



## UNIT – II

### DESIGN SKETCHING FOR 3D PRINTING

#### Sketching

Sketching is the practice of drawing a rough outline or rough draft version of a final piece of art. Sketching can be used in preparation for a large piece of art, or to just get an idea of how something will look.

Sketching enables you to start the best ideas. It's a powerful process since it always helps you in discovering new ideas and solutions to your designs.

When you start sketching your ideas and imagination, you open a way to put your creativity to action and in turn enhancing your skills.

#### Importance of sketching

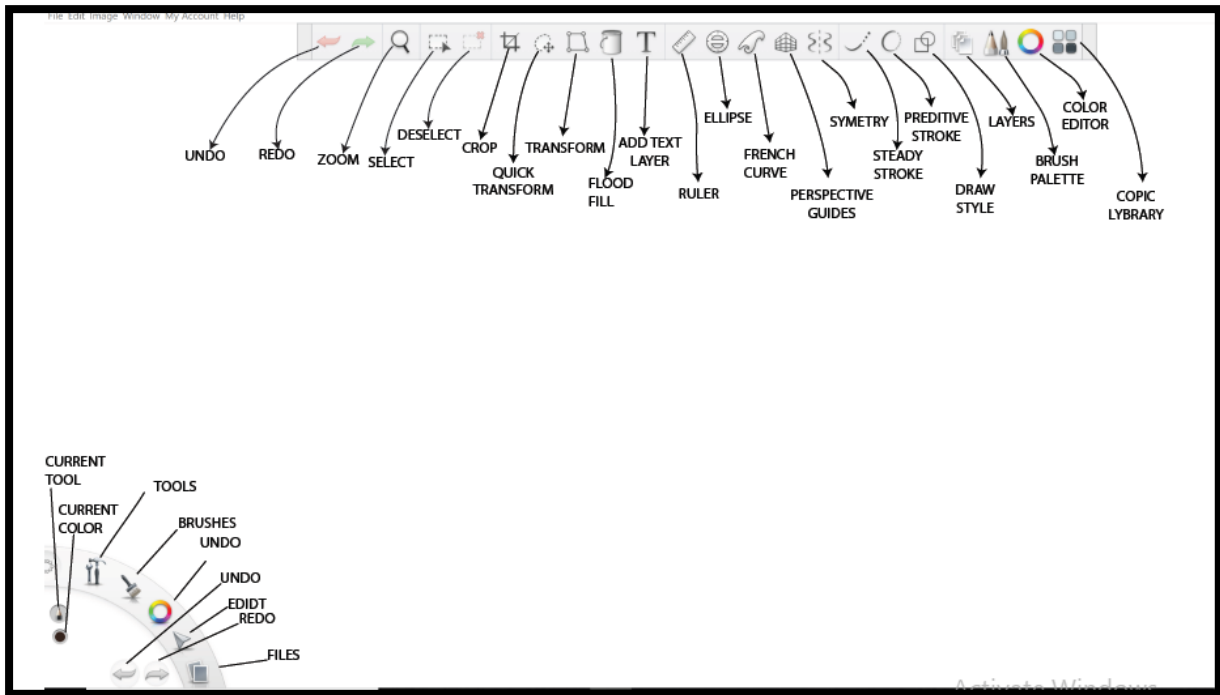
Sketching enables you to start the best ideas. It's a powerful process since it always helps you in discovering new ideas and solutions to your designs. When you start sketching your ideas and imagination, you open a way to put your creativity to action and in turn enhancing your skills.

#### Sketch

- a rough drawing representing the chief features of an object or scene and often made as a preliminary study.
- a tentative draft
- a brief description or outline.





## Sketchbook



1. Undo and redo
2. Zoom/rotate/move the canvas
3. Selection tools and de-select
4. Crop canvas (can be used in conjunction with selection tools)
5. Quick transform
6. Transform
7. Flood fill tools
8. Text tools
9. Rulers and guides
10. Perspective guides
11. Symmetry tools
12. Pen mode
13. Steady and Predictive Stroke
14. Shape tools
15. Auto hide UI
16. Layer Editor
17. Brush palette
18. Color Editor
19. Color Palettes



## Undoing and redoing in Sketchbook Pro for desktop

- To undo the previous action, in the toolbar or from the lagoon, tap  or press **Cmd+Z** for Mac or **Ctrl+Z** for Windows.
- To redo an action, in the toolbar or from the lagoon, tap  or press **Shift+Cmd+Z** for Mac or **Ctrl+Y** for Windows.

If you are using a stylus, the **puck** provides a quick way to zoom and move your view.

Press **spacebar** to show the puck.

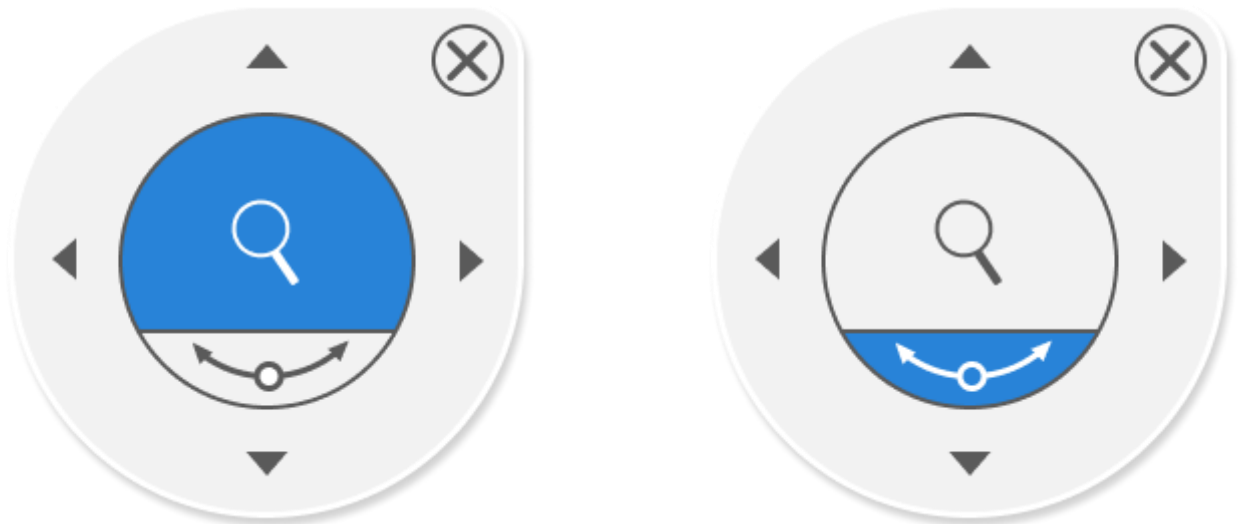
- Tap-drag the center of the puck to **zoom**, or the bottom center of the puck to **rotate** the canvas

## Changing your view in Sketchbook Pro

If you are using a stylus, the **puck** provides a quick way to zoom and move your view.

Press **spacebar** to show the puck.

- Tap-drag the center of the puck to **zoom**, or the bottom center of the puck to **rotate** the canvas



- In the outer ring of the puck, tap-drag to pan the canvas



## Introduction to Selection Tools

There are an assortment of **Selection** tools. Use some for choosing a type of selection, and others to help once a selection has been made.

You can also [use a selection like a mask](#). You can select an area and constrain the paint to the selection. You won't need to worry about paint going outside the bounds of the selection.





In Sketchbook Pro for desktop, a selection can also be used to select an area, then with the **V** key open the **Transform Puck** to move, scale or rotate your selection.

Need to remove large areas from your image? Use **Selection** tools to make quick work of that. For example, you want to remove a white background from an image.



Use **Magic Wand** to select the background and the Delete key, use an eraser, or **Clear** (from the [Layer Editor marking menu](#)) to delete the selected area.

## The different types of selections

The version of Sketchbook you are using determines the types of selection available.



### Lasso

Great for tracing around an object. Tap-drag and trace around the object to select it.



### Oval

Great for selecting circular areas. Place your finger where you would like the center of the selection to be, then tap-drag to expand the selection.



### Rectangle

Great for selecting square or rectangular areas. Place your finger where you would like the bottom right corner of the selection to be, then tap-drag to expand the selection.



### Polyline

Great for selecting oddly shaped areas. Click to add points to the polyline, then click your first point to complete the selection.



### Magic Wand



Great for selecting a region based on pixels of color. Use the **Tolerance** slider to expand the range of color selected (by increasing the tolerance) or limit it (by decreasing the tolerance). Use **Sample Layers** to choose whether to select color from the current layer or all layers. Tap an area with the color you want selected. If more colors need to be added to the selection, drag the **Tolerance** slider to the right add more to the selection. If the selection has too broad a range selected, drag the **Tolerance** slider to the left.



Sample one layer/Sample all layers



When  is displayed, you will be selecting color from the current selected layer.



Tap the icon to change it to  and select color from all layers.

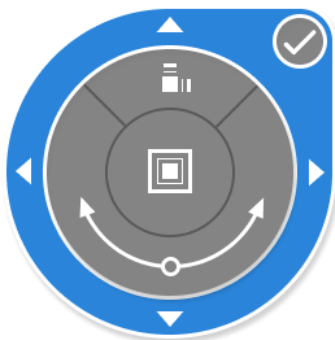
## Transforms

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Transforms are used for moving, rotating, scaling, flipping, mirroring, and distorting content. If you're looking for moving, rotating, or zooming into the canvas and the platform you're on supports gestures, see [Changing your view](#).

## How to move, rotate, or scale a selected area

Use the **Transform Layer** puck to free transform your content. Move, rotate, and scale it. Use one of the [Selection tools](#) to access the **Transform Layer** puck. To move, rotate, or scale a selected area for all layers, merge the layers first.



To move a selection, highlight the move outer circle. Tap, then drag to move the layer around the canvas.







To rotate a selection around its center, highlight the rotate middle circle. Tap, then drag in a circular motion in the direction you want to rotate.



To non-proportionately scale a selection, highlight the upper part of the inner circle. Tap, then drag in the direction you want scaled.

In Sketchbook Pro, there are two main tools for transforming your


content:  **Quick Transform** and  **Transform**. One big distinction between **Quick Transform** and **Transform** is that  **Transform** selects all content on the **current layer**. If you want to select only certain content on a layer, use .

## Using Quick Transform


### *Transforming a selection*

When you transform a selection, you could be resizing the selected content by scaling it, re-positioning the content by moving it, and/or pivoting the selected content by rotating it.



1. Select  and make a selection with one of the **Quick Selection** tools.





2. Tap the  **Transform** tool to access the **Transformpuck**.
3. Tap-drag the puck to move, scale, and/or rotate the selected content.


### ***Transforming content on one or more layers***

If you want to move, scale, and/or rotate content on one or more layers, here's how to do it.

1. In the **Layer Editor**, select one or multiple layers (use **Shift** to select consecutive layers and **Ctrl** to select non-consecutive layers). If nothing is selected, tap-drag the puck to move, scale, and/or rotate the entire layer.

2. Select , then . The **Transform puck** appears.
3. Tap-drag the puck to move, scale, and/or rotate all the content.

To constrain your transform either vertically or horizontally, use

the **Transform**  tool with the **Shift** key. This also works with **Distort**.



To scale a selection bigger or smaller, highlight the scale inner circle. Tap, then drag to scale up or down to display the percentage scaling.