SKETCHING AND SKETCHING TOOLS

A tutorial dedicated to sketching

A word about parameters

- Everything in the modeling workspace of F360 is parametric
- If you don't enter parameters your work is still stored for you as drawing parameters and can be edited just as user defined parameters, they are just harder to find if you don't purposely define them
- A fully parametric model is an advanced subject that won't be covered here
- Using at least a few user entered parameters is a big help and we will do that here
- Under the modify section of the ribbon select "change parameters", it will be at the bottom of the list
  - This may seem premature, but the better we plan and define our design before the first bit of drawing the better our model will turn out.
  - Go ahead and enter any parameters you know off the top of your head, if there are some you don't yet know, don't worry, we can come back here any time
- If you use this a lot, add it to the icons in your ribbon by clicking the curved up arrow on the right side as you highlight that option
- Clicking the "change parameters" brings up this dialog box

Parameters dialog

- Click the green plus to add a parameter
    - If you haven't already add some
    - Just make up a height, width, and depth if nothing else
    - A material thickness would be another good one to add now, if you don't know the exact that is okay just enter the nominal thickness, this is the beauty of parametric design, when we have the exact thickness we can come back and edit it
    - Yes, really do this, we will be using them a couple of steps from now
- Click any parameter to change
- This works just like a spread sheet
- Once you have some user defined parameters you can click the star to add to favorites
- You can add parameters in measurements other than what you are working in, F360 will translate it to your system of measurement in the model
- Use as few letters to name as possible and then describe in in the comments, this makes entering them super easy
- When finished just click OK
- You can come back here any time while working on your model to add or change parameters
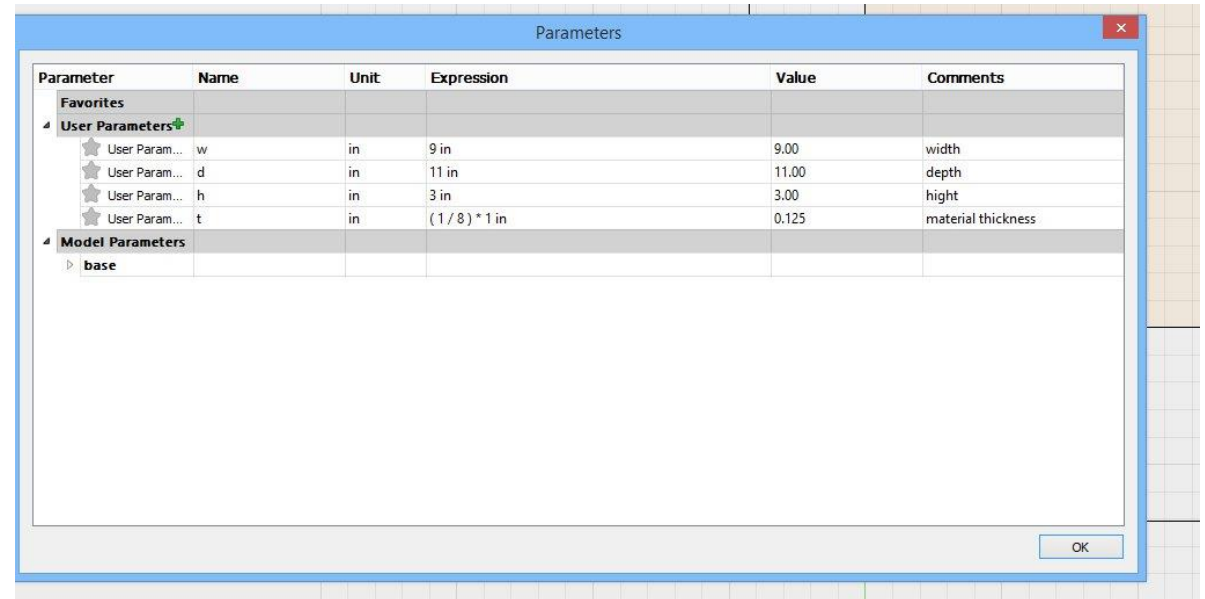
Step by step

- After we have saved a component (earlier tutorial) to get started drawing simply click any drawing tool. For now let's use the two point rectangle

- After clicking you will get this:

- This is the interface asking what plane you want to draw on

- Click here to put the sketch flat

  - If it is not clear where "here" is, the three squares represent the three possible combinations of any two of the three axes X, Y, and Z.

  - Clicking the flat square puts your drawing on X,Y.

  - The other two possibility's are X, Z, and Y, Z

  - If you are totally confused right now you might want to review some HS math's ☺

- Info for later: As you get more advanced you are not limited to just three planes, you can literally sketch on any existing flat surface and even create new ones at any angle
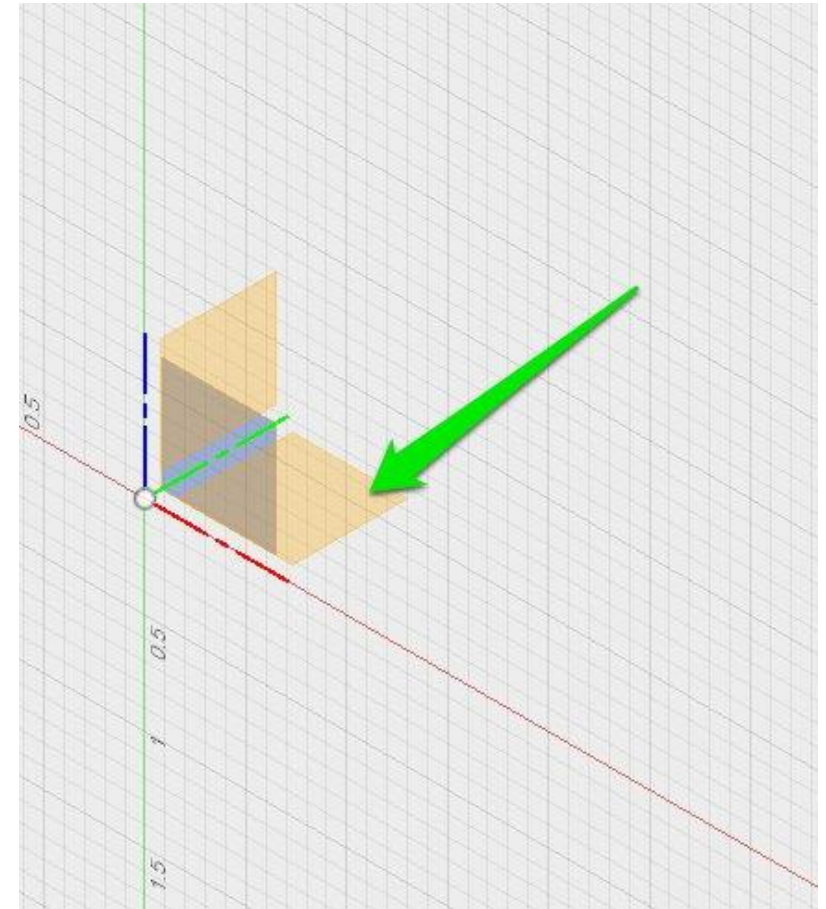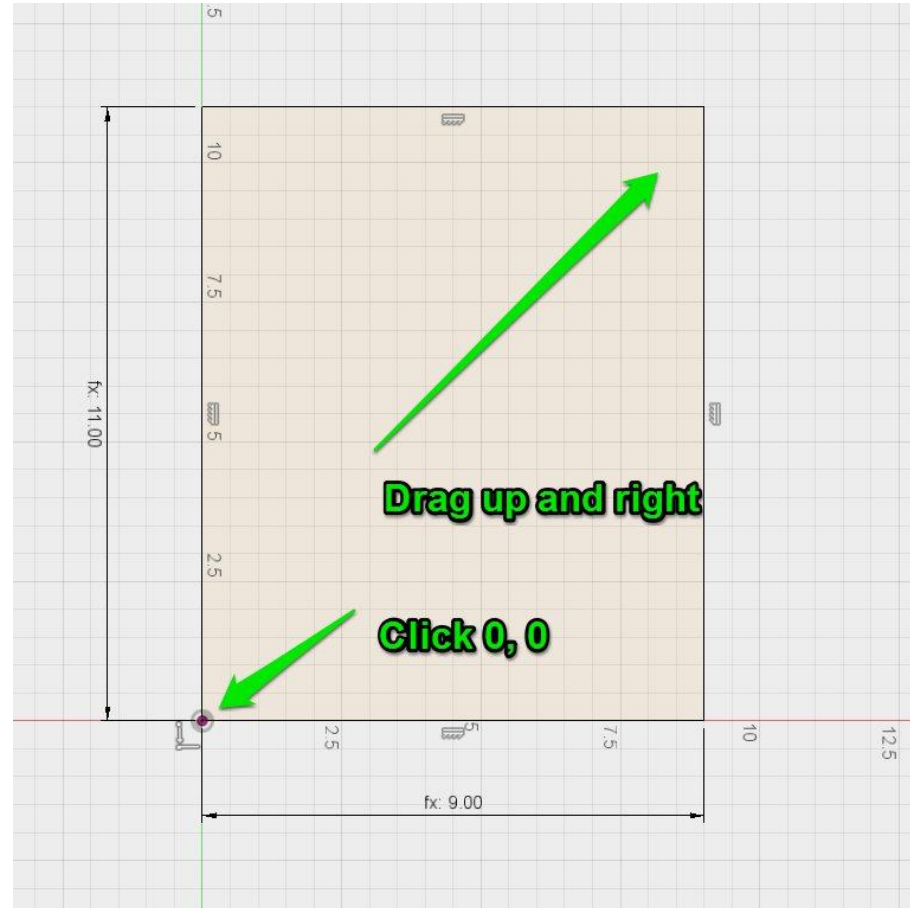
Orientation cube

- Your orientation cube in the upper right should now look like this telling you, you are drawing flat

- If it does not, click "stop sketch and try the previous page again
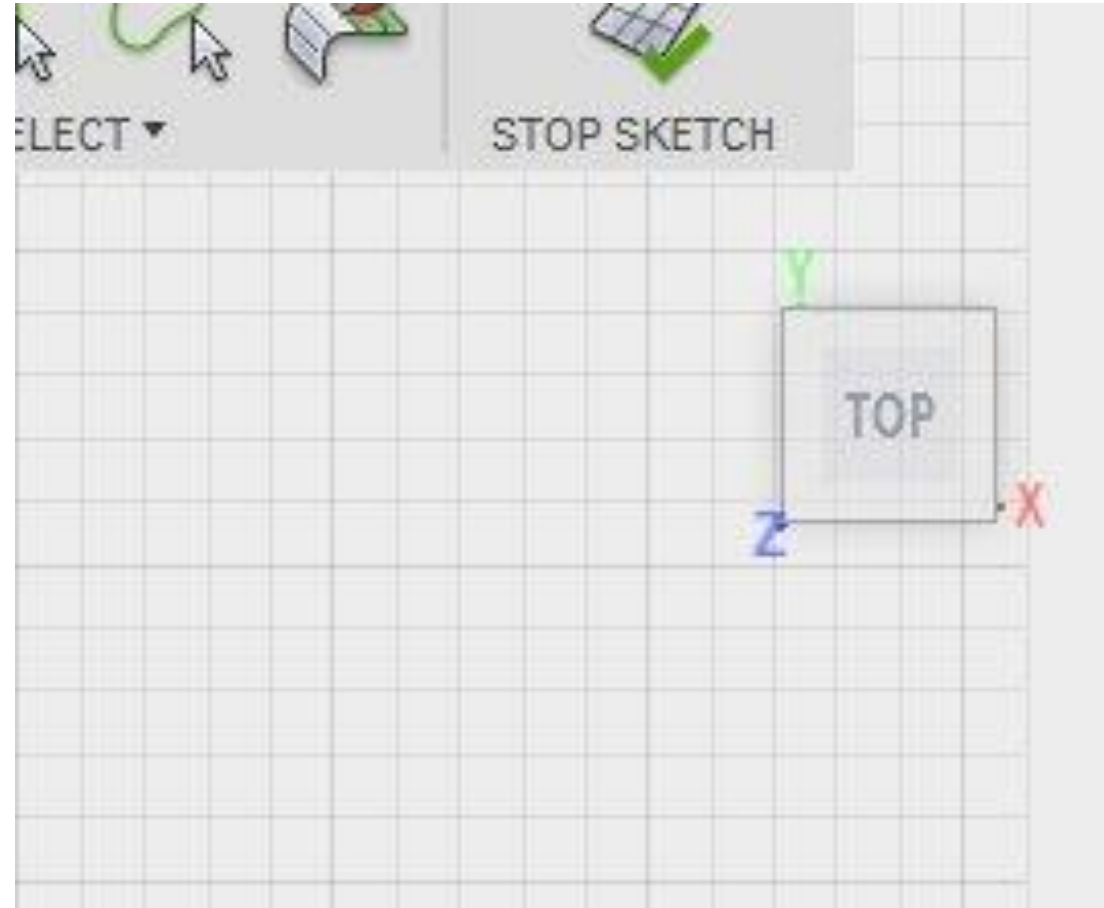
Drag

○ Don't worry about how far you drag, we will be sizing it in the next step

○ Don't click a second time as that would finalize our retangle

Enter parameters

- As you drag you will see two parameter boxes, one will be highlighted, typically your X axis
- Type in the name of your parameter
    - I am using d for depth and w for width here
- Tap "Tab"
- Type in your other parameter
- Tap "Enter" until the operation finishes
    - May be several Taps
- When finished the names will be replaced with units
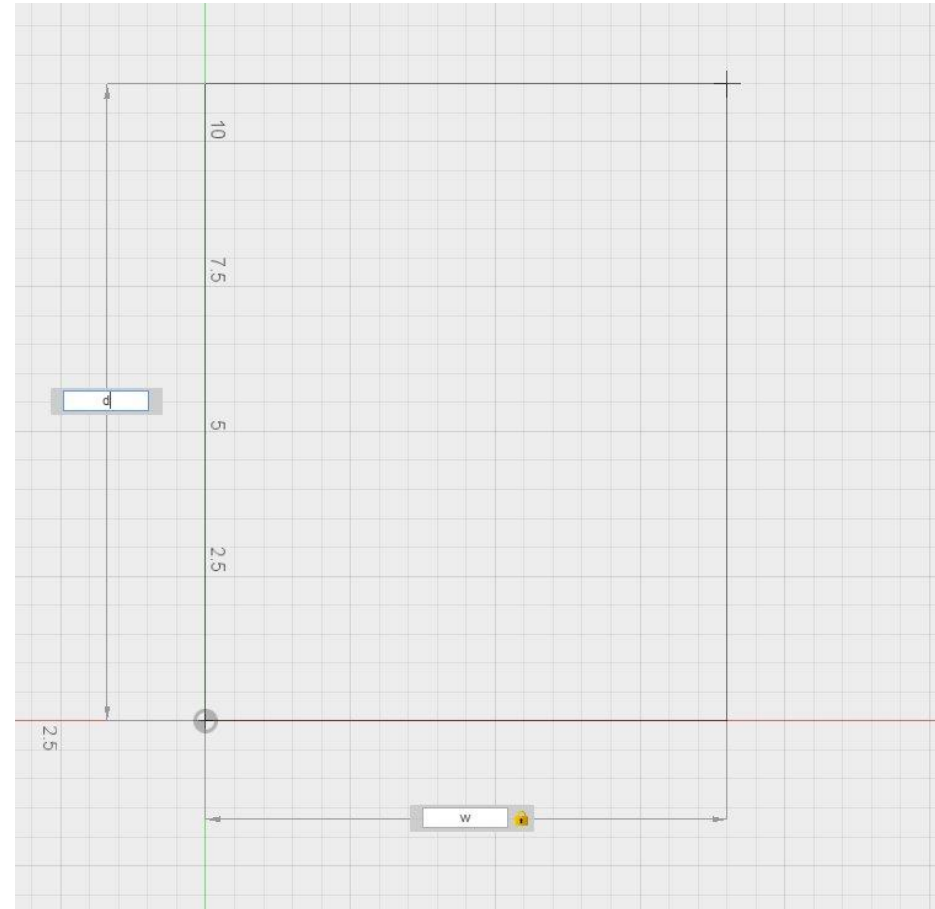
OTHER DRAWING TOOLS

- There are 10 more drawing tools and some of those have several variations, they all work basically this same way
  - One of the best ways to get to know these is to simply play with them
- After the rectangle, the line will be your most used drawing tool
- Below the eleven primary drawing tools are several drawing modification tools
  - The most important of these to the beginner is:
    - Fillet, round out corners with very little work
    - Trim, think of it as a smart eraser
    - Circular and rectangular patterns, real work savers for anything repetitive
- Finally there is Sketch dimension
  - You can show dimensions like any cad program or you can control them with parameters and constants
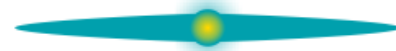
Sketch palette

- The sketch palette is visible any time you are in the sketch environment
  - If you don't see it and you are in the sketch environment it may be minimized, look for a small rectangle labeled "sketch palate" and click to restore it
- Sketch palette is in two sections
  - Options and
  - Constraints
- Options lets us quickly turn things on and off as needed
- Constraints allows very precise control over complex drawings
  - We probably will not use these in this introduction but know that they are there and can be a big help as your drawing get more complex
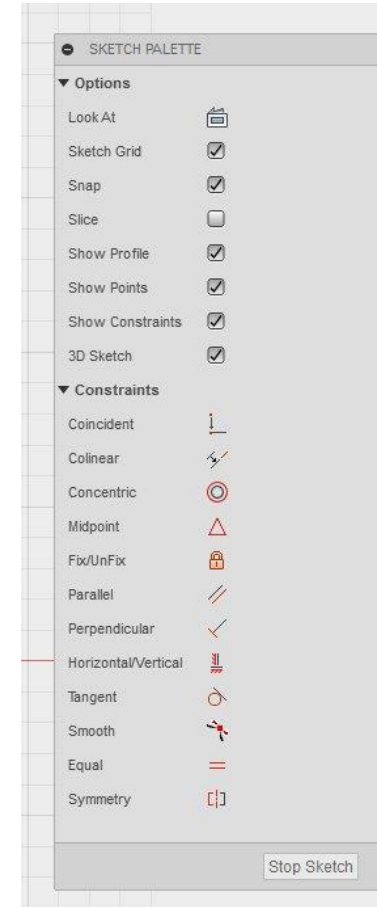
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