



# Design out the box

Time 40-50 mins approx

Level of difficulty



# Lesson Objectives...

- To understand the basic tools used in SketchUp.
- To understand the advantages of using CAD
- To be able to successfully use CAD independently to complete a range of tutorials in 2D and 3D
- To develop advanced skills and problem solving skills when using SketchUp

# Lesson Outcomes...

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

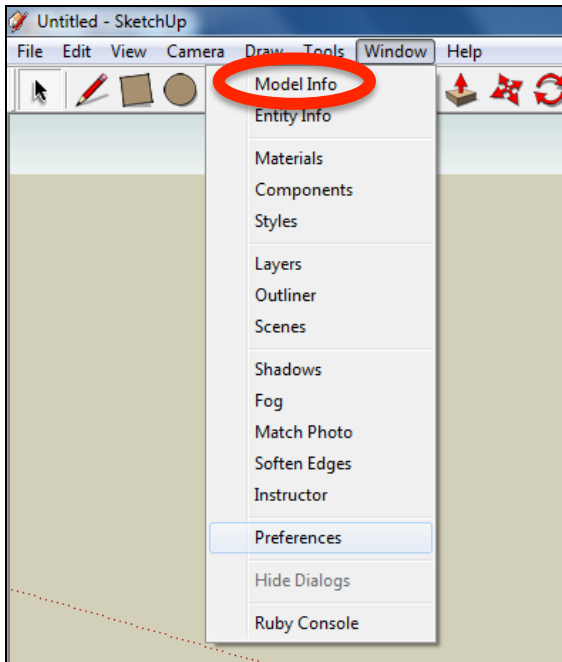
- Create, Move and Rotate components
- Use the Follow Me tool to make objects
- Apply and position 3D Text on your design
- Colour and render your design

# Skills to be used in this project...

Basic Skills	New and Higher Skills
Zoom tool	Rotate tool
Orbit tool	Move tool
Pan tool	Tape Measure tool
Line tool	Arc tool
Rectangle tool	Follow Me tool
Circle tool	Paint Bucket tool
Eraser tool	3D Text tool
Push/Pull tool	Making Components

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

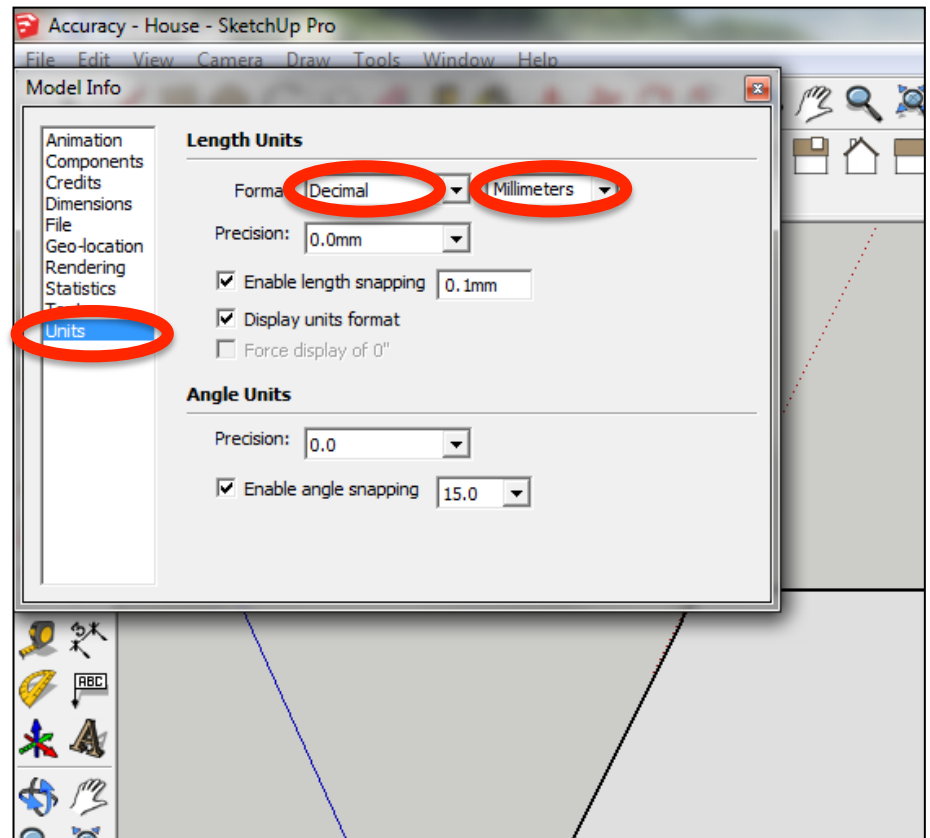
**New and higher skills** may be new to the novice and are the focus for learning in this presentation.



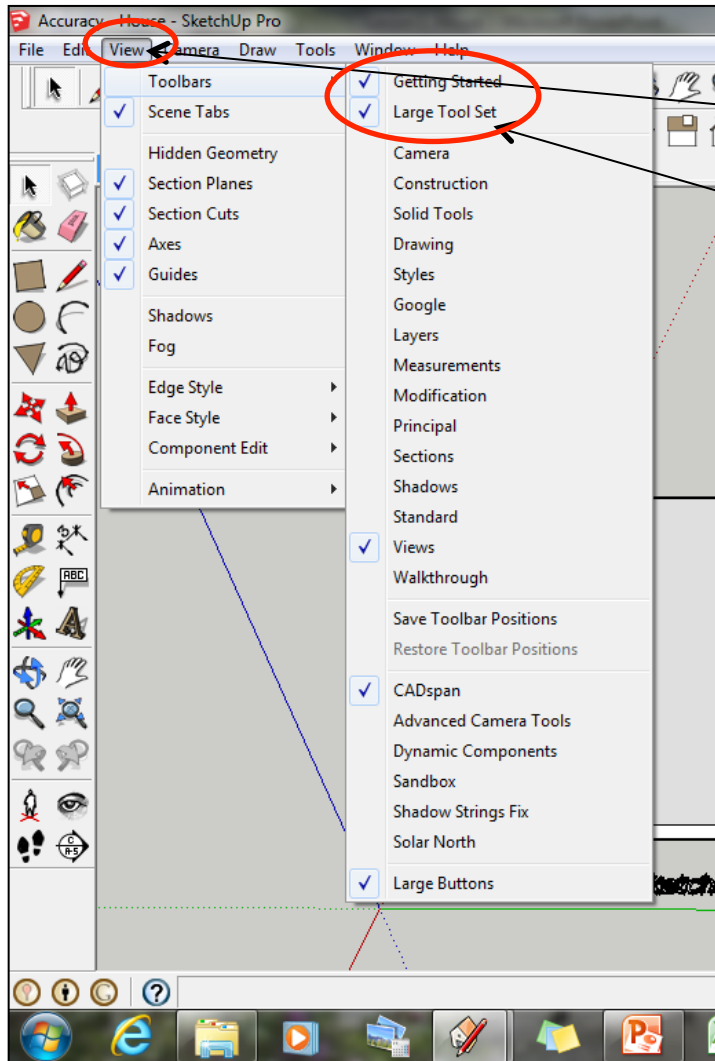
1. Open the sketch up drawing. Once you have opened SketchUp, go to **Window** and select **Model Info**

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

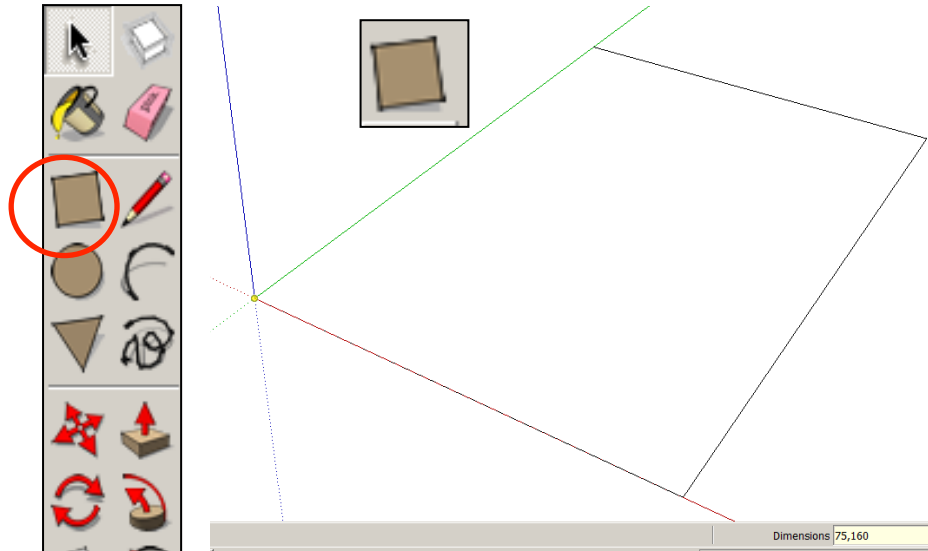


3a Select **View**

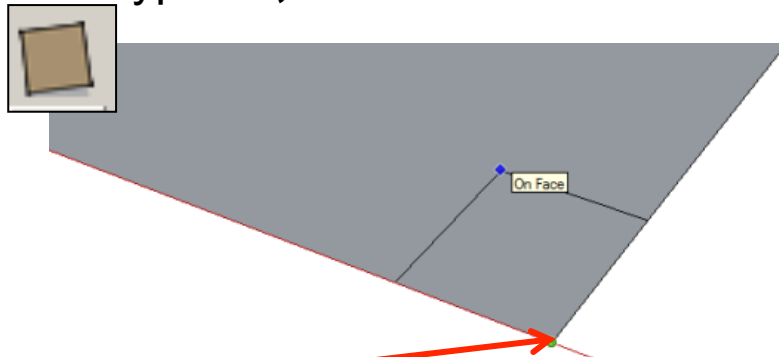
3b Tick Getting Started

3c Tick Large Tool Set

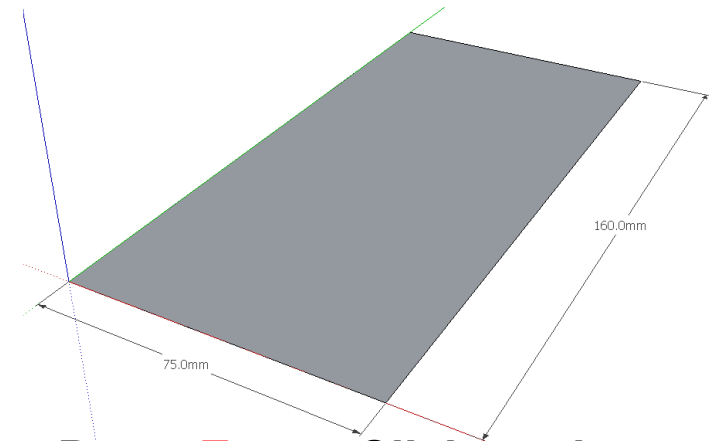
**Note:** this will place a tool bar across the top (**getting started**) and the side (**Large Tool Set**)



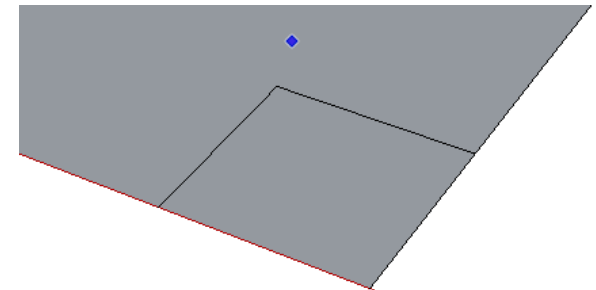
1. **Click** on the **rectangle tool** . Start drawing a square and type **75, 160**.



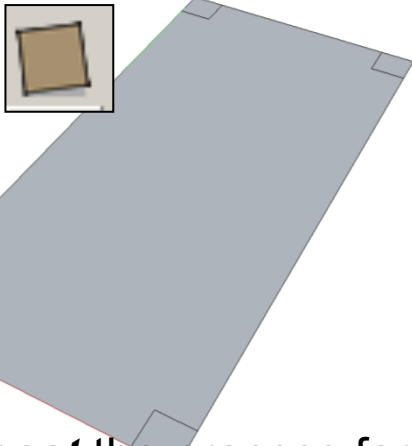
3. Using **the rectangle tool click** on the corner of the rectangle you have just drawn.



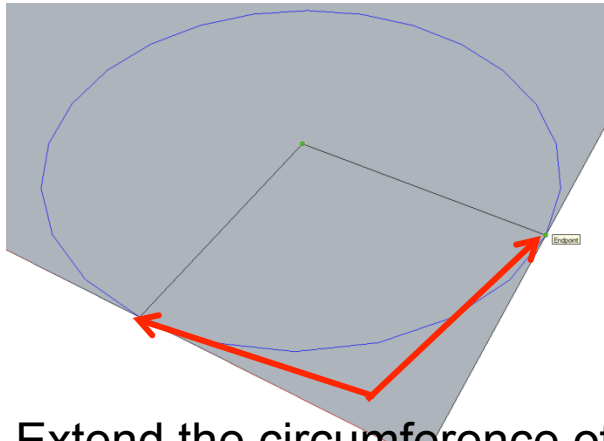
2. Press **Enter** . Click on the zoom extents symbol.



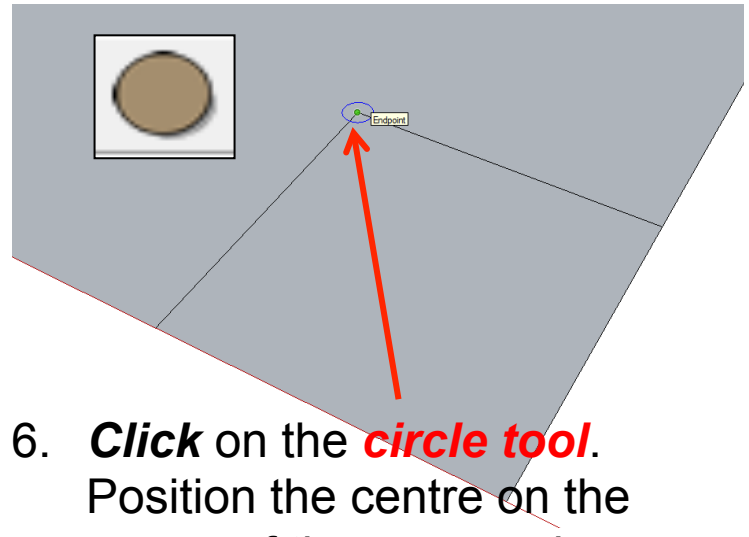
4. Type **10, 10** and press **enter**



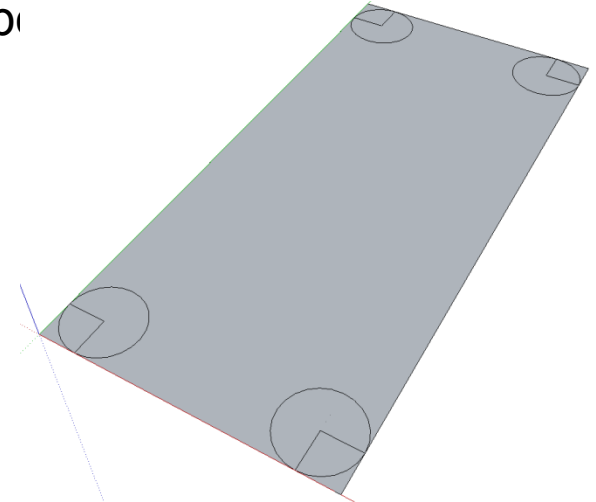
5. **Repeat** the process for the other 3 corners. Remember to type **10, 10** and press **enter**



7. Extend the circumference of the circle out until it meets the either corner shown. It will say **endpoint**

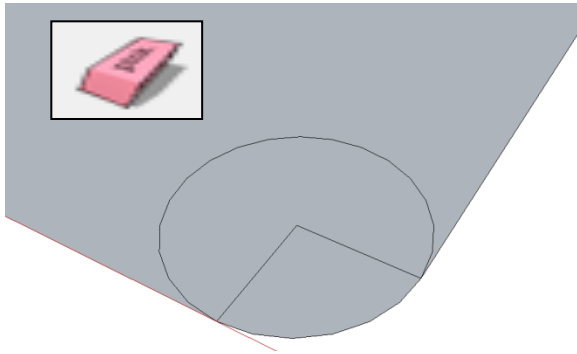


6. **Click** on the **circle tool**. Position the centre on the corner of the square shown above

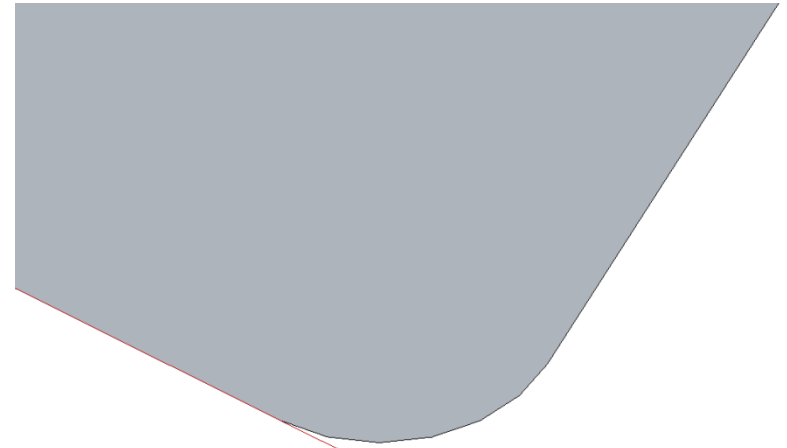
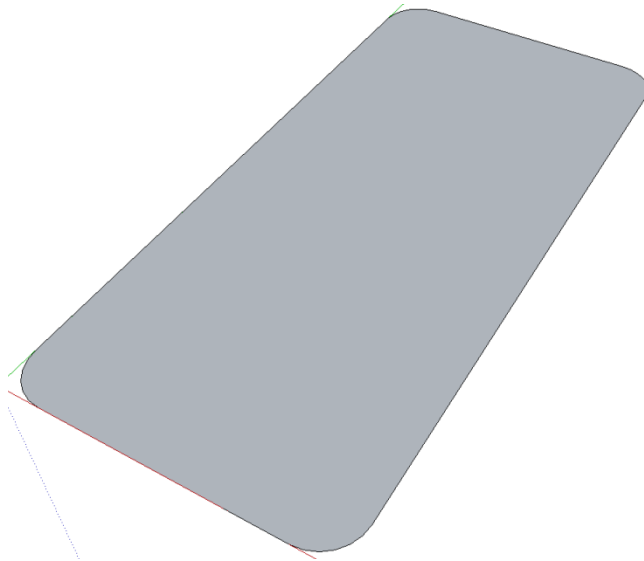


8. **Repeat** the process for the other 3 corners.

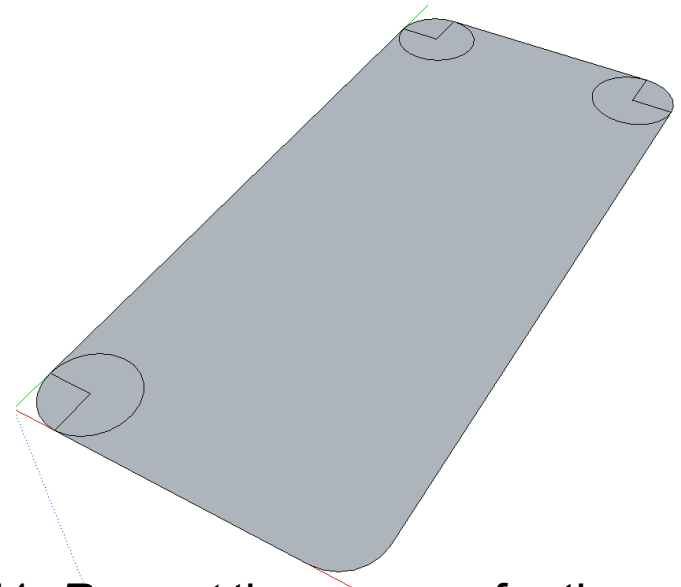




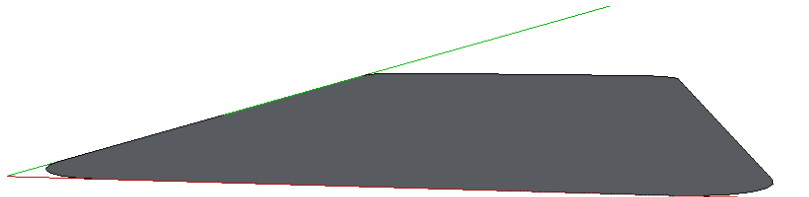
9. Use the **rubber tool** to erase the corners so you are left with a radius as shown



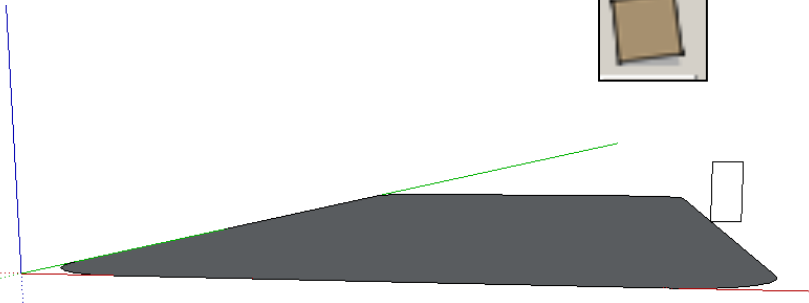
10. **Erase** the remaining parts of the circle.



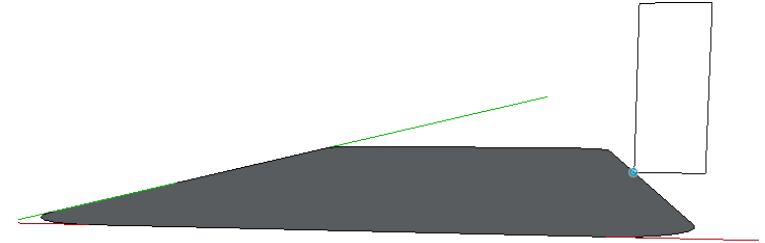
11. **Repeat** the process for the other 3 corners.



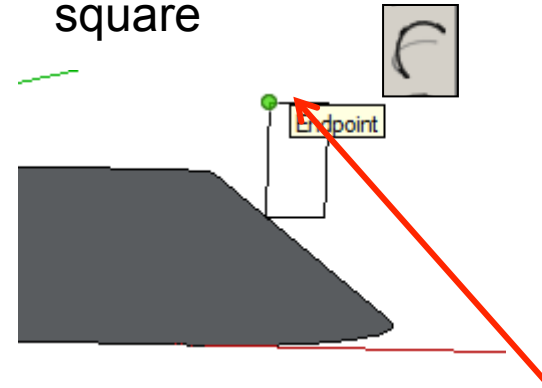
12. **Orbit** your work around so you can see **a horizon** behind it so to speak.



14. Type **5, 10** and press **enter**

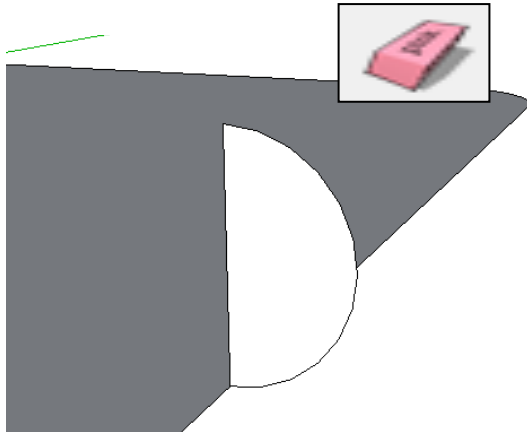


13. Click on the **rectangle tool** and **snap** to the **edge** of the shape you have just drawn. Start drawing a **vertical** square

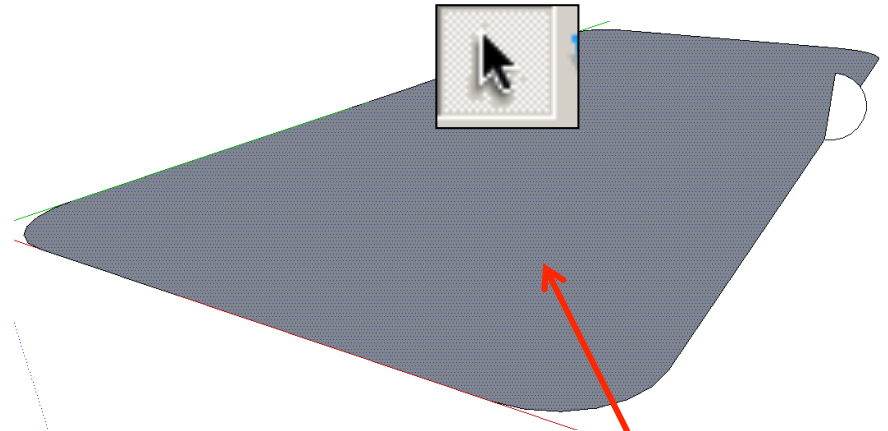


15. Click on the **arch tool**. Click on the **top left corner** of the vertical square you have just drawn.

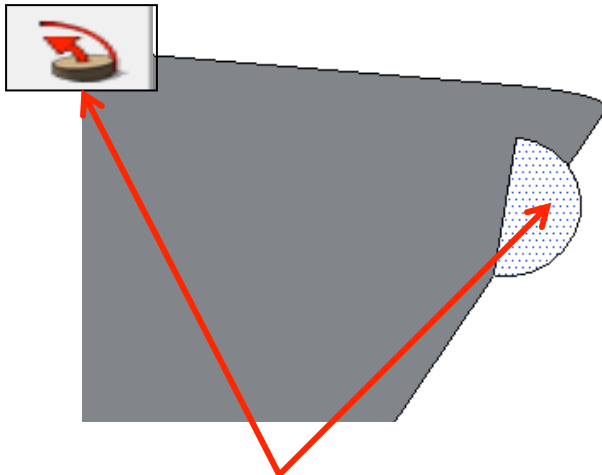




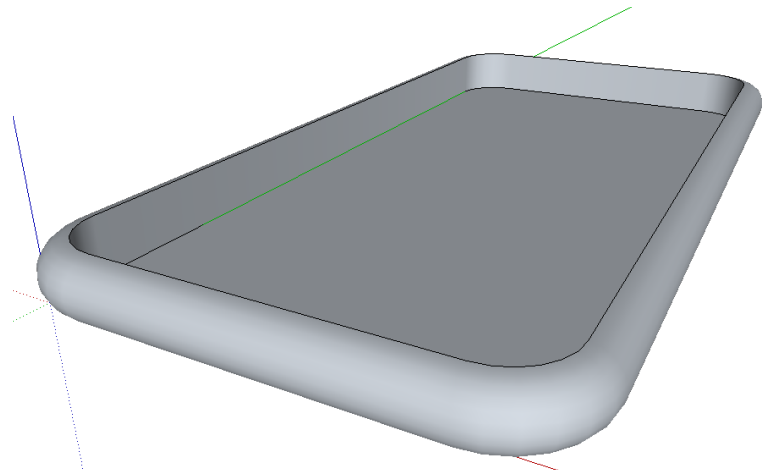
20. You should be left with a **semi circle**.



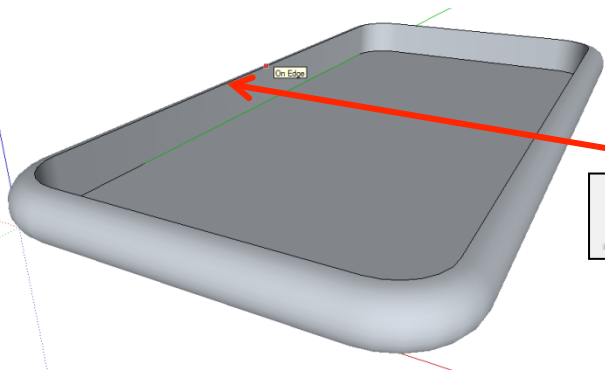
21. Select the **black arrow** and click on the base it should go dotted.



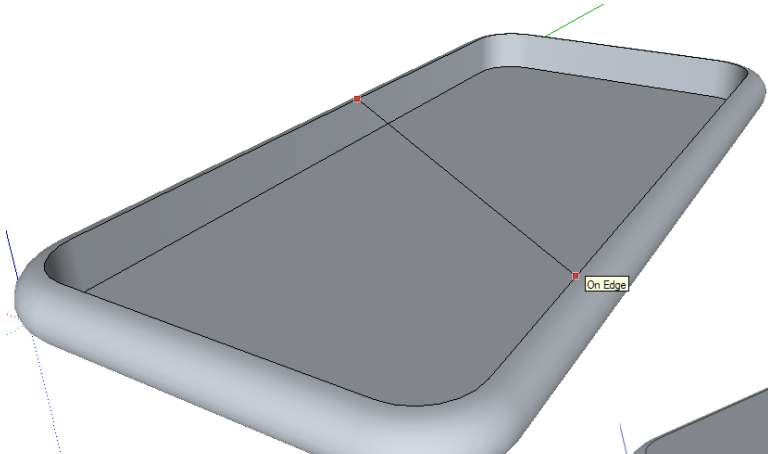
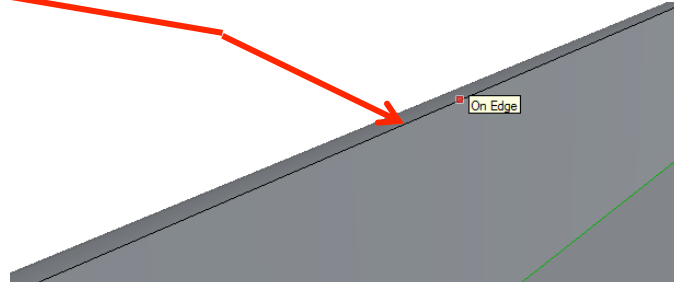
22. Select the **follow me tool** and click on the **semi circle**



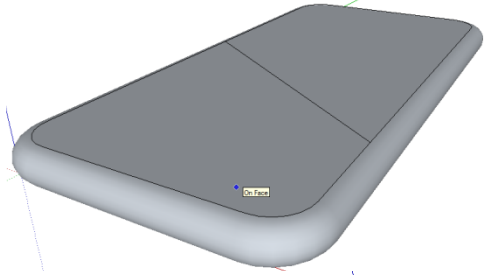
23. The semi circle should follow the base shape as shown above.....



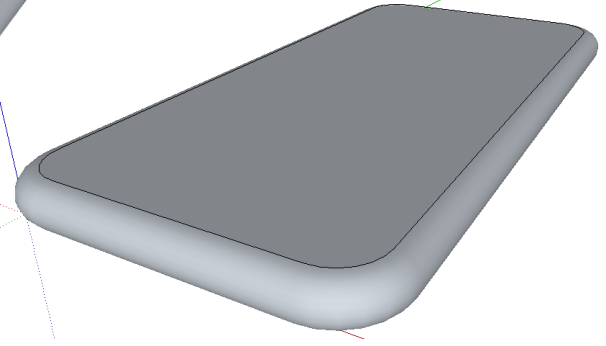
24. Select the **pencil tool** and snap to the edge as shown

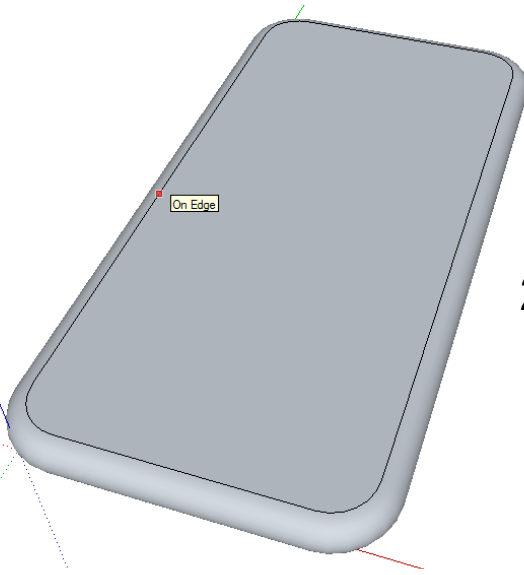


25. Draw a **line** to the **opposite edge** as shown



26. The object should turn solid. Use the **eraser tool** to **delete** the line just drawn

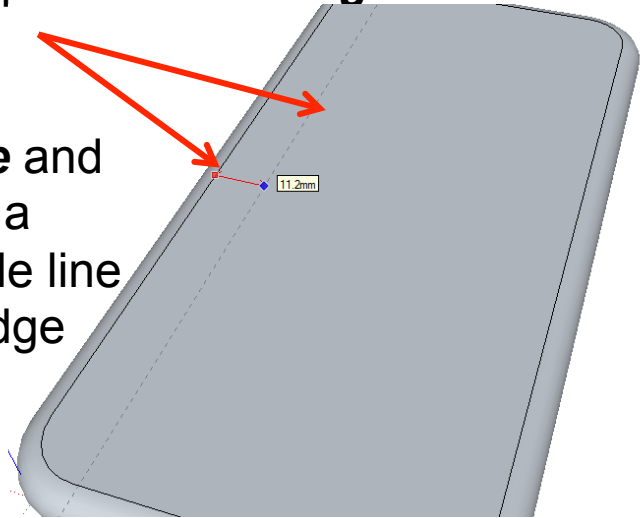




27. Select the **Tape measure tool** and snap to the **side edge** as shown

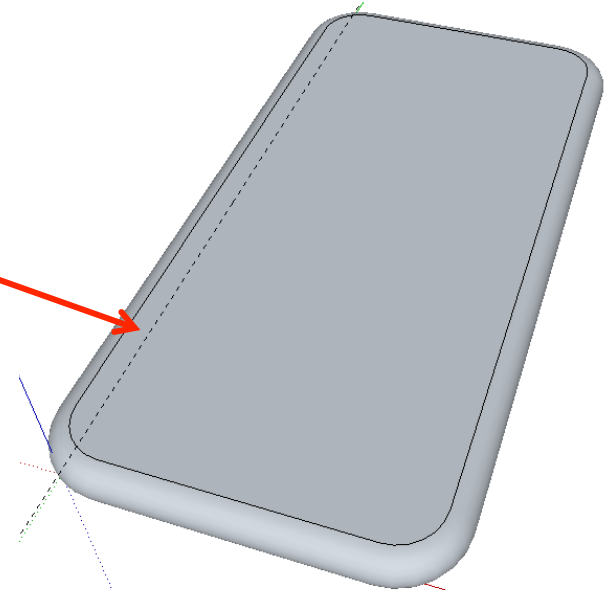


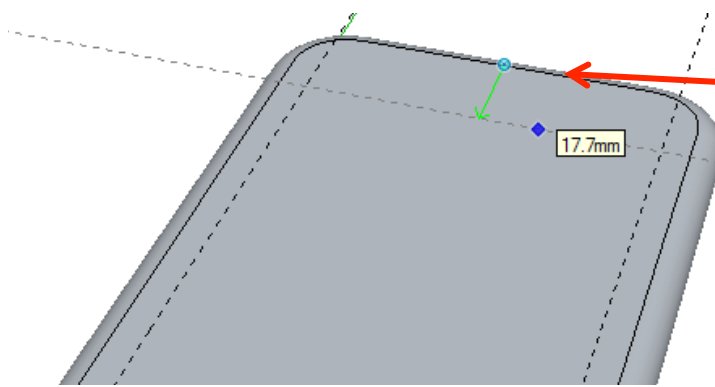
28. **Click once** and it will draw a dotted guide line from the edge



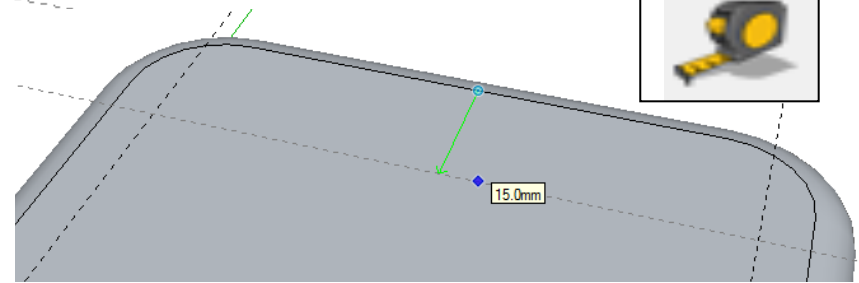
29. **Click a second time** to set the guide line and **type 5 and enter**. You will have a guide line **5mm** in from the **side edge**

30. **Repeat** the process on the opposite side



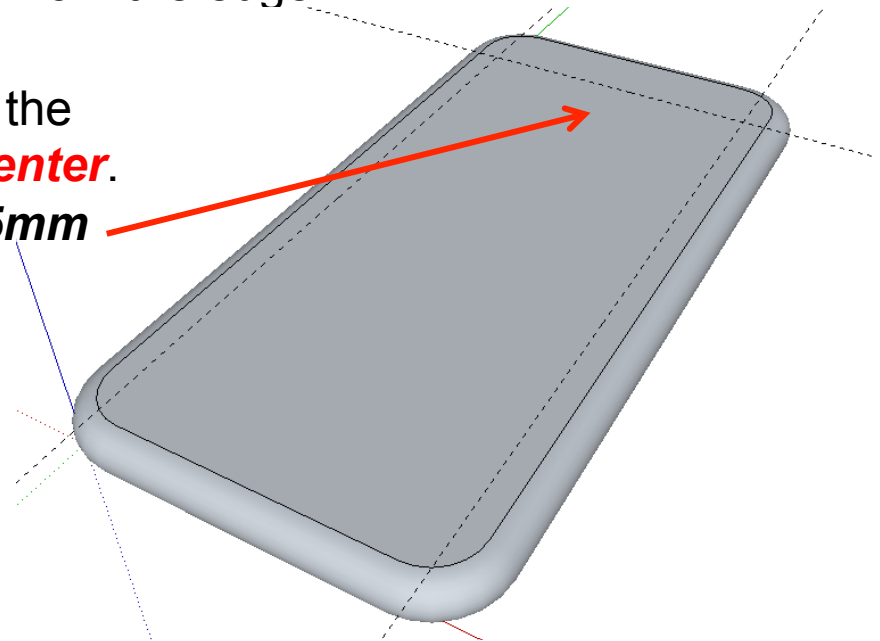


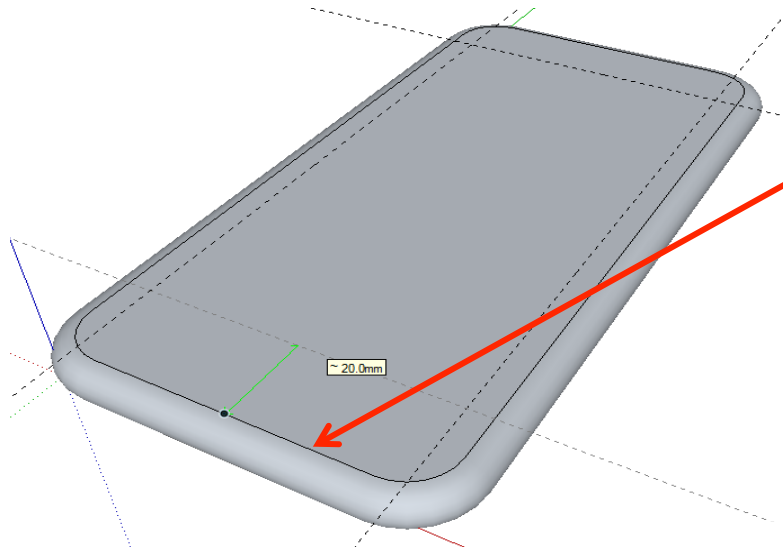
31. Select the **Tape measure tool** and snap to the **top edge** as shown



32. **Click once** and it will draw a dotted guide line from the edge

33. **Click a second time** to set the guide line and **type 15 and enter**. You will have a guide line **15mm** in from the **top edge**



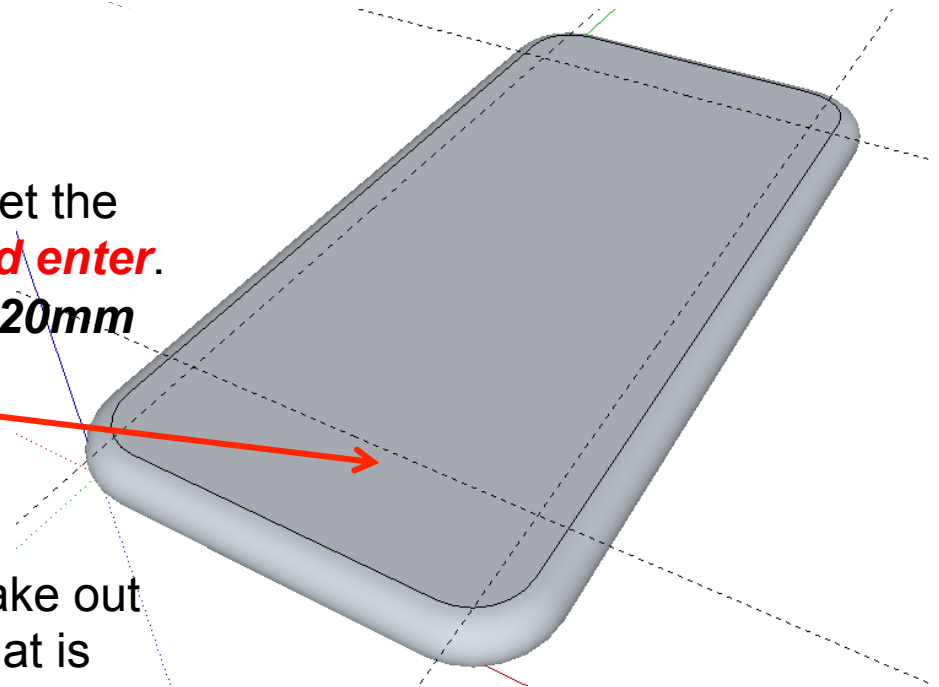


34. Select the **Tape measure tool** and snap to the **bottom edge** as shown



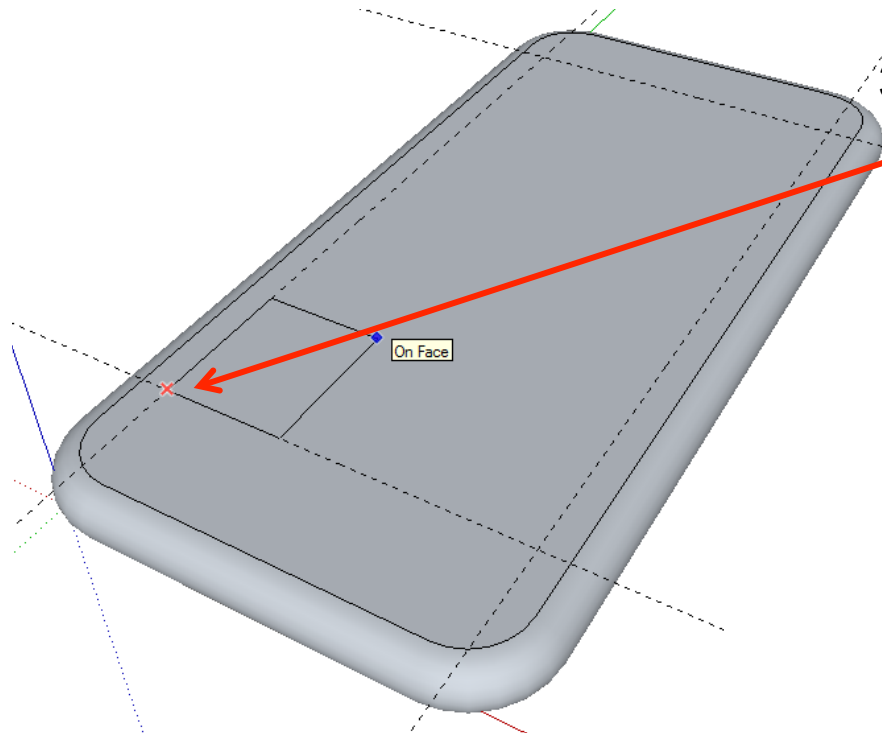
35. **Click once** and it will draw a dotted guide line from the edge

36. **Click a second time** to set the guide line and **type 20 and enter**. You will have a guide line **20mm** in from the **bottom edge**

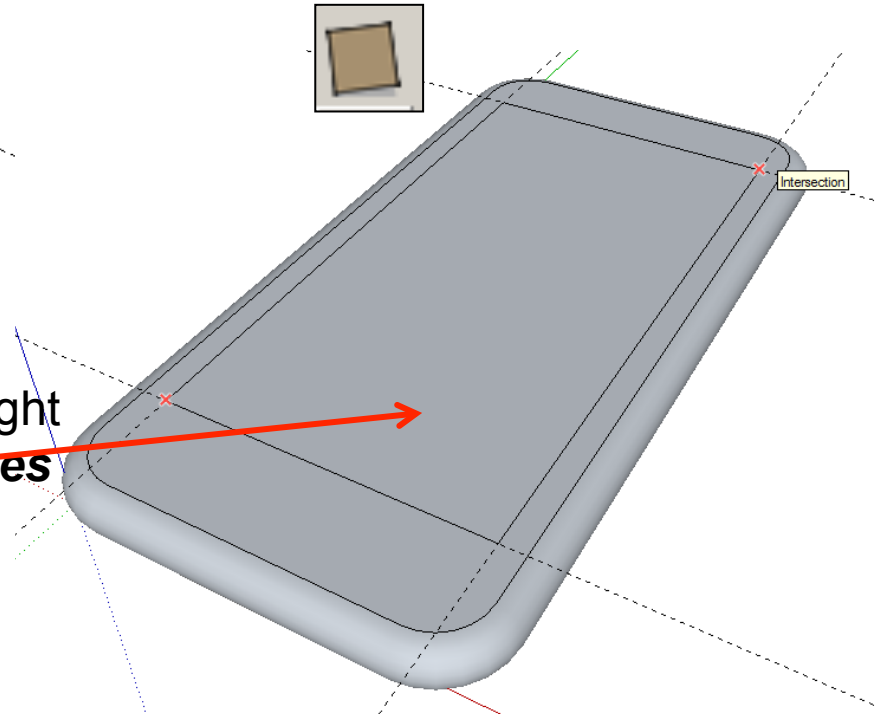


37. **You should** be able to make out a square for you screen that is drawn **accurately in** from the edges

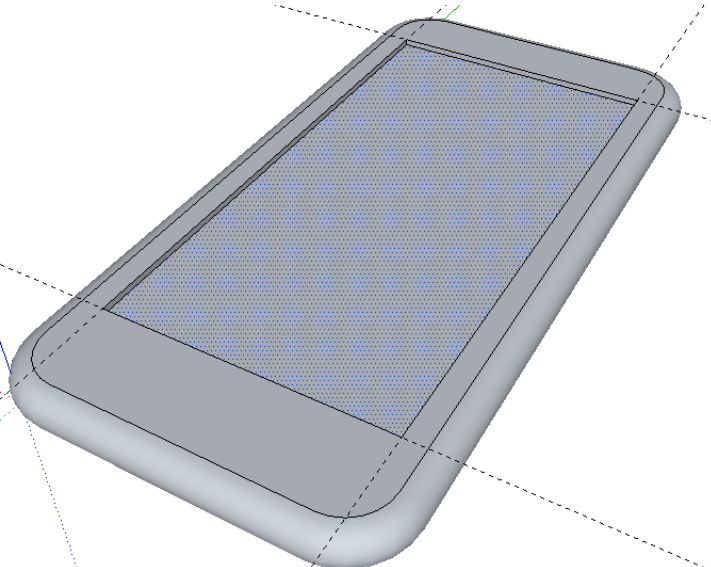




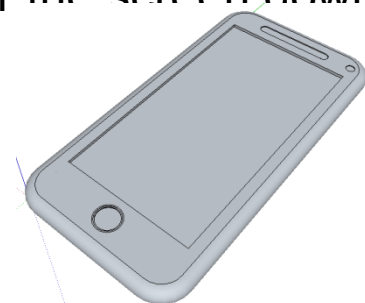
38. Select the **square tool** and snap to the **bottom edge on the left hand side of the guide lines**



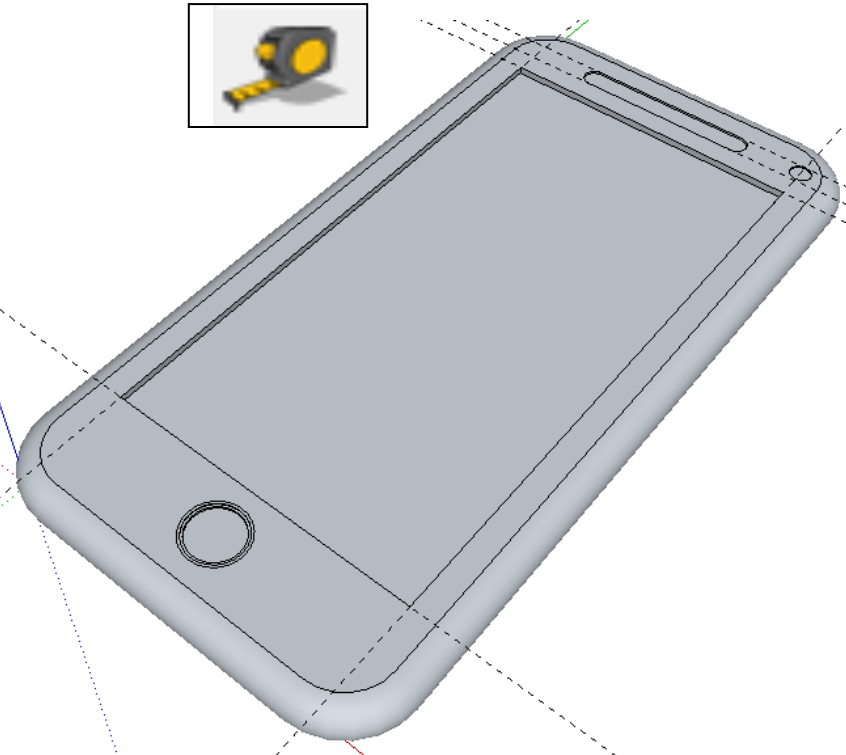
39. Draw a square to the top right hand **side of the guide lines**



40. Use the **push pull tool** to lower the screen down.

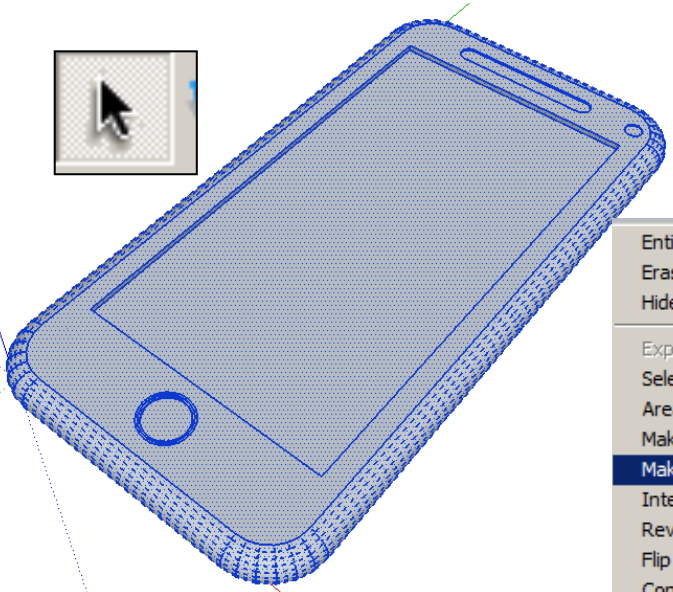


42. Once finished click on the **View** toolbar and **un-tick** the **guides** to hide them.

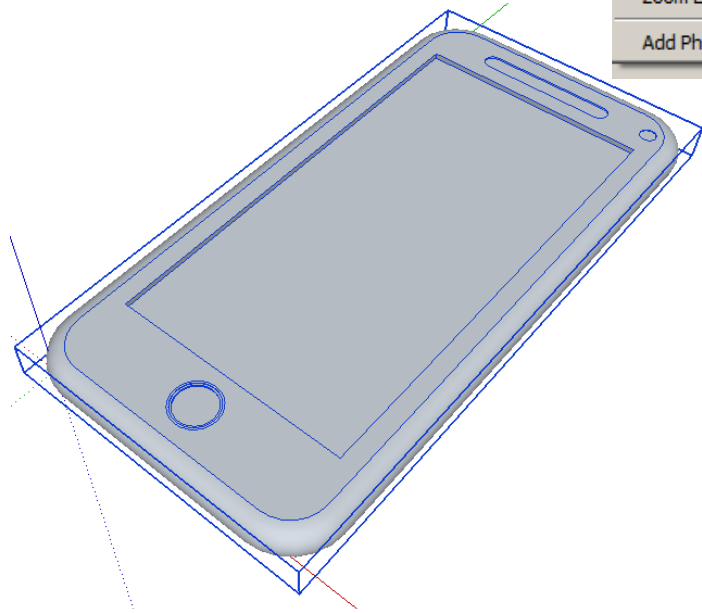
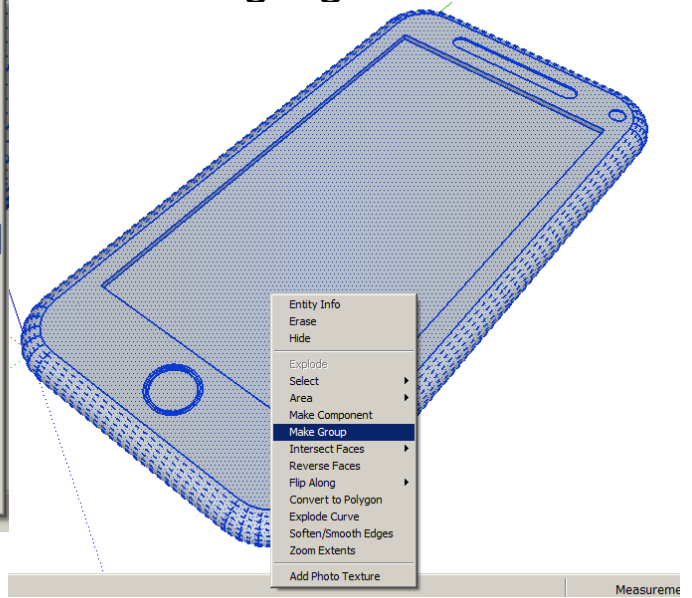
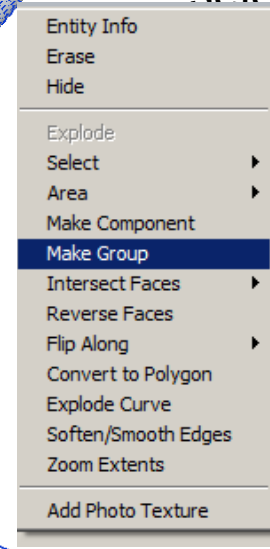


41. Add your own details. Use the tape measure to layout guidelines to ensure your details are accurate.....

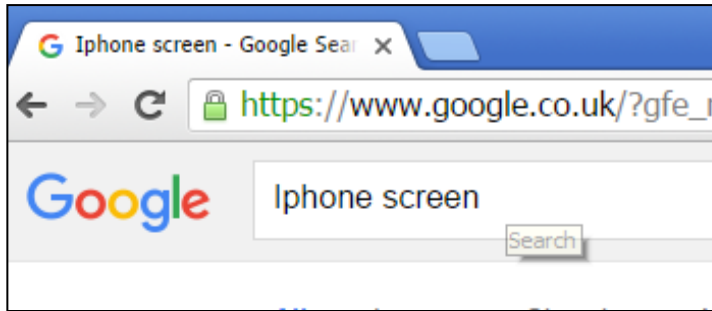
**(HINT)** 43. To put them back click on the **View** toolbar and **tick** the **guides** to unhide them.



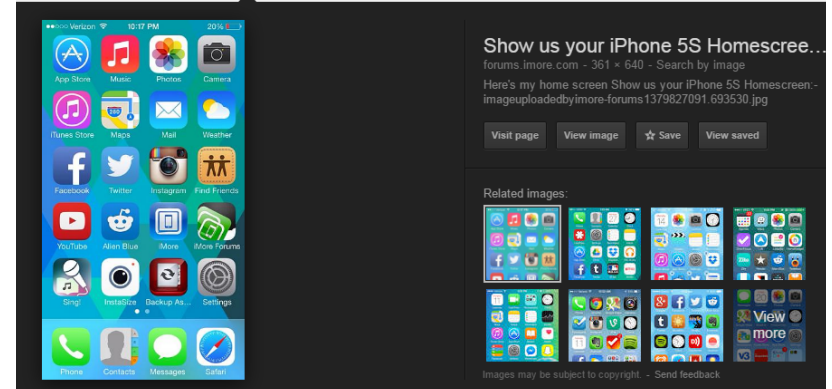
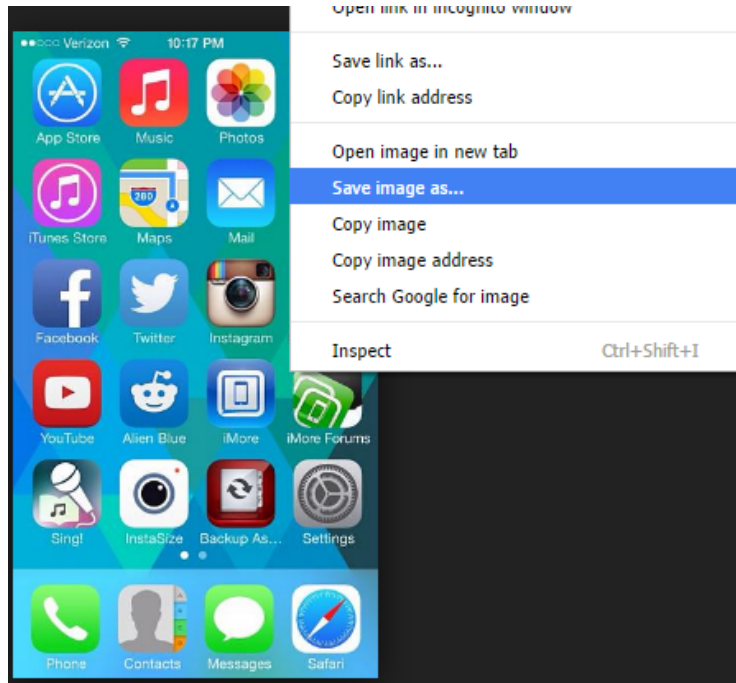
44. Use the **select tool** and keep clicking on the phone until it is all selected and highlighted in blue.



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

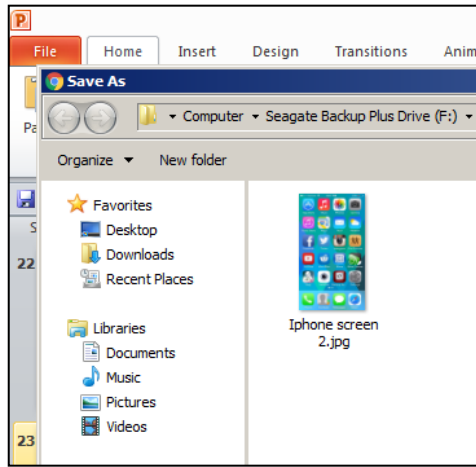


46. We now need to add the phone screen onto our drawing. Type it into Google.

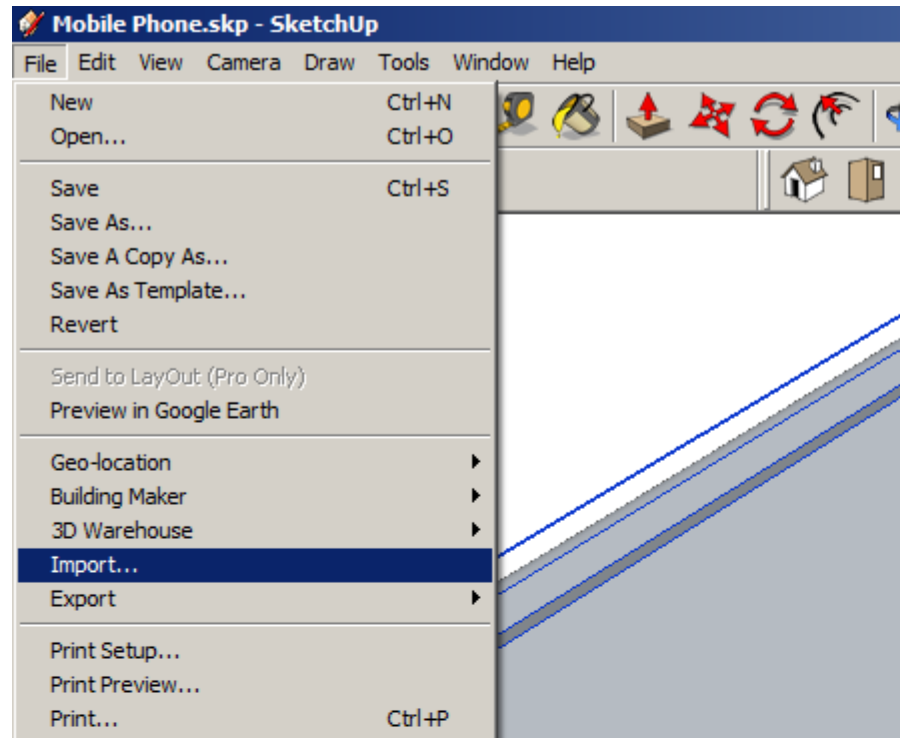


47. **Click on images** and search for a suitable image. We are only after the screen not an image of a phone as well.

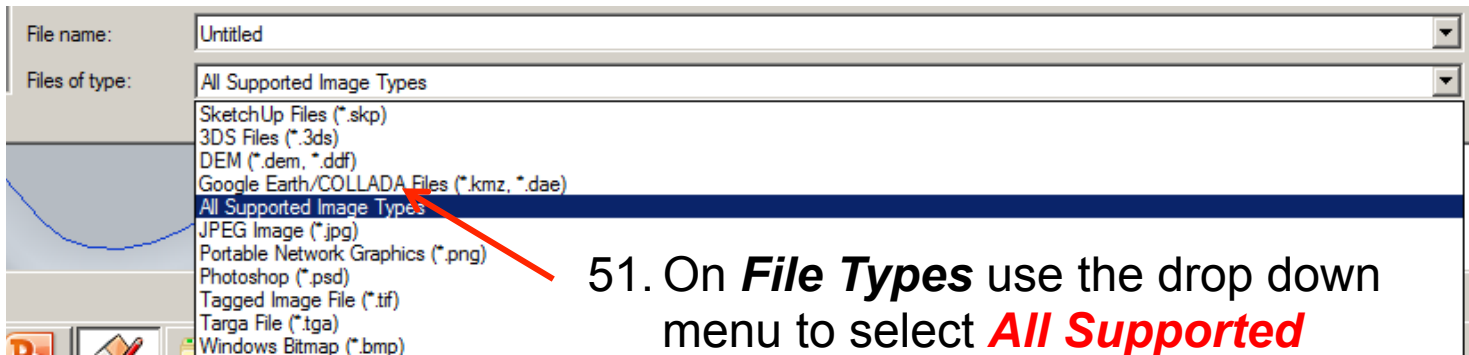
48. **Right click** on the image and save image as **into your file**.



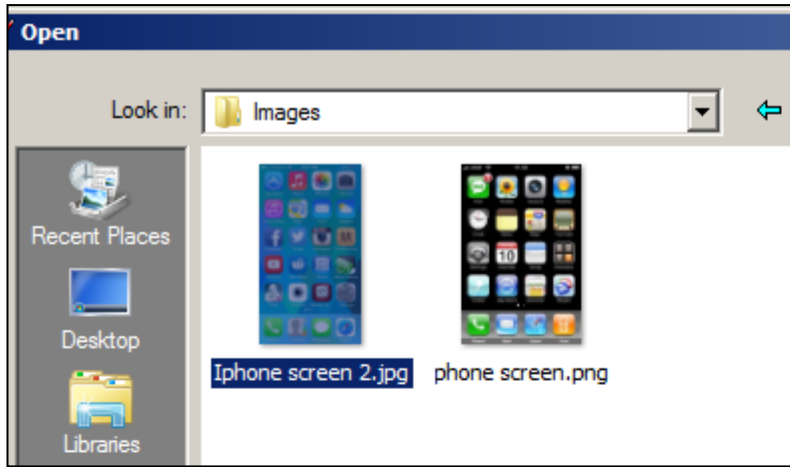
49. Make a note of where the file is saved in your area



50. Back in sketch up Click on **File – Import**



51. On **File Types** use the drop down menu to select **All Supported Image Types**



52. Search for and open the image you saved from the internet.



53. Place the image on your phone screen. Do not try and make it the right size we will come to that.



54. Select the image and then the scale tool

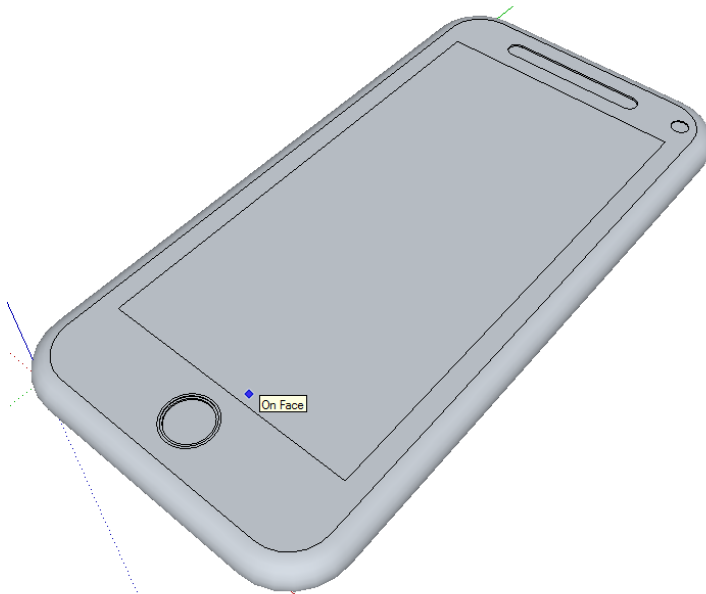


55. **Resize** the image to fit the screen



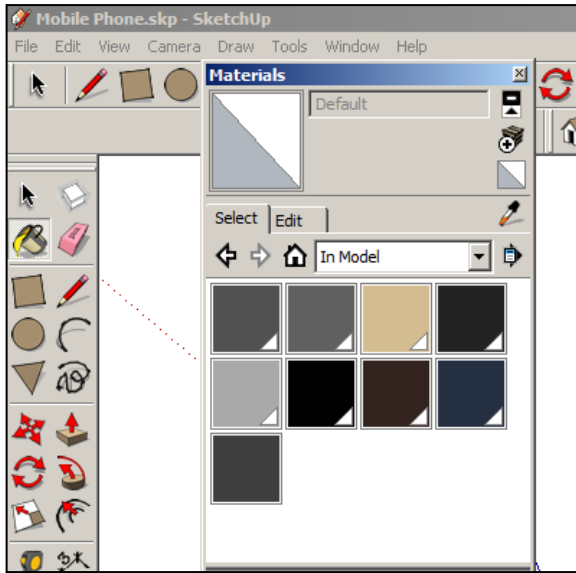


56. **Select** the rectangle tool and draw a rectangle starting in the bottom left hand corner of the screen.

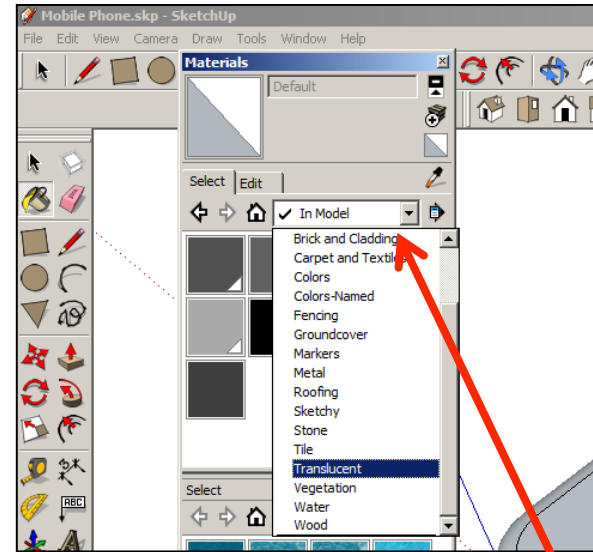


57. Draw a rectangle from the bottom left hand corner to the top right hand corner of the screen

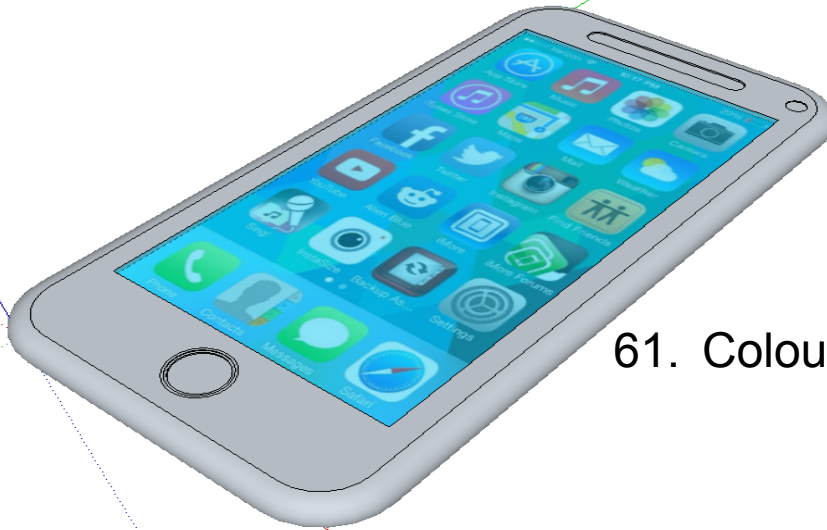




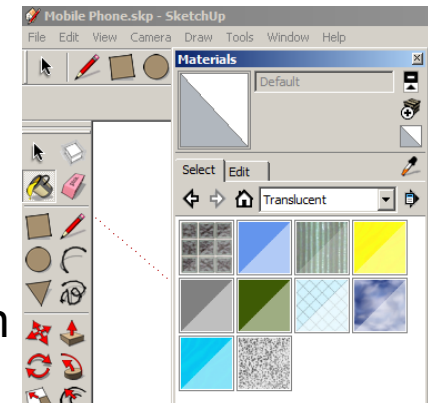
58. Click on the **colour bucket tool**



59. Click on the **drop down menu**. You will find a range of colours and textures here



61. Colour the screen



60. Click on translucent



62. Add colour to the rest of the phone

63. Click **View – toolbars** and un-tick axis. Place a tick next to shadows



# Extension

- To Design an iPod Classic

