



Adobe Illustrator® CS6

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Adobe Illustrator CS6

Module 3

(Brushes and Transformation Effect)

Applying Brushes to Paths

Drawing Strokes with the Paintbrush Tool

Creating Custom Brushes

Transforming Objects

Distorting Objects with Effect

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1.) Applying Brushes to Paths

Brushes allow you to stylize the appearance of paths. Brushes can be applied to existing paths, or you can use the Paintbrush tool to apply a brush stroke as you draw your path.

Illustrator has four types of brushes – calligraphic, scatter, art, and pattern (See Figure 1):

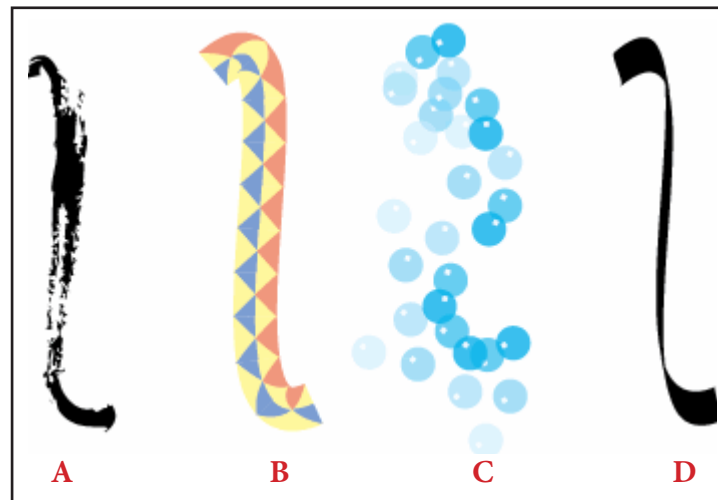


FIGURE 1 – BRUSH SAMPLES

- **A**. Art brushes stretch a brush shape (such as Rough Charcoal) or object shape evenly along the length of the path.
- **B**. Pattern brushes paint a pattern—made of individual tiles—that repeats along the path. Pattern brushes can include up to five tiles, for the sides, inner corner, outer corner, beginning, and end of the pattern.
- **C**. Scatter brushes disperse copies of an object (such as a ladybug or a leaf) along the path.
- **D**. Calligraphic brushes create strokes that resemble those drawn with the angled point of a calligraphic pen and are drawn along the center of the path.

Pattern brushes and Scatter brushes can achieve similar effects except Pattern brushes typically follow the path exactly, while Scatter brushes create more of a random placement.

BRUSH LIBRARIES

Brush libraries are collections of preset brushes that come with Illustrator. You can open multiple brush libraries to browse through their contents and select brushes. To display a brush library, choose **Window > Brush Libraries**, and choose a library from the submenu. You can also open brush libraries using the Brushes palette menu.

The Brushes palette displays brushes for the current file. Whenever you select a brush in a brush library, it is automatically added to the Brushes palette. Brushes that you create and store in the Brushes palette are associated only with the current file, which means that each Illustrator file can have a different set of brushes in its Brushes palette. To display the Brushes palette, choose **Window > Brushes**.

You can customize brush libraries and the Brushes palette in the following ways (See Figure 2):

1. To show or hide a type of brush, choose any of the following from the palette menu: Show Calligraphic Brushes, Show Scatter Brushes, Show Art Brushes, or Show Pattern Brushes.
2. To change the view of brushes, choose Thumbnail View or List View from the palette menu.
3. To change the order of brushes in the Brushes palette, drag a brush to a new location. You can move brushes only within their type. For example, you cannot move a Calligraphic brush to the Scatter brush area.

4. To import brushes into the Brushes palette from another file, choose **Window > Brushes Libraries > Other Library** and select the file.
5. To copy multiple brushes from a brush library to the Brushes palette, drag them to the Brushes palette or choose Add to Brushes from the brush library's palette menu.
6. To duplicate a brush in the Brushes palette, drag the brush onto the New Brush button or choose Duplicate Brush from the Brushes palette menu.
7. To delete the brushes from the Brushes palette, select the brushes and click the Delete Brush button. You can select brushes that aren't used in a document by choosing Select All Unused from the Brushes palette menu.
8. To create new brush libraries, add the brushes you want to the Brushes palette, and delete any brushes you don't want. Then choose Save Brush Library from the Brushes palette menu. If you place the library file in the Presets/Brushes folder inside the Illustrator folder, the library name will appear in the Brush Libraries menu when you restart Illustrator. If you don't, you can still open the library by choosing **Window > Brush Libraries > Other Library** and selecting the library file.

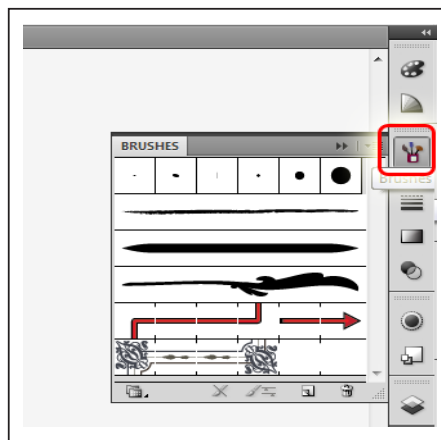


FIGURE 2 – THE BRUSHES PALETTE

Applying Brush Strokes

Brush strokes can be applied to paths created with any drawing tool in Illustrator. When a brush stroke is applied to an object, any previous stroke options or brush strokes will be replaced by the new brush.

A brush stroke can be applied in a couple of different ways:

1. Select an object and then click on the desired brush in the Brushes palette or a Brush Library.
2. From the Brushes palette or Brush Library, drag a brush over the line of an object.

Stroke Options

Any brush stroke can be modified by clicking on the **Stroke Options** button (Options of Selected Object) at the bottom of the Brushes palette (See Figure 3). From here you can change the width and proportion, the direction along x and y axis, and colorization of the brush stroke.

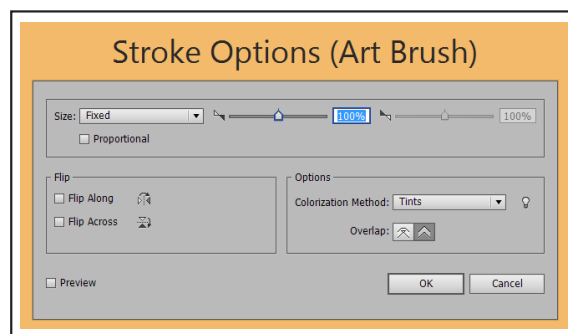




FIGURE 3 – STROKE OPTIONS

2.) Drawing Strokes with the Paintbrush Tool

You can easily create lines and apply brush strokes simultaneously by using the Paintbrush tool and applying a brush as you draw your shape.

1. Select the Paintbrush tool  in the Toolbox.
2. Select a Brush in the Brushes palette, a Brush Library, or the Control palette for the Paintbrush.
3. Draw your shape.
4. Notice that a dotted line follows your pointer as you create your path. The brush effect will not be displayed until you complete the path by letting up the mouse button.
5. If you want to create a closed shape, hold the Alt key down before you let up the mouse button. Your cursor will change to display a circle next to the paintbrush . When you release the mouse button, the point where your cursor is will be connected directly to the starting point of your path (See Figure 4).

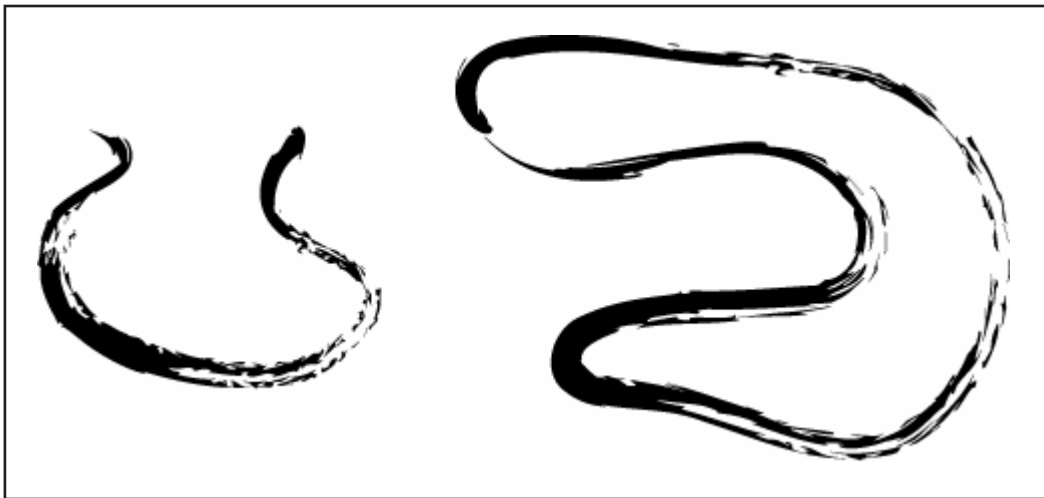


FIGURE 4 – AN OPEN SHAPE (LEFT) AND A CLOSED SHAPE (RIGHT)

As you draw with the Paintbrush tool, Illustrator creates anchor points to define your path. You can determine the complexity of the path and the number of anchor points by setting the Paintbrush options before you create your path. To access Paintbrush options, double-click the Paintbrush tool in the Toolbox (See Figure 5).

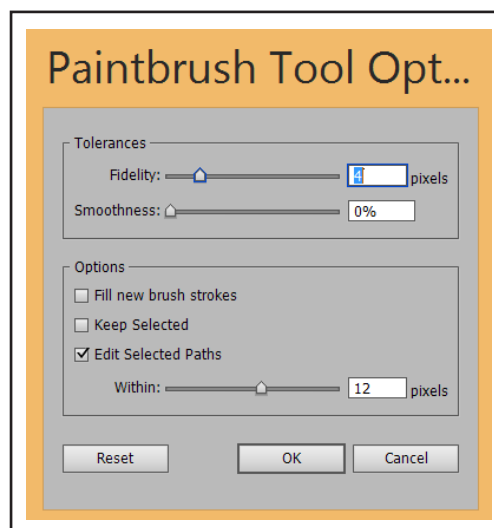


FIGURE 5 – PAINTBRUSH TOOL OPTIONS

PAINTBRUSH TOOL OPTIONS

Fidelity controls how far you have to move your mouse or stylus before Illustrator adds a new anchor point to the path. For example, a value of 2.5 means that tool movements of less than 2.5 pixels aren't registered.

Fidelity can range from 0.5 to 20 pixels; the higher the value, the smoother and less complex the path.

Smoothness controls the amount of smoothing that Illustrator applies when you use the tool. Smoothness can range from 0% to 100%; the higher the percentage, the smoother the path.

Fill New Brush Strokes applies a fill to the path. This option is most useful when drawing closed paths.

Keep Selected determines whether or not Illustrator keeps the path selected after you draw it.

Edit Selected Paths determines whether or not you can change an existing path with the Paintbrush tool.

Within: _ pixels determines how close your mouse or stylus must be to an existing path in order to edit the path with the Paintbrush tool. This option is only available when the Edit Selected Paths option is selected.

Editing Paths with the Paintbrush Tool

You can use the Paintbrush tool to extend a brushed line or change the shape of a line between the existing end points.

To adjust the shape of a brushed line after you finish drawing it:

1. Select the line.
2. Position the Paintbrush tool on the line.
3. Drag until the line is the desired shape.

You can also use the Direct Selection tool to reposition anchor points and Bezier curves just as with any other shape. The brush stroke will be modified as the shape is edited.

3.) Creating Custom Brushes

You can create custom brushes based on your own settings. If you are creating scatter, art, or pattern brushes, first you need to create some artwork to use to define the brush. Here are some guidelines for creating artwork to define brushes:

1. The artwork cannot contain any of the following:
 - gradients
 - blends
 - other brush strokes
 - mesh objects
 - bitmap images
 - graphs
 - placed files
 - masks
2. For art and pattern brushes, the artwork cannot contain type. In order to use type, you must first outline the type (**Type > Create Outlines**) and then create a brush with the outline.
3. For pattern brushes, create up to five pattern tiles (depending on the brush configuration), and add the tiles to the Swatches palette. (*See To create pattern swatches*).

Creating Brushes

1. For scatter and art brushes, you must first select the artwork you want to use.
2. Click the New Brush button at the bottom of the Brushes palette
----- or -----
3. Drag the selected artwork to the Brushes palette.
4. Next, select the type of brush you want to create (Calligraphic, Scatter, Art, or Pattern).
5. Click OK.
6. This will open the Brush Options dialog box.
7. Enter a name for the brush and set brush options (See Below).

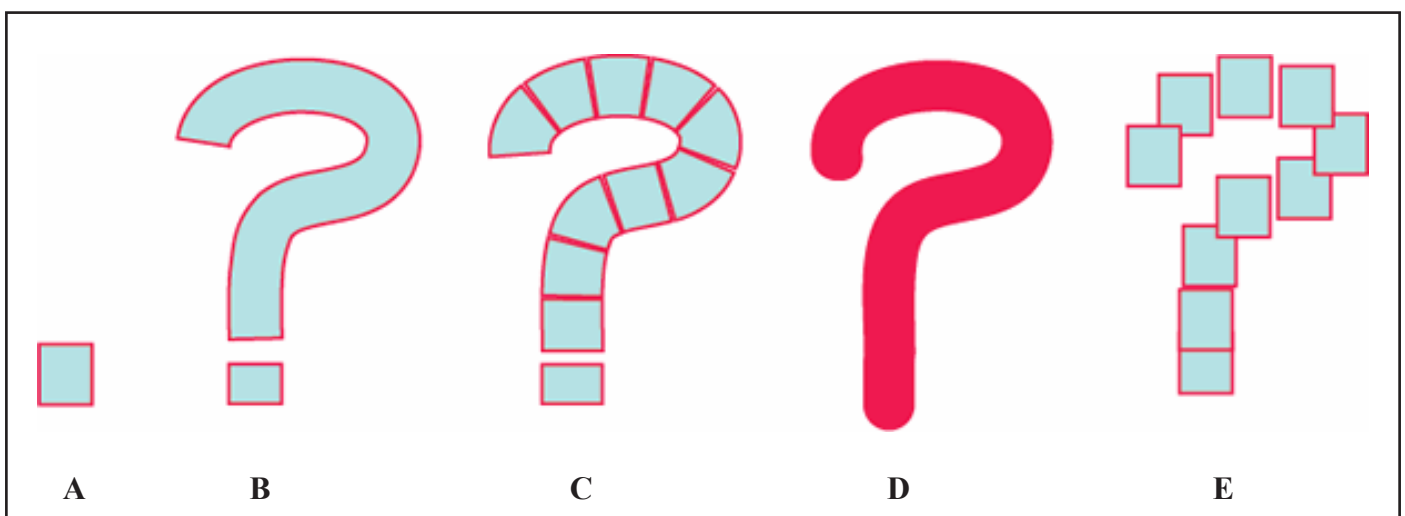


FIGURE 6 – ORIGINAL OBJECT (A) USED TO CREATE BRUSHES AND OBJECTS DRAWN USING ART BRUSH (B), PATTERN BRUSH (C), CALLIGRAPHIC BRUSH (D), AND SCATTER BRUSH (E)

BRUSH OPTIONS

Calligraphic Brushes

- **Angle** determines the angle of rotation for the brush.
- **Roundness** determines roundness of the brush. The higher the value the rounder the brush.
- **Diameter** determines the diameter of the brush.

The pop-up list to the right of each option lets you control variations in the shape of the brush. Here are a few examples:

- **Fixed** creates a brush with a fixed angle, roundness, or diameter.
- **Random** creates a brush with random variations in angle, roundness, or diameter.
- **Pressure** creates a brush that varies in angle, roundness, or diameter based on the pressure of a drawing stylus. *(Note: This option only works if you have a graphics tablet).*

SCATTER BRUSHES

- **Size** controls the size of the objects.
- **Spacing** controls the amount of space between objects.
- **Scatter** controls how closely objects follow the path independently on each side of the path. The higher the value, the farther the objects are from the path.
- **Rotation** controls the angle of rotation of the objects.
- **Rotation Relative** To sets the angle of rotation for scattered objects relative to the page or the path.

The pop-up list to the right of each option lets you control variations in the shape of the brush. Here are a few examples:

- **Fixed** creates a brush with a fixed size, spacing, scattering, and rotation.
- **Random** creates a brush with random variations in size, spacing, scattering, and rotation.
- **Pressure** creates a brush that varies in angle, roundness, or diameter based on the pressure of a drawing stylus. Note: This option only works if you have a graphics tablet.

ART BRUSHES

- **Direction** determines the direction of the artwork in relation to the line. Click an arrow to determine which side of the art is the end of the stroke.
- **Width** adjusts the width of the art relative to its original width.
- **Proportional** preserves proportions in scaled art.
- **Flip Along or Flip Across** changes the orientation of the art in relation to the line.

PATTERN BRUSHES

- **Tile buttons** let you apply different patterns to different parts of the line. Click a tile button for the tile you want to define, and select a pattern swatch from the scroll list. Repeat to apply pattern swatches to other tiles as desired. Note: The pattern tiles must be added to the Swatches palette before you set pattern brush options.
- **Scale** adjusts the size of tiles relative to their original size.
- **Spacing** adjusts the space between tiles.

- **Flip Along or Flip Across** changes the orientation of the pattern in relation to the line.
- **Fit** determines how the pattern fits on the line:
 1. *Stretch to Fit* lengthens or shortens the pattern tile to fit the object.
 2. *Add Space To Fit* adds blank space between each pattern tile to apply the pattern proportionally to the path.
 3. *Approximate Path* fits tiles to the closest approximate path without changing the tiles.

MODIFYING BRUSHES AND BRUSHED LINES

Illustrator makes it easy to modify brushes and even gives you the option to update any artwork in the current document that brushed paths using the modified brush.

1. Double-click the brush in the Brushes palette. Set the brush options and click OK.
2. If the brush has been used in the current document, you will be prompted to Apply the changes to existing strokes or Leave the existing strokes unchanged.
3. To change the artwork used by a scatter, art, or pattern brush, drag the brush into your artwork and make the changes you want. Then Alt-drag the modified brush onto the original brush in the Brushes palette.

To modify a brushed line without updating the corresponding brush:

1. Select the line or object.
2. Click the Stroke Options button (Options Of Selected Object) in the Brushes palette.
3. Set the options and click OK.
4. This will modify the stroke of the current object but leave the brush and other instances unchanged.

4.) Transforming Objects

Transforming encompasses scaling, rotating, shearing, reflecting, and moving objects. You can transform objects using several methods:

1. **The Transform palette**
2. **Object > Transform** commands
3. Specialized tools (such as the Scale tool, Rotate tool, and Shear tool)
4. Bounding boxes

Sometimes you may want to repeat the same transformation several times, especially when you are copying objects. **Object > Transform Again** lets you repeat a move, scale, rotate, reflect, or shear operation as many times as you want, until you perform a different transform operation.

You can use the Info palette to view the current dimensions and position of your selection as you transform it.

The Transform Palette

The Transform palette (**Window > Transform**) displays information about the location, size, and orientation of selected objects (See Figure 7).

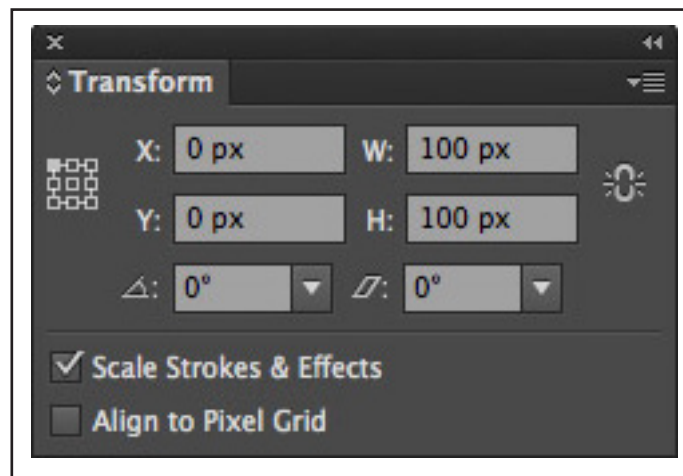


FIGURE 7 – THE TRANSFORM PALETTE

By typing new values, you can modify the selected objects or their pattern fills, or both. You can also change the transformation reference point and lock the object's proportions. All values in the palette refer to the bounding boxes of the objects except for the X and Y values, which refer to the selected reference point.

Scaling Objects

Scaling an objects enlarges or reduces them horizontally (x axis), vertically (y axis), or both. Objects scale relative to a reference point which varies depending on the scaling method you choose. You can change the default reference point for most scaling methods, and you can also lock the proportions of an object.

Numeric Scaling

Select an object and use the Transform palette or Control palette to enter the desired values.

THE SCALE TOOL

Select an object and choose the Scale tool from the Toolbox.

1. To scale relative to the object's center point, drag anywhere in the document window until the object is the desired size.
2. To scale relative to a different reference point, click where you want the reference point to be in the document window, move the pointer away from the reference point, and then drag until the object is the desired size.
3. To maintain the object's proportions as it scales, hold down Shift as you drag diagonally.
4. To scale the object along a single axis, hold down Shift as you drag vertically or horizontally.
5. For finer control over scaling, start dragging farther from the reference point.

Bounding Boxes

When an existing object is selected, Illustrator displays a Bounding Box around the object. The bounding box contains eight handles (one on each corner and one in the middle of each span) which allow you to re-size the object vertically, horizontally or diagonally by simply dragging on the appropriate handle.

When you resize by dragging any of the bounding box handles, you can change the relationship of the horizontal and vertical scales, or distort the shape. If you wish to constrain proportions while scaling hold the Shift key while dragging from any of the handles.


Scaling Strokes and Effects

By default, an object's stroke and effects are not scaled with it. If you want to set Illustrator's default to scale strokes and effects along with objects, choose **Edit > Preferences > General** and select Scale Strokes & Effects. If you want to choose whether to scale strokes and effects on a case-by-case basis:

1. The Transform palette menu gives you the option to Scale Strokes and Effects.
2. Choose **Object > Transform > Scale** to open the Scale dialog box. You can check or uncheck Scale Strokes and Effects.

Rotating Objects

BOUNDING BOX

As mentioned earlier, when an existing object is selected, Illustrator displays a Bounding Box around the object. If you move your cursor just outside one of the bounding box anchors it will display a curved double-headed arrow . Click and drag with this cursor to rotate the object.

FREE TRANSFORM TOOL

The Free Transform Tool can be used to rotate an object in much the same way as the Bounding Box can. The big difference is that your cursor can be anywhere outside the object's bounding box to get the curved rotate cursor rather than immediately outside one of the bounding box anchors.

ROTATE TOOL

In addition to using the Bounding Box or the Free Transform tool, the Rotate tool can be used to easily rotate objects. The big advantage of using the Rotate tool is that you can determine the axis of rotation or rotation point.

1. With the Rotate tool selected, click once on the object at the point you would like the object to spin on.
2. You will see a small cross-hairs displayed on the object where you clicked. This is the rotation point (See Figure 8).
3. With your cursor anywhere outside the object, drag to rotate the object around the rotation point.

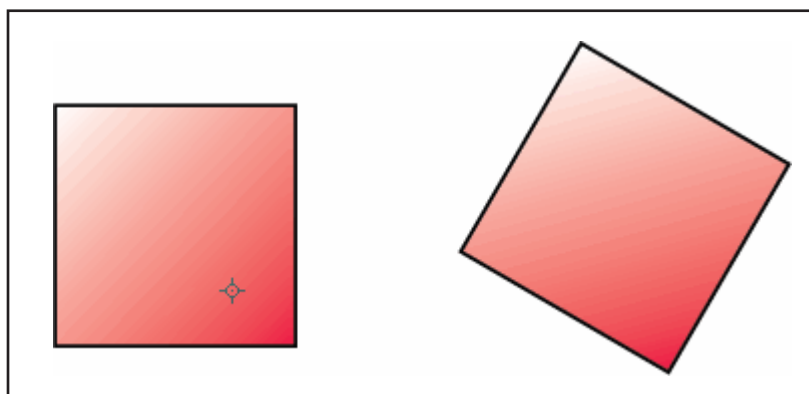


FIGURE 8 – AN OBJECT’S ROTATION POINT AND THE RESULTING ROTATION

NUMERIC ROTATION

1. **Object > Transform > Rotate** will open the Rotate dialog box where you can type in an angle of degree for your rotation.
2. Use the Rotate box in the Transform palette to type in a rotation angle.

SHEARING OBJECTS

Shearing an object slants or skews the object along the horizontal or vertical axis, or a specified angle that’s relative to a specified axis. Objects shear relative to a reference point which varies depending on the shearing method you choose and can be changed for most shearing methods. You can lock one dimension of an object as you shear it, and you can shear one object or multiple objects simultaneously.

The Shear Tool

The Shear may be hidden under the Scale tool in the Toolbox. To use the Shear tool:

1. Select one or more objects.
2. To shear relative to the object’s center, drag anywhere in the document window.
3. To shear relative to a different reference point, click once anywhere in the document window to set the reference point, then move the pointer away from the reference point and drag until the object is at the desired slant.
4. To shear along the object’s vertical axis, drag anywhere in the document window in an up or down direction. To constrain the object to its original width, hold down Shift while dragging.
5. To shear along the object’s horizontal axis, drag anywhere in the document window in a left or right direction. To constrain the object to its original height, hold down Shift.

Free Transform Tool

To shear using the Free Transform tool, start dragging the middle-left, middle-right, top-middle, or bottom-middle bounding-box handle, and then hold down Ctrl+Alt as you drag. You can also hold down Shift to constrain the object to its original width.

Numeric Shearing

1. Enter a value in the Shear text box in the Transform Palette.
2. **Object > Transform > Shear**. In the Shear dialog box establish values for the angle and axis.

REFLECTING OBJECTS

Free Transform Tool

Use the Free Transform tool to drag a handle of the bounding box past the opposite edge or handle until the object is at the desired level of reflection. Hold Shift to maintain proportions.

The Reflect Tool

You can use the Reflect tool to flip an object across an invisible axis that you determine.

1. Select an object.
2. Select the Reflect tool from the Toolbox (it may be hidden under the Rotate tool).
3. Click anywhere in the document window to set one point of the reflection axis.
4. The pointer will change to an arrowhead.
5. Click to set the second point of the invisible axis. When you click, the selected object flips over the defined axis.
6. To reflect a copy of the object, hold down Alt when you click to set the second point.
7. Adjust the axis of reflection by dragging instead of clicking for the second point. Shift-drag to constrain the angle by **45°**. As you drag, the invisible axis of reflection rotates around the first point you clicked. Release the mouse button when you have the axis where you want it.

Numeric Reflecting

1. Select an object.
2. **Object > Transform > Reflect** or double-click the Reflect tool in the Toolbox.
3. This opens the Reflect dialog box.
4. Set the axis or specific angle to reflect across.
5. Click OK

Positioning Objects

The easiest way to position an object at a specific location is to type values in the X and Y coordinate boxes either in the Transform palette or in the Control palette. Note that this sets the position on the object based on the selected registration point. For example, if the registration point is set to the center of an object and you enter a value of 200 pixels for X and 100 pixels for Y, the center of the object will be positioned at 200 and 100 pixels respectively. If you set the registration point to the top left of the object before entering these values, then the top left corner of the object will be positioned at the same spot.

Move Precisely

To move an object a specific distance in a given direction, use the Move command:

1. Select an object.
2. Choose **Object > Transform > Move**.
3. The Move dialog box will open.
 - When an object is selected, you can also double-click the Selection, Direct Selection, or Group Selection tool to open the Move dialog box.
4. Enter values for the Horizontal and Vertical, or Distance and Angle boxes.
5. Negative numbers will move the object down and positive numbers will move it up. Horizontal values are trickier. See Figure 11 for a diagram of angles and directions of movement.

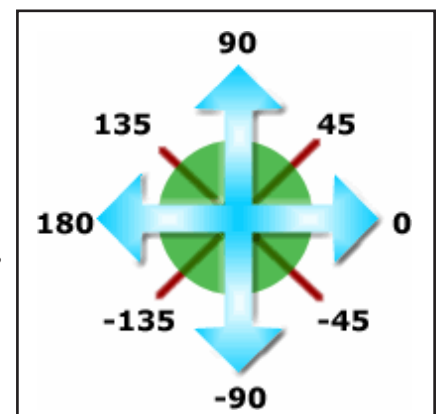


FIGURE 9 – ANGLE DIRECTIONS

5.) Distorting Objects with Effect

Illustrator has a number of filter options which can also be used to change the shape of objects. These can be found under the Distort option of the **Effect menu**. Note that under the **Effect menu**, there are two Distort options: one for Illustrator Filters and one for Photoshop Filters. The Photoshop filters are raster-based and use the document's raster effects settings when you apply them to vector objects. This makes them somewhat memory intensive and they are only available for documents in RGB color mode. We will focus on the Illustrator Effects to see how they can be used to reshape our objects.

Applying Distort Filters

1. Select an object and choose Effect > Distort & Transform > Pucker & Bloat.
2. The Pucker & Bloat dialog box will appear (See Figure 10).
3. Adjust the slider or type in a value to create the desired effect.
 - Check the Preview box to view your changes before committing them.
4. Click OK.

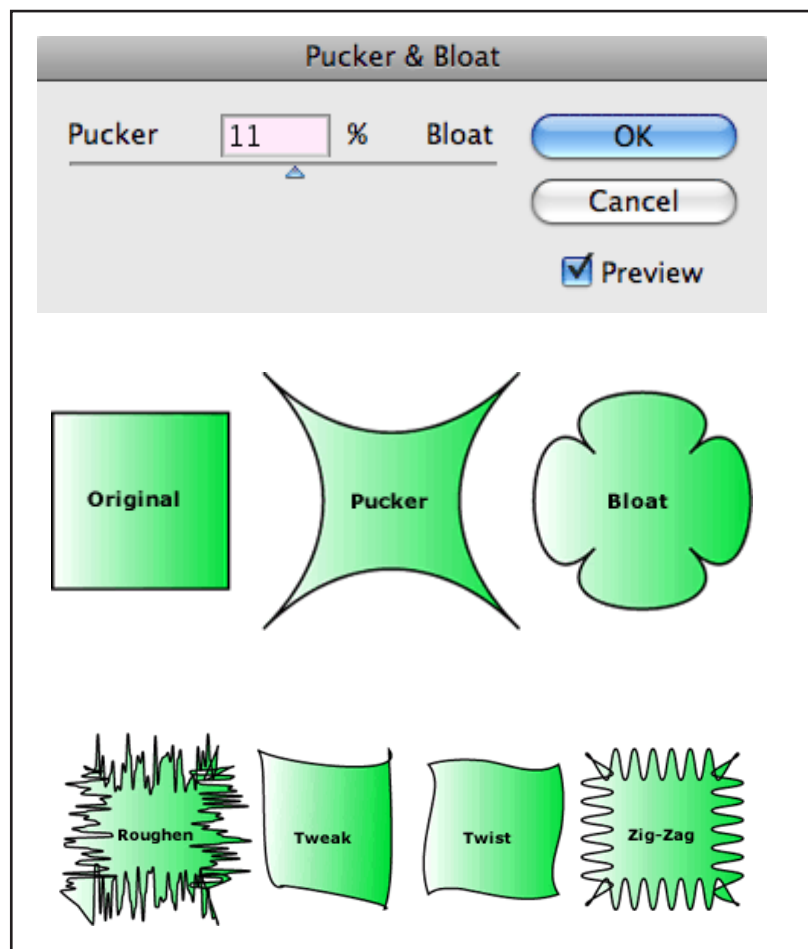


FIGURE 10 – PUCKER & BLOAT
AND DISTORT EFFECT SAMPLES