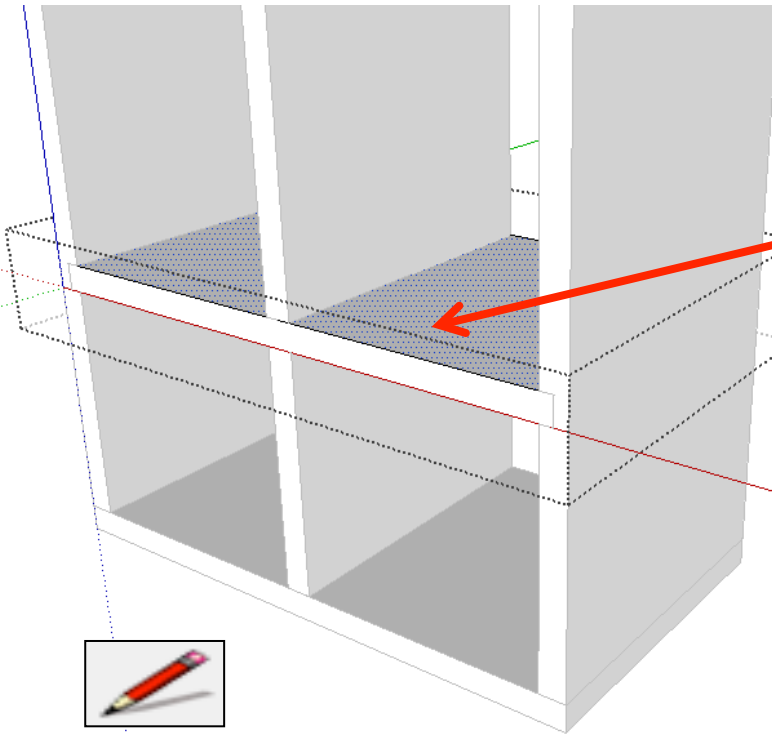
42. Using the **push pull tool** push the square back. Type in **60** and **press enter**.





43. Use the ***select tool*** and click on the shelf piece shown ***once***. Right click and ***press hide***. You should have drawn a slot in the middle now for the shelf slide into as shown. Click on ***edit and unhide all*** to put the shelves back.

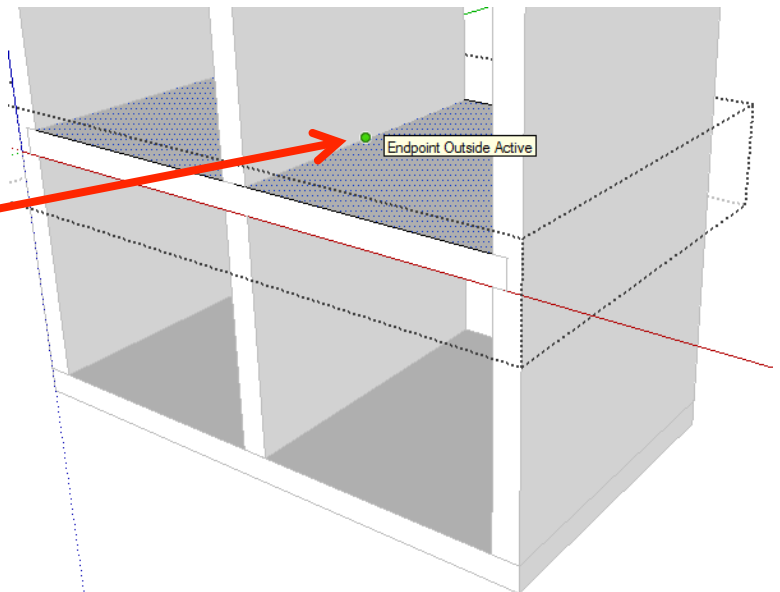


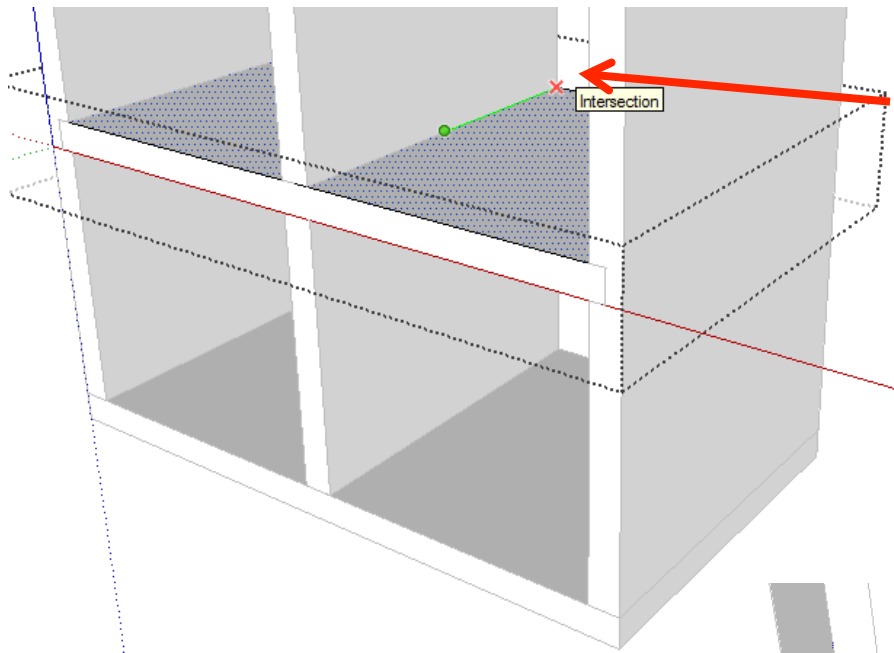


44. Use the ***select tool*** and click on the middle piece shown ***twice to edit***. Everything else should be greyed out.



45. Using the ***pencil tool*** move it along the edge where the shelf meets the middle diving piece until it snaps to the ***endpoint outside active***. Click to start drawing a line from here.

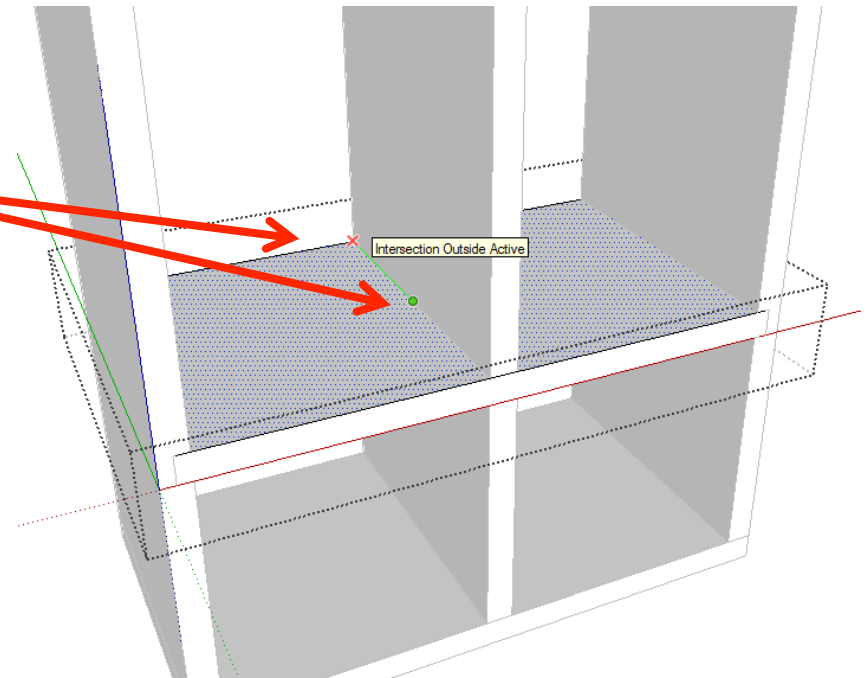


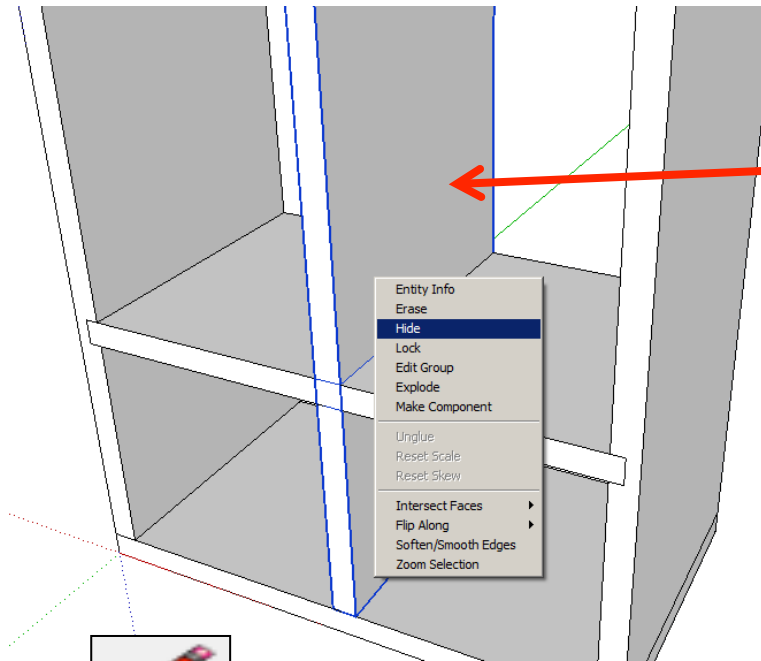


46. Using the **pencil tool** draw a line to the end of the shelf, it will say **intersection**.



47. Orbit to the other side of the unit. Repeat steps 45 and 46 as shown.

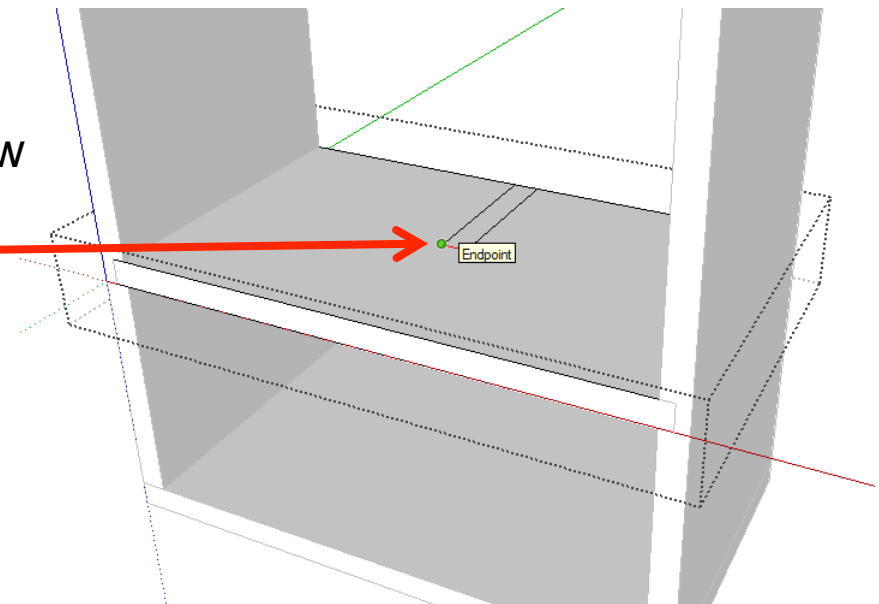


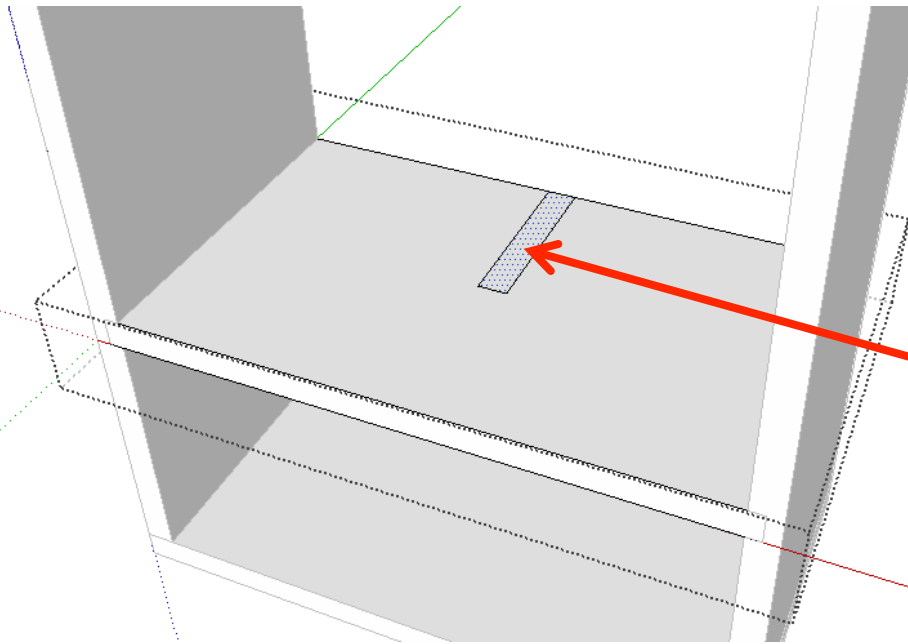


48. Use the ***select tool*** and click on the middle piece shown ***once***. Right click and ***press hide***.

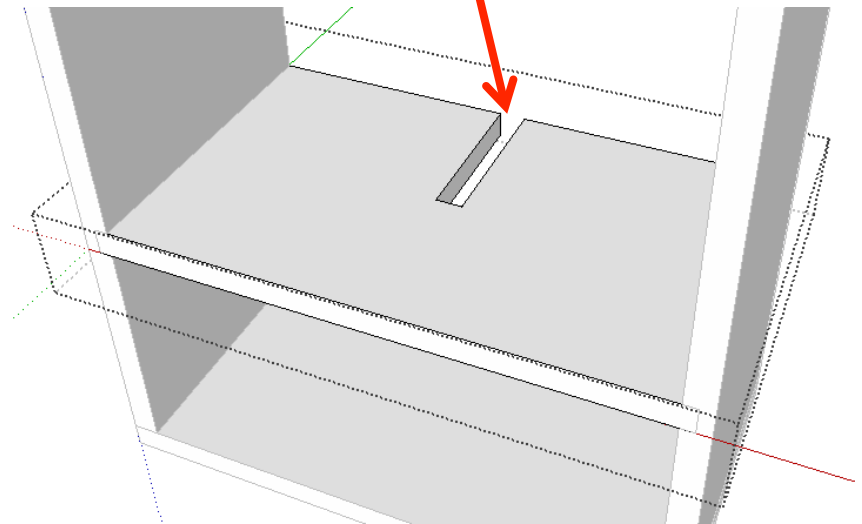


49. Using the ***pencil tool*** draw a line across the two endpoints to join them together.



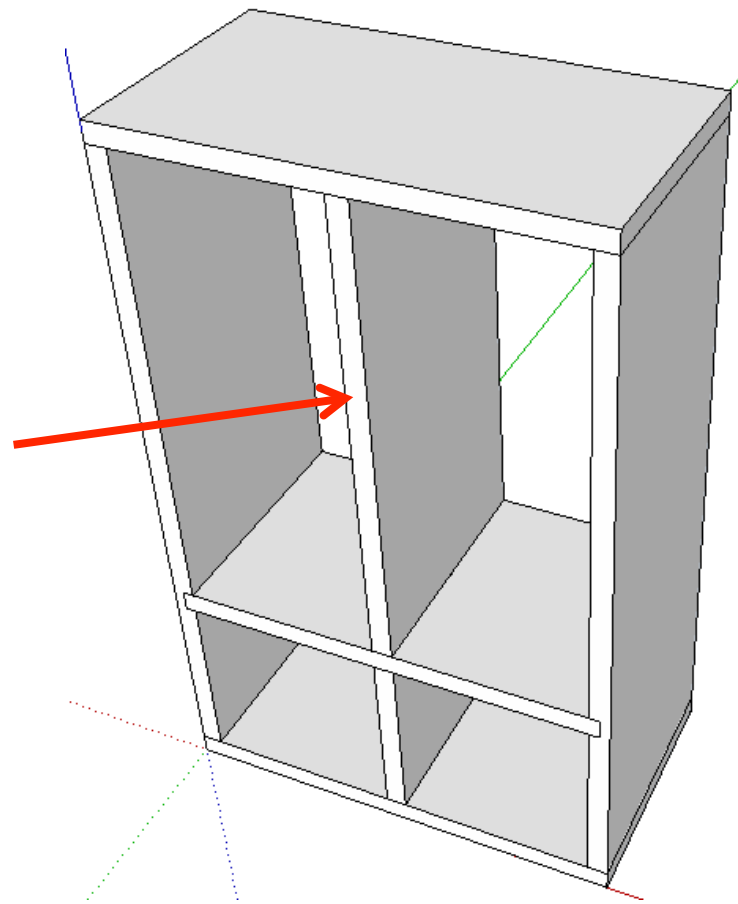


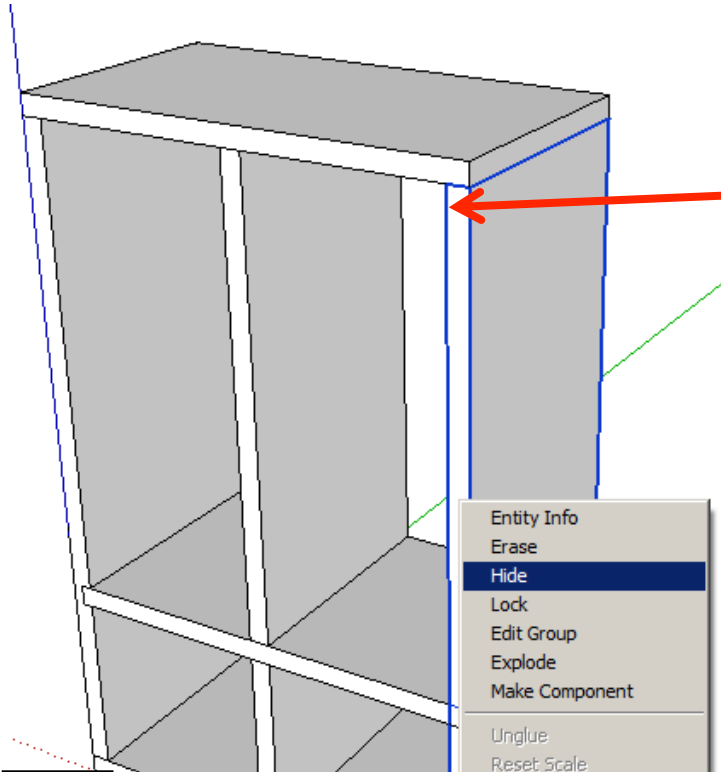
50. Using the **push pull tool** push the piece down. Type in **10** and press **enter**.





51. Click on **edit and unhide all** to put the centre dividing piece back in place.

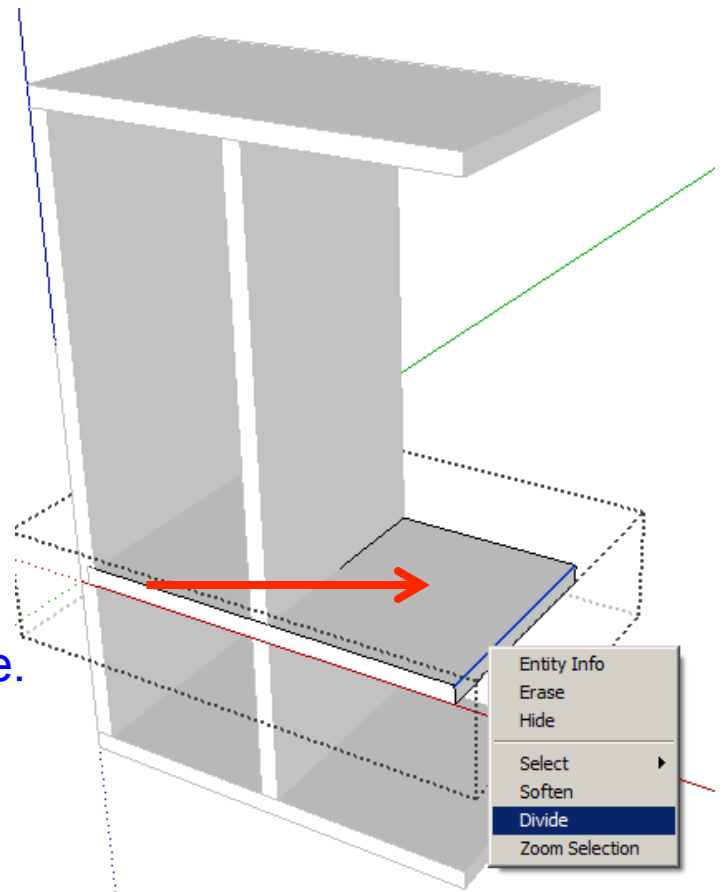




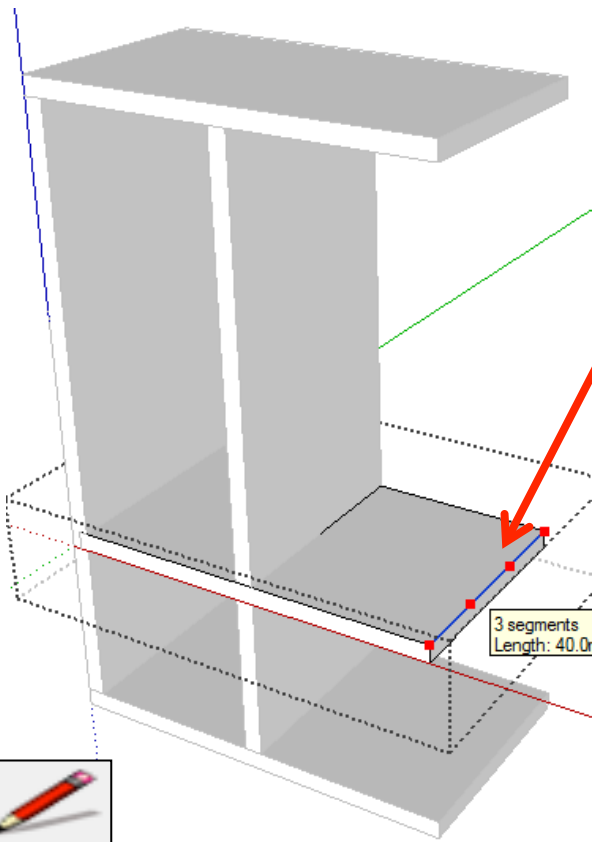
52. Use the **select tool** and click on the middle piece shown **once**. Right click and **press hide**.



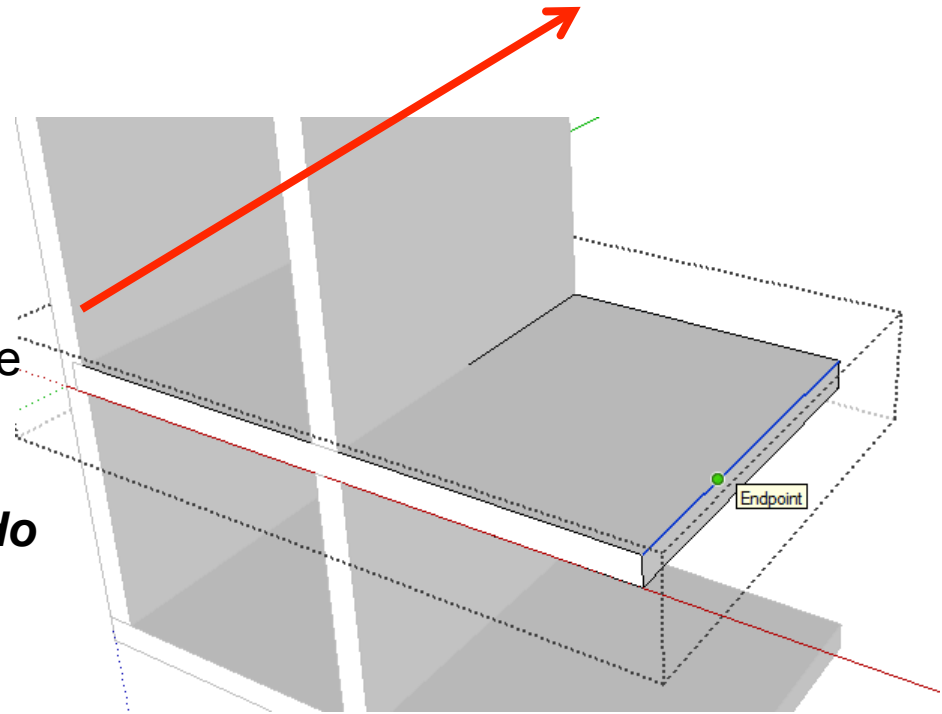
53. Using the **select tool**, **double click** on the piece shown to edit it. All the other pieces should be greyed out. Then click on the edge shown to highlight it in **blue**.



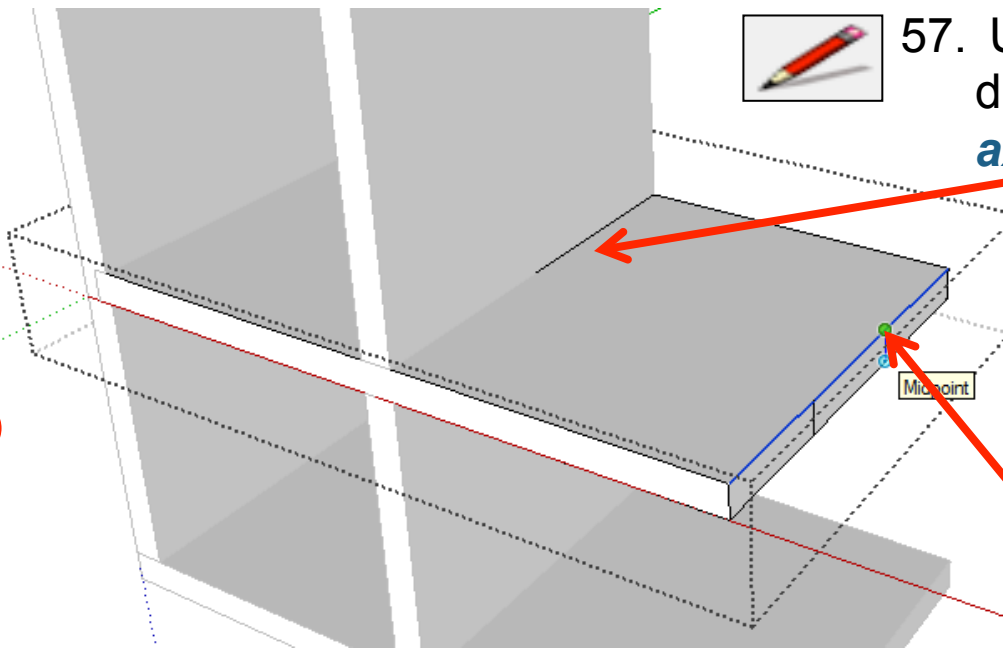
54. Whilst on the selected **blue** line, **right click** with the mouse and select **divide**.



55. Using the **mouse**, you can move it up and down the **blue** line to divide it into segments or you can type **3 and press enter**.



56. Using the **pencil tool**, move your pencil along the blue line until it snaps to an **endpoint**. Make your you **do not click** on a midpoint otherwise you will have 6 lines instead of 3.



57. Using the **pencil tool**, draw a line down the **blue axis** to the other **edge**.

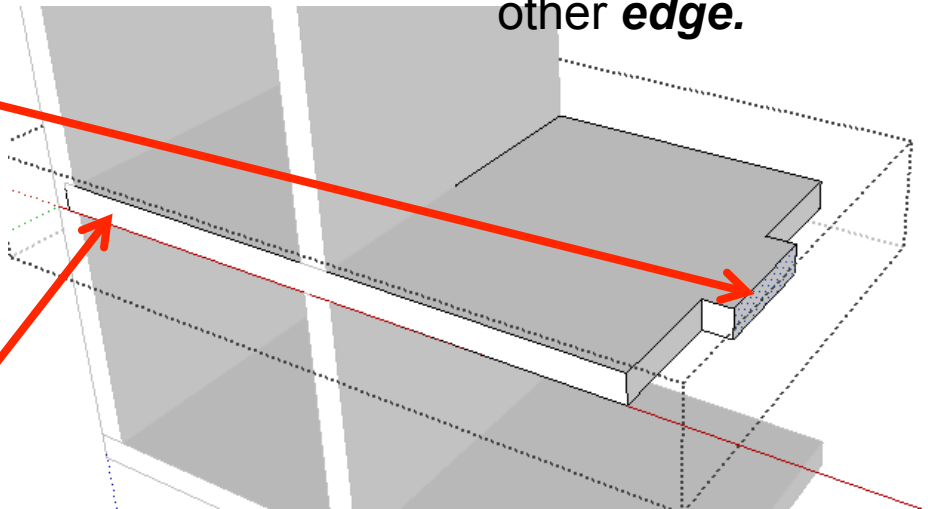


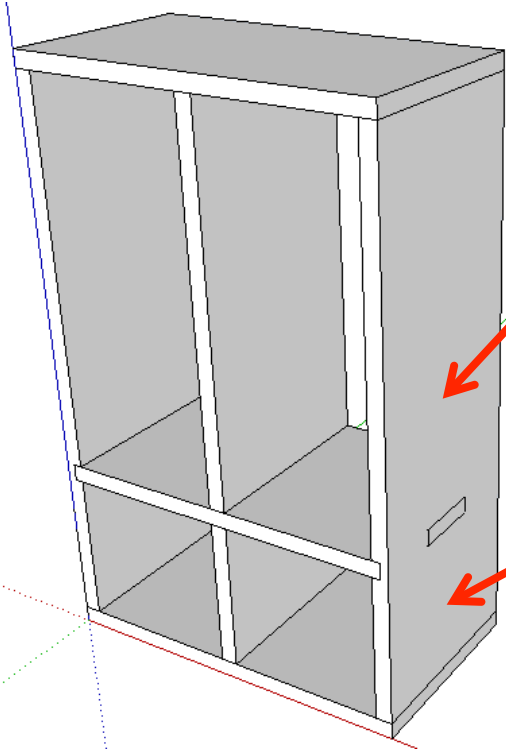
58. Using the **pencil tool**, move your pencil along the blue line until it snaps to the next **endpoint**. Draw a line down the **blue axis** to the other **edge**.



59. Using the **push pull tool**. Pull the middle rectangle out. **Type 5 and press enter**.

60. **Repeat steps 52 – 59** on the opposite side of the middle piece.





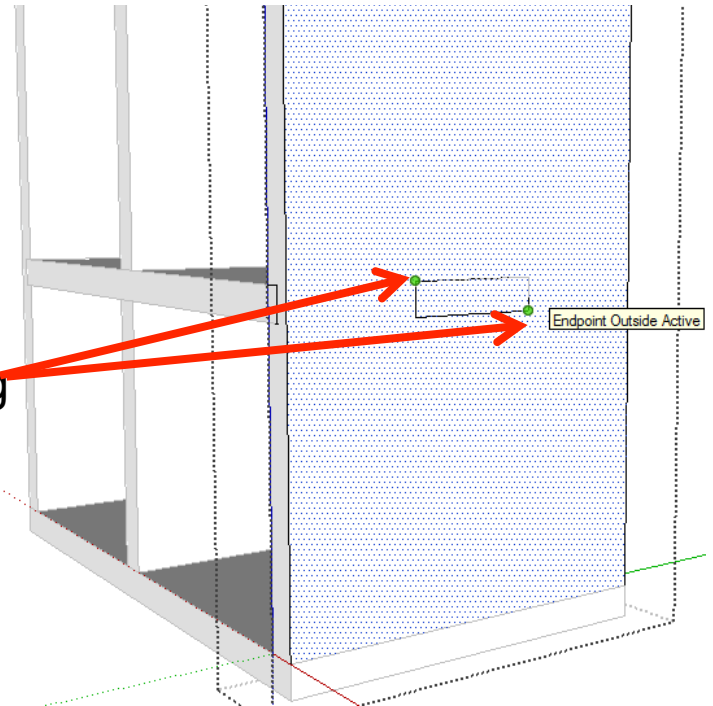
61. Click on **edit and unhide all** to put the side piece back in place.

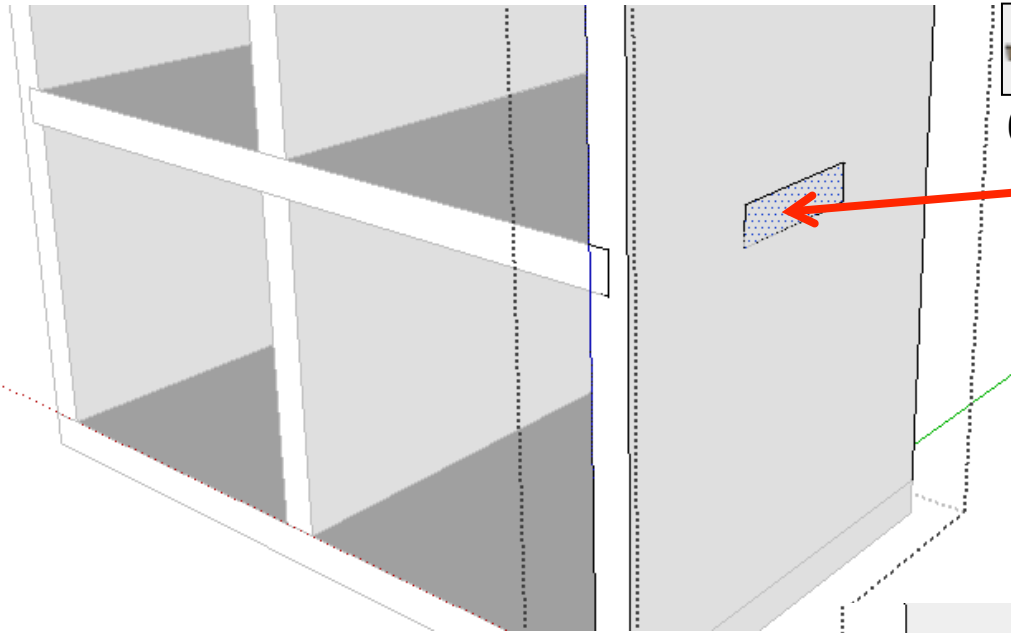


62. Using the **select tool**, **double click** on the side piece shown to edit it. All the other pieces should be greyed out. Then click on the edge shown to highlight it in **blue**.



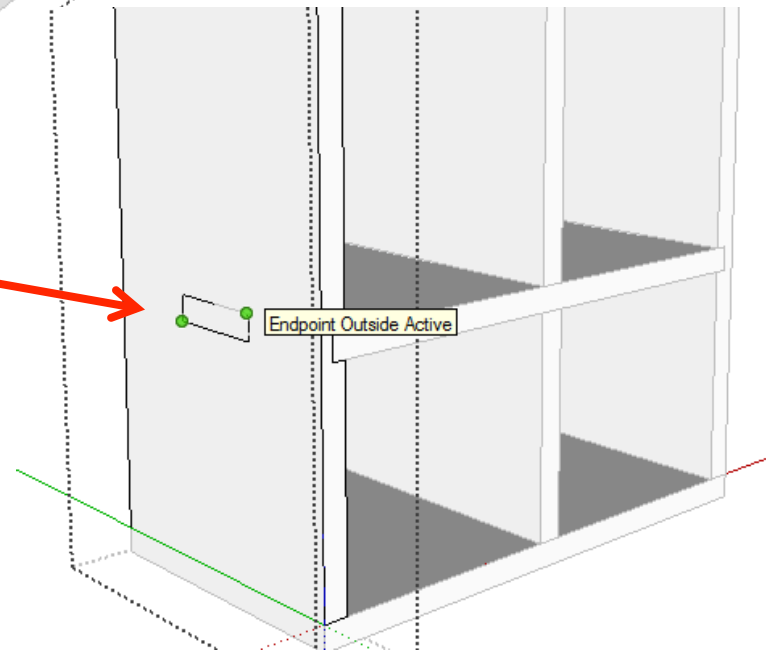
63. Use the **rectangle tool** to draw a square starting from the top left corner shown. Drag the square diagonally down to finish in the bottom right hand corner shown over the square that should be showing through the side piece you have just previously drawn.

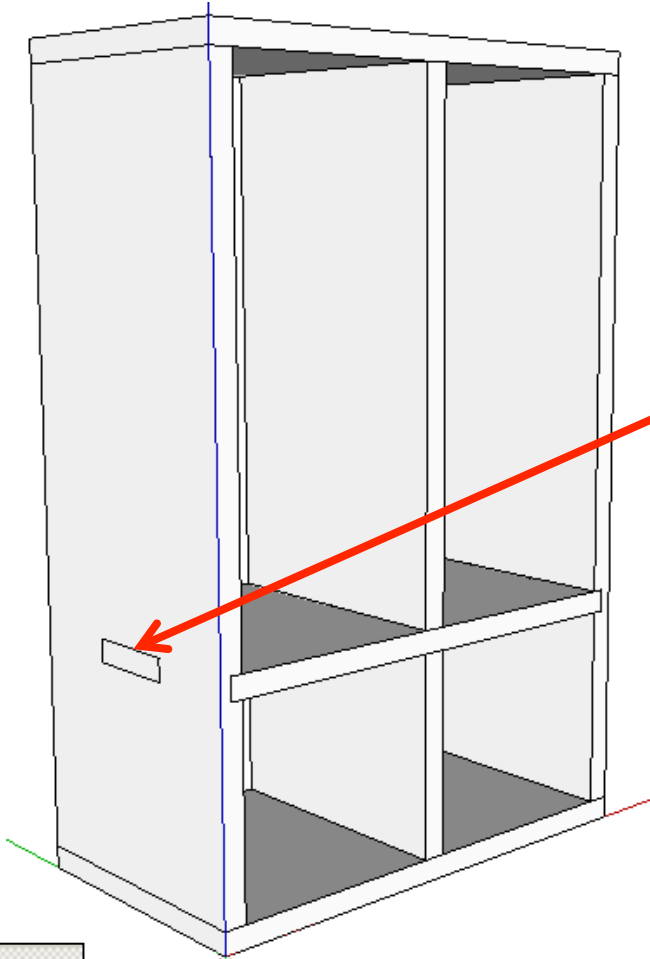




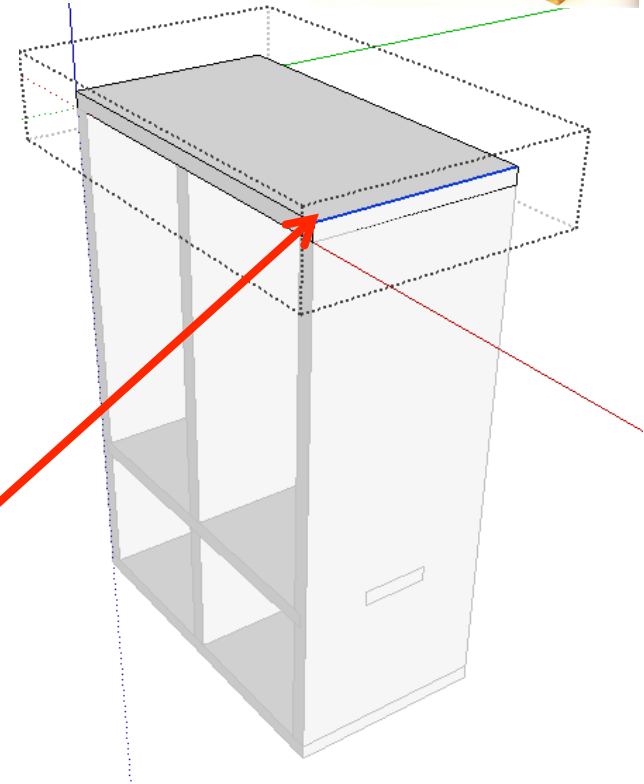
64. Using the **push pull tool**. Push the middle rectangle in. **Type 5 and press enter.**

65. **Repeat steps 62 – 64** on the opposite side piece.

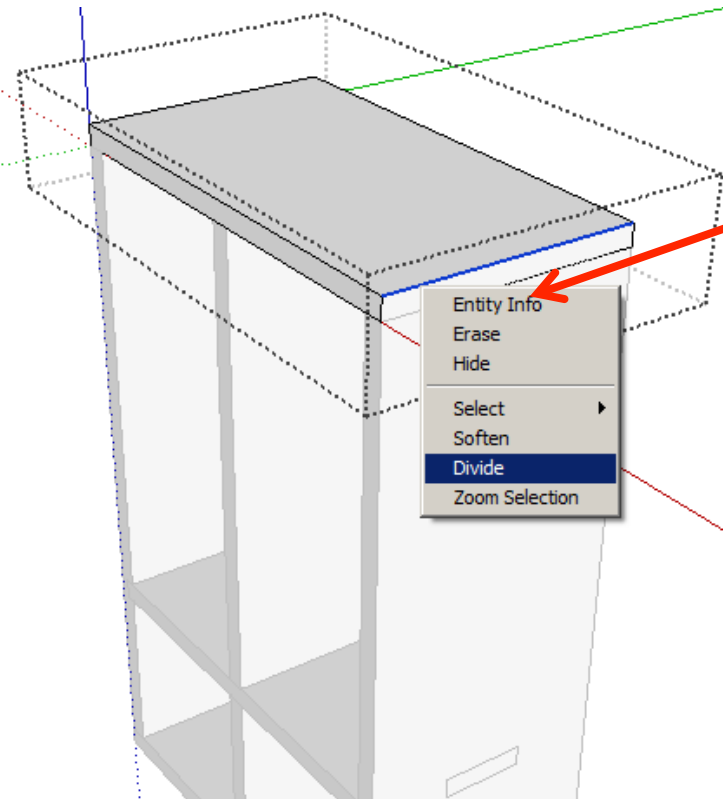




NB. These are known as *mortise and tenon joints*.



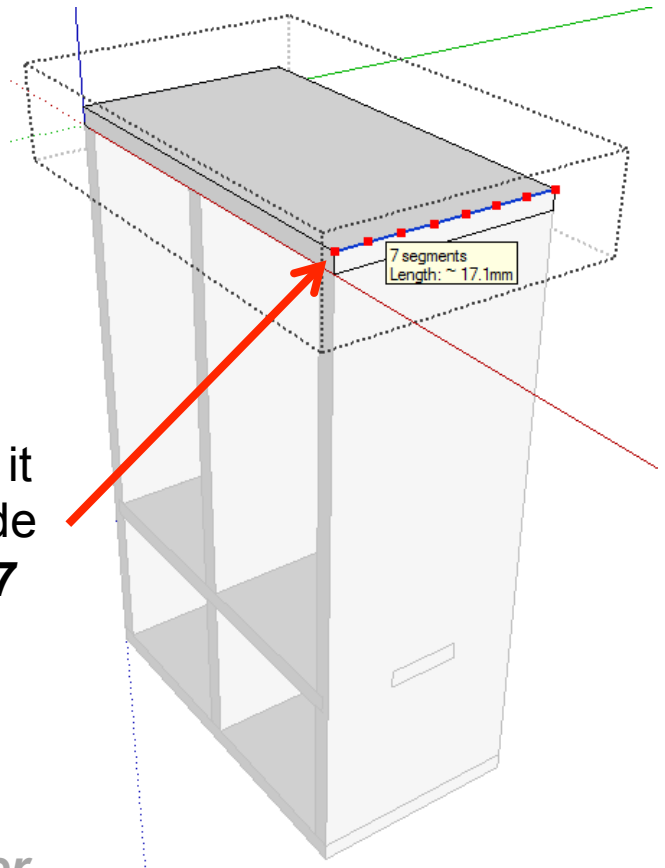
66. Using the ***select tool***, ***double click*** on the piece shown to edit it. All the other pieces should be greyed out. Then click on the edge shown to highlight it in ***blue***.



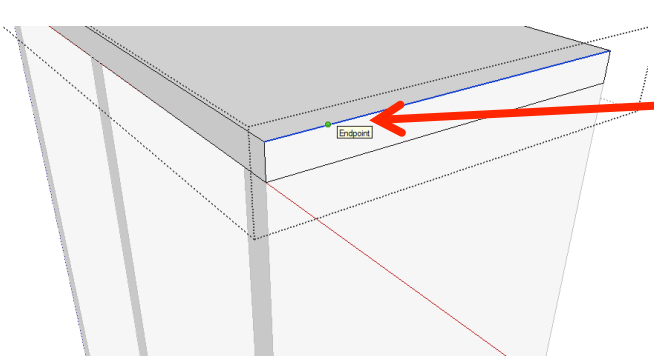
67. Whilst on the selected **blue** line, **right click** with the mouse and select **divide**.



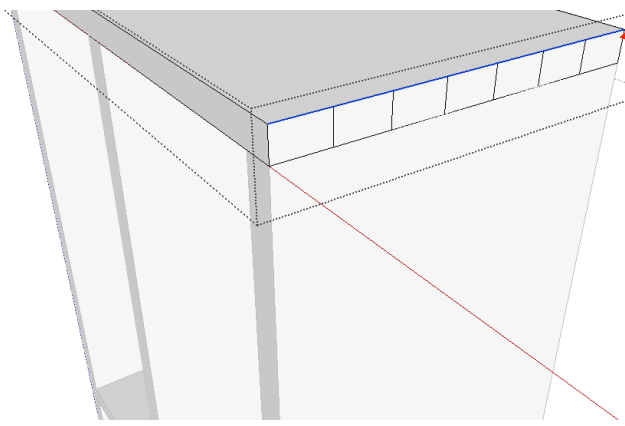
68. Using the **mouse**, you can move it up and down the **blue** line to divide it into segments or you can type **7** and press **enter**.



NOTE: When drawing finger joints you always use an odd number.



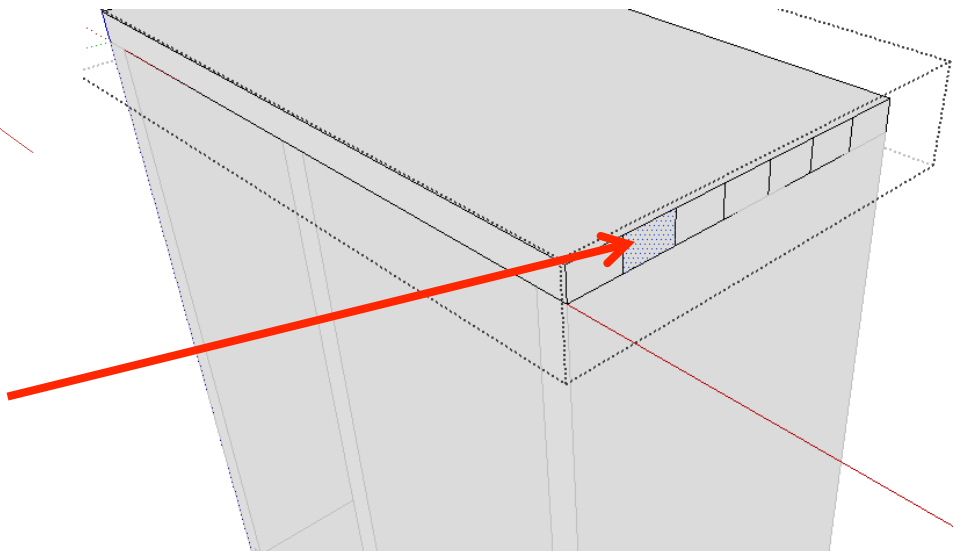
69. Using the **pencil tool**, move your pencil along the blue line until it snaps to an **endpoint**. Draw your line down on the **blue axis**

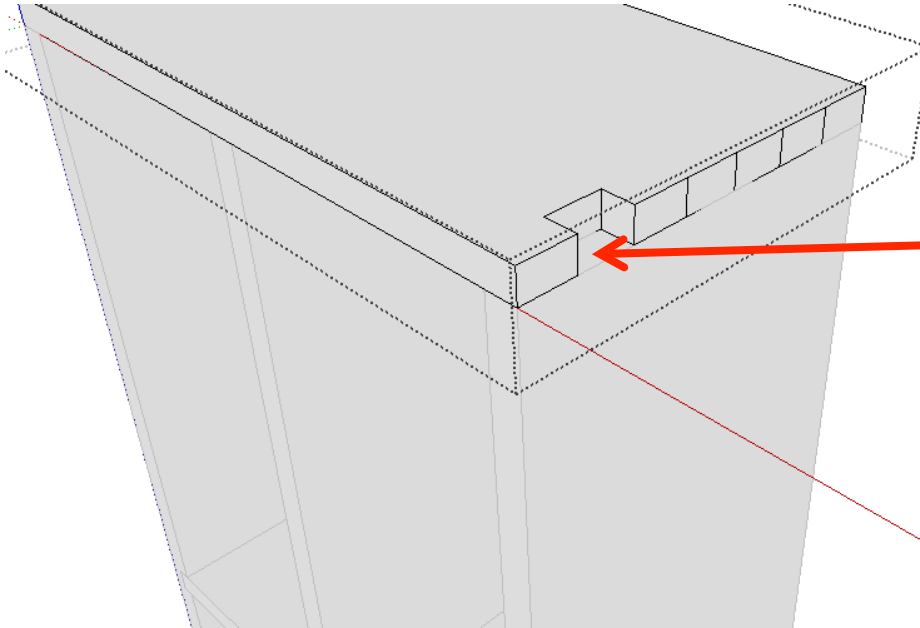


70. Using the **pencil tool**, move your pencil along the blue line until it snaps to each **endpoint**. Draw your lines down on the **blue axis**. You should have six lines in total.



71. Using the **push pull tool**. Hover over the rectangle shown. It will go dotted

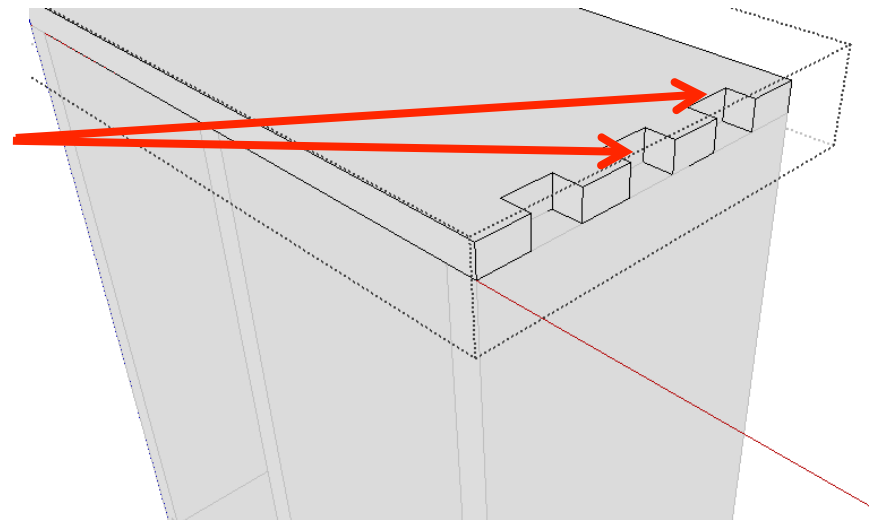


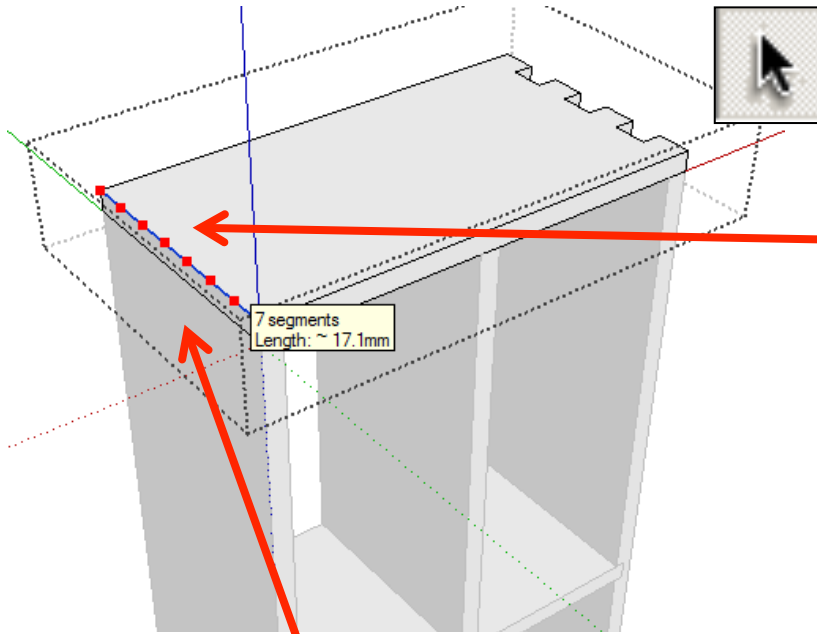


72. Using the **push pull tool**. Push the middle rectangle in. **Type 10 and press enter.**



73. Using the **push pull tool**. Push the rectangles shown in. **Type 10 and press enter.**





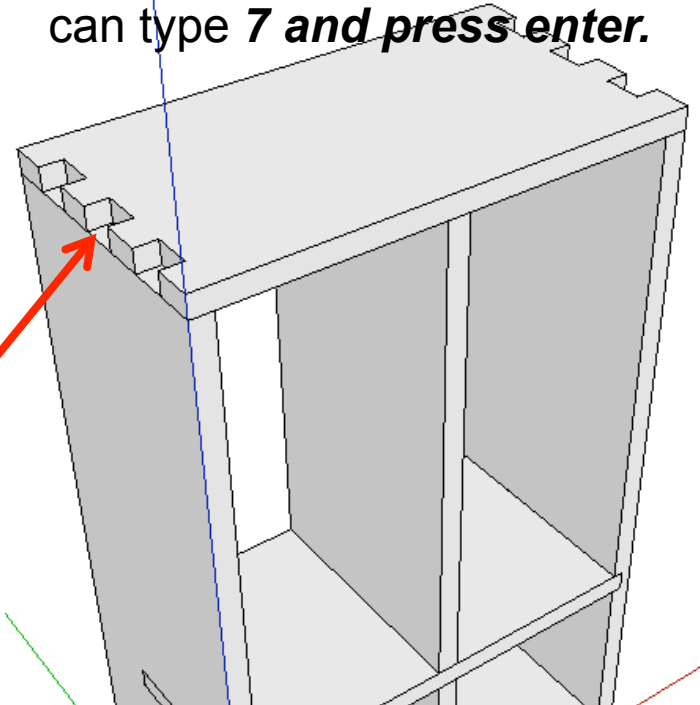
74. Using the ***select tool***, ***double click*** on the piece shown to edit it. All the other pieces should be greyed out. Then click on the edge shown to highlight it in ***blue***. Using the ***mouse***, you can move it up and down the ***blue*** line to divide it into segments or you can type ***7 and press enter***.

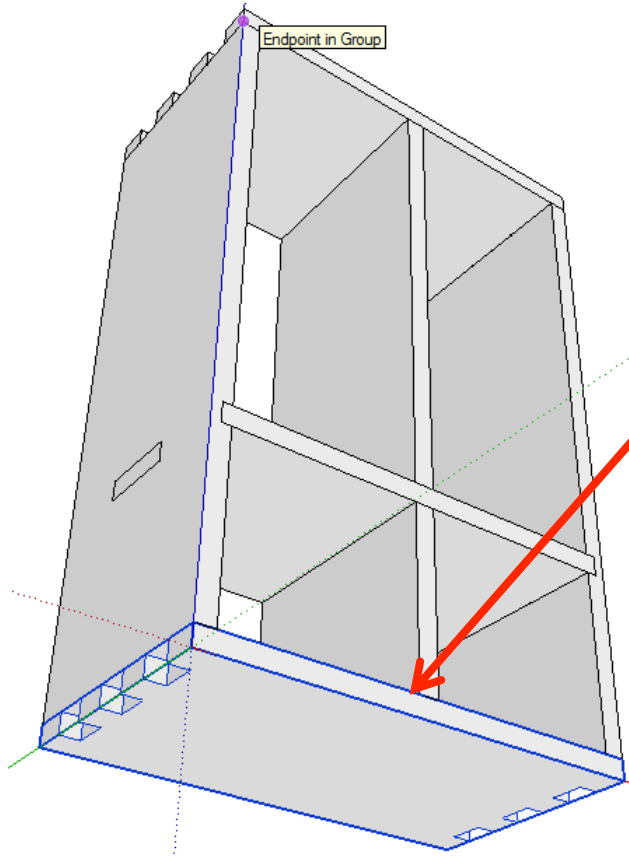


75. Using the ***pencil tool***, move your pencil along the blue line until it snaps to an ***endpoint***. Draw your line down on the ***blue axis***. Repeat your lines down on each endpoint. You should have six lines in total.

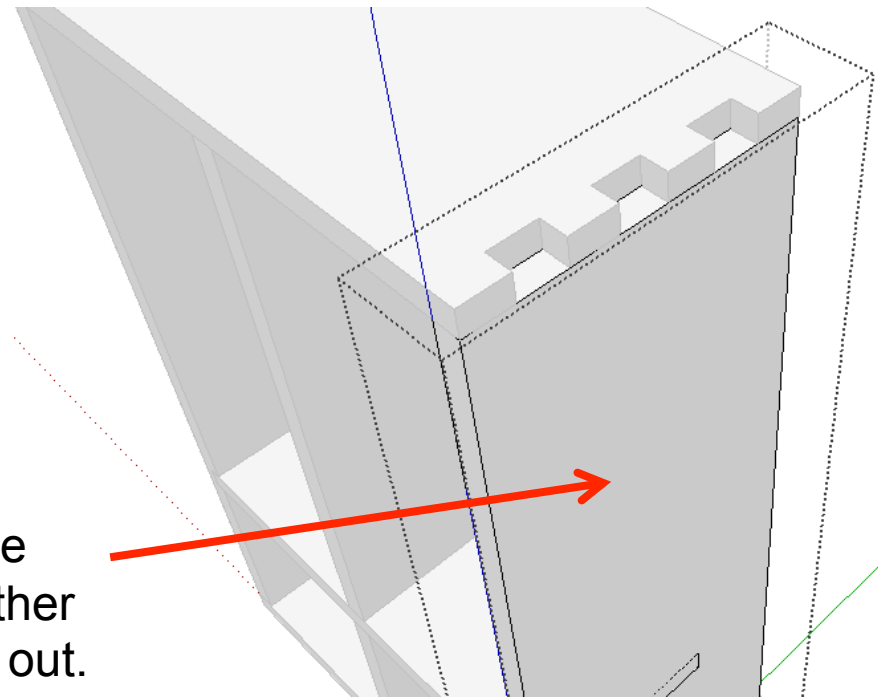


76. Using the ***push pull tool***. Push the rectangles shown in. ***Type 10 and press enter***.

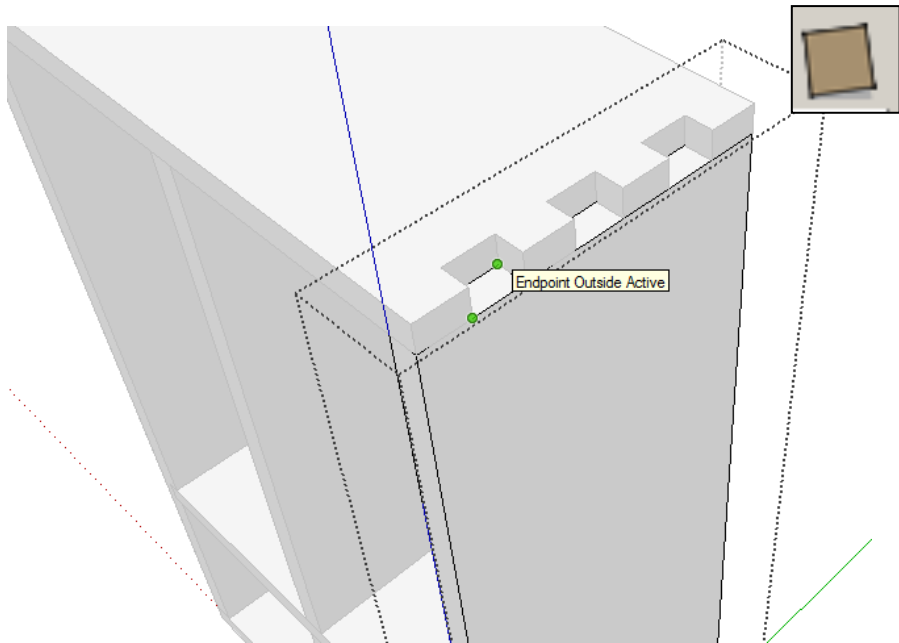




77. **Repeat steps 66 – 76** on the bottom piece. Alternatively delete the bottom piece and copy and paste the top piece and move it down in its place



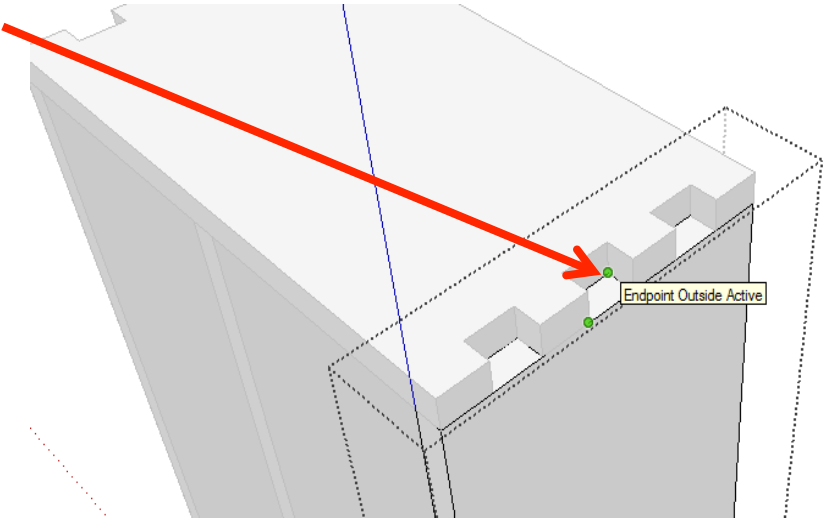
78. Using the ***select tool***, ***double click*** on the piece shown to edit it. All the other pieces should be greyed out.

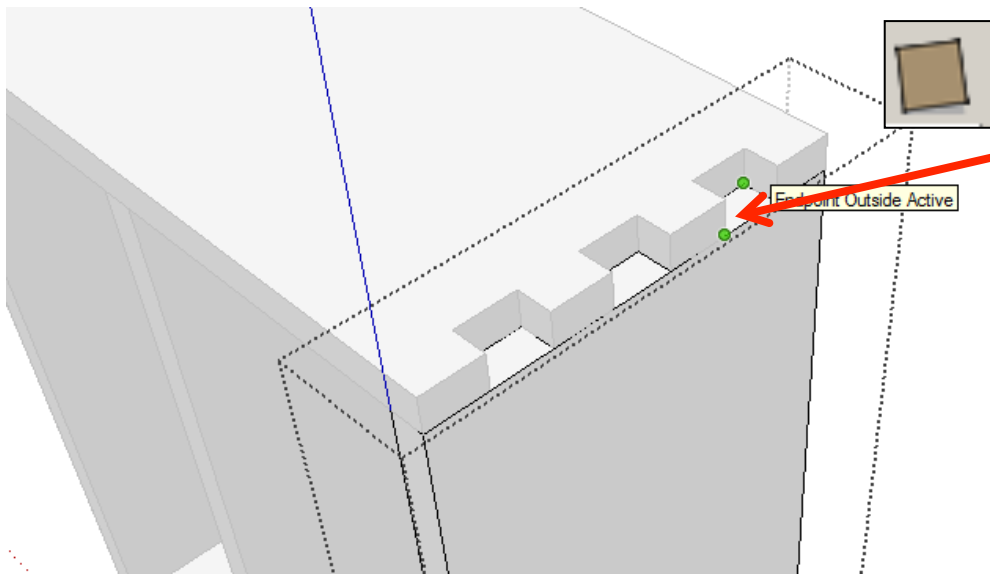


79. Orbit around to the top of the product. Select the **rectangle tool** and draw a square starting from the left corner (endpoint) shown. Drag the square diagonally down to finish in the right corner endpoint shown.



80. Repeat the process on the middle square shown.

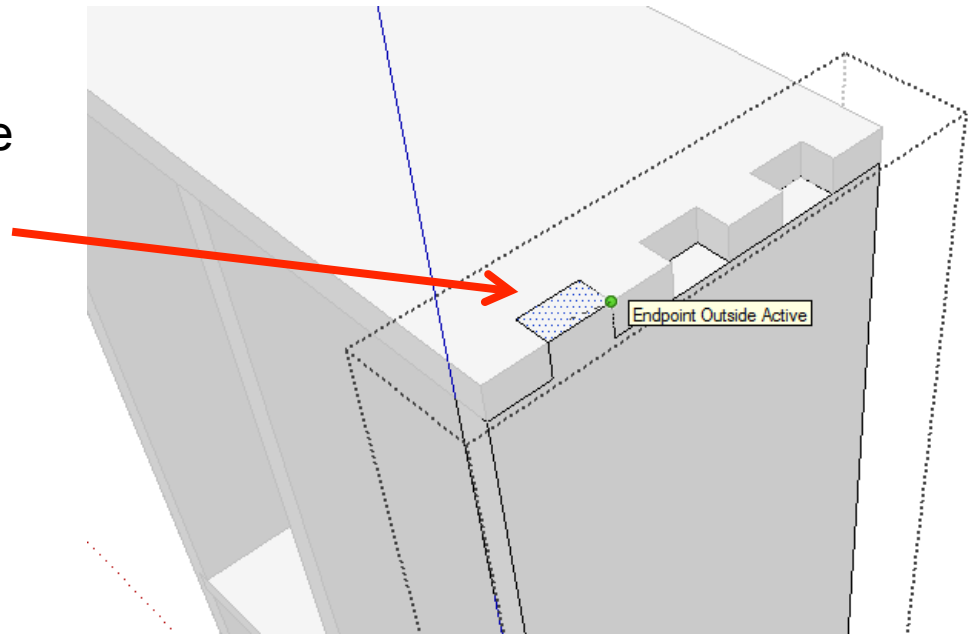


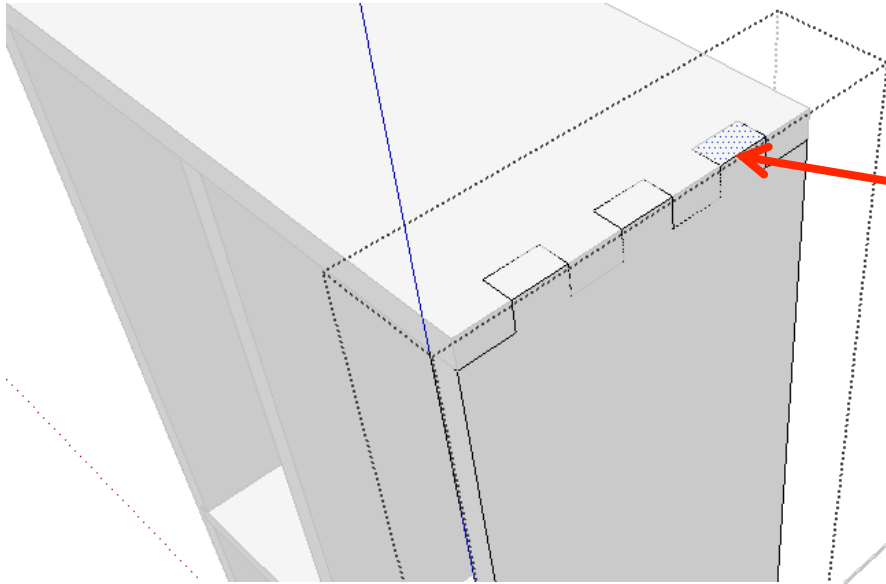


81. Repeat the process on the last square shown.

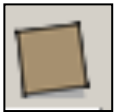


82. Using the **push pull tool**. Pull the rectangles up. **Type 10 and press enter.**

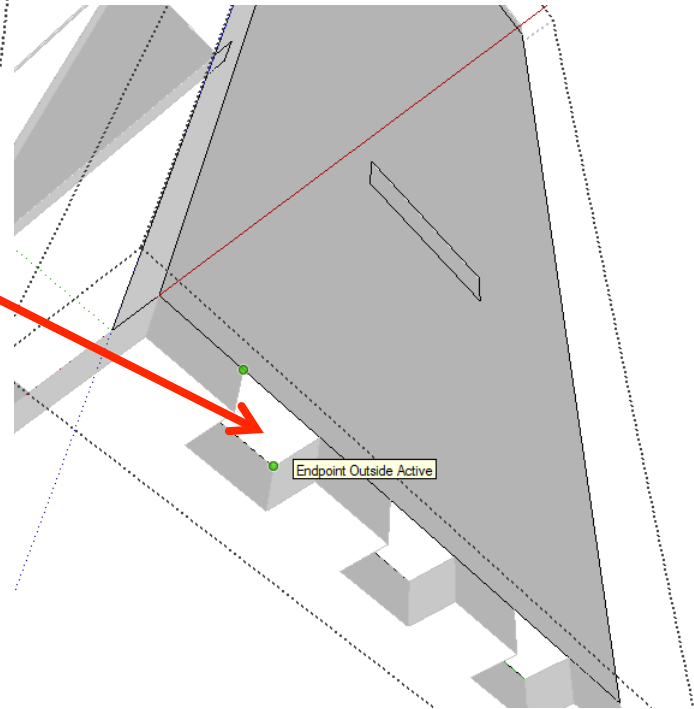


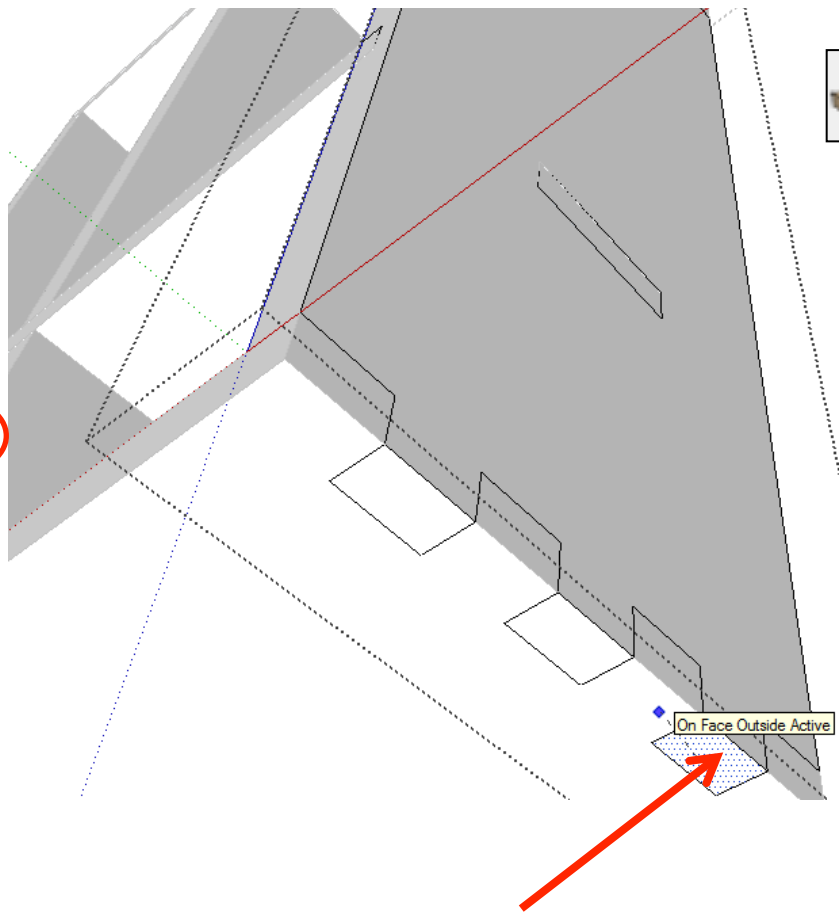


83. Using the **push pull tool**. Pull the remaining rectangles up. **Type 10 and press enter.**



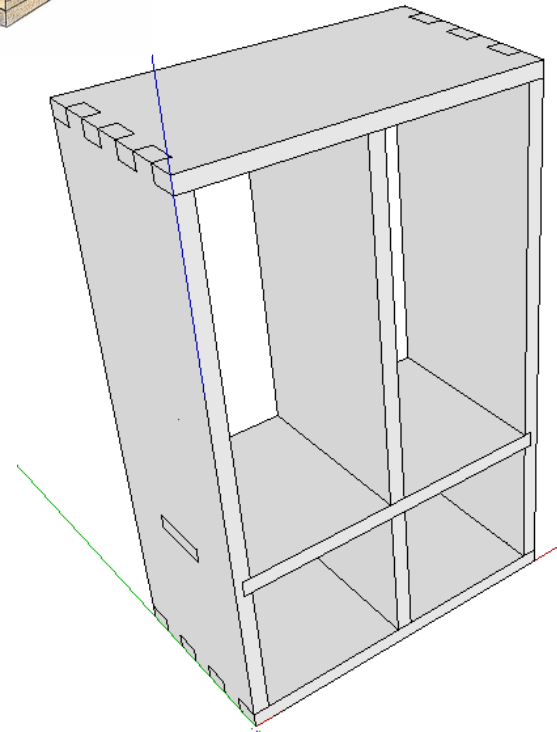
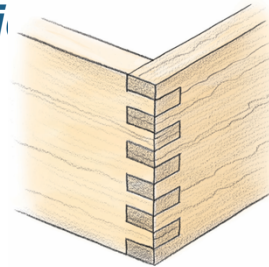
84. Orbit around to the bottom of the product. Select the **rectangle tool** and draw a square starting from the left corner (endpoint) shown. Drag the square diagonally down to finish in the right corner endpoint shown. Repeat for all the squares.





85. Use the push pull tool to pull each square down by 10.

NB. These are known as finger joints

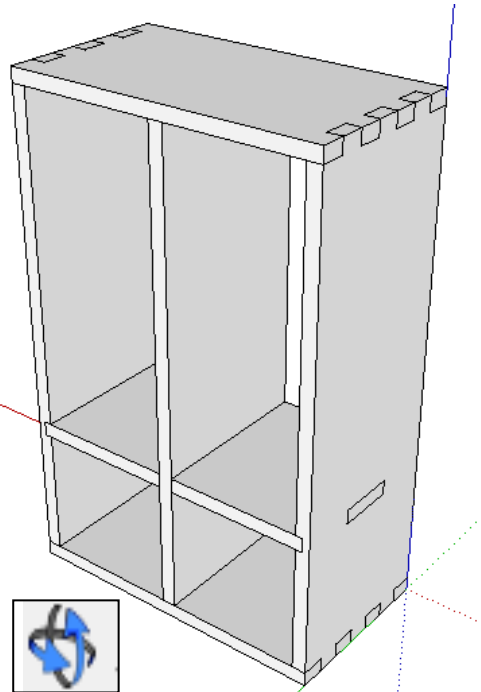


86. Repeat the process on the other side piece or copy and paste the one you have just drawn across.



CAD Tutorial 20: Storage Unit

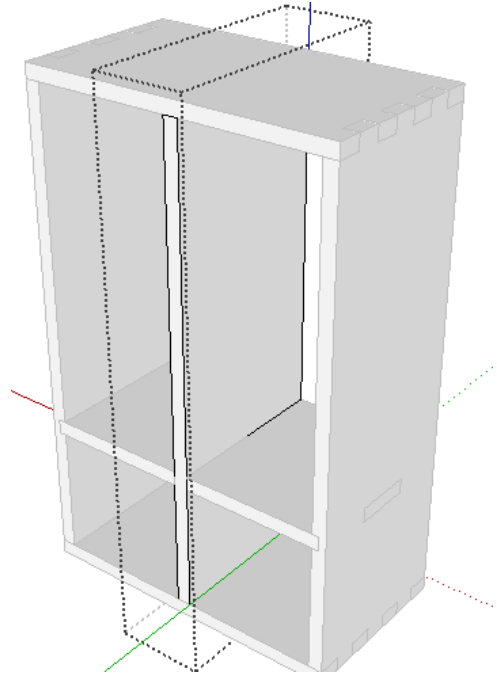
Back piece construction



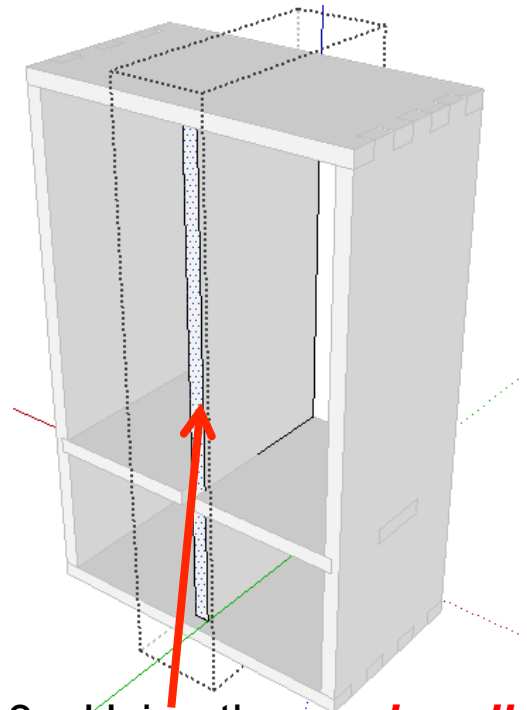
1. Orbit around the back of the product.

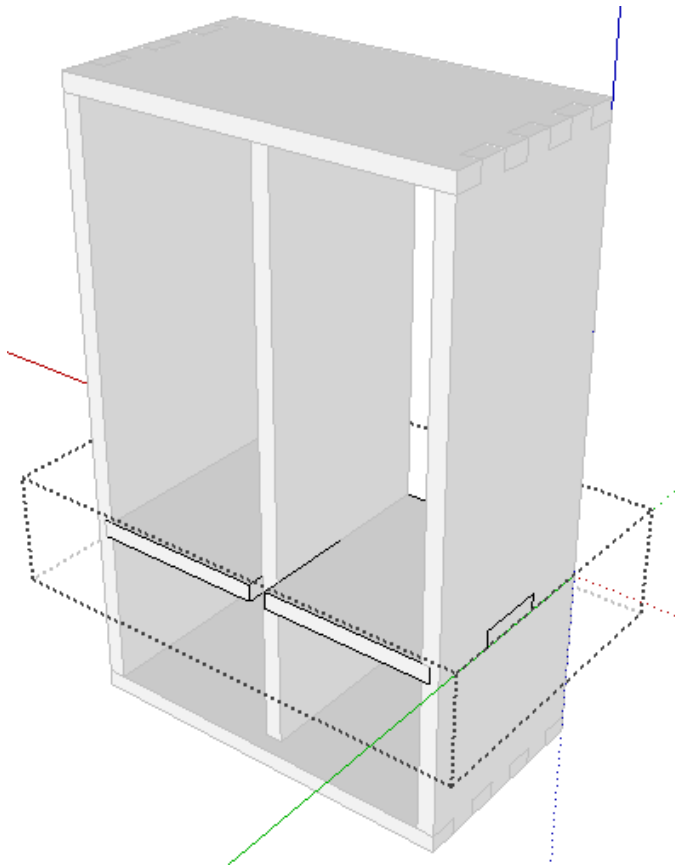


2. Using the ***select tool***, ***double click*** on the middle piece shown to edit it. All the other pieces should be greyed out.



3. Using the ***push pull tool***. Push the middle edge shown back. ***Type 10 and press enter.***

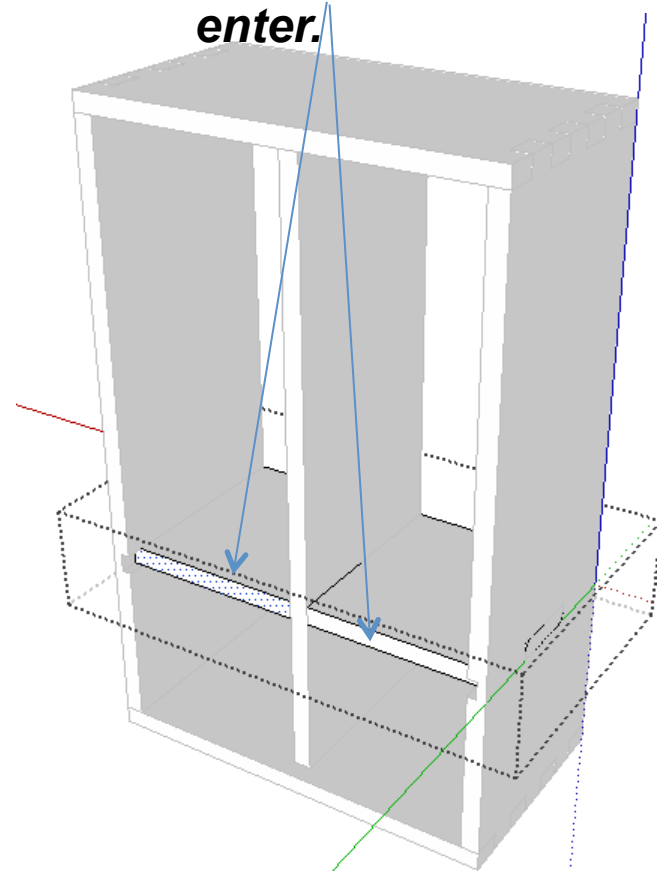


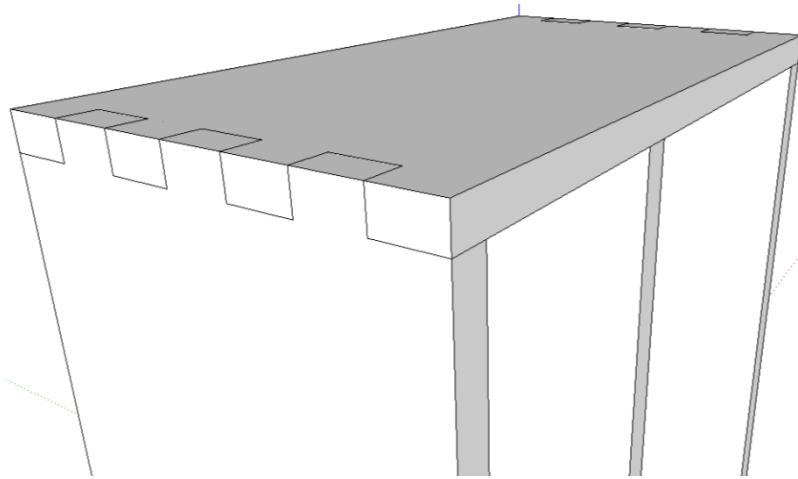


6. Using the ***select tool***, ***double click*** on the middle piece shown to edit it. All the other pieces should be greyed out.



5. Using the ***push pull tool***. Push the middle edges shown back. ***Type 10 and press enter.***





7. Orbit around to the top of the product and around the back again

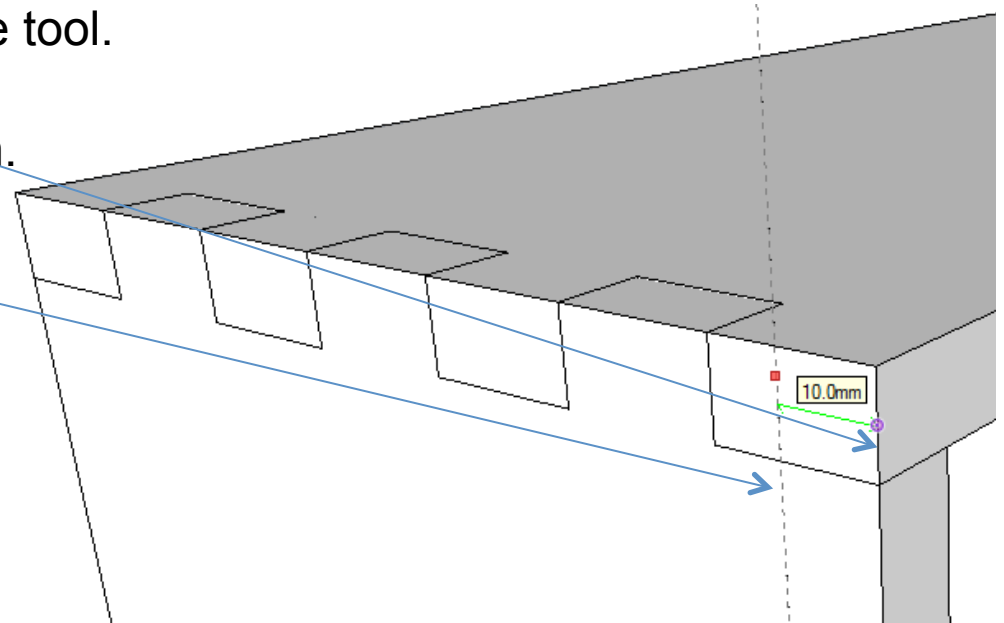


8. Select the tape measure tool.

9. Click on the edge shown.

10. Pull the tape measure back.

11. Type in **10** and **press enter**



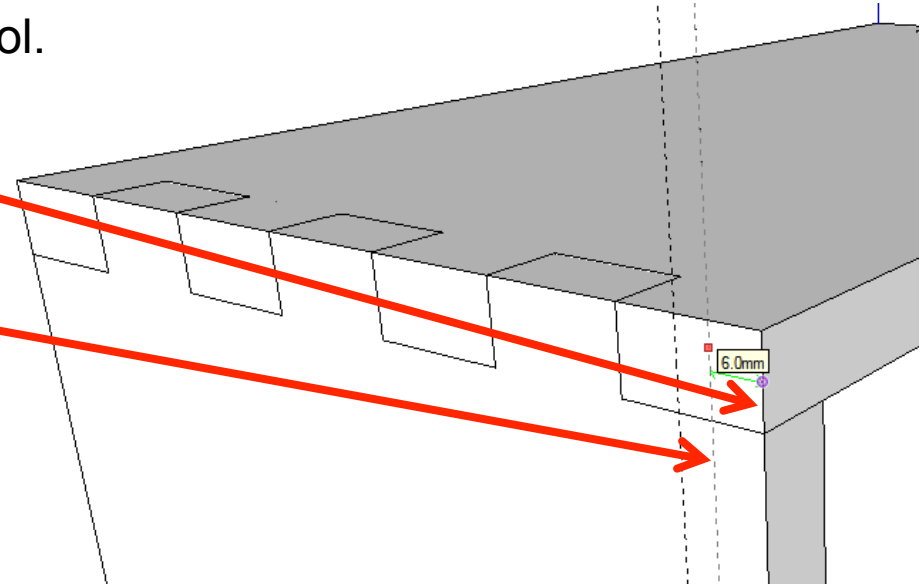


12. Select the tape measure tool.

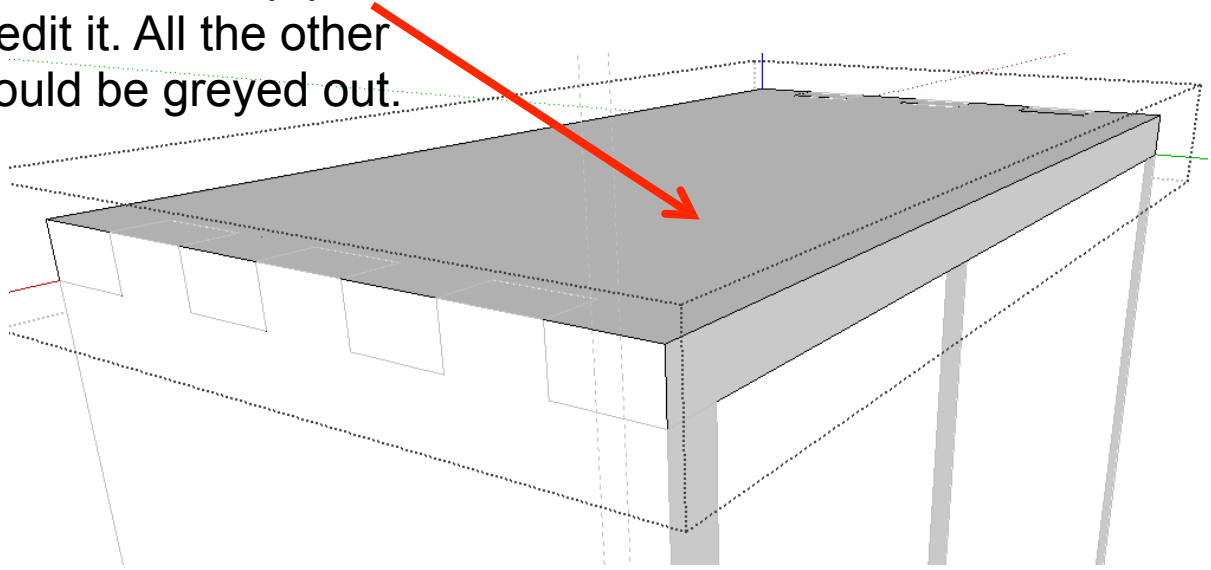
13. Click on the edge shown.

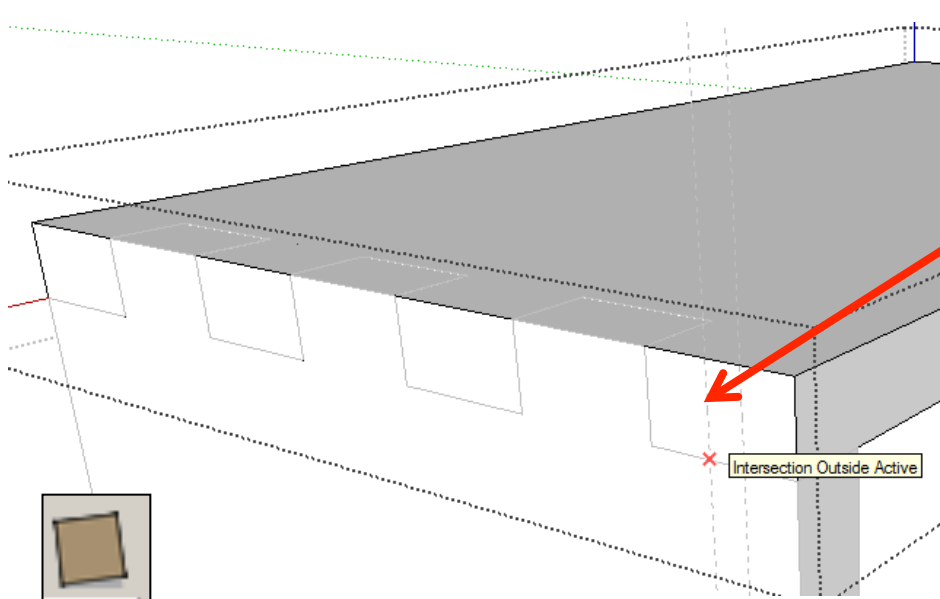
14. Pull the tape measure back.

15. Type in **6** and **press enter**



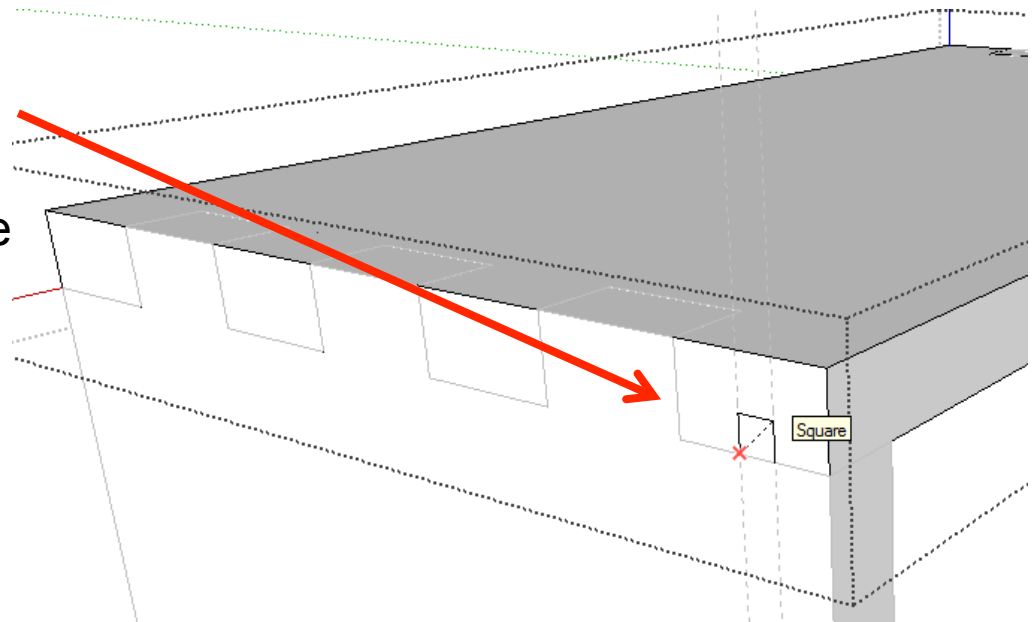
16. Using the **select tool**, **double click** on the top piece shown to edit it. All the other pieces should be greyed out.

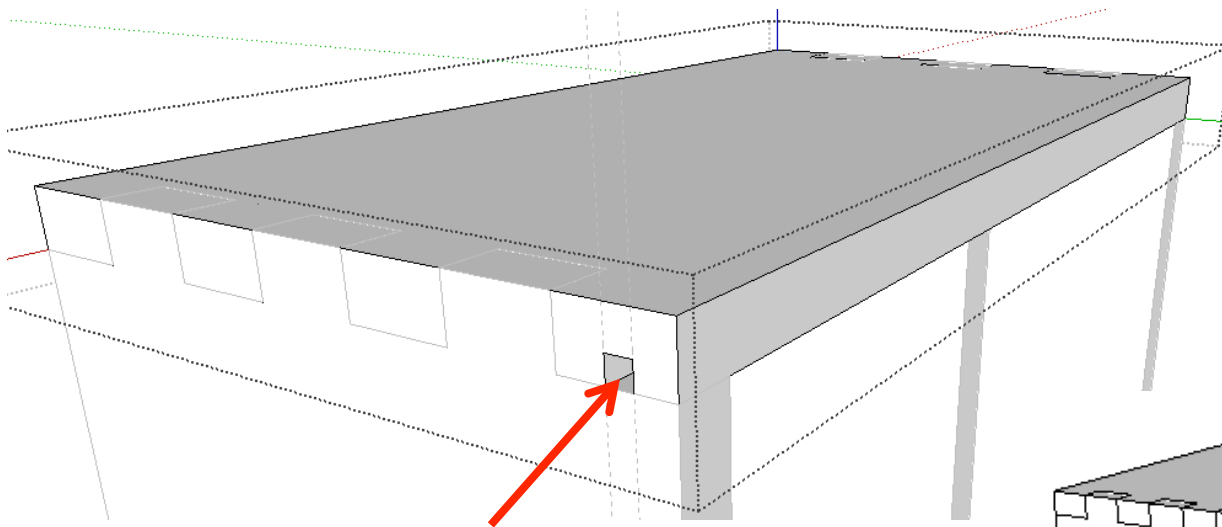




17. Select the **rectangle tool** and draw a square starting intersection shown on the **10mm guideline**..

18. Drag the square diagonally up to the top of the product so it touches the **other 6mm guideline**. Type in **4, 4** and **press enter** or move the square tool around until it shows a diagonal line and says square.

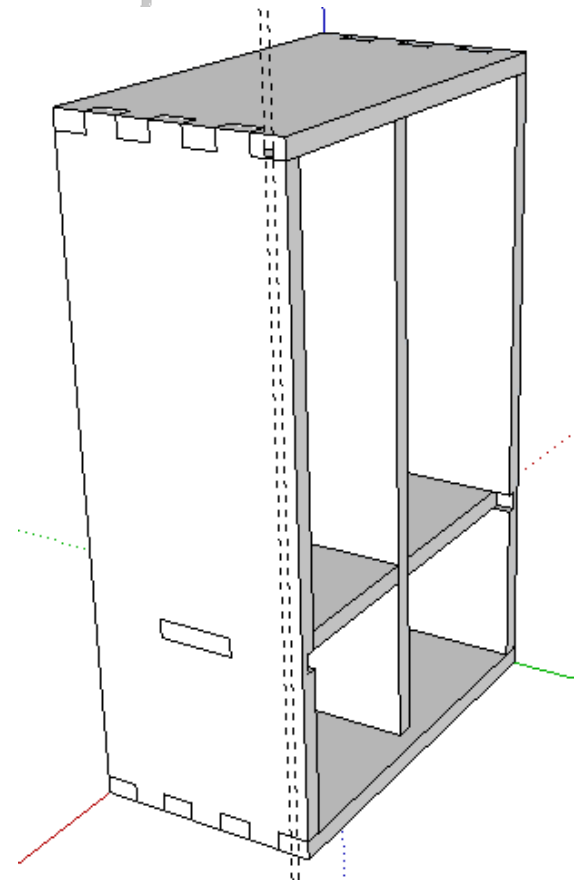


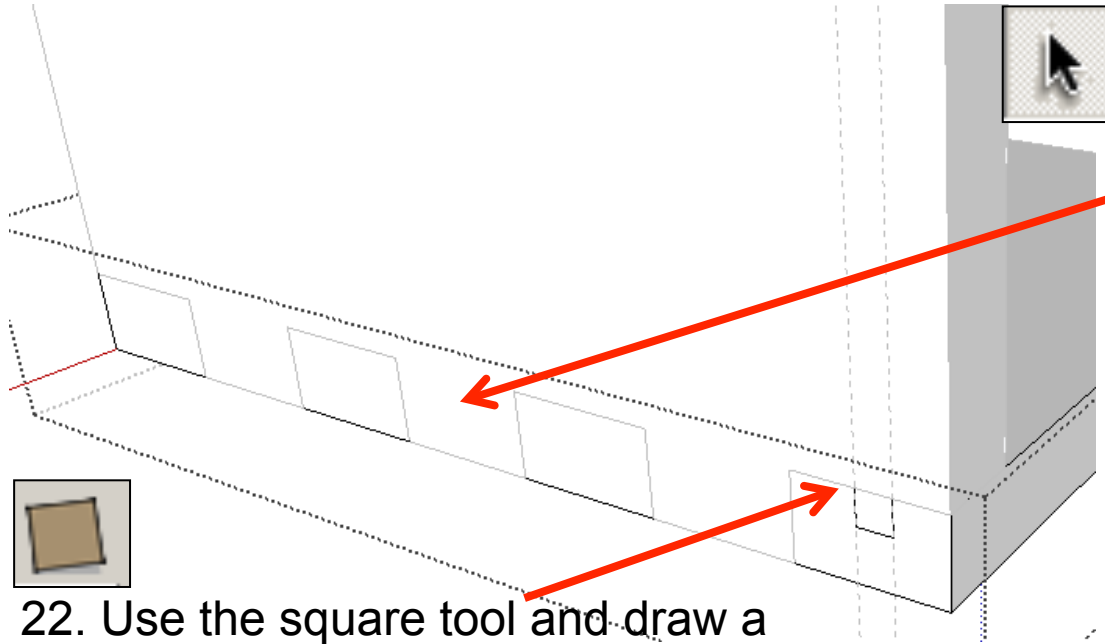


19. Using the **push pull tool**. Push the square you have just drawn back. **Type 220 and press enter.** You will have drawn a groove for the back piece to slide into.



20. Select the **zoom tool** and **zoom out** so you can see the guidelines you have drawn all the way down the side piece.





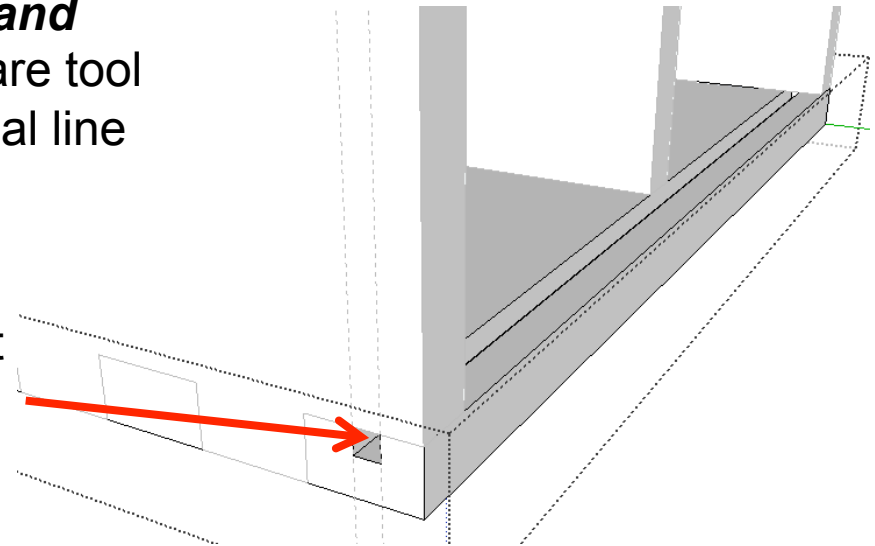
21. Using the **select tool**, **double click** on the bottom piece shown to edit it. All the other pieces should be greyed out.

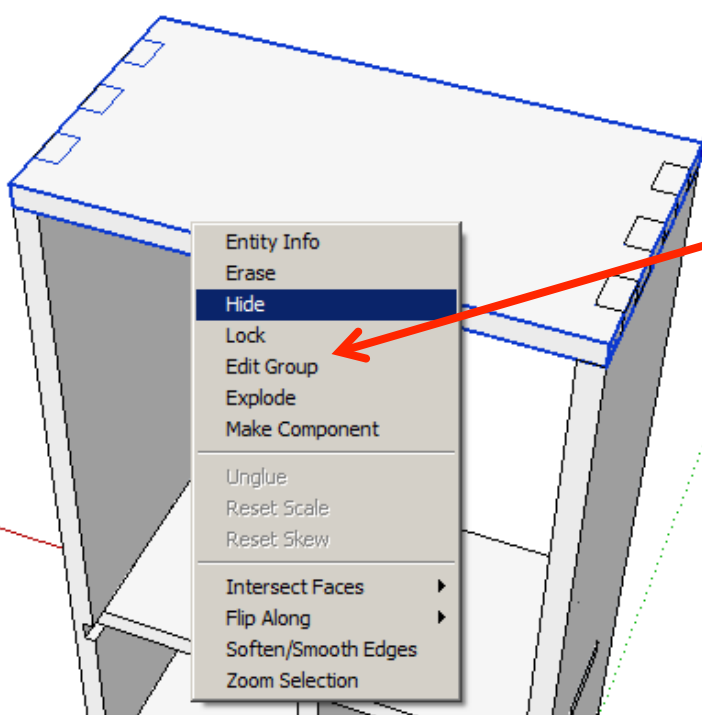


22. Use the square tool and draw a square diagonally down from the endpoint shown. Type in **4, 4** and **press enter** or move the square tool around until it shows a diagonal line and says square.



23. Using the **push pull tool**. Push the square you have just drawn back. **Type 220** and **press enter**. You will have drawn a groove for the back piece to slide into.





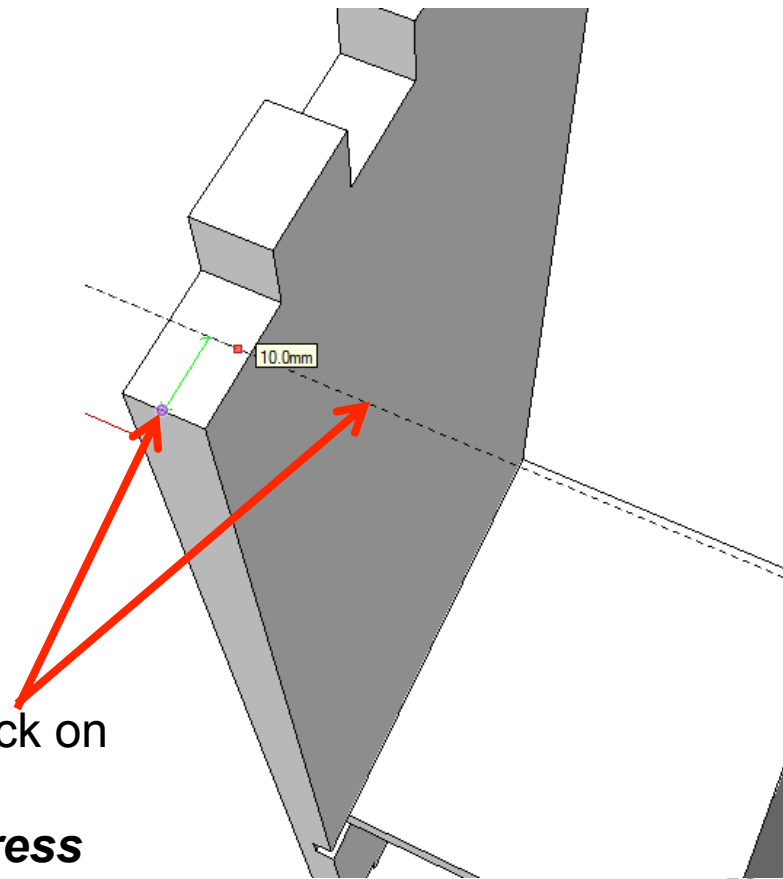
24. Using the **select tool**, right click on the mouse, and click hide.



25. Using the **select tool**, double click on the side piece shown to edit it. All the other pieces should be greyed out.

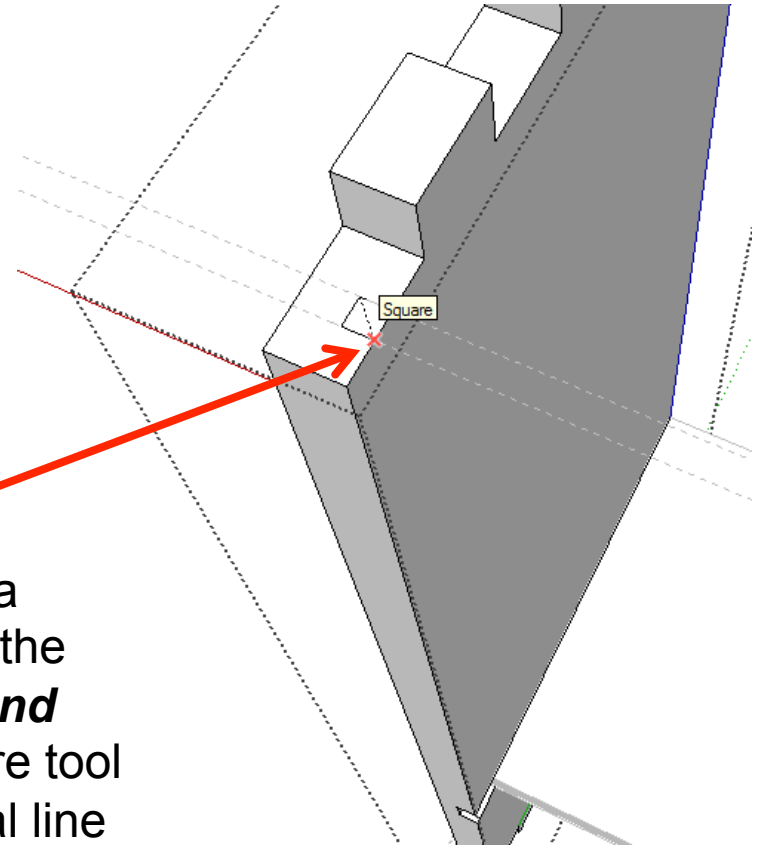
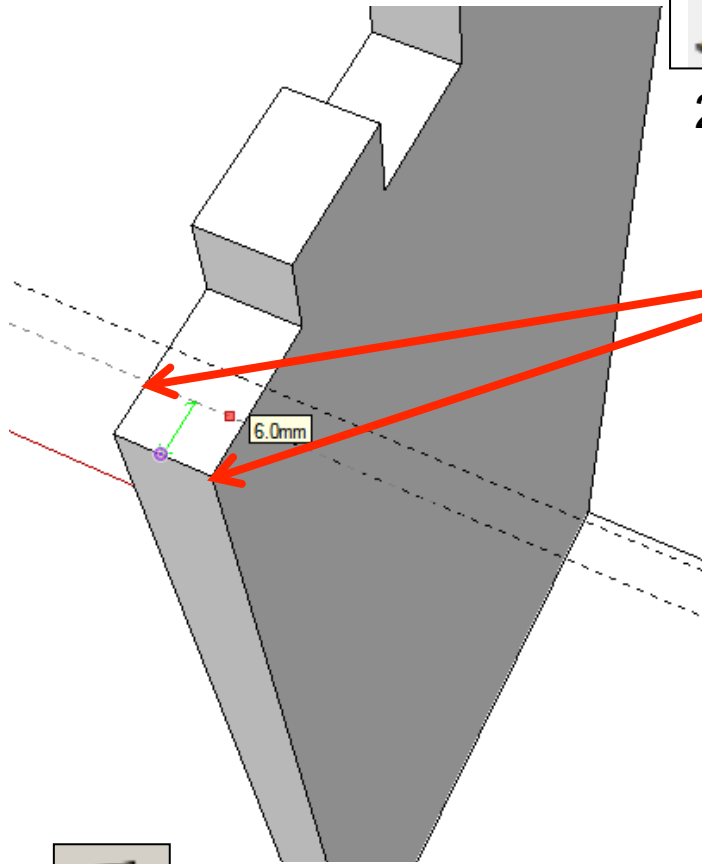


26. Select the tape measure tool. Click on the edge shown. Pull the tape measure back. Type in **10** and **press enter**

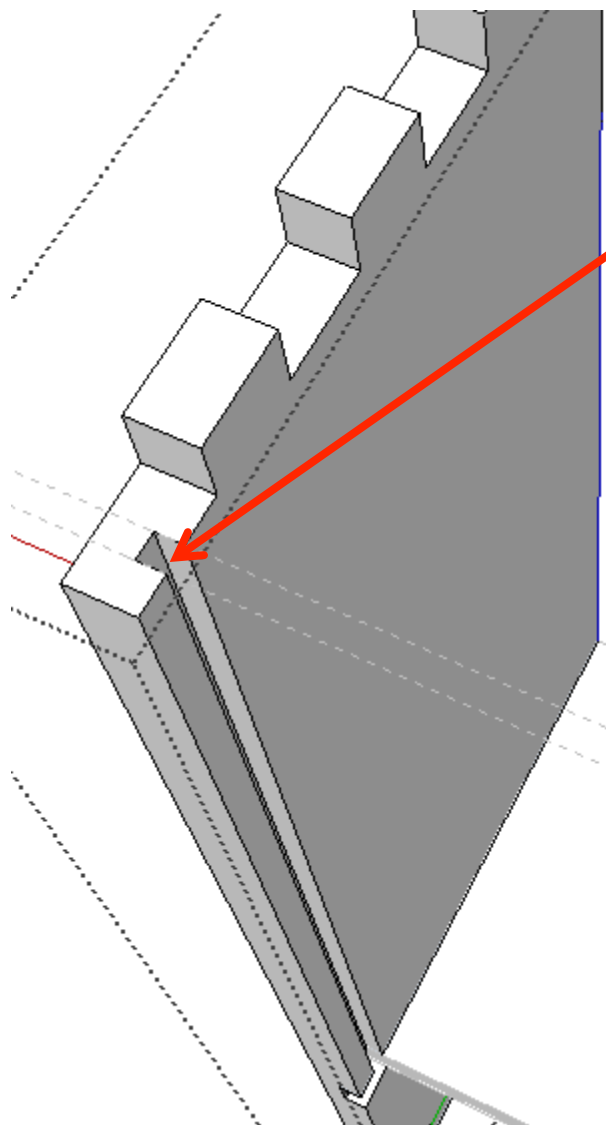




27. Select the tape measure tool. Click on the edge shown. Pull the tape measure back. Type in **6** and **press enter**



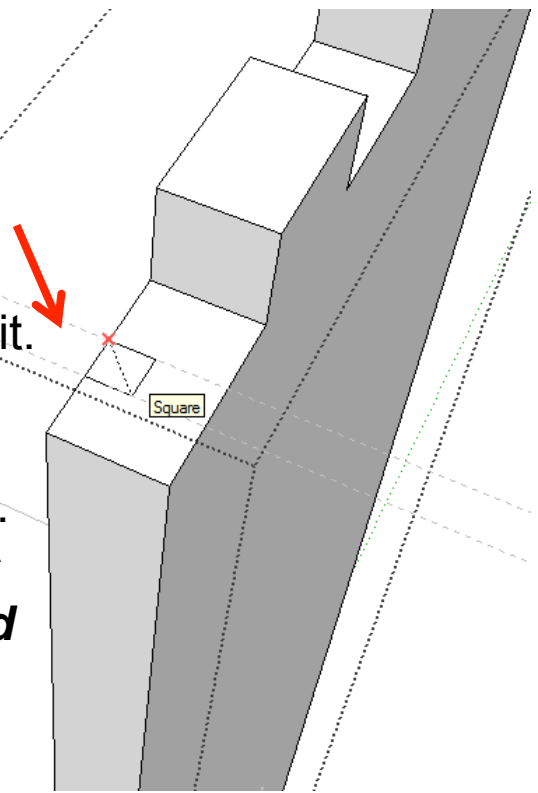
28. Use the square tool and draw a square diagonally across from the endpoint shown. Type in **4, 4** and **press enter** or move the square tool around until it shows a diagonal line and says square.

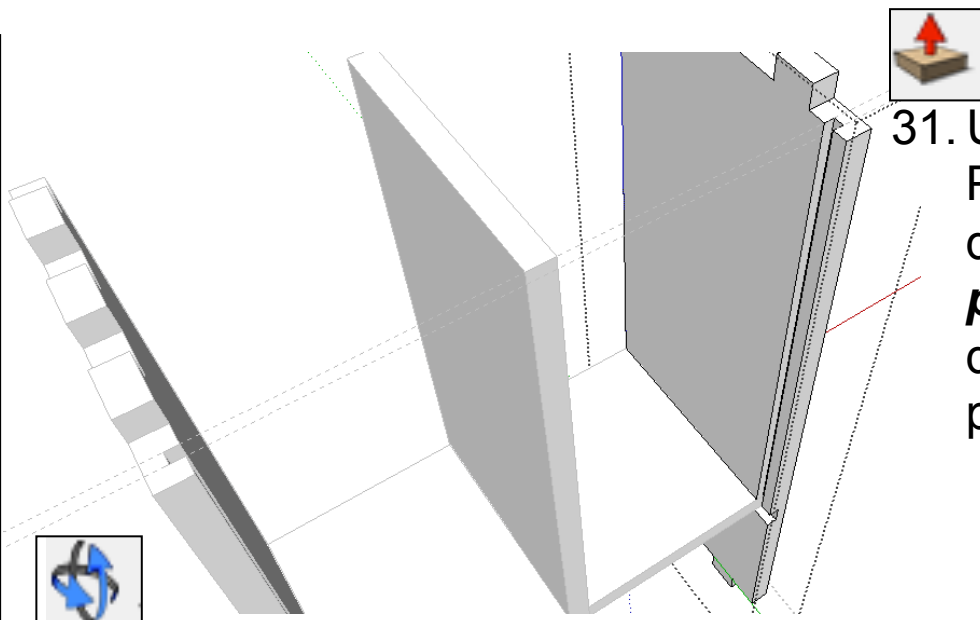


29. Using the **push pull tool**. Push the square you have just drawn down. **Type 230 and press enter.** You will have drawn a groove for the back piece to slide into.



30. Using the **select tool, double click** on the other side piece shown to edit it. All the other pieces should be greyed out. **Repeat steps 26, 27, 28 and 29.**





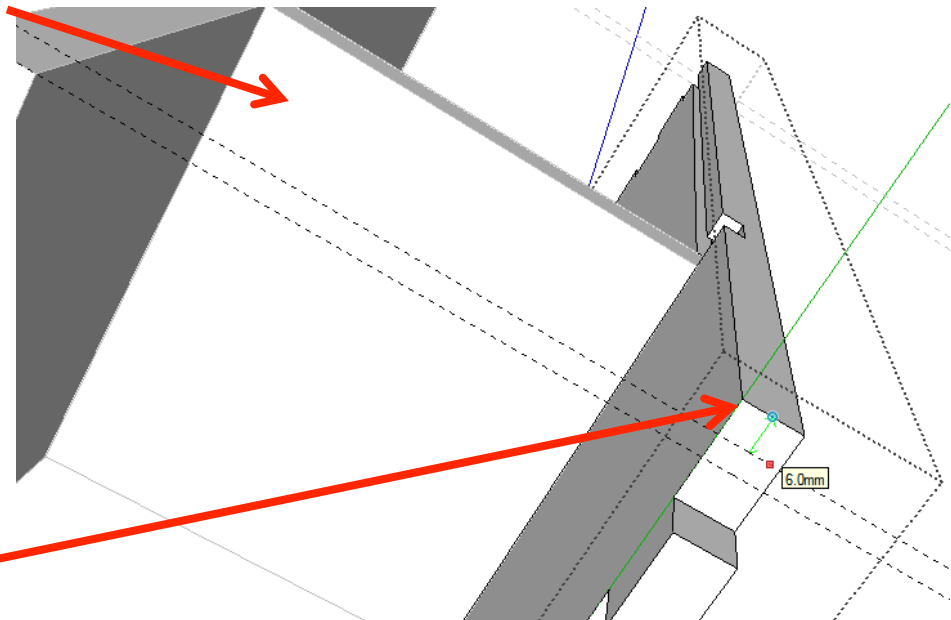
31. Using the **push pull tool**. Push the square you have just drawn down. **Type 230 and press enter**. You will have drawn a groove for the back piece to slide into.

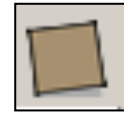
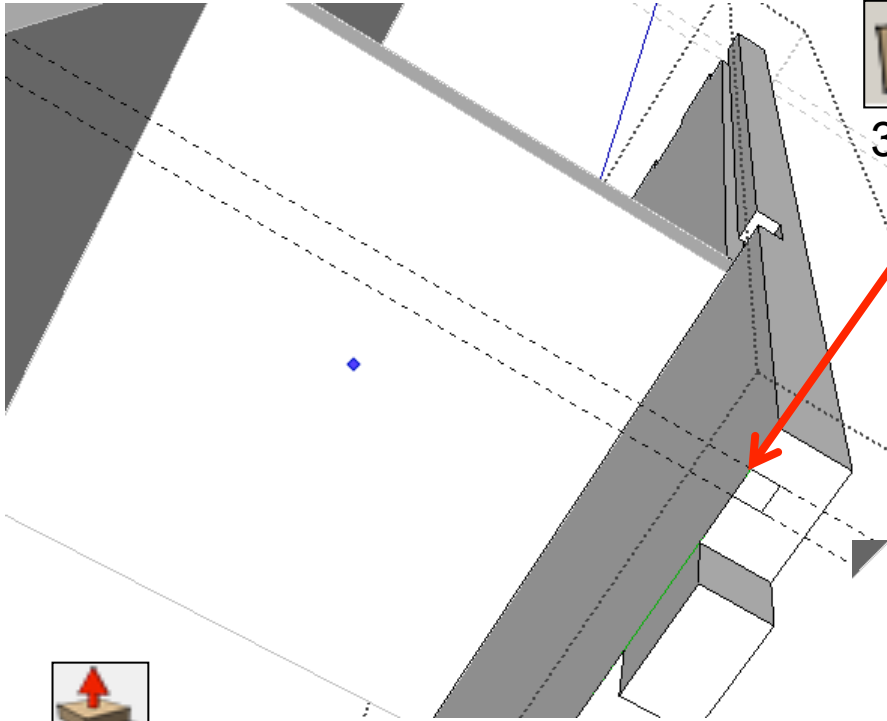


32. Orbit around to the bottom of the product. Click on the bottom piece and hide.



33. Select the tape measure tool. Click on the edge shown. Pull the tape measure back. Type in **10** and **press enter**. Repeat and draw a line back **6**.



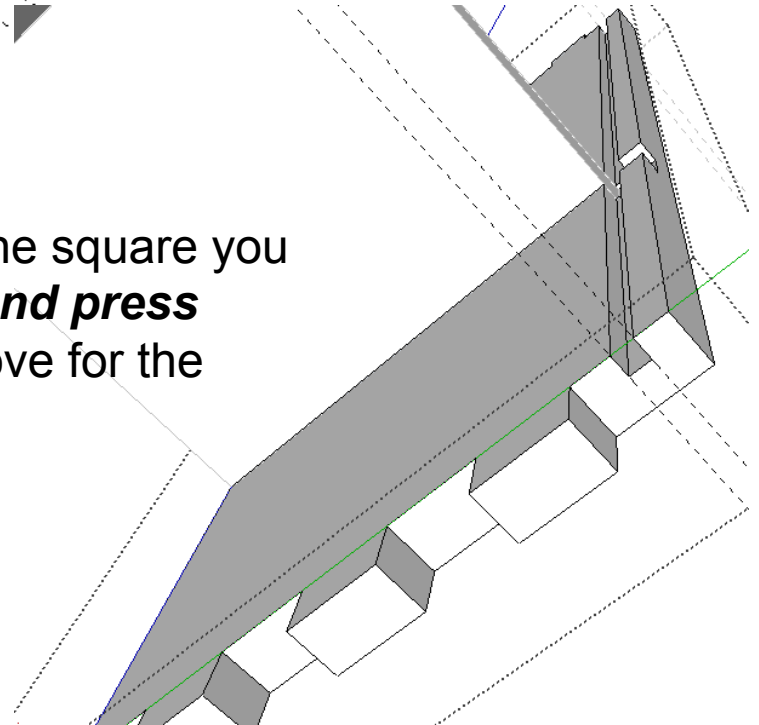


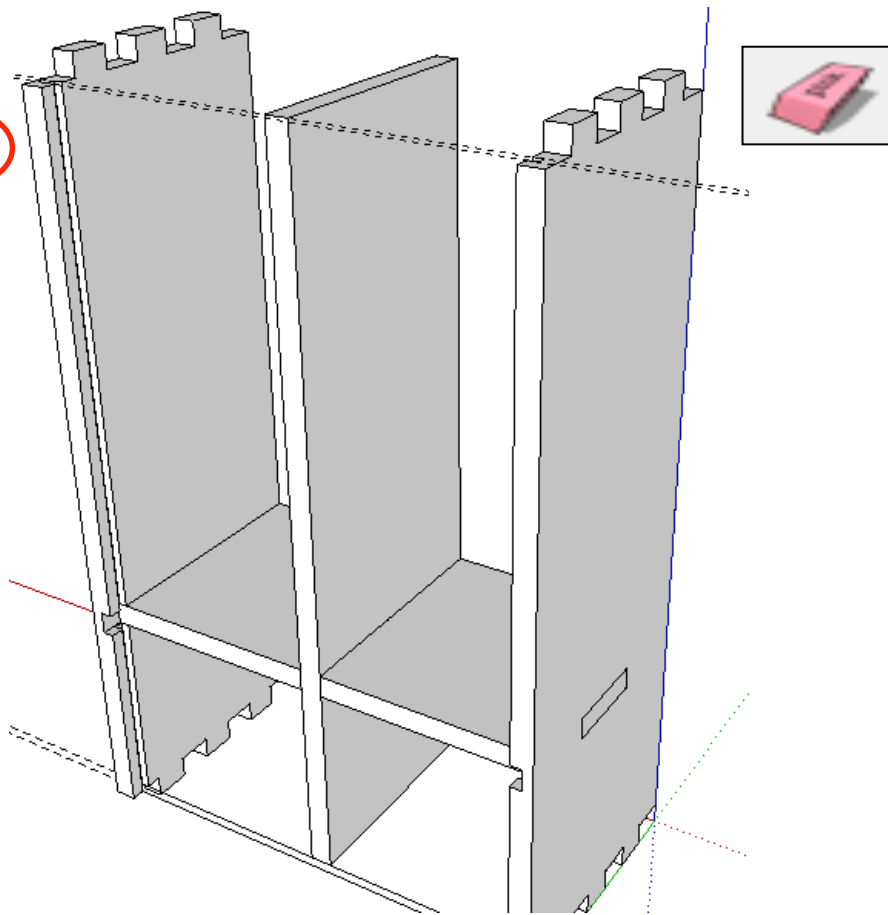
34. Use the square tool and draw a square diagonally across from the endpoint shown. Type in **4, 4 and press enter** or move the square tool around until it shows a diagonal line and says square.



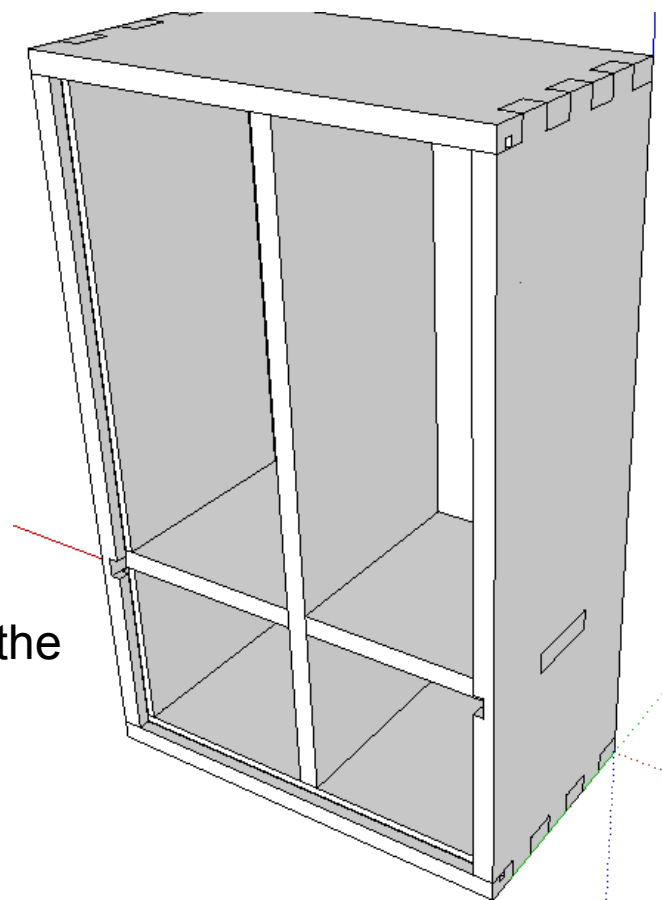
35. Using the **push pull tool**. Push the square you have just drawn down. **Type 90 and press enter**. You will have drawn a groove for the back piece to slide into.

36. **Repeat on the other side piece.**

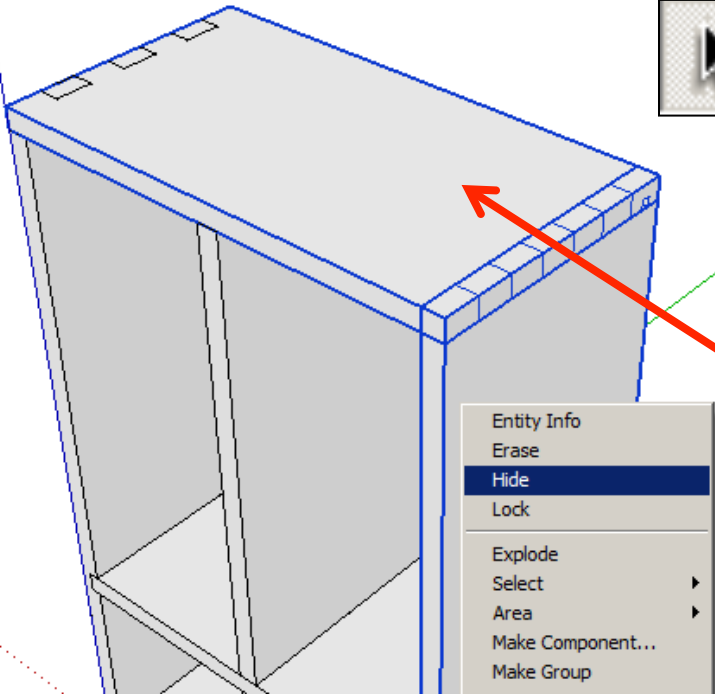




37. Use the **rubber tool** to erase the guidelines from the tape measure tool.



38. Select **edit and unhide** all to put all the pieces back on the storage unit.



39. Using the **select tool**, click on the one of the side pieces.

Hold the shift key down

(arrow pointing up four under caps lock)

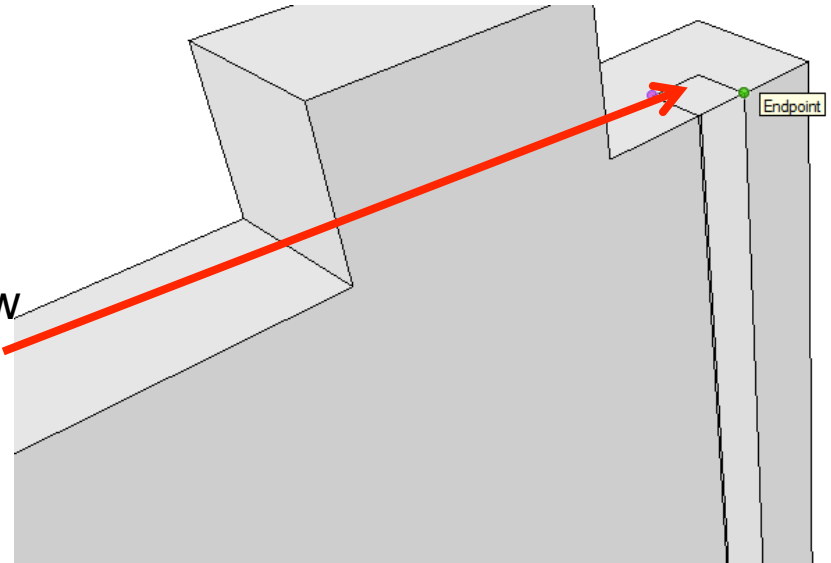


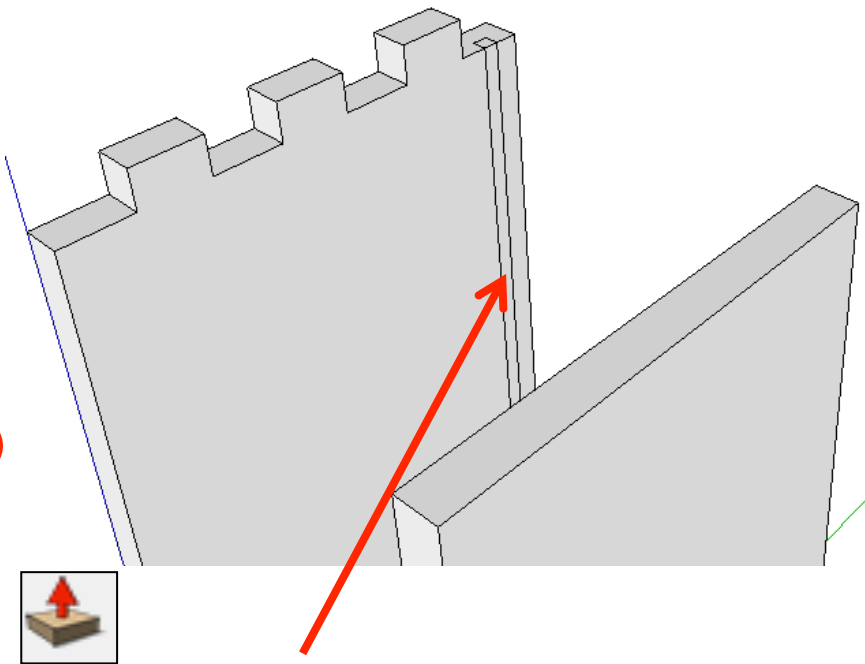
Click on the top pieces so the two pieces are highlighted

40. Right click with the mouse and select **hide**.



41. Use the square tool and draw a square diagonally across from the endpoints shown at the top of the remaining side piece.

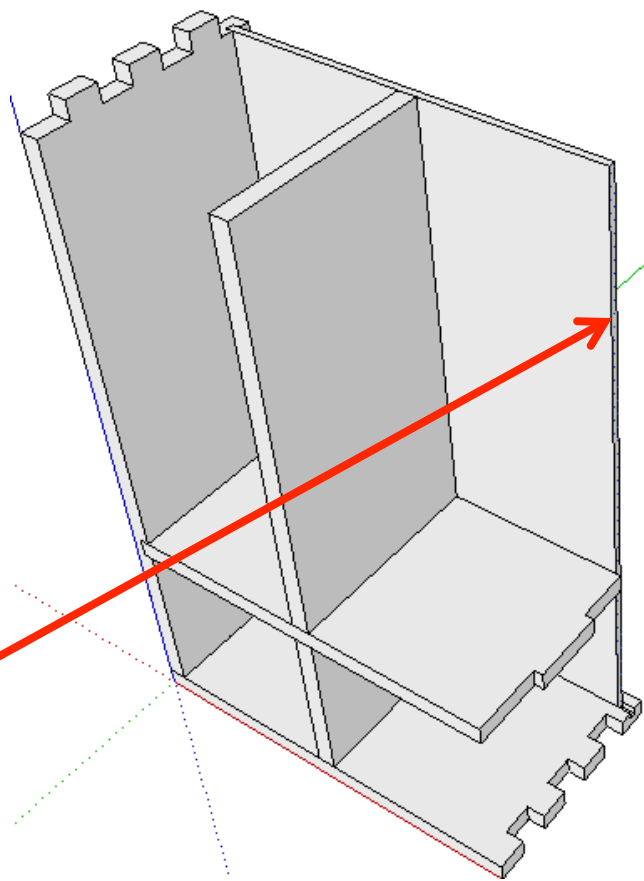


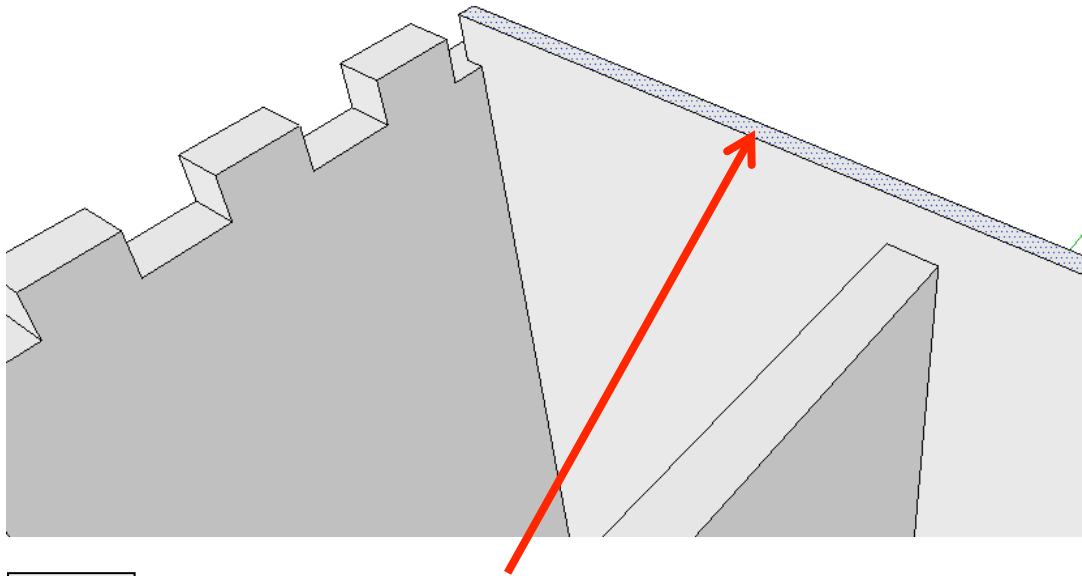


42. Using the **push pull tool**. Push the square you have just drawn down. **Type 334 and press enter.**



43. Using the **push pull tool**. Pull the edge of the shape you have just drawn across as shown. **Type 204 and press enter.**

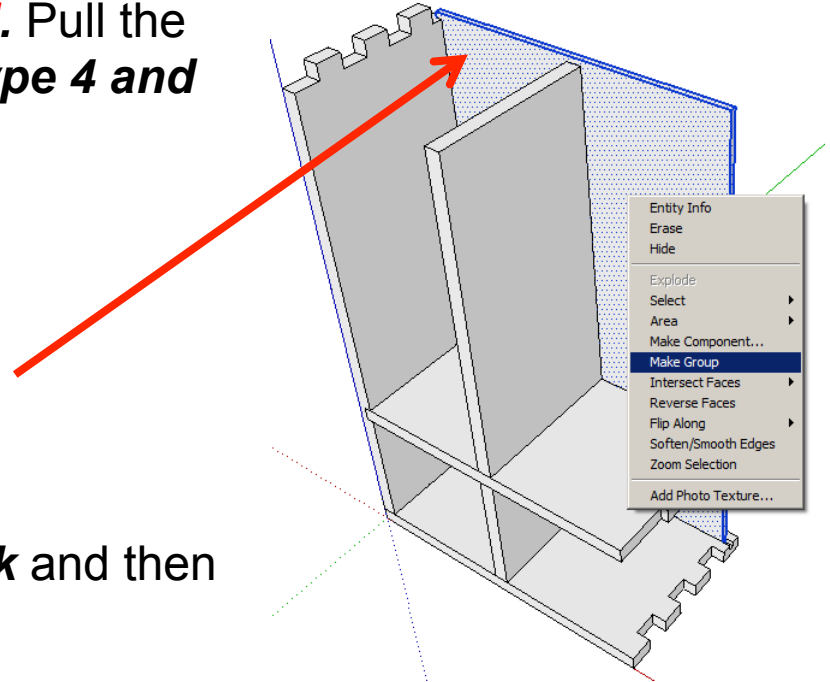




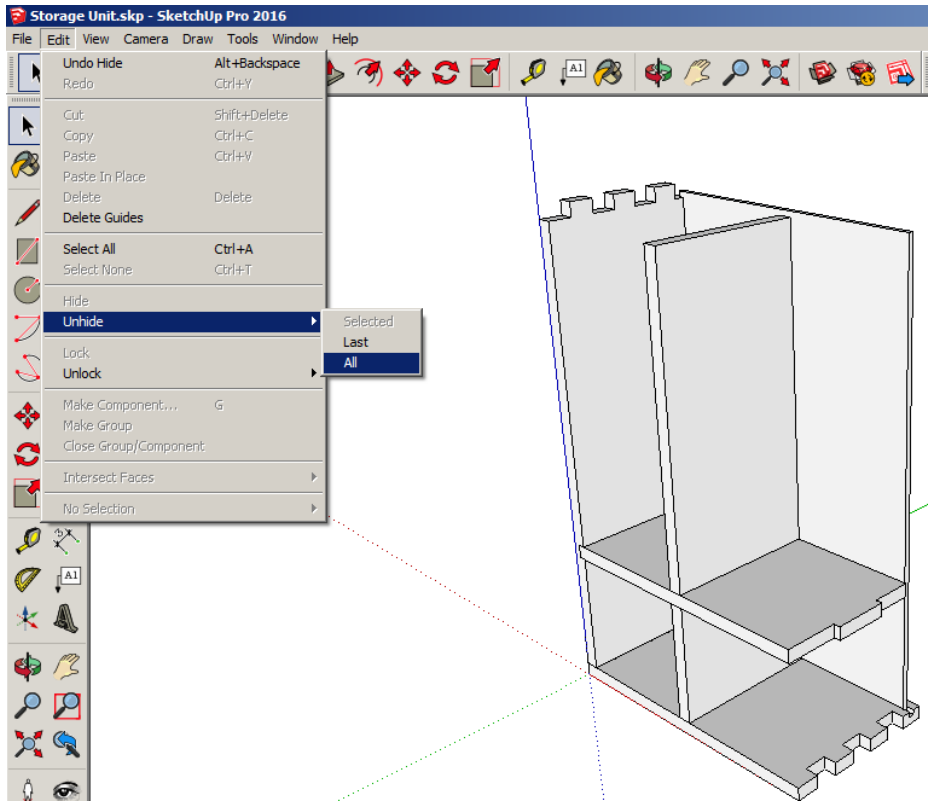
44. Using the **push pull tool**. Pull the edge of the shape up. **Type 4 and press enter.**



45. Use the **select tool** and click on the back piece shape **three times** to select the entire object.

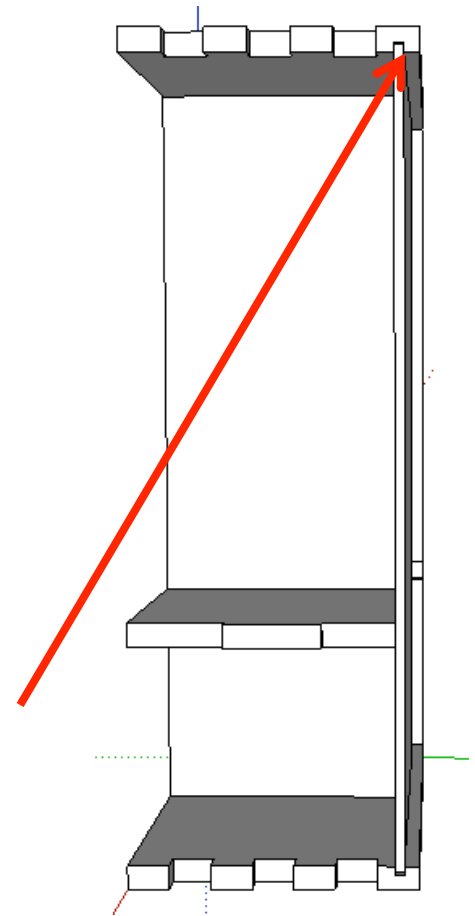


46. On the mouse **right click** and then select **make group**.



47. Click on the edit toolbar at the top of the screen. Then **click on unhide** and select all.

You have now drawn the back piece that is held in place by the slots you have drawn.



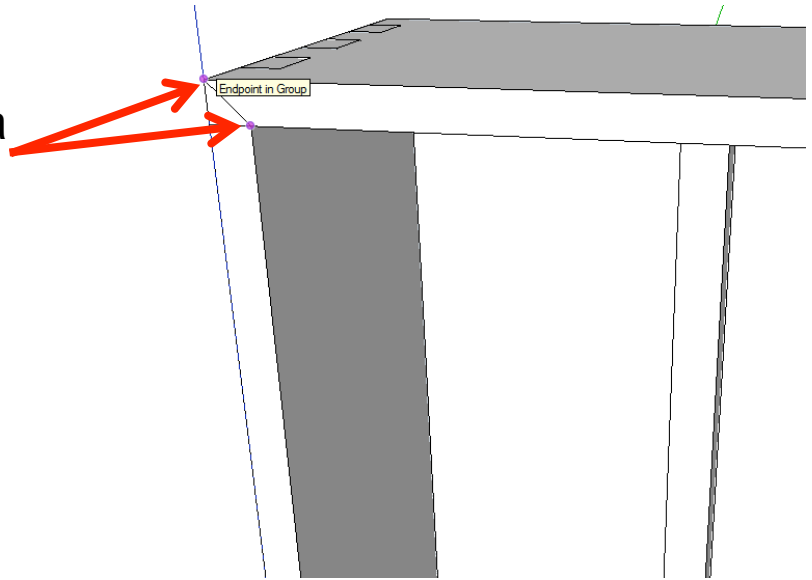
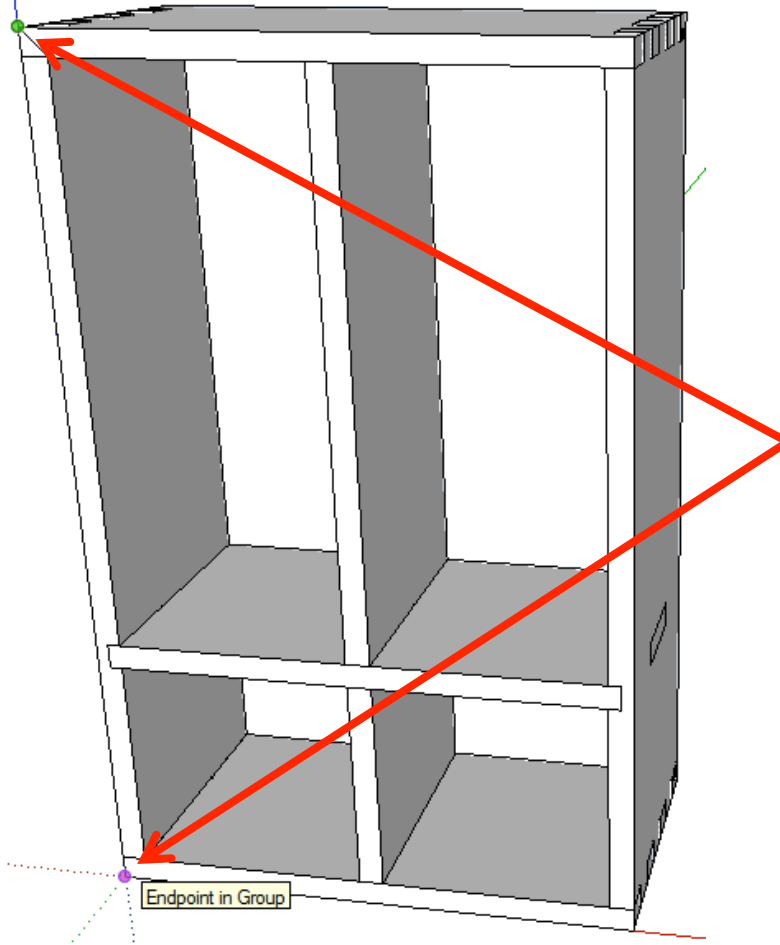


CAD Tutorial 20: Storage Unit

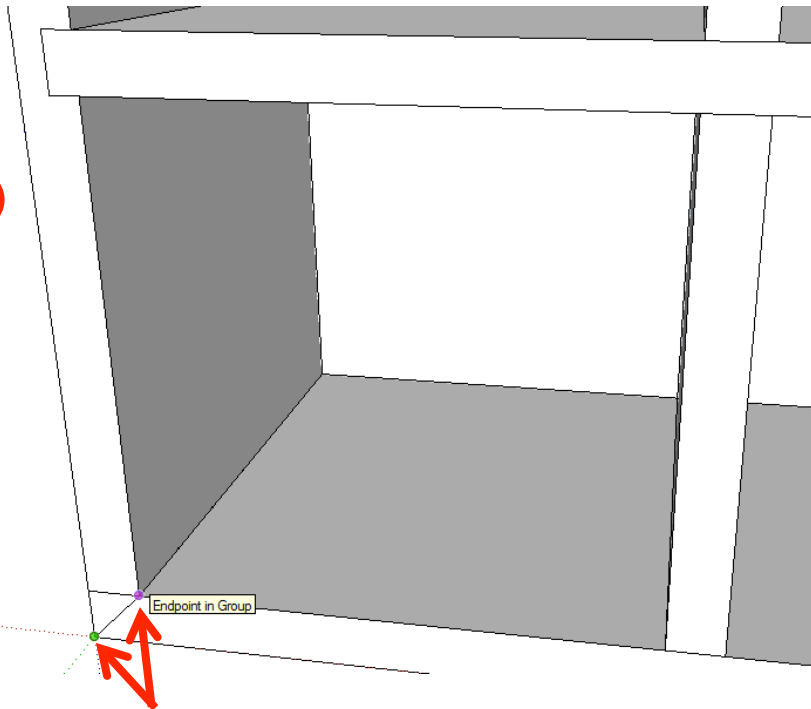
Front Trim for Door Hinges



1. Use the **pencil tool** and draw a line from the two end points shown.



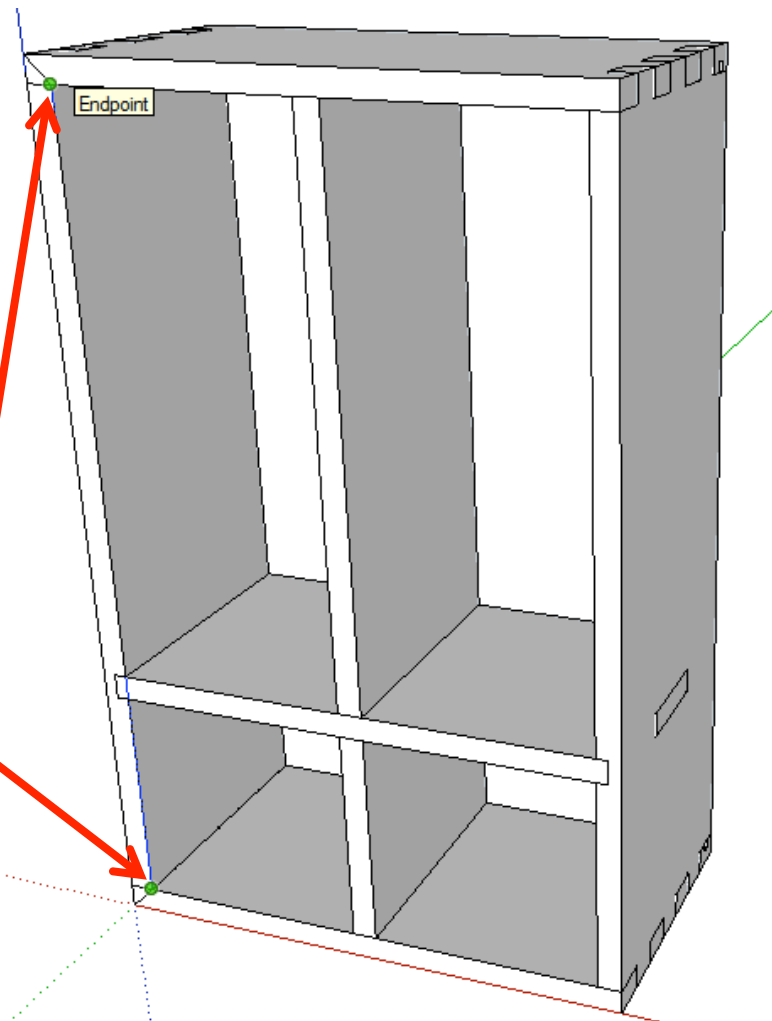
2. Use the **pencil tool** and draw a line from the two end points shown.

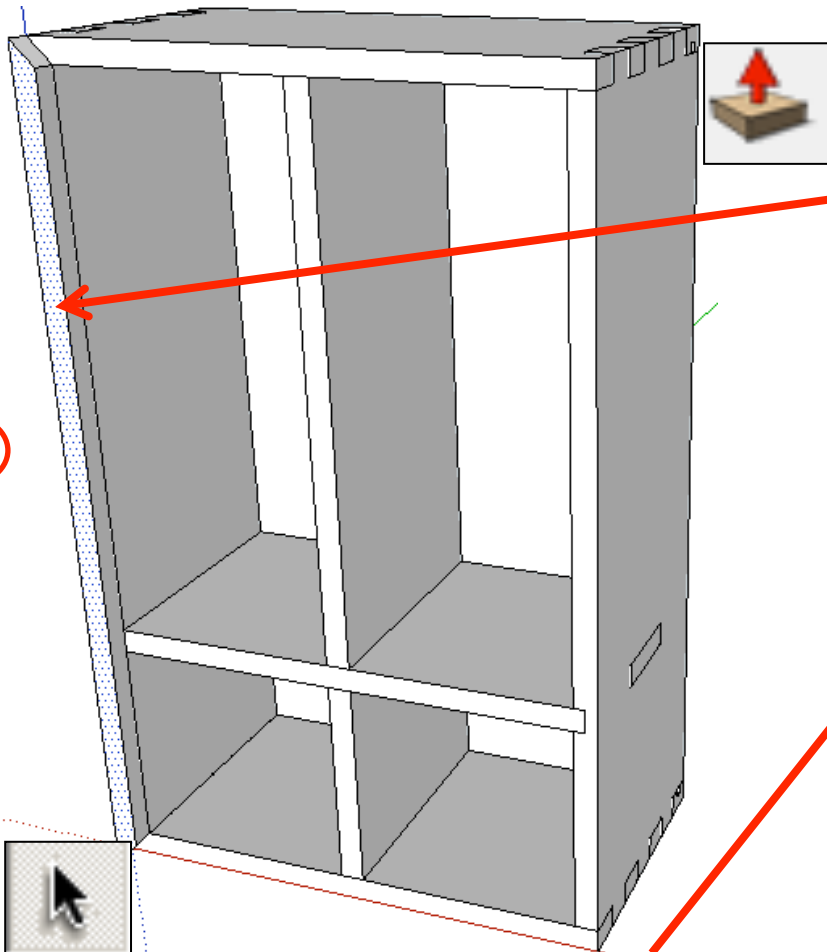


3. Use the **pencil tool** and draw a line from the two end points shown.

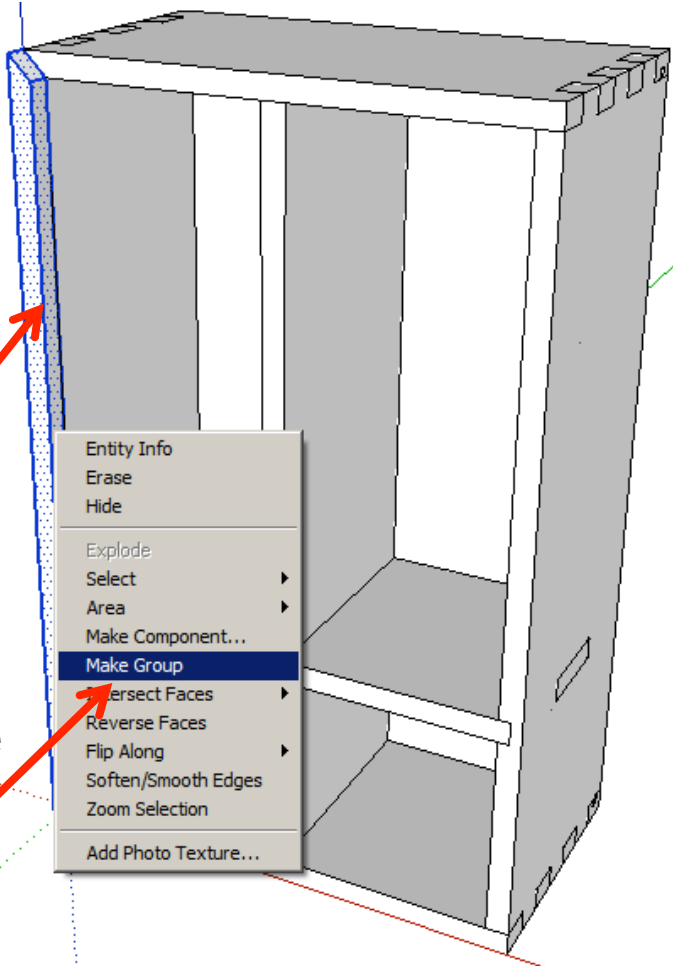


4. Use the **pencil tool** and draw a line from the two end points shown.





5. Using the **push pull tool**. Pull the shape up. **Type 10 and press enter.**

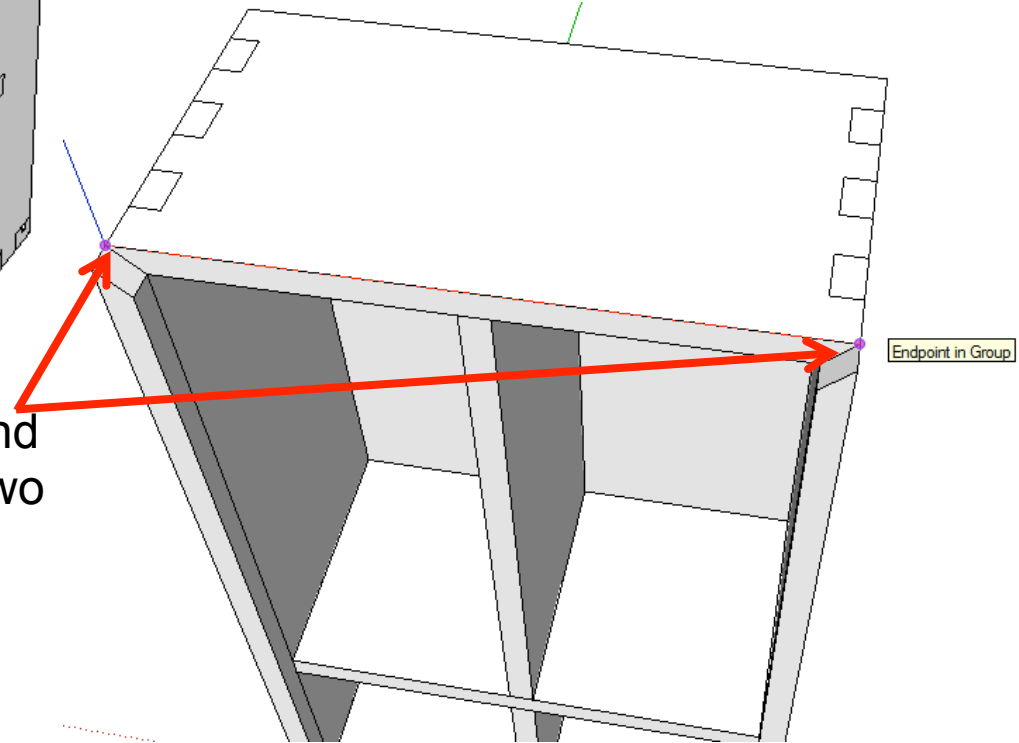
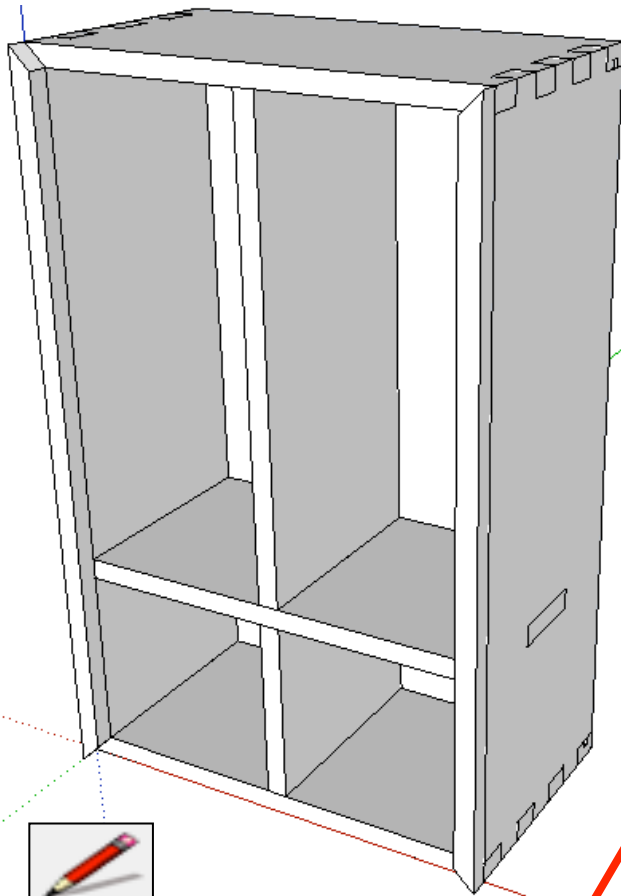


6. Use the **select tool** and click on the piece **three times** to select the entire object.

7. On the mouse **right click** and then select **make group**.



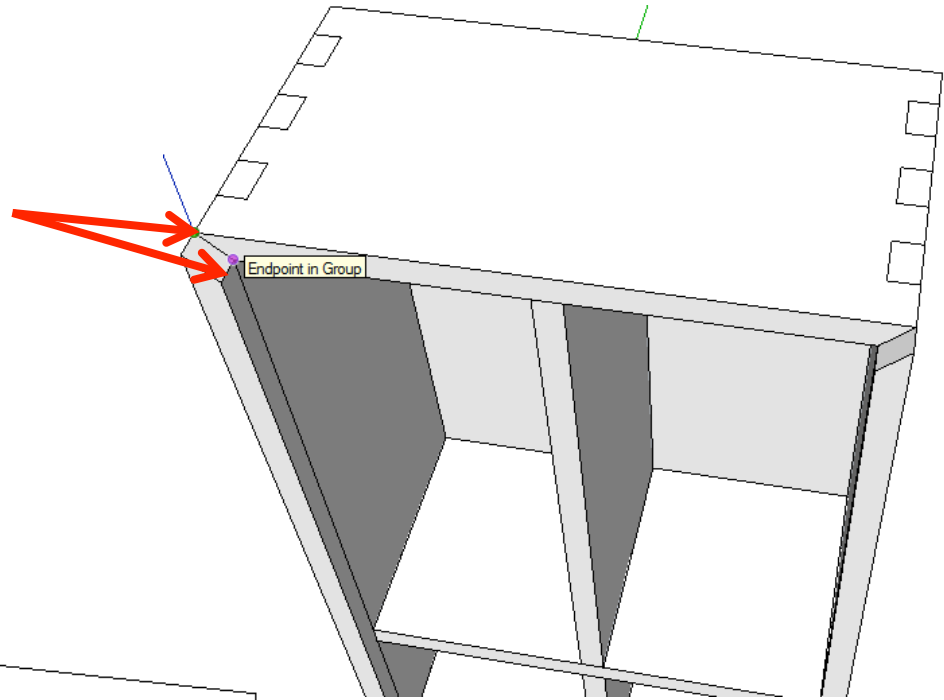
8. **Repeat steps 1 – 8** on the opposite side. Make sure you group it once you have drawn the front trim piece



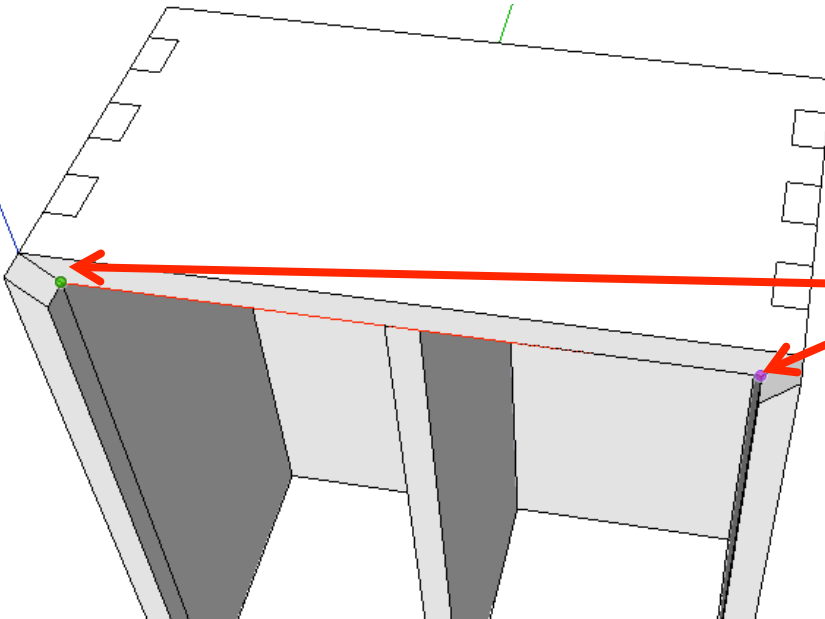
9. Use the **pencil tool** and draw a line from the two end points shown.

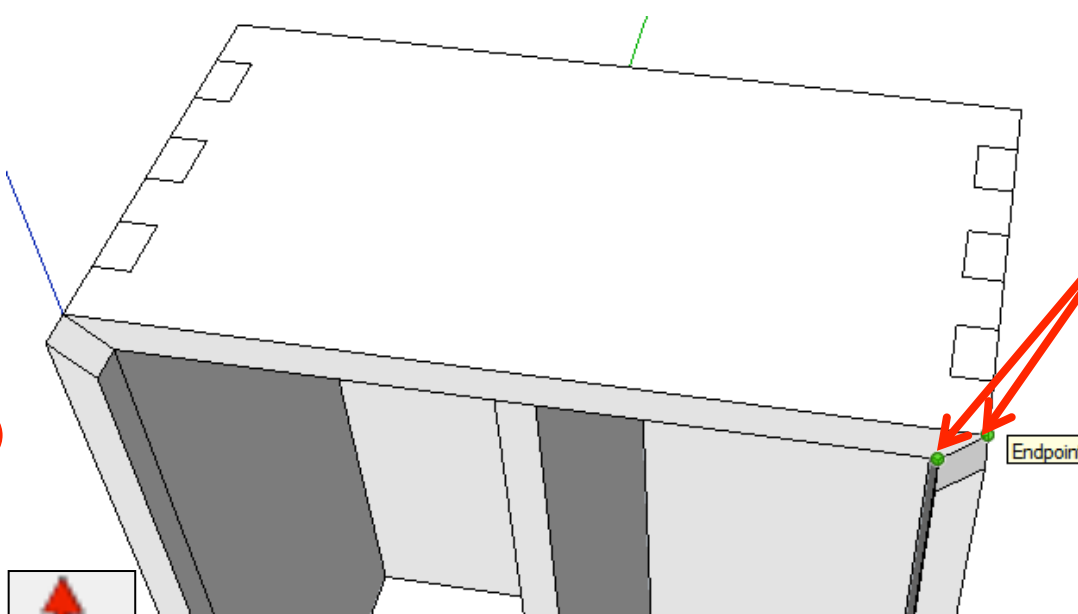


10. Use the **pencil tool** and draw a line from the two end points shown.



11. Use the **pencil tool** and draw a line from the two end points shown.

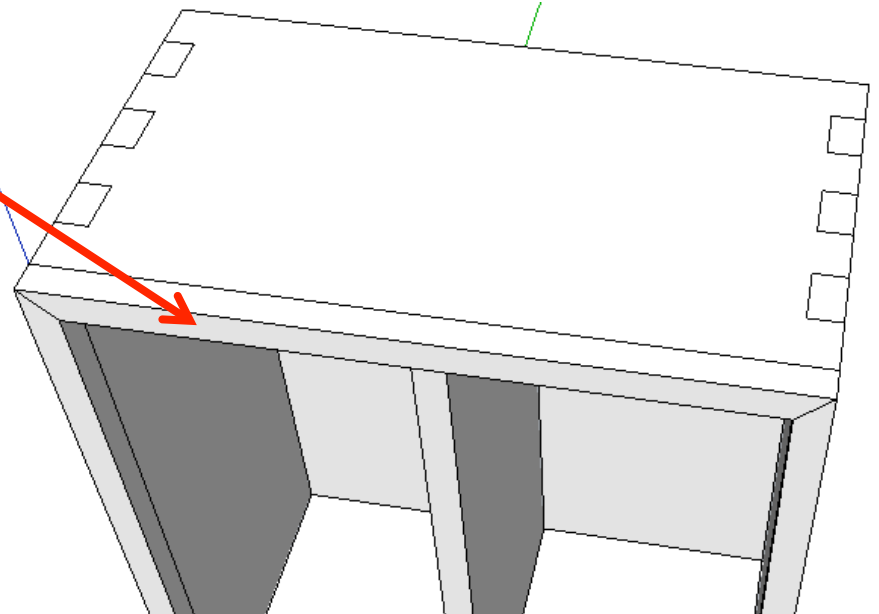


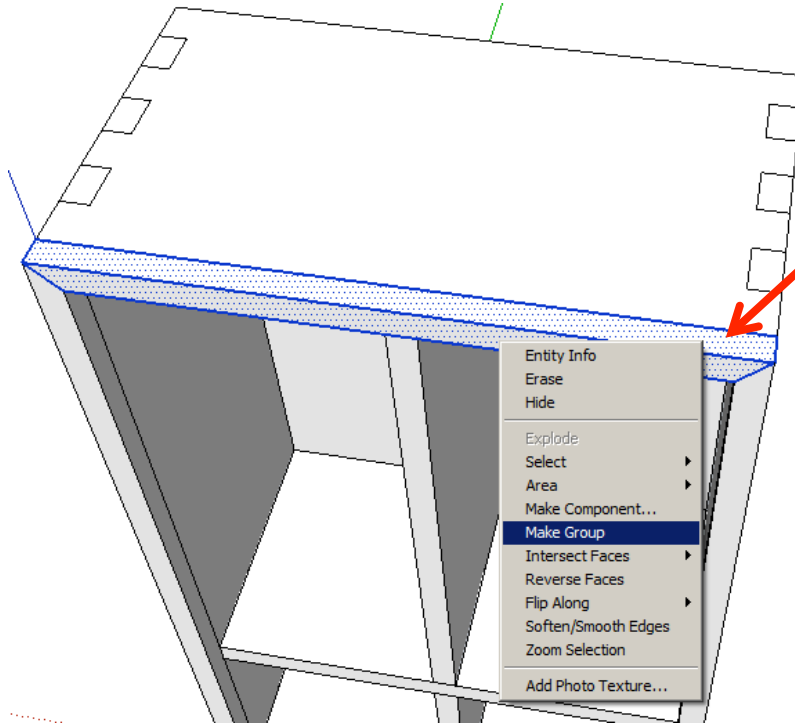


12. Use the **pencil tool** and draw a line from the two end points shown.



13. Using the **push pull tool**. Pull the shape up. **Type 10 and press enter.**

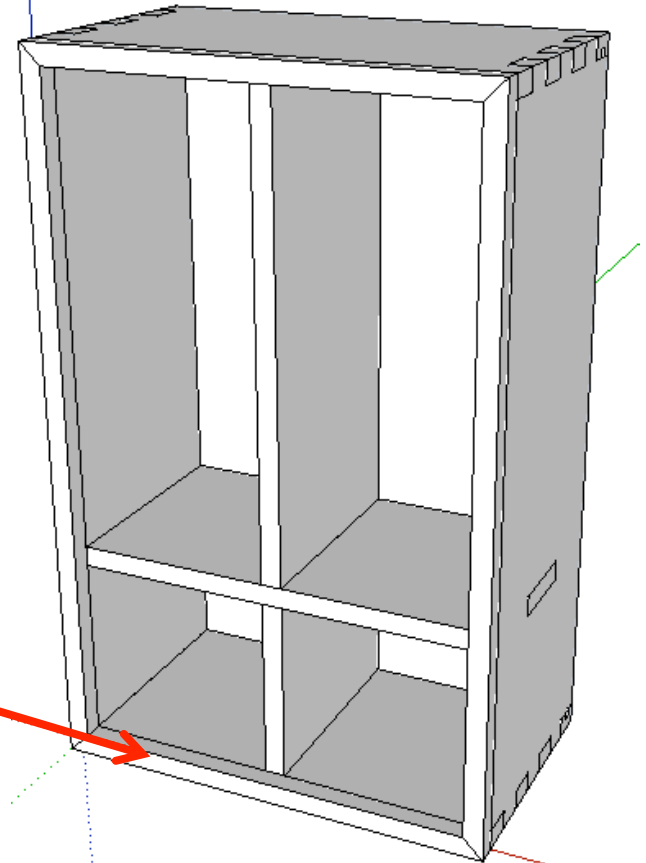


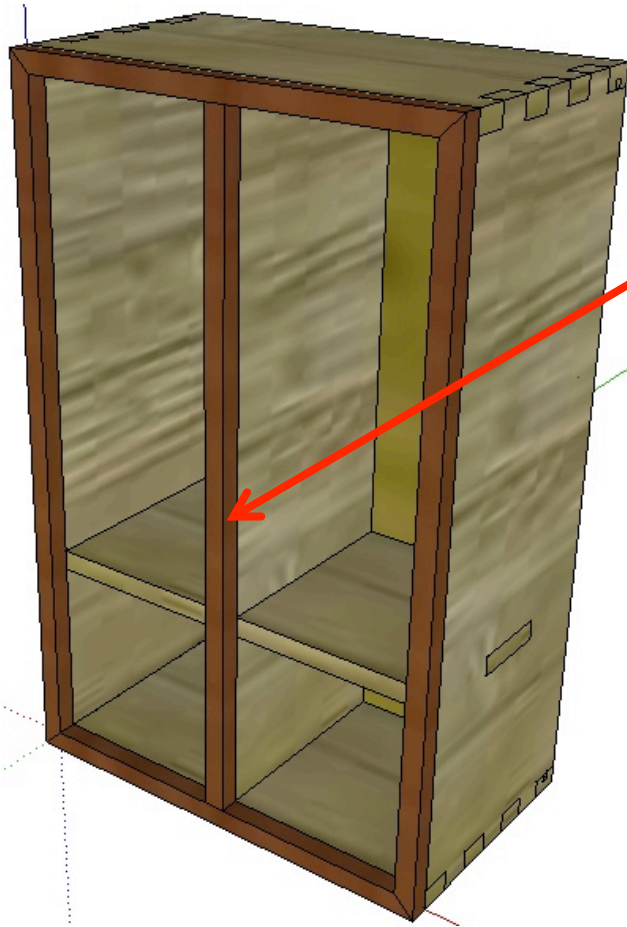


14. Use the ***select tool*** and click on the piece ***three times*** to select the entire object.

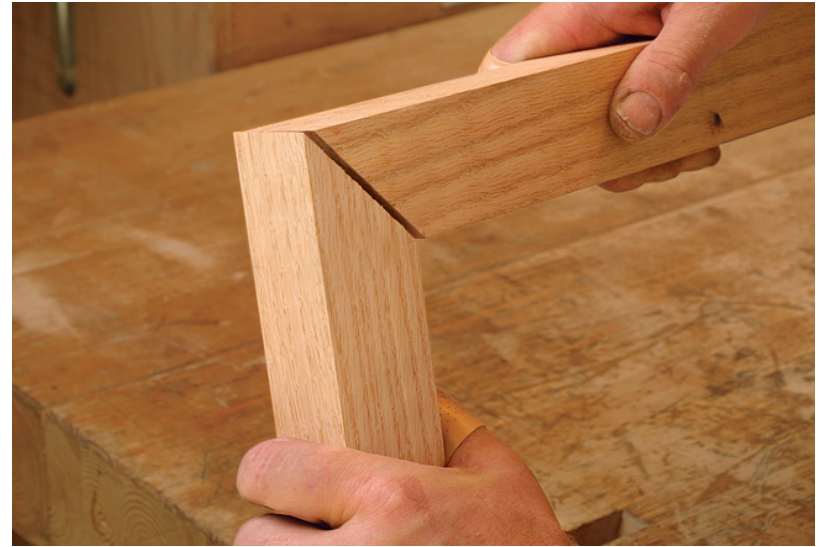
15. On the mouse ***right click*** and then select ***make group***.

16. ***Repeat steps 9 – 15*** on the bottom piece. Make sure you group it once you have drawn the front trim piece

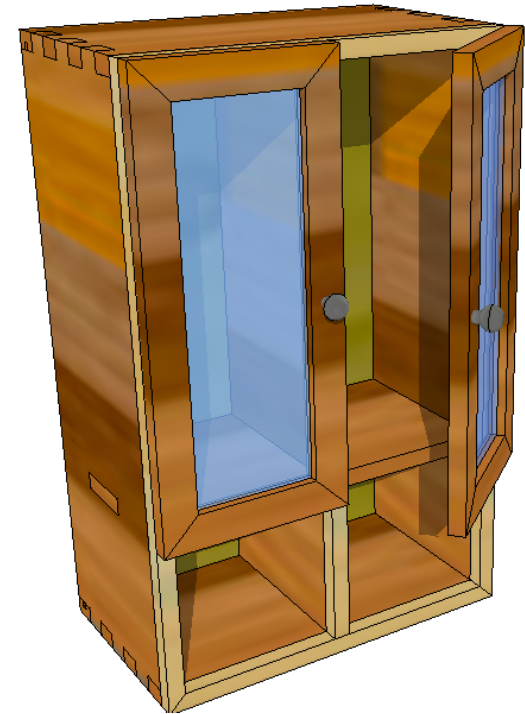




17. Have a go at drawing the front middle trim piece

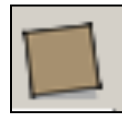
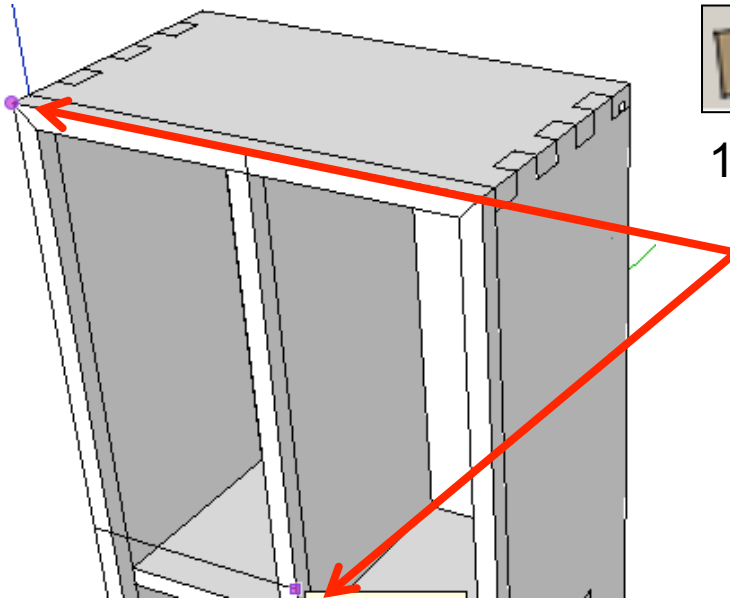


17. You have now drawn all the trim pieces for your storage unit. The joints in the corner of mitre joints.

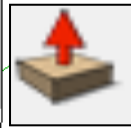
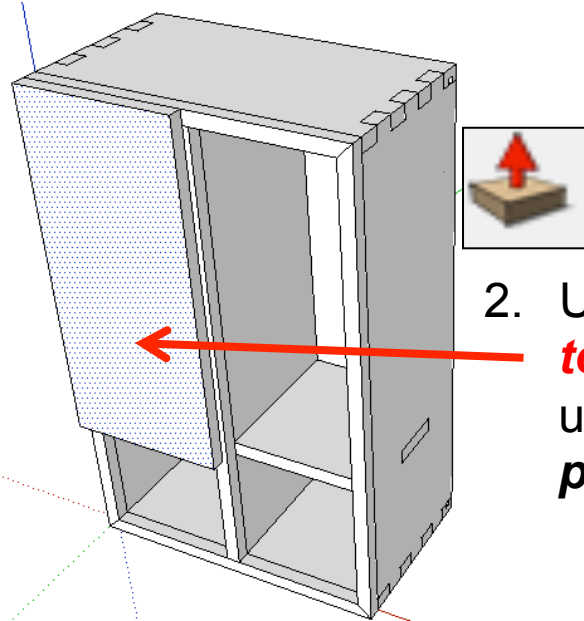


CAD Tutorial 20: Storage Unit

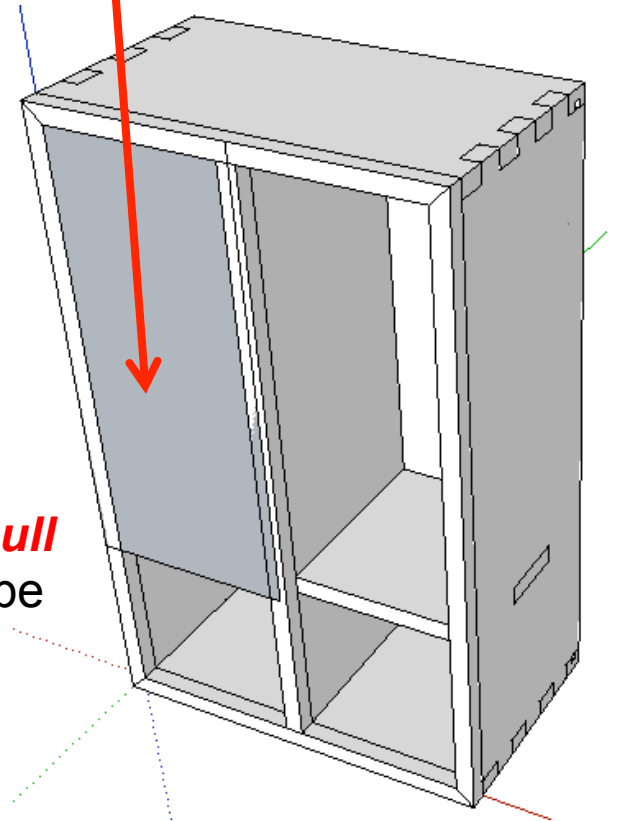
Doors

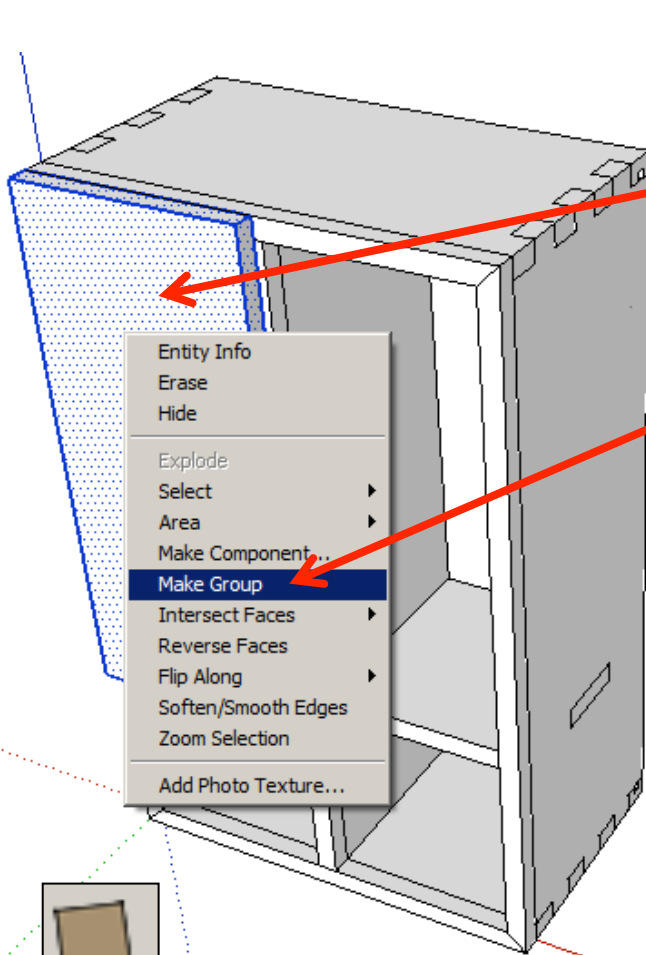


1. Use the square tool and draw a square diagonally across from top left corner endpoint shown. **Type in 110,250 and press enter.**



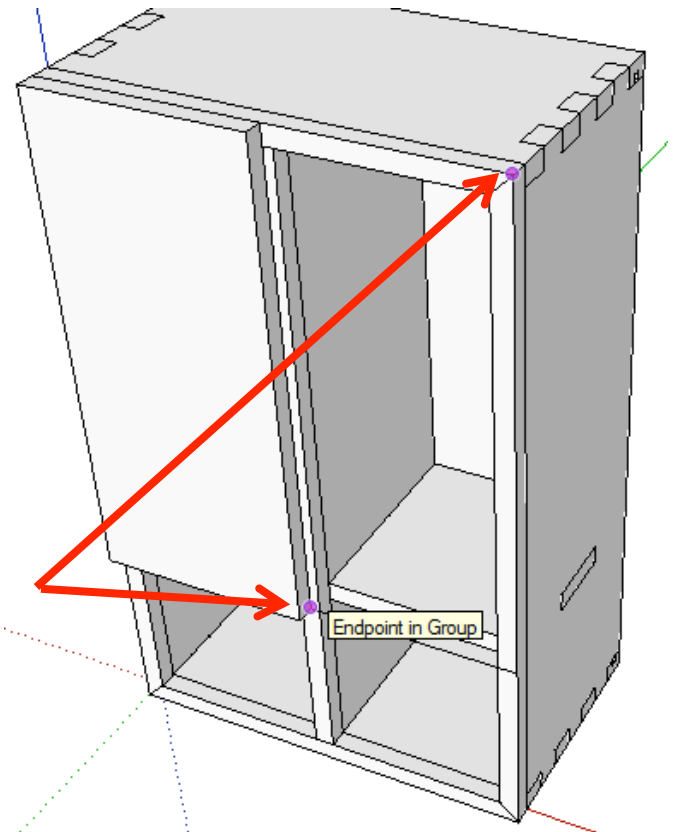
2. Using the **push pull tool**. Pull the shape up. **Type 10 and press enter.**



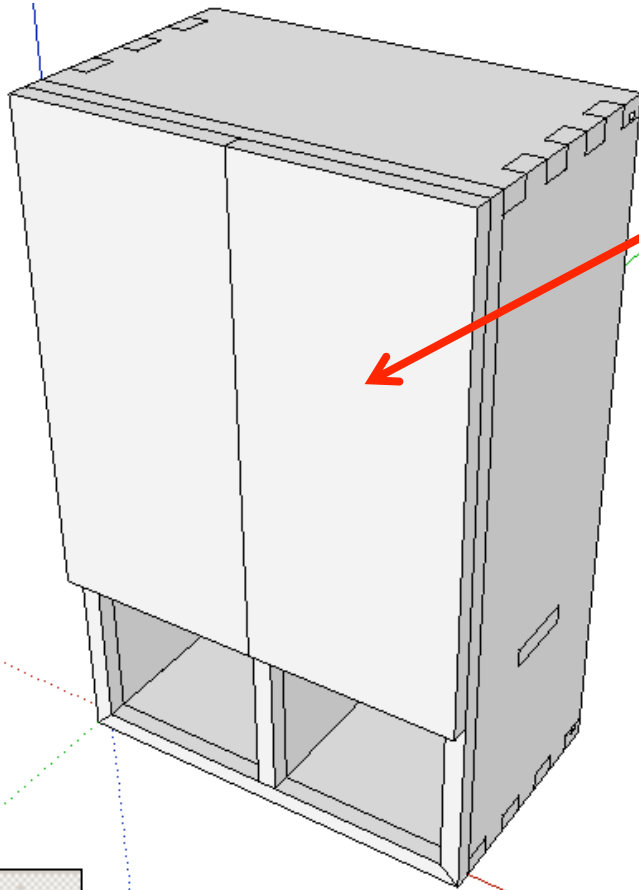


3. Use the ***select tool*** and click on the piece ***three times*** to select the entire object.

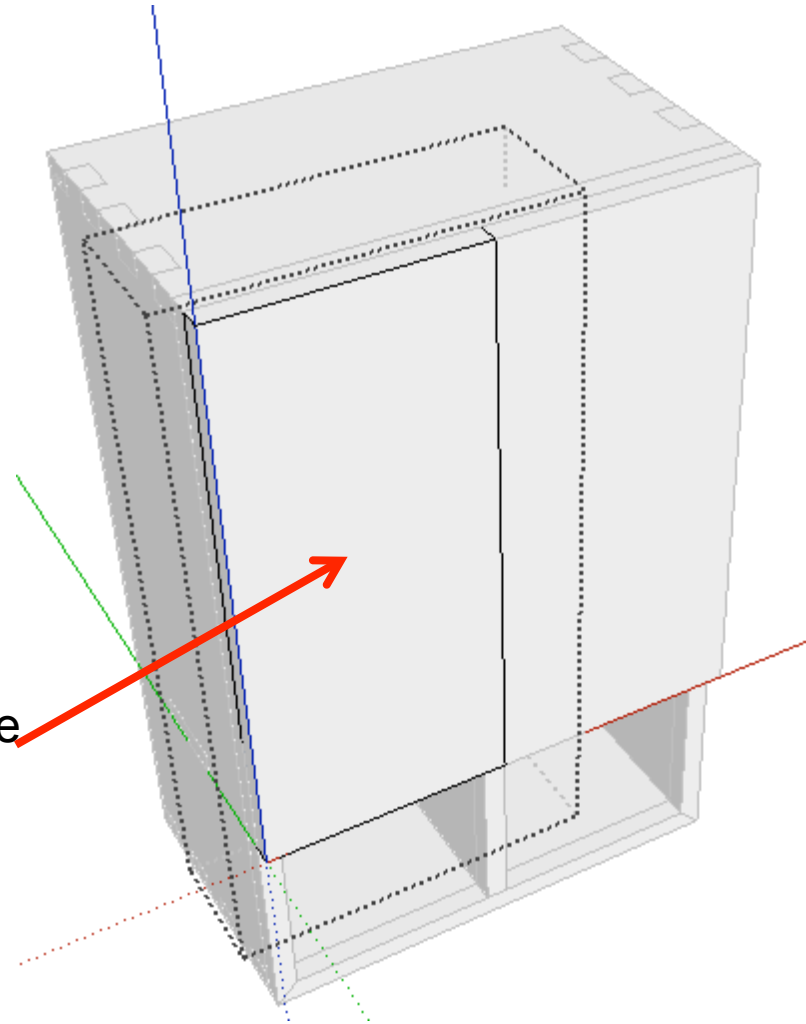
4. On the mouse ***right click*** and then select ***make group***.



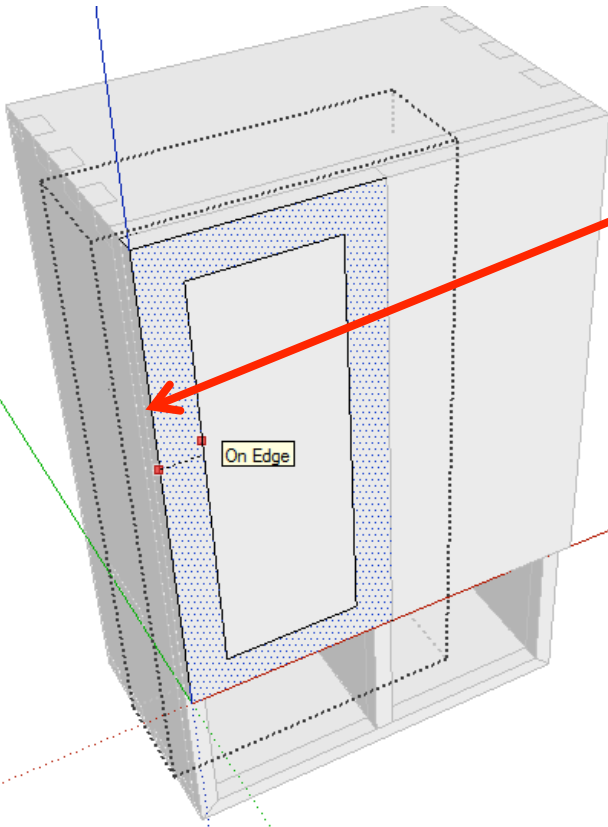
5. Use the square tool and draw a square diagonally across from top right corner endpoint shown to the bottom left hand endpoint.



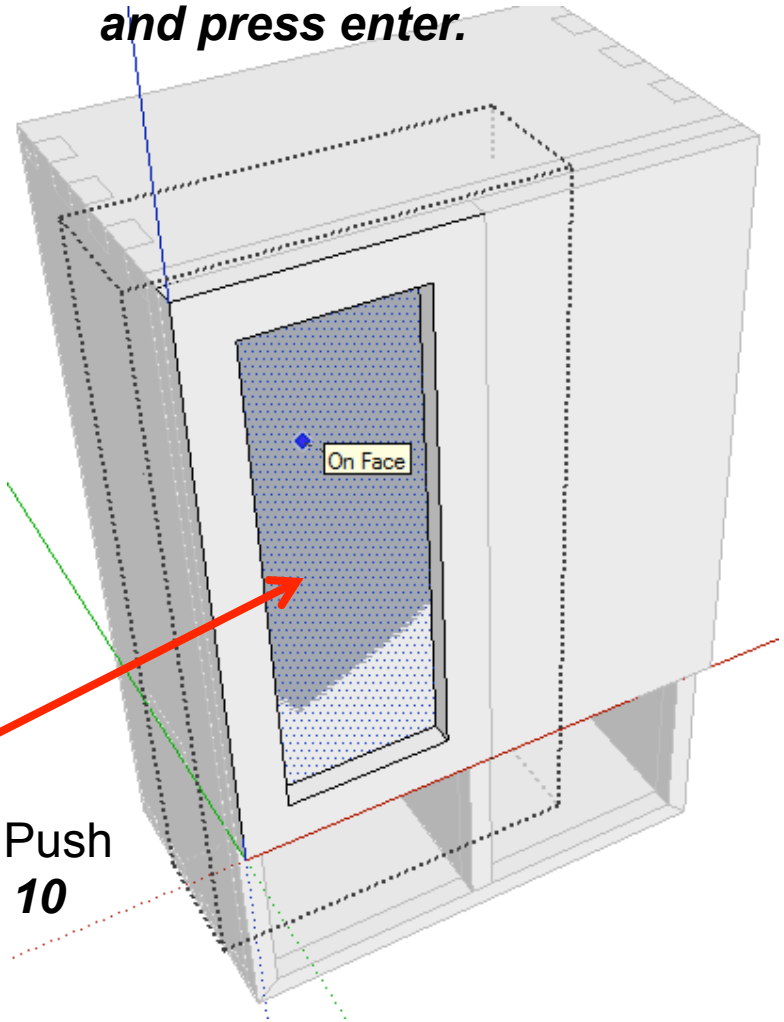
6. Using the **push pull tool**. Pull the shape up. **Type 10 and press enter**. Click on the shape three times and group.



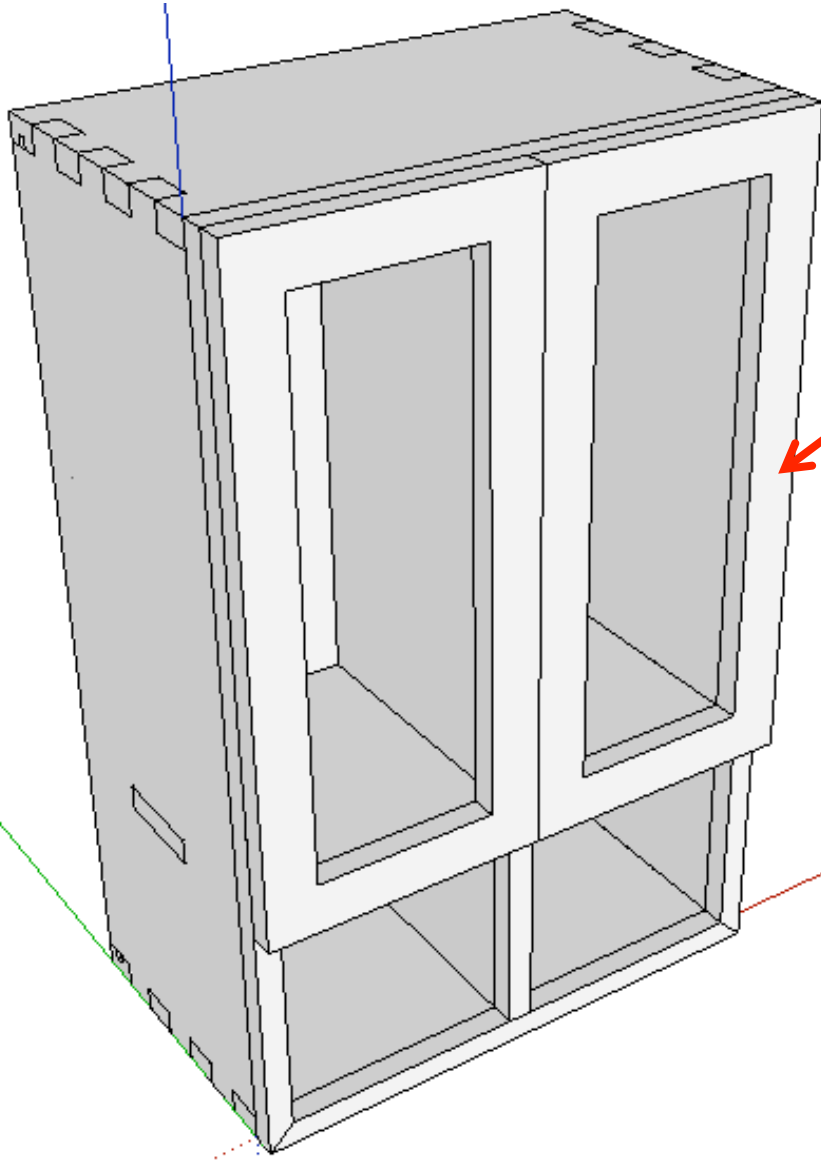
7. Using the **select tool**, **double click** on the piece shown to edit it. All the other pieces should be greyed out.



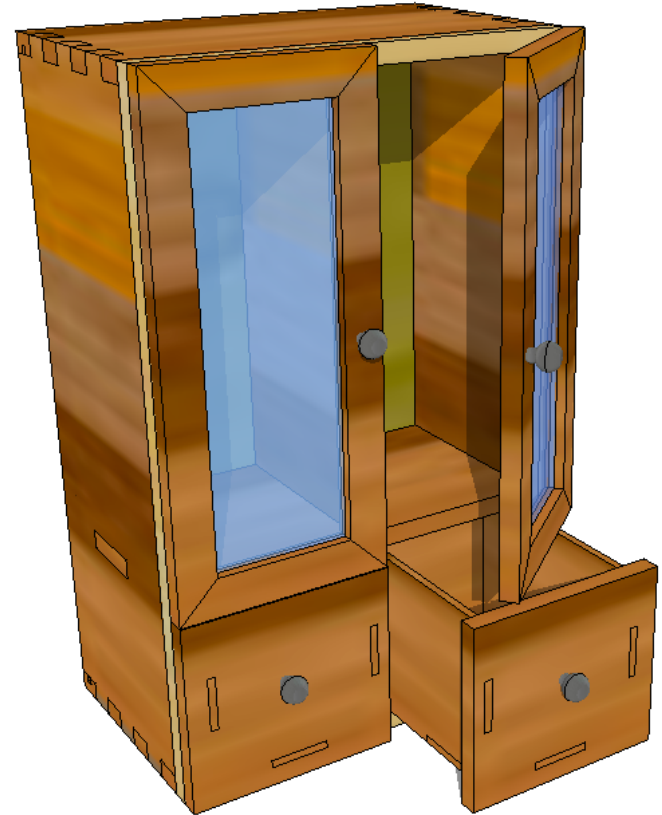
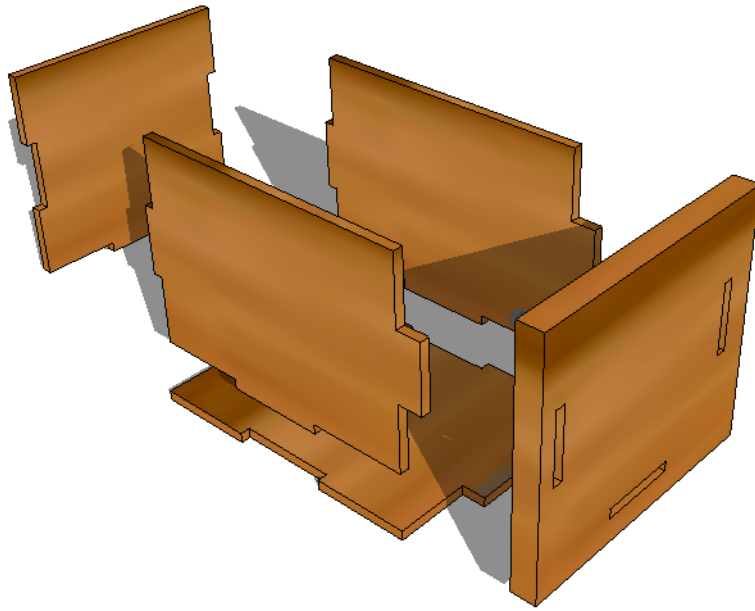
8. Select the **offset tool** and select the outside edge shown. Pull a parallel line inwards as shown. **Type in 20 and press enter.**



9. Using the **push pull tool**. Push the middle shape in. **Type 10 and press enter.**

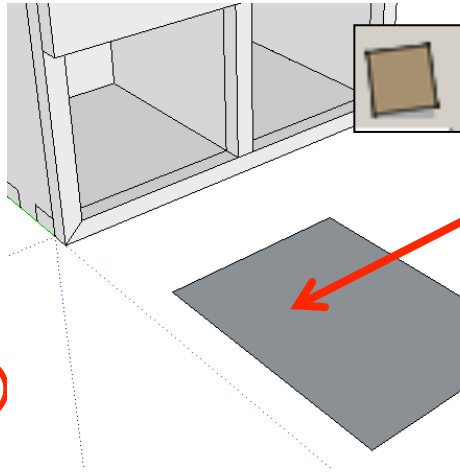


10. Repeat steps **7**, **8** and **9** in the opposite door.



CAD Tutorial 20: Storage Unit

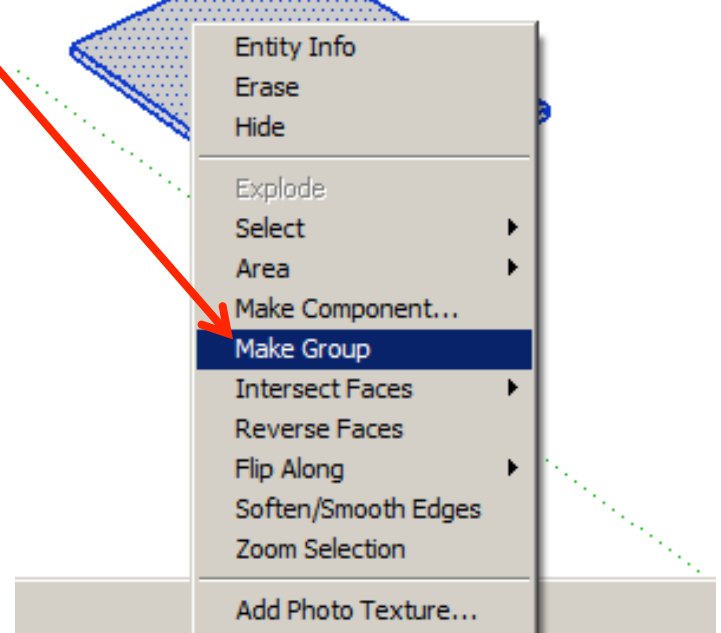
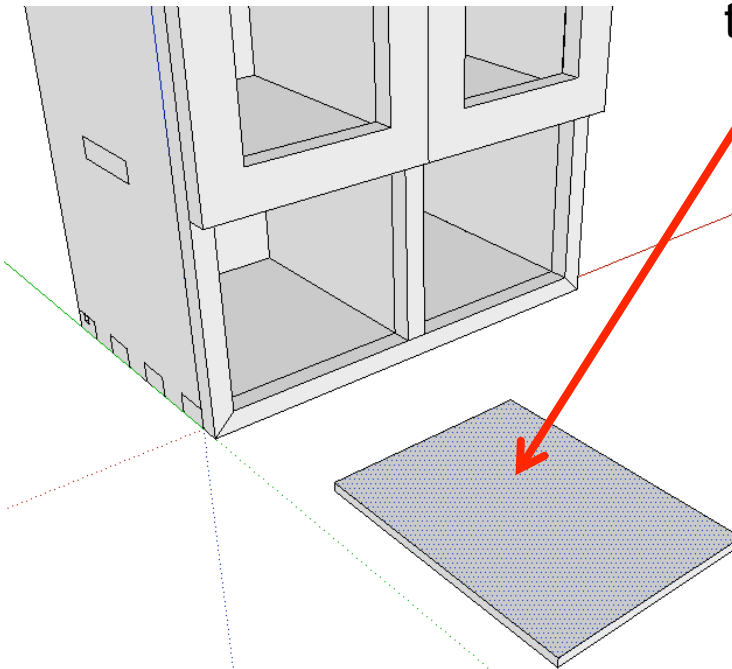
Draws

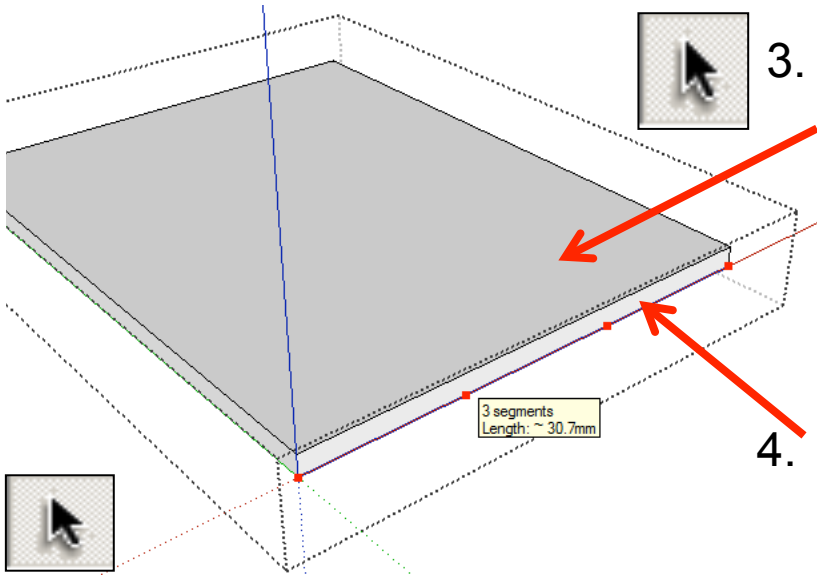


1. Select the **Rectangle tool** and draw a rectangle on the base by clicking and **dragging the cursor diagonally**. Type in 90,120 and press enter.



2. Use the **push pull tool** to raise the shape up. Type in **4 and press enter**. **Click on the shape three times** On the mouse **right click** and then select **make group**.





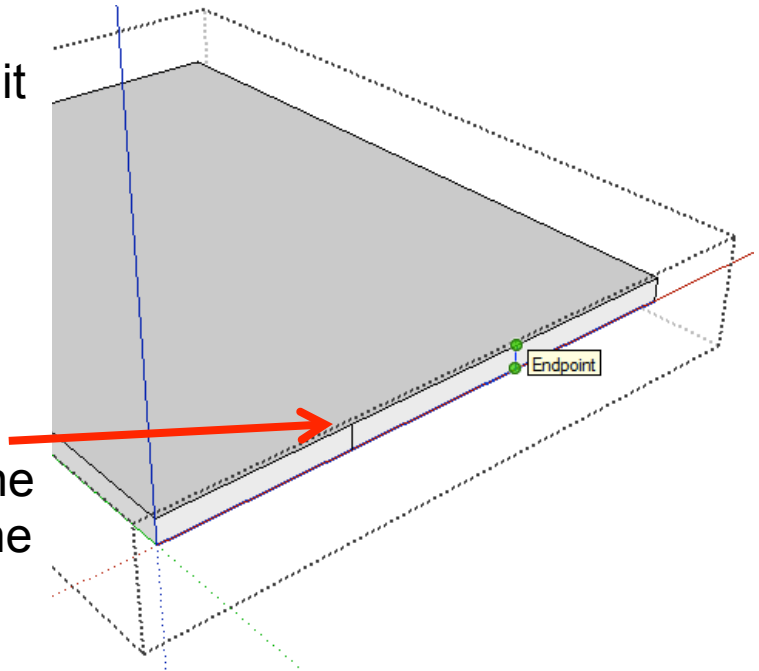
3. Using the **select tool**, **double click** on the piece shown to edit it. All the other pieces should be greyed out. Then click on the edge shown to highlight it in **blue**.

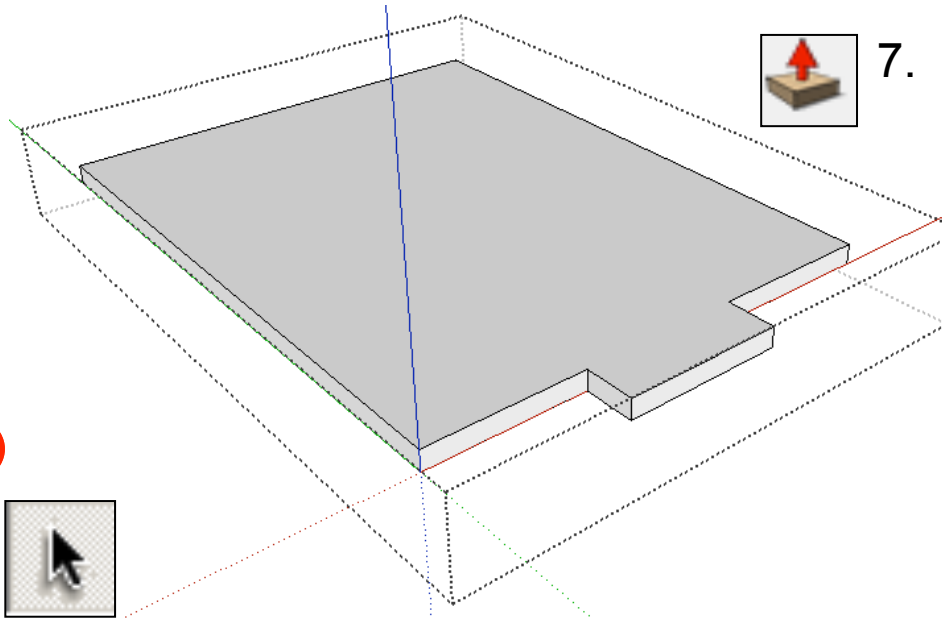
4. Whilst on the selected **blue** line, **right click** with the mouse and select **divide**.

5. Using the **mouse**, you can move it up and down the **blue** line to divide it into segments or you can type **3** and **press enter**.



6. Using the **pencil tool**, move your pencil along the blue line until it snaps to an **endpoint**. Draw your line up on the **blue axis**. Repeat your line up on each endpoint. You should have two lines in total.

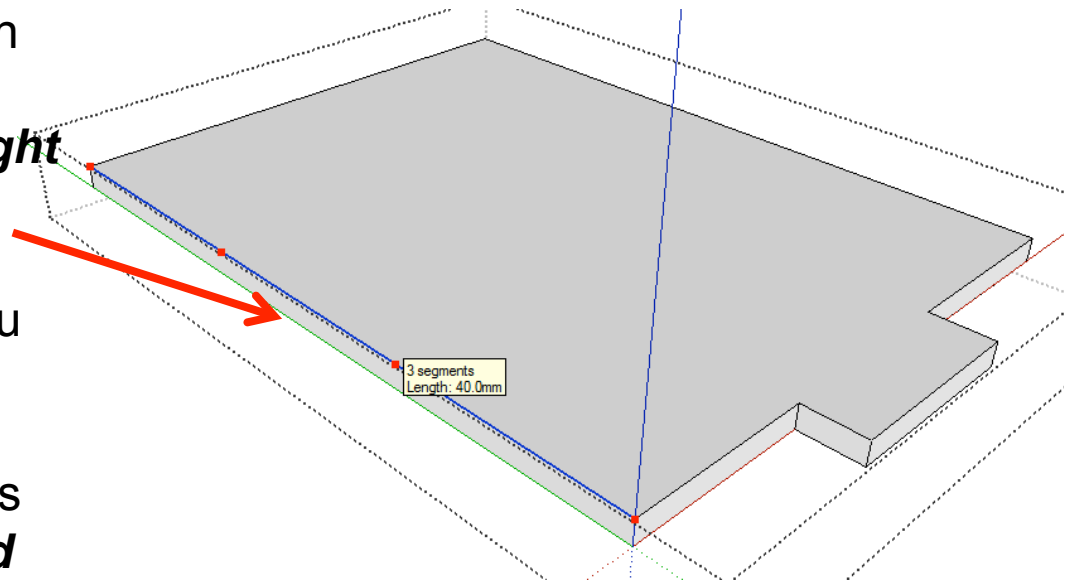


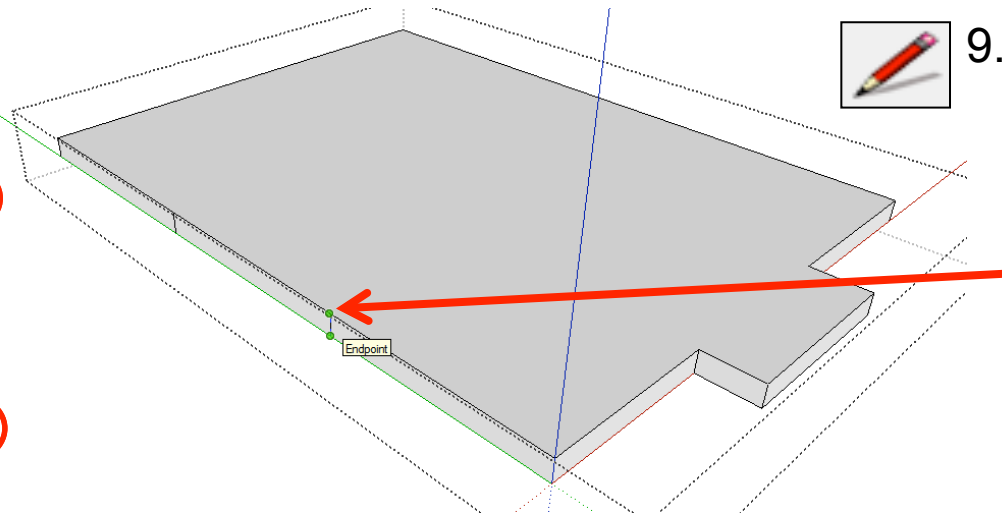


7. Using the **push pull tool**. Pull the middle rectangle out shown. **Type 10 and press enter.**



8. Click on the edge shown to highlight it in **blue**. Whilst on the selected **blue** line, **right click** with the mouse and select **divide**. Using the **mouse**, you can move it up and down the **blue** line to divide it into segments or you can type **3 and press enter**.

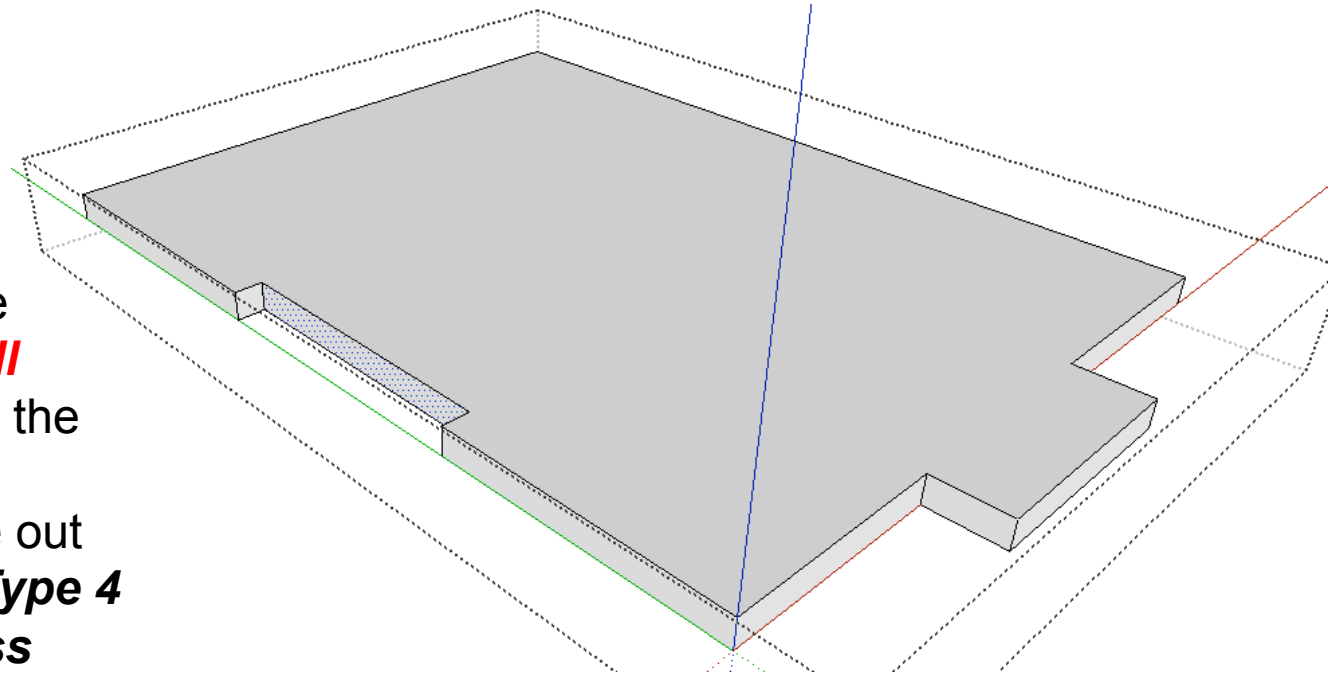


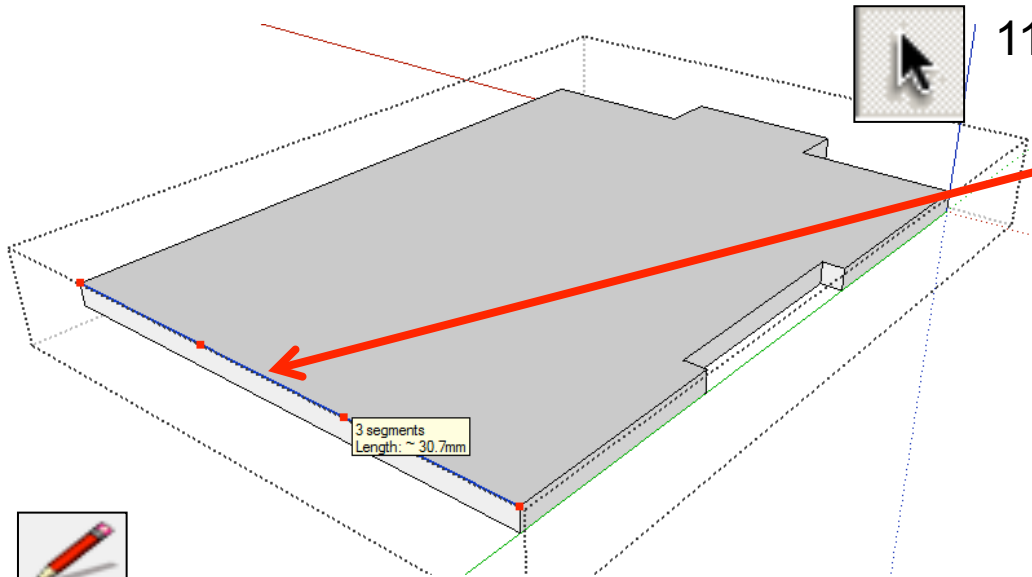


9. Using the **pencil tool**, move your pencil along the blue line until it snaps to an **endpoint**. Draw your line down on the **blue axis**. Repeat your lines down on each endpoint. You should have two lines in total.



10. Using the **push pull tool**. Pull the middle rectangle out shown. **Type 4 and press enter.**

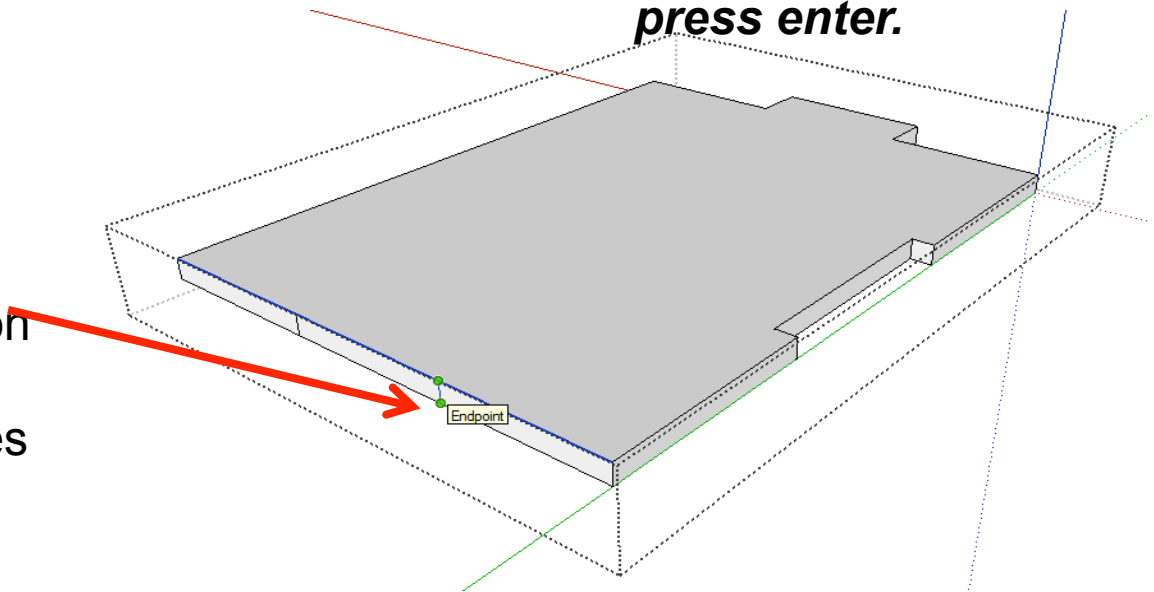


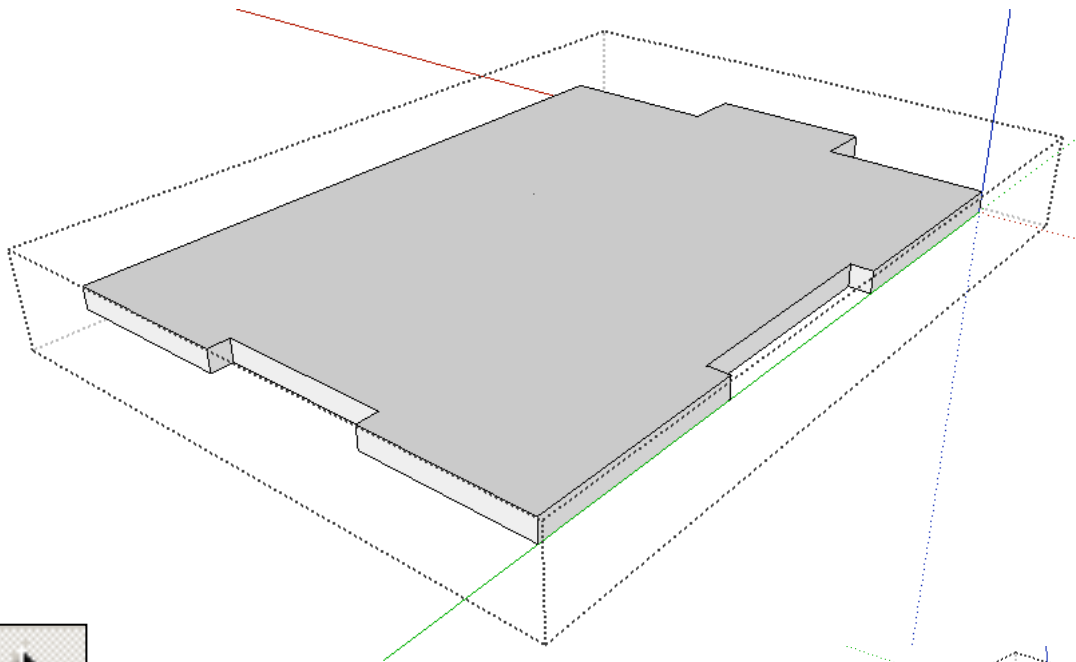


11. Orbit and click on the edge shown to highlight it in **blue**. Whilst on the selected **blue** line, **right click** with the mouse and select **divide**. Using the **mouse**, you can move it up and down the **blue** line to divide it into segments or you can type **3 and press enter**.



12. Using the **pencil tool**, move your pencil along the blue line until it snaps to an **endpoint**. Draw your line down on the **blue axis**. Repeat your lines down on each endpoint. You should have two lines in total

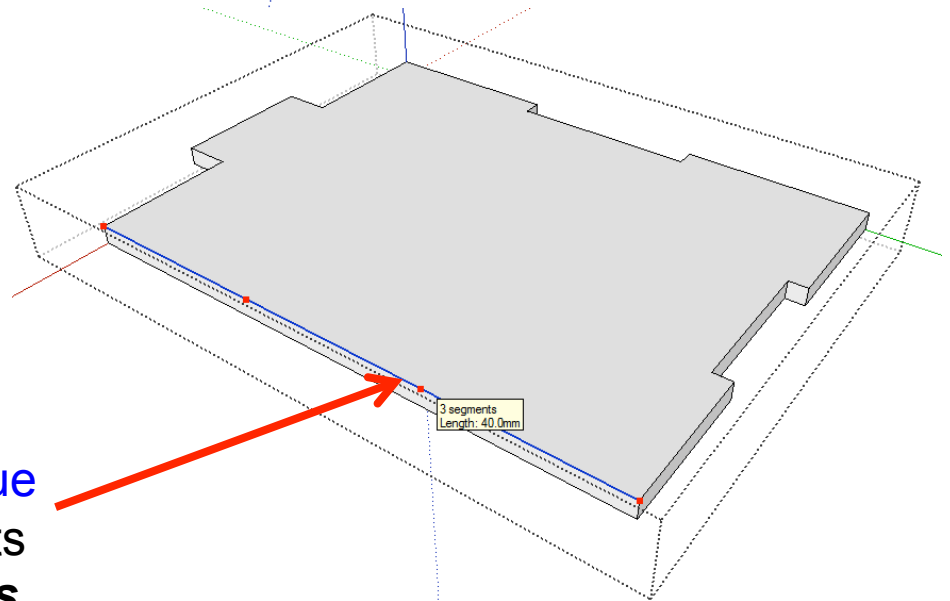


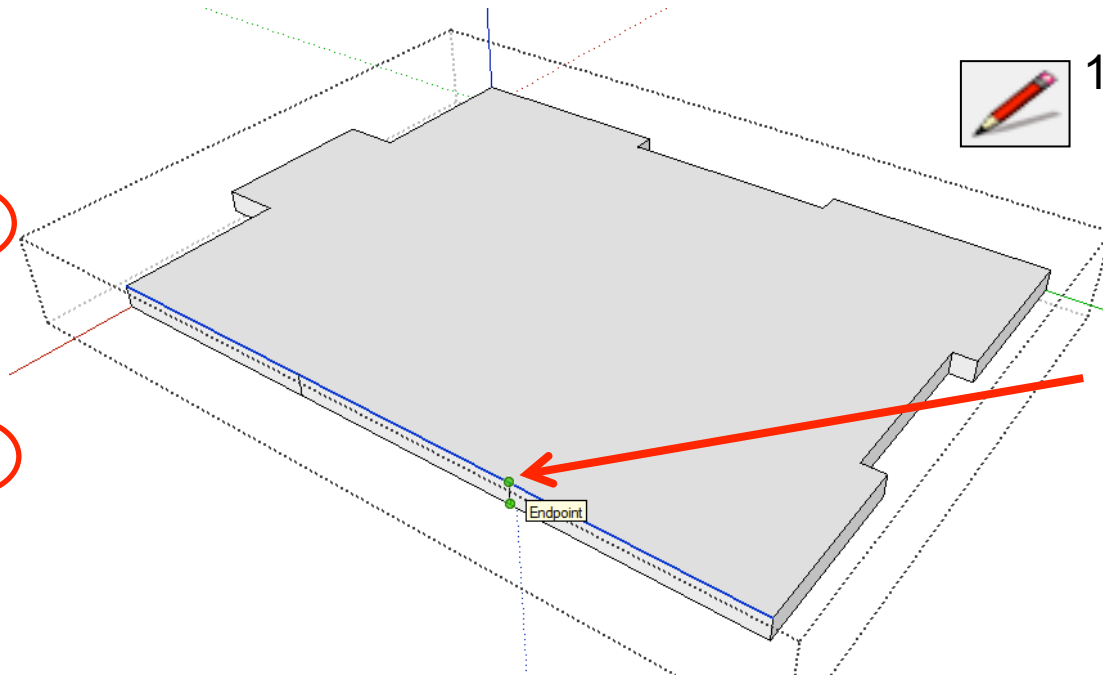


13. Using the **push pull tool**. Pull the middle rectangle out shown. **Type 4 and press enter.**



14. Orbit and click on the edge shown to highlight it in **blue**. Whilst on the selected **blue** line, **right click** with the mouse and select **divide**. Using the **mouse**, you can move it up and down the **blue** line to divide it into segments or you can type **3 and press enter**.

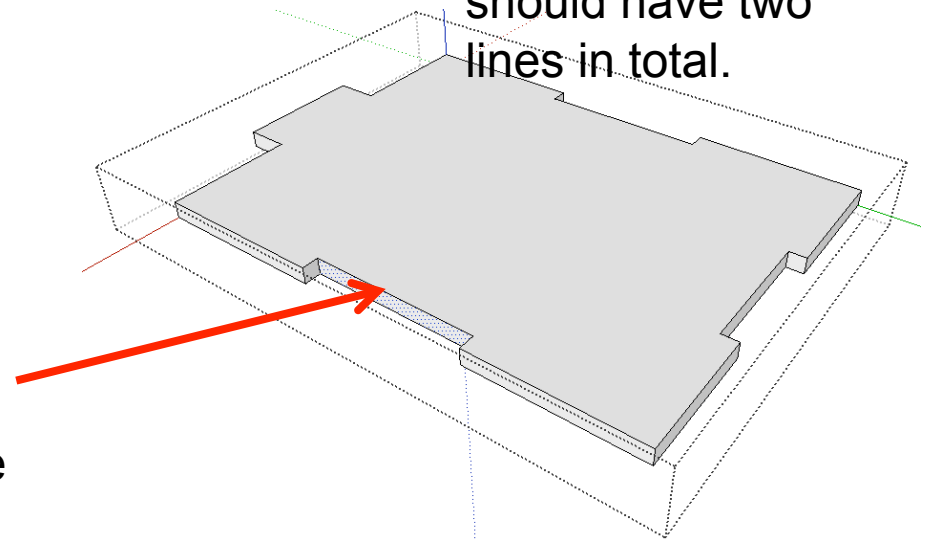


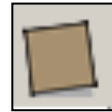
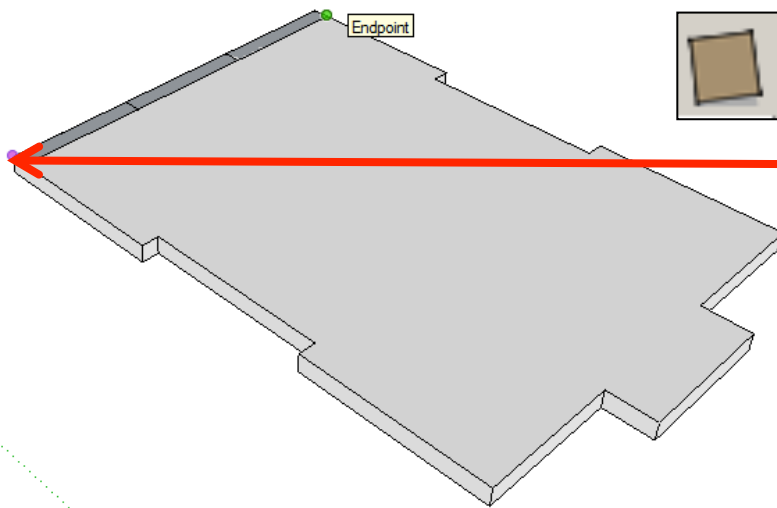


15. Using the **pencil tool**, move your pencil along the blue line until it snaps to an **endpoint**. Draw your line down on the **blue axis**. Repeat your lines down on each endpoint. You should have two lines in total.



16. Using the **push pull tool**. Pull the middle rectangle out shown. **Type 4 and press enter**. Click off the shape anywhere on the screen to take it out of edit mode.

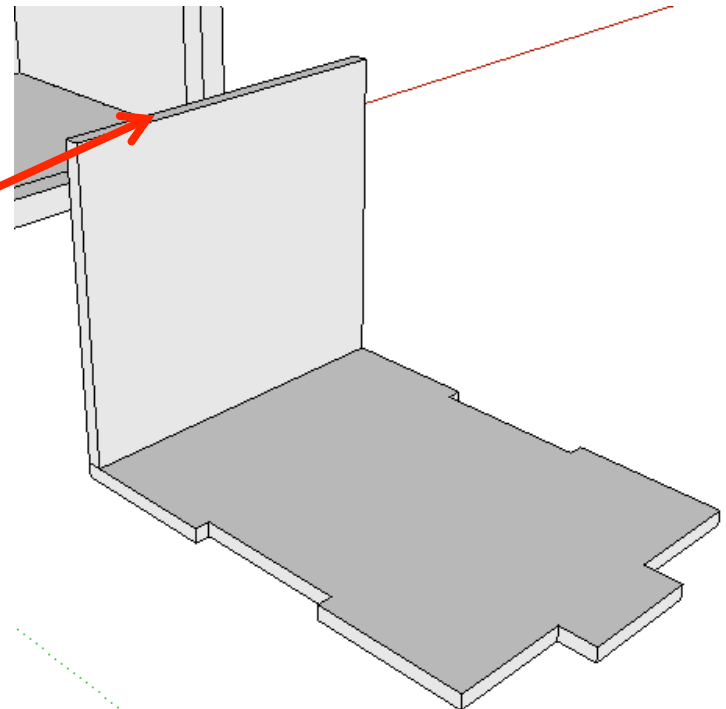


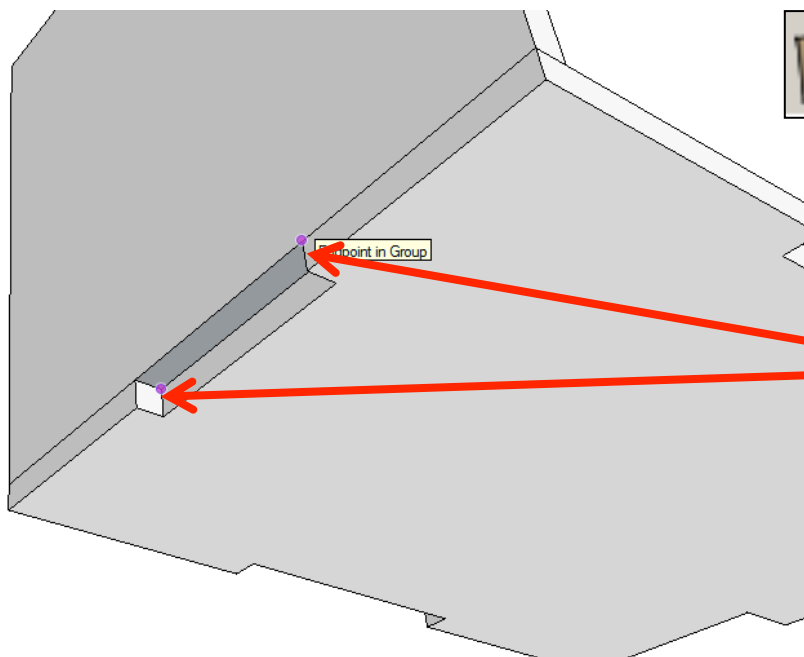


17. Select the **Rectangle tool** and draw a rectangle starting on the endpoint shown by clicking and **dragging the cursor diagonally**. Type in 92, 4 and press enter.



18. Using the **push pull tool**. Pull the middle rectangle out shown. **Type 84 and press enter.**

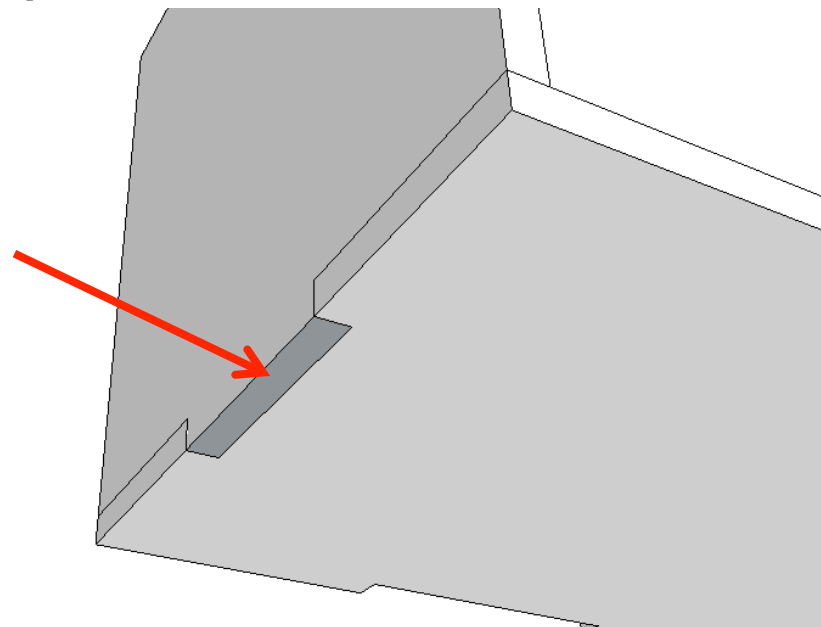


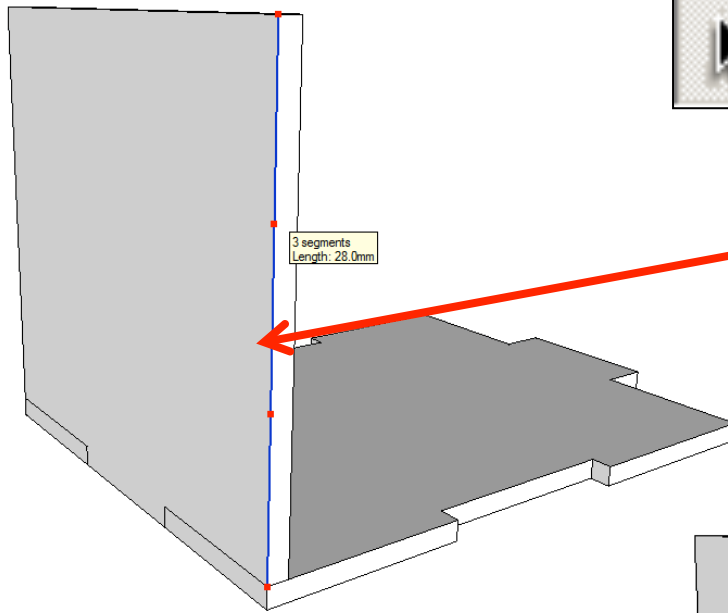


19. Orbit around to the bottom of the product. Select the **rectangle tool** and draw a square starting from the left corner (endpoint) shown. Drag the square diagonally down to finish in the right corner endpoint shown.



20. Using the **push pull tool**. Pull the middle rectangle out shown. **Type 4 and press enter.**

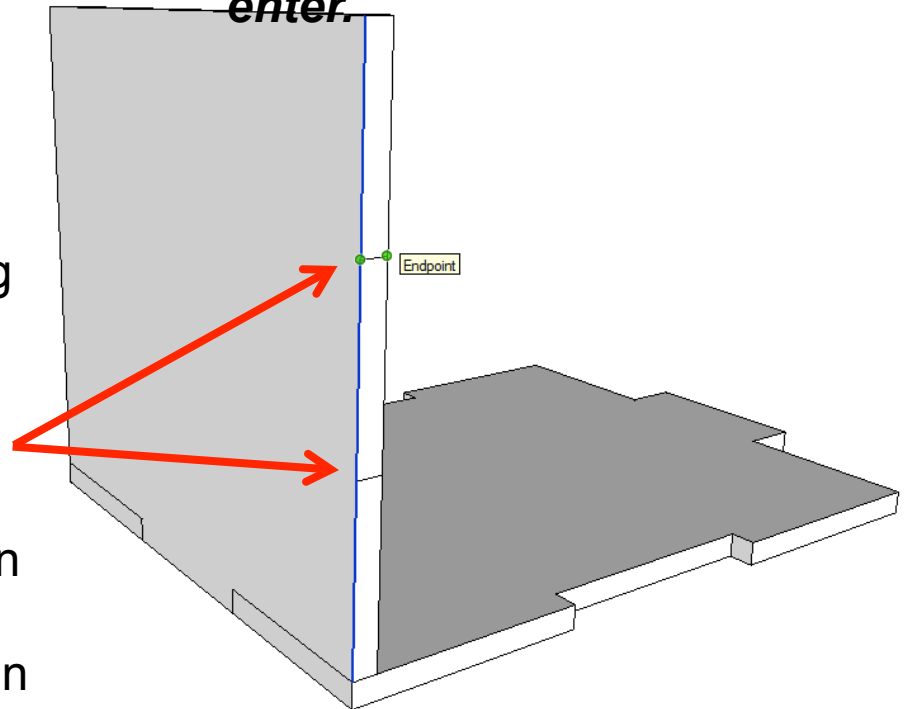




21. Orbit and click on the edge shown to highlight it in **blue**. Whilst on the selected **blue** line, **right click** with the mouse and select **divide**. Using the **mouse**, you can move it up and down the **blue** line to divide it into segments or you can type **3** and **press enter**.

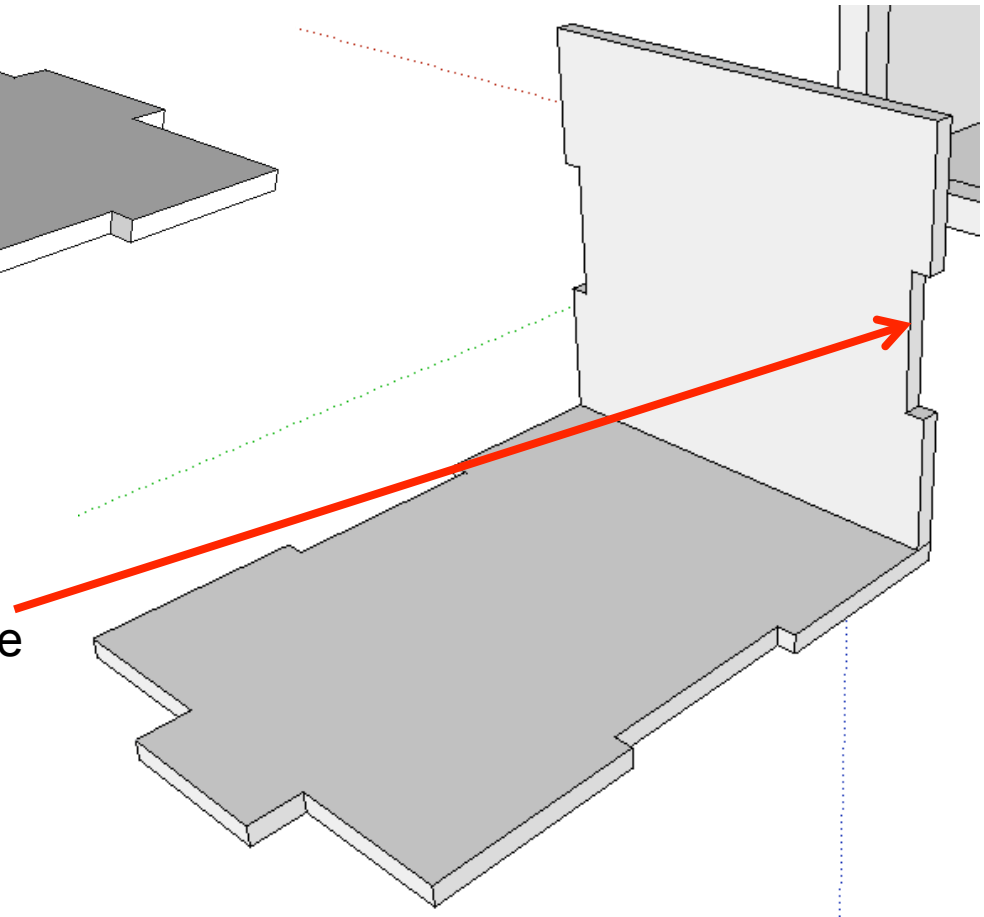
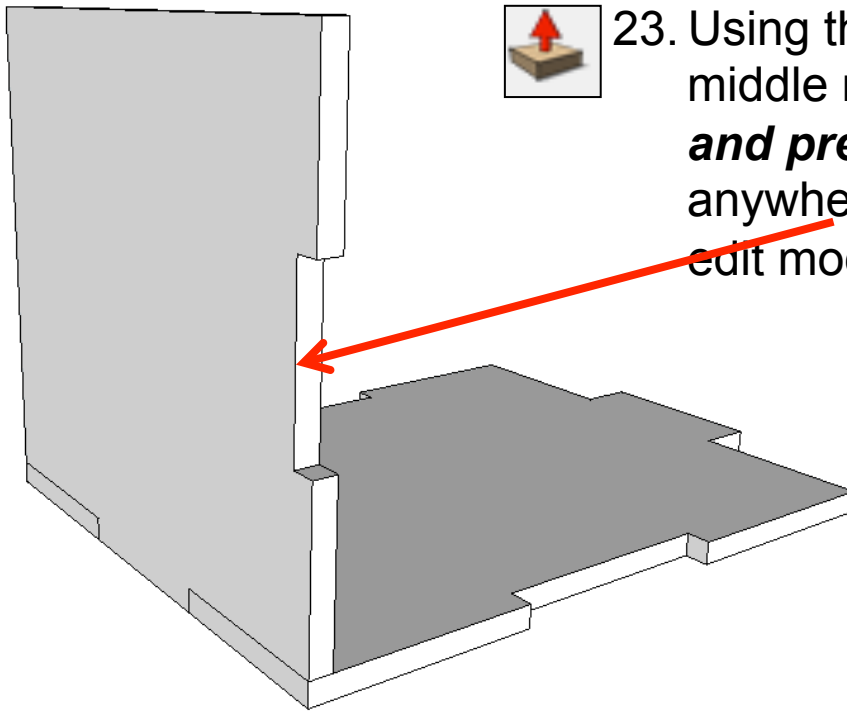


22. Using the **pencil tool**, move your pencil along the blue line until it snaps to an **endpoint**. Draw your line across on the **green axis**. Repeat your lines down on each endpoint. You should have two lines in total.

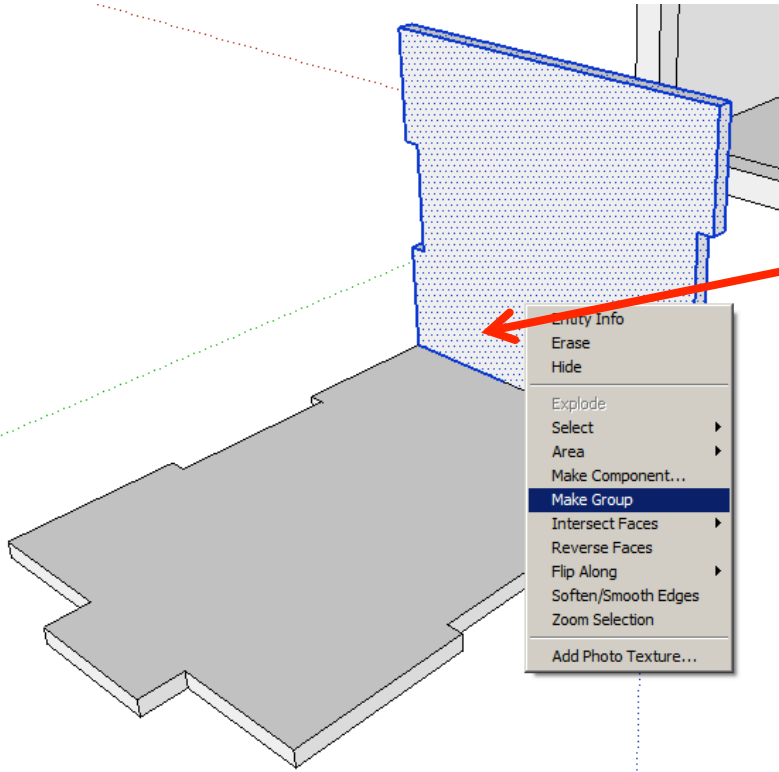




23. Using the **push pull tool**. Pull the middle rectangle out shown. **Type 4 and press enter**. Click off the shape anywhere on the screen to take it out of edit mode.

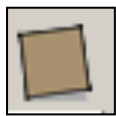


24. Repeat steps 21,22 and 23 on the opposite side.

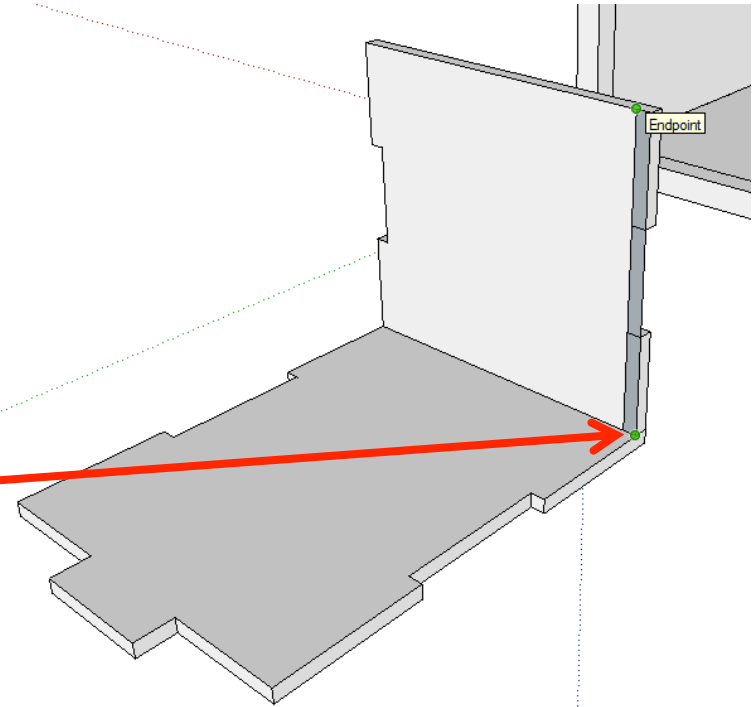


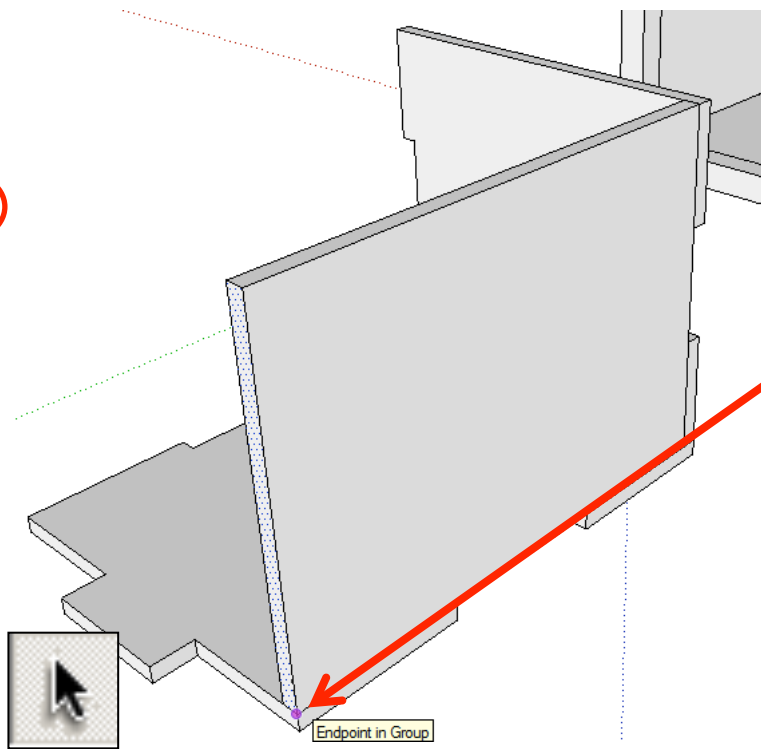
25. Click on the shape three times

On the mouse *right click* and then select *make group*.



26. Select the **Rectangle tool** and draw a rectangle starting on the bottom right hand corner endpoint shown by clicking and **dragging the cursor diagonally inwards**. Type in 84, 4 and press enter.

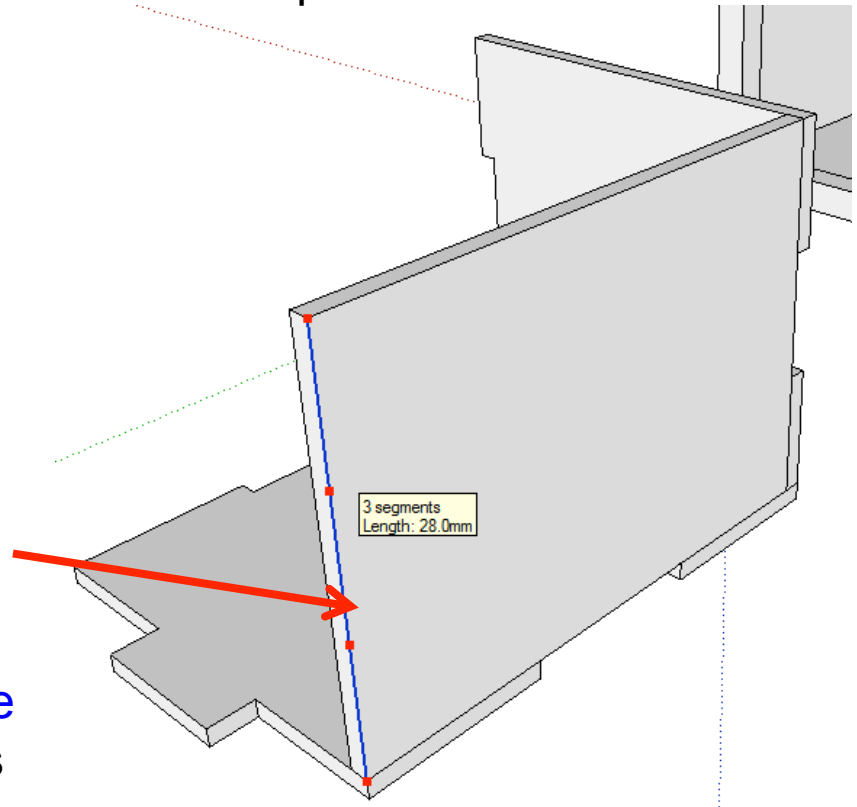


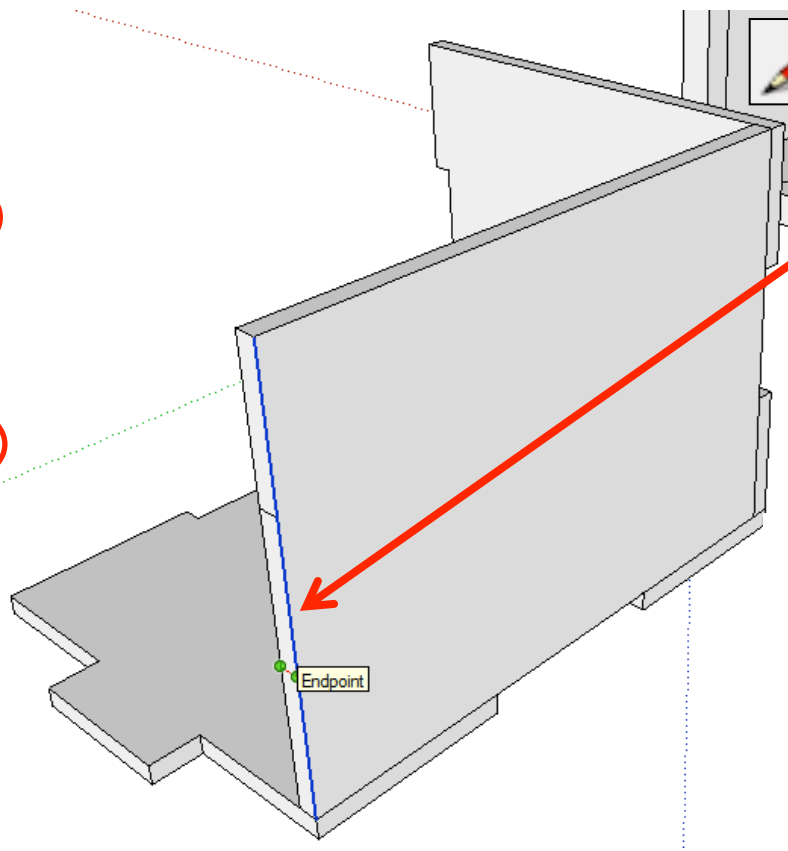


28. Orbit and click on the edge shown to highlight it in **blue**. Whilst on the selected **blue** line, **right click** with the mouse and select **divide**. Using the **mouse**, you can move it up and down the **blue** line to divide it into segments or you can type **3 and press enter**.



27. Using the **push pull tool**. Pull the shape out shown. **Type 116 and press enter**. Or pull it out and click on the endpoint shown.

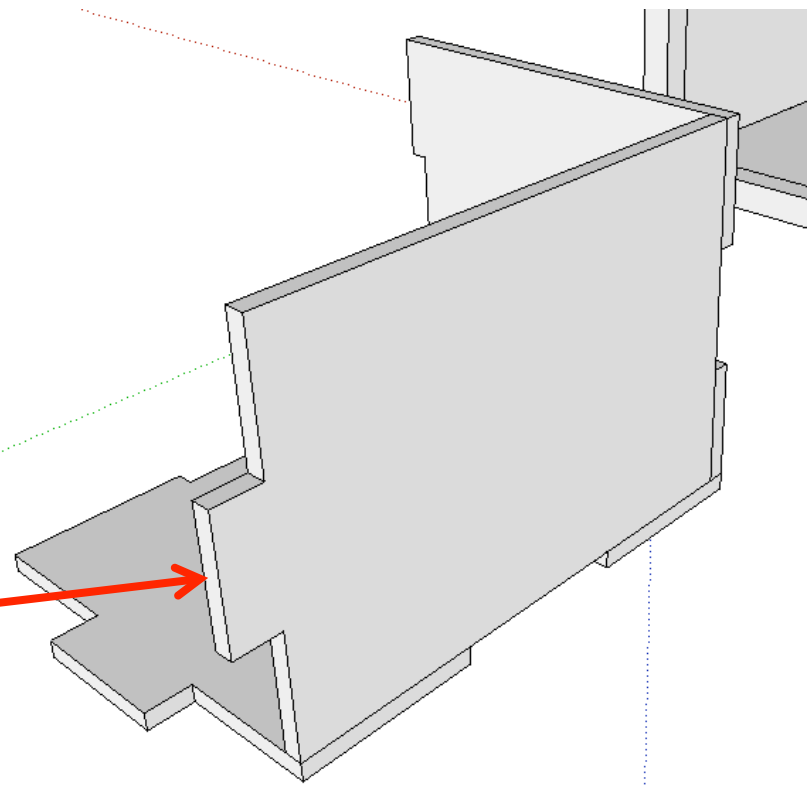


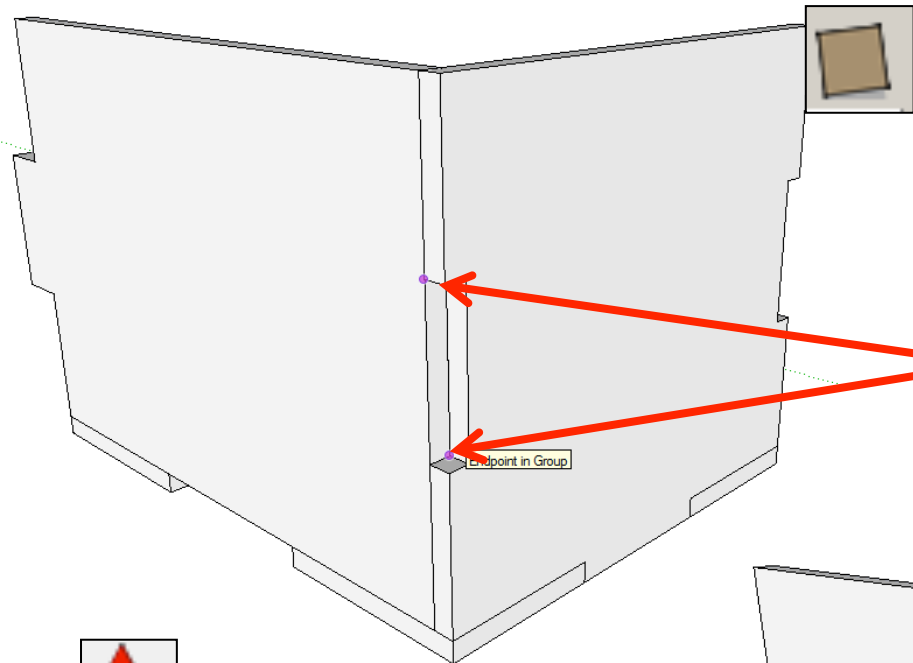


29. Using the **pencil tool**, move your pencil along the blue line until it snaps to an **endpoint**. Draw your line across on the **red axis**. Repeat your lines down on each endpoint. You should have two lines in total.



30. Using the **push pull tool**. Pull the shape out shown. **Type 10 and press enter.**

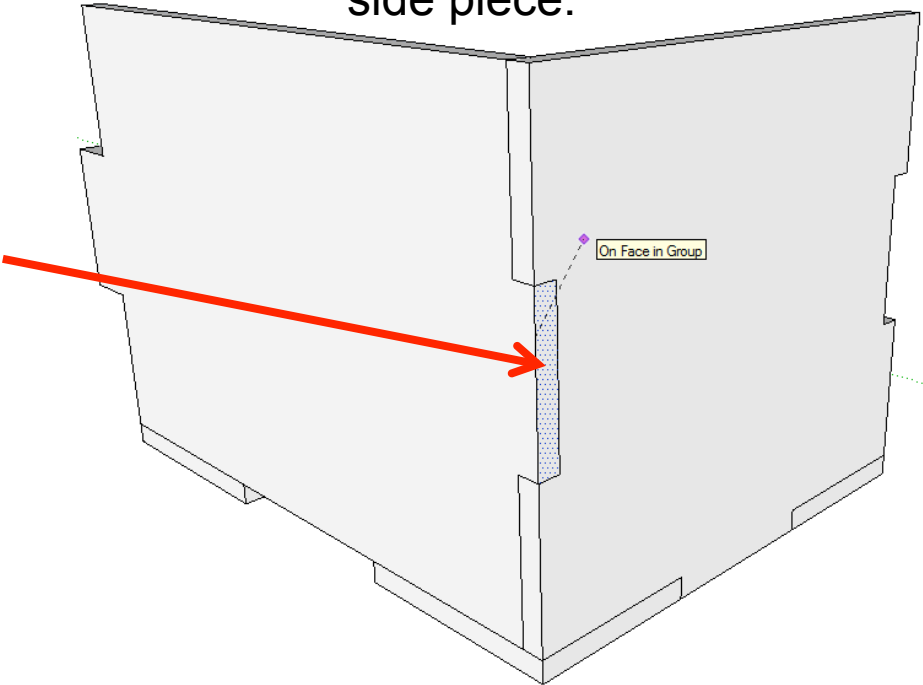


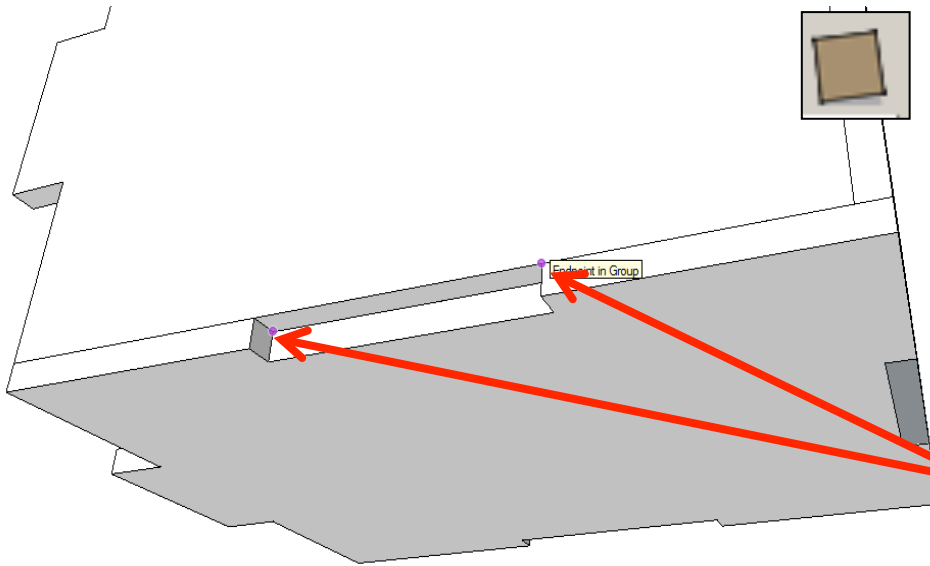


31. Orbit around to the back of the product. Select the **rectangle tool** and draw a square starting from the left corner (endpoint) shown. Drag the square diagonally down to finish in the right corner endpoint shown on the side piece.



32. Using the **push pull tool**. Pull the shape out shown. **Type 4 and press enter.**

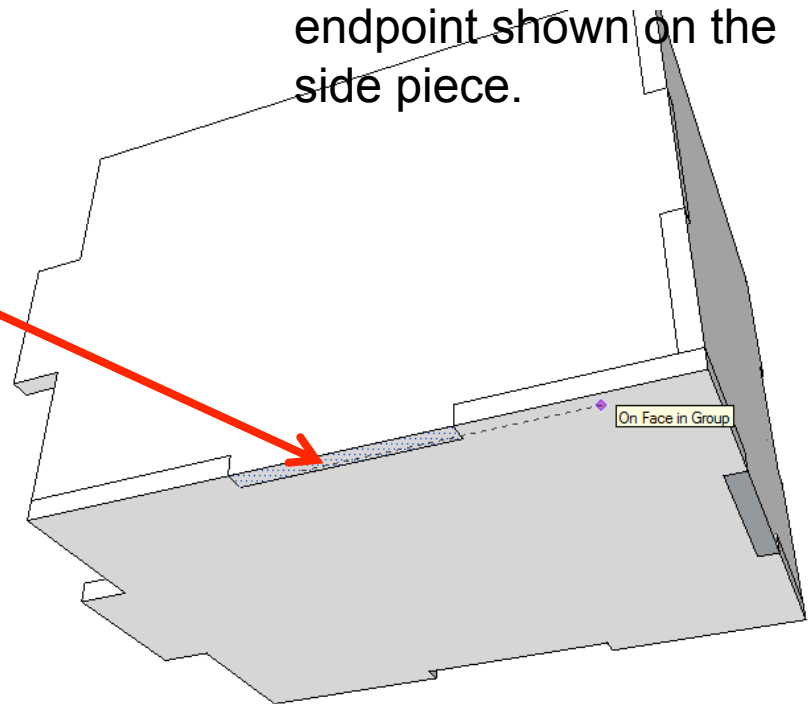


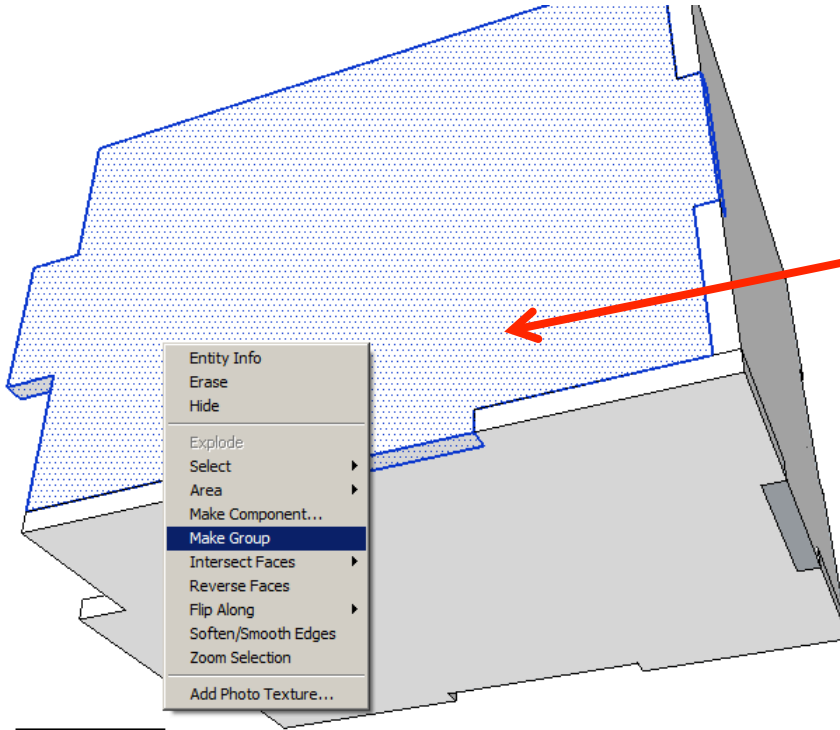


33. Orbit around to the underneath of the product. Select the **rectangle tool** and draw a square starting from the left corner (endpoint) shown. Drag the square diagonally down to finish in the right corner endpoint shown on the side piece.



34. Using the **push pull tool**. Pull the shape out shown. **Type 4 and press enter.**





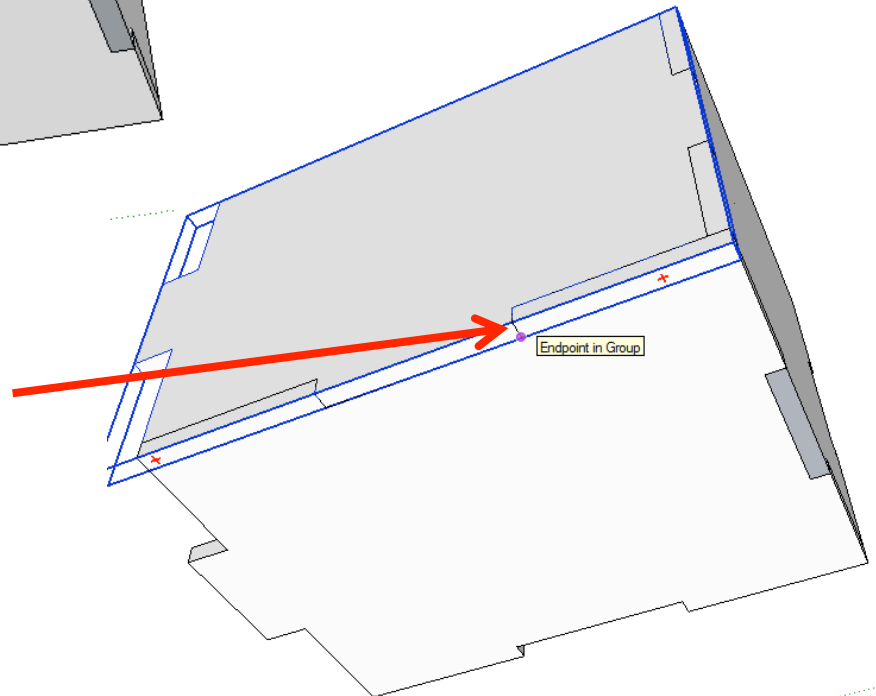
35. Click on the shape three times

On the mouse *right click* and then select *make group*.



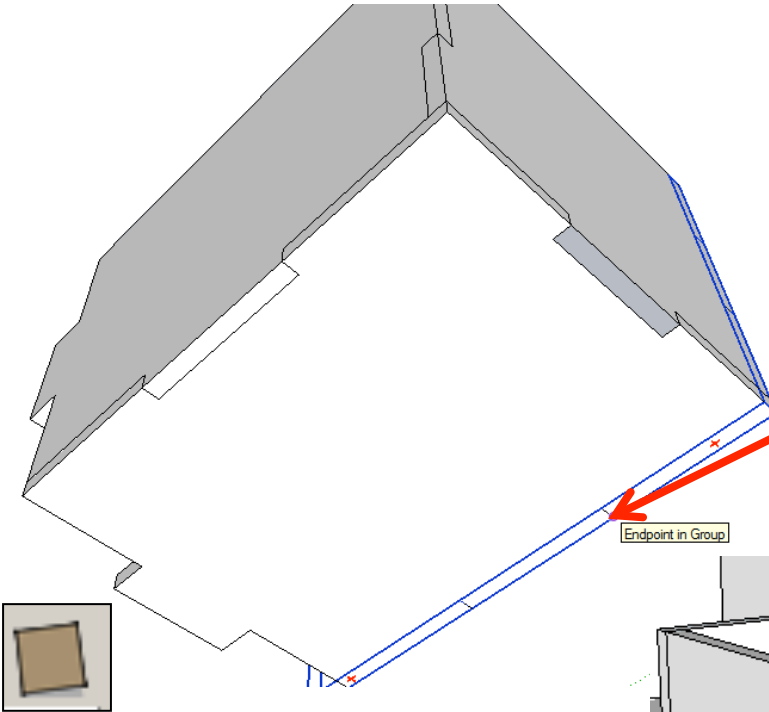
36. Click on the shape once to select it. Select *the move tool* and click on the endpoint shown.

Press the Ctrl key on the keyboard once.

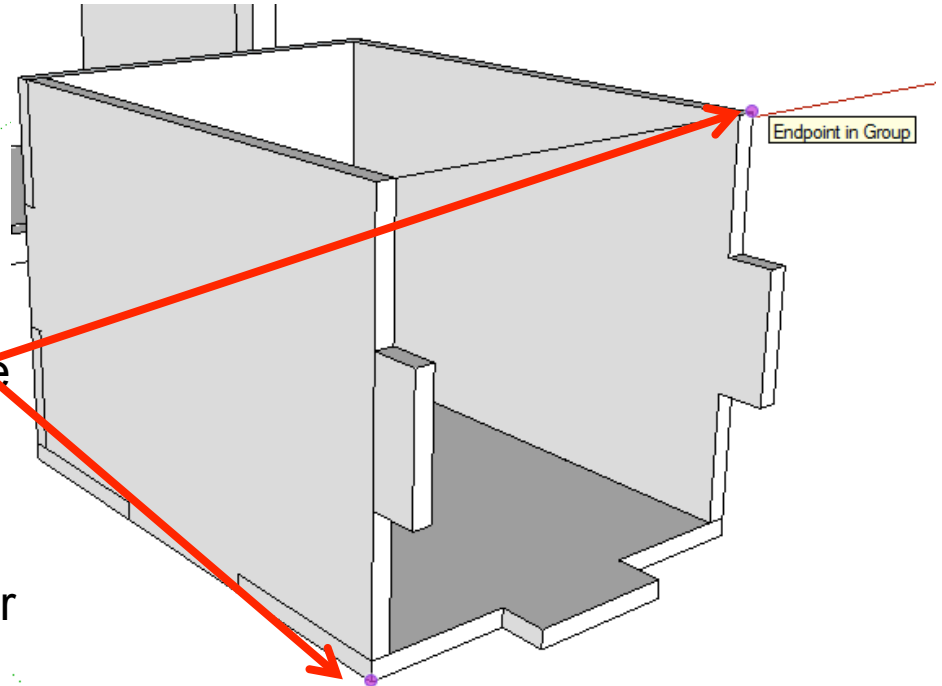


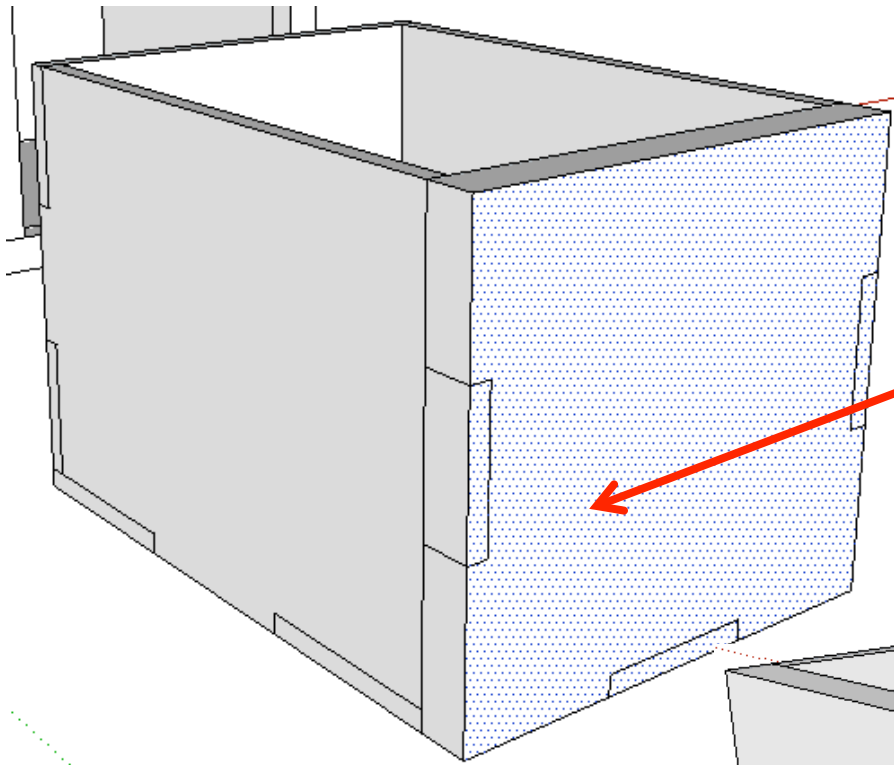


37. Move the copied shape and click on the endpoint shown.



38. Orbit around to the front of the product. Select the **rectangle tool** and draw a square starting from the bottom left corner (endpoint) shown. Drag the square diagonally up to finish in the right corner endpoint shown.

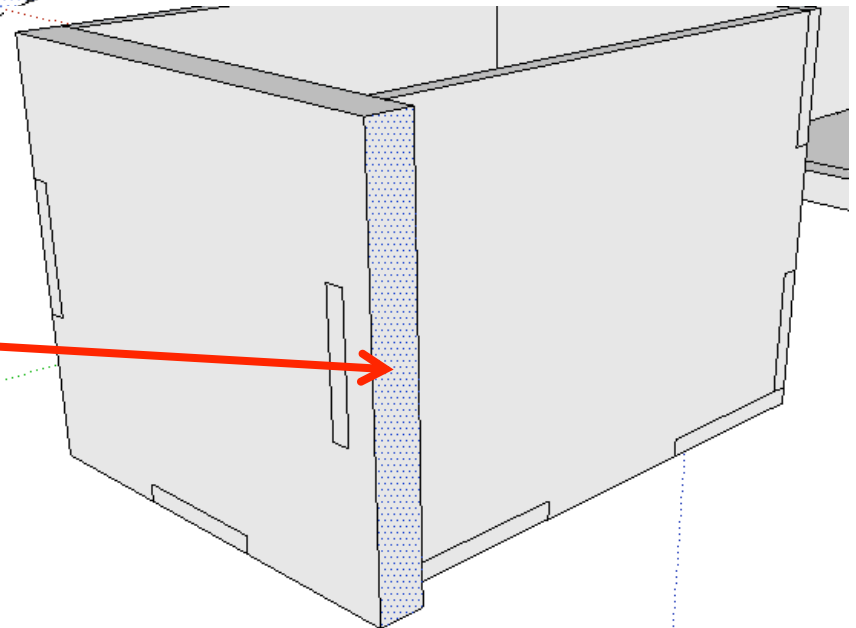


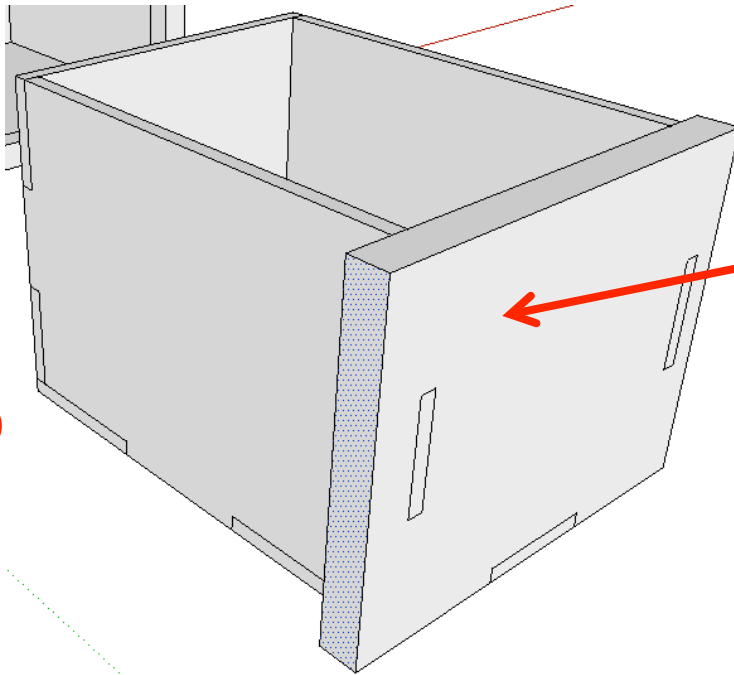


39. Using the **push pull tool**. Pull the shape out shown. **Type 10 and press enter.**

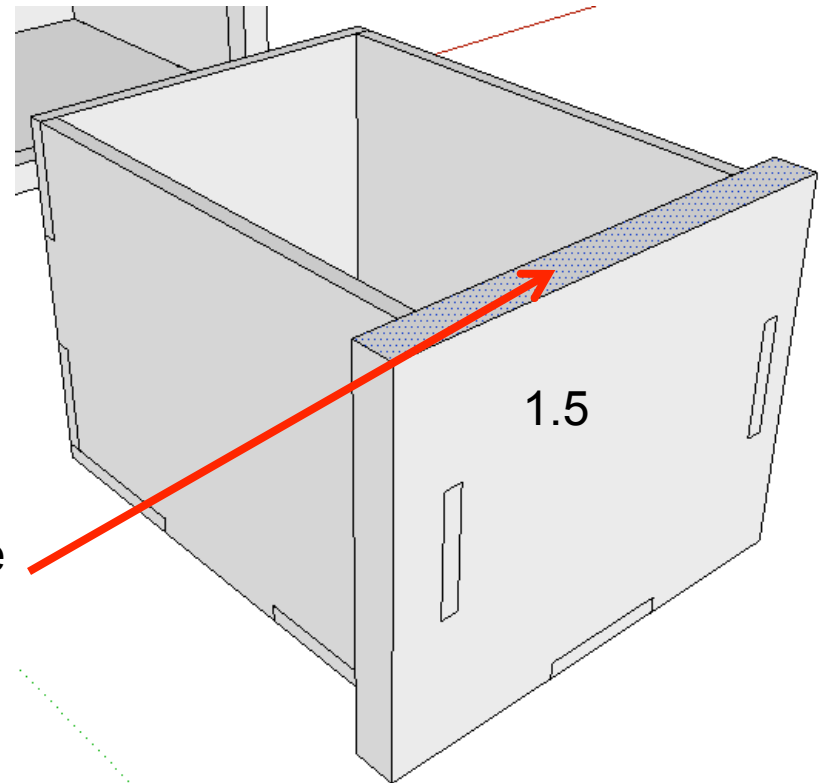


40. Using the **push pull tool**. Pull the edge of the shape out shown. **Type 6.5 and press enter.**

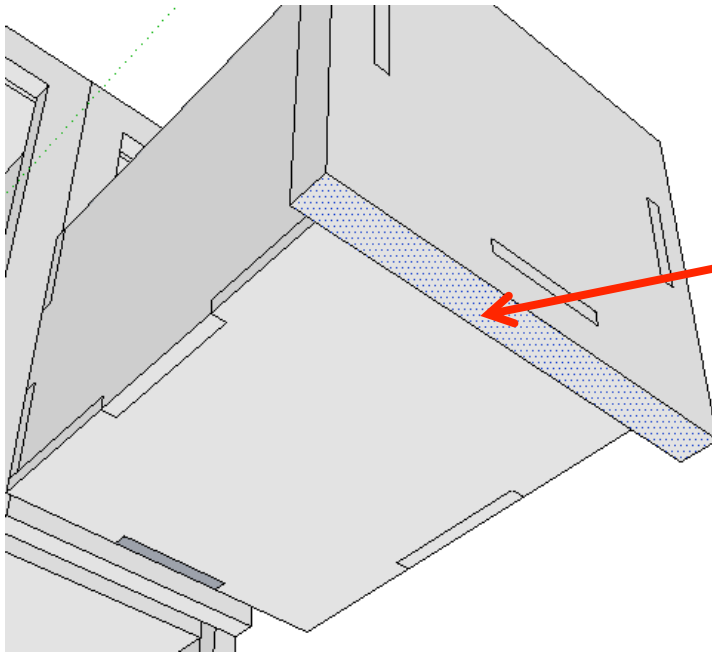




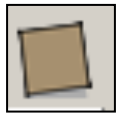
41. Using the **push pull tool**. Pull the edge of the shape out shown. **Type 11.5 and press enter.**



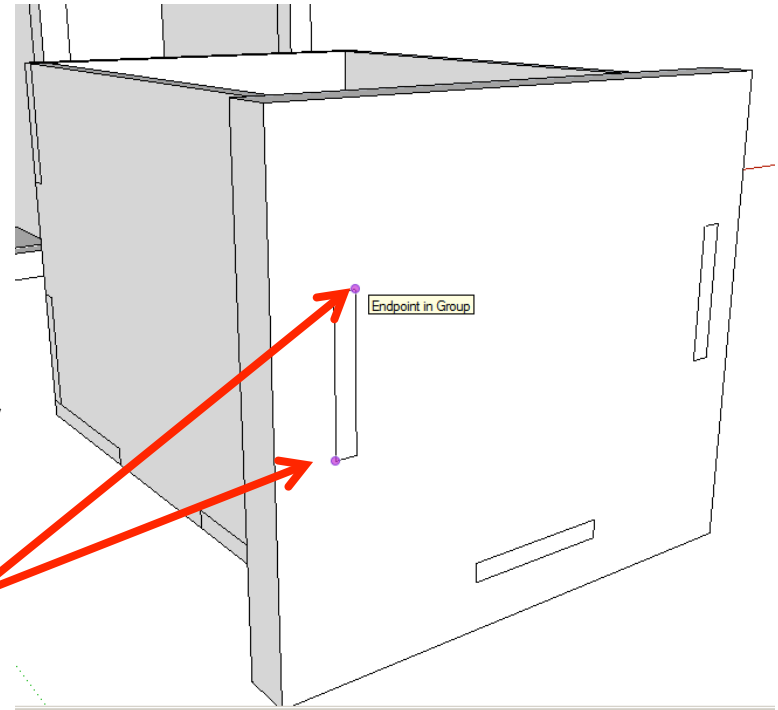
42. Using the **push pull tool**. Pull the edge of the shape out shown. **Type 1.5 and press enter.**

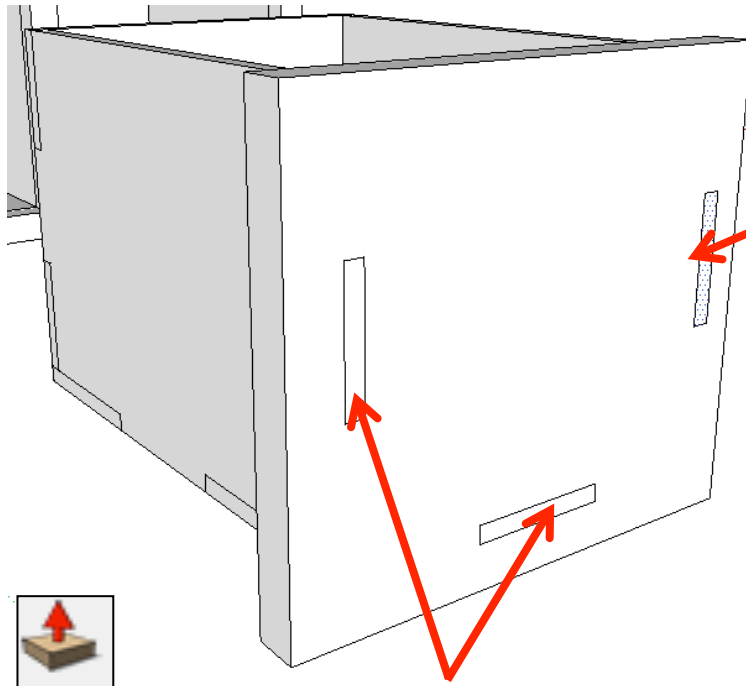


43. Using the **push pull tool**. Pull the edge of the shape out shown. **Type 10 and press enter.**



44. Orbit around to the front of the product. Select the **rectangle tool** and trace a rectangle over the shapes showing through starting from the bottom left corner (endpoint) shown. Drag the square diagonally up to finish in the right corner endpoint shown.

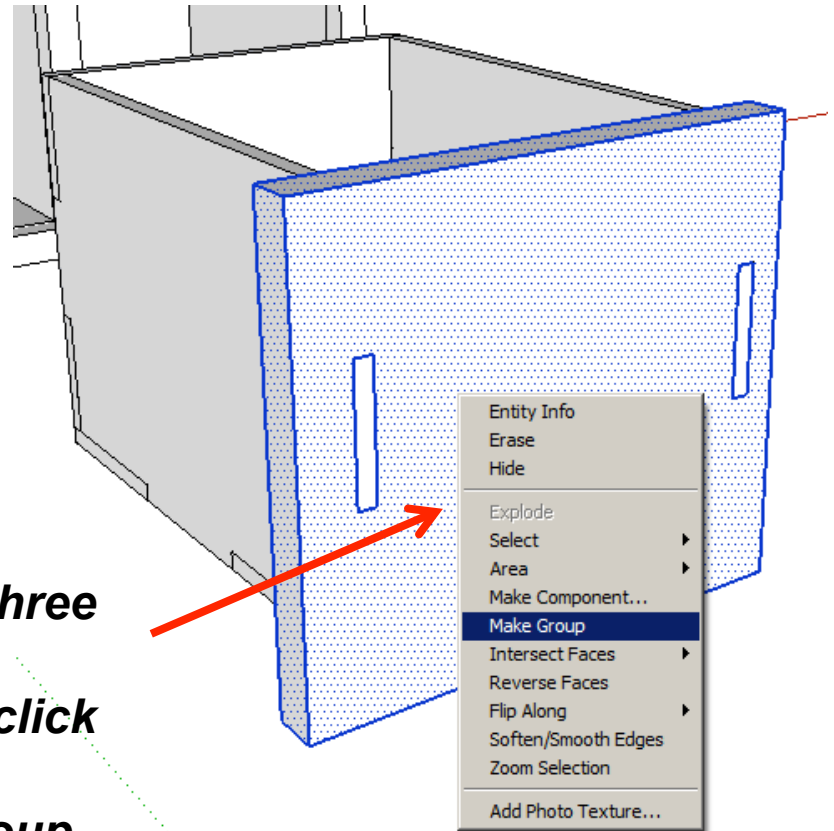




45. Repeat on the other two rectangles

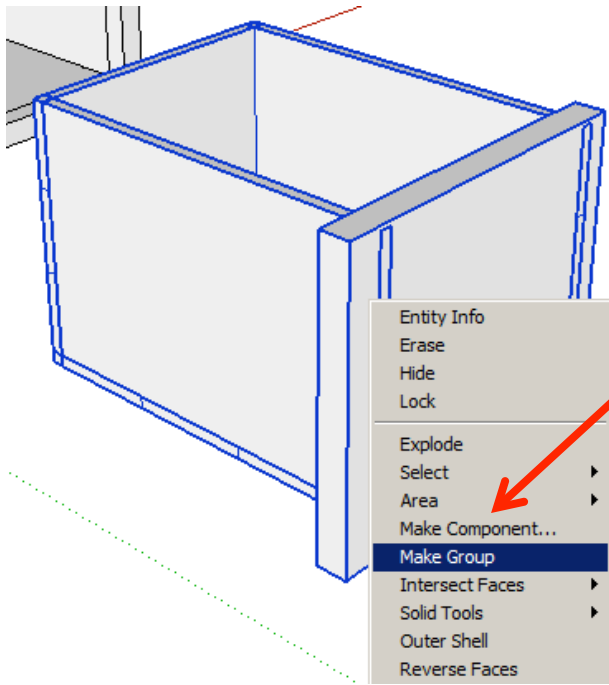


46. Using the **push pull tool**. Push all three rectangles back. **Type 10 and press enter.**



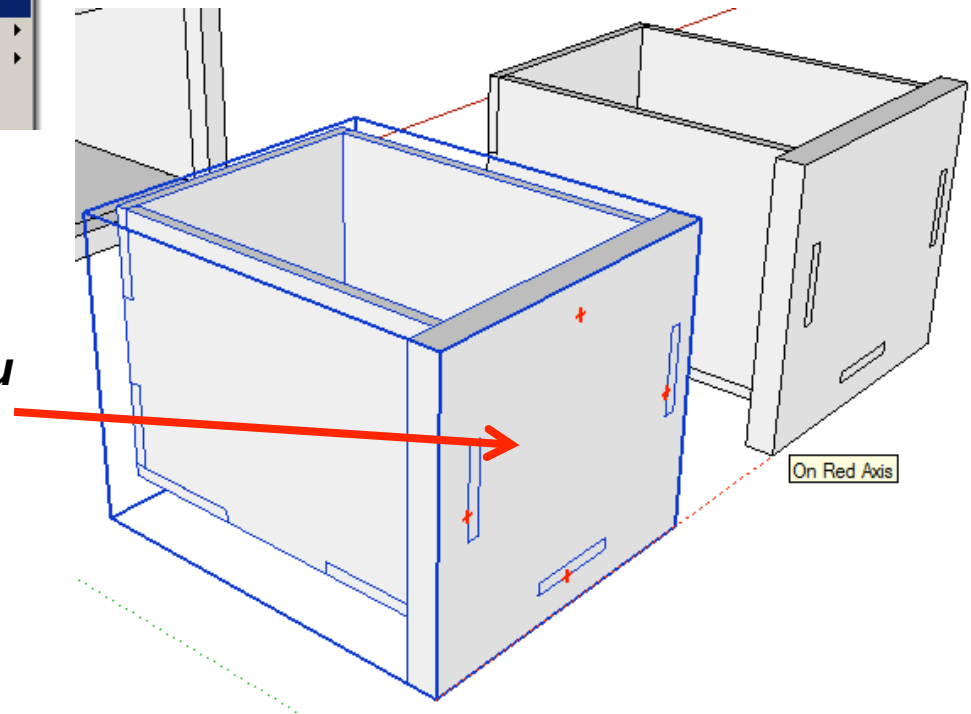
47. **Click on the shape three times**

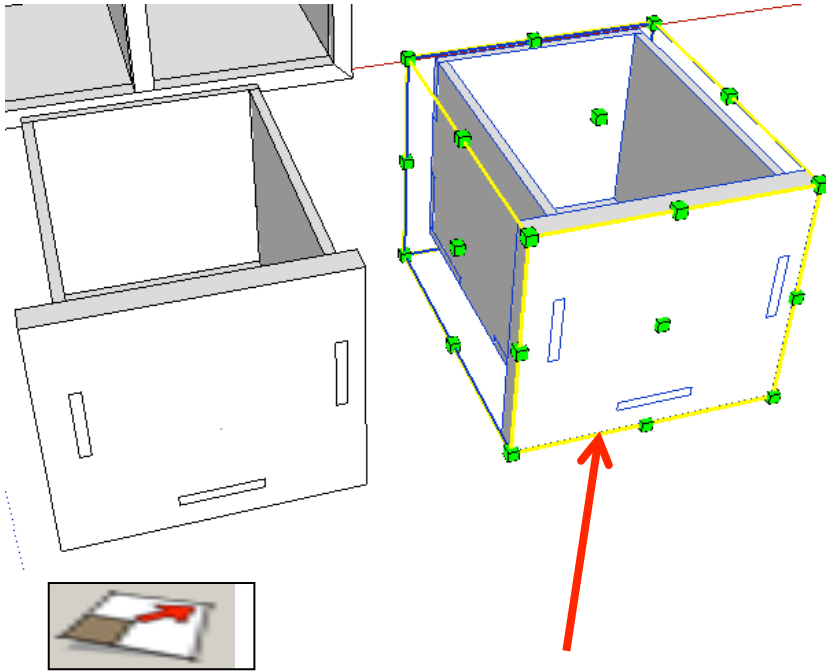
On the mouse **right click** and then select **make group.**



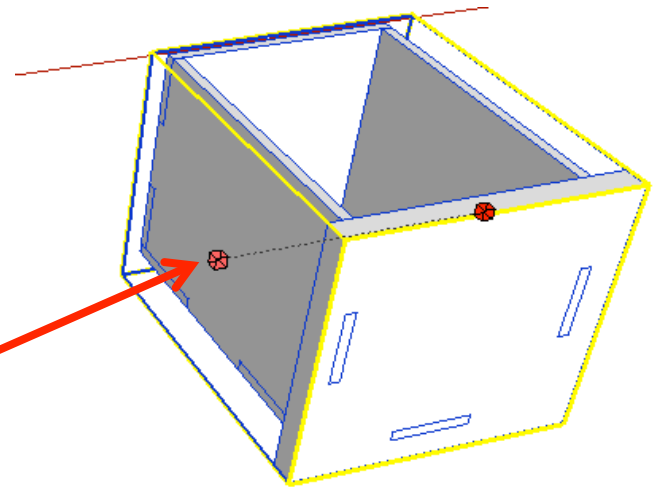
48. Use the ***select tool*** to drag over the entire shape
On the mouse ***right click***
and
then select ***make group***.

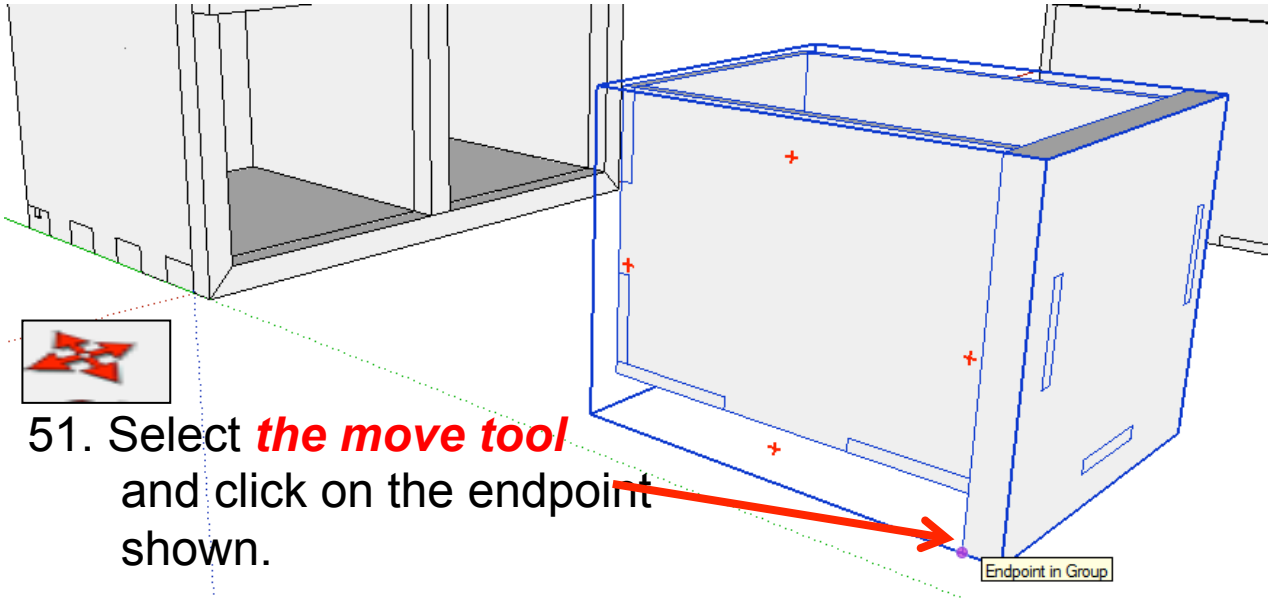
49. Copy and paste so you have
two draw pieces



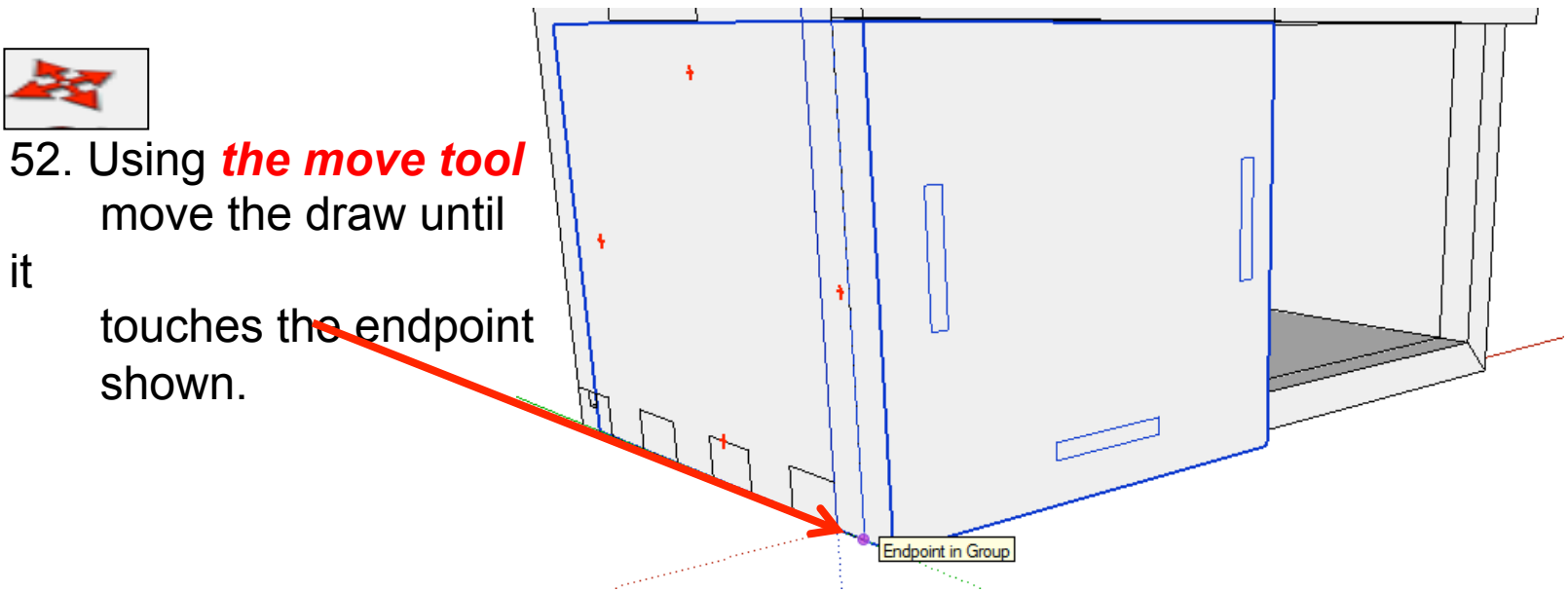


50. Click on the scale tool and click
on the middle square.
Mirror
the shape in the opposite
direction until the scale in
the
bottom right hand corner
says
-1.00

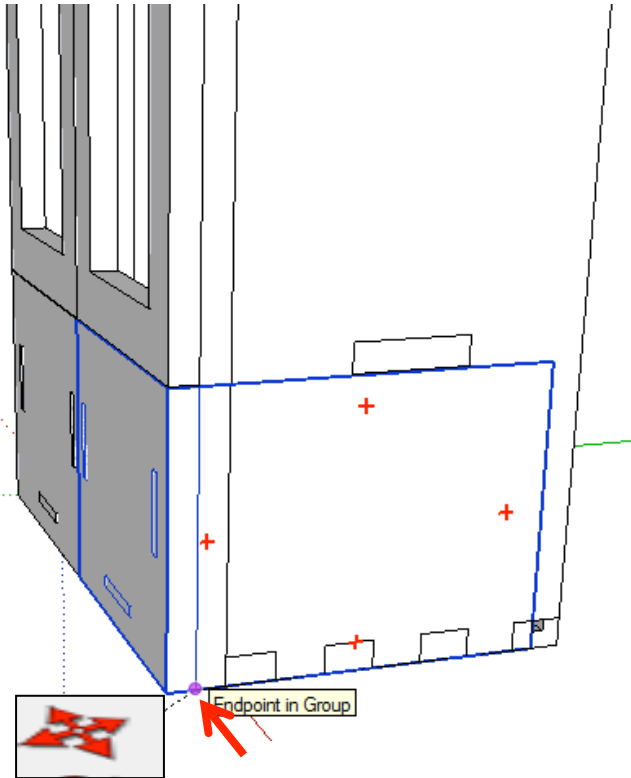




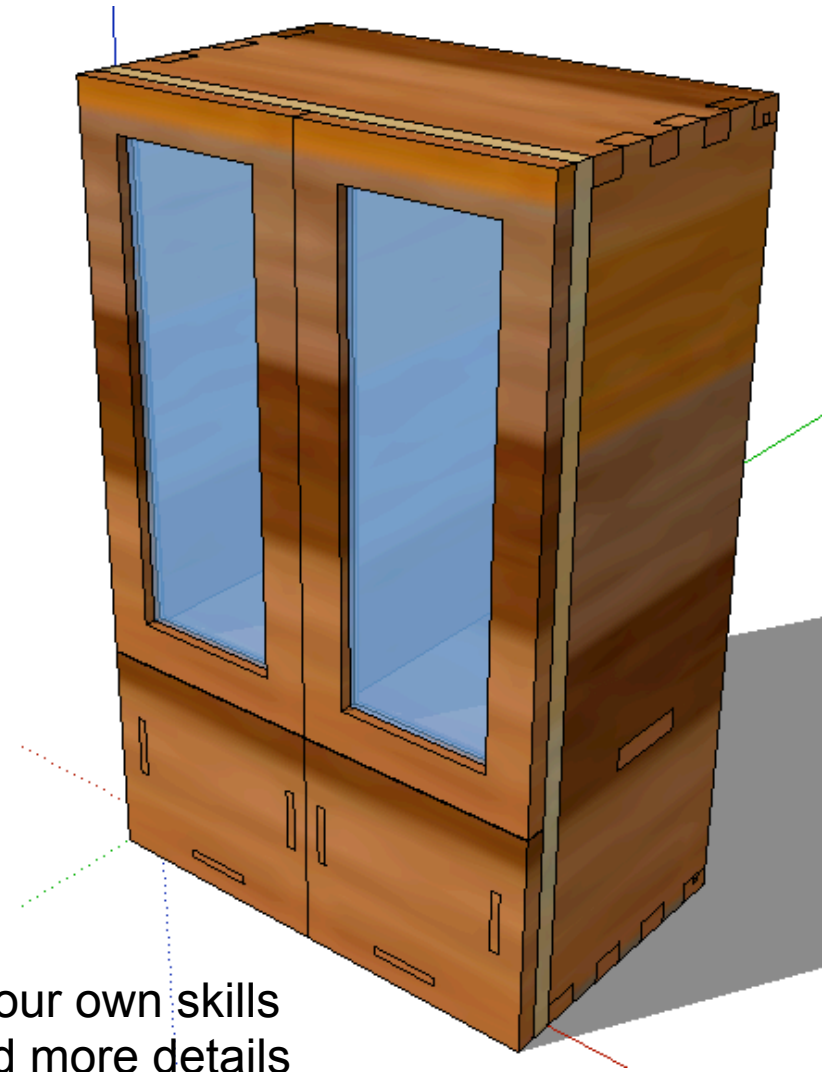
51. Select *the move tool* and click on the endpoint shown.



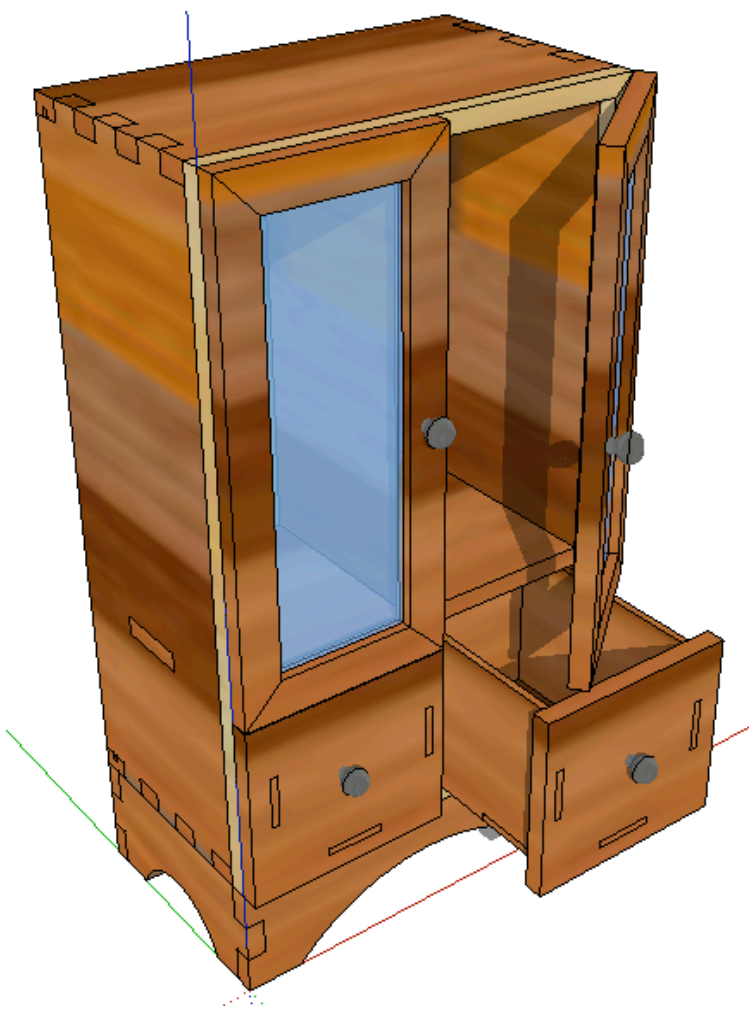
52. Using *the move tool* move the draw until it touches the endpoint shown.



53. Using **the move tool** move the other draw until it touches the endpoint shown.



54. Use your own skills to add more details



55. Use your own skills
to add more details

