

Overview

Adobe Illustrator is a vector-based graphic design tool. It was primarily designed for creating materials for print publications but has since been modified to support content and web graphics creation. Illustrator is best known for its ability to create scalable graphics. Artists can work big and shrink their graphics down without loss of quality.

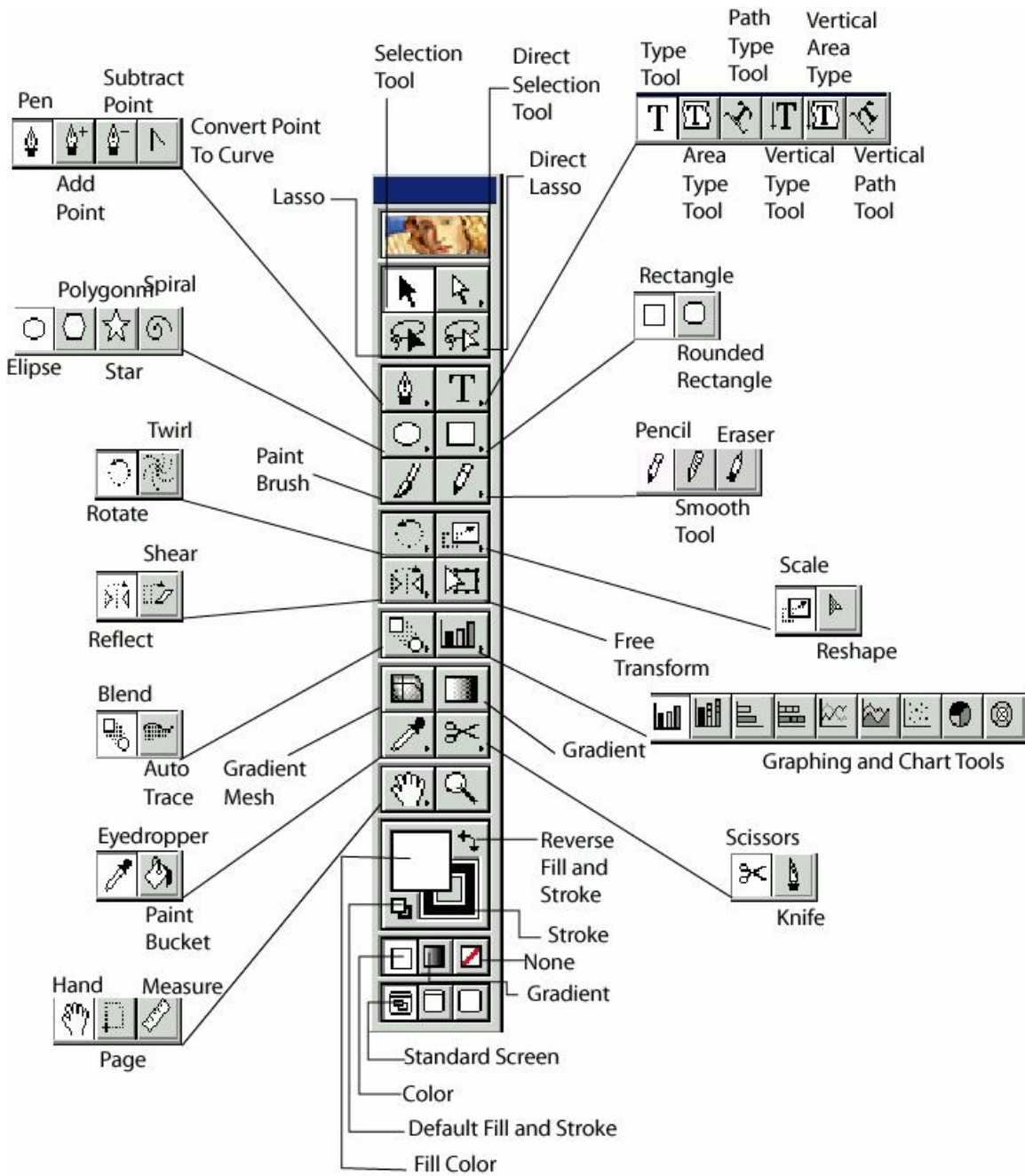
Illustrator is not a photo-manipulation tool; it is a drawing tool. Therefore, if you are familiar with Photoshop, you may find Illustrator very confusing and hard to work with at first.

The goal of this workshop is to teach you how to use most of the common tools and have you perform simple drill exercises with each tool we cover. We will discuss the following tools and topics:

- The Hand and Magnification Tools by Keyboard
- Shapes tools (Ellipse, Star, Polygon, Rectangle)
- Selection (Solid Arrow) and Direct Selection (Hollow Arrow) tools
- Precise copies and Duplication
- The Pen Tool
- Type Tool
- The Pathfinder
- Transformation tools

Let's first start by doing an overview of the tool palette in Illustrator 9.0. You will find a diagram of the tools on Page 2, followed by a detailed description of the tools on page 3.

Tool Palette and Tear-offs Overview



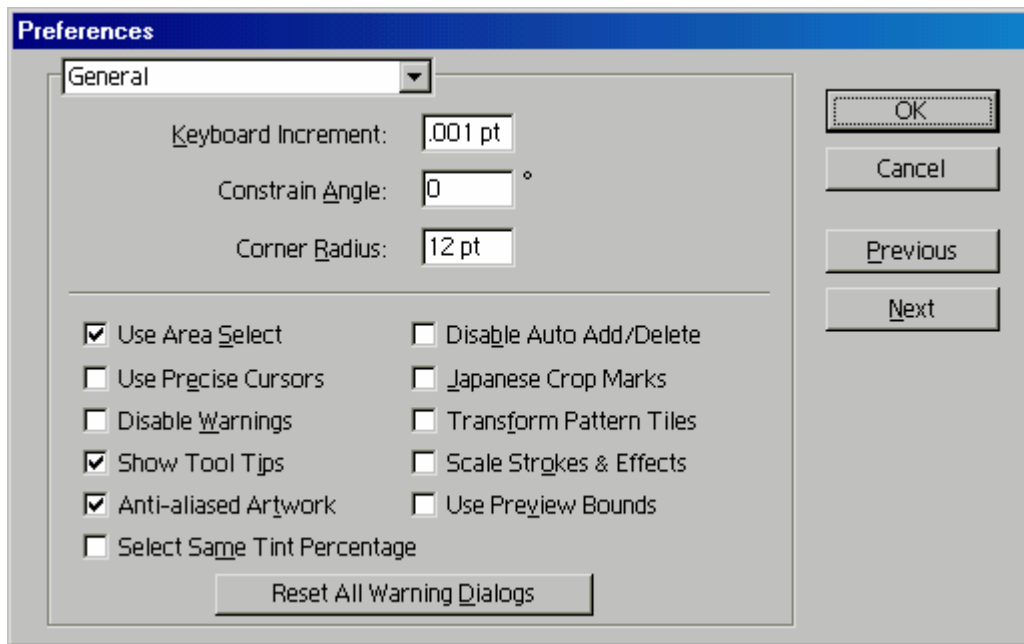
Tool Palette and Tear-offs Description

Selection Tool	Used to move or resize an ENTIRE object, group of objects or group of paths
Direct Selection Tool	Used to move or manipulate a point, curve, path, or group of paths
Lasso Tool	Used to mark a selection area and has the same effects as the selection tool
Direct Lasso Tool	Used to mark a freehand selection area and has the same effects as the direct selection tool
Pen	Used to create lines and curves
Add Point	Used to add a manipulation point to a line
Subtract Point	Used to remove a manipulation point from a line
Convert Point to Curve	Used to convert a manipulation point to a curve point
Type Tool	Used to place text on your drawing
Area Type	Used to fill a shape with text that will flow inside of the shape
Path Type	Used to create text that follows a path
Vertical Type	Used to display text vertically instead of horizontally
Vertical Area Type	Used to fill a shape with text that will flow vertically inside of the shape
Vertical Path Type	Used to display text vertically along a path.
Ellipse	Draws an ellipse
Polygon	Draws a polygon
Star	Draws a star
Spiral	Draws a spiral
Rectangle	Draws a rectangle
Rounded Rectangle	Draws a rectangle with rounded corners
Rotate	Rotates the selected object
Twirl	Twirls the selected object
Pencil	Allows for freehand illustration (Use with a stylus for best results)
Smooth	Creates smudged textures
Eraser	Erases selections
Reflect	Reflects a selection over an axis
Shear	Skew or distort a selection
Free Transform	Transforms objects
Scale	Scale a selection to enlarge or decrease the size
Reshape	Freehand transformation tool
Blend	Creates blends from one shape to another in steps
Auto Trace	Attempts to trace paths of a pattern
Chart tools	Creates charts and graphs
Gradient Mesh	Creates a 3D gradient effect on a shape
Gradient	Applies a gradient over an area or shape
Eyedropper	Selects a color and applies it to the current FILL color
Paint Bucket	Fills a shape with the color specified
Hand tool	Used to move the focus of the screen
Screen tool	Used to move the border of your page
Measure tool	Used to measure elements on the screen
Magnifier	Used to zoom in and out of your project

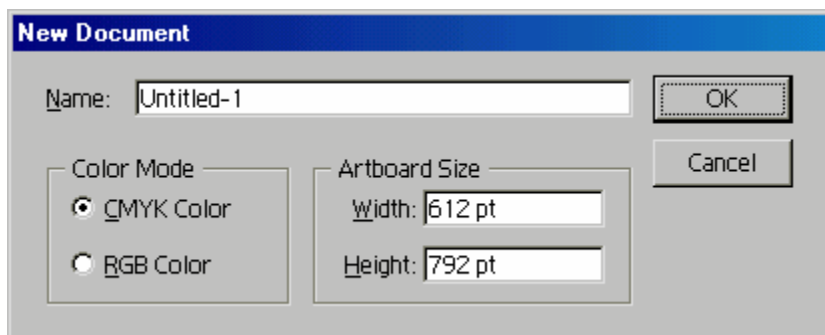
Beginning Illustrator

When you first begin, there are some things you have to be aware of. Primarily, though the interface may resemble Photoshop in many ways, it is most definitely NOT the same. The tools and their associated functions work entirely different.

Before we begin, we will need to make some settings adjustments. Click Edit, and choose Preferences. Please make sure your settings match the ones shown below.



The first thing you will need to do to start the exercises is create a new document. Do this by clicking the File menu, and choose New. You will be presented with the following dialogue.



The settings for our examples will be using Points rather than pixels or inches. The settings here are equal to an 8.5 x 11 inch page.

The Hand and Magnification Tools

The Hand and Magnification tools make it easy to position your drawing in a way so that it is easy for you to work with. You can zoom in and then move your view around. However, when you are working on your project, it can be cumbersome to switch from the **Pen** tool to the **Hand** tool, and back to the **Pen** tool again. Likewise, when working on a small area of a project, it can be annoying to have to select the **Magnifier** tool to zoom in, and then moving to the **View** menu to zoom out.

Adobe addressed these issues by assigning hot keys that automatically change the mouse cursor when pressed.

To access the Hand tool, press and hold the **Space Bar**. Your cursor will change to the Hand icon. While holding the **Space Bar**, you can drag the screen around, changing the center of focus. Releasing the keyboard keys returns you to your previous tool.

To access the **Magnifier** tool, press and hold **Space Bar + CTRL**. Your cursor will change to the **Plus Magnifier**, allowing you to click the mouse and zoom in. Releasing the keyboard keys returns you to your previous tool.

Pressing and holding **Space Bar + CTRL + ALT** will change your cursor to the **Minus Magnifier**, allowing you to zoom out.

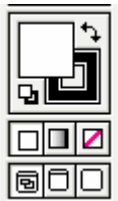
To move objects without selecting the Selection arrow, hold down the **CTRL** key and drag your object. This can be extremely useful when placing type.

There is a slight inconsistency with the aforementioned shortcuts; the **Hand** tool and **Magnification** tool do not activate via shortcut when you are using the **Type** tools.

Shapes Tools, Stroke, and Fill

Creating shapes in Illustrator is much like using the Marquee tool in Photoshop or the Box tool in Microsoft Paint. You start at one corner, click and drag to an opposite corner, then release. The ellipse, rectangle, star, spiral, and polygon all work the same way. However, when used in conjunction with keyboard hotkeys, these tools have special features.

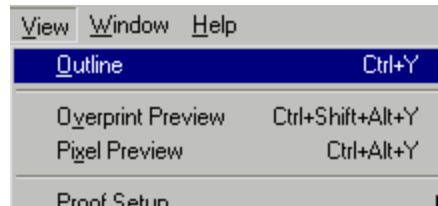
Let's do a regular rectangle. Choose the **Rectangle** tool from the palette. Click anywhere on the **artboard** and hold the button down. Drag to an opposite corner and you will see your shape appear. When you are satisfied with the size, release the mouse button. You should have a shape similar to the one shown to the right.



Notice your **Fill** and **Stroke** items on your palette. If they appear exactly like in the example to the left, then you should see a box with a white inside and a black outside. Note that these are not **Foreground** and **Background** colors like in Photoshop. To change the fill color of the square, simply double-click the Fill color and select a new color from the color picker. Do the same to change the stroke color.

If you do not want a stroke, simply click the Stroke once, and then click the **None** button (the box with the **red slash**).

If, when you created your square, deselected your square, and saw nothing, then you probably did not have a stroke applied to your object. To make sure you are seeing everything you actually draw, most artists recommend working in the **Artwork** mode. This shows only your outlines of your objects, regardless of the stroke or fill you have applied to them.




Adobe has renamed the **Artwork** mode to the **Outline** mode in Illustrator 9.0. Go to the View menu and select the **Outline** mode.

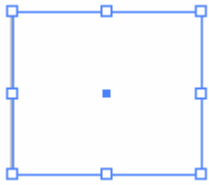
Hotkeys can be used to control how shapes are created. Holding the **Shift** key while drawing your shape will force it to maintain a 1:1 aspect ratio (width and height are equal). This helps you create perfect squares and circles.

Holding the **ALT** key while drawing will create the object from the center rather than from the corner. This is helpful when placing a shape directly centered over another layer.


The **CTRL** key can be held while dragging to move a shape you just created to a new location.

Selection of Objects

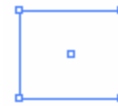
The **Selection** tool  is used to select an object and then move or resize the entire object. Artists familiar with Illustrator will refer to this tool as the **Solid Arrow** tool.



Draw a **Rectangle** as described on page 6 and then select the **Solid Arrow** tool. Click your shape once using the **Solid Arrow**. You should notice an outline with adjustment points appear around your shape like the diagram on the left. By clicking and dragging the center of the shape or one of the lines of the border, you can move the object. By clicking and dragging one of the square adjustment points, you can resize the object.

The **Direct Selection** tool , also known as the **Hollow Arrow** tool is used to select specific points and then bend or move parts of a shape. Draw a new rectangle and then select only the upper right corner of the rectangle by using the Hollow Arrow. The directions below will let us modify only a portion of our rectangle.

1. Click and hold the mouse button at a point just above the **middle** of the **top line** of your rectangle.
2. Drag to a point just beyond the **middle** of the **right side** of your rectangle.
3. **Release** the mouse button. You should now have only the **top right quadrant** selected as shown in the picture at the right. You will notice that one of the **adjustment points** is darkened, signifying that it is the selection that is active.
4. Use the **cursor keys** on the keyboard to move the selection around or use the **Hollow Arrow** tool to drag the **adjustment point**. You can see from the example at the right that we have changed the shape of our rectangle by collapsing the upper corner.



The Hollow Arrow tool will become more familiar to you as we progress because it is vitally important for adjusting lines, shapes, and groups.

Please note that by setting the preferences of your Illustrator program as described on page 4, you will make certain that your cursor keys move more precisely. The larger the number in the **Keyboard Increment** box, the less precise your object movements with the cursor keys will be.

Precise Shapes and Duplication

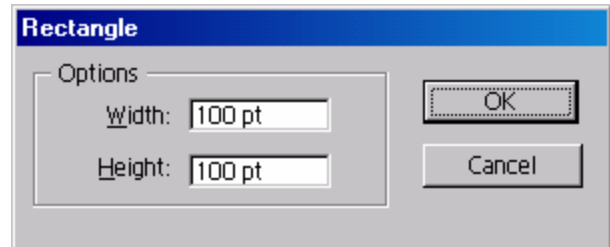
Illustrator's tools can all be used to draw objects in a freehand method, but since this is vector-based drawing, you can add precision by using numbers.

In this exercise we are going to create a set of four boxes, each 100x100 points, and each 20 points apart, laid out in four rows of four as shown below.

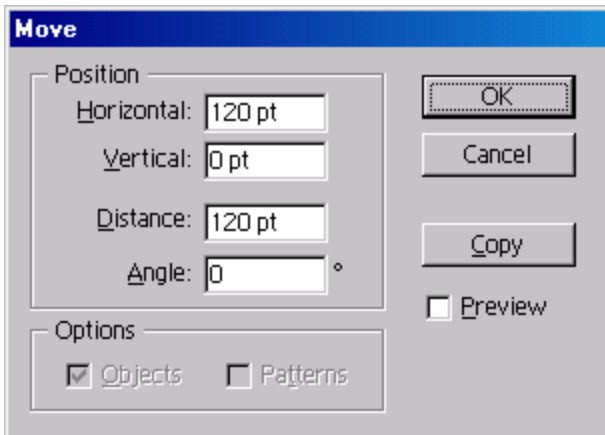


A set of objects such as this can be created quickly and effortlessly by using the precise options of the **Solid Arrow tool** and the **Rectangle tool**.

To begin, select the Rectangle tool and double-click somewhere towards the upper right of your artboard. A dialogue will appear asking for the measurements of your shape. Enter the information as shown at the right and press **OK**



A new square will have appeared where you had placed your arrow.



Next, double-click on the solid arrow tool. You will now see a dialogue that allows you to move the currently selected object to a new location.

Since we are interested in copying this square we have made **20** points to the **right**, we will place **120** in the **Horizontal** position. The reason we do this is that Illustrator includes the size of your object when moving. So

if we have a 100 pt. Object and we want to start the next object 20 pts to the right of that object, we need to tell it to position the object **100 pts plus 20 pts**. To go the opposite direction, you simply place a - (minus) sign in front of the number.

If you click **COPY**, your shape will be copied to the position you wanted. If you push **OK**, your current object will be moved. In our exercise, be sure to click **Copy**. You will then see something similar to the diagram to the right.

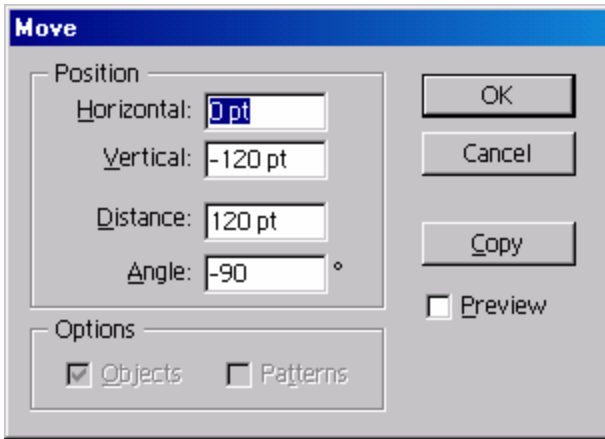


At this point, we will want to make two more squares across. Illustrator has a hotkey combination to allow you to duplicate your last action. Rather than use the **Solid Arrow** to copy the shape, we can use this shortcut.

Press **CTRL + D**. You will see your new square appear, an equal distance from from the first. Press the combination again to create the fourth square.. You should now have four squares in a row, all equal size, all equal distance apart.

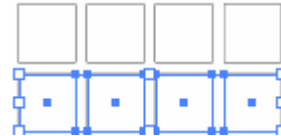


Hold down the **Shift** key and click each of the four squares using the **Solid Arrow**. You should have them all selected like the diagram to the left.

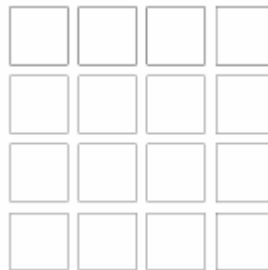


Now, double-click the **Solid Arrow** tool on the tool palette. You will again see the **Move** dialogue box. This time, however, we want to copy our object below our current selection. Therefore, we will need to use **100 pts + 20 pts** and be sure to use a **negative** number. Make your data match those of the figure to the left. You should now see the diagram below.

At this point, simply press **CTRL + D** twice to finish our shape group.




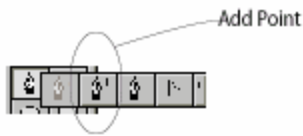
Our finished product should look like this:




The Pen Tool

The Pen tool is used to make paths. You create paths, and then connect them to create objects. The pen tool works by clicking on points, NOT by dragging the mouse as many try to do.


To demonstrate this, click the **Pen tool**  and **click once** on your artboard. **Do not** hold the mouse button down, just click. Now, move your cursor directly across from that point and click again. You can use the **Shift** key to restrain your mouse and force a straight line. You should now have something on your artboard that looks like the illustration to the right.




Now, expand the Pen tool and choose the Add Point tool. Click in the middle of the line you just created. You should now see a new point in the middle of the line. At

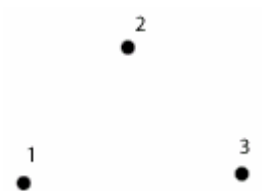
this point, select the Convert Anchor tool  from the Pen pullout menu. Click on your new middle point and drag to the right. Your line will now have what appears to be three points in the middle. The two outer middle points are your curve directions.



Now, select the Hollow Arrow  and drag the original midpoint up. This will create a parabola as shown at the left. You can control the steepness and angle of the curve by dragging the two curve direction points in different directions. Experiment!

Now, let's draw that same object using only the pen tool and the Bezier Curve principle. The pen tool can be used to specify the direction of your curve as you draw it, rather than adding the curve to an existing straight line as we have done.

Select the **Pen tool** . Click once on your artboard. Refer to this as **Point 1** on the diagram to the right. Now, do the following.



- Click and hold the mouse button at **Point 2**.
- Drag the mouse slightly to the right and then release
- Now click at **Point 3**.

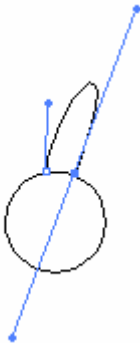
You can again use the Shift key to constrain your cursor so that your lines are straighter. You should have created an identical shape as before.

Still another way to produce a curve is by clicking and holding at Point 1 and dragging straight up (signifying you want the curve to start going up). Next, click and hold at Point 3, but this time drag straight **DOWN**. You will see your curve

come back to where it started. You will have to drag down twice as far as you came up..

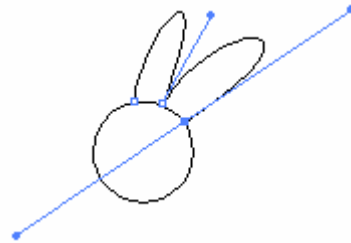
Let's do a comprehensive drill called the Sunflower Drill. We are going to create a sunflower using the Circle tool and the Pen tool.

Clear your artboard by pressing **Ctrl + A** and then pressing the **Delete** key.



1. Draw a 100 x 100 pt circle.
2. Press Ctrl + Shift + A to deselect the circle.
3. Select the **Pen** tool.
4. **Click and drag up** on the **top** of the circle.
5. **Click and drag down** on the edge of the circle to the right of the point you started. Refer to the diagram at the left.
6. Hold down the **ALT** key. The pen will change to the **Convert Anchor to Curve** tool. Place the cursor exactly **over** the point you just created in **Step 5**. You will see the cursor change to the pen again. At this point, click and drag away from the circle.

7. Now, click and drag **towards** the **circle** at a point farther down the circle. You should have the general idea after completing **Step 5**.
8. You should now have two petals on your flower. **Repeat this process** around the circle until you have connected your last petal to your first petal.
9. At this point, you should have a completed flower. Now create another **100 x 100 pt circle** and place it directly over the **original circle**. (Their midpoints will help you place them in the same place).
10. Switch to the **Preview** mode (It's under the **View** menu)
11. Select the petals with the **Solid Arrow** and then change the **Fill** to a **yellow** color. Turn off the stroke.
12. Select the circle with the **Solid Arrow** and then change its **Fill** to **brown**. Turn off the **stroke**.



Your finished flower should look like the example to the right. You can enter the Outline mode (View menu again) and then use the Hollow Arrow tool to adjust your petals.




By now, the pen tool should be burned into your head. For another mind-bending exercise, try writing your name longhand using only the **Pen** tool.

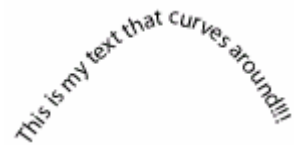
Type Tool


The Type tool works as you would expect. You simply select the tool, click on your drawing, and type what you want to appear. That much needs no explanation.

Many web graphic designers want to display text in cool ways. Plain straight text is boring. Illustrator lets you make text curve, bend, distort, and even fill in shapes.

Let's first try making text on a path. Draw that parabola you drew on Page 10 using the Pen tool.

Now, select the Path Type Tool  and click on your parabola. Now simply type your text and you will see it flow around your curve.



 You can invert the text on the path by selecting the new text path with the **Hollow Arrow** tool. You will see a grab-point appear at the front of the text as shown to your left. Click and drag this grab point to the opposite side and your text will follow you. Drag it to the opposite inside corner and your text will appear upside down.



Text paths can be manipulated just like regular paths, by using the **Hollow Arrow** tool or the **Pen** tool. Experiment. Remember that in Illustrator, any object has paths, so your text can flow around squares, stars, polygons, spirals, anything you can create.

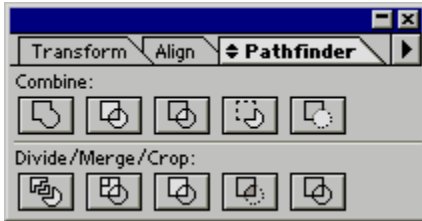
See if you can figure out how the **Area Type** Tool works. Make a circle and then fill it with text.

This is some text I am filling a circle with. I think this is probably one of the neatest features yet!!!



You can also turn text into paths. To do this, simply select the text with the **Solid Arrow** tool, and select **Create Outlines** from the **Type** menu. This can be useful for exporting fonts to other projects or computers where your font might not be installed. The only drawback is that you can't undo this once you've saved it, so you can't edit the type anymore.

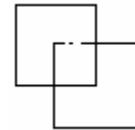
The Pathfinder




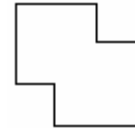
Possibly the most useful feature in Illustrator, the Pathfinder makes some difficult tasks quite easy. In this introductory lesson, I am only going to cover three Pathfinder tools: **Unite**, **Minus Front**, and **Minus Back**.

Unite 

The **Unite** tool on the Pathfinder allows you to merge two objects together, creating a single object. To see it in action, draw two squares. Make the second square overlap the bottom fourth of the first like the diagram to the right.




Now, select both of these shapes using the **Solid Arrow**. Click the **Unite** button  on the Pathfinder palette. This will create the shape to the right. The two shapes are gone and in their place is a single complete path.

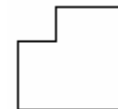


Minus Front 

The Minus Front tool will remove the path that is on top of the path below it. Draw the same two squares, select them and press Minus Front on the Pathfinder palette. You will create a new object that looks like the one to the right.



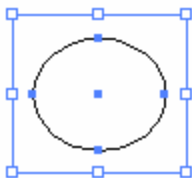
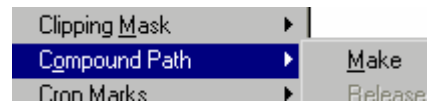
Minus Back  performs the same task, except that it removes the layer underneath, resulting in the figure to the right.



Compound Paths are paths that contain pieces that are cut out. Imagine a doughnut or a tire. The inside is missing from the shape. These are very useful in Illustrator because they can be placed atop other layers and the “hole” in the path will allow the underlying objects to appear through.

Lets create a compound path.

1. Draw a **square** on the artboard
2. Now make a **circle inside** of that square. .
3. Select both objects with the **Solid Arrow** tool.
4. Select the **Compound Path** menu from the **Object** menu and choose **Make**.



You will now have a compound path. Drag this object over something else on your artboard, like your sunflower. You should see your sunflower through your object.



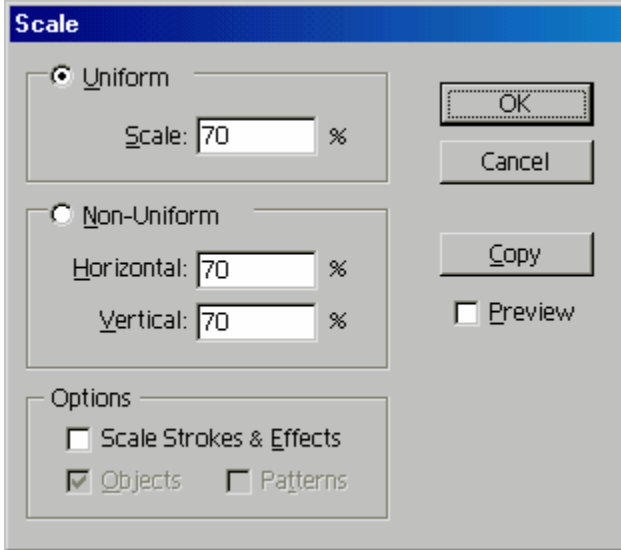
Using Pathfinder and Compound Path, you can create block letters. Try writing your name in block letters using only the ellipse and rectangle tools in conjunction with compound paths and the Pathfinder.

Transformation Tools

The Shear, Reflect, Rotate, and Scale tools are very powerful. They can help you achieve complex objects very quickly.

Scale 

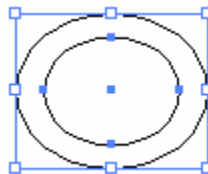
The scale tool can be used to increase or decrease the size of the selected objects. You can scale from the center of the object, or you can scale from a specified point. Select your flower, and then double-click the Scale tool.



Much like the **Move** tool, the Scale tool lets you put in numbers to do your scaling. There is a less-precise freehand method you can experiment with as well.

Simply enter a value in the box and click OK. Your flower will appear smaller (or larger if you entered something different from the figure to the left).

Notice that there is a copy button as well. The copy button is great for using Scale to help make compound paths. Try drawing a circle, then selecting it, then double-clicking the Scale tool and entering 70%. This time, click Copy. You should see two circles, perfectly aligned, one inside of the other.



Experiment with the other tools. They all work pretty much the same way.

That's about it for the introductory lessons in Illustrator. I hope you learned some useful skills that you can apply to your graphics. Keep practicing and exploring. There is a lot to learn about Illustrator.