



Corporate Flow



Illustration



Image Editing



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# Canvas Tips and Techniques



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## Demystifying Curves

Curves got you running scared?? Well, get over your fear of curves with this step-by-step tutorial that will introduce you to vector drawing and path editing.

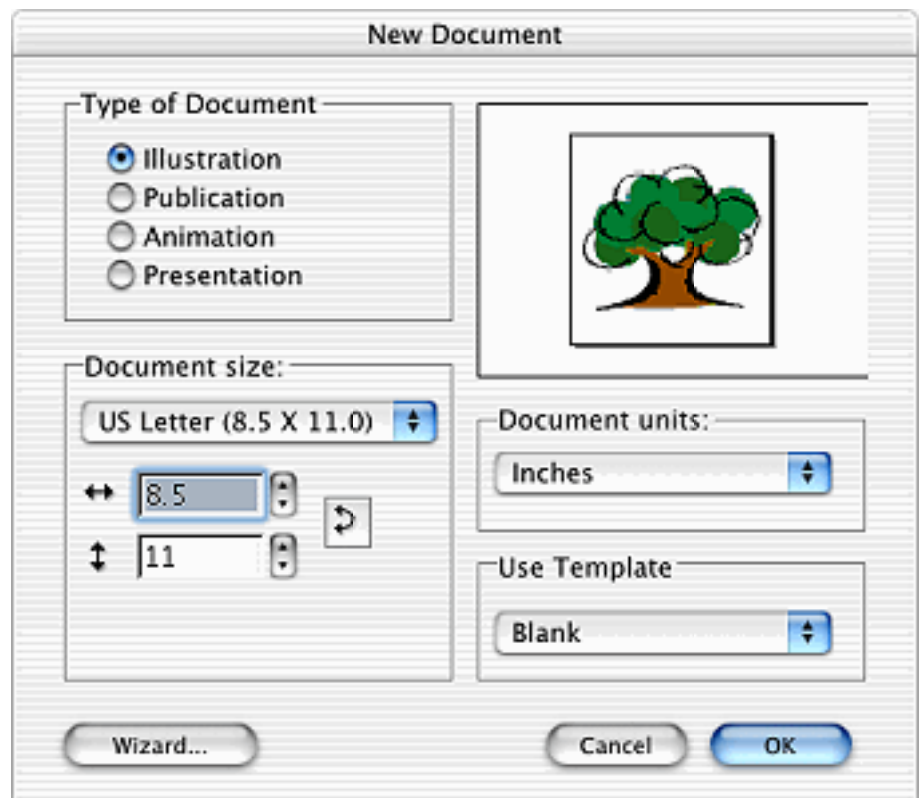
Many graphic artists, including professionals, cringe at the mere mention of curves and paths. Why are curves so intimidating?

Paths and curves, or Bézier curves as they are sometimes called, are the basis of graphic design and vector drawings. You see them used everyday in logos, illustrations, and Web sites. In this tutorial, we will give you the basics so you can draw, bend, and push with the best of them.

### Step 1

#### Creating a New Document

We will start this tutorial by opening a new document (File > New). Choose Illustration as the file type and press OK.

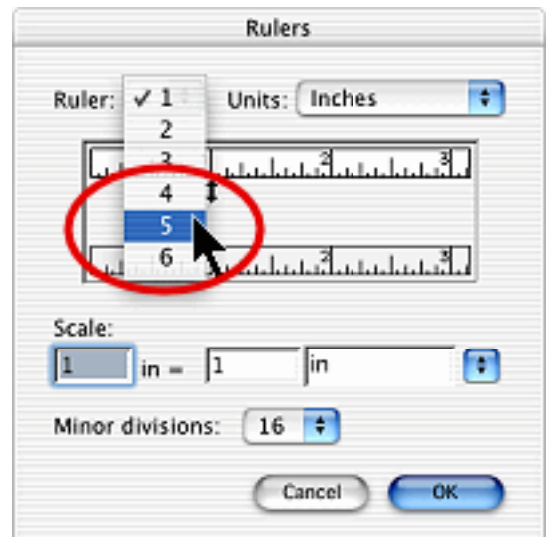


## Demystifying Curves (continued)

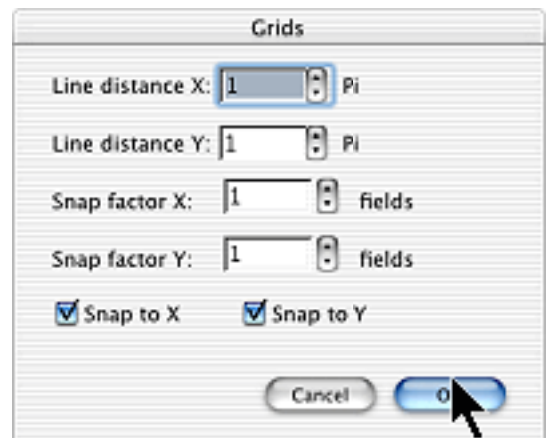
### Preparing the Document

Next, we will prepare the document to measure in pixels. To do this, choose Layout > Rulers. When the Rulers dialog box opens, pick Ruler 5 from the drop-down menu (see example) and press OK. Ruler 5 is preset to measure in pixels.

Any unit of measurement will work; however, for this tutorial we will be using pixels.



Now we want to set our grids to snap to pixels. This will prevent objects from falling between pixels. To set your grids, choose Layout > Grids. In the Grids dialog box, change the Line Distance X and Y to 1 pixel. Then, check Snap to X and Span to Y. Finally, click OK to save your choices and close the dialog box.



## Step 2

### Getting Acquainted with Canvas' Path Tools

Now that your document is setup, we are ready to get started. The first thing you need to do is locate the Path tools in the Toolbox. It is a good idea to drag them away from the Toolbox so they are easily accessible.





## Demystifying Curves (continued)


Before we move on, let's take a minute to learn the names and basic functions of the different Path tools.




*Path tools palette*


 **Curve Tool:** Used to draw precise paths with straight or curved segments.

 **Freehand Tool:** Used to draw paths by simply dragging the cursor.

 **Polygon Tool:** Used to create paths with straight line segments.

 **Auto Curve Tool:** Used to draw curved paths.

 **Reshape Tool:** Used to modify existing paths.

 **Push Tool:** Allows you to edit curves.

## Defining Curves

Now, let's take a look at the components of a curve.

**Anchor Points:** Determine where a path starts, goes, and ends. They appear as small blue squares that turn to empty blue square outlines when selected.

**Tangent Lines:** Control the shape of curved segments. Also note that Tangent Lines affect the adjacent segment.

**Handles:** Used to control Tangent Lines.



## Step 3

### Using the Curve tool

We start by first selecting a black stroke and "no fill ink" from the Inks palette. This will make it easier for you to draw.

To change the stroke and fill inks, you must first make sure no objects are selected. This is easily done by pressing the Esc key several times. With nothing selected, open the Pen Inks palette and change the ink color to black. Now open the Fill Inks palette and choose "no ink", represented by the white box with a slash through it. Your inks should look like the example on the right.



Next select the Curve tool from the Toolbox or Path tools palette.



## Demystifying Curves (continued)

In this exercise, our goal is to create a swooshing object like the one below. The trick is to create smooth curves and sharp ends.



We start by clicking the Path tool in our work area. When you click and release the Path tool, it will create an anchor point that is free of handles or a tangent line. Since this anchor will eventually be one of the sharp ends we do not want handles on this particular anchor point.




**Note:** your anchor will appear as a blue square outline.

Click Path tool and release


  
*Click Path tool and release*

Now, click the second anchor point to the right and below the first but this time do not release the mouse button (see example).

  
*Click second anchor but don't release mouse button*

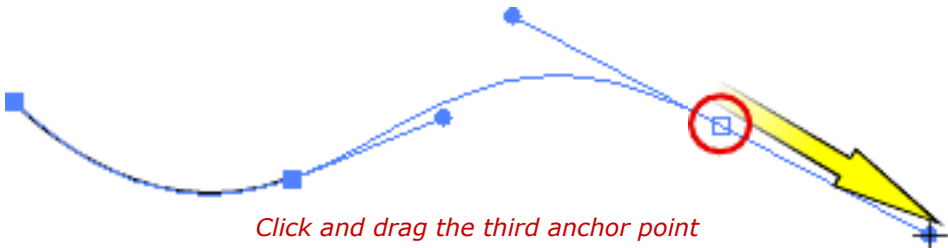
Click second anchor but don't release mouse button

Before releasing the mouse button, drag it up and away to create a curved path. You'll see the tangent line and handles appear as you drag.

  
*Drag handle up and away*

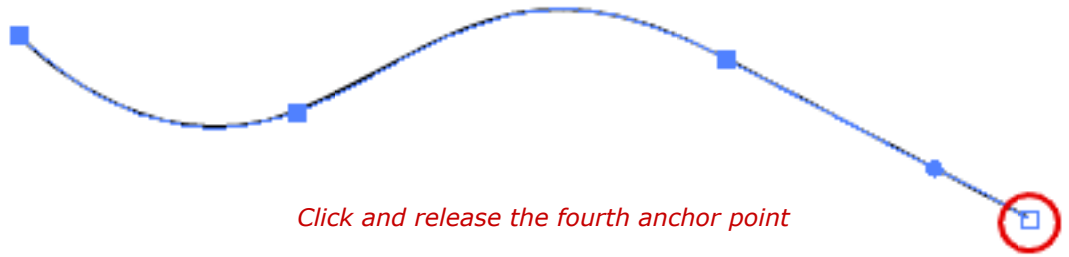
When the curve is to your liking, release the mouse button.

Using the same technique, create a third anchor point and drag the cursor down and away to produce another curve.

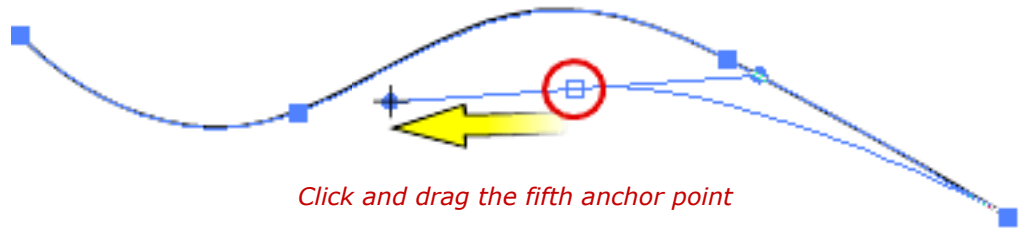
  
*Click and drag the third anchor point*

## Demystifying Curves (continued)

Create a fourth anchor point; however, this time, just click and release the mouse button to create an anchor point without handles.



Now, we're going to complete the bottom portion of the swoosh by repeating the same steps we used to create the top.

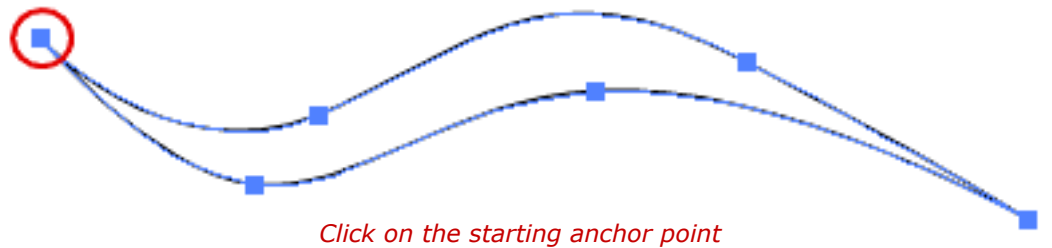


Click the mouse button to create a fifth anchor point and drag the handle out.

Click and drag the sixth anchor point.



Complete the path by clicking on the starting anchor.



## Using Modifier Keys While Drawing

In Canvas, you may use modifier keys while drawing to constrain or edit a path segment. The following is a list of modifier keys and their functions.

**Shift:** Pressing the Shift key as you set an anchor will place the anchor point at a 45 degree intervals relative to the previous one.

**Shift + Drag:** Pressing the Shift key while dragging out a handle will constrain your tangent line to 45 degree angles.

**Option (Mac) or Ctrl (windows):** Pressing these keys as you set an anchor creates a straight line segment.

**Delete:** Pressing the Delete key removes the last segment you created.

## Demystifying Curves (continued)

In this next step we are going to learn to use the Freehand tool.

The Freehand tool allows you to draw paths or objects by simply dragging the cursor, just like you would with a pencil.

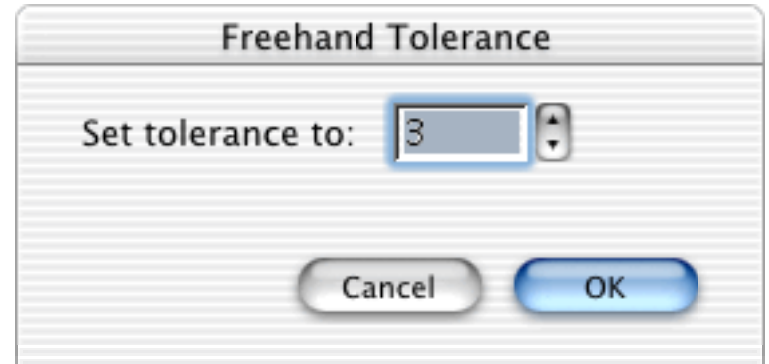
### Step 3

#### Freehand Tool

First select the Freehand tool from the Toolbox or Path tools palette.



Next, double-click on the Freehand tool to bring up the Freehand Tolerance dialog box. Using this dialog box, you could tell Canvas to use more or less anchor points to represent a curve. The scale is set from 1-5, where 5 tells Canvas to use the lesser amount of anchor points. Press OK when you have made a selection.



**Note:** This setting will greatly influence the operation of the Freehand tool.

Now, with the Freehand tool selected, press the mouse button and draw a path the same manner you would if you were using a pencil. Release the mouse button when you have reached the end of your path.

For this example, we have drawn the shape of a man's face.



Canvas will smooth out the curves when you release the mouse button.



Next, we will use the Polygon tool to create a triangle with straight line segments. The Polygon tool works similar to the Curve tool but only creates straight line segments.

## Demystifying Curves (continued)

### Step 4

#### Polygon Tool

First select the Polygon tool from the Toolbox or Path tools palette.

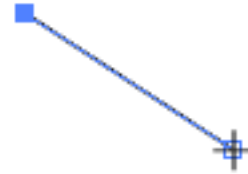


Now, click in the work area to create the first anchor point.



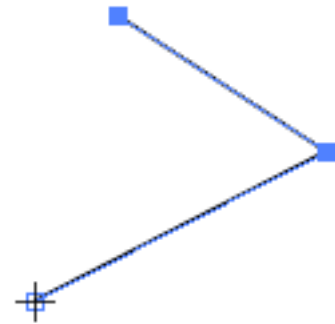
*Click to create anchor point*

Click a second anchor point. Notice that dragging the anchor points using the Polygon tool will not produce tangent line or handles.

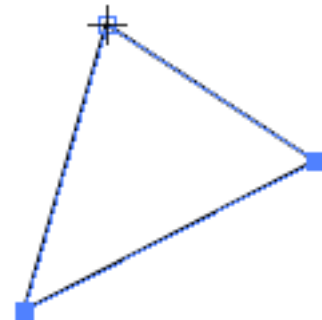


*Create a second anchor point*

Create a third anchor point



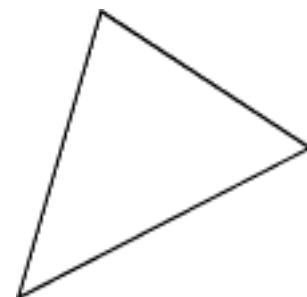
Finish the path by clicking on the starting anchor point to create an offset triangle.



The finished triangle should look like the example on the right.



**Note:** The modifier keys mentioned at the end of Step 2 will also work with the Polygon tool.



*Completed polygon*

## Demystifying Curves (continued)

**Tip:** You may smooth a polygon by first selecting the polygon object and then choosing Object > Path > Smooth. Using this function will change the straight line segments to curve segments. The function is also reversible by choosing Object > Path > Unsmooth.



*Polygon with smooth function applied*

We will go over the Auto Curve tool next. The ease of use and practicality of the Auto Curve tool make it one of the most useful drawing tools in Canvas. Using this tool, you could create curves without positioning tangent lines or dragging handles. You simply just click to set the anchor point and a smooth curve segment appears automatically.

## Step 5

### Auto Curve tool

First select the Auto Curve tool from the Toolbox or Path tools palette.



Click your first anchor point somewhere in the work area.



*Click anchor point*

Click a second anchor point above the first. Notice the curve has not started to form because it requires at least three anchors.



Click a third anchor point a little higher and slightly to the right of the second, you will see the curved path start to develop.



Continue to click a curve to get a feel for the tool.

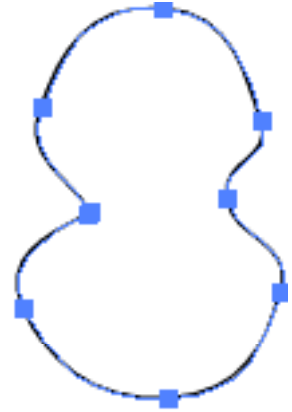


## Demystifying Curves (continued)

Complete the path by clicking on the starting anchor.



**Note:** It is not required for you close a path to use any of the drawing tools. Paths may be left open by pressing Esc twice at any point in the drawing.



On the right the completed curve is used as the body of a baby chicken illustration.

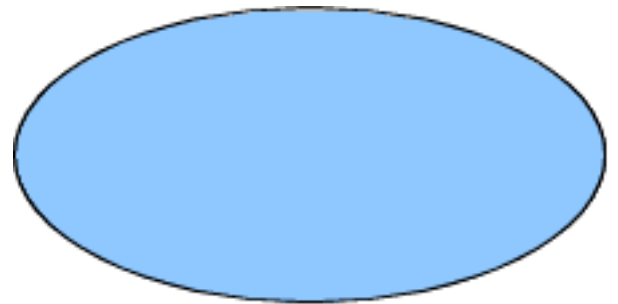


Next, we will review the functions of the Reshape tool. The Reshape tool provides an easy-to-use, interactive way to edit paths.

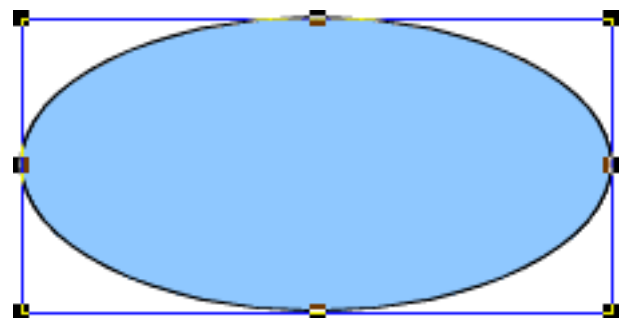
## Step 6

### Reshape tool

In this section, we are going to use the Reshape tool to restructure one side of the oval.



To start, use the Selection tool to select the oval we are going to reshape.

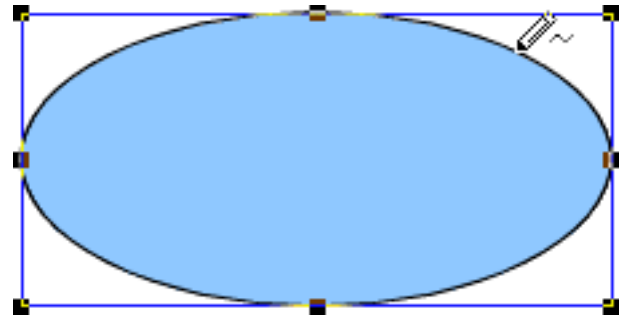


## Demystifying Curves (continued)

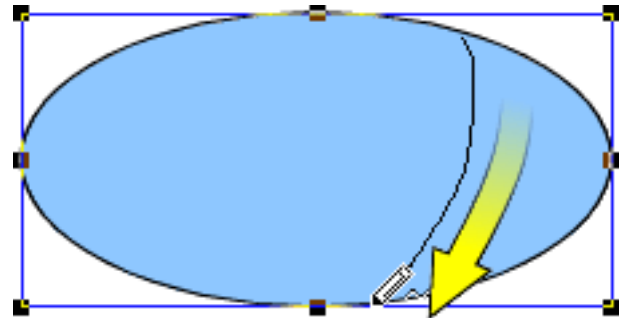
Then, select the Reshape tool from the Toolbox or Path tools palette.



Move the pointer toward the path and a reshape symbol (~) will appear. The symbol indicates that you are ready to drag the reshape path.

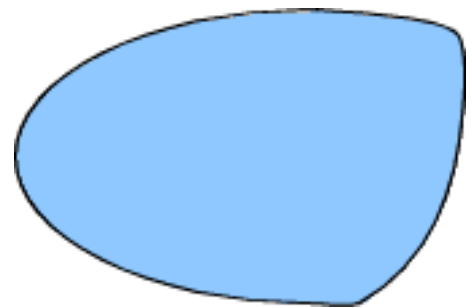


Click on the path and drag a new segment in the shape you want. For our example, we want to cut off the end of the oval.



Release the mouse button and Canvas will apply the new segment you created.

After you use the Reshape tool, the object remains selected or in edit mode so that you may continue to use the Reshape tool to further modify the path.



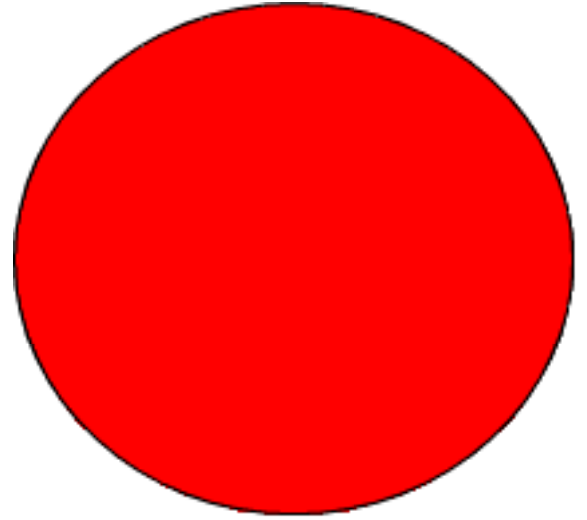
## Demystifying Curves (continued)

The Push tool provides an alternative way of editing paths. The tool lets you form curves based on a measurement range without having to edit anchor points or tangent lines.

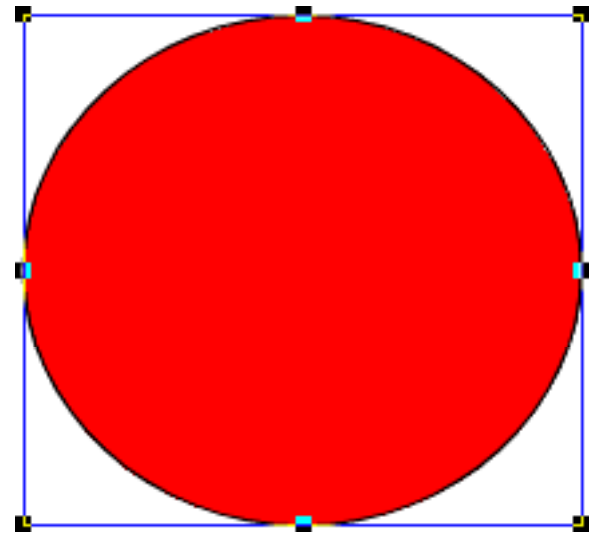
### Step 7

#### Push Tool

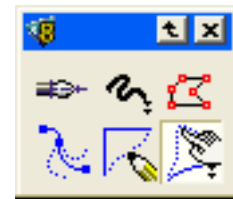
In this exercise, we will use the Push tool to shape the circular path on the right into an apple.



To get started, you must first select the circle using the Selection tool

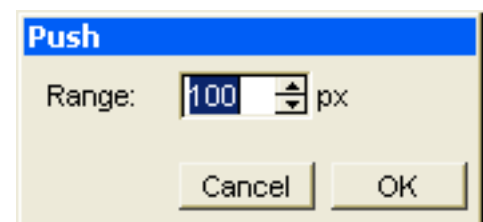


Next, double-click on the Push tool.



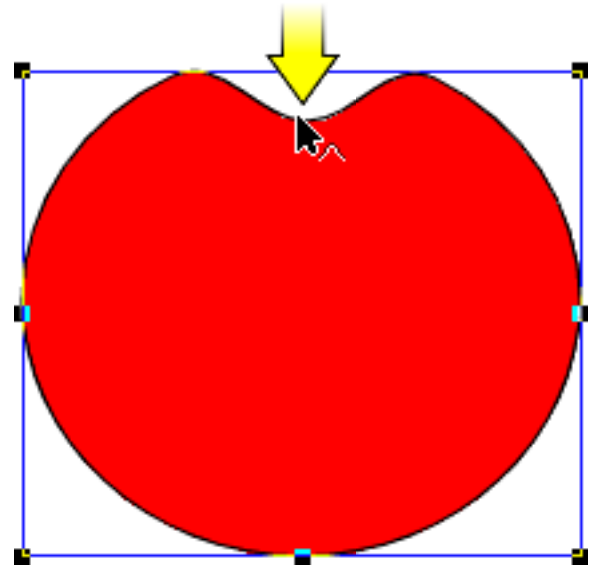
The Push Tool Dialog box opens. In this box, enter the range and press OK. Entering a small range will create more points and push a smaller area, whereas entering a larger range will lower the number of points used and push a larger area.

For our example, we entered 100 pixels as the range.

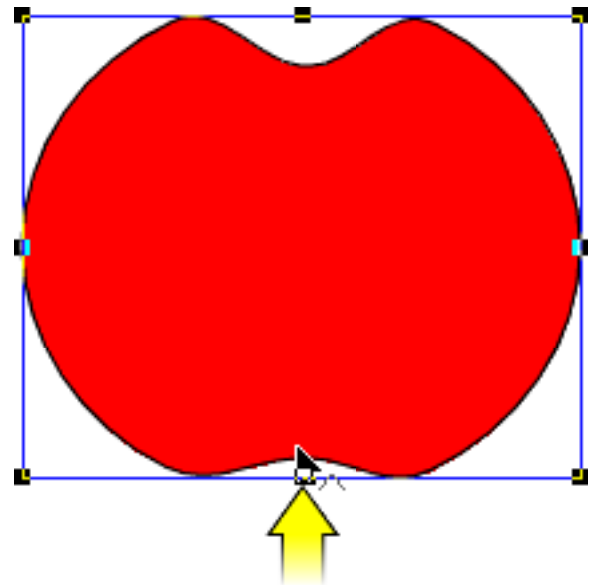


## Demystifying Curves (continued)

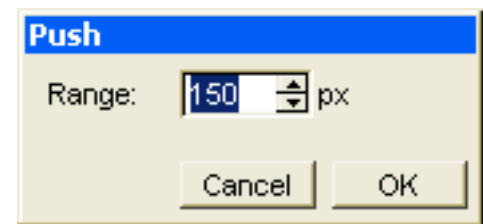
Now, with the Push tool, push down on the top of the circle.



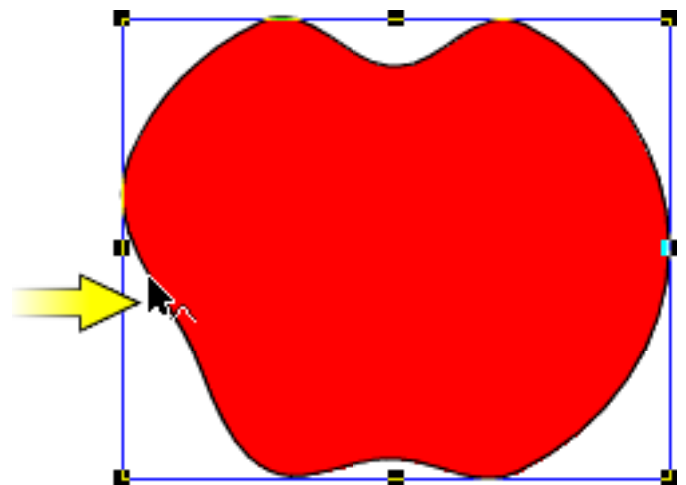
Using the same setting, push up on the bottom of the circle.



Double-click on the Push tool again to open the Push tool dialog box. Increase the Range to 150 pixels or whichever measurement you want to use and press OK.

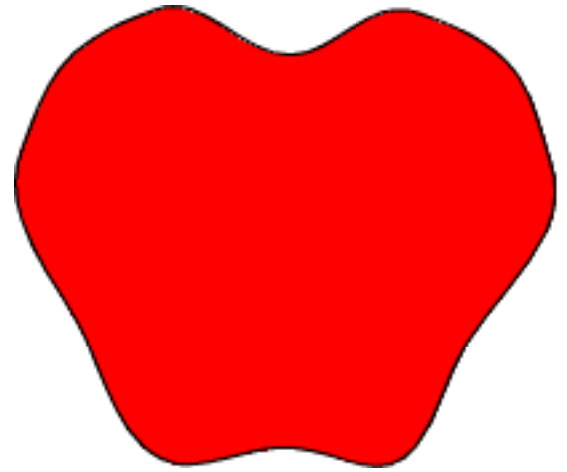


Now, push in one side of the circle just below the halfway point.



## Demystifying Curves (continued)

Repeat the process on the other side to complete the apple shape.



Here is the completed apple with a shine as well as a stem and leaf.



Sometimes a project may require you to edit an existing path or objects. In the following example, we will edit an existing path by adding an anchor point and modifying the tangent lines.

### **Step 8**

#### **Editing Paths**

On the right, you'll see the object we are going to modify. It is a basic rectangle with four straight segments with no handles or tangent lines.



To edit the object (or path) first double-click on it to enter edit mode.



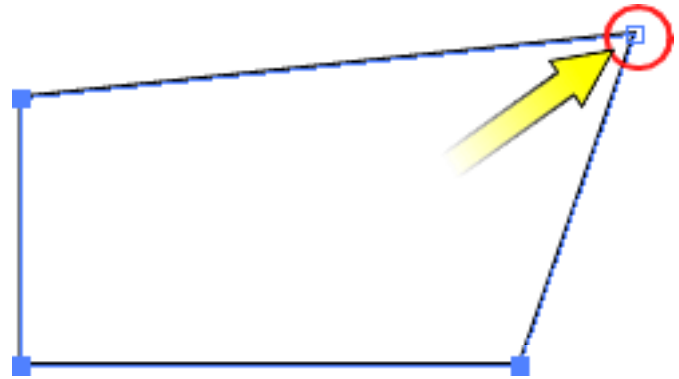
## Demystifying Curves (continued)

For this first step, we are simply going to select an anchor point using the Selection tool and stretch it out to a new location to alter the path.

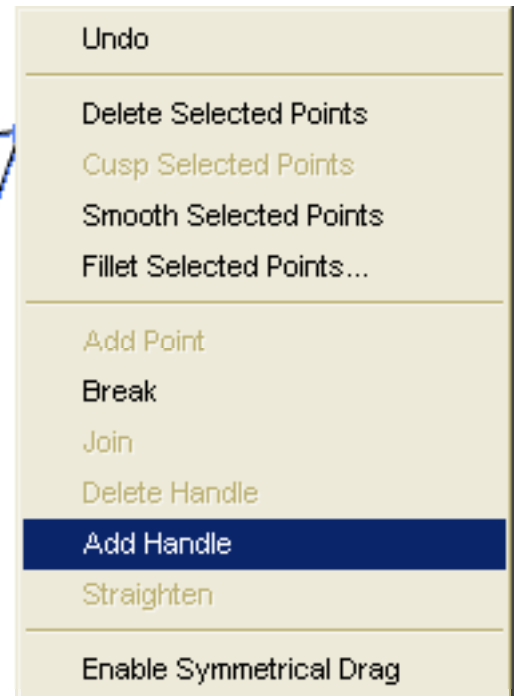
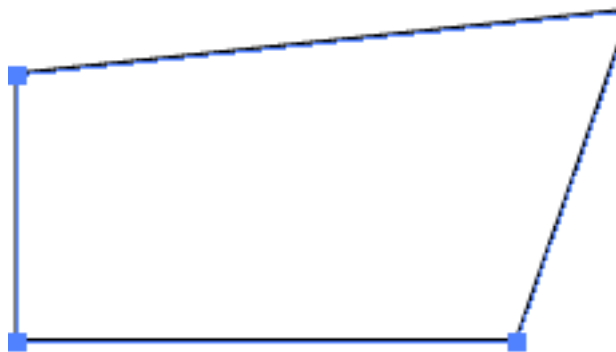


### There are two ways to edit the anchor point's position:

1. Click on the anchor point using the Selection tool and drag it to the new location.
2. With the anchor point selected, use the arrow keys to move it to its new location



**Note:** These techniques also works with curved segments.



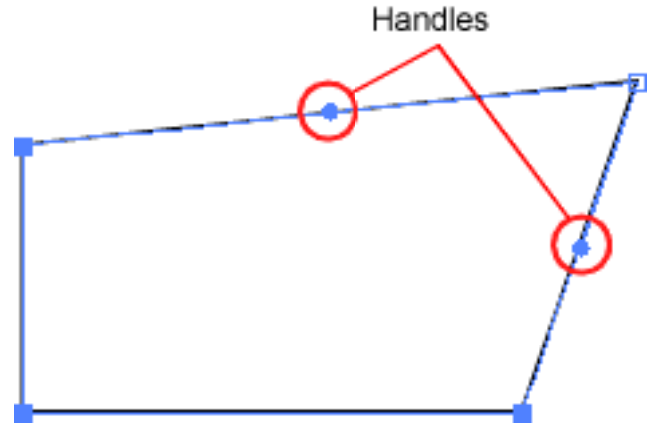
Next, we are going to further modify the same anchor by adding handles to it and using the handles to create a curve.

So with the anchor point still selected, right-click (Windows) or Control-click (Mac) to open the Path-editing context menu.

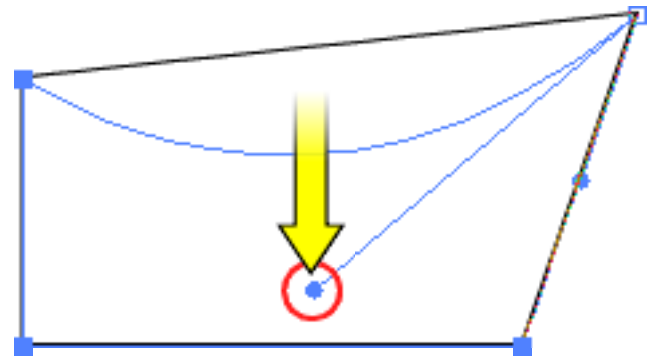
Select Add Handle from the menu.

## Demystifying Curves (continued)

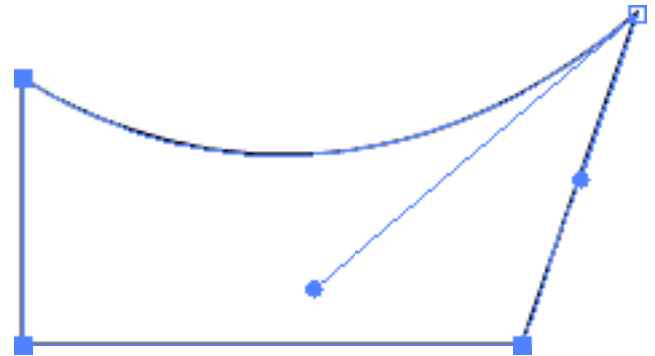
You will now see the handles appear as small blue dots on either side of the selected anchor point.



Place your cursor on the top handle and drag the tangent line downward to produce a smooth curve.

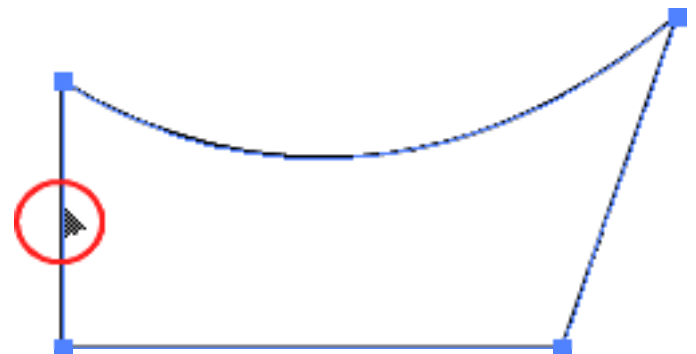


It is a good idea to experiment with this function to see how the tangent line affects the curve. Notice that the transition (bend) of curve could be changed by dragging the tangent line left and right.



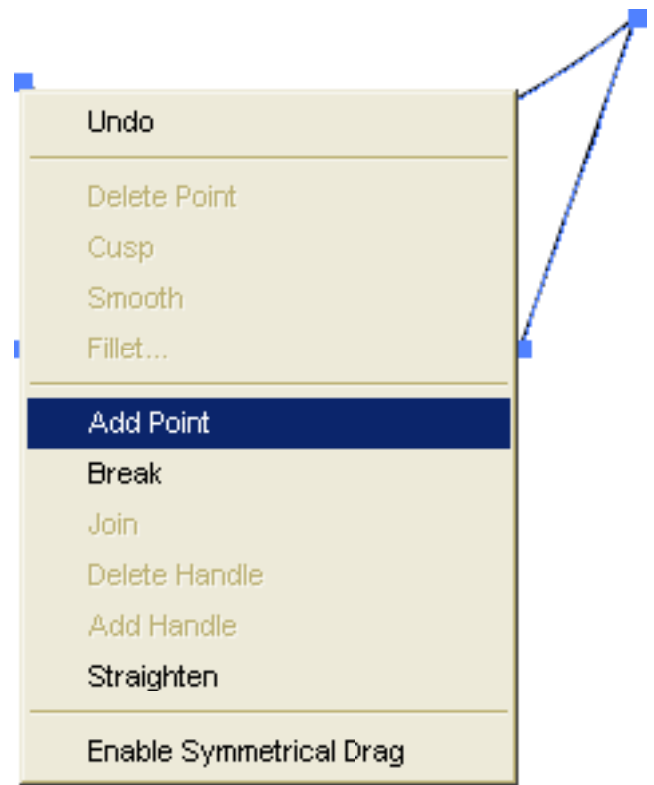
Now we are going to add a new anchor point to the object.

With the object still in edit mode, right-click (Windows) or Control-click (Mac) to open the Path-editing context menu.

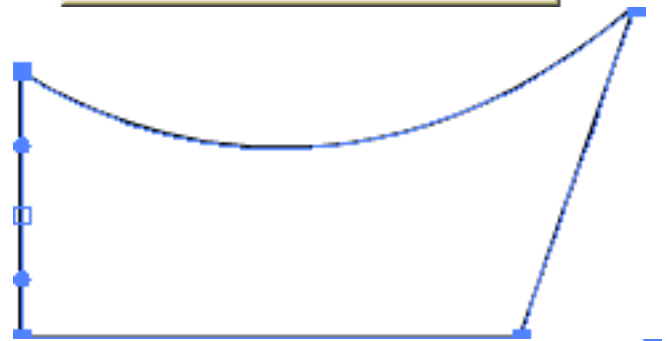


## Demystifying Curves (continued)

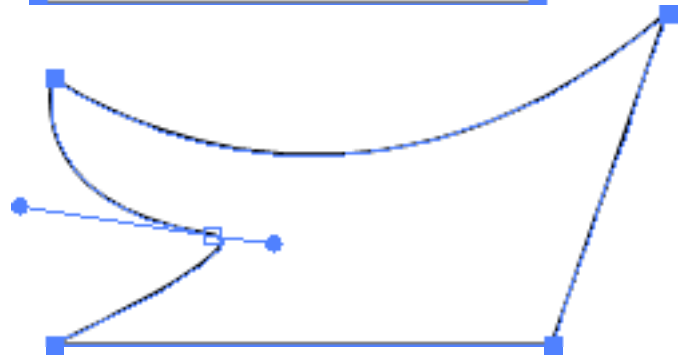
Select Add Point from this menu.



The context menu will disappear and the new point will be visible with its handles.



Next, grab one of the handles and swing it around. Also, try moving the anchor point to create interesting bends and curves.



You might have noticed when adding anchor points or handles, that the Path-editing context menu has several features not examined in the course of this exercise. The following is the complete list of features and functions found in the Path-editing context menu.

**Undo:** Will undo the last operation.

**Delete Point:** Deletes selected point. Note, you must right-click (Windows) or Control-click (Mac) on an anchor point for this function to be active. If multiple points are selected the function will appear as Delete Selected Points.

## Demystifying Curves (continued)

**Cusp:** On anchor points, this option deletes the point's tangent lines. On tangent line handles, the option makes the path either smooth or curved at the anchor point. To be smooth, the anchor point must have both sides of a tangent line. When smooth, the tangent lines are always 180 degrees from each other. When the anchor is a corner, the tangent line segments can move independently around the anchor point. If multiple points are selected, the function will appear as Cusp Selected Points.

**Smooth:** Will create a smooth curve when a straight segment anchor point is selected. If multiple points are selected, the function will appear as Smooth Selected Points.

**Fillet:** Creates a radius corner between or more points. When using Fillet, a dialog box will appear asking for a radius value. Entering a large radius value will produce a larger curved segment. If multiple points are selected, the function will appear as Fillet Selected Points.

**Add Point:** Inserts an anchor point with a tangent line at the point where you clicked on the path.

**Break:** Splits a path segment and adds anchor points to the ends of the resulting segments.

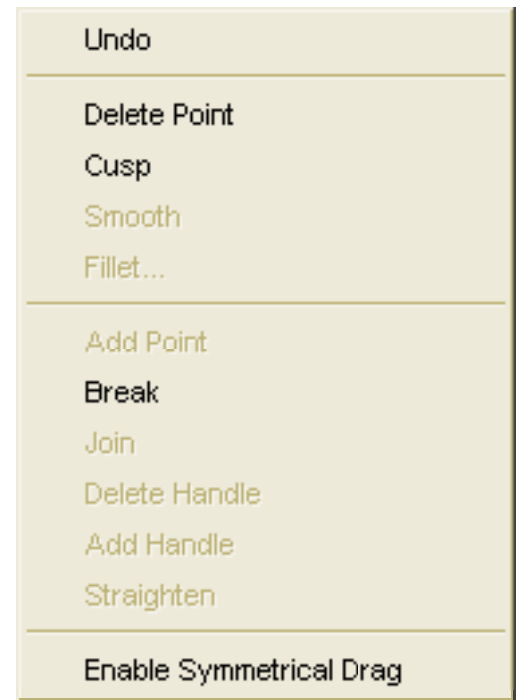
**Join:** Connects the selected points with a straight segment.

**Delete Handle:** Removes handles and the effects of a tangent line on the path.

**Add Handle:** Adds one or two tangent line segments to the anchor point.

**Straighten:** Makes a path segment straight by removing tangent lines from the segment's anchor points.

**Enable Symmetrical Drag:** Allows you to easily create a symmetrical design from a circle, rectangle, or a complex group of objects.



**Important:** To edit the paths of EasyShapes, spirals, multigons, etc., you must first convert them to paths. This is done by first selecting them than choosing Object > Path > Convert to Path. Also, grouped objects such as clipart must be ungrouped (Object > Ungroup) before their paths can be modified.

We conclude this tutorial by leaving you with an extreme example of curves. Below is an example of tribal art, which is commonly used as the basis for tattoos. While this style of art usually consists of only one or two colors but they are rich in curves. Below the example is the same artwork in edit mode, which reveals the anchor points the author used to create it.

If you wish, you may download this file and experiment with the handles, anchor points, and options learned in this tutorial. You could come modify it to come up with a completely new design or just examine how it was made.

[Download Tribal Art File Size: 32 KB](#)

