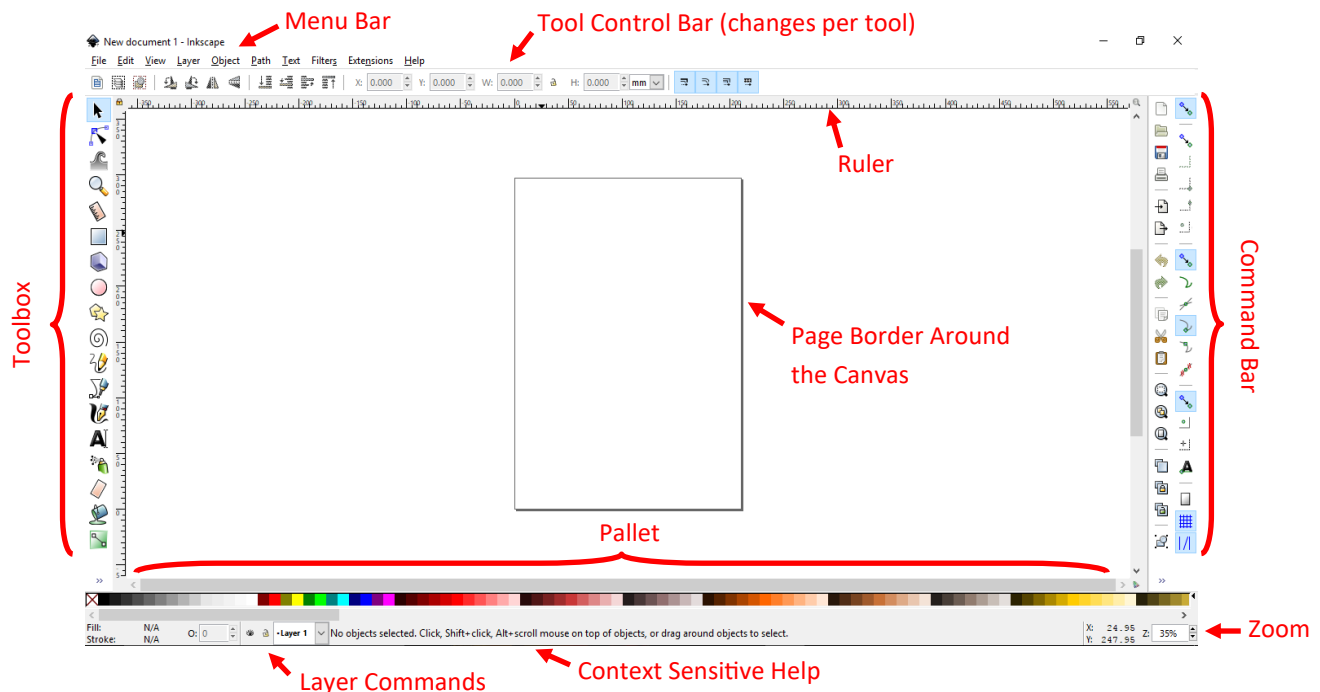# INKSCAPE BASICS

Inkscape is a free, open-source vector graphics editor. It can be used to create or edit vector graphics like illustrations, diagrams, line arts, charts, logos and more. *Inkscape* uses Scalable Vector Graphics (SVG) file format when saving vector graphics. A SVG (.svg) file can be used to cut shapes and designs with the Makery's Laser Cutter! For more information or to download *Inkscape*, visit *inkscape.org*.
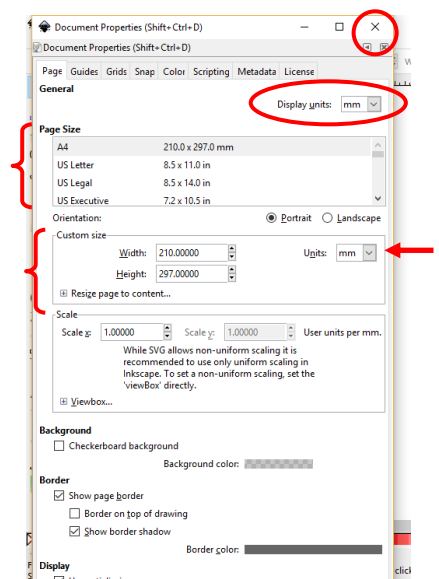
GETTING STARTED

The Layout

Similar to Adobe Illustrator, *Inkscape* has a graphics interface. Nearly every tool and function is depicted with an icon. If you are unfamiliar with the icon, simply hover your mouse over the icon and a label for the icon should appear. *Inkscape* also has keyboard shortcuts for nearly every tool and function. For a complete reference to the keyboard shortcuts, select **Keys and Mouse Reference** from the **Help** menu in the **Menu Bar**.

Menu Bar | Tool Control Bar (changes per tool) | Ruler | Command Bar | Toolbox | Page Border Around the Canvas | Pallet | Zoom | Layer Commands | Context Sensitive Help

Preparing Document Size

Before you begin designing, you will want to size the file for your project. Select **File** from the **Application Menu**. Then select **Document Properties**. A window will pop open for document settings. Default options include *US Letter, US Legal, Ledger/Tabloid,* and more. Use the **Custom Size** menu to create a custom paper size and desired unit of measurement. Default unit of measurement shown in the document ruler is millimeters (mm). To change, select **Inches** (or other desired measurement) from the **Display Units** dropped down menu. Exit from **Document Properties** menu to finalize adjustments.
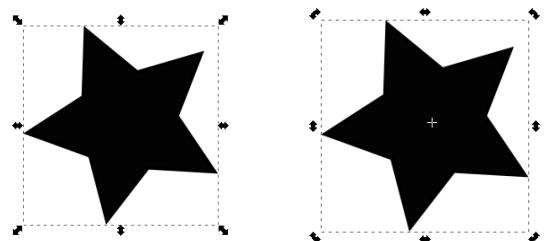
Activity 1: Inserting Text and Shapes

1. *Inkscape* is a robust tool that can be used to create gorgeous illustrations and technical vector designs, but for today's class, we are going to work with the basics: text and shapes. To insert text, select the **Text Tool** from the **Toolbox**. Once the **Text Tool** is selected, you should notice that the cursor and the **Tool Control Bar** (located above the **Canvas**) has changed. Click on the **Canvas** to create a **Text Box**. Type "Reach for the Stars" in the text box. Select the text and use the **Tool Control Bar** to adjust font, font size, alignment, and more. *Note:* These adjustments are only available when the **Text Tool** is selected from the **Toolbox**.
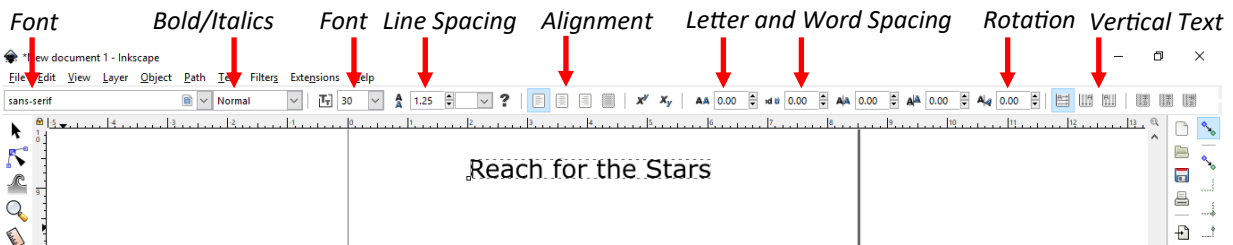
2. Next, let's add some shapes! Select the **Stars and Polygon Tool** from the **Toolbox**. Just like with the **Text Tool**, the cursor and **Tool Control Bar** will change. Move the cursor over the document where you want your star to start. Click and drag to create the star. The **Tool Control Bar** for every shape tool has options to manipulate the shapes. For the **Star and Polygon Tool**, there are options to increase the number of corners, star ratios, and rounded corners. Also, there are nodes (white boxes along the shape outline) that can be clicked and dragged to adjust the base and tip radius of the star, or polygon.
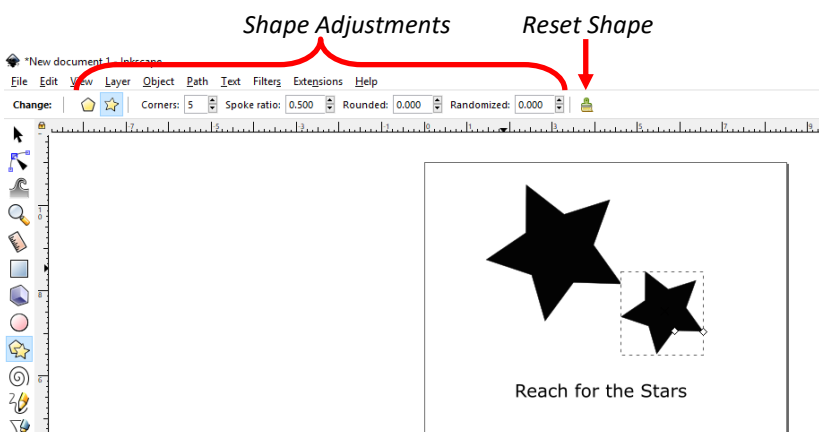

3. If needed, use the **Selection Tool** to move objects, text, and shape by clicking and dragging. Objects can also be rotated by using the **Selection Tool**. To **Rotate**, double click on the object to get rotate arrow icons.

4. Next, lets change the color of the stars. Select the first star, then double click the **Fill** and **Stroke** color swatches in the bottom left. The **Fill and Stroke** menu will then open on the right. The **Fill** and **Stroke Paint** tabs have options to chose colors a variety of ways, including by **RGB**, **CYMK**, a color **Wheel**, or even using the **Pallet** at the bottom of the canvas. There is also an eyedropper tool to borrow colors from other images. Change the fill color of one of the stars using the **Fill** menu.
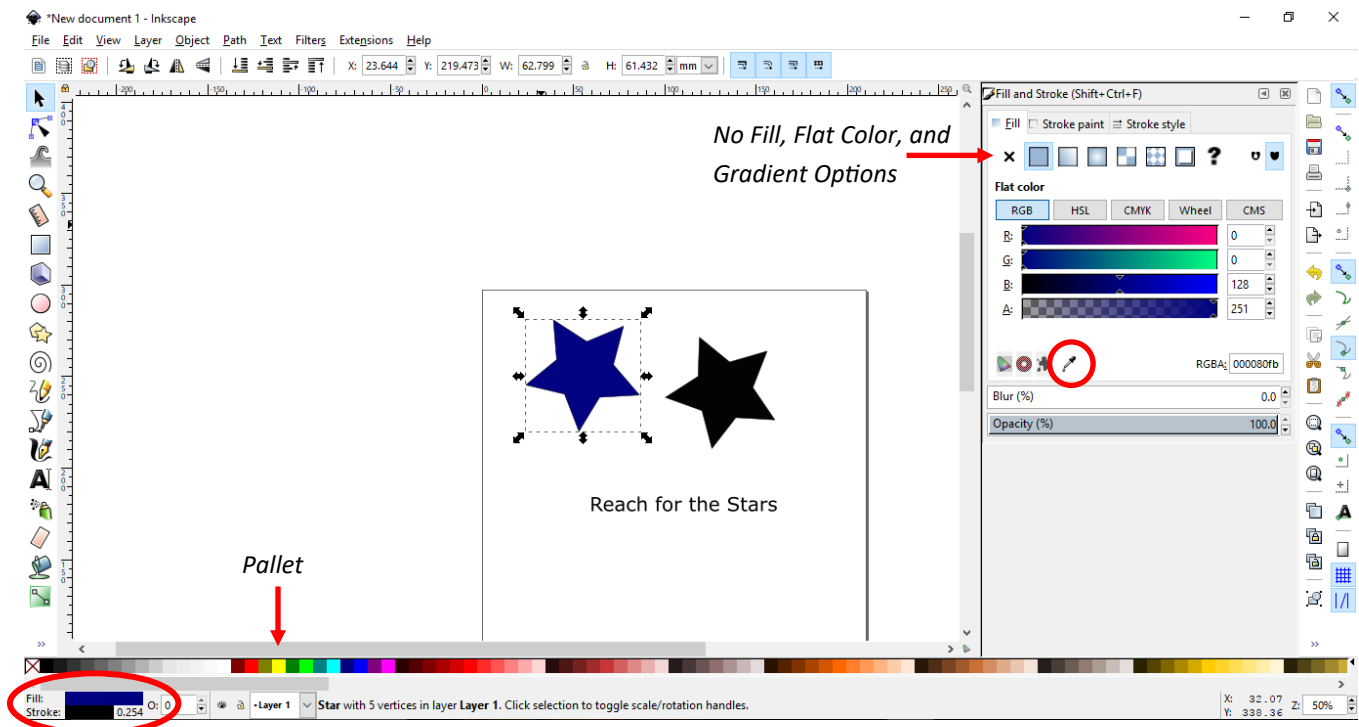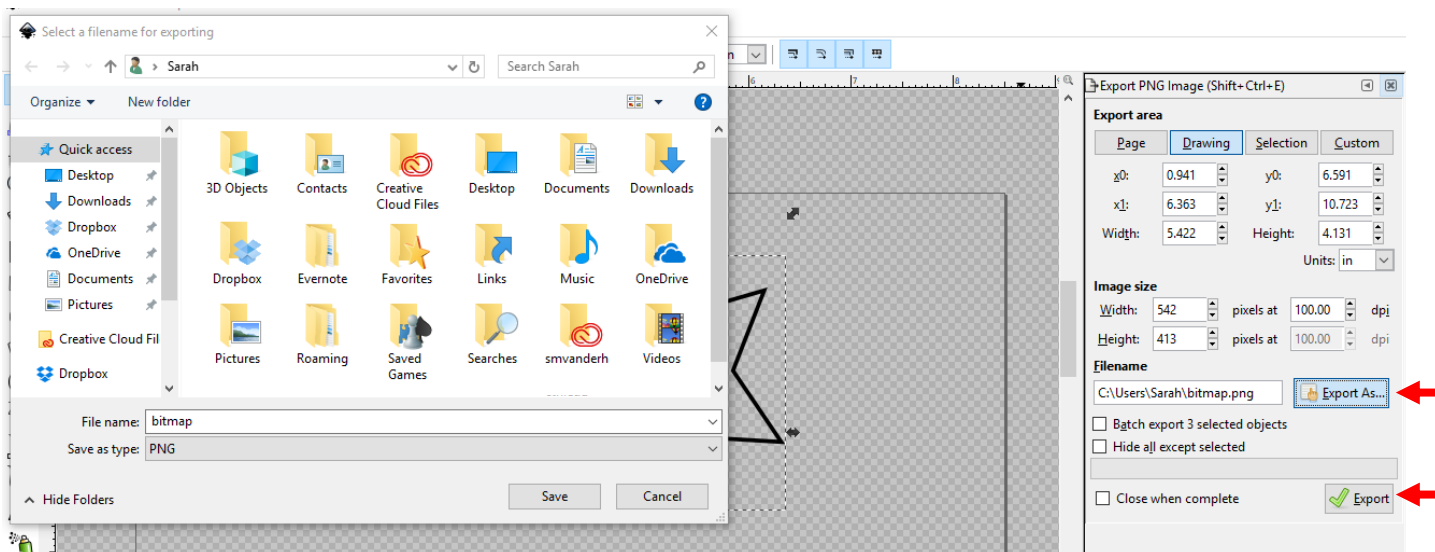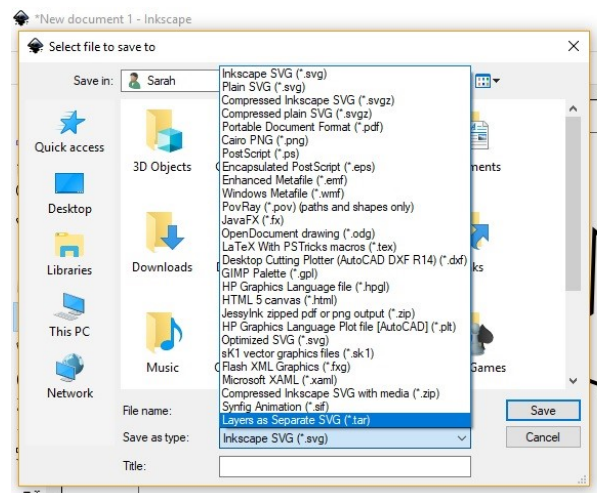

5. Let's change the second star so it only is an outline with no fill. After selecting the star, select the **No Fill** (indicated by an **X**) option from the **Fill** tab. Then go to **Stroke Paint** to change the color of the star's outline, if desired. Lastly, go to the **Stroke Style** tab. Confirm that the solid line is selected from the **Dashes** drop down menu. Increase the **Width** to 1.000 mm.
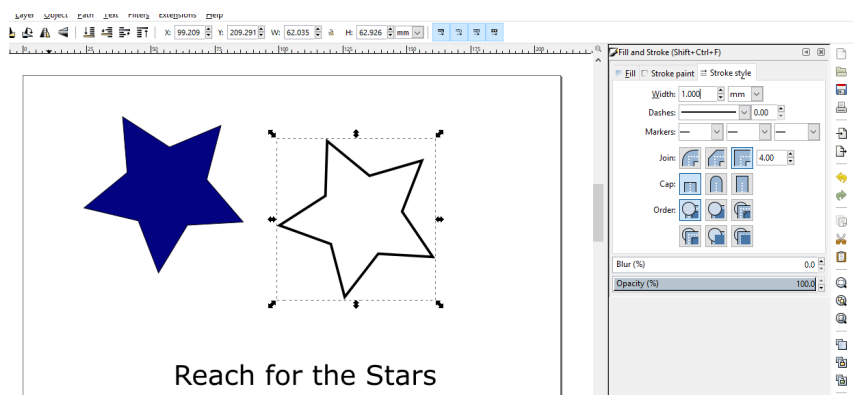
SAVING AND EXPORTING

6. To save your *Inkscape* artwork, select **File > Save** (or **Save As…** if you want to save a separate, updated version). *Inkscape* will allow you to save your file in several different file formats, the most popular being **Scalable Vector Graphics** (.SVG) or **Portable Document Format** (.PDF).

7. If you want to turn your design into a transparent Portable Network Graphics (.PNG), select **File > Export PNG Image…** (Shift+Ctrl+E). There is an option to export the entire page, just the area used for the drawing, or by selecting specific objects of your design. Pixel size and DPI can also be adjusted. Chose **Export As…** to give the .PNG file a name and storage location. Select **Export** to finalize. *Hint: Use "Checkerboard Background" in* **File > Document Properties.**

Activity 2: Tracing

Bitmap images (example: .JPEG and .PNG) files can be imported and tracked into *Inkscape.* To **Import**, select **File** from the **Application Menu** and then **Import.** Choose your file to import. To **Trace**, select **Path** from the **Application Menu**, then select **Trace Bitmap…** A menu will appear to choose your tracing options. Click **OK** to finalize. *Inkscape* will then create a series of traced paths and shapes on top of your original image. Move the traced image to the side. Delete the original bitmap, if desired. Your traced image can now be manipulated with tools such as the **Edit Paths by Nodes**.
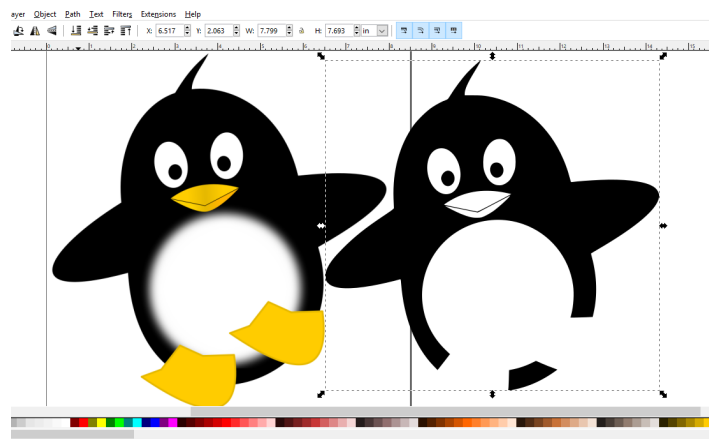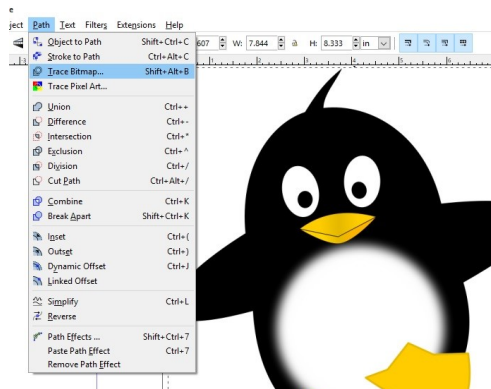
Activity 3: Resizing

As mentioned previously, *Inkscape* files can be resized up and down with no loss of quality. Let's explore two different ways to change the size of an object.

This line drawing of an ornament is originally over 6 inches wide. Let's make it smaller.

1. Clicking the **Lock** button will make it so that the object's dimensions stay proportional as you resize it. Type '3' in the Width (W) field, and press Enter to resize.

   Lock
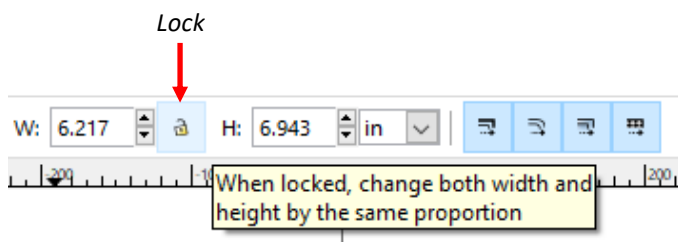
2. Hover over a corner of the object until the corner turns green. Click and drag to resize the object until the width is slightly above 4 inches.
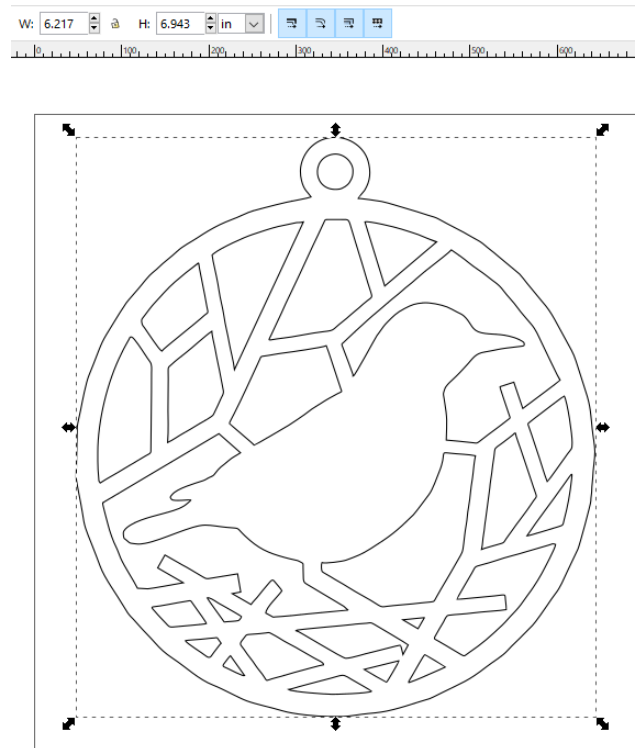
Activity 4: On Your Own!

Use the **Circle Tool** and adjustments located in the **Circle Tool's Tool Control Bar** to recreate Pacman! *Hint: Hold **Ctrl** to prevent the circle from turning into an oval.*