



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...

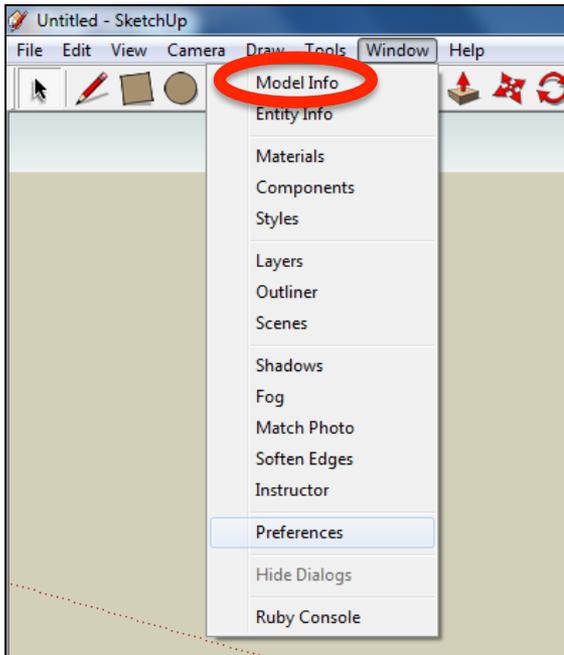
- Use the push pull and move tool
- Learn about centre lines
- Create, Move and Rotate components
- Use the offset tool to make objects and add detail
- Shape and form your design
- Colour and render your design

Skills to be used in this project...

Basic Skills	New and Higher Skills
Zoom tool	Rotate tool
Orbit tool	Move tool
Pan tool	Offset 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.

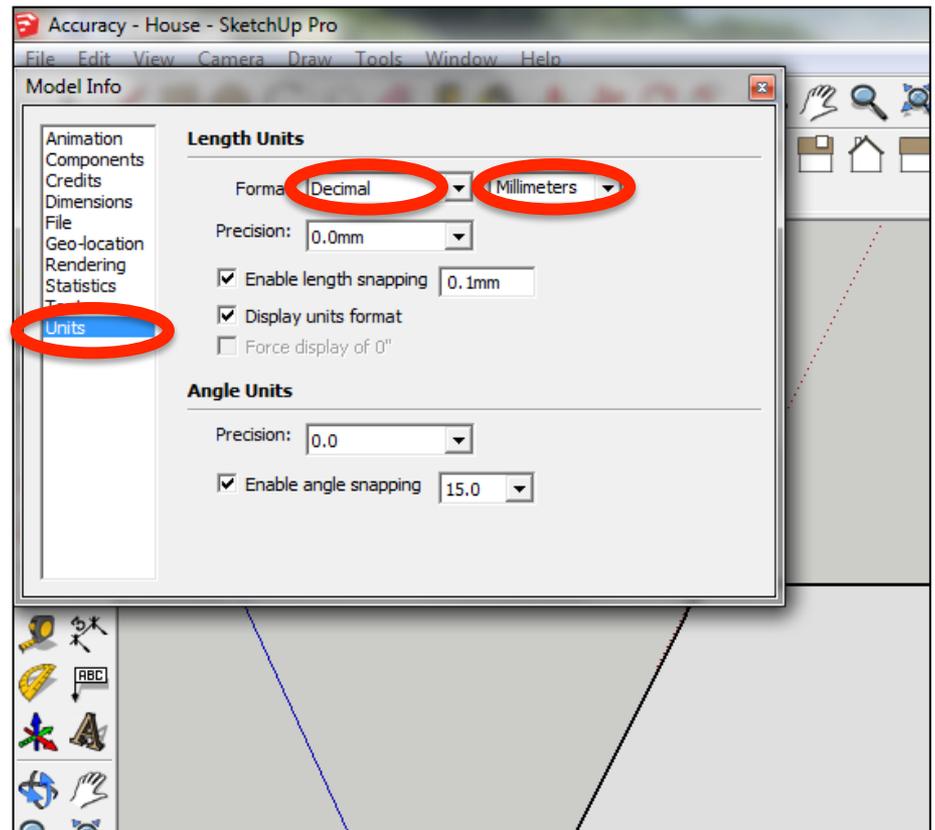
New and higher skills may be new to the novice and are the focus for learning in this presentation.



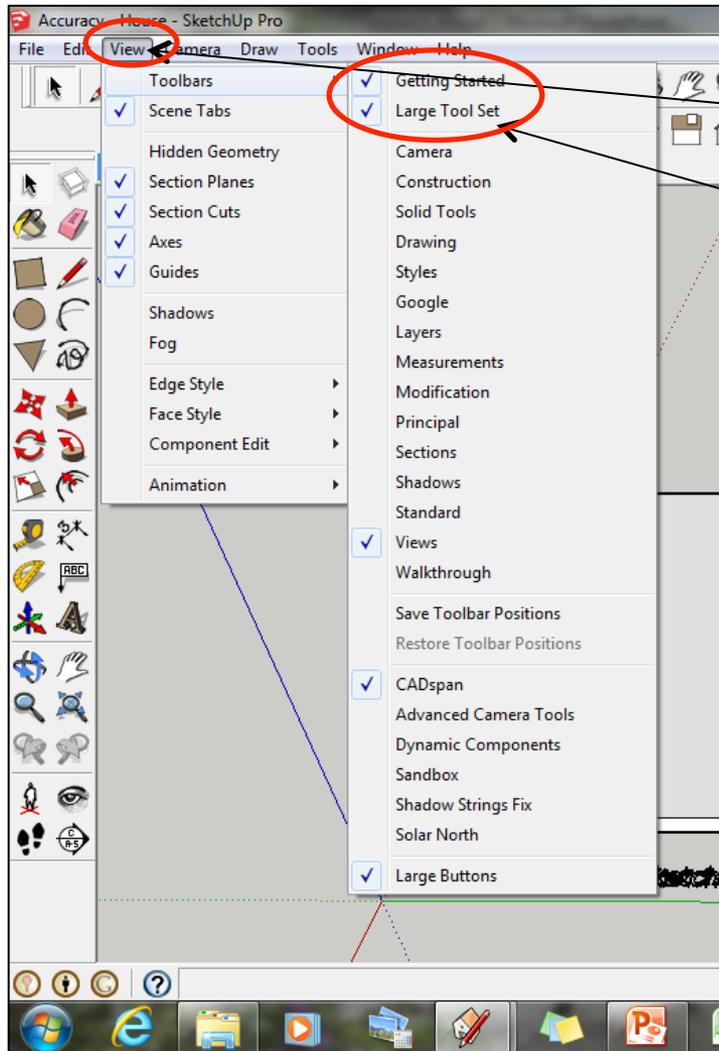
1. Open the sketch up drawing. Once you have opened SketchUp, go to **Window** and select **Model Info**

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

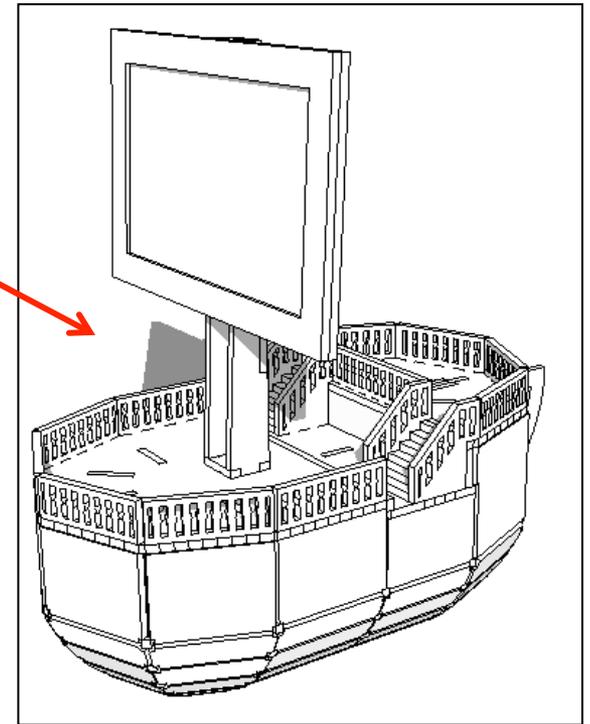
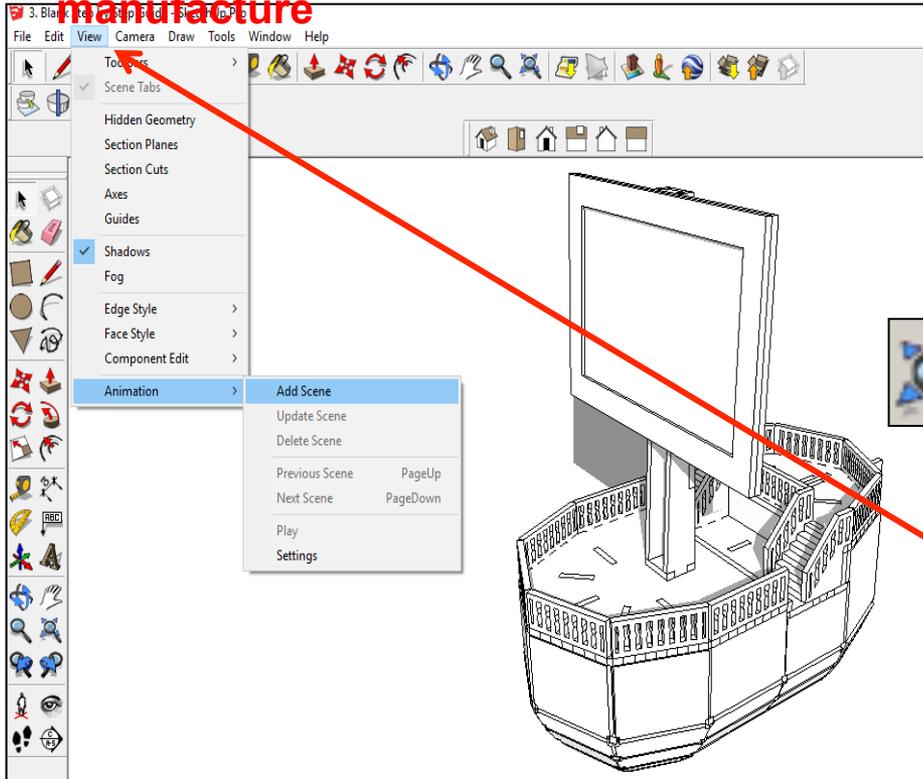
3c Tick Large Tool Set

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



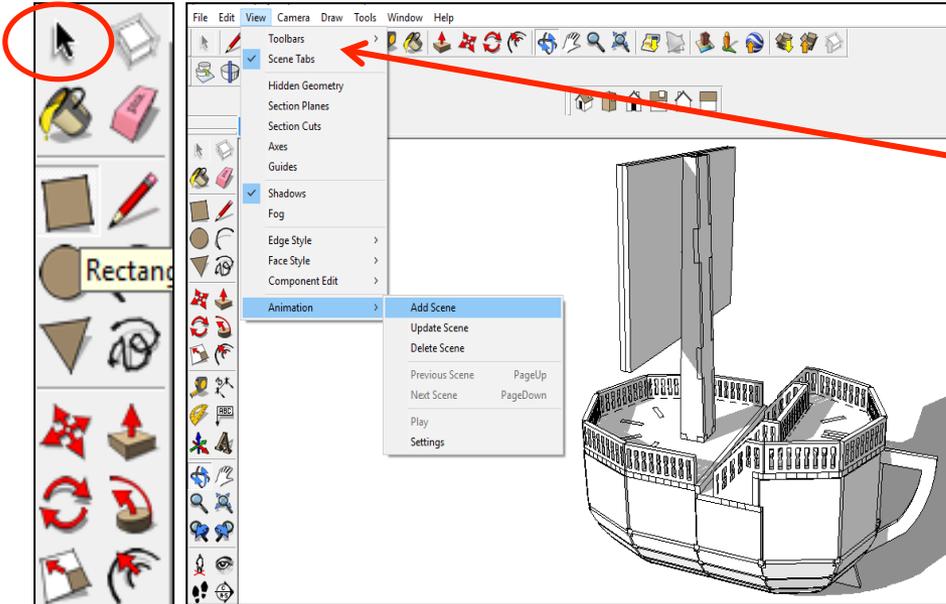
4. This tutorial shows how you can take a final product apart and layout a detailed step by step guide to constructing it.

NB: This only works if you have correctly drawn all the pieces and grouped them so they can be flat packed for manufacture



5. Maximise the drawing clicking on the **zoom extents tool**. Then click on

- View
- Animation
- add scene



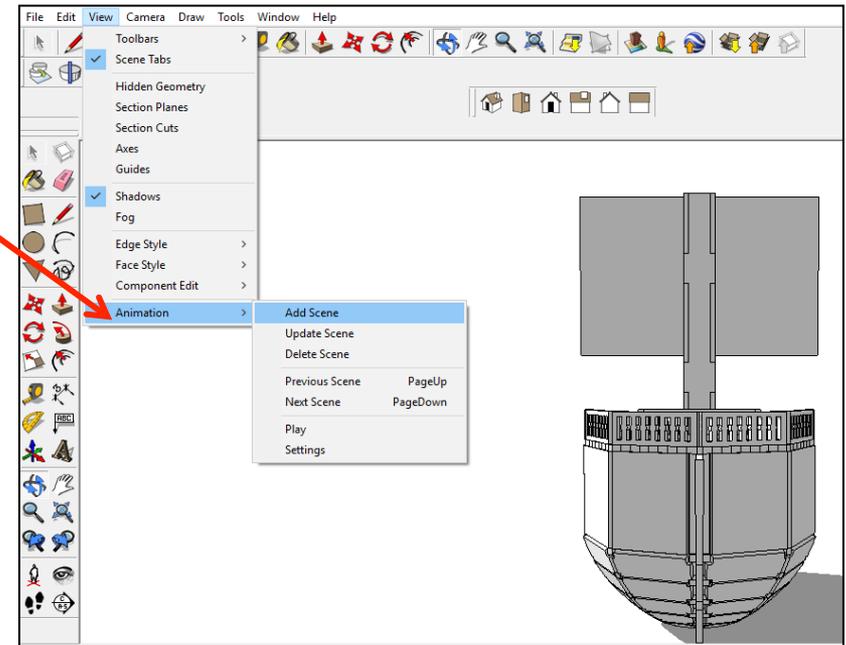
6. Click on the **orbit tool**. Then move around the boat slightly. Then click on

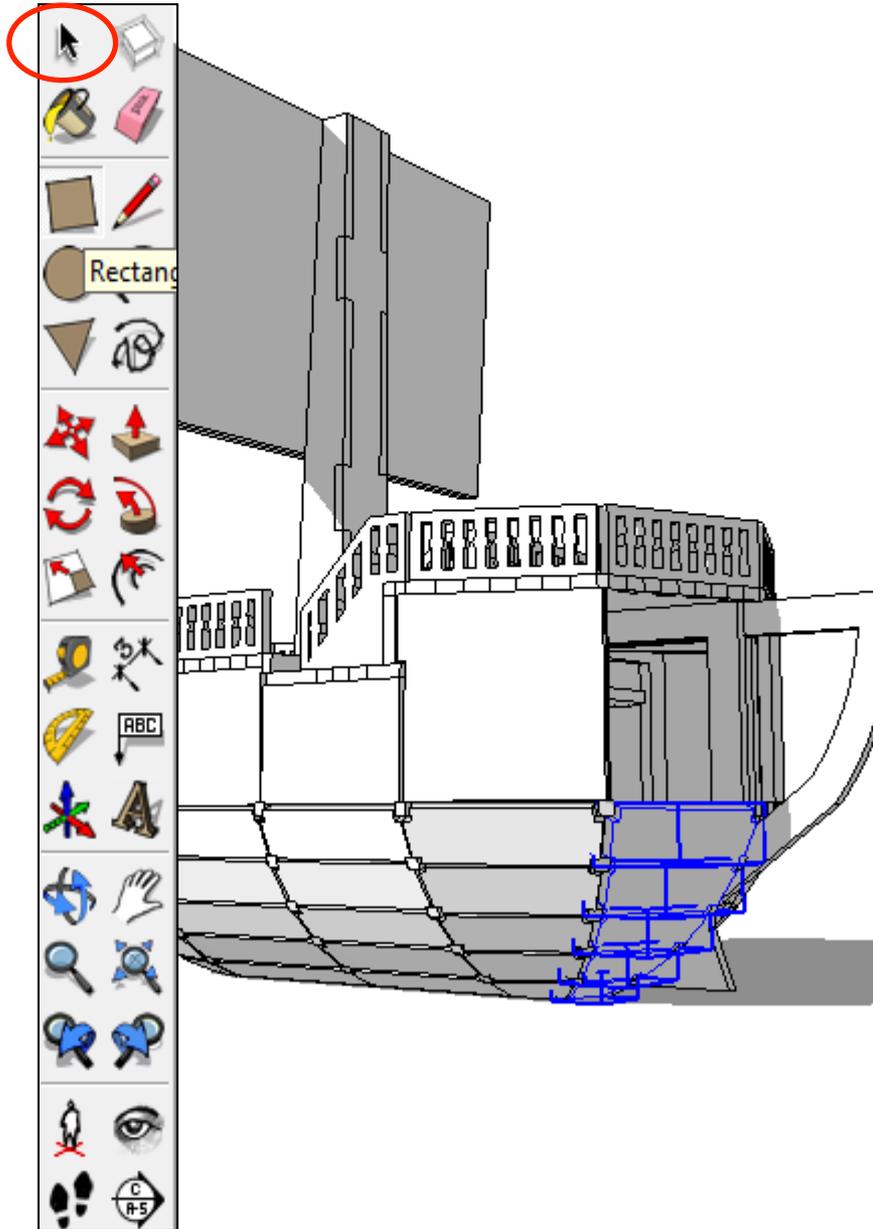
- View
- Animation
- Add scene



7. Click on the **orbit tool**. Then move around the boat slightly. Then click on

- View
- Animation
- Add scene





12. Using the ***select tool*** click on one of the next pieces you wish to take off.

13. You can take more than one piece of at a time. In the case of this product we are going to take whole strips off.

14. Hold the shift key down



15. Click on the other pieces that you wish to highlight to

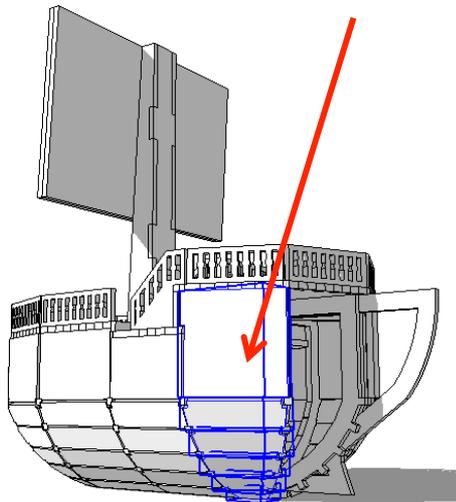
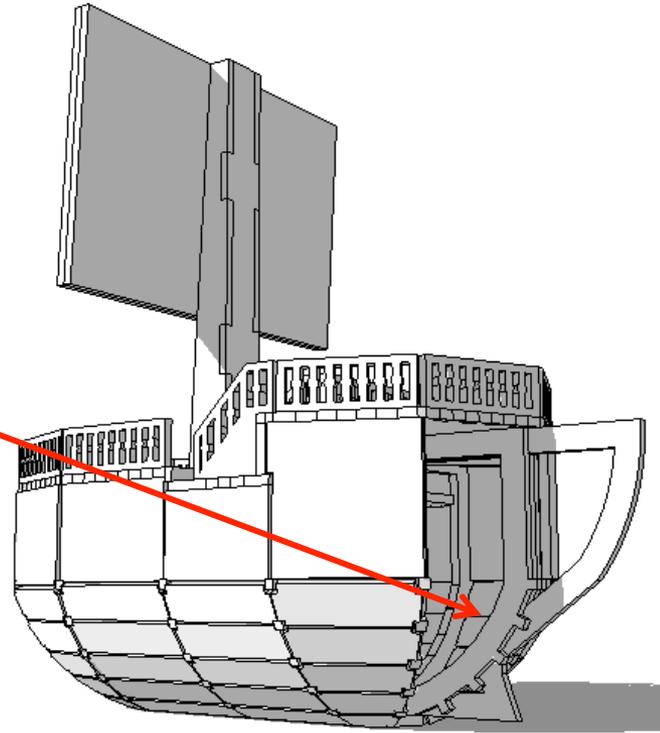


16. **Right click** on the mouse and select **hide**. Then click on

- View
- Animation
- Add scene

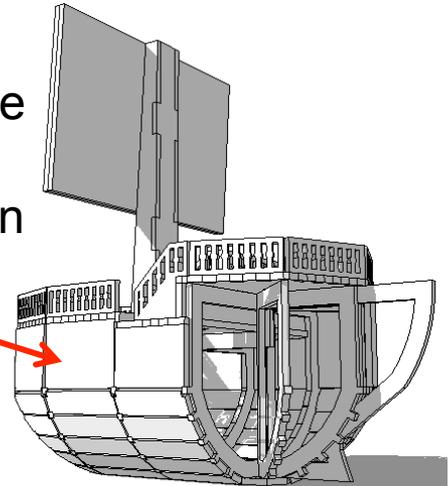


17. Using the **select tool** click the next pieces you wish to take off.
Remember you can take



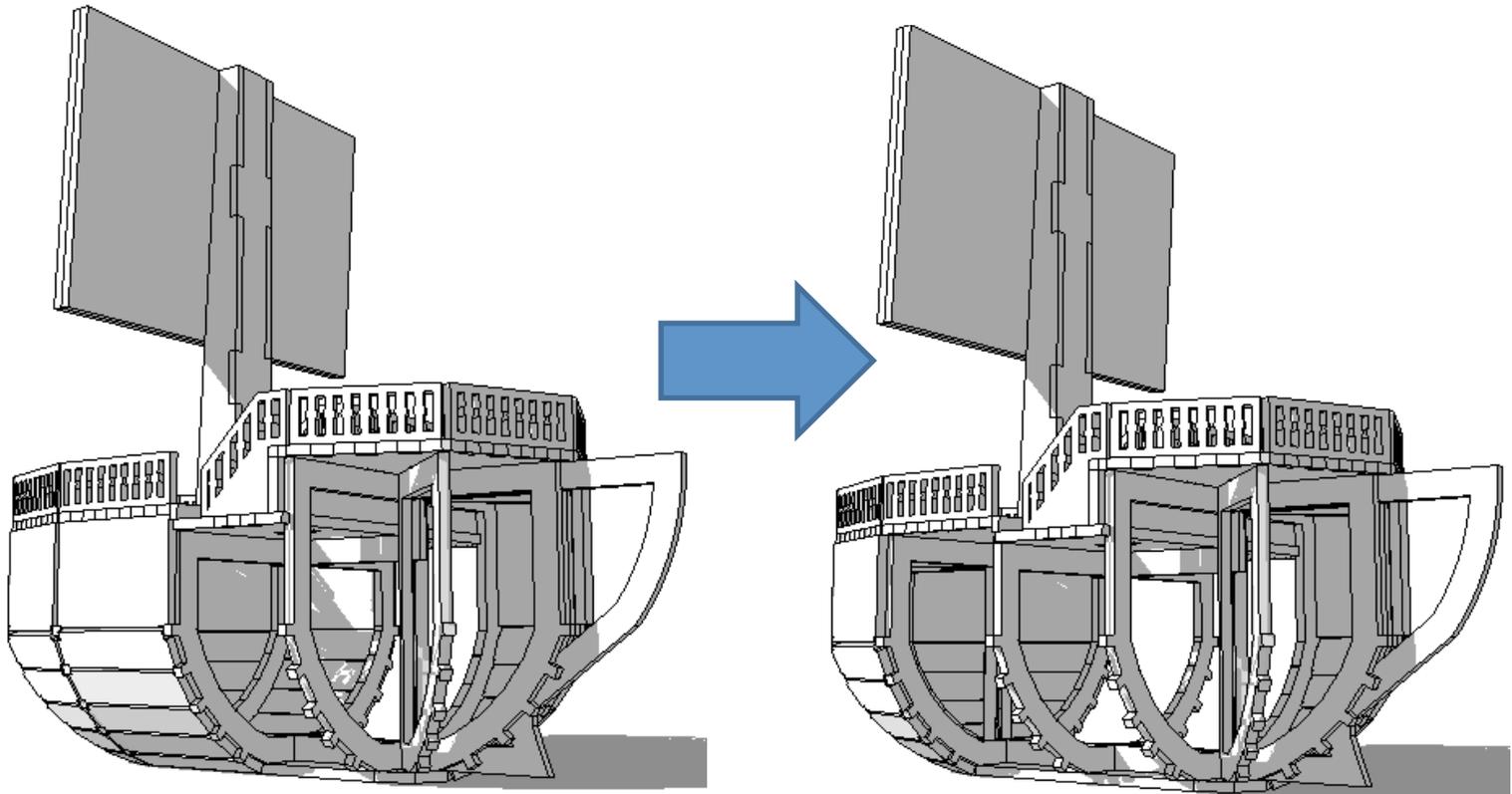
of at a time
2). 18. **Right click** on the mouse and select **hide**. Then click on

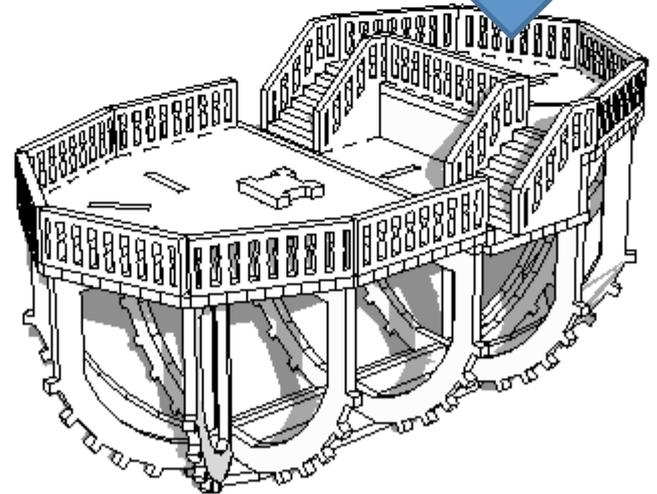
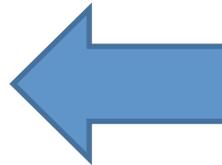
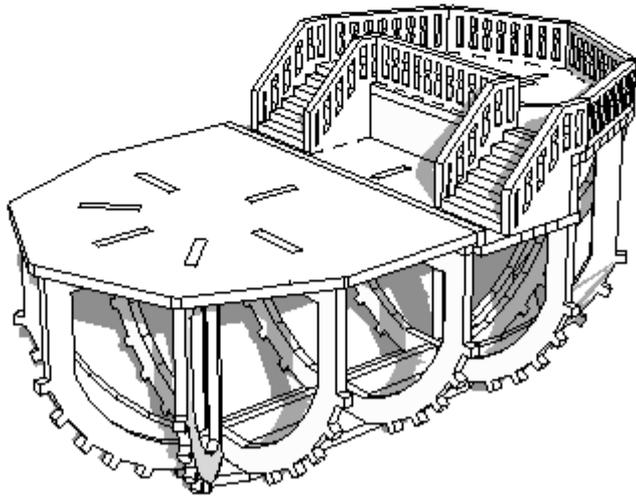
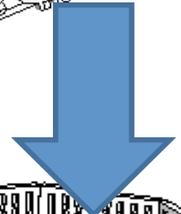
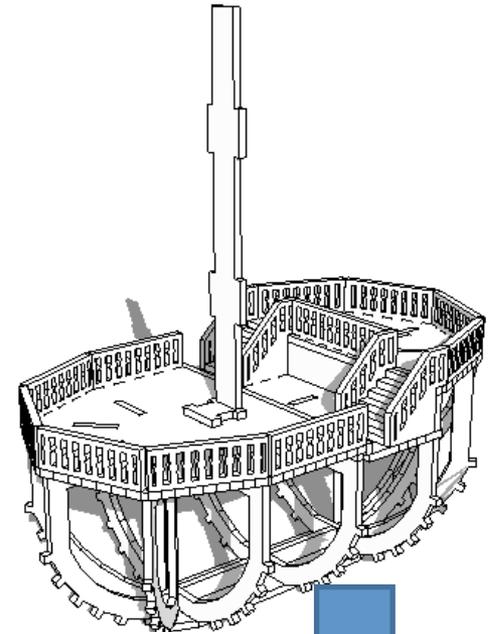
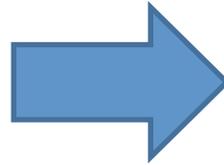
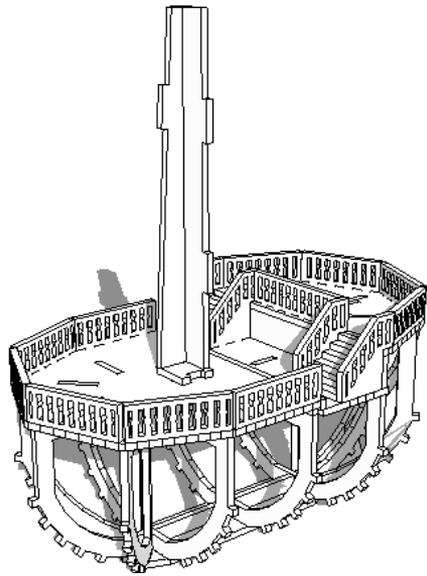
- View
- Animation
- Add scene

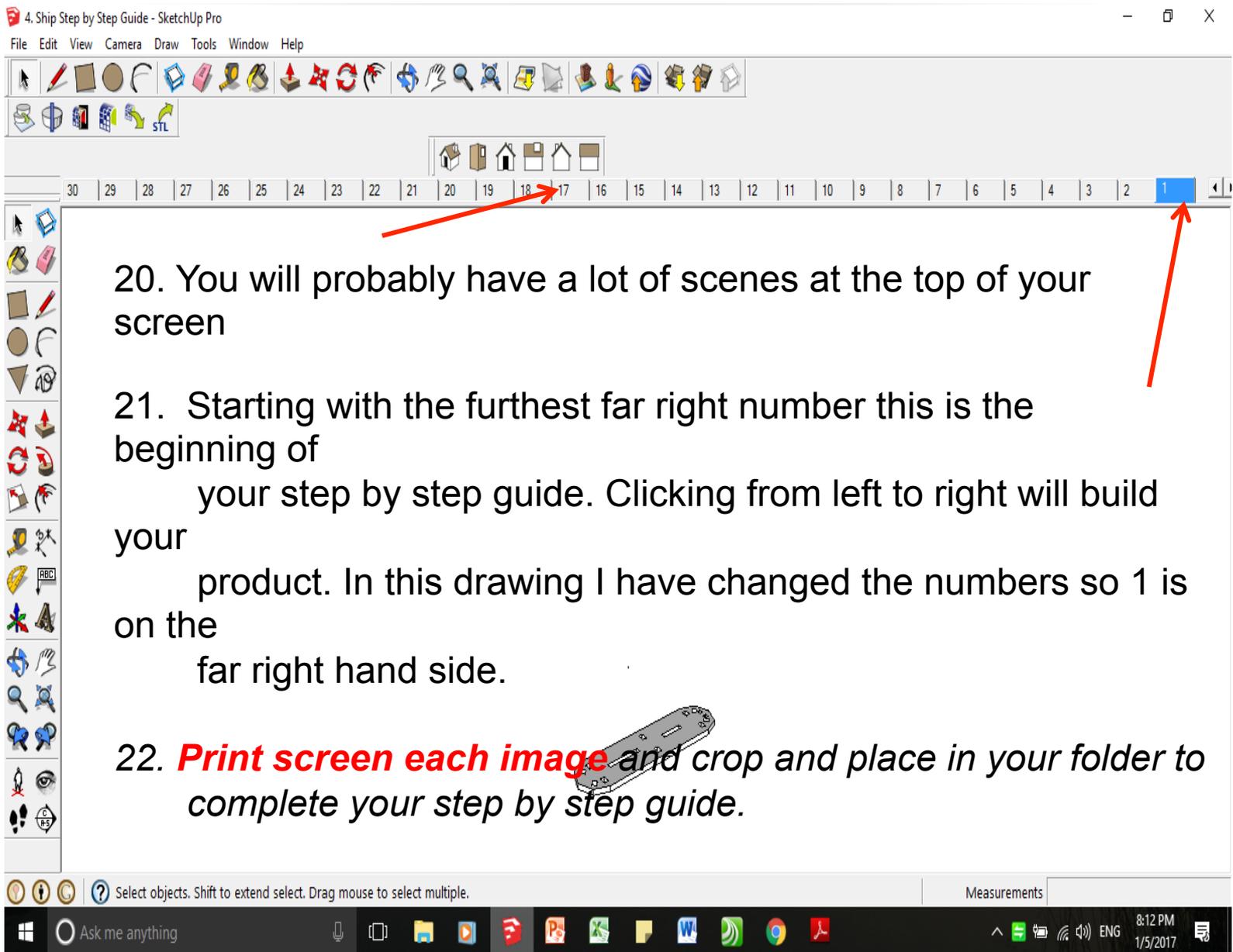




19. Repeat steps **17 and 18** on all the pieces until you have only one left remaining. You will probably have a lot of scenes at the top of your screen







20. You will probably have a lot of scenes at the top of your screen

21. Starting with the furthest far right number this is the beginning of your step by step guide. Clicking from left to right will build your product. In this drawing I have changed the numbers so 1 is on the far right hand side.

22. **Print screen each image** and crop and place in your folder to complete your step by step guide.

