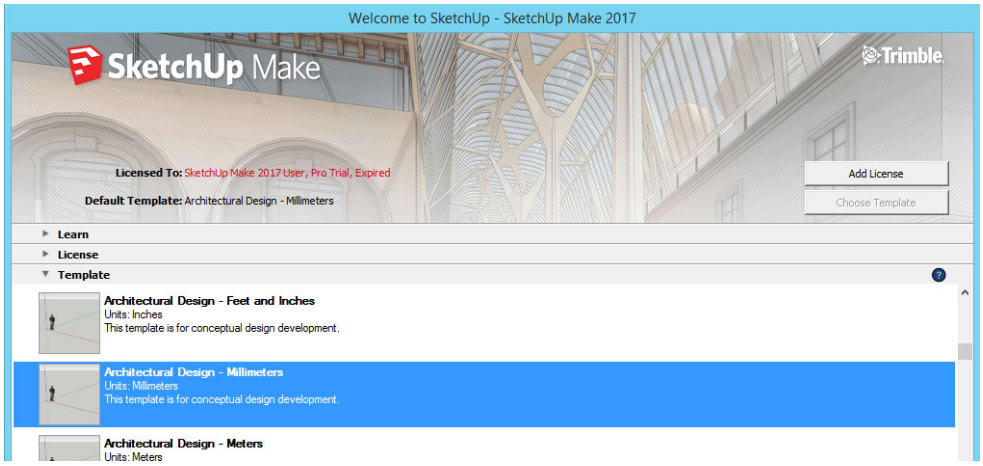
Google Sketchup Make

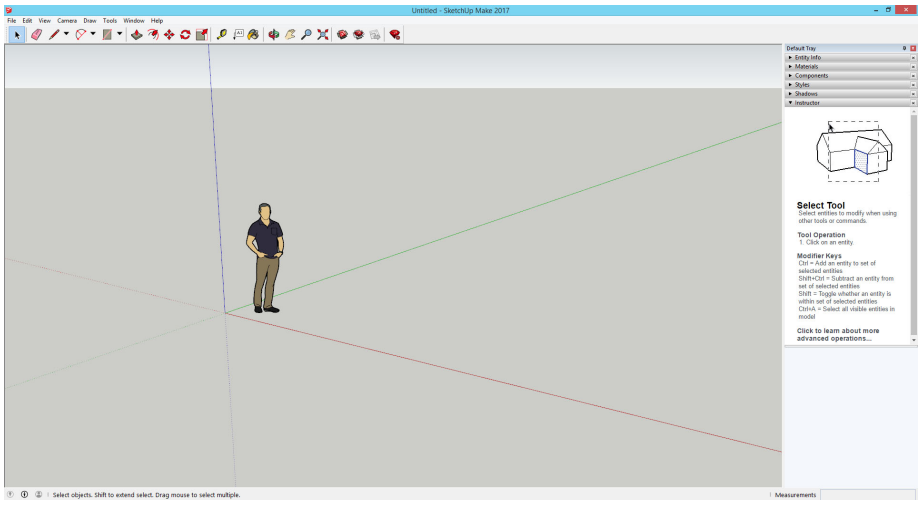
Every architect needs to know how to use SketchUp! SketchUp is free from Google just Google it and download to your computer. You can do just about anything with it, but it is especially good for conceptualization of architectural design. The current version is Sketchup Make 2017. These instructions are based on this version. There is also a professional version, SketchUp Pro, that they sell online for $495.00. Students can purchase a one year license of SketchUp Pro for $49.00. But I would recommend downloading the free version from Google.

There are some great video tutorials online on the Google SketchUp web site. There is also an extensive online library of SketchUp premade components which are available directly within the program. SketchUp also plays well with Google Earth allowing you to not only design a building but place it on its actual site anywhere on the earth.

1. Open SketchUp and Set your Template to "Architecture Design-Millimetres".

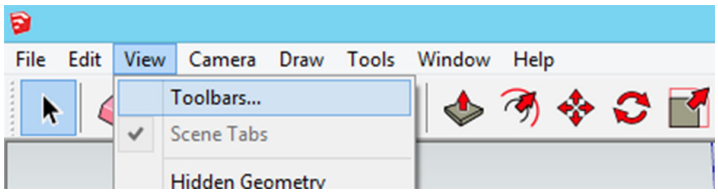


2. Your screen should look like this:

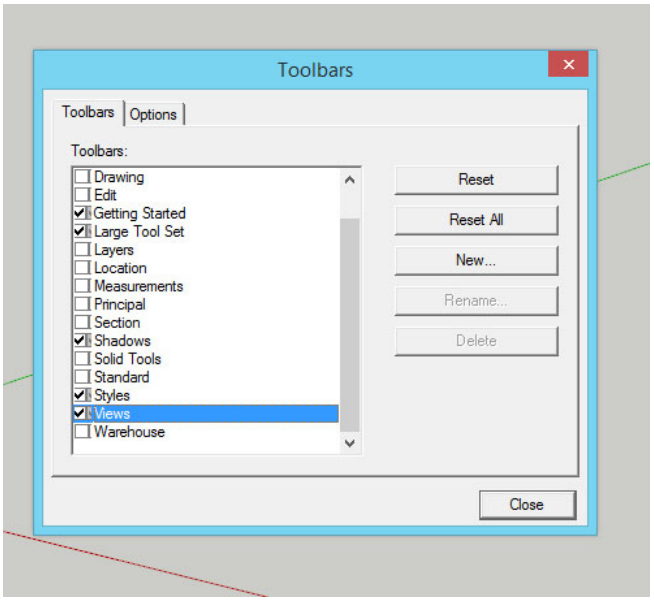


3. Let’s add some more tool bars to make our work easier.

Go to View on the top menu, then select Toolbars from the drop down menu.



In the pop up menu select the Large Tool Set, Shadows, Styles, and Views check boxes



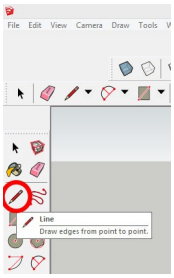
4. OK now we’re ready to draw something. Some things to keep in mind as we go along:

a) The default person that appeared on the screen gives you a sense of scale.
If you try to draw a 10mm line is will invisible because you are zoomed too far away to see it.
Use the scroll wheel on the mouse to zoom in and out.

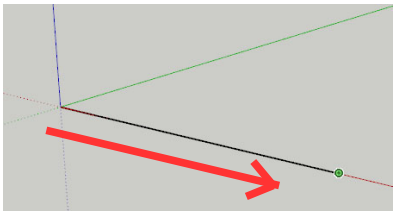
Erase the person (click on them and the press delete button).
Then zoom in closer to the point where all the X, Y, and Z axes meet.

b) It is sometimes easier to start you drawing at the intersection of the axes.

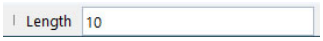
Select your Line tool



Start your line by clicking on the axes intersection (origin) and pull along the Red Axis



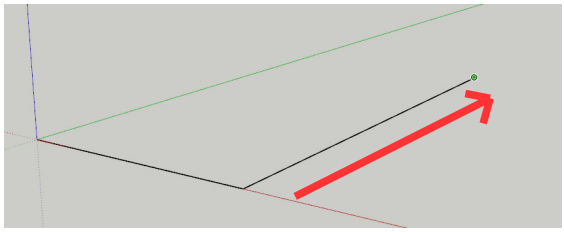
BEFORE you click at the end type “10”. You DO NOT click in the box below just type the number.



You should now have a line 10mm long.

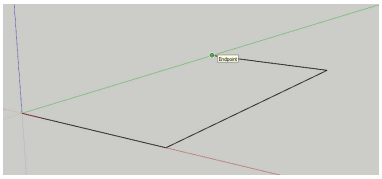
c) Let’s do another one:

Draw a line 20mm along the Green Axis. Notice the cursor ‘snaps’ to end points and axis direction Very helpful!

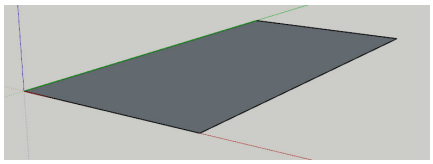


d) Let’s complete the rectangle:

Draw a 3rd line snapping to the Green Axis.



Complete the rectangle by drawing a 4th line to the Origin.

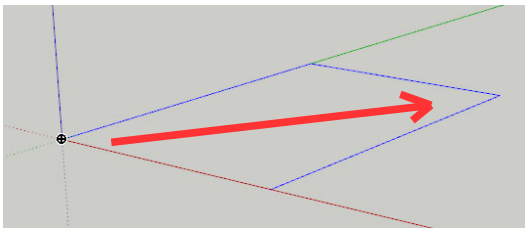


We’ve drawn a rectangle (using lines) to exact dimensions.

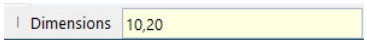
e) We could have used the *Rectangle tool* to do the same thing. Try this:

Select the Rectangle tool

Click the Origin and pull diagonally

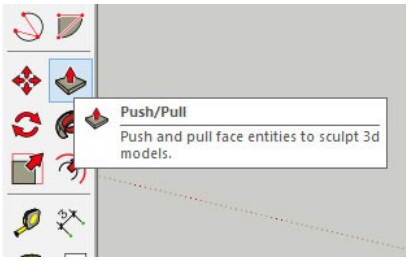


Type “10,20” before you click again. Again DO NOT click in the box

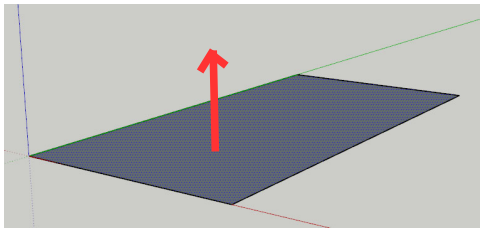


5) Now let's go 3D! Now we're growing to start 'growing our shape with accurate sizes.

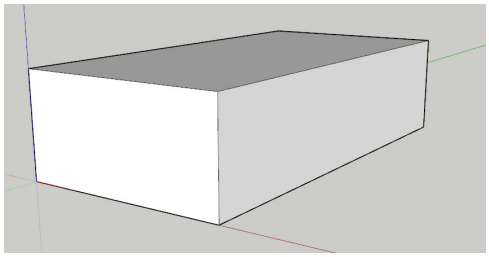
Select the Push/Pull tool. This will be one of your most often used tools



Hover the cursor over the face you want to extrude. The face will change texture when you are over it.



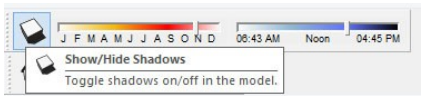
Click and move the cursor in the direction you want to extrude. Pull up 5mm for this object



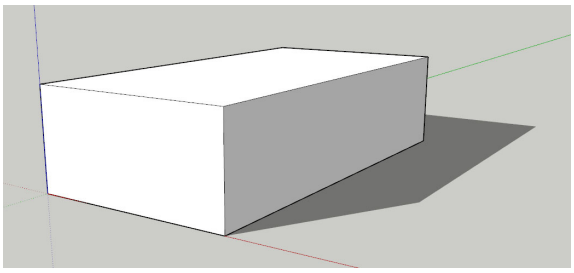
6) Let's change the way we can see the object.

a) Add Shadows:

We can add shadows to our design for a more realistic view. You can change the position of the sun too

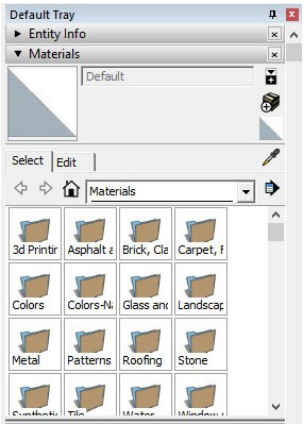


Object with shadow

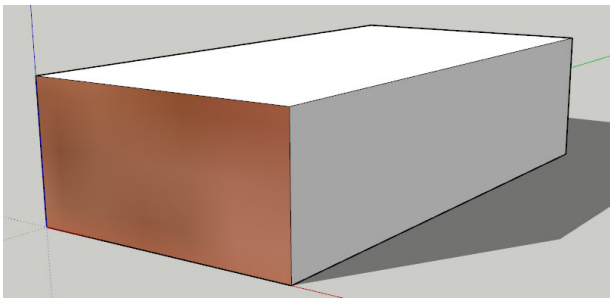


b) Add Textures or Materials:

Open the Materials window at the rightside of the screen to see all the different materials or textures you can add to the faces



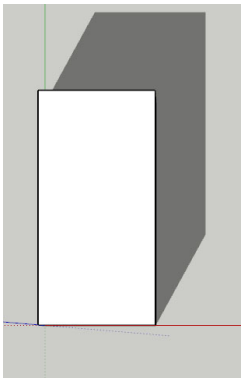
Here I've added one of the metal textures the the front face



c) Change the angle of your view of the design:

The Views tool bar allows you to see your design from different directions

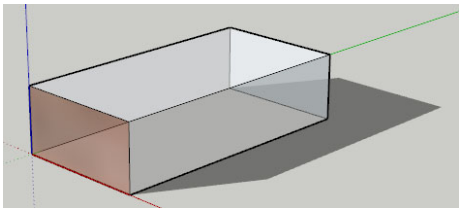
As viewed from the top.



d) Change the way the surfaces are presented: Solid, X-ray, monochrome, etc

Different Styles of viewing the faces such as x-ray can be helpful

Here I've done:
X-ray plus *Shaded with textures*



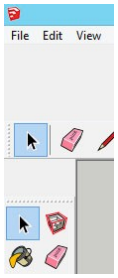
Assignment 1, Part 1:

a) Draw a rectangle 2000mm (2m) wide by 3000mm (3m) deep, and 1500mm (1.5m) high.
b) Add shadows
c) Add at least one material or texture to a face(s).

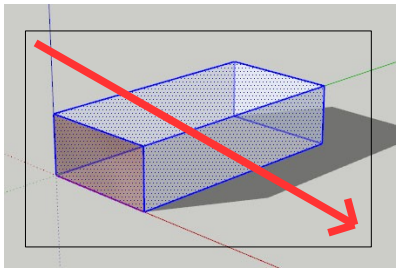
Let's try some other tools: follow along with your Part 1 object

1) COPY:

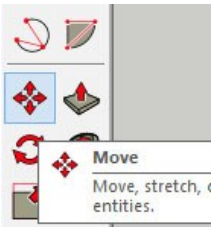
Click your Select tool



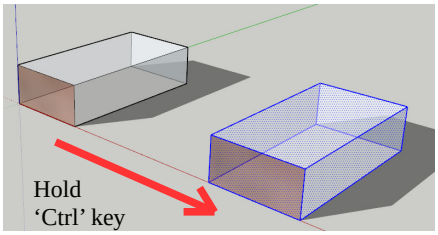
Draw a box around your Part 1 object with the select tool



Click the Move tool



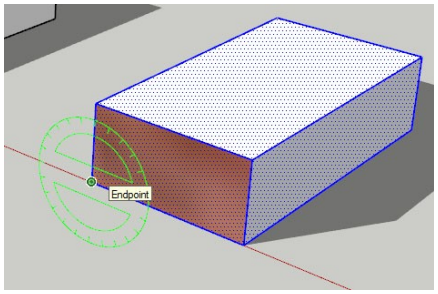
Select a point on your object then hold down the 'Ctrl' key while dragging your object with make a copy



2) ROTATE:

Select the Rotate tool

Bring the compass to the face AND point where you want to rotate- it will snap to both. Click once to set the position

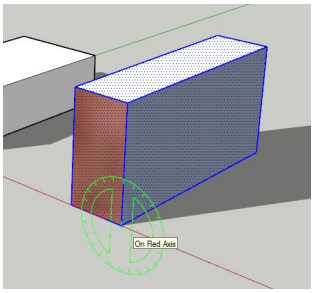


Drag the cursor down and click to set the start angle position.

Move the cursor the direction you want to turn.

You can also type the angle you want if needed

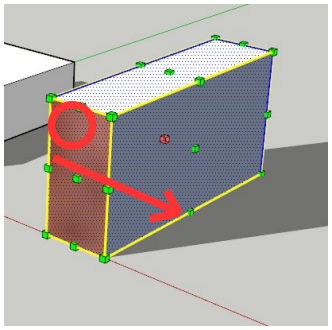
Object will rotate around the point and direction you chose. Can be tricky so practice!



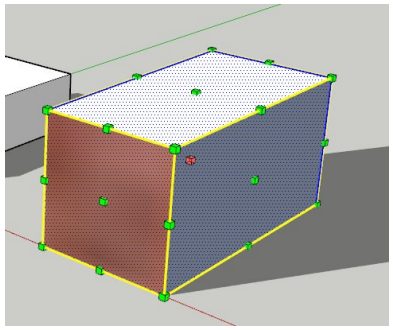
3) SCALE:

Select the Scale tool.
You may need to select your entire object again

Scaling grips will appear
Drag the centre grip along the Red axis to a scale of 2
Corner grips scale ALL axes!



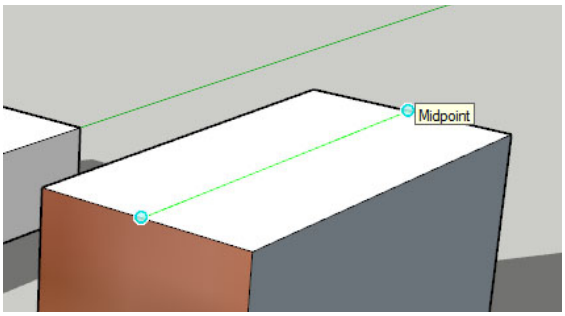
Box has been scaled along red axis 2 times. You can, of course, type the exact scale you want also.



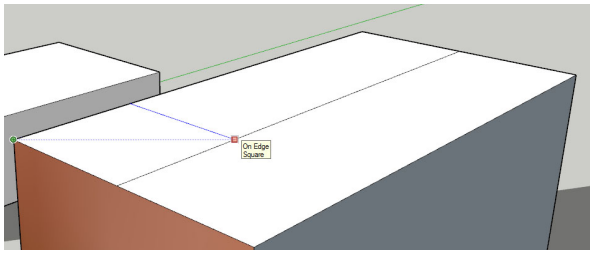
Assignment 1, Part 2: Let's make a roof for our block:

1. Select the Line tool

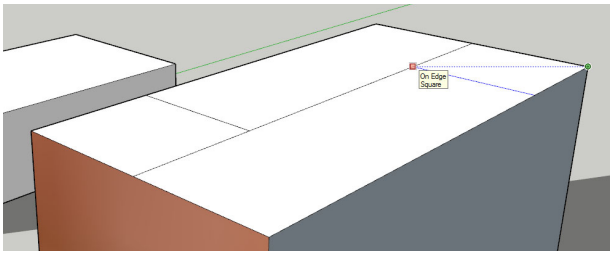
2. Draw a line on the top face from the midpoint of the front to the midpoint of the back



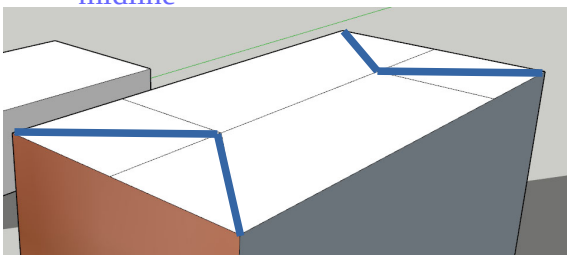
3. Draw a square from one corner to the line. Notice the 'Square'tag shows when it's a perfect square.



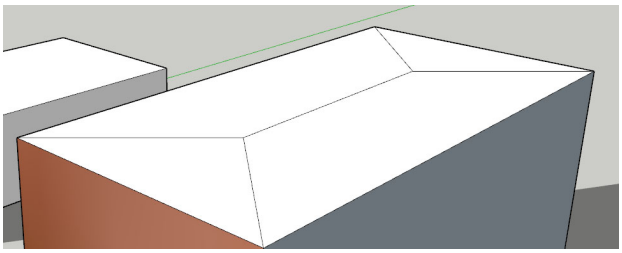
4. Do the same for the opposite corner



5. Draw 4 diagonal lines from each corner to the where the corner of the square touches the midline

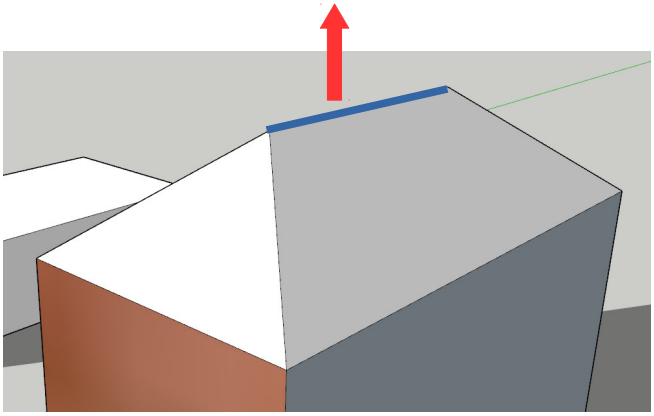


6. Use the Erase tool to erase the straight lines so it looks like below



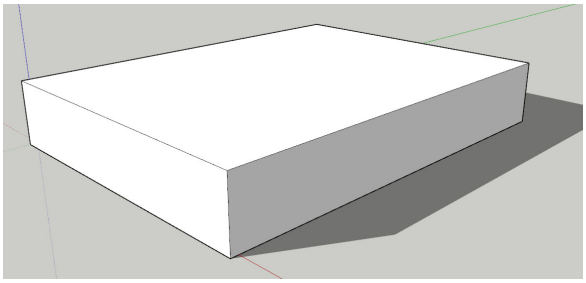
6. Use the Move tool to lift the middle line up on the Blue (Z) axis

There's your new roof

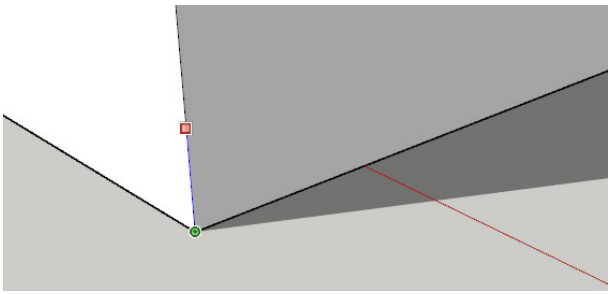


Assignment 1, Part 3: Making stairs

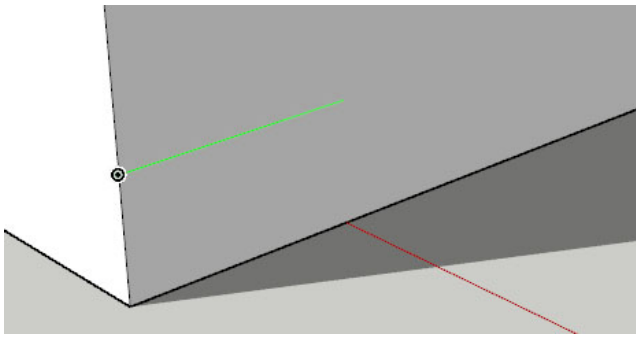
1) Draw a 10m (10000mm) by 13000mm (13m) rectangle, then Push/pull 2100mm (2.1m) high



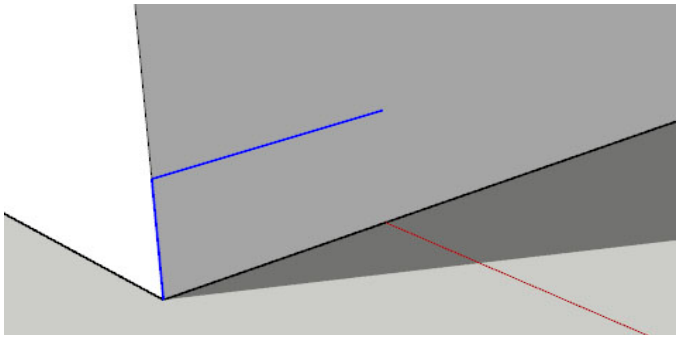
2) From the bottom front corner, draw a line up along the front edge 150 mm long.



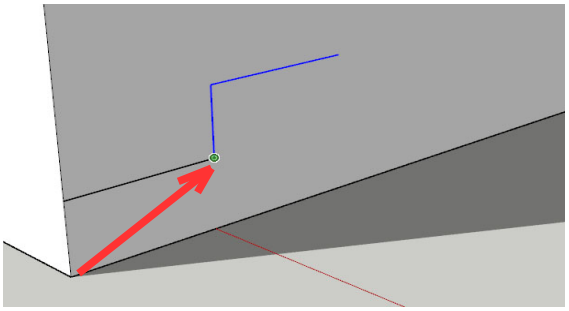
3) From the top of this line draw a line along the right face 300mm long



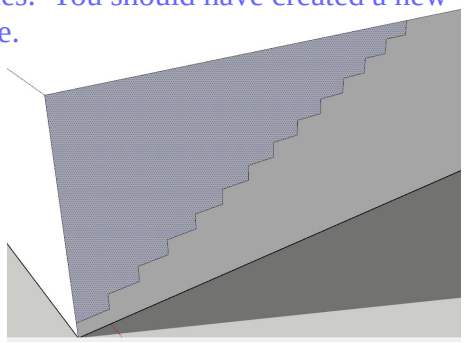
4) Using the Select tool and the ‘shift’ key select both of these lines.



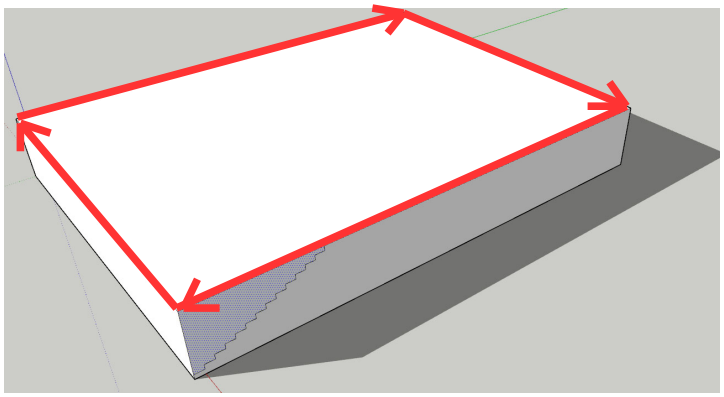
5) Using the Move tool and the ‘Ctrl’ key pressed, grab the bottom corner and copy the stair to the far end of the 300mm line.



6) Type ‘*13’ to multiple the stairs 13 times. You should have created a new face.



7) Select the Follow me tool and pull the face above the stairs around the four top edges. Click when you get back to the starting corner. This may take several attempts.



Your finished stairs!

Get Mr. B to mark your sheet for Assignment 1, Parts 1, 2, & 3