

# Skyscraper Board Fusion 360 Tutorial



Before using these instructions, it is helpful to watch this video screencast of the CAD drawing actually being done in the software. Click [this link for Video instructions](#)

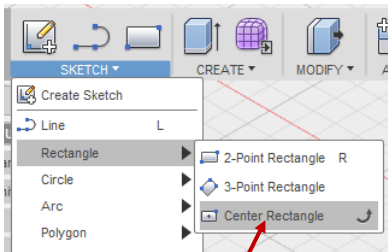
## Overview

This tutorial shows you how to create the board for the Skyscraper game using the following skills:

<ul style="list-style-type: none"> <li>• Rectangular Pattern tool on sketches</li> </ul>	<ul style="list-style-type: none"> <li>• Circular Pattern tool on both sketches and bodies</li> </ul>	<ul style="list-style-type: none"> <li>• Extruding and cutting text into a body</li> </ul>
<ul style="list-style-type: none"> <li>• Combining two bodies together</li> </ul>	<ul style="list-style-type: none"> <li>• Filleting tool</li> </ul>	<ul style="list-style-type: none"> <li>• Chamfering tool</li> </ul>

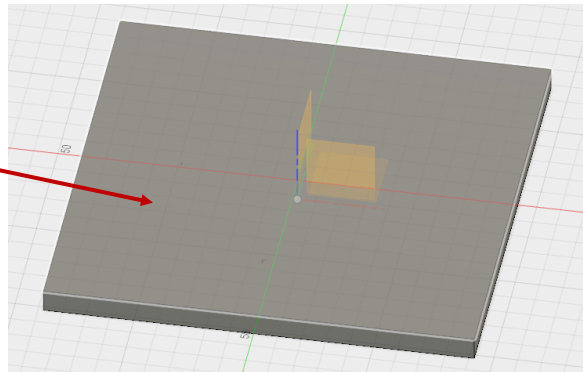
## Creating Base - Extruding Squares

	<p>1) Go to "SKETCH" then "Rectangle" and select the "Centre Rectangle".</p>	<p>2) Select the "TOP" plane to sketch on.</p>	<p>3) Starting from the centre point draw a 90mm by 90mm square.</p>	
<p>4) Press "E" to extrude. Make the square 5mm tall.</p>				

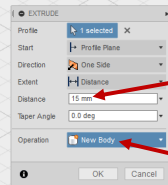
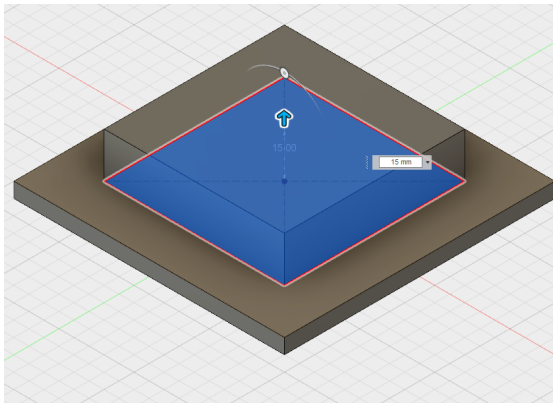


5) Select the "Centre Rectangle" tool again.

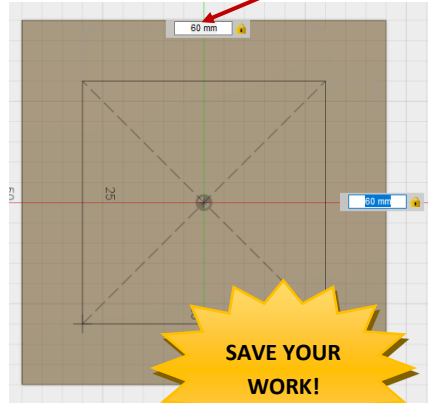
6) Click on the top face of the extruded square you just made to start sketching on top of it.



7) Starting from the centre point make a square with width and length both 60mm.



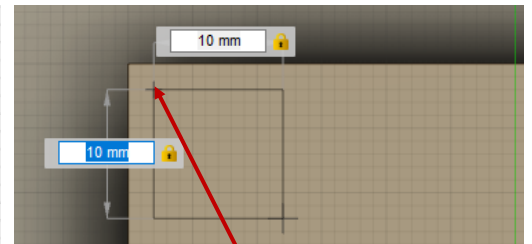
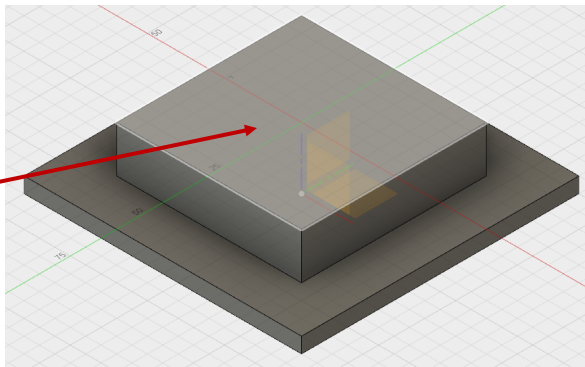
8) Extrude your square to a height of 15mm. Ensure you make it a "New Body" in the "Operation" option in the tool box.



**SAVE YOUR WORK!**

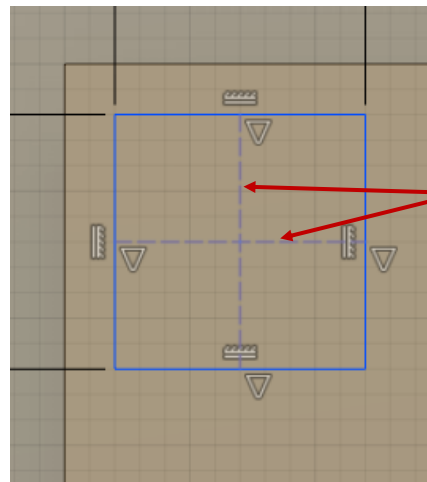
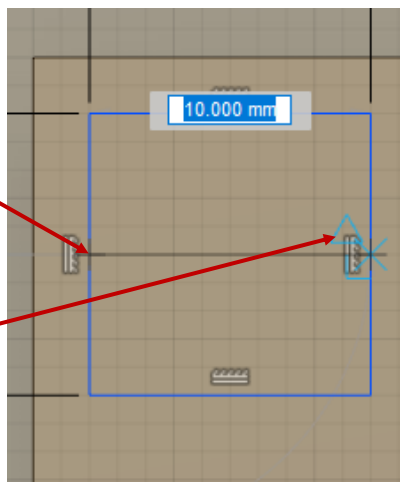
## Creating Holes - Rectangular Pattern

9) Press "R" on your keyboard to initiate the 2-point rectangle tool. Click on the top face of the 60mm square extrude to start sketching on top of it.

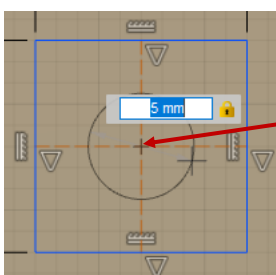


10) Sketch a 10mm by 10mm square in the top left corner.

11) Press "L" on your keyboard to initiate the line tool. Draw a line from the midpoint of the left vertical line to the other. A blue triangle should appear to show you are in the centre of each line when you draw.

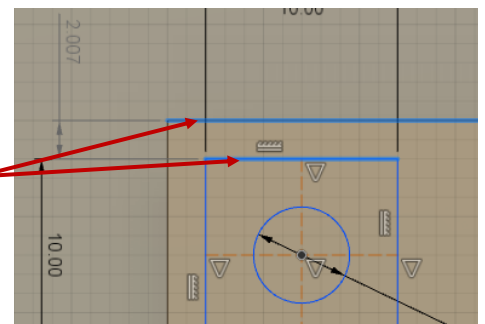


12) Draw a line from the midpoint of top horizontal line to the other. Then select both lines (holding down "Ctrl") and press "X" on your keyboard to turn them into construction lines.

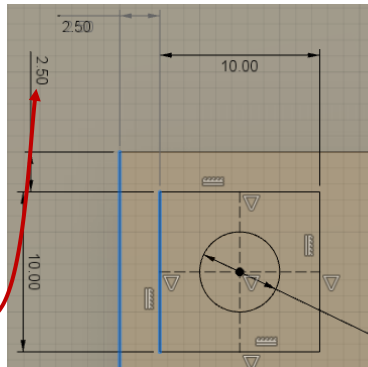


13) Press "C" to initiate the centre circle tool. Click the intersection of your construction line to centre your circle. Make the diameter 5mm.

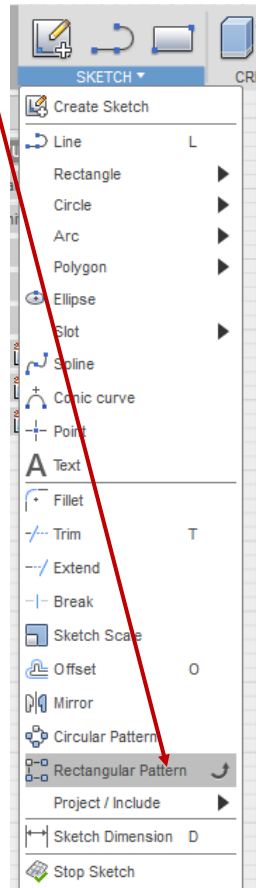
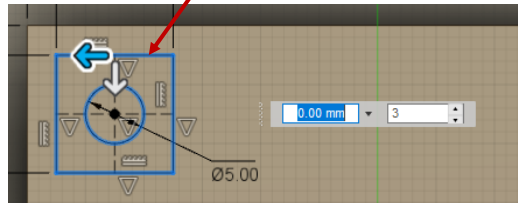
14) Press "D" to initiate the dimension tool. Click on the top edge of your square and then the edge of the 60mm square. Make the distance between them 2.5mm.



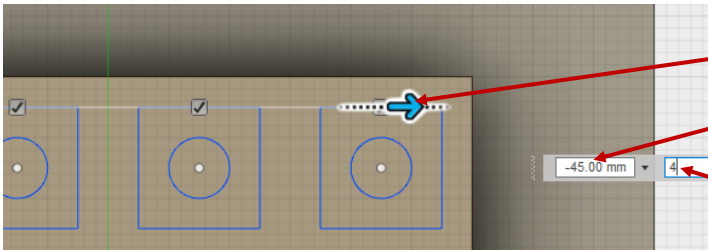
15) Also make the distance between the right edge of your square and the edge of your 60mm square 2.5mm.



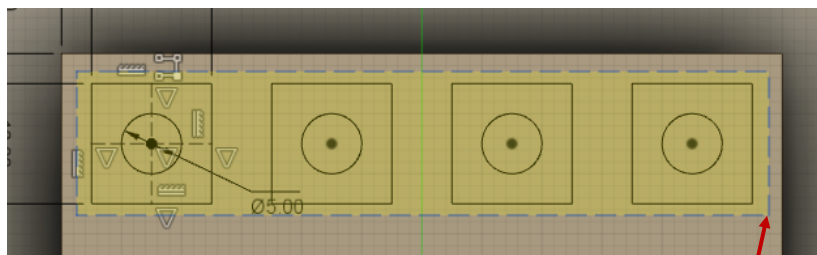
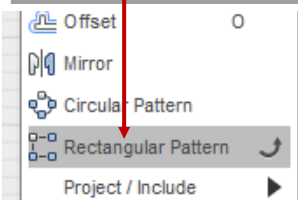
16) Go to "SKETCH" and select "Rectangular Pattern". Click on all the edges of the square and the circle.



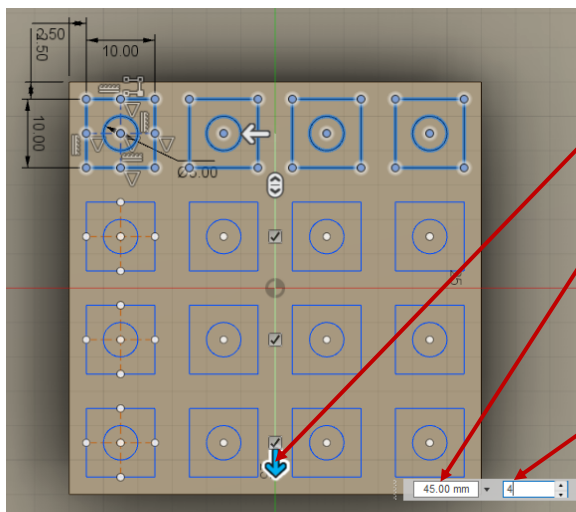
17) Grab the horizontal arrow and drag to the left. Type -45mm in the distance box and 4 the number of copies box. Press Enter on your keyboard.



18) Select the "Rectangular Pattern" tool again.

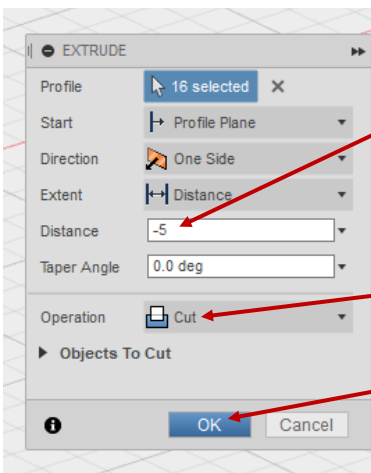
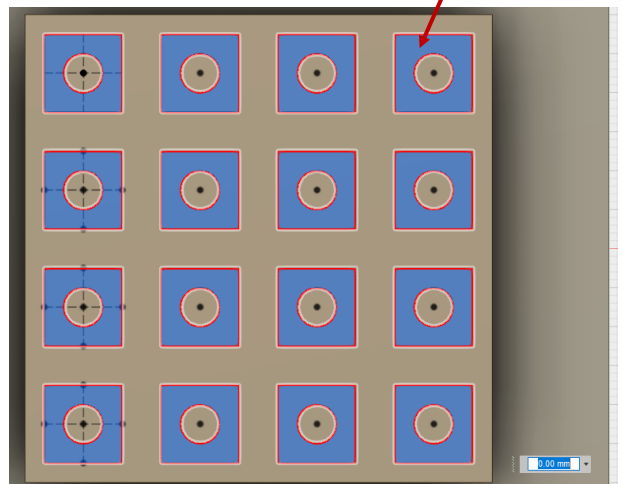


19) Hold down the left click and drag over all the squares to select them all.

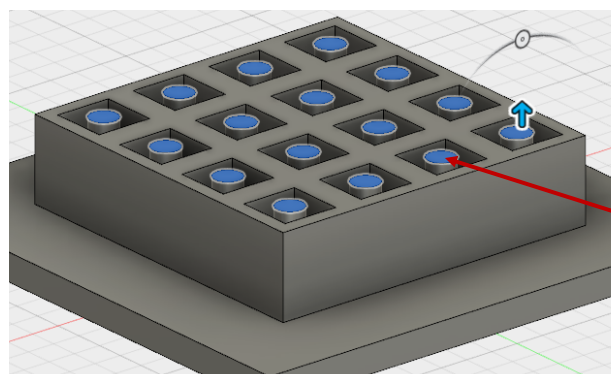


20) Grab the vertical arrow and drag down. Type 45mm in the distance box and 4 the number of copies box. Press Enter on your keyboard.

21) Press "E" to extrude. Then select all the squares (but not the circles).

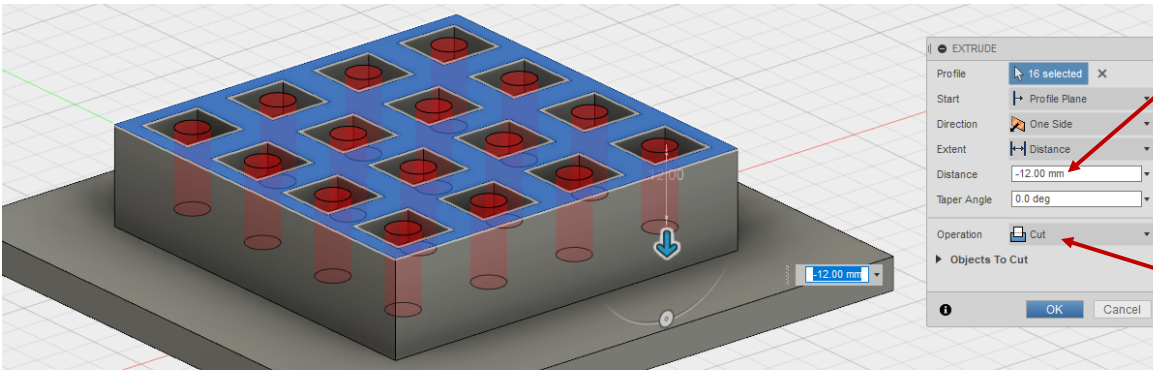


22) Type -5 into the "Distance" option in the tool box. Ensure the "Operation" is "Cut". Then click "OK".



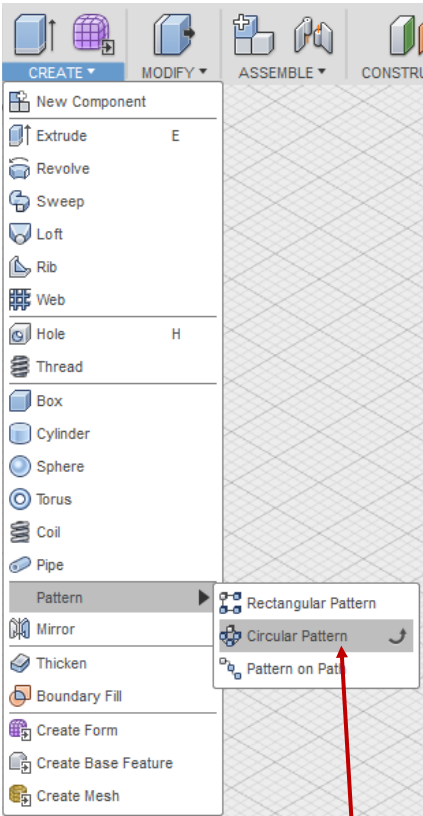
23) Press "E" to extrude. Then select all the top surfaces of the circles.



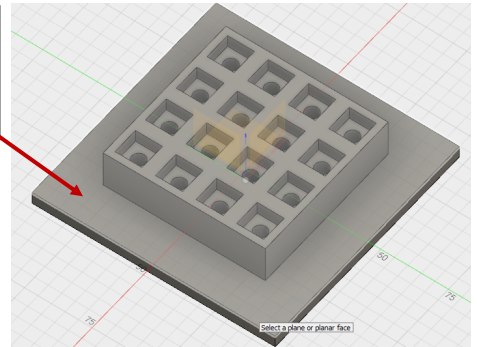
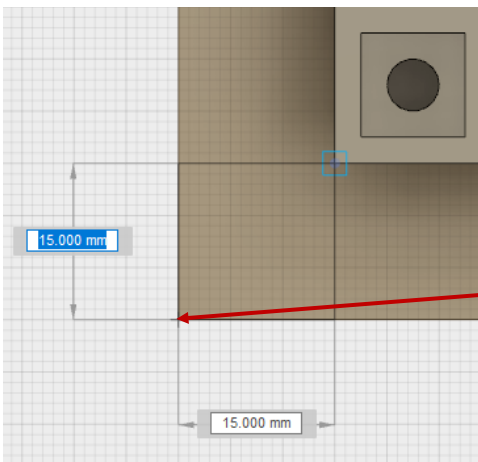


23) Type -12 into the "Distance" option in the tool box. Ensure the "Operation" is "Cut". Then click "OK".

## Creating Pillars - Circular Pattern

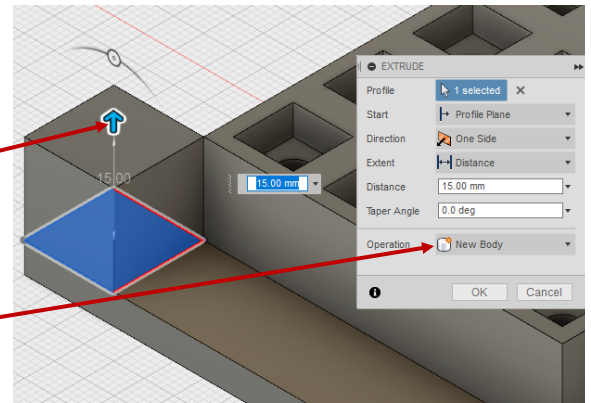


24) Press "R" to initiate the 2-point rectangle. Then select the top surface of the 90mm square.



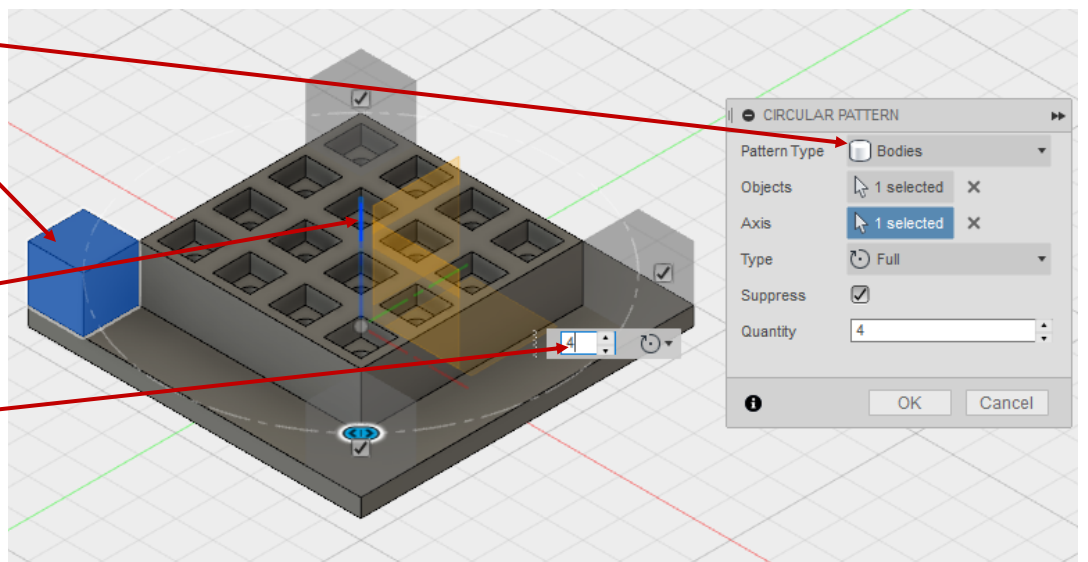
25) Start your square from the bottom left corner of your 90mm square base. Then drag to the corner of the 60mm square. Your square should be a 15mm by 15mm square.

26) Press "E" on your keyboard to extrude the square. Make it 15mm in height by either dragging the arrow up or typing 15 into the "Distance" option in the tool box. Ensure that the "Operation" is a "New Body".



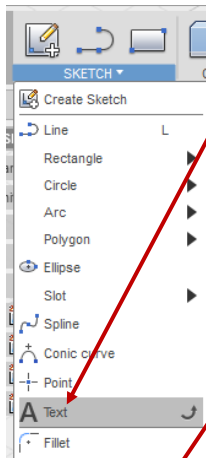
27) Go to "CREATE" and hover over "Pattern", then select the "Circular Pattern" tool.

28) Select "Bodies" on the "Pattern Type" option in the tool box. Then select the cube you just made. Click on the "Axis" option in the tool box, then select the z-axis (blue line on origin). Type 4 into the "Quantity" option. Then click "OK".



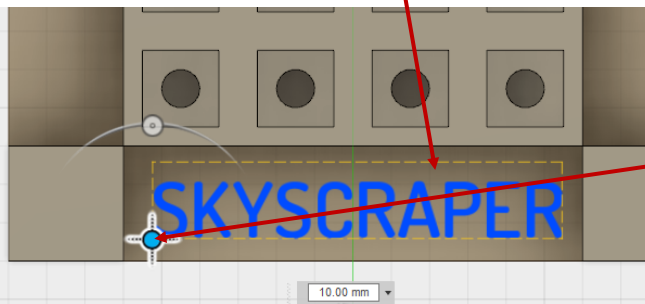
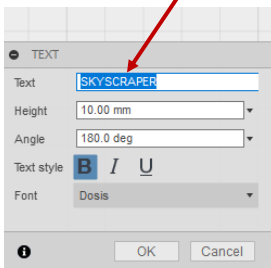
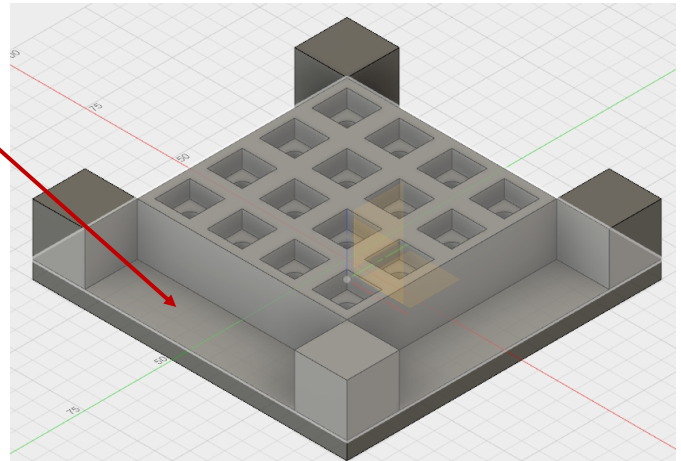


## Adding Text - Circular Pattern, Extruding and Cutting

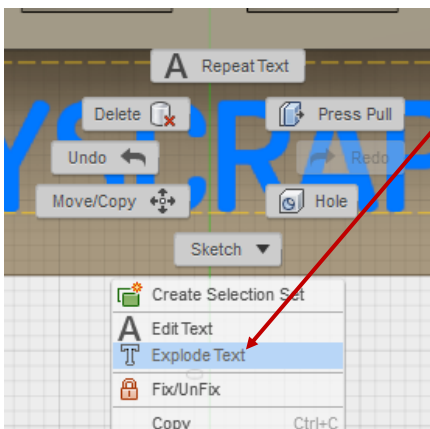


29) Go to "SKETCH" then select the "Text" tool. Click on the top surface of the 90mm square base to start sketching on it.

30) Select a point between the pillars on one of the sides. Then type "SKYSCRAPER" into the "Text" option in the tool box. You can change the font, style and height to your own preference.



31) Click and drag the circle to change the position of the text. Try to centre it.



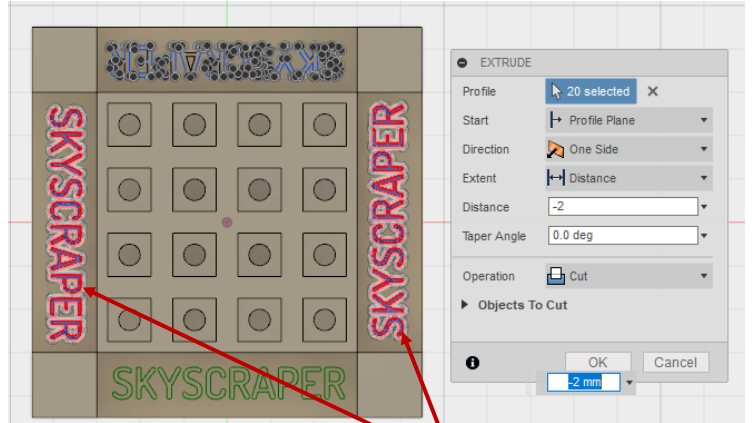
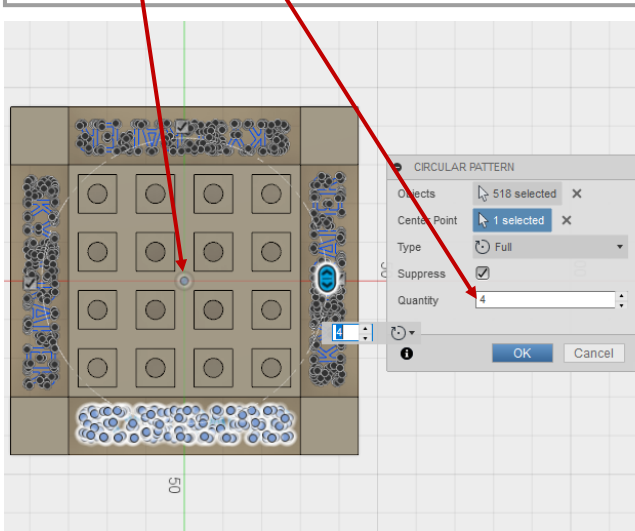
32) Right click over the text then select "Explode Text".

33) Go to "SKETCH" then select "Circular Pattern".

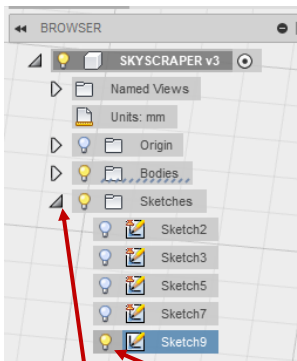


34) hold down the left mouse and drag over all the letters to select them as the objects.

35) Select the "Centre Point" option in the tool box. The click on the centre point at the origin. Make the "Quantity" 4. Then click "OK".

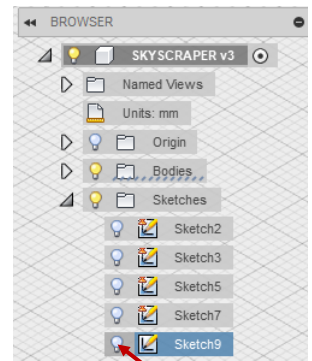
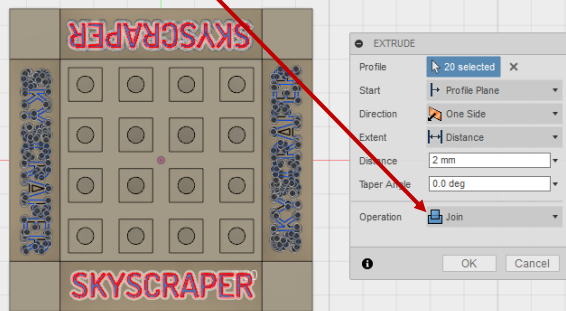


36) Press "E" to extrude. Then click on each letter of SKYSCRAPER on one side of the square then select all the letters from the SKYSCRAPER on the opposite side as well. Make the distance -2mm and ensure that the "Operation" says "Cut". Then click "OK".



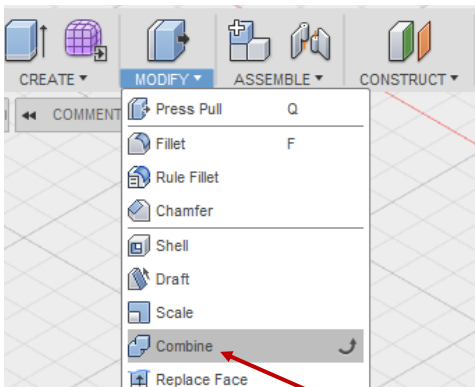
37) Open the "Sketches" folder, then turn on the lightbulb of the last sketch in your file.

38) Press "E" to extrude. Then click on each letter of SKYSCRAPER on one side of the square then select all the letters from the SKYSCRAPER on the opposite side as well. Make the distance 2mm and ensure that the "Operation" says "Join". Then click "OK".



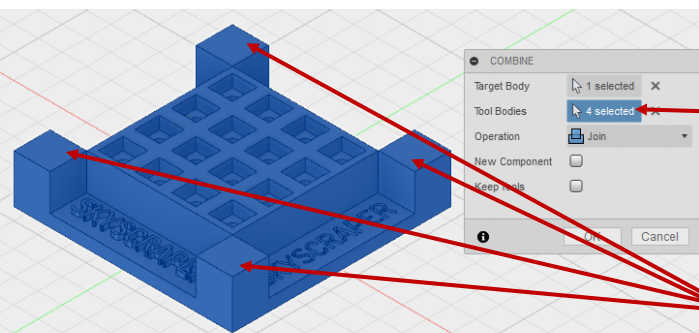
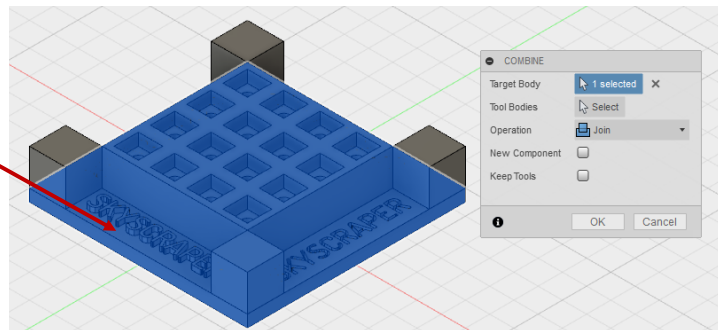
39) Go back to the "Sketches" folder and turn the light bulb of your sketch off.

## Combing and Filleting the Pillars and Base.

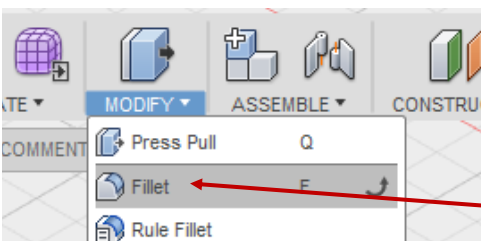


40) Go to "MODIFY" then select "Combine" tool.

41) Click on the 90mm square base to select it as the "Target Body".

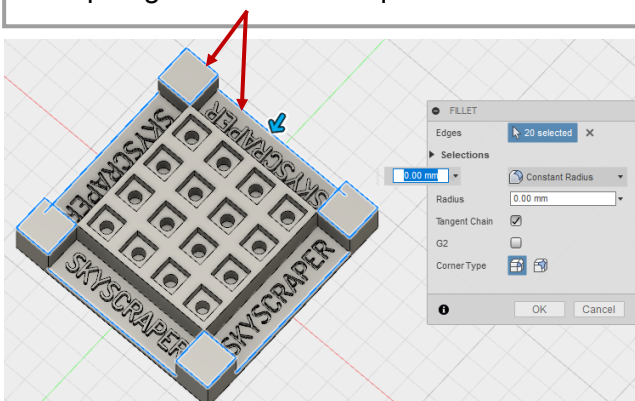


42) Select the "Tool Bodies" option in the tool box. Then click on all four pillars. Click "OK".

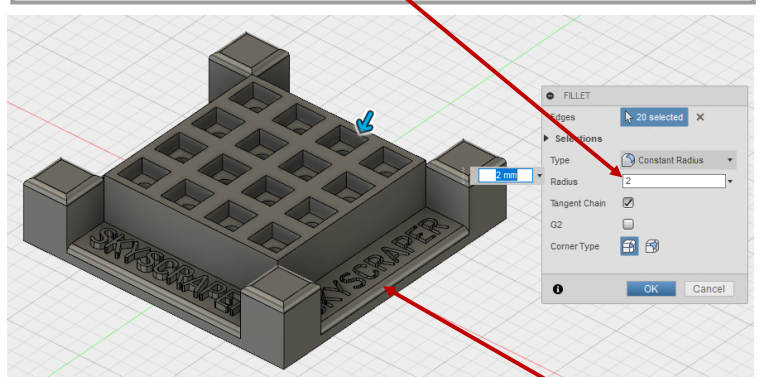


43) Press "F" or go to "MODIFY" then select "Fillet".

44) Click on the top edges of all the pillars and the top edge of the 90mm square base.



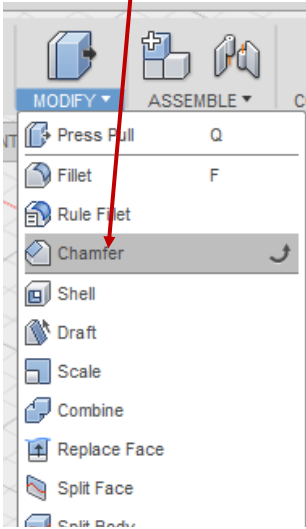
45) Type 2 into the "Radius" option in the tool box. Then click "OK".



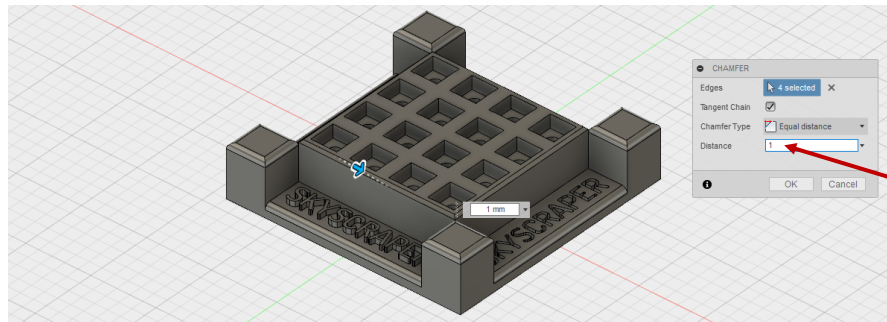
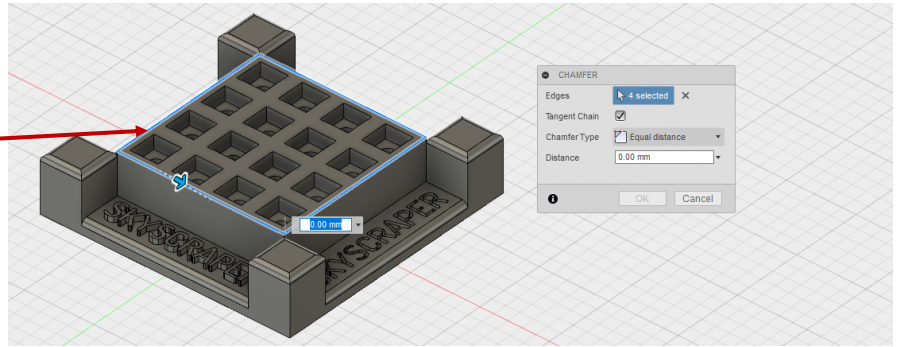
Note. If we did not combine the bodies then we would not have been able to select the top edge of the 90mm square base just between the pillars.

## Chamfering the Grid

46) Go to “MODIFY” then select “Chamfer” tool.



47) Click on the top edges of the 60mm square grid to select them as the “Edges”.



48) Make the chamfer “Distance” 1mm. Then click “OK”.

You have now finished creating the Skyscraper Board. Check out the Skyscraper Pieces tutorial to create your own buildings for the game.