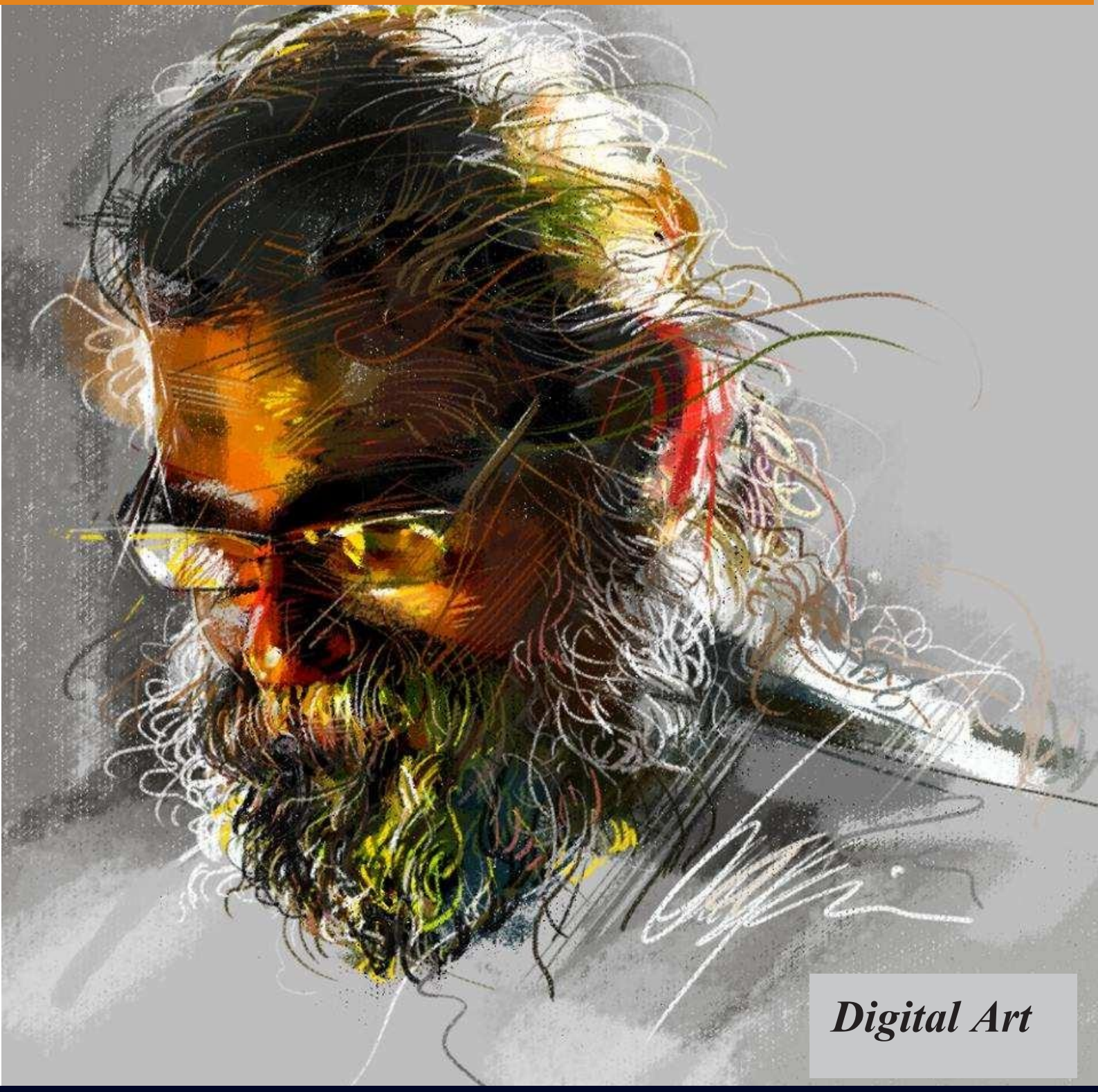
Yashwantrao Chavan
Maharashtra Open University

ज्ञानगंगा घरोघरी



Digital Art

UGP01 : B. Sc. in Media Graphics and Animation

MGAE102 : Adobe Illustrator

YASHWANTRAO
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UGP01: B.Sc. in Media Graphics and Animation
2025 NEP Pattern: Course code: MGAE102

ADOBE ILLUSTRATOR

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MGAE 102: Adobe Illustrator

Credit 1:

UNIT 1 UNDERSTANDING ILLUSTRATOR
UNIT 2 DRAW WITH THE PENCIL AND BRUSH TOOLS

Credit 2:

UNIT 3 DRAW WITH THE PEN TOOL
UNIT 4 WORK WITH SHAPES

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INTRODUCTION

Adobe Illustrator is an Vector based imaging software. With the help of type effects, user can create wonderful designs and compositions in Illustrator. In this book you will find techniques by which a user can manipulate basic shapes and can create graphical elements or objects which can be used for publishing or advertising.

Illustrator has a very important role in the world of digital graphics. In this book you will learn tools like path, anchor points, fills, strokes, palettes or other tools which plays vital role which working with the Illustrator. Tool box has different types of tools which are distinguished according to their functionalities. This graphical program has tools for selection, drawing, gradients, meshes or tools that are meant to choose colors and make use of paint buckets, zooming, and changing the object's colors or strokes.

Adobe Illustrator allows to create a new document, by following the options: from a new document profile or from a template. If Illustrator software is not running, that means even if Illustrator is close then even you can open a new document & that is one of the option that make this software more advance than other Vector based graphic softwares. The most required feature in Illustrator has finally added & that is "multiple artboards". Multiple artboards can be incorporated in a single document, depends on artboards positions and sizes. While using the colors, it is recommended to go for preset color settings, these presets has been tested and approved by Adobe Systems. If the final result has been well determined or anticipated than only it is safe to change the specifications and the user must have a proper knowledge about the changes that is applied.

If user wants to do work in a traditional way like with pencil and paper, "the pencil tool" allows that also. It's a good tool which allows to sketch a artwork with a hand-drawn experience. A path drawn which can be easily modified with the help of anchor points that has been created while sketching with pencil tool. The user does not has to worry about the locations of these anchor points. After finishing the artwork or sketch user can modify these anchor points. Special effects or Visual effects can also be implemented in the artwork with the help of these tools: calligraphic, scatter art, or pattern brushes.

The pen tool is a very important with immense capabilities in Illustrator. User can organize anchor point as per the requirement in this tool. User can define it's own anchor points or can change the curve shape with these anchors. This can be done simply by manoeuvring the two control points associated with each other. The pen tool is an crucial tool for even the most basic illustration and design.

With Illustrator, basic shapes can be modified or altered to create more complex shapes. With the help of Transform panel one can transform shapes like rectangles, ellipses, polygons, straight lines, and flares into different shapes or designs. This tool aligns various ways for cutting, dividing and trimming objects, clipping masks and blending objects.

The Objects option, in the Transform panel, has specific options for rotating, flipping, moving, scaling, reflecting or shearing of an object. With the help of Transform Again command of the same panel you can repeat one transformation by multiple times, it is very useful while copying objects. Operations like move, select, reflect, shear or rotate can be repeated as many times as desired or needed, by using this command.

In Illustrator Type features allows us to merge artwork with the text to create a combination of text and a shape or along a path or letterforms. Strokes and fill of the text or types can be defined. To format characters or paragraph Illustrator software has a number of techniques. Text or Paragraphs can be aligned and even hidden characters can be displayed at the time of formatting the text.

If you has an artwork like bitmap images or even vector drawings that also can be imported in Adobe Illustrator. This function makes it easy to share files with other design applications and smoothly create artwork for multiple uses, because Illustrator provides an integrated support to a wide range of file formats by importing, exporting or copying and pasting.

By using the options in the Effects and the Appearance and Graphic Styles panel user can change the look of any object, layer or group. An object can be divided down into several parts and changes can be applied to that particular part or parts . Effects except SVG filters has been included in Illustrator CC and that is the major difference from the previous versions. The earlier versions had effects and filters.

In brief, Adobe has significantly upgraded the segregation mode feature in CC version, makes it possible to separate individual paths. Instead in the previous versions allows to segregate groups only. A simple double-click lets you edit an object easily, instead of lock and unlock objects frequently while working with composite files.

This book has been written and design so that user can do self-learning. Every unit has an 'Introduction' at the begins, followed by the `Unit Objectives' and then the details of the topic of that particular unit. To help the learner understand the concepts taught images have been provided interspersed with the text. At the end of the unit `Summary' and `Key Terms' are present to help students revise the contents. To evaluate own understanding of the subject `Check Your Progress' and `END QUESTIONS ' sections in each unit has been provided.

UNIT 1 UNDERSTANDING ILLUSTRATOR

Structure

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1.1 Unit Objectives
1.2 Illustrator's Role in the World of Digital Graphics
1.3 Get Your Hands around Illustrator's Curves
1.3.1 Paths, Anchor Points and Fills
1.3.2 Use Illustrator with Other Programs
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1.5.17 Scissors Tools
1.6 Fills and Views
1.7 Summary
1.8 Key Terms
1.9 END QUESTIONS
1.10 Further Reading

1.0 INTRODUCTION

Illustrator is an application of group of graphic design, video editing and web development applications known as " the Adobe Creative Suite (CS)" created by Adobe Systems. The other graphic design applications in Adobe CS are Photoshop and InDesign. Both of these applications also support file types or technologies like: PDF, PostScript and Flash. The latest version, Adobe Creative Suite 6 (CS6), was launched at a release event on April 23, 2012, and released on May 7, 2012.

Version 1 of Adobe Illustrator 88

This was first created as an in-house software for the development of fonts. It had a postscript file format'. In 1986 for commercialization of the Apple Macintosh Illustrator was developed. Adobe Illustrator is accompanied or we can also say as supported by Adobe Photoshop, which is basically for

digital photo manipulation and photorealistic graphics or images of computer illustration. As the software was further developed and Illustrator version 3, was able to provides results in the typesetting and logo graphic areas of design. The first version of Illustrator was referred to as 'The Adobe Illustrator'. In 1988, with many new features and tools which expand its limits, an improved version, Illustrator 88, was released .

• Versions 2-5

In the first decade of its development, Adobe developed Illustrator only for Macintosh. But it was later realized that it could support other platforms with equal ease. Hence, in the early 1990s, Adobe released new versions of Illustrator for other platforms such as, NeXT, Silicon Graphics IRIX and Sun Solaris. These new versions, however, got very little acceptance in the market and had to be pulled back. In the following years the software did not got much response . In early 1989 , the first version of Illustrator version 2.0 was released for Windows, but it was not successful.

The next version for Windows, version 4.0, again did not do well and it was almost like Illustrator 1.1 whereas the Macintosh 3.0 version was much better. Till now compare with CorelDraw the illustration for Windows was not as good. In version 4.0, editing in a preview mode feature was first introduced. This feature, however, was developed for the Macintosh's version 5.0 only in 1993.

• Versions 6-10

In the year 1996 Illustrator's version 6.0 was introduced with many important changes had been made in its UI or user interface. The major changes in path editing and converging were same as like in Adobe Photoshop. It also supports plug-ins like Photoshop. Version 7.0 of Illustrator, which was launched in 1997, had connectors of the Macintosh version for Windows. Designers could finally standardize on illustrator. Illustrator's version 9.0 had an additional tracing feature, which was very similar to the one in Streamline, one of Adobe's earlier products. As the Internet technology upgraded, many features of Photoshop and Illustrator could be compared and the latter was then upgraded to be used in web publishing, PDF, to preview rasterization and SVG.

(https://en.wikipedia.org/wiki/AdobeIllustrator)

.Version CS (CS-CS6)

Illustrator CS was the first version to include 3-dimensional capabilities allowing users to extrude or revolve shapes to create simple 3D objects.

Illustrator CS2 (version 12) was available for both the Mac OS X and Microsoft Windows operating systems. It was the last version for the Mac which did not run natively on Intel processors. Among the new features included in Illustrator CS2 were Live Trace, Live Paint, a control palette and custom workspaces. Live Trace allows for the conversion of bitmap imagery into vector art and improved upon the previous tracing abilities. Live Paint allows users more flexibility in applying color to objects, specifically those that overlap.

CS3 included interface updates to the Control Bar, the ability to align individual points, multiple Crop Areas, the Color Guide panel and the Live Color feature among others. CS3 was released March 27, 2007.

CS4 was released in October 2008. It features a variety of improvements to old tools along with the introduction of a few brand new tools acquired from FreeHand. The ability to create multiple artboards is one of CS4's main additions from FreeHand. The artboards allow you to create multiple versions of a piece of work within a single document. Other tools include the Blob Brush, which allows multiple overlapping vector brush strokes to easily merge or join, and a revamped gradient tool allowing for more in-depth color manipulation as well as transparency in gradients.

CS5 was released in April 2010. Along with a number of updates to existing functionality, it's new features include a Perspective Grid tool taken from FreeHand, a Bristle Brush (for more natural and painterly looking strokes) and a comprehensive update to strokes, referred to by Adobe as "Beautiful Strokes".

Version CS6 was released on April 23, 2012 is the sixteenth generation of Adobe Illustrator where many more features and several bug fixes such as a new user interface, layer panels, RGB codes, and color ramp to increase performance. CS6.

(https://en.wikipedia.org/wiki/AdobeIllustrator)

1.1 UNIT OBJECTIVES

After studying this unit, you will be able to:

- Get an overview of of Adobe Illustrator
- Elaborate how to use different tools
- Explain how to handle different files types, templates and use of Adobe Illustrator with other software.

1.2 ILLUSTRATOR'S ROLE IN THE FIELD OF DIGITAL GRAPHICS

Adobe Illustrator is a vector graphics editor, which has been designed, developed and marketed by Adobe Systems. The latest version, Illustrator CS6, is the sixteenth generation in the product line. Unique and eye catching graphics can be created and edited with the help of Adobe Illustrator. These creative graphics has be used in various fields of graphic application like, print, online, hoarding, logotypes, posters, video, cell phone etc. In Illustrator, with the use of anchor points user can define the shape of any object or segment. By using different options present in the Tools panel, user can create, select and modify objects or shapes. User can also do typing, painting or drawing, selection, edition and transform the images.

1.3 GET YOUR HANDS AROUND ILLUSTRATOR'S CURVES

In general, Adobe Illustrator is compared with Adobe Photoshop, where as Photoshop is an applications which is used mostly in digital photography. With the help of Photoshop user can change an image to give it the perfection for a professional photographer. With the help of this application, pictures can be improved by either adjusting colors and shades or by changing their dimensions. This

makes a picture look more eye catchy than the original one using a camera meant for digital images or pictures.

The images produced by Photoshop are resolution based in Bitmap format. The only limitation with Adobe Photoshop is that this application always needs a base image which can be modified as per requirement. In terms of Vector or Drawing tools, Photoshop is as efficient as compared with Adobe Illustrator. Adobe Illustrator is altogether a different software and is capable of producing very distinctive graphics. Graphics created in Adobe Illustrator can be used online, in print, within video and even on .11 phones. Even some graphics which can be created using Adobe Illustrator cannot be created using Photoshop only with that ease and proficiency. from simple graphics, icons and text to complex and multilayered illustrations can be created with the help of Illustrator. All of these can be used to present a multimedia presentation or within a page layout.

Vectors, which define curves and lines, are the main graphics created in Illustrator. In vector graphics, geometric features of an object are defined by line segments and anchor points. These defining vectors are called paths. As Vector objects or shapes are not based on resolutions, they can be modified or extended without any loss of clarity or quality. When these objects or shapes are resized, the outlines do not get blurred either for a printer or for a PDF application or an application where vector graphics are being used. That is why any graphics created in Illustrator can be used as output to fit from a postage stamp to a billboard.

Overall we can say, vector graphic is the most appropriate tool to transform or resize artwork for hoardings and logotypes, to various sizes.

1.3.1 Anchor Points, Paths and Fills

Anchor points have direction points, helps to define various directions in which the anchor points can be moved. The shape of a path can be modified by dragging the anchor point as needed (see Figure 1.1).

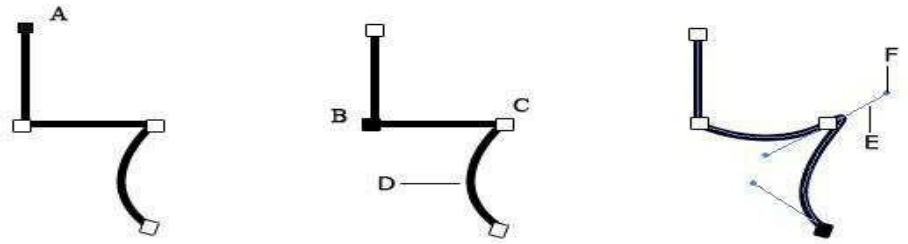


Fig. 1.1 Different parts of a Path (a) selected (solid) endpoint, (b) selected anchor point, (c) unelected anchor point, (d) curved path segment, (e) direction line, (f) direction point.

In Illustrator 'path' is a line, either straight or curved drawn. A Straight or curved line which links two points is called 'segments'. A straight or a wavy line make an open path whereas stack or a square make a closed path . The extreme ends of any path are called anchor points. They are named so because they actually help to decide the shape of the segment. For example, if you are holding thumb pins with a wire tied to them. The place where you fix the thumb pin will decide the shape of your

wire. That is, the more curves you have, the more thumb pins, or anchor points you will need. For example, in a straight line you need less anchor points or even only two points whereas if a wavy path is to be drawn, that there will be anchor points according to the number of curves required on that path.

There are two Anchor points in Corner and smooth points. A corner point is a point on a path where its direction changes abruptly. On the other hand, paths can be joined to form continuous curves at smooth points. Thus with a combination of both these anchor points, paths can be drawn as shown in Figure 1.2.

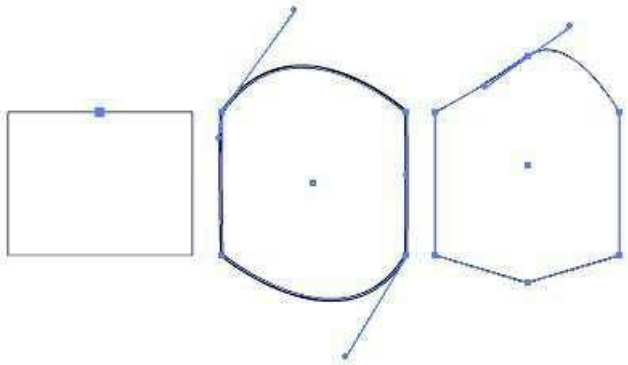


Fig. 1.2 Points on a Path



Fig. 1.3 Corner Points

The outline of a path is called as a 'stroke'. A stroke can be thick, coloured, or dashed patterned. Fill area is the inner area where single or gradient colours can be applied where path can be open or closed . The properties of the stroke and fill of a path or shape can be changed at any time or stage.

Direction handles will be activated and displayed, when user selects a segment or any anchor point connecting curved segments. These consist of direction lines whose extremities are known as direction points. The dimensions of curves would be varied with the change in length and angle of the direction lines. The direction points need to be moved, to reshape curves, which in turn would move the direction lines (see Figure 1.4).

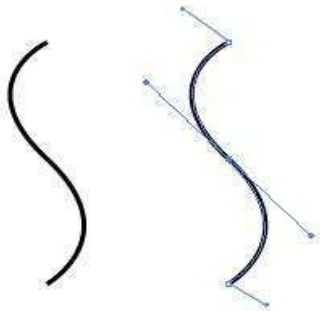


Fig. 1.4 (left) Curved Segments connected by Anchor Points

(Right)Direction Lines Seen when the curve is Selected

The length of each direction line defines the height and depth of the curve. The slope of the curve is depends on the angle of the direction line. Direction lines are peripheral to the segment at the anchor points. A tangent is defined as a line perpendicular to the radius of the curve.

To make the corners flawless, the direction lines at a corner point gets various angles. The directions of the lines depend on the number of segments joined in a corner point. When a user moves corner points of a direction line in a certain direction, then the corresponding curve is confirmed to be on the side of the direction line. As opposed to a corner point, there are two direction lines in a smooth point that always appear as one straight line. When a direction line at a smooth point is adjusted, at the same time the curved segments conform. This is very vital for keeping the smooth curve as shown in Figure 1.5.There is option to show or hide anchor points, direction lines and direction points, by selecting the 'View option', then 'Show Edges' or 'View options' and finally the 'Hide Edges' option. A change in the size of the direction line makes changes in the slope of a curve.



Fig. 1.5 Change in the Slope of a Curve

1.3.2 Use Illustrator with Other Programs

In Adobe Illustrator an document is the space in which an artwork has been created. You can create different types of output in Illustrator. By selecting a new document, you can open a new

document and you can also select a profile of your requirement as final output. Each profile has its preset values for size, unit, resolution, orientation, transparency, and colour mode.

By default, there is one artboard for each profile, for example, instead of points pixels are used in video and film document profile. For specific devices there is specific Crop area, like NTSC DV Widescreen, should be used to create a document in the required dimensions with video-safe guides, it lays out the design for optimal viewing. It is important to select the 'Print' profile if you are going to create a artwork for print through a high-end printer. This will bring the proper effects and makes your output more appealing. For high-end printers, the 'Print Document' profile can be selected, wherein a default letter-size artboard or other preset print sizes can be selected.

Other profiles are: Web Document, Mobile and Devices Document, Video and Film Document, Basic CMYK Document and Basic RGB Document. If you want to make a web output, the Web Document preset can be used. The Mobile and Devices document can be used to create a small file size, preset for a specific mobile device. The size menu can be used to select the device. The Select Device Central option will open Adobe Device Central where the document layout can be viewed in a specified device interface.

In the Video and Film document, there are many preset video and film specific cropped area sizes available. User should always aware that the 'Artboard' option changes to crop size for this profile. As we know that Illustrator can create only square pixel files, so in video applications, were to interpret the correct size is very important, the illustrator adjusts the width and height values as per the requirement. In the basic CMYK Document, there is a default letter-size artboard as well as other sizes can also be used. This profile should be used when user needs a document that has to be sent to different types of media. User can adjust the raster effects setting manually, as per the type of media being used. The default artboard size is 800x600, in the basic RGB Document, and it also has specific sizes for web, video and print. This profile can be used for documents that are to be used in middle level printers, to be sent to the web, or used for multiple types of media.

CHECK YOUR PROGRESS

1. Which colour profile should be use for print output?

2. Adobe Illustrator uses which type of graphics ?

3. When was the Adobe Creative Suite 6 released?

1.4 AN OVERVIEW OF ILLUSTRATOR

1.4.1 Open a File

User can open files that has been already created in Illustrator and also from other applications.

To open an existing file, click on File menu> Open> Locate the file > select Open option in dialog box.

To open a recently saved file, select that particular file from `Open A Recent Item List' in the Welcome screen or click on File menu> Open Recent Files> choose the file from the list.

To open a file using Adobe Bridge, click on File menu> Browse In Bridge to open Adobe Bridge> Locate the file> select the File> Open With> Adobe Illustrator CS6.

1.4.2 Use the Window Menu to Organize Views

User can open multiple windows of a single document in Adobe Illustrator and every Window can have different view settings. For instance, one Window can be set at high zoom view doing zoomed in work on selected objects. At the same time other window can be set as less magnified for laying out the other objects on the page. And user can arrange these multiple Windows as per the requirement, this option available in Window menu. Arrange Icons option organizes minimized Windows within the program Window. Cascade displays Windows stacked from upper left to lower right of the screen in descending order. Tile option displays Windows in an edge-to-edge style.

Creating multiple views is an alternative method to create multiple Windows. Up to 25 views can be created for each document. Multiple Windows and views are different from each other in the following ways:

- With the document you can save multiple views, but you cannot save multiple Windows.
- Multiple windows can be viewed but you cannot see multiple views at a time.
- When multiple windows are open then only you can see multiple views. Changing a view modifies the current or active Window but it does not open a new window.
- User can create multiple windows and multiple by following these steps:

1. Create a new window

Choose Window > New Window

2. Create a new view

Set up as per the need and then select View > New View>define a name for the new view > click OK

3. Rename or delete a view

Select View > Edit Views

4. Switch between views

Select a view name from the bottom of the View menu.

1.4.3 Working with Palettes

User can open or close a palette by selecting or by deselecting that respective palette from the Window menu. user can access the palette by clicking on the triangle pointing right in the top right

comer of the palette. It is recommended to select any palette from the Window menu, and if you want to close the palette, Deselect that palette from Window menu.

CHECK YOUR PROGRESS

4. In Illustrator which is the command to open an existing file?

5. In Illustrator what do you mean by a document?

6. How can a user can open or close a palette?

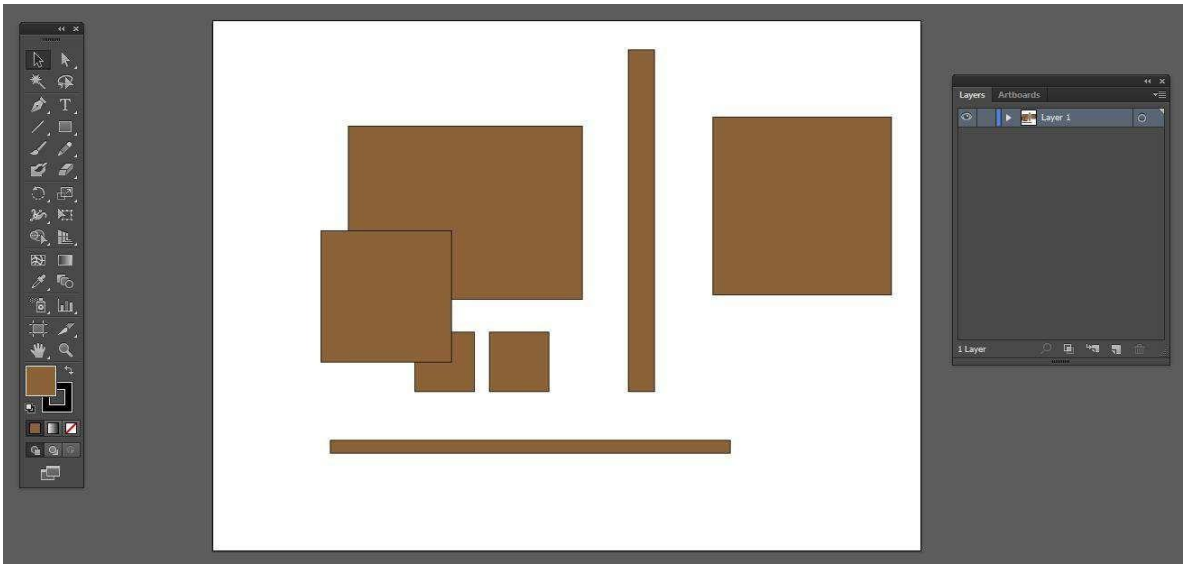
1.5 TOOLBOX IN ILLUSTRATOR

To add or contain a bitmap image in you creative, it should be an EPS file or should be saved in EPS file format and also remember to place the bitmap by using Adobe Illustrator's Place command. Adobe Illustrator supports the bitmapped images placed by following the above method. Resolution of such bitmaps can be virtually of any pixels or quality and can be up to 16.8 million colours.

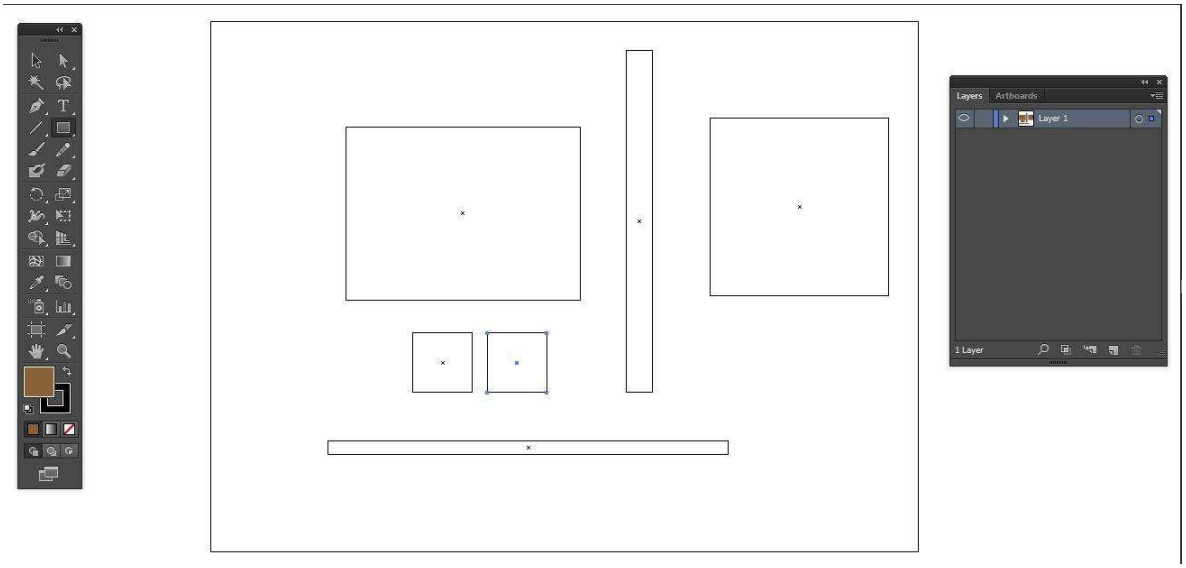
Following screenshot shows a view of Toolbox.



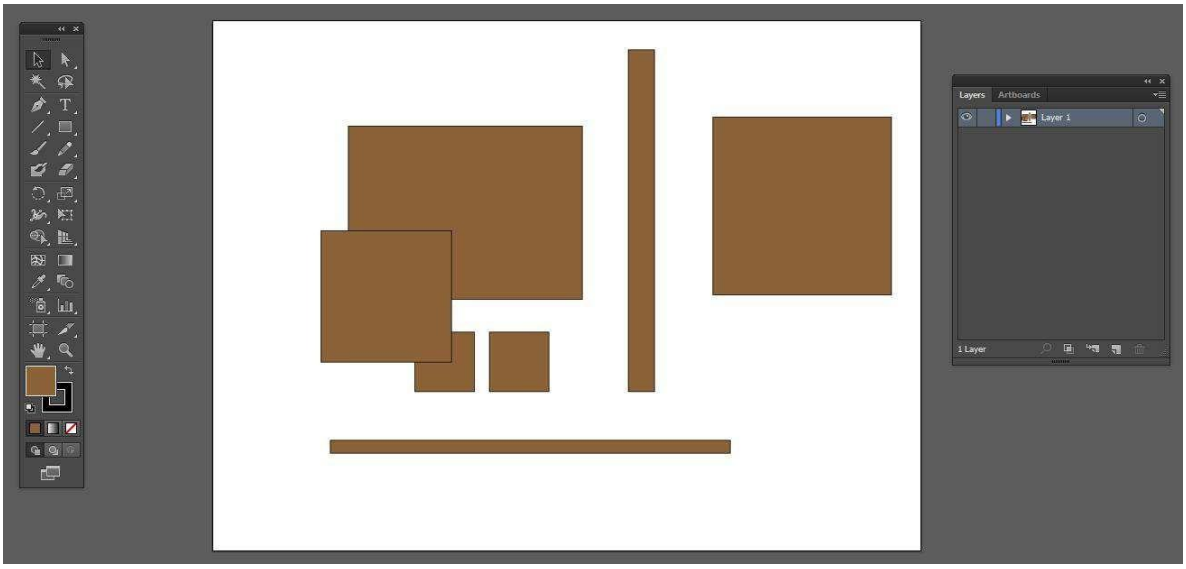
To start the use of this box, Click on the Rectangle tool to select or activate it. Click and drag mouse to create a few rectangular shapes on the workspace of Illustrator. Now while pressing down the Shift key try to draw some more rectangular shapes. Below is the screenshot of this practice.



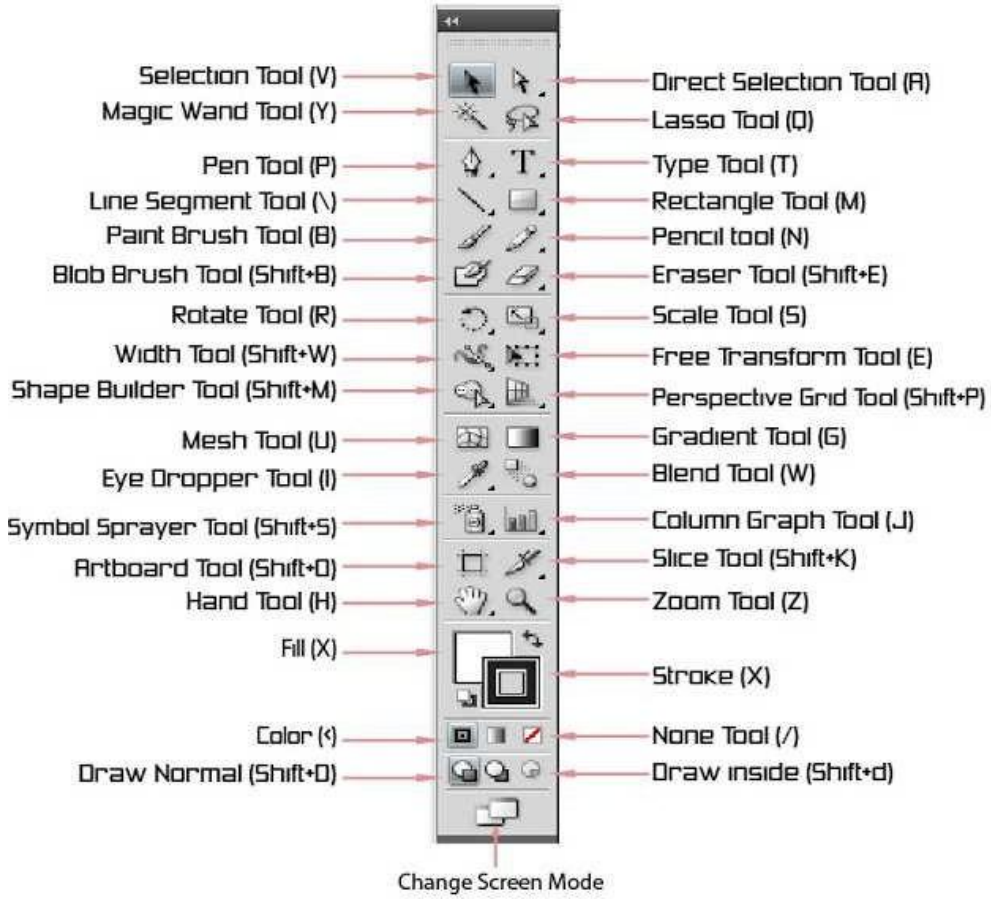
In preview mode (ctrl+y)



Edit mode (ctrl+y again)



You can check-out other tools on these rectangular shapes, following is the description of these tools:



1.5.1 Tools

By default tools that are displayed on the screen

1.5.1 Tools in Illustrator

The panel which you see on the left side of the screen is 'The Tools panel'. User can be move this panel in any direction of the screen of Illustrator by moving the title bar. User can show or hide this panel by selecting the 'Window menu' and then clicking on the 'Tools option'. A tool can be activated by clicking on the icon of that tool in the Tools panel. Some of the tools may have more other relevant tools but they are hidden. They can be activated or viewed by pressing down mouse button for a while on the triangle at the lower right corner of that tool and then selecting on the tool that to be selected. When the user is working with other application, the other method to select these tools is by holding down the Alt key for window operating system and Option in-case of Mac OS they click a tool to see and select the hidden tool.

You can also select these tools by using keyboard shortcut keys key that can be seen at the top of the tool. Then select the Move tool. Follow this step to hide tool tips. Edit >Preferences>General >Illustrator>Preferences >General option. Deselect ' Show Tool Tips' option.

In Illustrator the Tools panel has tools to create, select and modify the object. On some of the tool extra options appears by double-clicking that tool. These additional options allow selecting, typing, drawing, painting, editing and moving images.

User can also see these hidden tools by placing the mouse cursor on the visible tool. User can find out whether there is a hidden tool present or not by focusing at the right side of the tool icon. The presence of triangle at the lower end, indicates that there are hidden options for that particular tool.

If user places the cursor over the tool, a tooltip will appear with the name of the hidden tool. If user want to separate these hidden tools from the main panel, drop this panel outside the main tool by pulling the arrow which is appearing at the end of the panel. This new panel will have a title bar and a close button. By clicking the close button user can restore the new panel (below screenshots).

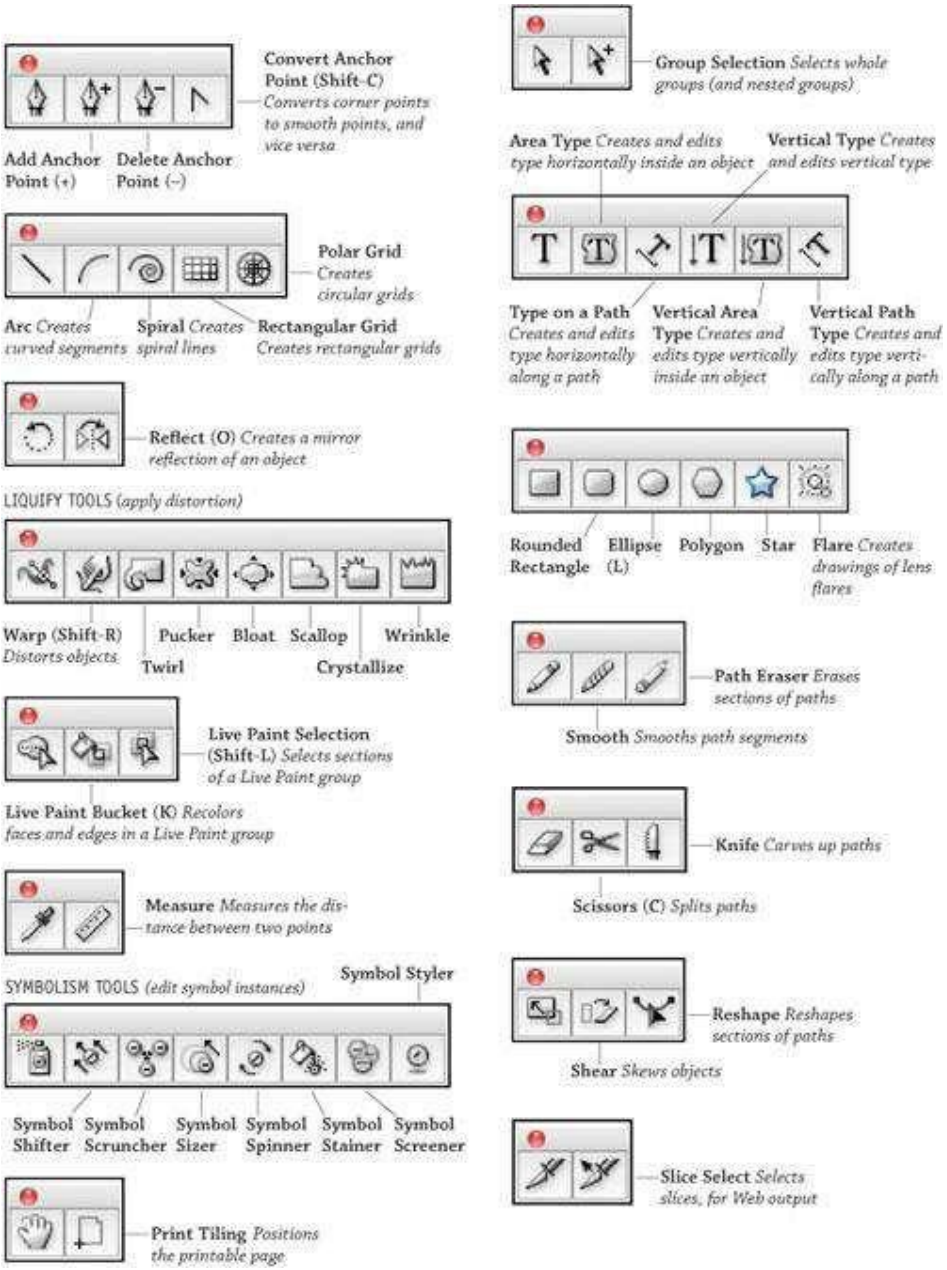


Fig 1.00: Above screenshot shows (A) Panel showing Tools, (B) Panel for Active Tools, (C) Panel to separate Hidden Tools, (D) Triangle showing Hidden Tools, (E) Cursor showing name of the Tool and its Shortcut.

Each tool has its own icon that can be seen when the tool gets activated. To provide more accuracy while working on a detailed artwork, almost every tool, cursors can be provisioned by switching, which can be seen as cross hairs centered on the hotspot.

To select follow these steps:

For Window O/S

Edit menu > Preferences > General

For MAC O/S

Choose Illustrator > Preferences > General .

Now select ‘Use Precise Cursors’. ‘Caps Lock’ option on the keyboard can be used as shortcut key for this option.

Selection tools

In Adobe Illustrator a user will find following tools for Selection as shown in Figure 1.6.

• **Selection**: This tool selects the entire object or objects.

• **Direct Selection**: With the help of this tool a user can select segments of path or points in between the objects.

• **Group Selection**: This tool helps us to select groups and objects in between the groups.

• **Lasso**: This tool can be used for points or path segments in between objects.

• **Magic Wand**: This tool is useful to select objects with the same type of properties like colour.

• **Artboard**: With this tool separate artboards can be created for printing or export.

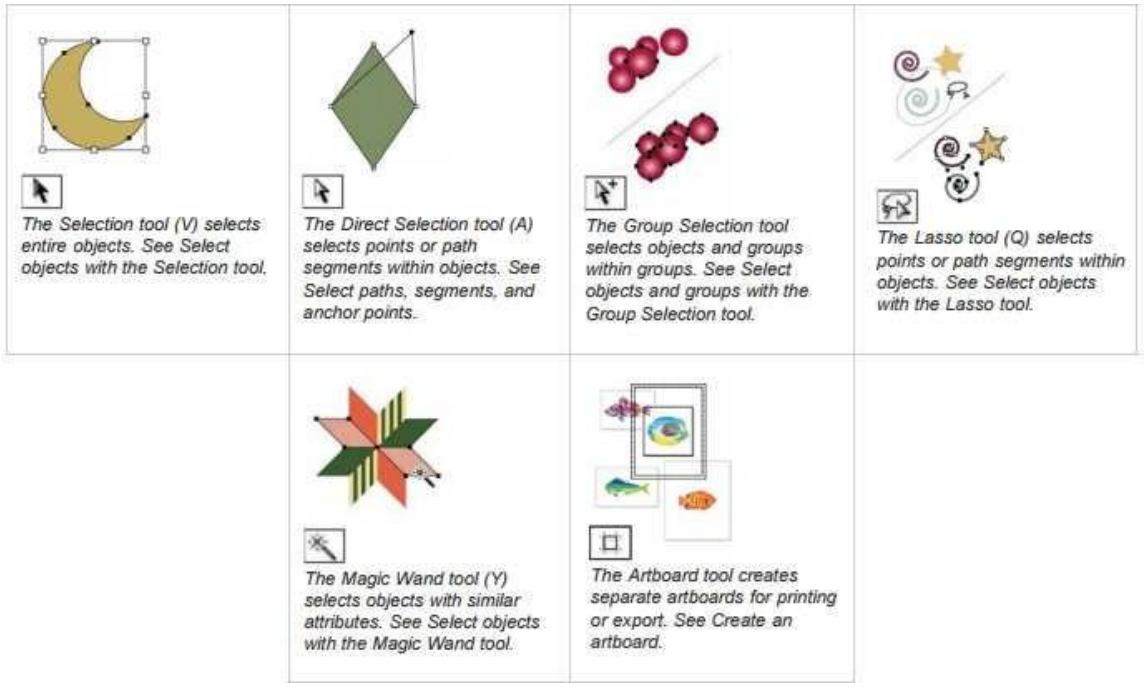


Fig. 1.06 Selection tool

Drawing tools in Illustrator

Drawing tools of the Adobe Illustrator and the shapes a user can create has been described below (Fig 1.7).

• Pen: Pen tool is used to draw straight or curved lines, shortcut is (P).

• Add Anchor Point: This tool is presented by (+) plus sign and can be used to add anchor points to paths.

• Delete Anchor Point: Presented by a (-)minus sign, this tool removes anchor points from the path.

• Convert Anchor Point: This tool can be activated by pressing Shift + C keys, it converts smooth to corner and corner to smooth points.

• Line Segment: This tool can be used to create segments of straight lines, shortcut key is '0'(zero).

• Arc: With the help of this tool, user can create individual, concave or convex curves.

• Spiral: This tool can be used to draw spirals in both clockwise or anticlockwise forms.

• Rectangular Grid: This tool can be used to draw rectangular grids.

• Polar Grid: This tool can be used to create grids of the circular chart.

• Rectangle:With the help of this tool,user can draw squares and rectangles keyboard shortcut is (M).

• Rounded Rectangle: This tool can be used to create round cornered squares and rectangles.

• Ellipse: The shortcut key is 'L' for 'Ellipse' tool which can be used to create ovals or circles.

• Polygon: User can create polygons or regular shapes with this tool .

• Star: This tool can be used to create star shapes or relevant to star.

• Flare: User can create flares resembling that of the sun or a lens by the help of this tool.

• Pencil: With the help of Pencil tool, user can draw line segments and its shortcut is (N).

• Smooth: User can smoothen Bezier paths with this tool.

• Path Eraser: User can erase paths and anchor points with the help of this tool.

• Perspective Grid: User can create and take output of the created artwork in perspective.

• Perspective Selection: With this tool, User can view and modify the object in perspective, as well as move the object in perspective and perpendicular from its current direction.



Fig. 1.7 Drawing Tools

Tools for Painting in Adobe Illustrator

Adobe Illustrator has the following painting tools and features (see Figure 1.8).

• **Blob Brush**: User can create paths that can expand and merge themselves with calligraphic brush paths which has the same colour and are stacked in adjacent order. The keyboard shortcut for this tool is Shift+B.

• **Eyedropper**: The Eyedropper (I) samples and applies colour, type and appearance properties and it can also apply effects from objects.

• **Gradient**: User can adjust the angle of gradients and can also define the start and end points, or apply a gradient to objects with this tool(I).

• **Live Paint Bucket**: This tool (K) is used to paint faces and edges of Live Paint groups with the paint attributes.

• **Live Paint Selection**: This tool selects faces and edges within Live Paint groups. The shortcut key for this tool is Shift+L.

• **Measure**: User can measure the distance between two points with this tool.

• **Mesh**: With this tool (U) user can create and edit mesh envelopes and meshes.

• **Paintbrush**: Paintbrush (B) allows to draw calligraphic and freehand lines, patterns and art on paths.

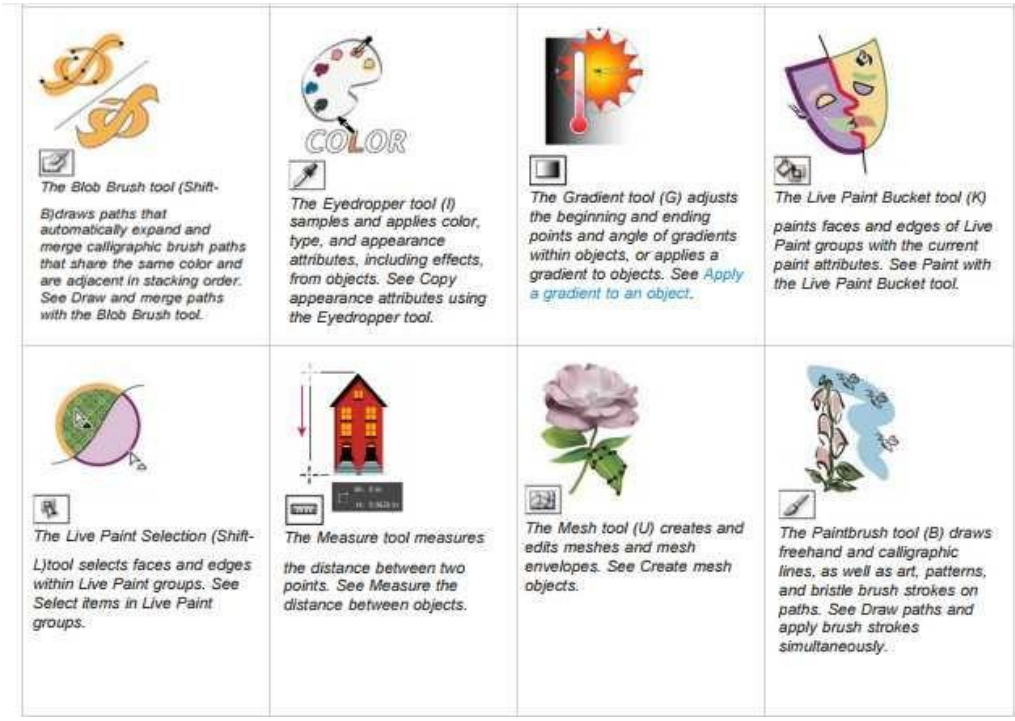


Fig. 1.8 Painting Tools

Symbolism tools in Adobe Illustrator

With Symbolism tools user can create and modify sets of symbol objects. Symbol Sprayer tool is used to create symbol sets. To change or modify the properties of these symbol sets like the colour, size, density, transparency, location, rotation and style of the instances, symbolism tools can be used . The symbolism tool menu has the following tools (Fig. 1.9).

• Symbol Screener: This tool is used to add opacity to the symbols.

• Symbol Scruncher: This tool brings symbols close to each other or do just opposite i.e. move them away from each other.

• Symbol Shifter: With this tool symbol stances can be moved.

• Symbol Sizer: This tool is used to change the size of symbols.

• Symbol Spinner: User can spin the symbols with the help of this tool.

• Symbol Sprayer: With the help of Symbol Sprayer tool (Shift+S) user can insert multiple symbols on the artboard, in the form of a set.

• Symbol Stainer: This tool is used to colourize symbols.

• Symbol Styler: This tool, applies the selected style to symbol objects.

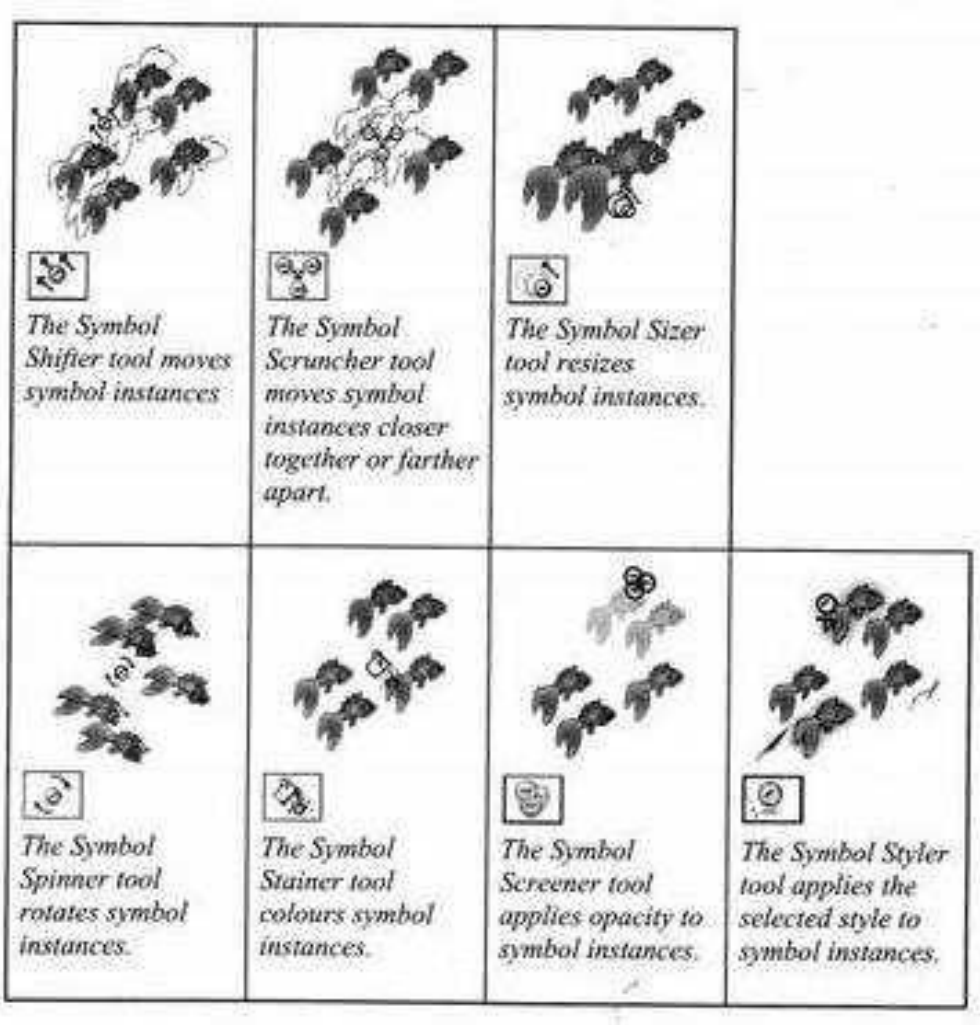
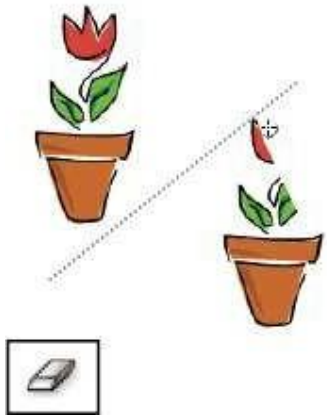


Fig. 1.9 Symbolism Tools

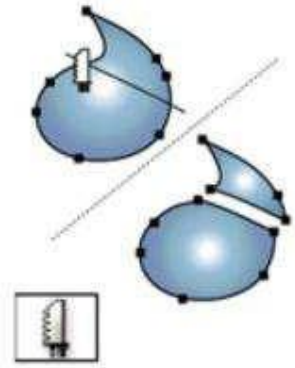
Slicing and Cutting Tool Gallery

With the help of tool of this gallery, user can slice and cut the created object:

•Eraser: This tool remove the area or the portion of the object, where you drag this tool (Shift+E).

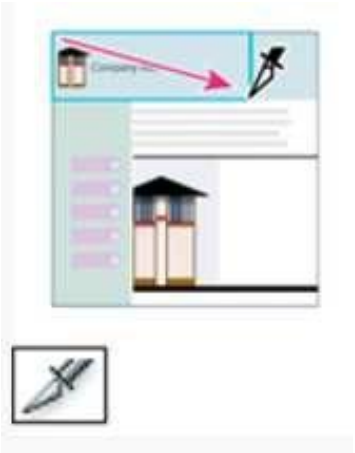


•**Knife:** This tool can cut the path as well as the object also.

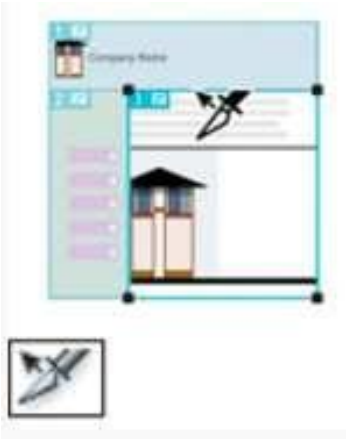


•**Scissors**: With the help of this tool, user can cut a path, frame of graphics, or empty text frame. The action of this tool applies on an anchor point or on a segment.

•**Slice**: User can separate the artwork into individual web presentation.



•**Slice Selection**: This tool is used to select the web slices.

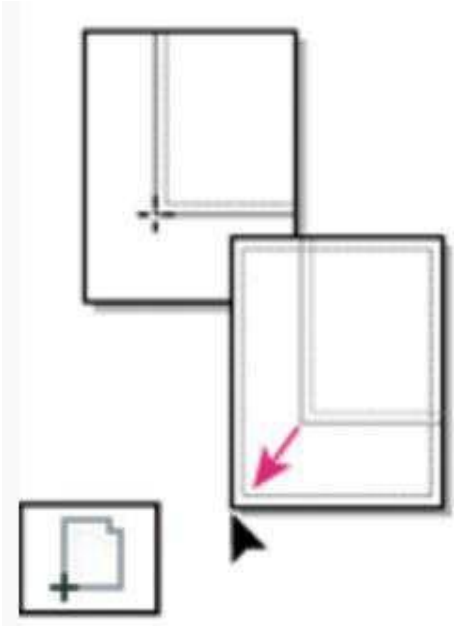


Moving and Zooming Tool Gallery

Following are the tools to control and for moving around the view of the Illustrator document:

• **Hand tool**: User can move the artboard with in the window in the desired direction.Keyboard shortcut for Hand tool is H.

• **Print Tiling**: This tool brings the page grid to the position where the Illustration has been displayed.



Zoom tool: The zoom tool (Z) enlarge or reduce the view of the drawn object. It actually works like a magnifier.



1.5.2 Tearoffs function of Adobe Illustrator

In Illustrator, User can float tool palettes or move anywhere on the screen of the work area of the application by tearing off that tool set.

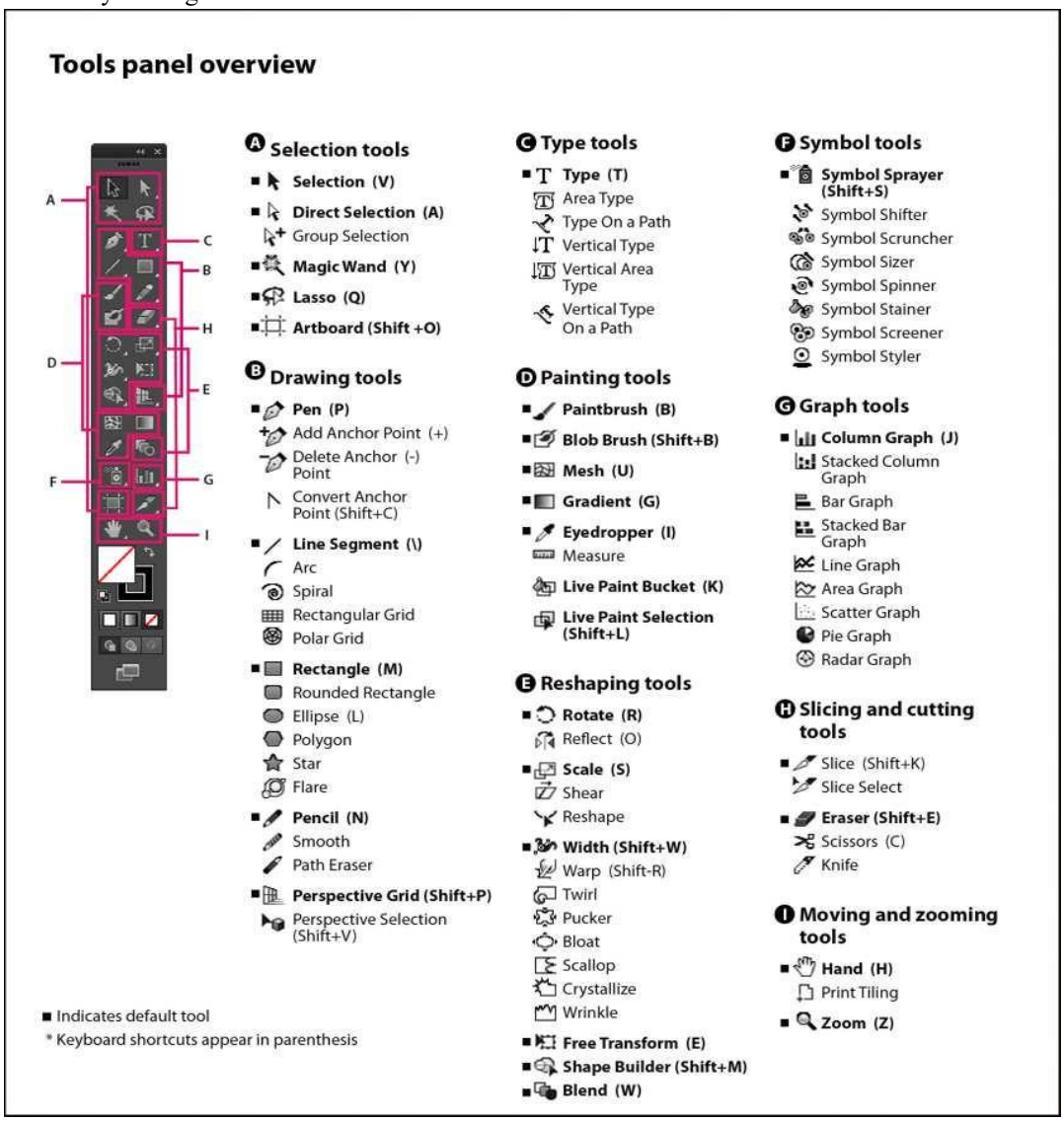


Fig 1.00: Tools functions overview

1.5.3 Pen Tools

User can draw straight or curved lines with the help of Pen tool (P).

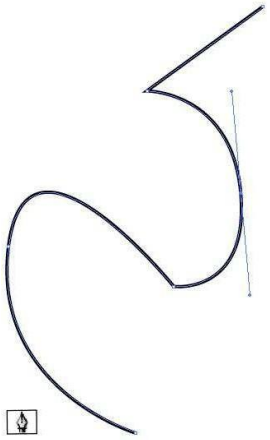


Fig 1.00: Pen tool is used for drawing straight or curved lines

1.5.4 Line Segment Tools

Line Segment tool (1), creates segments of straight lines.

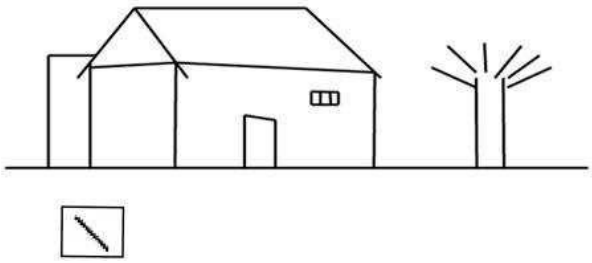


Fig 1.00: Line segement tool

1.5.5 Rotate Tool

This tool is used to rotate the object, the rotation is based on a fixed point.Shortcut is R.

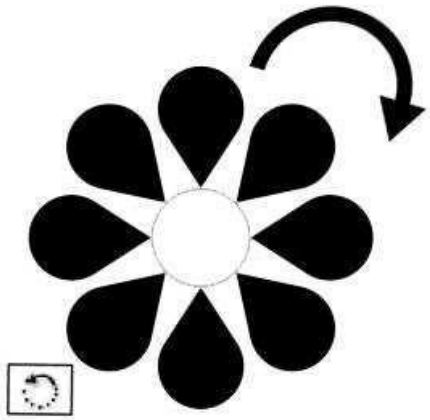
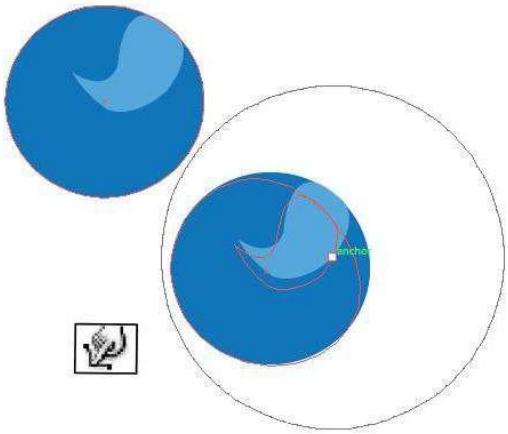


Fig 1.00: Rotate tool

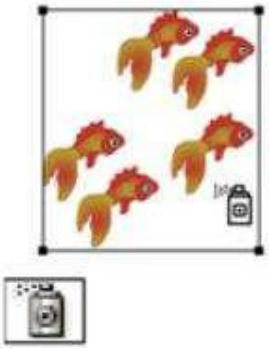
1.5.6 Wrap Tool

Wrap tool is used to reshape or change the shape with the movement of the mouse cursor like moulding clay.



1.5.7 Sprayer Tool

This tool (Shift-FS) is used to creates multiple copies of the symbol on the artboard in the form of a set.



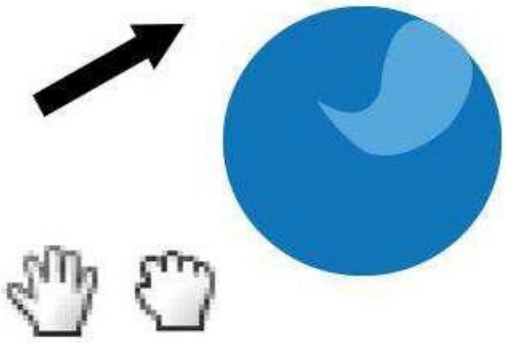
1.5.8 Eyedropper Tool

User can sample and apply colour, type and effect's properties from the object.



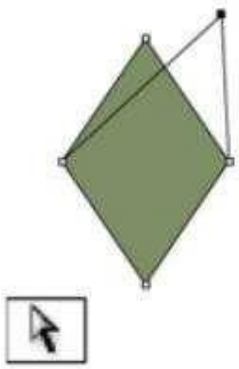
1.5.9 Hand Tool

Hand tool(H) moves the screen of the artboard in the desired direction within the workspace.



1.5.10 Direct Selection Tool

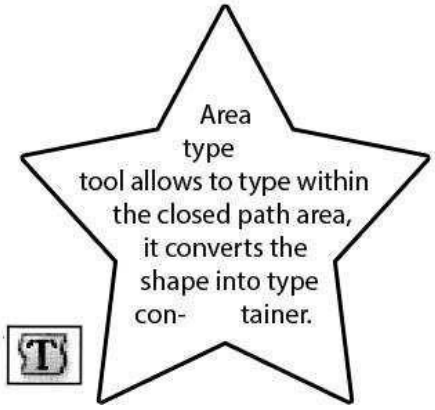
User can select path or points of the object or shape with the help of this tool. Keyboard shortcut for this tool is A.



1.5.11 Type Tools in Adobe Illustrator

Adobe Illustrator allows the user to do various creative actions with the text or type. Following are the features of type tools available in Illustrator:

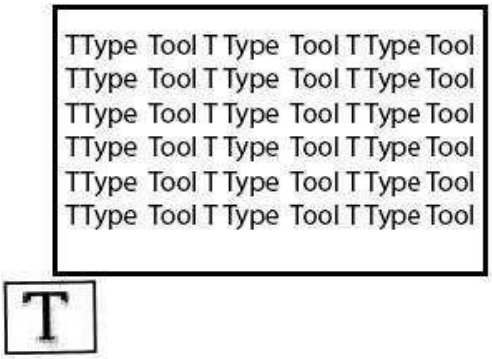
- Area Type: Area type tool allows to type within the closed path area, it converts the shape into type container.



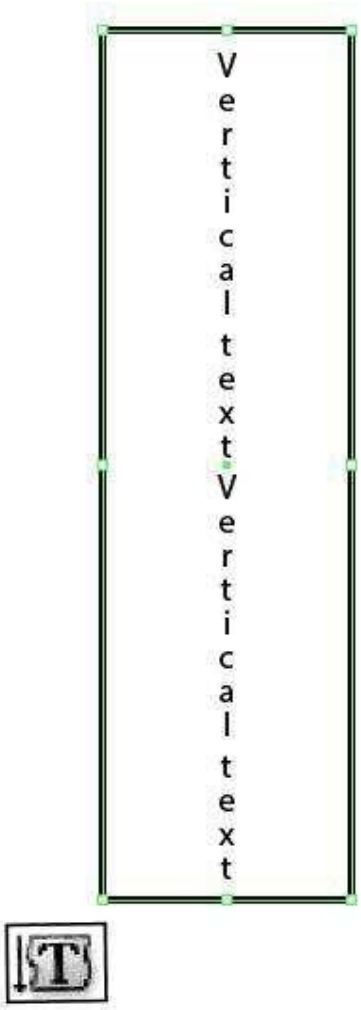
- **Type on a Path**: This tool allows the user to type on the path, as well as user can edit the text also.



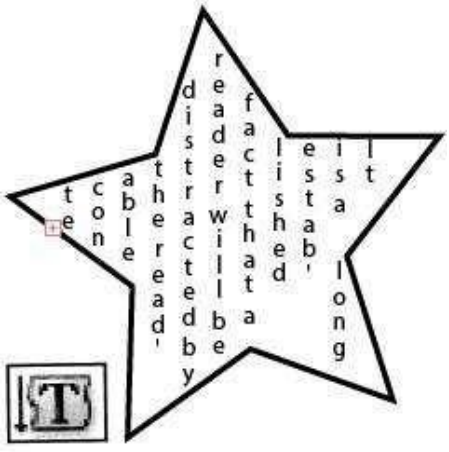
- **Type Tool**: The type tool allows the user to type as individual text as well as within the type container. User can also edit the type.



- **Vertical Type Tool**: With the use of this tool, user can type and edit in vertical form.



- **Vertical Area Type**: This type tool changes the shape or closed path which is type container, into vertical type container and also allows the user to edit the type.



• **Vertical Type on a Path Tool**: This tool converts the path into vertical type and allows to type on the path in vertical form.



1.5.12 Shape Tools

Reshaping tool

Objects can be shaped by the use of following tools Adobe Illustrator (Figure 1.10).

• **Scale tool**: Scale tool(S) resize the selected object on the basis of a fixed point.

• **Rotate tool**: This tool (R) is used to rotate objects on the basis of a fixed point.

• **Free Transform tool**: With the help of this tool user can scale, rotate, or skew the selected object. The shortcut key of this tool is E.

• **Blend tool**: This tool (W) allows the user to create blended objects with the shape and colours of two or more objects.

• **Reshape tool**: This tool adjust the selected anchor points of an object but do not change the characteristics of the object.

• **Bloat tool**: Blend tool is used to enhance the size of the object by moving the control points away from the mouse cursor.

• **Reflect tool**: User can turn objects over a fixed axis with this tool(O).

• **Pucker tool**: This tool moves the points towards the cursor and collapse or saturate an object.

• **Crystallize tool**: User can use this tool to add random spike-like characteristics to the outlining shape of an object.

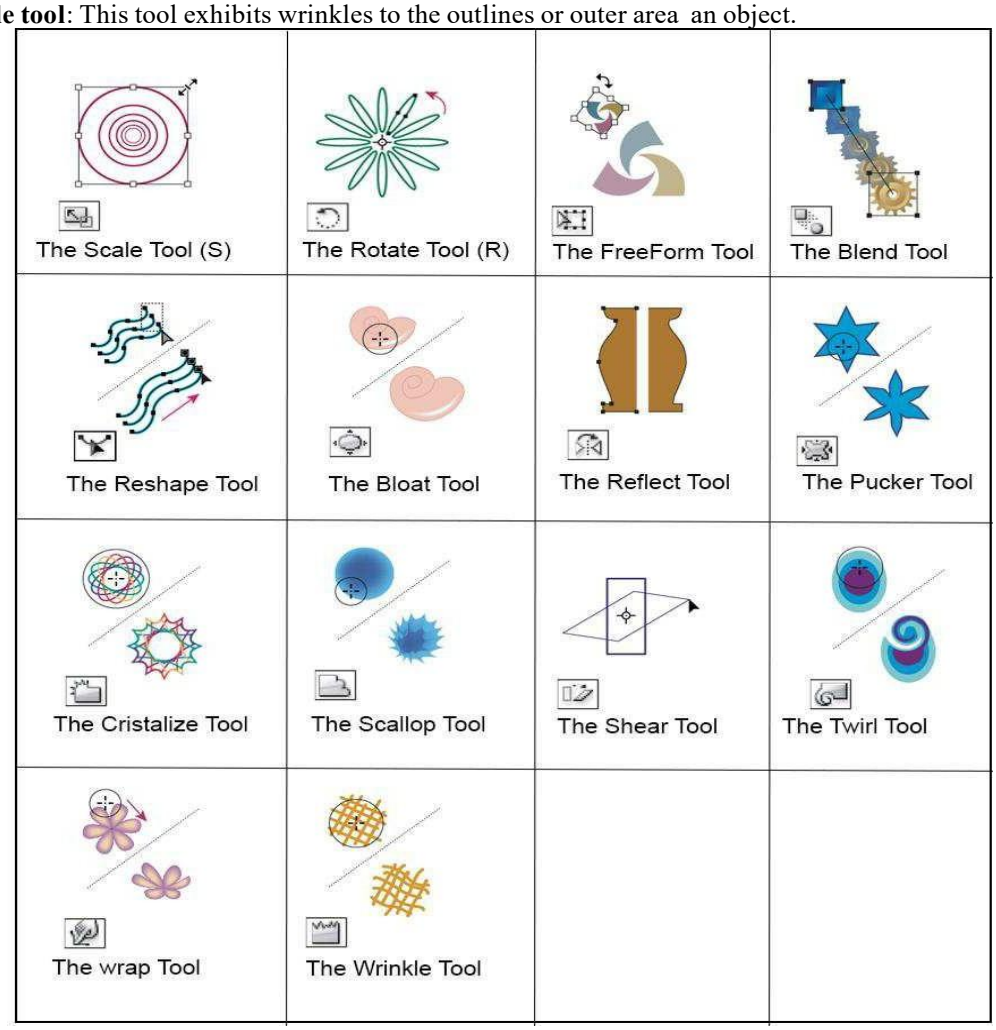
• **Scallop tool**: User can add random curved shape to the path or outline of an object.

• **Shear tool**: The Shear tool skews an object on the basis of a fixed point.

• **Twirl tool**: This tool applies twist and twirl effect on an object.

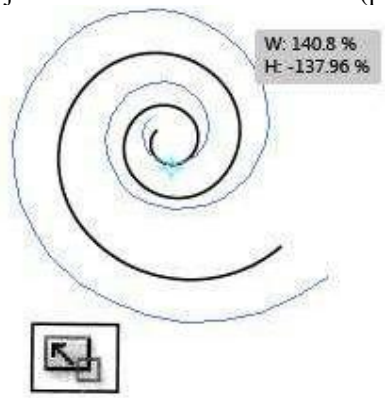
• **Warp tool:** This tool (Shift+R) applies a molding effect to the object. The shape of the objects changes with the cursor movement, like moulding clay.

• **Wrinkle tool**: This tool exhibits wrinkles to the outlines or outer area an object.



1.5.13 Scale Tool

The scale tool is use to resize the object or artwork based on a fixed (pivot) point.



1.5.14 Pencil Tool

With this tool user can draw line segments and create desired shapes or objects.



1.5.15 Graph Tools in Adobe Illustrator

Each tool of the Graph tool section, create a particular graph, the selection of the graph depends on the information required by the user. Following is the description of each of the graph tool available(Figure 1.11).

• Area Graph: This tool creates graphs like line graphs, but it also asserts the totals, and if the changes has been made in the values.

• Bar Graph: This tool creates graph almost like column graphs. The only difference is that the instead of vertical bar it creates horizontal bar in the graph.

• Column Graph: This tool (J) produces graphs in vertical form, which are useful to compare values in vertical columns.

• Line Graph: This tool helps in producing graphs used to analyse how a variable will change with time. It uses dots to express values in one or more sets. In every sets lines of various types join these dots.

• Pie Graph: This tool creates circular graphs and their wedges depict the relative percentages of the various variables to be analysed.

• Radar Graph: This tool creates circular graphs, which analyze the value in a particular category. These type of graphs are also called as 'web graphs'.

• Scatter Graph: This tool creates graphs which shows data points in pairs. These pairs are applied as a set of coordinates in X and Y axis. When user need to identify patterns or trends in some values or data, such graph can be used.

• Stacked Bar Graph: This graph stacks the bars horizontally, unlike stacked column graph which stacks the graph vertically, rest of the options are same as stacked columns.

• Stacked Column Graph: This tool helps to create graphs that evaluates values like in column graphs, but the columns are placed vertically, unlike bar graphs, which place them adjacent to each other. This graph tool is best used to represent the connection of the total with the parts of the objects.

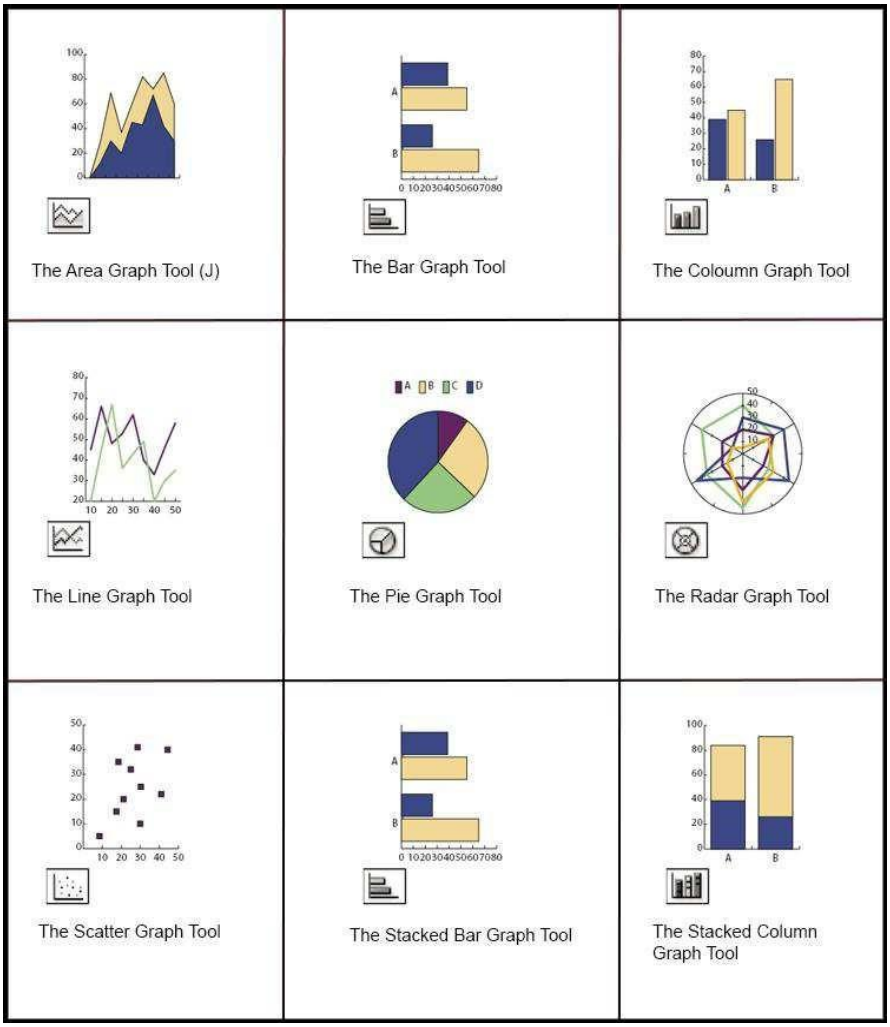
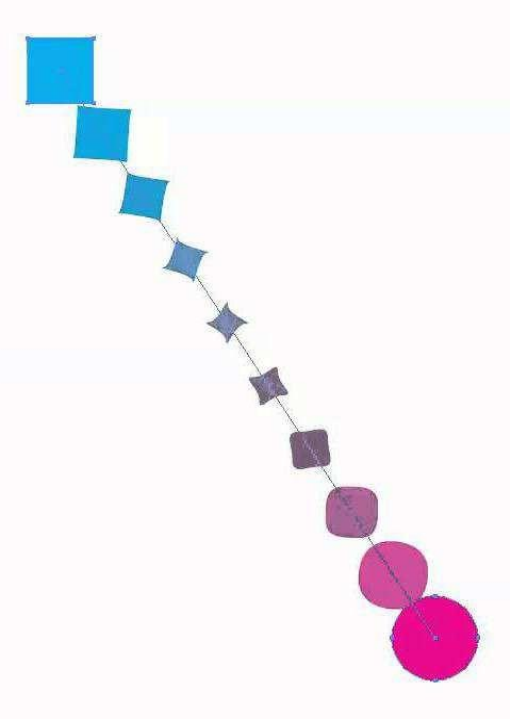


Fig. 1.10 Graph Tools

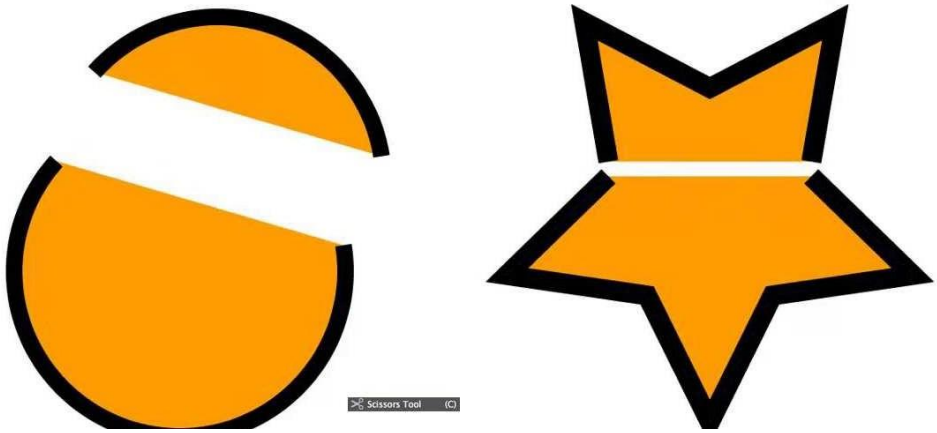
1.5.16 The Blend Tool

This tool creates a series of blending objects between two objects with the properties like color and shape.The shortcut of Blend tool is W.



1.5.17 The Scissor Tool

The Scissor tool cuts a path, text(empty text), or a graphics frame from an desired point or on a segment.



CHECK YOUR PROGRESS

7. What is the use of Zoom Tool?
8. How a user can hide or unhide the Tool Tip option?
9. Where a user can use Pie graph?
10. Describe in short about Free Transform Tool.

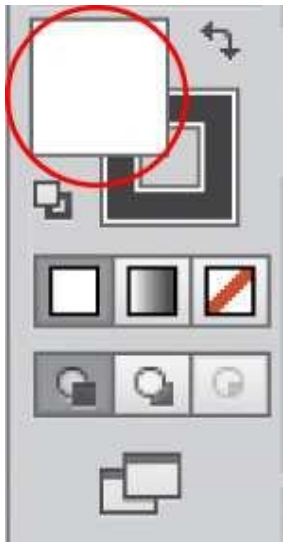
1.6 FILLS AND VIEWS

Fill or Fill Area is the inner area of any shape or open or closed path, where colour or gradient has been applied. The properties like colour, of the fill and stroke of a shape or a path can be changed at any stage of the artwork.

User can apply a single colour, gradient i.e. multiple colours, or pattern to the object. User can also apply various colours to different faces within the object by using Live Paint groups. By learning following steps a user can understand and know how to use this option:

(i) Click on the object to Select it.

(ii) Select the Fill box option in the Colour or the Tools panel. By following this step you can define that you are going to apply a fill instead of a stroke.



(iii) Select one of the following options, select a fill colour:

- Select a colour in the Colour panel, or you can perform this activity on Control panel, Swatches panel, Swatch library, or Gradient panel also.
- Double-click on the Fill box then select a colour from the Colour Picker.
- Now, select the Eyedropper tool and Alt + click (Windows) or Option-click (Mac OS) the object to apply the current colour or properties. User can also include the current fill and stroke.
- Click on the None button to remove current fill of the object.

1.7 SUMMARY

• Illustrator is an application of the Adobe Creative Suite (CS), in which user can perform graphic design, video editing and web development related tasks. We can say that, Adobe Illustrator is an combination of different applications made by Adobe Systems like graphic design, video editing and web development.

•The latest version, Adobe Creative Suite 6 (CS6), was announced on April 23, 2012 as the successor to Adobe Creative Suite 5. It was officially released on May 7, 2012.

•Abobe Illustrator is altogether a different application and very distinct and noticeable graphics can be created.

• Graphics created in Adobe Illustrator can be used in printing, for online purpose, in cell phones and even in videos also.For artworks, like hoardings and logotypes which needs different sizes and media, and vector graphics is most suitable for such requirements. As Illustrator is an vector based software, it is most suitable for such tasks rather than Photoshop which is raster based software.

• In Illustrator a Path is a straight or curved line drawn.This line is also called as segments.

• The points situated at the start or end of a segment or a path are known as anchor points. These anchor points actually helps to defines the shape of the segment. There are two types of anchor points: smooth points and corner points.

•When the user selects a segment or any anchor point connecting curved segment, the direction handles get activated and are displayed, which consist of direction lines. Their extremities are called as direction points.

• By default, the Tools panel is situated on the left side of Illustrator's window . To see the hidden panel of the tools, click and drag the title bar. The tools of the Tools panel are use to create, select and make changes in the objects or shapes.

• Some of the tools has additional options, which can be seen by double-clicking the tool, on that particular tool. These additional options allow typing, selecting, painting, drawing, editing and moving images.

1.8 KEY TERMS

• **Path**: A path is an straight or a curved line drawn in illustrator.With the help of path we can create shapes like a square or a circle or any other shape as per the requirement and that comes in 'closed path' category as well as we can leave a path as open which creates a straight or wavy line and that called as 'open path'.

• **Segment**: Straight or curved lines joining two points (anchor points) are called segments.

• **Anchor points**: The start and end points of any path are called anchor points. These anchor points actually helps to defines the shape of the segment.

• **Stroke**: The outline of any path is known as stroke. It can be in various patterns or forms like it can be thick, coloured, or dashed in pattern.

• **Print tiling**: This tool brings the page grid to the position where the illustration has been displayed.

• **Area type**: Area Type tool converts closed paths to type containers. With the help of this tool, user can enter and edit type within the type container.

• **Fill**: The inner area of open or closed path where user can apply colour or gradient is known as a Fill.

1.9 END QUESTIONS

1. Describe Adobe Creative Suite in short?
2. Define Raster and Vector formats.
3. What do you mean by Stroke and Fill?
4. Define Open and Closed path.
5. Differentiate Illustrator and Photoshop.
6. Explain the concept of direction lines and direction points.
7. What is the advantage of Illustrator over other graphic design softwares?
8. Describe Symbolism tools.

1.10 FURTHER READING

Adobe Creative Team (2012) Adobe Illustrator CS6 Classroom in a Book. Adobe Press

Sharon Steuer (2014) The Adobe Illustrator WOW! Book for CS6 and CC. Peachpit Press

Annesa Hartman (2012) Exploring Adobe Illustrator CS6 (Adobe Cs6).

MEDIAactive (2013) Learning Illustrator CS6 with 100 practical exercises.

https://en.wikipedia.org/wiki/AdobeIllustrator

UNIT 2 DRAW WITH THE PENCIL AND BRUSH TOOLS

Structure

2.0 Introduction
2.1 Unit Objectives
2.2 Draw with the Pencil Tool
2.3 Edit Anchor Points with the Direct Selection Tool
2.4 Define Caps and Joins
2.5 Assign Stroke or Fill Colors with the Eyedropper or Paint Bucket Tool
2.6 Draw with the Brush Tool
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2.6.2 Paintbrush Tool Options
2.7 Summary
2.8 Key Terms
2.9 END QUESTIONS
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2.0 INTRODUCTION

In Illustrator if you want to draw exactly the same way like drawing with a pencil on a paper, then you can use Pencil tool. It actually allows you to draw, open and close paths. This tool is very useful for creating figures which look as if they were drawn by hand as well as if you want to do sketching. Once you have drawn a path, you can immediately change it as if you require.

As soon as you drawn a path with the Pencil tool, Anchor points will automatically set. The settings in the Pencil Tool Preferences dialog box as well as length and complexity of the path defines the number of anchor points set down.the sensitivity of the Pencil tool is controls the tolerance settings , it takes reference of mouse movement or graphics-tablet styles.

You can use various styles like scatter, art, calligraphic and pattern brushes to add visual effects to your artwork. Moreover, Live Paint features can be used to fill enclosed paths with different colors and patterns or gradients and paint different path segments.In Illustrator, with the use options like opacity, blends, meshes, masks, gradients or patterns you can create whatever you want it all depends on your creative ideas.

2.1 UNIT OBJECTIVES

After studying this unit, you will be able to:

• elaborate the procedure of drawing with the Pencil tool

• explain editing Anchor points with the Direct Selection tool

• explain concepts of Caps and Joins

• elaborate process of assigning stroke or fill colours with the Eyedropper or Paint Bucket tool

• Discuss the procedure of drawing with the Brush tool

2.2 DRAW WITH THE PENCIL TOOL

Following are the functions that we can perform with the Pencil tool:

(I) Draw freeform paths

Click on the Pencil tool and move the cursor to position the tool where you need to begin the path. Then start to drag it to draw a path. A small cross (x) will be displayed to indicate the procedure for drawing a freeform path. As the pointer is dragged, a dotted line follows it. Anchor points appear at both ends of the path and at various points along it. The path adopts the current 'stroke and fill' properties and by default it remains selected.

(ii) Draw closed paths

Click on the Pencil tool and move the cursor to position the tool where you need to begin the path. Then start to drag it to draw a path. After you have started dragging, press Alt key (Windows) or Option key (Mac OS). A small circle will appear (and in InDesign, a solid eraser) which indicates that you are creating a closed path. When you have created the desired shape of the path, release the mouse button but remember not to release the Alt/Option key. As soon as the path closes, release the Alt/Option key. In order to create a closed path, you need not to drag the cursor at the starting point of the path. Just release the mouse button on any location of the document, the Pencil tool will itself close the shape by selecting the shortest possible line, back to the original point.

(iii) Edit paths

With the help of Pencil tool you can edit any path. Even you can add freeform lines and shapes any shape.

(iv) Add to a path

Select the Pencil tool and click on an existing path. Move the pencil tip on one endpoint of the path.cursor over endpoint the small cross (x) next to the pencil tip disappears. Drag to continue the path.

(v) Connect two paths

Select both the paths and press shift+click or drag around the two with the Selection tool. Then select the Pencil tool. Move the pointer at the endpoint of one of the path and start dragging toward the other path. After you begin dragging, press down Ctrl (Windows) or Command (Mac OS) key.When you are adding to the existing path, the Pencil tool displays a small merge symbol. Finally, drag onto the endpoint of the other path, release the mouse button and then release the Ctrl or Command key.

Note: *Drag from one path to the other in the same direction as they were created.*

(vi) Reshape paths

Select the path that you need to modify. To redraw, move the Pencil tool over or near that path. When small cross (x) next to the pencil tip disappears that means you are close enough to the endpoint. Now drag the tool until the path gets desired shape.

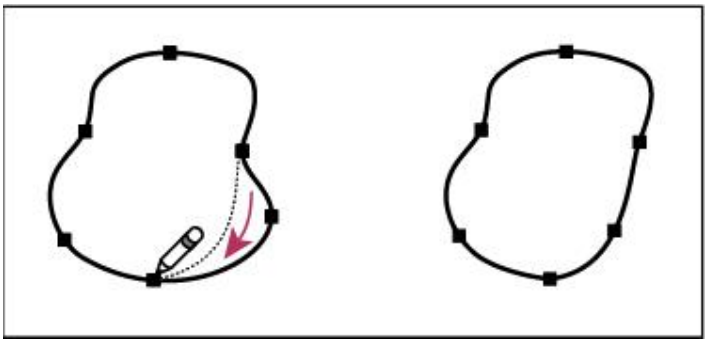


Fig. 2.1 Use of the Pencil Tool to Edit a Closed Shape

Note: you may get unexpected results, it depends on the beginning point and in which direction you drag. For example, unintentionally, a closed path may be changed to an open path or an open path may bc changed to a closed path. A portion of the shape may also be lost.

(vii) Pencil tool options

When you double-click the Pencil tool it will activate any of the following options:

a. Fidelity: Before a new anchor point is added to the path, this option controls the distance the cursor needs to be moved. To make a less complex and smoother path increase the value. The lower the value, the more the curves matching the pointer's movement. And this will results in sharper angles. The recommended range for fidelity should be from 0.5 to 20 pixels.

b. Smoothness: With the help of this option you can controls the smoothness. You can set from 0 to 100 value for the smoothness. The smoothness of the path is depend on the value, if the higher value is set, more smoothness will be applied. And if low value is set, there will be more more irregularities and anchor points presented.

c. Fill new pencil strokes: To use this option, you need to create the stoke after selecting this option. It will not fill the strokes that are already created.

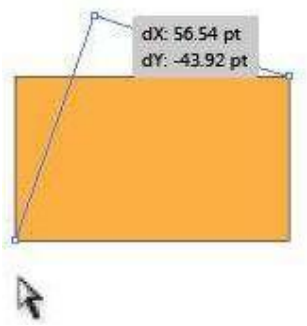
d. Keep selected: This is a default option which helps to decide whether a path drawn is to be retained or deleted.

e. Edit selected paths: With the help of this option you can modify or merge the selected path.

f. Within pixels: You need to Select the Edit Selected Paths option before using this tool. This option helps in deciding the nearest distance between the cursor and an existing path that will enable the pencil tool to edit it.

2.3 EDIT ANCHOR POINTS WITH THE DIRECT SELECTION TOOL

With the help of Direct Selection tool, you can select segments of path or points, in between objects.



Follow one of the below steps to resize an individual object or path using the direct selection tool:

(i) Select the path or object by using the Direct Selection tool, then click the path or object again to edit it.

(ii) To switch the Live Paint Group into the isolation mode double-click on it by using the Selection tool. Then click a path or object to edit it.

CHECK YOUR PROGRESS

1. List down the options of the Pencil tool.

2. Name the tool that can be used to select segments of path or points, in between objects?

2.4 DEFINE CAPS AND JOINS

A cap displays the end of an open line, whereas a join displays where a straight line changes direction or turns a corner. The caps and joins can be modified by changing the object's stroke attributes. The below options described in detail:

(i) Select the object.

(ii) Select a cap option and a join option in the Stroke panel.

(iii) If you are not seeing the options select Show Options from the panel menu.

Caps and Joins are explained below:

a. Butt Cap 

A Butt Cap creates stroked lines with squared ends.

b. Round Cap 

Round Cap creates stroked lines with semicircular ends.

c. Projecting Cap 

Projecting Cap has squared ends. These stroked lines extend about half the width of the line, beyond the end o f the line. It defines the width of the line extend equally in all directions around the line.

d. Miter Join 

Miter Join creates stroked lines with pointed corners and enters a miter limit between 1 and 500. The miter limit helps when the program switches from a mitered or pointed join to a squared-off or a beveled join. A miter limit of 1 will create a bevel join and the default miter limit is 4. It signifies that the length of the point reaches four times the stroke weight.

e. Round Join 

A Round Join creates stroked fines with rounded corners.

f. Bevel Join 

A Bevel Join creates stroked line with squared corners.

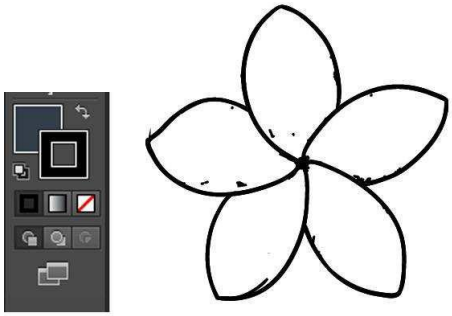
2.5 ASSIGN STROKE OR FILL COLORS WITH THE EYEDROPPER OR PAINT BUCKET TOOL

Fills and Strokes

a color, pattern, or gradient within an object is known as a fill. You can apply fills to open or closed objects as well as to the Faces of Live Paint groups.

The outline of an object, path, or the edge of a Live Paint group is known as a stroke. You can

modify the thickness (width) and color of the stroke. With the use of path options Dashed strokes can be created.By using brushes Paint stylized strokes can be created. While working with Live Paint groups, a brush can be applied to an edge only ifs stroke is added to the group using the Appearance panel.



(I) Fill and Stroke controls

To modify settings of the fill and stroke, we can use the Control panel and the Color panel from the Tools panel. The following controls of the Tools panel can be used to apply the desired color:

a. Fill button: With the Color Picker, double-click on the tool to select a fill color.

b. Stroke button: With the Color Picker, double-click on the tool to select a stroke color.

c. Swap Fill and Stroke button: It swaps the fill and stroke colors.

d. Gradient button: This option will apply gradient color and you can also change the gradient color with the desired one.

e. Color button: This option applies the last selected color on an object with a gradient fill or no stroke or fill.

f. None button: It will remove the selected object's fill or stroke.

With the help of following controls from the Control panel you can also specify color and stroke:

a. Fill color: Click to the Swatches panel to select a color or Press Shift key and click Fill color button to open an alternate color mode panel.

b. Stroke panel: You can use this panel to specify Stroke options.

c. Stroke color: Click to the Swatches panel to select a color or Press Shift key and click on the button to open an alternate color mode panel.

d. Stroke weight: From the pop-up menu you can choose a weight for the stroke.

(ii) Using fills and strokes to paint Painting methods

In Illustrator you can these two methods of painting:

a. By assigning a fill, stroke (or both) you can convert the object to a Live Paint group.

b. To the edges and faces of paths, assigning fills or strokes separately.

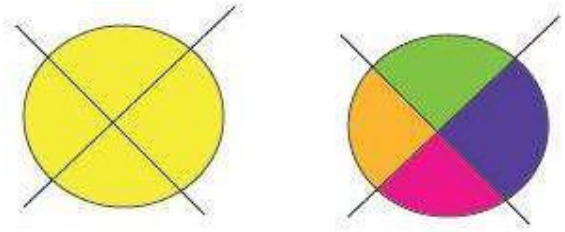
(iii) Painting an object

After finishing the drawing of an object, a stroke, or fill (or both) can assigned to the object. You can apply the same method for drawing or painting and can be layered as new objects above the previous ones. The outcome will be like a collage, made by cutting shapes from a colored paper. The look of the artwork depends on the objects you have placed on top, in the stack of layered objects.

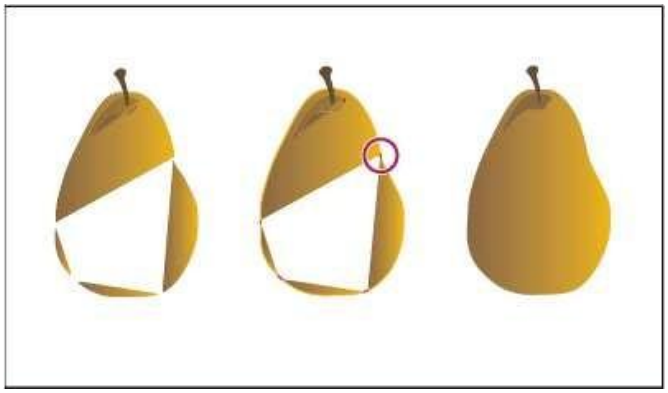
(iv) Painting a live paint group

Working with the Live Paint method will experience you just like working with a traditional coloring tool, without layers or stacking order. This is more natural way to work with. Each object in a Live Paint group is treated as if it constitutes the same flat surface. That means, several paths can be drawn and then each area can be enclosed by these paths and colored separately. This is blown as a face.

Edges are the various stroke, colors and weights that can be applied to a particular portions of a path between intersections. Therefore, particular face can be filled and a particular edge can be stroked with a different color, just like a coloring book. As the paths are moved and reshaped in a Live Paint group, the faces and edges get adjusted automatically.



In the above screenshot, an object having a single path has been painted using the existing method. It has a single fill and a single stroke (left). The same object is converted to a Live Paint group with a different fill for each face and a different stroke for each edge.



Painting an object the traditional way leaves some areas that cannot be filled (shown in the above figure). With the help of Painting a Live Paint group with gap detection, gaps and overprinting can be avoided.

(v) Apply a fill color to an object

You can apply color, gradient or pattern to an abject in two ways:

Single color, gradient, or pattern can be applied to an entire object by selecting the complete object and apply it, or

Live Paint groups can be used to apply different colors to different faces of the object.



(vi) Fill Color with the Eyedropper

Follow one of the below steps to select a fill color:

a. Select a color in one of the panels: Color, Swatches, Control, Gradient or a Swatch library.

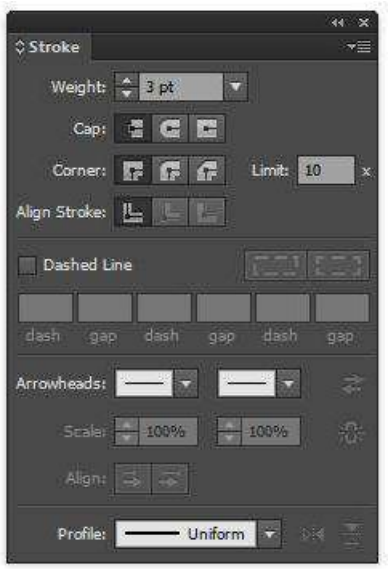
b. Double-click the Fill box and choose a color from the Color Picker.

c. Click on the Eyedropper tool and press Alt and click (Windows), or press Option and Click (Mac OS). Select an object to apply the current attributes to including the current fill and stroke.

d. to remove the object's current fill, click the None button. From the Fill box a color can be dragged and applied to an unselected object using the Gradient, Color, or Swatches panels. Dragging method will not work on Live Paint groups.

(vii) Stroke an object

A solid or dashed line of a stroke can be applied, by using the Stroke panel (Window > Stroke).



Stroke options can be applied to an entire object. With the use of Live Paint groups different strokes to different edges can also be applied within the object.

(viii) Apply a stroke color, width, or alignment

To apply a stroke color, width, or alignment, follow these steps:

a. Click on the object (Use the Live Paint Selection tool to select an edge in a Live Paint group.)

b. Select the Stroke box in the Tools panel, the Color panel, or the Control panel. This shows that you are applying a stroke not a fill.



c. Choose a color from the Color panel, or a swatch from the Swatches panel or Control panel. You can also double-clicked the Stroke box to select a color using the Color Picker. If you need to use

the current color in the Stroke box, color can be applied by dragging the color from the Stroke box onto the object. Dragging method will not work on Live Paint groups.

d. Select a weight you need from the Strokes panel or Control panel.

e. To align the stroke along the path, choose an option from the Stroke panel, In case of closed path (and not a Live Paint group). One of the below options can be used:

i. Align Stroke to Center

ii. Align Stroke to Inside

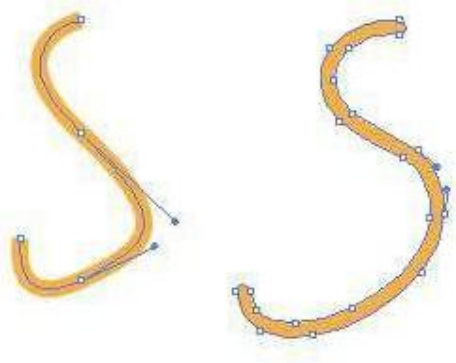
iii. Align Stroke to Outside

To make the edges to match exactly at the time of alignment, the path alignment settings should be the same.

Draw and Merge Paths with the Blob Brush Tool

To paint filled shapes that can be intersected and merged with other shapes of the same color, the Blob Brush tool is used.

The default options of the Blob Brush Tool are same as of calligraphic brushes.



(i) Blob brush tool guidelines

while working with the Blob Brush tool, below guidelines should be considered:

a. In order to merge paths, the path must be in adjacent stacks.

b. If you need to merge existing work with the Blob Brush Tool, you must ensure that the existing artwork has the same fill color and must have no stroke. The Paths created by the Blob Brush tool has the fill but does not have strokes on the shape.

c. Existing or new paths will be merge with the most matching path, while drawing paths with the Blob Brush tool. If more than one paths are matching and is very close to the new path within the

same group or layer, then all intersecting paths will be merged together.

d. In the Appearances panel by selecting the brush and setting the attributes, the paint properties, like effects or transparency can be applied to the Blob Brush tool. But this can be only done before the start of drawing.

e. Paths which are created by other tools can be merge by The Blob Brush tool. Before using this tool, you must be ensure that there is no stroke present in the artwork. And select the same color of the fill to set up the Blob Brush tool and a new path. This intersects all the paths that have to be merged. You can not merge paths with strokes. Select the path where a new path is to be merged and disable the option `New Art Has Basic Appearance', in the Appearances panel. When this option is Deselected the Blob Brush tool uses the attributes of the selected artwork.

Be ensure that the Blob Brush tool and the selected artwork have the same appearances. Intersecting paths of the artwork should be drawn. The attributes of both the Blob Brush Tool and the existing path must be the same and none of them has a stroke. When paths are not merging then ensure these things.

(ii) Blob brush tool options

By double-clicking the Blob Brush tool in the Tools panel Any one of the below options can be selected:

a. Keep select.: All paths which are selected remain selected as you continue to draw. This option enables you to view all paths that are included in the merged path. When you select this option, the Selection Limits Merge option is disabled.

b. Selection limits Merge:

If the artwork is not selected then The Blob Brush can not merges i.e. the artwork must be selected. However, incase if nothing is selected, most matching artwork will be merged.

C. Smoothness.: The amount of smoothing that Illustrator applies to the drawing ranges from 0 to 100 per cent. The smoother the path, the higher the percentage.

d. Size.: The size of the brush is determined by this tool.

Convert Strokes to Compound Paths

By converting outline of the stroke to a compound path, it can be modified. For instance, a stroke can be created with a varied width or can be divided into pieces. Following are the step to do the task:

• Select the object

• Go to Object menu> Path> Outline Stroke

The compound path that results is grouped with the filled object. If you need to modify the compound path, select it with the Group Selection tool or ungroup it from the fill. Then, with the help of Layers panel, identify the contents of a group.

Remove the Fill or Stroke from an Object

Select the object then in the Tools Panel select the Fill box or the Stroke box. This step makes sure that whether the object's fill or its stroke is to be removed. In the Tools panel > Color or the Swatches panel, click on the None button.

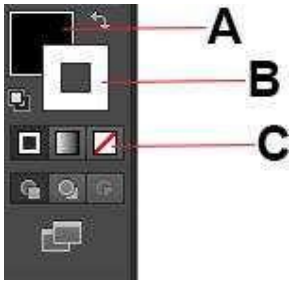
You can also click on the None icon in the Fill menu or the Stroke Color menu in the Control panel.

Add Arrowheads to Lines

Arrows work same as like brush strokes, i.e., the color, direction, and location can be modified by arrows along with the line and they cannot be edited individually. To add an arrowhead, click on the object or group or target a layer in the Layers panel. You can add Arrowheads to a Live Paint group as a whole, but not to individual paths within Live Paint groups. Go to Effect menu> Stylize> Add Arrowheads.

For the start and end of the line, by clicking the forward and back buttons below the Start and End arrow boxes, you may choose from the various designs of arrowheads. The order in which you draw the line defines the start and end of the line. To rescale the size of an arrowhead define the percentage in the Scale text box you needed. This arrowhead is scaled relative to the stroke weight of the line. Once finished with your requirement, Click OK,

If you need to remove an arrowhead, in the Appearance panel select the object. Click the Add Arrowheads effect and set the effect to None. To finish the task, click OK.



Select Objects with the Same Fill and Stroke

If you need to select objects that are having same attributes, including fillcolor, stroke color, and stroke weight, do the following:

Go to Select menu> Same > Fill Color, Stroke Color, and Stroke Weight.

Work within a Live Paint group when a face or an edge is selected with the Live Paint Selection tool.

Same objects that are both inside and outside a Live Paint group cannot be selected simultaneously.

(i) If you need to select the objects with the same fill and stroke, select one of the objects in the Control panel and click the Select Similar Objects button. From the menu choose the attributes you need to select.

(ii) If you need to select all the objects which are having same fill or stroke color, choose the color from the Color panel or Swatch panel or Select an object with that fill or stroke color. Then go to Select menu > Same and select Fill Color, Stroke Color, or Fill and Stroke options from the submenu.

(iii) If you need to select all the objects which are having same fill or stroke weight, choose the stroke weight from the Stroke panel or select an object of having same weight. And then, go to Select menu > Same> select Stroke Weight option from the submenu.

(iv) In case if you need to apply the same selection options to different object, select a new object and then go to Select menu > Reselect.

(v) If you need to make the selection based on color, consider the tint of an object. Go to Edit menu > Preferences > General > Select Same Tint # per cent (Windows) or Illustrator > Preferences > General > Select Same Tint # per cent (Mac OS). If you select an object filled with 50 per cent tint of PANTONE Yellow C using this option and go to Select menu > Same > Fill Color option from the submenu. Only 50 percent tint of that color objects will be selected. If this option is deselected, then objects with any tint of PANTONE Yellow C will be selected.

Create Multiple Fills and Strokes

You can use the Appearance panel, if you need to create multiple fills and strokes for the same object. By adding multiple fills and strokes to an object, various captivating effects can be created. For instance, apply an effect to one fill and not to the other or on top of a wide stroke create a one more stroke which is quite narrow.

Choose Add New Fill or Add New Stroke, from the Appearance panel menu. Else, select a fill or stroke in the Appearance panel and click on the Duplicate Selected Item button. Define the color and other properties for the new fill or stroke. The position of the new fill or stroke may be needed to adjust in the Appearance panel. If you create two strokes of different widths, the narrower one will be appear above the wider stroke in the Appearance panel.

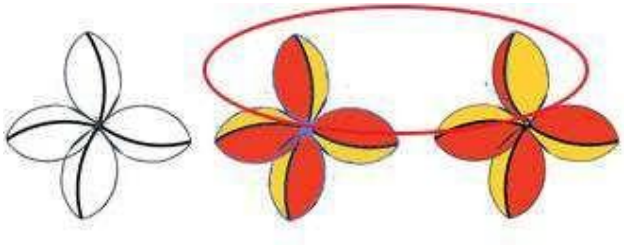
Live Paint Bucket Tool

(i) About Live Paint

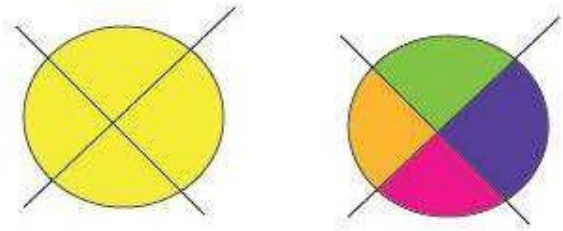
If you have converted your artwork to Live Paint groups, it allows to color them in the same way as like the traditional way i.e. coloring on canvas or on paper. You can fill not just closed paths, but each enclosed path, with a different color, pattern, or gradient, . You can also color each path segment with a different color. Live Paint makes you enable to use a full range of vector drawing tools of Illustrator. However, it treats all paths you draw, as if they were on the same flat surface. Therefore, it is just like a natural or traditional way to create colored drawings, i.e.no path is in front of or behind it. Instead, by the paths, the drawing surface is divided into different areas. Color can be applied on any of them, regardless of whether the area is bounded by by a single path or by segments of multiple paths. While Painting objects, you will experience just like you are painting using watercolors to paint

a pencil sketch or filling a coloring book.

Once a Live Paint group has been created, every single path can be edited. When you adjust the shape of a path, the colors will also get affected. And they will be to the applied to the new regions that are formed by the edited paths.



Edges and faces which can be painted are defined as parts of Live Paint groups. An edge is the portion of a path which intersects other paths. And the face is the area enclosed by one or more edges. faces and stroke edges can be filled. For example a circle with a line drawn across it. The line (edge) dividing the circle is actually creating two faces in the circle, as a Live Paint group. Each edge can be stroked and each face can be fill with a different color by using the Live Paint Bucket tool.



Illustrator performs the operations more quickly because Live Paint has multiprocessors to its advantage.

(ii) Live Paint limitations

If you use Live Paint Tool, the fill and paint attributes are not attached to the actual paths that define them like in other objects. In Live Paint group fill and paint attribute are attached to faces and edges. Because of this, few features and commands are not applicable to paths, or they work differently.

Following are the features and commands that only works on an entire Live Paint group, not on individual faces and edges:

a. Transparency

b. Multiple fills and strokes from the Appearance panel

c. Object > Rasterize

d. Effects

e. Object > Hide

f. Opacity Mask (in the Transparency panel menu) g. Object > Slice > Make

h. Object > Envelope Distort

i. Brushes (using the Appearance panel, if you add a new stroke to the group, you can apply brushes to an entire Live Paint group.)

Features and commands that do not work on Live Paint groups:

Features

a. Graphs

b. Gradient meshes

c. Symbols from the Symbols panel

d. The Magic Wand tool e. Align Stroke options from the Stroke panel

f. Flares

Commands

a. Blend

b. Outline Stroke

c. Expand (Instead you can use the Object > Live Paint > Expand command.)

d. Slice

e. Create Gradient Mesh

f. Clipping Mask > Make

Other commands that do not work on Live Paint groups:

a. View > Guides > Make

b. Object > Text Wrap > Make

c. File > Place d. Pathfinder

e. Select > Same >Blending Mode, Fill and Stroke, Opacity, Style, Symbol Instance, or Link

(iii) Create Live Paint groups

When you need to fill color for each edge or intersection in a single object, convert the artwork into a Live Paint Group. Some types of objects cannot be directly converted into Live Paint groups, for instance, type, bitmap images and brushes. These objects have to be converted into paths. And if you try to convert an object that has brushes strokes or effects, the complex visual appearance will be lost in the conversion to Live Paint.

However, if you convert the objects to regular paths and then convert it to Live Paint, can retain much of the appearance.

The artwork cannot be revert back to its original state after it is converted to a Live Paint group. Individual components of the group can be expanded or released back to its original paths with no fill and a .5 black stroke.

Following are the steps to create a Live Paint group:

Select one or more paths, compound paths or both. Then, perform one of the following steps:

a. Go to Object menu > Live Paint > Make

b. First select the Live Paint Bucket tool and then Click on the selected object.

After conversion some of the properties like transparency and effect, may be lost.

Some other objects such as type, bitmap images and brushes cannot be converted.

(iv) Convert objects to Live Paint groups

You need to follow one of the below steps for the objects that do not directly convert to Live Paint groups:

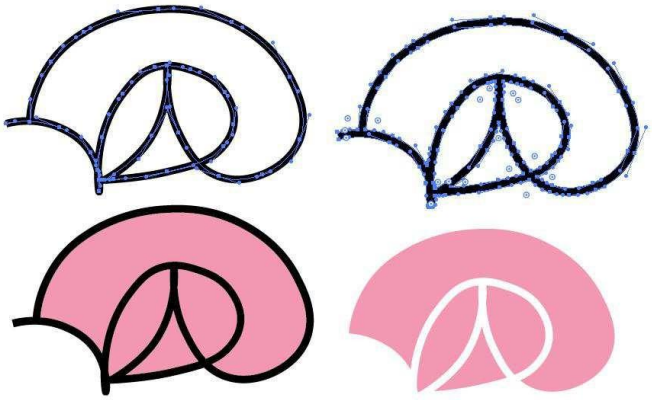
a. For type objects, select T, Create Outlines. Then, convert the resulting paths into a Live Paint group.

b. For bitmap images, select Object > Live Trace > Make and Convert to Live Paint.

c. For other objects, select Object > Expand. Then, convert the resulting paths into a Live Paint group.

(v) Expand or Release a Live Paint Group

When you expand a Live Paint group it changes to one or more ordinary paths, which looks like similar to the Live Paint group but are separately filled and stroked. Releasing a Live Paint group will change it into one or more ordinary paths with no fill and a .5-point black stroke. You can select and separately modify these paths, using the Group Selection tool.



Select the Live Paint group followed by any one of the following:

a. Select Object > Live Paint > Expand

b. Select Object > Live Paint > Release

(vi) Select items in Live Paint groups

You can use the Live Paint Selection tool to select individual faces and edges in a Live Paint group. The Selection tool helps to select the entire Live Paint group, whereas the Direct Selection tool helps to select paths inside a Live Paint group. To select the exact face or edge in a easy way while working in a complex document, you can isolate a Live Paint group.

Choosing a Selection tool depends on your requirement as what you want to change in a Live Paint group. For example, on different face, if you need to apply different gradients in a Live Paint group, the Live Paint Selection tool will be required. Whereas to apply the same gradient across the entire Live Paint group, the Selection tool will be needed. If you need to select the entire Live Paint group, click on the Selection tool and then select that group. Within a Live Paint group, to select an original path, with the help of the Direct Selection tool click a path inside the Live Paint group.

(vii) Select faces and edges

When the Live Paint Selection tool is positioned over an edge the pointer changes the edge pointer. Similarly, when it is positioned over a face, it changes to the face pointer and if it is positioned anywhere outside of a Live Paint group, it changes to the x pointer. Do the following, after selecting the Live Paint Selection tool:

a. To select an individual face or edge, click on a face or an edge.

b. Drag a marquee around the items you want to select, to select multiple faces and edges. You can also make partial selections.

c. Double-click a face to select all contiguous faces that are not separated by a painted edge.

d. To select faces or edges with the same fill or stroke, Click on that then go to Select menu> Same and then select Fill Color, Stroke Color or Stroke Weight from the submenu. Or just triple-click on the element.

e. Press down Shift+click or Shift+drag a marquee around the items to add the items to, or remove items from the current selection.

(viii) Isolate a Live Paint group from the rest of the artwork

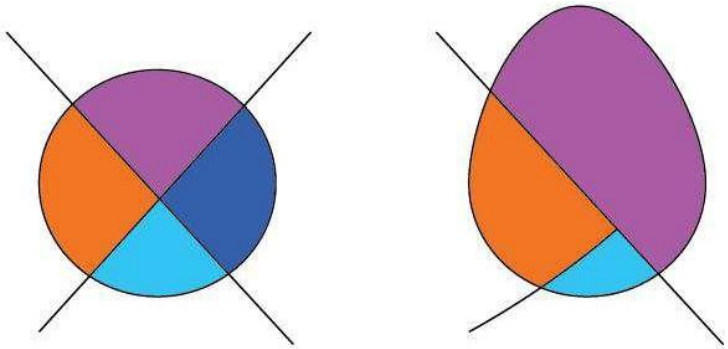
To isolate a Live Paint group, follow one of the below steps by using the Selection tool:

a. Select the group and in the Control panel, click on the Isolate Selected Group button.

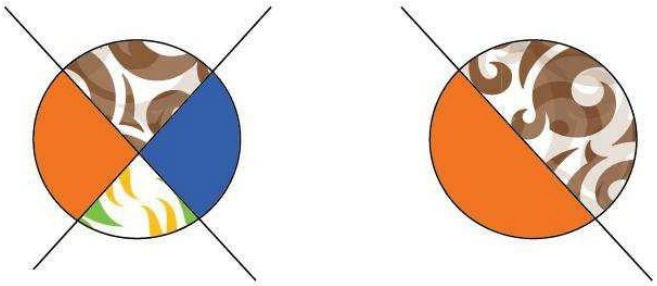
b. Double-click the group

(ix) Modify Live Paint groups

From the existing group You can modify a path by using fills and strokes. As well as with the help of Live Paint Bucket tool, colors can be re-applied as per the requirement.



As shown in the above image, the fill floods across any newly expanded face, when you delete edges. In this example, the path which dividing the circle has been deleted, the circle is filled with one of the fills that is already within the circle. Sometimes you can help guide the results.

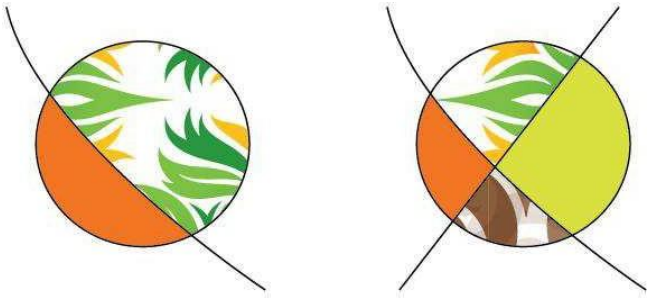


The above image shows how Live Paint group looks before and after deleting a path.

In the Swatches panel fill and stroke colors can be saved that were used in Live Paint groups. That way, swatch can be selected and re-applied to the fill or stroke with the help of the Live Paint Bucket tool, if a change loses a color that should be their.

(x) Add Paths to a Live Paint group

As if more paths were added to the Live Paint group, fill and stroke can be applied to the new faces and edges that are created.



The above image displays the example of how a Live Paint group behaves before and after adding a new path and painting the new faces and edges created by it.

To perform the same, any of the below steps can be followed:

a. Select the Selection tool and double-click the Live Paint group, to put the group into isolation mode or from the control panel, click the Isolate Selected Group button. Then draw a new path. The new path will be added to the Live Paint group, then exit the Isolation mode by clicking the Exit Isolation Mode button.

b. Select a Live Paint group and the paths that is going to be added. Then, click Merge Live Paint in the Control panel or go to Object menu > Live Paint > Merge.

c. With selecting the Layers in the panel, drag one or more paths into a Live Paint group.

d. You may find that the Paths inside a Live Paint group may not exactly align with paths outside the Live Paint group that may be similar or identical.

(xi) Paint with the Live Paint Bucket tool

With the current fill and stroke attributes, the faces and edges of Live Paint groups can be painted with the Live Paint Bucket tool. If swatch library is used to color then the tool pointer displays one or three color squares. This represents the selected fill or stroke color and the two colors adjacent to the selected color in the library. By using the left or the right arrow key, adjacent colors can be accessed, as well as the colors next to those and so on.

For this, select the Live Paint Bucket tool, then select the fill color or stroke color and the size that you want in the art.

If a color is selected from the Swatches panel, the pointer changes to display three colors. The two adjacent colors are on either side and the selected color is in the middle. Click the left or right arrow key to use an adjacent color. To paint a face, choose any one function from of the below:

a. Select a face which need to be filled. (when the pointer is over a face, it will change to a half-filled paint bucket, and highlights the lines surrounding the interiors of the fill.)

b. You can drag across multiple faces to paint more than one face at a time.

c. Double-click a face (flood fill) to fill across edges which are not stroked into adjacent faces.

d. To fill all faces which have the same fill, triple-click the face.

e. To paint an edge, double-click the Live Paint Bucket tool and select Paint Strokes.

f. Toggle to the Paint Strokes option by pressing Shift key to and then perform any one of the following steps:

i. To apply stroke, click an edge. (When the pointer come across an edge, the pointer changes to a paint brush, and the edge is highlighted.)

ii. You can drag across multiple edges, to stroke more than one edge at a time,.

iii. Double-click an edge (flood stroke) to stroke all connected edges of the same color.

vi. To stroke all edges of the same stroke, triple-click an edge.

Use Shift key to quickly toggle between painting only strokes and only fills. These changes can be specified in the Live Paint Bucket Options dialog box. In case if you have currently selected both the Paint Fills option and the Paint Strokes option , pressing Shift key will switch to Paint Fills only. However, if you try to fill a small face surrounded by stroked edges, you can do this easily.

a. Live Paint Bucket options

With the help of Live Paint Bucket options, it is easy to choose how to highlight faces and edges. This can be done by moving the tool over the object. You can also use them to paint fills, strokes or both. If you double-click the Live Paint Bucket tool, you will get below options:

i. **Paint Fills:** To paint the faces of Live Paint groups.

ii. **Paint Strokes:** To paints the edges of Live Paint groups.

iii. **Cursor Swatch Preview:** This option will be displayed, whenever a color from the Swatches panel is selected. There will be three colors available in the swatches panel when you select the Live Paint Bucket tool. The first one is the selected fill or stroke color and the two colors adjacent to it, on its right and left.

iv. **Highlight:** The face or edge over which you move the cursor, this option outlines it. You will get a thick line when the faces will be highlighted and a thin line will appear when the edges will be highlighted.

v. **Color**: With the help of this option a color can be defined for the highlighted element. You can choose a color from the menu or click the paint swatch to specify a custom color.

vi. **Width**: To specify the thickness of the highlighted element.

(xii) Close gaps in Live Paint groups

Gaps are the small spaces between the paths. In case if the paint leaks through the desired element then there must be a gap in your artwork. And thus the faces which you do not want to will get colored. Within the Live Paint group gap options can be adjusted by editing existing paths to close the gap or you can create a new path that closes the gap. By overdrawing paths, i.e., extending them past each other, you can avoid gaps in your Live Paint artwork. You can then apply a stroke of 'None' to them or select and delete the excess edges that result.

(xiii) Highlight gaps in a Live Paint group

Go to View menu > Show Live Paint Gaps. The option will highlight any gap in your currently selected Live Paint Group, the indication will be based on the settings specified in gap option.

a. Set Live Paint gap options

Go to Object menu > Live Paint > Gap Options and any of the following can be specified:

i **Gap Detection**: This option helps to prevent paint flowing through gaps. This option may cause for slow performance of Illustrator incase if the Live Paint group is large or complex in nature. If you face such problem then select Close Gaps with Path option for better performance.

ii. **Paint Stops At:** This option prevents the flow of paint by adjusting the size of the gap to such an extent.

iii. **Custom:** This option defines a custom Paint Stops at gap size.

iv. **Gap Preview Color:** This option set color to provide a preview of the gaps in the Live Paint Group. A custom color can be specified by clicking the color next to the Gap Preview Color menu, or select a color from the menu.

v. **Close Gaps With Paths:** To close gaps, this option creates unpainted paths into the Live Paint group(not simply prevent paint from flowing through the gaps). Notice that as these paths are unpainted, you can see the gaps are still appearing though they have been closed.

vi. **Preview:** This option provides a preview of the gaps which is based on the selected preview color. Colored lines will be displayed in the gaps.

b. Gap rules for merged Live Paint groups

When you merge Live Paint groups that have different gap settings, the following rules are applicable:

i. If in all groups in the selection the gap detection is off, all gaps are closed and gap detection is turned on with Paint Stops set to Small Gaps. This works when gap detection is off in all groups of the selection.

ii. If gap detection is on and the gap setting is preserved, if gap detection is on and the same for all groups in the selection.

iii. Gaps are closed and the gap settings of the last Live Paint group are preserved, if gap detection is on for that group. If gap detection is mixed for the selection, it is turned on and Paint Stops. Set to Small Gaps, the last group has gap detection turned off.

CHECK YOUR PROGRESS

3. Define Caps and Joins?

4. Explain Blob brush tool?

5. Make a list of Blob Brush tool options.

6. List the Live Paint Bucket options.

2.6 DRAW WITH THE BRUSH TOOL

The brush tool can stylize the appearance of the paths. You can apply a brush stroke while using the Paintbrush tool. Brush strokes can be applied to the already created paths. There are four types of brushes available in Illustrator: a) **Calligraphic**, b) **Scatter**, c) **Art** and d) **Pattern**. The following effects can be applied with these brushes:

Calligraphic brushes

The strokes of these brushes are similar to those drawn along the center of the path. These are drawn with the an angled point of a calligraphic pen. The Blob Brush tool allows to paint with a calligraphic brush and to fill a shape use the brush stroke. The shape will be automatically expanded and it merges with other same colored filled objects, that are adjacent or intersect in the stacking order.

Scatter brushes

It makes scattered copies of an object, along the path, e.g., a leaf or a butterfly.

Art brushes

These brushes stretch a brush shape or object shape, evenly along the length of the path, e.g., rough charcoal.

Pattern brushes

These brushes paint a pattern which includes individual tiles, and these tiles repeats along the path. In pattern brushes up to five tiles can be included. These are, for inner corner, the sides, outer corner, beginning and end of the pattern.



The above image displays examples of brushes:

A. **Calligraphic brush**

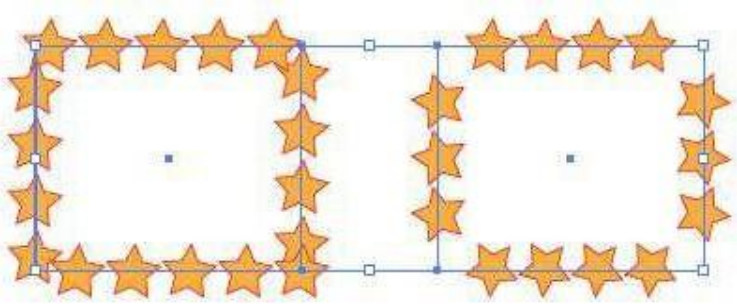
B. **Scatter brush**

C. **Art brush and**

D. **Pattern brush**

Sometimes Scatter brushes and Pattern brushes generates same effect. However, the main

difference is that Scatter brush does not follow the exact path but Pattern brushes do.



In the above image, stars in the left side they remain straight in a Scatter brush but in the right side a Pattern brush bend to follow the path.

2.6.1 Brushes Panel Overview

Brushes and their sub options are displayed within Brushes panel (go to Window menu> Brushes). When you select a brush from the brush library a new brush will be added to the Brushes panel. Each Illustrator file can have various and different sets of brushes in its Brushes panel. The brushes that are created and stored by the user in the Brushes panel will be associated only with that particular file.

(i) Show or hide a type of brush

From the panel menu any of the following can be chosen as a brush:

Show Calligraphic Brushes,

Show Scatter Brushes,

Show Art Brushes and

Show Pattern Brushes

(ii) Change the view of brushes

List View or Thumbnail View can be chosen from the panel menu.

(iii) Change the order of brushes in the Brushes panel

Brushes can be moved by dragging it to a new location. But you can move the brush within the same type. For example, a art brush can be moved within the art brushes not in the Scatter or other brush area.

(iv) Duplicate a brush in the Brushes panel

Click on the Brushes panel menu (top - right) and select Duplicate Brush option or drag the brush

onto the New Brush button (second option in the bottom).

(v) Delete the brushes from the Brushes panel

Select the brush which you want to remove and click the Delete Brush button, or go to the Brushes panel menu (top - right) and select Delete Brush option, or go to the Brushes panel menu >Select All Unused, and select brushes that are not used in the document.

(vi) Work with brush libraries

Brush libraries is the collection of preset brushes that come by default with the Illustrator. To use them go to Window menu > Brush Libraries > select a set of brush presets. To browse through their contents and select brushes, you can open multiple brush libraries. The Brushes panel menu also has option to access brush libraries.

If you want to open Brush library automatically at the time of starting Illustrator, Select Persistent from the brush library's panel menu.

(vii) Copy brushes from a brush library to the Brushes panel

From the brush library's panel menu > Select Add To Brushes or you can also drag the brushes to the Brushes panel.

(viii) Import brushes into the Brushes panel from another file

Go to Window menu > Brushes Libraries > Other Library > choose the file

(ix) Create new brush libraries

You can save your own created brushes by creating the new brush library. To do this, add the brushes that you want in the Brushes panel and delete those brushes that are not needed further. Then, go to the Brushes panel menu and select Save Brush Library option. The new library file will be placed in one of the following folders, so that next time when you restart Illustrator it will be available in the Brush Libraries menu:

a. In Windows XP: Documents and Settings > User > Application Data > Adobe > Adobe Illustrator Settings > Brush

b. In Windows Vista: User > AppData > Roaming > Adobe > Adobe Illustrator CS6 Settings > Brush

c. In Mac OS: Library > Application Support > Adobe > Adobe Illustrator CS4 > Brush

If the file is placed in a different folder: choose Window > Brush Libraries > Other Library > select the library file, to open the library.

(x) Apply brush strokes

A brush stroke can be applied to a path which is created by the Pen tool, Pencil tool or basic shape tools. Follow any of the any step:

a. Click on the path > Select a brush from the Brush library , the Brushes panel or the Control panel.

b. By dragging a brush onto the path. In case if the brush strokes has already applied to the path, then the new brush will replace the old brush.

If you want to use the original brush stroke settings a different brush, then press Alt key(Windows) or Option key (Mac OS) at the time of clicking the new brush.

(xi) Draw paths and apply brush strokes simultaneously.

Select a brush from the brush library or the Brushes panel. The Paintbrush tool will be selected. Place the pointer to the starting point of the path and drag the cursor to draw the path, it will create a path with a brush stroke. You will find a dotted line follows the pointer, as you drag. Now follow one of the below steps:

a. Release the mouse button after the path obtains the desired shape, in case of an open path.

b. If you need to draw a closed path then press Alt key(Windows) or Option (Mac OS) while dragging. And release the mouse button .

As you draw, Illustrator creates the Anchor points. The length and complexity of the path defines the number of anchor points and as well as by the Paintbrush tolerance settings.

After finishing the drawing, if some adjustment needed,then select the path. Then position the Paintbrush tool on the path and drag until the path gets the desired shape. The technique can also be used to extend a brushed path.

2.6.2 Paintbrush Tool Options

You need to double-click the Paintbrush tool, to set the following options:

(i) **Fidelity:** This option controls the distance a cursor covers, before a new anchor point will be added to the path. For instance, if the Fidelity value is set to 0.5 then the tool movement of less than 0.5 pixels is not registered. The range of Fidelity is from 0.5 to 5 pixels. The smoother and less complex the path, the higher the value of Fidelity.

(ii) **Smoothness:** This option defines the amount of smoothing. The percentage of smoothness ranges from 0 to 100. As higher the value, the smoother the path.

(iii) **Fill New Brush Strokes:** This option applies a fill to the path. In case of closed paths, this option is more useful.

(iv) **Keep Selected:** This option will keep the path selected, after drawing it.

(v) **Edit Selected Paths:** This option controls a change in the existing path with the Paintbrush tool.

(vi) **Within pixels:** At the time of editing the path with the Paintbrush tool, this option determines the distance between the cursor and the path. This option is only available, when the Edit Selected Paths option is activated.

(vii) Remove brush strokes: Select the desired brushed path > click the Remove Brush Stroke button in the Brushes panel(first option at the bottom). Or select Remove Brush Stroke from the Brushes panel menu.

(viii) Convert brush strokes to outlines: If you need to edit individual components of a brushed path, you can convert brush strokes into outlined paths. Select a brushed path then go to the Object menu > Expand Appearance. Illustrator places the components of the expanded path in a group. This group contains paths and subgroups which has the brush stroke outlines within the group.

(ix) **Create or modify brushes**: you can create new calligraphic, scatter, art and pattern brushes, which will be based on your settings. To create scatter, art and pattern brushes, the artwork created. At the time of creating the artwork for brushes, consider follow guidelines:

a. In the artwork elements like gradients, blends, mesh objects, bitmap images, graphs, other brush strokes, placed files, or masks cannot be added.

b. Type for art and pattern brushes cannot be added in the artwork. Create an outline of the type and then create a brush with the outline to achieve a brush-stroke effect with type.

c. Create up to five pattern tiles for pattern brushes. Depending on the brush configuration, tiles are added to the Swatches panel.

(x) **Create a brush**: Select the artwork to be used as scatter and art brushes. To create pattern brushes, the artwork for the side tile can also be used. In the Brushes panel > click the New Brush button (or drag the selected artwork to the Brushes panel) > select the type of brush you need to create > click OK > enter a name of the brush. If required set brush options and click OK.

(xi) Modify a brush

a. To modify the options of a brush, double-click the brush in the Brushes panel. After defining the brush options, click OK. You will get a message, if in current document, the brushed paths that use the modified brush are contained. To change pre-existing strokes, click Apply To Strokes. And if you do not want to make changes in pre-existing strokes, click Leave Strokes and apply the modified brush only to new strokes.

b. You can use brushes like scatter, art, or pattern brush into your artwork by dragging the brush into your artwork and make the changes you need, using these brushes. In the Brushes panel, the modified brush is dragged by using the Alt-drag (Windows) or Option-drag (Mac OS) onto the original brush.

c. If you need to modify the path created by brush, go to Brushes panel > select the path and click the Selected Object button. This updation will not effect the corresponding brush.

(xii) Brush options

The options of the brushes can be defined for each separate brush. To make changes, in the Brushes panel, double-click the brush.Options for the colonization are same for all the brushes(Scatter, Art and Pattern).

a. Calligraphic brush options

i. Angle: With this option you can defines the angle of rotation for the brush. A value can be specified in the Angle box or you can drag the arrowhead in the preview.

ii. Roundness: This option defines the roundness of the brush. A value can be specified in the Roundness box or you can drag a black dot in the preview, away from or towards the center. Higher the value, greater the roundness.

Iii. Diameter: This function defines the diameter of the brush. Specify a value in the Diameter box or use the Diameter slider.

Variations in the shape of a brush can be controlled by using the pop-up list to the right of each option. You can choose one of the below options:

• **Fixed:** A brush with a fixed angle, roundness or diameter is created.

• **Random: You can create** a brush with customized variations in angle, roundness or diameter. The properties can be varied by specifying the values in the Variation box. For example, the diameter can be 10 or 20, or any value in between these.

• **Pressure:** Properties of the Brush like angle, roundness, or diameter are based on the pressure of a drawing style. When used with Diameter, this option is most useful. This option is only available with a graphics tablet. In the Variation box, the value to specify the brush characteristic with respect to the original value can be defined. For example, when the Variation value is 10 per cent and the Roundness value is 35 per cent, then the heaviest stroke is 50 per cent approx and the lightest stroke is 25 per cent approx. The more angular the brush stroke, the lighter the pressure.

• **Stylus Wheel**: A Brush with varied diameter can be created which will be based on manipulation of the stylus wheel. This option is projected to be used with a graphics tablet. This tablet can detect the pen which has a stylus wheel on its barrel.

• **Tilt**: A Brush with varied angle, roundness or diameter can be created which will be based on the tilt of a drawing stylus. This option will be most useful when it is used with roundness. This option is available only with a graphic tablet, which can detect how the pen is vertically inclined .

• **Bearing**: A Brush with varied angle, roundness or diameter can be created which will be based on the bearing of the pen. This option will be most useful, when it is used to control the angle of calligraphic brushes. Especially in the case, when you are using the brush like a paintbrush. This option is available only with a graphic tablet, that can detect the direction in which the pen is tilted.

• **Rotation**: A Brush with varied angle, roundness or diameter can be created which will be based on rotation of the drawing tip of the stylus pen. This option will be most useful, when used to control the angle of calligraphic brushes. Especially, in the case when you are using the brush like a flat pen. However, this option is only available when you have a graphics tablet that can detect the type of rotation.

(xiii) Coloring options for scatter, art and pattern brushes

The colors painted by using a scatter, art or pattern brush, defined by the current stroke color and the coloring method of the brush. From the Brush Options dialog box, choose one of the below options to set the coloring method:

a. None: Colors are displayed as they appear in the brush, on the Brushes panel. To keep the colors in a brush the same as those in the Brushes panel, choose None.

b. Tints: The brush stroke will be displayed in the form of tints of the stroke color. If you use this option, white remains white and portions of the art that are black become like the stroke color. Non black part of the artwork become lots of the stroke color. if spot color is used, which is the same as the stroke Tints, it will generate tints of the spot color. You can use Tints when to paint a brush stroke with a spot color is needed and black and white brushes.

c. Tints and Shades: Brush stroke that will be shown in tints and shades of the stroke color. Colors between black and white in Tints and Shadows, will be turn into a blend from black to white. A single plate can not be printed, when using Tints and Shades with a spot color because of the addition of black color.You can select Tints and Shades for brushes that are in grayscale.

d. Hue Shift: As shown in the Key Color box, in the brush artwork this option uses the key color. The key color is the most prominent color in the art by default. All the elements in the brush artwork, that has same properties like the key color will be converted to the stroke color. Rest of the colors in the brush artwork will be converted to colors that are relevant to the stroke color. Hue Shift maintain the Black, white and grey colors. Select Hue Shift for multiple colored brushes. In case of changing the key color, select the Key Color eyedropper > in the dialog box move the eyedropper to the preview > and select the color that you need to use as the key color. The color in the Key Color box changes as desired. To deselect it, click the eyedropper again.

Scatter brush options

In the Scatter Brush function, below options are available:

a. **Size**: It controls the size of the objects.

b. **Spacing**: The amount of space between objects can be specified or control.

c. **Scatter**: This option controls the closeness of the objects to the path,on either side separately. The higher the value is specified, the farther the objects will be from the path.

d. **Rotation**:This option controls the angle of rotation of the objects. Path or page related scattered objects, this option sets the angle of rotation. For example, objects point to the top of the page if the page is set to 0 degrees. Objects are tangent to the path, if at the path is set at 0 degrees.

To apply variations in the shape of the brush , you will find options in the pop-up list to the right of each option. Select one of the following options:

a. **Fixed**: A brush with a fixed size creates scattering, spacing and rotation.

b. **Random**: To create random scattering, spacing and rotation effect, use variations in size in the brush. The range within which the brush characteristic can vary, depends upon the entered value in the Variation box. For example, the diameter can be 10 or 20, or any value in between.

c. **Pressure**: A brush with varied roundness, angle or diameter can be created which is based on the pressure of a drawing stylus. This option is available, only with a graphics tablet. A value can be specified in the box which is present at the right side of the screen or slider can be used. Pressure uses the maximum value for the heaviest pressure and the minimum value for the lightest tablet pressure. When this setting has been defined for Diameter, in that case as the heavier the stroke, the larger the objects will be.

d. **Stylus Wheel**: A brush which varies in diameter can be created by specifying the settings defined for the stylus wheel. This option is only available when you have a graphics tablet, because it has a stylus wheel on its barrel and can detect input from a pen.

e. **Tilt**: A brush that varies in angle, roundness or diameter can be created which is based on the tilt of a drawing stylus. This option is available, only with a graphics tablet because it can detect how vertically inclined, the pen is.

f. **Bearing**: A brush which varies in angle, diameter and roundness which will be based on the pressure of a drawing stylus can be created with this option. This option has more importance in case of controlling the angle of brushes. This option is available, only with a graphics tablet that can detect the tilt direction of the pen.

g. **Rotation**: A brush which varies in angle, diameter and roundness which will be based on the manner in which the drawing stylus pen tip is rotated can be created by using this option. This option has more importance in case of controlling the angle of brushes. This option is available only with a graphics tablet that can detect such rotation.

(xiv) Art brush options

a. **Direction**: The artwork's direction is determined in relation to the line. In case of setting the direction, click an arrow in such a way that the end of the stroke will be the left side of the art. Same manner should be implemented to the right, top and bottom sides of the art.

b. **Proportions**: Proportions will be preserved in scaled art.

c. **Width**: The width of the art will be modified, and it will be in relative to the original width.

d. **Flip Along or Flip Across**: The rotation of the art changes-in relation to the line.

(xv) Pattern brush options

a. **Scale:** The size of tiles is modified which are relative to their original size.

b. **Spacing:** The space between tiles is modified.

c. **Tile buttons:** With the help of this option, various patterns can be applied to the different parts of the path. To defile for the tile, select a tile button and choose a pattern swatch from the scroll list. Repeat the same steps as per the requirement for other tiles.

The pattern tiles must be applied to the Swatch panel, if you need to specify the setting to pattern brush options.Once you have created a pattern brush, pattern tiles can be deleted from the Swatches panel.

You need to double click the Paintbrush to, to set the following options:

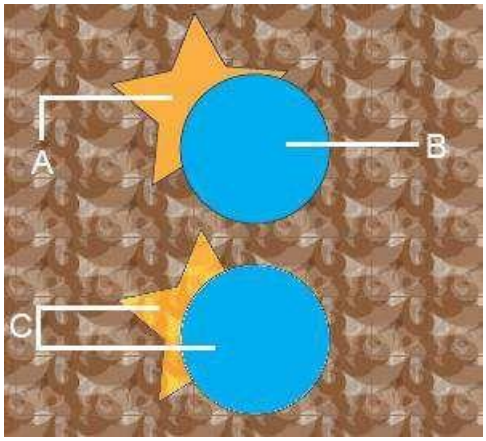
a. **Blending modes**

With the help of this option you can blend colors of the objects with the colors of underlying objects. You can also blend colors in different ways, with this option. The objects that are below the group on which the blending mode is applied, can be seen. The effect of blend will appear in which manner should be considered in terms of the following:

i. The blend color: The color that the selected layer, object, or group has

ii. The base colon the color that the artwork already has

iii. The resulting color: the color of the final blend



Above image displays the object with Normal blending (above) as compared with the Hard Light blending mode (below).

In this image, we can observe: **A.** Base colors of underlying objects at 100 per cent opacity **B.**

Blend color in top most object **C.** After the application of the Hard Light blending mode to the lower object.

In Illustrator you will find following blending modes:

a. **Normal**: This is the default mode. It does not interacts with the base color while painting the selection with the blend color.

b. **Darken**: This option selects the darker color whether it is blend color or the base color as the resulting color. The Area which is darker than the blend color does not change, though the lighter area than the blend color get replaced.

c. **Multiply**: This option always results in a darker color, when the base color will be multiplied by the blend color. White color will always get uneffected multiplied with any color. And in case of Black, the resulting color would be black. It's just like on page drawing with multiple magic markers.

d. **Color Burn**: The base color will be darkened to reflect the blend color. White color does not get any effect.

e. **Lighten**: This option selects the lighter color as the resulting color, whether it is blend color or the base color. Areas which are darker as compared with the blend color will be replaced, whereas the lighter than the blend color will not be changed.

f. **Screen**: The inverse of the base and the blend colors will multiply by this option. It always produces lighter color in the result. While color will not get any effect, while black leaves the color unchanged. Projecting images with multiple slides on top of each other have exactly the similar effect, as that produced by this option.

g. **Color Dodge**: The base color is lighten to reflect the blend color, but in case of black color, there is no changes.

h. **Overlay**: This option multiplies or produces effect like screen mode, depends on the base color.

i. **Soft Light**: Based on the blend color, this option darkens or lightens the colors. The resulting effect is like shilling a diffused spotlight on the artwork.

j. **Hard Light:** Based on the blend color, this option multiplies or screens the colors. The result will be like shining a harsh spotlight on the artwork. In case of if blend color is more dark than 50 per cent grey, the artwork is darkened. This plays very important role when you are adding shadows to the artwork. If the blend color (light source) is more light than 50 per cent grey, the artwork is lightened just like it is screened. This plays very important role when you are adding highlights to artwork. The artwork results in pure black or white if pure black or white color is used.

k. **Difference**: Based on the brightness value, it subtracts either the base color from the blend color or vice versa. When black color is blended, it does not get any effect while it inverts the values of the base color when blended with white color.

l. **Exclusion**: If you use this option, it will produce a resulting color effect same as Difference

mode, but the will be lower.Balck color will not get any effect and, but blending with white inverts the components of the base color.

m. **Hue**: This option produces a resulting color with the hue of the blend color and the luminance and saturation of the base color.

n. **Saturation**: This option will saturate the blend color and the luminance and the hue of the base color. Gray color which does has saturation, will not get any effect with this mode.

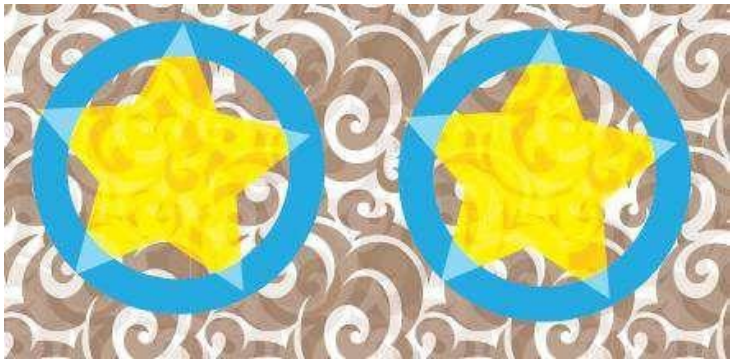
o. **Color**: This option creates the hue and saturation of the blend color and applies luminance of the base color. It plays important role in the case of monochrome artwork and if you need to preserve grey levels where you need to tint color artwork.

p. **Luminosity**: This option creates the luminance of the blend color and the hue and saturation of the base color. With this mode, you can invert the effect as compared to that of the color mode. Spot colors are not blended with the Difference, Exclusion, Hue, Saturation, Color and Luminosity modes. A black is designated as 100 per cent.

(xvi) Change the blending mode of artwork

Select a layer in the Layers panel or an object or group. If you need to change the blending mode of a fill or stroke, select the object, then in the Appearance panel select the fill or stroke. In the Transparency Panel, select a blending mode from the pop-up menu.

You can also isolate the blending mode to a targeted layer or group, to leave objects beneath unaffected. To do this, using a blending mode, the target icon is selected to the right of a group or layer in the Layers panel that contains an object. Select Isolate Blending in the Transparency panel > Select Show Options from the Transparency panel menu, if the Isolate Blending option is not visible.



The above image shows a group (star and circle) with the Isolate Blending option deselected (left) and selected (right).

If you need to select all objects with similar blending mode, click outside the artboard (deselect all) and select the blending mode in the Transparency panel. Or select an object on which blending mode is applied and go to Select menu> Same > Blending Mode.

CHECK YOUR PROGRESS

7. Write down steps to copy brushes from a brush library to the Brushes panel?

8. Name the calligraphic brush options.

9. List the Coloring options for scatter, art and pattern brushes.

2.7 SUMMARY

The Pencil tool is a useful tool in Illustrator, with the help of this tool you can sketch or create hand-drawn look artwork easily.

When a path is drawn with the pencil tool, anchor points will be automatically set in the form of a path And later on they can be adjusted once the path is complete.

With the help of Pencil tool open or closed path can be created, they can be edited and reshaped.

The Fidelity option controls the distance of the mouse your has to move before a new anchor point is added to the path.

To control the applied smoothness,the Smoothness option can be used. Values between 0 to 100 can be used for smoothness.

Adobe Illustrator avails art, scatter, calligraphic and pattern brushes, so that user can add visual interest in the artWork. These brushed helps to paint with Objects and Live Paint groups.

For creation and merging the paths, the Blob brush avails various options.

In Illustrator you can convert strokes to compound paths. By using Live paint you can color them freely. This experiences just like drawing on canvas or on paper.

Live Paint provides facility to use the full range of Illustrator's vector drawing tools. However, it treats all paths as they were on the same flat surface. Therefore, it is an natural way to create colored drawings.

By using the Brush tool, you can stylize the appearance of paths. With the help of Paintbrush tool a path can be drawn and can apply a brush stroke simultaneously. Brush strokes can also be applied to existing paths. There are four types of brushes available in Illustrator. They are, calligraphic, scatter, art and pattern.

2.8 KEY TERMS

Fidelity: It controls the distance of the cursor has to move before creating a new anchor point to the path.

Smoothness: It controls the applied smoothness.

Fill new pencil strokes: After selecting this option, you can fill the strokes.

Face: The area enclosed between different paths and colored separately.

Edge: Different stroke colors and weights that are assigned to portions of a path between intersections.

Fill: A color, pattern or gradient applied to the abject.

Stroke: The outline which can be easily seen, of an object, path or the edge of a Live paint group.

Blob brush tool: You can use this tool to paint filled shapes that can be intersected and merged with other shapes of the same color.

Calligraphic brushes: Create strokes that are similar to those drawn along the center of the path.

Scatter brushes: It makes copies of an object along the path.

Art brushes: Stretch a brush shape or an object shape evenly along the length of the path.

Pattern brushes: Creates a pattern that is made of individual tiles.

2.9 END QUESTIONS

1. Describe the procedure to reshape path with the Pencil tool?

2. Write steps to draw closed paths with the Pencil tool ?

3. How would you convert strokes to compound paths, Explain.

4. List down the options that appear on a brushes panel.

5. What are the limitations of the Live Paint Bucket Tool? Write them.

6. Note down the various Blob Brush tool options?

7. Explain the procedure for creating merged paths with a Blob Brush tool.

8. What are the different types of brushes?

2.10 FURTHER READING

Olav Martin Kvern, David Blatner, Bob Bringhurst (2012). Real World Adobe InDesign CS6 : Peachpit Press.

Karlin D. (2008). Learning Illustrator Cs6 with 100 Practical Exercises: Adobe Press.

Adobe Creative Team. (2012). Adobe Illustrator CS6 Classroom in a Book: Adobe Press.

Sharon Steuer (2012).Adobe Illustrator CS6 WOW! Book, The Peachpit Press.

Peter Lourekas, Elaine Weinmann (2012). Illustrator CS6: Visual QuickStart Guide, First Edition. Peachpit Press.

UNIT 3 DRAW WITH THE PEN TOOL

Structure

3.0 Introduction
3.1 Unit Objectives
3.2 Pen Tool
3.3 Create and Edit Smooth Anchor Points
3.4 Draw Wave Forms
3.5 Manipulate Control Points
3.6 Edit with the Pen Tool
3.7 Manage Paths
3.8 Summary
3.9 Key Terms
3.10 END QUESTIONS
3.11 Further Reading

3.0 INTRODUCTION

You can say that, the Pen tool is one of the most useful tool in Adobe Illustrator. Besides it counts as the basic tool of Illustrator, you can create as simple as a line to complex curves and shapes or other designs. Practice can bring you the maximum utilization of this tool. It is very flexible and easy to use tool, which can bring out the creativity within you. With the help of Pen tool, you can edit and smoother anchor points. Drag the mouse while pressing button to create curves and lines. Pen tool can also draw different types of wave forms.

The shape of an object is defined by the Anchor points. The pen tool defines a curve associated with an anchor point. By moving the anchor points, curves can be edited easily but in print, more number of anchor points makes a curve to appear less smooth then as it appears on screen. First select a anchor point or a segment or may be both to edit or reshape a path.

3.1 UNIT OBJECTIVES

After finishing this unit, you will be able to:

• Understand curves and how to draw them with the pen tool

• How to create and edit smooth anchor points

• Understand the manipulation of control points

• Understand how to edit with the pen tool

• Know how to manage paths, using the pen tool

3.2 PEN TOOL

With the help of Pen tool you can perform various tasks. From the following paragraphs, you will learn about:

(i) **Draw curves with the pen tool**

By dragging the direction lines of a anchor points, a curve can be created. Direction lines defines the length and slope of the curve and they are very important in Illustrator.

(ii) Draw straight lines followed by curves

Go through the following steps:

a. By using pen tool, click corner points in two distinct locations. This will create a straight segment.

b. Place the pen tool over the selected endpoint. When you place the Pen tool on the exact position, you can see a convert point icon next to it.

c. Click Next to create the slope of the curved segment.

d. Click the anchor point and drag the direction line until the desired slope or curve has not been created. (Figure 3.1).

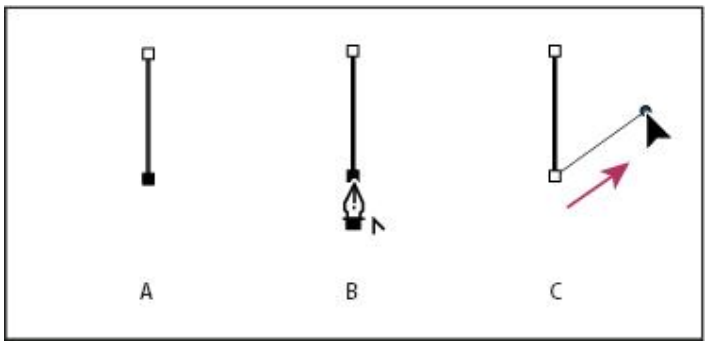


Fig. 3.1 A. Straight Segment Completed B. Positioning Pen Tool over Endpoint C. Dragging Direction Point

e. Move the pen where you need the next anchor point, then click (and drag, if required) the new anchor point to complete the curve (Figure 3.2).

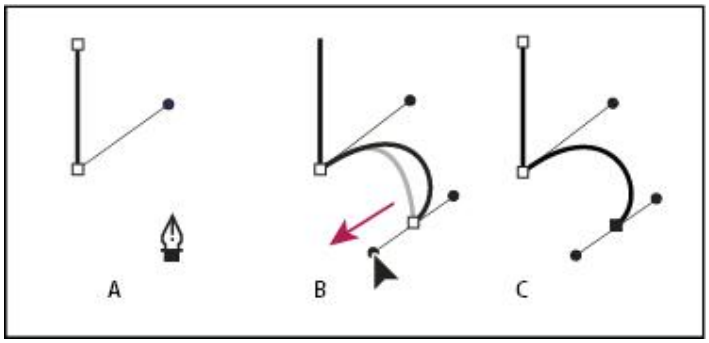


Fig. 3.2 A. Positioning Pert Tool B. Dragging Direction Line C. New Curve Segment

(iii) **Draw two curved segments connected by a corner**

This involves below steps:

a. First, by dragging the Pen tool, create the initial smooth point of a curved segment.

b. Drag the Pen tool to create a curve with another smooth point.

c. Press and hold Alt (Windows) or Option (Mac OS) then drag the direction line towards its opposite end and create the slope of the next curve.

d. Release the Alt key (Windows) or Option key (Mac OS) and the mouse button. This process has converted the smooth point to a corner point by splitting the direction lines.

e. Move the pen tool where you need the second curved segment to end and drag a new smooth point to complete the second curved segment (see Figure 3.3).

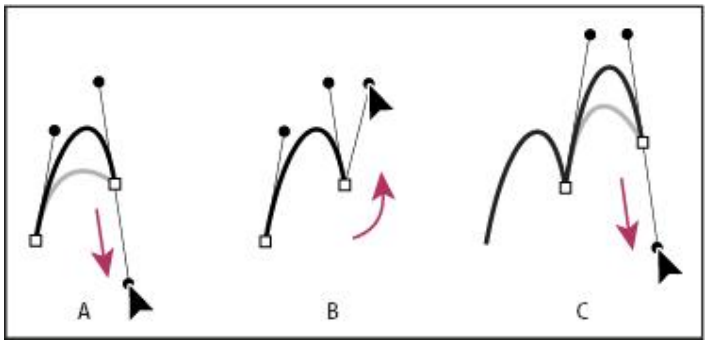


Fig. 3.3 A. Dragging a New Smooth Point, B. Pressing Alt/Option to Split Direction Liner, C. Repositioning and Dragging a Third Time

(iv) **Erasing artwork**

By using the Eraser tool, a portion of the artwork can be erased or by using the eraser on a Wacom stylus pen. As well with the Path Eraser tool, a portion of a path can be erased by dragging this tool along the path. If you need to erase a limited part of a path segment, for example one edge of

a triangle. Regardless of structure, using the Eraser tool and the eraser on a Wacom stylus pen, you erase any portion of the artwork. The Eraser tool can be used on paths, compound paths, paths within Live Paint groups and clipping paths (see Figure 3.4). The figure shows how the Path Eraser tool erases, portions of a path (left) and part of a grouped object (right).

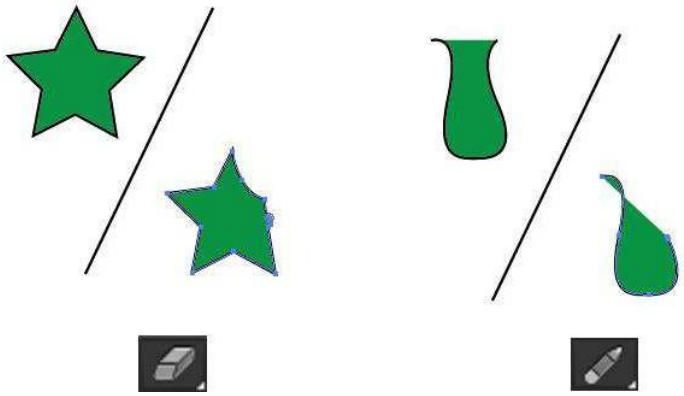


Fig. 3.4 The Path Eraser Tool

(v) **Using the path eraser tool to erase a part of the path**

Follow the below steps:

a. Select the object.

b. Then, select the path eraser tool.

c. Drag the tool along the length of the path segment that you need to erase. For better outcome, use a single and smooth dragging motion.

(vi) **Using the eraser tool to erase objects**

Follow the below steps:

To erase a particular objects, select the objects or open it in isolation mode.

To erase any object on the artboard, do not select any object. If all the object are un-selected in the artwork, the eraser tool will erase all the layers.

Select the eraser tool

To define any option, double-click the eraser tool or third step can be skipped as it is optional.

Drag over the area you need to erase.

You can control the tool by performing one of the below steps:

Press down the Shift key and drag to constrain the Eraser tool to a vertical, horizontal or diagonal line.

Press Alt and drag (Windows) or press Option and drag (Mac OS) to create a marquee, around an area and erase everything inside the area.

Press Alt+Shift and drag (Windows) or press Option-+Shift and drag (Mac OS) to constrain the marquee to a square.

(vii) **Using a Wacom stylus pen eraser to erase objects**

When you flip a stylus pen, the eraser tool automatically becomes active. And it will inactive again, when the stylus pen is flipped back over. Turn over the stylus pen and drag across the area you need to. select the Pressure option in the Eraser Tool Options dialog box, and press the stylus pen harder to increase the width of the erased path.

(viii) **Eraser tool options**

The Eraser tool options can be specified by double-clicking the tool in the Tools panel. The options are:

Angle: This option defines the angle of rotation. Specify a value in the Angle text box or in the preview drag the arrowhead.

Roundness: You can control the Roundness of the tool. Enter a value in the Roundness text box or drag a black dot in the preview, away from or towards the center. To increase the roundness, select higher values.

Diameter: Determines the diameter of the tool. Enter a value in the Diameter text box or use the diameter slider.

Note: The shortcut to control the diameter are: ‘]’ to enlarge or '[‘ to reduce.

Pop-up list, which appears at the right of each option, avails the options to Variate the shape. Select any one of the below options:

Fixed: To create a fixed roundness, angle or diameter.

Random: Avails variations in roundness, angle or diameter. Enter a value within the Variation textbox, to specify the range within which the brush characteristic can vary. For example, when the Variation value is 3 and the Diameter value is 9, then the diameter can range anywhere between the values of 6 and 12.

Pressure: This option is very useful when used with the Diameter. You can control the diameter length by using the pressure of the drawing stylus. Specify a value in the Variation box, to define the positive and negative correlation between the original value and the brush characteristic. For example, when the heaviest stroke is 100 per cent, the variation value will be 25 per cent and consequently, the roundness value will be 75 per cent. The lightest stroke is 50 per cent. To create an angular brush stroke, you need to keep the light pressure.

Stylus Wheel: The variation of the diameter is based on manipulation of the stylus wheel.

Tilt: The tilt of a drawing stylus affects the angle, roundness and diameter. This options has a great importance when it is used with the roundness. This option is only available when you have a graphics tablet that can detect the direction in which the pen is tilted.

Bearing: You can control the angle, roundness, or diameter based on the pressure of a drawing stylus. To control the angle of the calligraphic brushes, this option plays an important role, especially when the brush is being used like a paintbrush. If you have a graphics tablet then only you can use this option, because the tablet can detect the vertical inclination of the pen.

Rotation: Angle, roundness and diameter is affected by the rotation of the drawing stylus pen tip. This option has a great importance, when it is used to control the angle of calligraphic brushes, especially with the brush like a flat pen. You can use this option only if you have a graphics tablet that can detect such rotation.

(ix) **Split a path**

You can split a path from any anchor point or segment. If you split a path, consider following point for better results:

Incase, if you need to split a closed path into two open paths, make cuts at two places along the path. If a closed path is sliced only once, a gap will be created and you will get a single path.

When a path splits, then the splitted paths will have the properties of the original path, like stroke, weight and fill color. Stroke alignment will be automatically reset to the center.

To view the current anchor points, you need to select the path.

Follow any one of the below steps:

While selecting the Scissors tool, click on the desired position of the path, where you need to split it. When the path has splitted, in the middle of a segment two new endpoints will appear.

From the Control panel, select Cut Path from the Selected Anchor Points button. Do this procedure, after selecting the anchor point where the path is to be split. When the path is split at an anchor point, a new anchor point appears above the original anchor point and one anchor point is selected.

By using the Direct Selection tool, you can adjust the new anchor point or path segment.

Note: The Knife tool divides an object into separate component faces (a face is an area undivided by a line segment).

CHECK YOUR PROGRESS

1. What is the importance of direction lines while shaping a curve?

2. What do the Pen tool make effect when it is used to click corner points in two distinct locations?

3. Write down the steps that required for drawing two curved segments connected by a corner?

4. Name the tools which can be used to erase sections of an artwork?

3.3 CREATE AND EDIT SMOOTH ANCHOR POINTS

Follow below steps to create and edit smooth anchor points :

(i) Select Pen tool then drag it to create a smooth point of a curved segment, then release the mouse button.

(ii) Move the pen tool where the curved segment is need to end.

(iii) Drag the mouse to complete the curve and release the mouse button (see Figure 3.5).

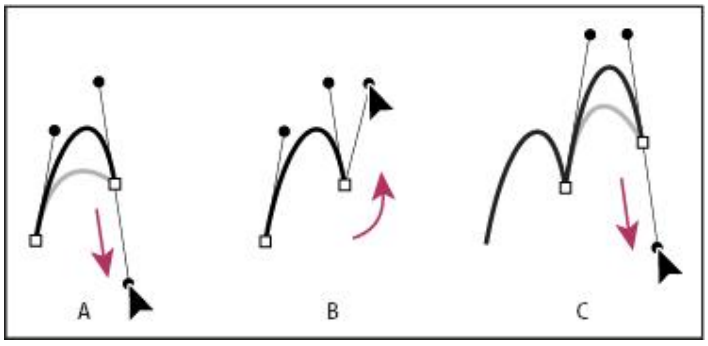


Fig. 3.5 Curved and Straight segments (Part 1)

Figure 3.5 shows: Drawing a curved segment followed by a straight segment (part 1). A. Smooth point of the curved segment is completed and the pen tool positioned over endpoint B. Drag to complete the curve.

Position the pen tool over the selected endpoint (see Figure 3.6), a convert point icon appears next to it. Then, to convert the smooth point to a corner point, click the anchor point. The figure shows: Drawing a curved segment followed by a straight segment (part 2), C. Positioning the pen tool over the existing endpoint, D. Clicking the endpoint, E. Clicking next corner point.

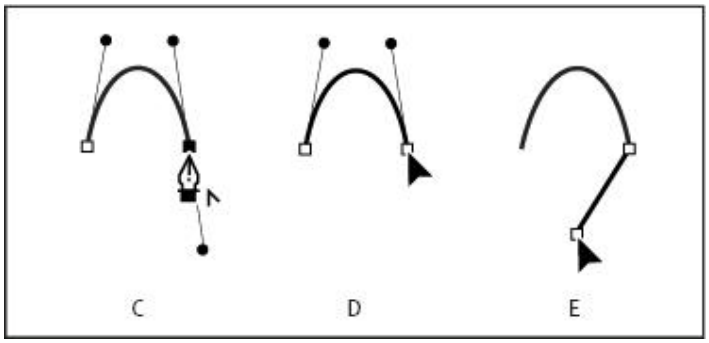


Fig. 3.6 Curved and Smooth Segments(part 2)

(i) **To simplify and smoothen paths**

By removing excess or unwanted anchor points, you can simplify a Paths as well the path will appear more smoothened. To do this follow these steps:

a. Select the object

b. Then, Select the smooth tool

c. Drag the tool along the length of the path segment you need to apply smoothness. Continue drag until you will not achieve the required smoothness (see Figure 3.7).

Figure 3.7 shows: A. Original path. B. Dragging across the path with the smooth tool C. Result.

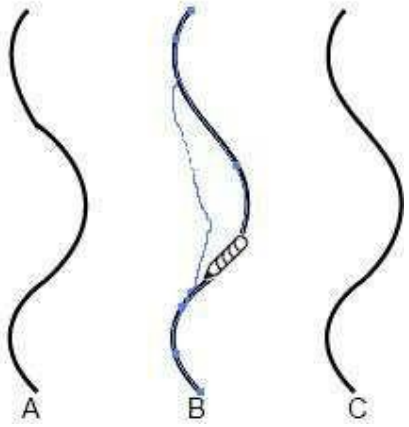


Fig 3.7 The Smooth Tool

Double-click the smooth tool to get the attributes and the options are as follows:

a. **Fidelity**: With the help of this option, you can control the distance that should be covered by the mouse or stylus, before the Illustrator adds a new anchor point to the path. For example, a Fidelity value of 3 means that the tool will more 3 pixels and then add another anchor point. The range of Fidelity is from 0.5 to 20 pixels. As you set the higher value, you will get more smooth and less

complex path.

b. **Smoothness:** You can controls the amount of smoothness of the path. The range of smoothness can be specified from 0 to 100 per cent. The higher the value, the smoother the path.

c. **Simplify paths**: Simplifying a path means removing extra anchor points as well as preserving the shape of the path. When you remove unnecessary anchor points, the artwork gets simplified and the file size also get reduced. So in result, the file will be displays fast as well prints fast.

To simplify paths, you can follow below steps:

i. Select the object

ii. Go to Object menu > Path > Simplify

iii. Set the Curve Precision to minutely control the simplified path

vi. Select Preview option to see a preview of the simplified path as well as it list the number of points in the original and simplified paths.

v. and at last, Select additional options and click OK.

d. **Curve Precision**: You can specify the distance of the simplified path from the original path, by entering a value of Curve Precision between 0 and 100 per cent. Specify higher values to generates more anchor points and a closer fit to the original path. Existing anchor points are ignored except for endpoints of a curve and the corner points.

e. **Angle Threshold**: This option assumes a value between 0 and 180 degrees to control the smoothness of the corners. If the angle threshold is more than the angle of a corner point, the corner point is not changed. Even if the selected value for the curve precision is low, this option helps in keeping the corners sharp.

f. **Straight Lines**: Creates straight lines between the object's original anchor points. If the value set in the Angle Threshold is less than the angles at the corner points, they will be removed.

g. **Show Original**: With the help of this option you can view the original path behind the simplified path.

h. **Average the position of anchor points**: To average the positions, Select two or more anchor points on the same or on different paths. Go to Object menu > Path >Average. There is option to select the average along the horizontal (x) axis, the vertical (y) axis, or both the axes. Select the required option and click OK.

3.4 DRAW WAVE FORMS

Using Pen tool, follow below step to create various wave forms:

a. Click on the Pen tool

b. Position the pen tool at the starting point or desired point then press and hold the mouse button down. The first anchor point will be created and appears, and you can see an arrowhead in the place of the Pen tool pointer. (In Photoshop, when you start dragging then only the pointer changes).

c. Drag the mouse to set the desired slope of the curve segment and then release the mouse button. Generally, the direction line should be extended to about ⅓ (one third) of the distance from the next anchor point you need to draw. (You can also adjust the direction lines after creating the shape.)

d. Press down the Shift key to constrain the tool to multiples of 45 degrees (see Figure 3.8). The figure shows: k Positioning Pen tool B. Starting to drag (mouse button pressed) C. Dragging to extend direction lines

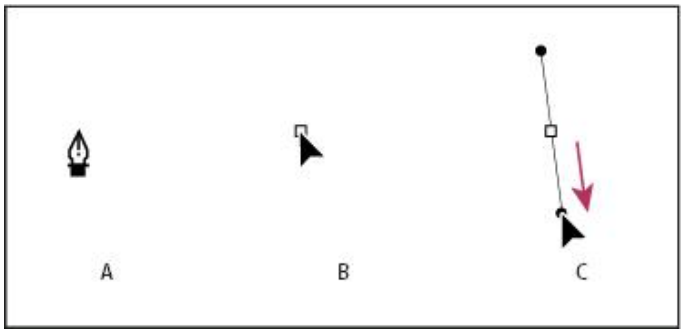


Fig. 3.8 The first point in a curve

e. Move and place the Pen tool to the end point and follow one of the below:

i. To create a C-shaped curve, drag in a direction opposite to the previous direction line. Then release the mouse button (see Figure 3.9). In the figure, we see: A. Start to drag second smooth point, B. Drag away from the previous direction line, creating a c type curve, C. Result

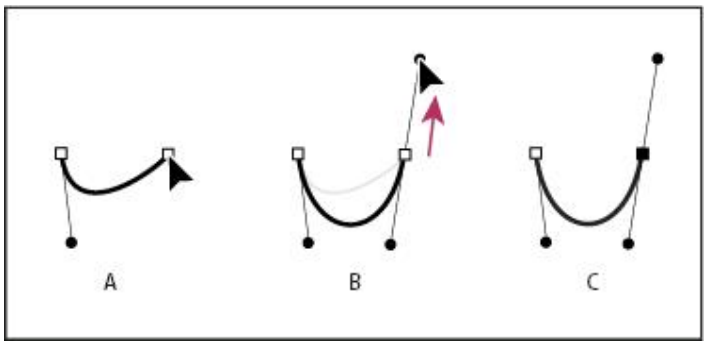


Fig. 3.9 The second point in a Curve

ii. To create S-shaped curve, drag in the same direction as the previous direction line. Then release the mouse button (see Figure 3.10)

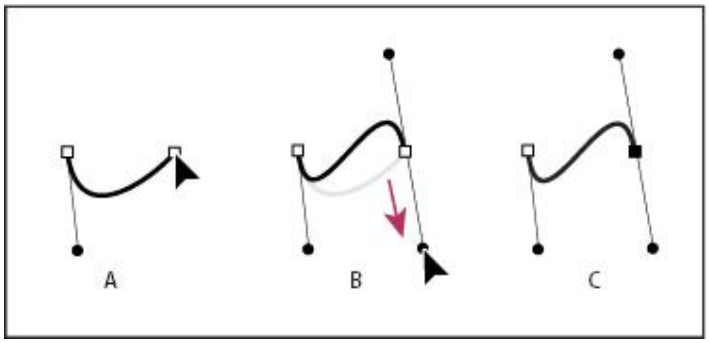


Fig. 3.10 Drawing a S Curve

iii. If You are willing to create a series of smooth curve, continue drag the pen tool from different locations. Note that you need to place anchor points at the beginning and end of each curve, not at the tip of the curve.

Iv. Do the following and complete the path :

• If you need to close the path, place the Pen tool over the first (hollow) anchor point. If the Pen tool is positioned properly, you can see a small circle appeared next to the pen tool pointer. Click or drag to close the path.

• If you need to create an open path , Ctrl+click (Windows) or Command+click (Mac OS), anywhere away from all the objects.

(i) **Reposition anchor points as you draw**

To reposition or move an anchor point to the desired position, press down the mouse button simultaneously hold down the spacebar and drag the mouse pointer to position the anchor point.

(ii) **Finish drawing a path**

Following any one of the below methods, you can complete a Path:

a. If you need to close the path, place the Pen tool over the first (hollow) anchor point. If the Pen tool is positioned properly, you can see a small circle appeared next to the pen tool pointer. Click or drag to close the path.

b. If you need to create an open path , Ctrl+click (Windows) or Command+click (Mac OS), anywhere away from all the objects.

If the path is need to be open, you can select a different tool, or choose Select > Deselect in Illustrator or Edit > Deselect All in InDesign.

3.5 MANIPULATE CONTROL POINTS

To specify the curve associated with an anchor point, you need to follow below steps :

• Select the Convert Anchor Point tool on the Pen tool flyout.

• Click the particular anchor with the Convert Anchor Point tool.

• Move or drag the anchor in the direction that you need the curve to follow. It should be noticed that the anchor itself does not move. Instead of that the control points appear.

• To create a curve Click and drag a control point away from the anchor. And move the control points to change the direction of the anchor curve (see Figure 3.11). To control the curve it is better to experiment with rotating the control point (see Figure 3.11).

• To increase the intensity of curvature, stretch the control point.

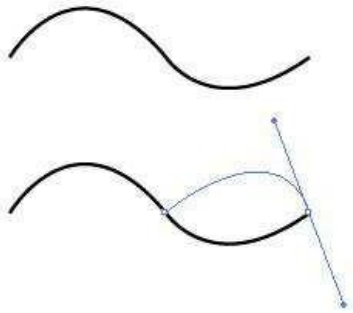


Fig. 3.11 Change the properties of a Curve

As you follow the above steps, you can understand that, the user has to combine the process of defining an anchor and manipulate control points. By using Pen tool, click to define an anchor point. After that you need to define control points (see Figure 3.12).

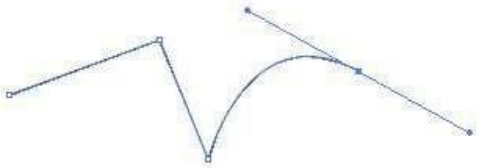


Fig 3.12 Placing an Anchor Point

(i) **Switch between smooth points and corner points**.

You can convert the corner points on a path to smooth points. With the help of Options available in the Control panel, multiple anchor points can be converted easily. The Convert Anchor Point tool, can convert only one side of the point and the curve can be accurately altered as the point is converted.

(B) **Converting one or more points using the Control panel**

You must consider that, in the Control panel, to use the anchor point conversion options only relevant anchor points and not the entire object should be selected. In case of multiple object selection, one of the objects must only be partially selected. If all objects are selected, the Control panel options will be automatically changed to those that affect the entire object.

a. If you need to convert one or more corner points to smooth points, select the points > select `Convert Selected Anchor Points To Smooth' button in the Control panel.

b. If you need to convert one or more smooth points to corner points, select the points > select the `Convert Selected Anchor Points To Comer' button in the Control panel.

(iii) **Converting an anchor point precisely using the Convert Anchor Point tool**

Select the entire path that to be modify, so that you can see its anchor points. Select the 'Convert Anchor Point' tool. Place the Convert Anchor Point tool over the anchor point to be converted and follow one of the below steps:

You can convert a corner point to a smooth point by dragging a direction point out of the corner point (see Figure 3.13).

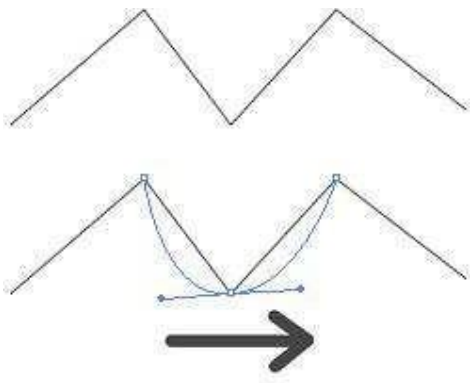


Fig. 3.13 Creating a Smooth point

b. If you need to convert a smooth point to a corner point without direction lines, click the smooth point (see Figure 3.14).

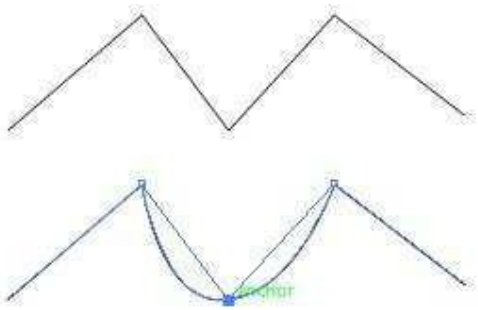


Fig. 3.14 Creating a Corner point

c. If you need to convert a smooth point to a corner point with independent direction lines, drag the direction point (see Figure 3.15).

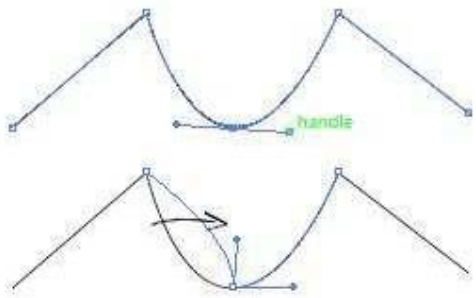


Fig. 3.15 Converting a Smooth point to a Corner point

d. If you need to convert a corner point without direction lines to a corner point with independent direction lines, then drag a direction point out of a comer point (making it a smooth point with direction lines). Release the mouse button and drag either of the direction points. If you have pressed any key to activate the Convert Anchor Point tool, do not release any of those keys in this step.

CHECK YOUR PROGRESS

5. Name the tool which is use to select all anchor points and segments in a path?

6. Name the key which is used to make the slope in multiples of 45 degrees?

7. To draw a straight line how many anchor points you need?

3.6 EDIT WITH THE PEN TOOL

You can edit Curves easily by changing the anchor points. But if there are more anchor points, then the curve will not appear smooth on print. If you create less anchor point or as much as required the you will get more clear result on display as well as the result on print will also get neat and quick print. Place the anchor points as far as possible to achieving smooth and neat curves. This will result in less anchor points and then the length and you can easily modify the angles of the direction lines.

3.7 EDIT WITH THE PEN TOOL

Incase if you need to edit or reshape a path, select anchor points, segments of the path, or can select both simultaneously.

Following are the options explained for the same:

(i) **Select anchor points**

You can select anchor point by following one of the below methods:

a. If you can view the anchor points, click them with the Direct Selection tool to select them. For multiple selection of anchor points, press the Shift and click keys together.

b. Select the Direct Selection tool and drag a boundary around the anchor point. Shift-drag around additional anchor points to select them.

c. You should not select the path that contains the anchor points. Move the Direct Selection tool over the anchor points and as you see a hollow square, click the anchor point. Shift-click additional anchor points to select them.

d. You can also select anchor points by using the Lasso tool and drag it around the anchor points. If you need to select additional anchor points, Shift-drag around them.

(ii) **Select path segments**

To select the path segments, perform any of the following steps:

a. Select the Direct Selection tool and click within 2 pixels of the segment or drag a marquee over part of the segment. Shift-click or Shift-drag around additional path segments to select them.

b. Select the Lasso tool and drag around part of the path segment. Shift-drag around additional path segments to select them.

(iii) **Select all anchor points and segments in a path**

Follow below steps to perform the selection:

a. Select the Direct Selection tool or the Lasso tool.

b. Drag around the entire path. If the path is filled, you can also click inside the path with the Direct Selection tool to select all anchor points.

(iv) **Copy a path**

With the help of Selection tool, select a path or segment or Direct Selection tool and follow one of the below steps:

Copy and paste paths within or between applications by using the standard menu functions.

a. Press and hold Alt key (Windows) or Option key (Mac OS) and drag the path to the desired location.

b. Then release the mouse button and Alt key (Windows) or Option key (Mac OS) key.

(v) **Adjust path segments**

To edit a path, all Adobe applications follows similar procedures. Editing of the existing segments is slightly different from drawing them. At the time of editing you need to consider following points:

a. If you move an anchor point which connects two segments, it will always change both segments.

b. While working with the Pen tool, in Illustrator, to temporarily activate the last used selection tool, press Ctrl key (Windows) or Command key (Mac OS). And in InDesign and Photoshop select the Direct Selection tool. This option is useful, when you can adjust segments which is already drawn.

c. By using the Pen tool, draw a smooth point. If you drag the direction point it will change the length of the direction line on both sides of the point. However, if you are using the Direct selection tool to edit an existing smooth point, the length of the direction line is changed only on the side it is being dragged.

(vi) **Move straight segments**

By using Direct Selection tool, select the segment that to be adjusted. Then drag the segment to the desired position.

(vii) **Adjust the length or angle of straight segments**

To perform this follow below steps:

a. With the help of Direct Selection tool, select an anchor point on the segment you need to adjust.

b. Drag the anchor point to the desired location. Shift-drag to constrain the adjustment to multiples of 45 degrees.

Note: If you need to resize a rectangle like wider or narrower. By using Selection tool, select it and resize it using one of the handles on the sides of its bounding box.

(viii) **Adjust the position or shape of curved segments**

With the help of the Direct Selection tool, select a curved segment, or an anchor point on either end of the curved segment. Direction lines appear, if present, (some curved segments use just one direction line). Then follow any of the below steps:

a. If you need to adjust the position of the segment, drag the segment. Shift-drag to constrain the adjustment to multiples of 45 degrees (see Figure 3.16).

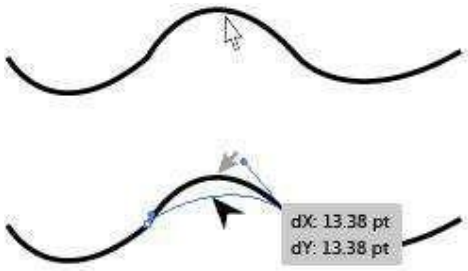
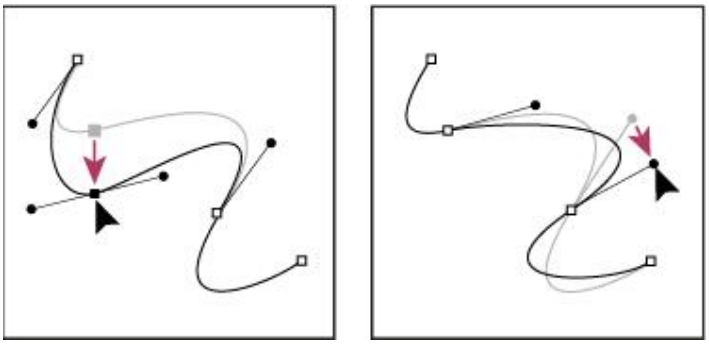


Fig. 3.16 Select the segment and drag it.

b. If you need to adjust the shape of the segment on either side of a selected anchor point, drag the anchor point or the direction point. Shift-Drag to constrain movement to multiples of 45 degrees (see Fig. 3.7)



Note: Different transformation tools,like scaling or rotation can also be applied to a segment or anchor point.

(ix) **Delete a segment**

By using the Direct Selection tool select the segment you need to delete. Then, press Backspace key (Windows) or Delete key (Mac OS) to delete the selected segment. To delete the rest of the path you can Press Backspace or Delete again.

(x) **Extend an open path**

Place the pointer at the endpoint of the open path with the pen tool selected, which you need to

extend. The pointer changes when it is accurately positioned at the endpoint. Click on the endpoint and follow one of the below steps:

a. For a corner point, position the pen tool where you need to finish the new segment and click. You will get a straight new segment, if a path that ends at a smooth point.

b. For a smooth point, position the Pen tool where you need to end the new curved segment and drag.

(xi) **Connect two open paths**

With the help of the pen tool, position the pointer at the endpoint of the open path that need to connect with another path. If the pointer is accurately positioned it will change. Then, click the endpoint. Follow one of the below steps:

a. If you need to connect the path with another open path, click an endpoint on the other path. A small merge symbol appears next to the pointer, if you have positioned the Pen tool accurately.

b. If you need to connect a new path to an existing path. First, create the new path and then position the pen tool to the end point of the existing path, which is not selected earlier. A small merge symbol will appear next to the pointer, click that endpoint.

(xii) **Join two endpoints**

a. First, you need to select the endpoints. If the endpoints are positioned one over the other, then to select them, drag a marquee around both endpoints.

B. Now go to the Control panel and click on the Connect Selected End Points button. If the endpoints are overlapping each other, specify the type of join you need in the dialog box.

c. Select the corner option which is the default option or the Smooth option and click OK (see Figure 3.18).

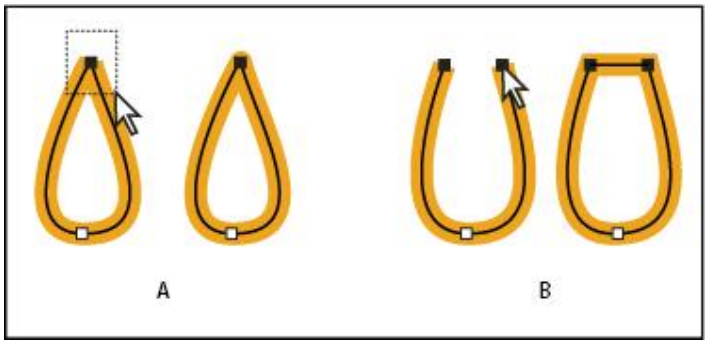


Fig. 3.18 Joining Endpoints

(xiii) **Move or nudge anchor points or segments using the keyboard**

a. Select the anchor point or path segment.

Note: In Photoshop, by following this procedure, you can move only anchor points.

b. Click or press down an arrow key on the keyboard which moves 1 pixel at a time in the direction of the arrow. Using the Shift key with the arrow key will move 10 pixels at a time.

Note: In Illustrator and InDesign, you can modify the default distance of a nudge by changing the keyboard Increment preference. As you change the default increment, holding down the Shift key, the specified arrow key distance nudges 10 times.

(xiv) **Stretch parts of a path without distorting its overall shape**

Follow the steps to perform the task:

a. First, Select the entire path.

b. Then, select the reshape tool, you can find this tool under the Scale tool.

c. Position the mouse cursor over the anchor point or path segment that to be make a focal point (focal point is that point which pulls selected path segments) then click. If you have selected a path segment, an anchor point that is highlighted with a square around it, is added to the path.

d. Press shift and click more anchor points or path segments to act as focal points. An unlimited number of anchor points or path segments can be highlighted.

e. To adjust the path, you need to drag the highlighted anchor points.

(xv) **Adding or deleting anchor points**

If you want to have more control over a path or to extend an open path, you can add anchor points to the path. Though, unnecessary anchor points should not be added. If the path has fewer points, it is easier to edit, display and print a path. If you delete unnecessary points, the complexity of a path will be reduced. All Adobe products has the same procedure to add or delete the anchor points.

There are three tool in the Tools panel to add or delete the anchor points: (i) the Pen tool, (ii)the Add Anchor Point tool and (iii)the Delete Anchor Point tool.

Even, the Control panel has a option to remove Anchor point i.e. 'Remove Selected Anchor Points button'. By default, as you place the Pen tool over a selected path, changes to the Add Anchor Point tool or as it is placed over an anchor point, it will change into the Delete Anchor Point tool.

Note: You should not use the Delete and Backspace keys or the Edit > Cut and Edit > Clear commands to delete anchor points— in that case both the point and the line segments that connect to that point will be deleted.

To add or delete anchor points:

a. Select the path you need to modify.

b. Select the Pen tool or the Add Anchor Point tool

c. Position the pointer over the path segment and click.

d. To delete an anchor point, follow one of the below steps:

i. The Direct Selection tool: Select the point and click Remove Selected Anchor Points from the Control panel.

ii. Select the Pen tool or the Delete Anchor Point tool, position the pointer over the anchor point and click.

(xvi) **Delete Stray Anchor points**

Stray anchor points are the individual points that are not connected to other anchor points. It is always advisable to find out the stray points and delete them.

To delete the Stray Anchor points, follow the steps:

a. Deselect all objects.

b. Go to Select menu > Object > Stray Points

c. Go to Edit menu > Cut or Edit > Clear, or press Delete or Backspace on the keyboard.

(xvii) **Temporarily override and disable automatic Pen tool switching**

Automatic switching to the Add Anchor Point tool or Delete Anchor Point tool can be temporarily override or disabled. Below steps can be followed:

a. Press and hold Shift key, when the Pen tool has positioned over the selected path or an anchor point. This is very useful,if a new path is need to be created over an existing path. And remember to release the Shift key before you release the mouse button, to prevent Shift from constraining the Pen tool.

b. or, Go to Edit menu > Preferences > General (Windows) or Illustrator > Preferences > General (Mac OS) and select Disable Auto Add/Delete.

CHECK YOU PROGRESS

8. How the straight segments can be moved?

9. Write down the procedure to delete a segment.

3.8 SUMMARY

In Illustrator, you will find that the Pen tool is perhaps the most powerful tool. You can create any

type of shapes, lines, and curves and shapes by using it. It remains the basic tool for illustration and design.

The simplest path is a straight line that can be created by using a Pen tool can create. Two anchor points can be created by clicking the Pen tool.

• A curve can be created by adding anchor points and dragging the direction lines that shape the curve. Direction line are very important as by using them you can define the length and slope of the curve.

• By removing excess anchor points of a Path, you can make it less complex and simple. Fidelity option controls the distance that should be covered by the mouse or stylus before adding a new anchor point to the path.

• During simplification of a path always remember that the shape of the path should not be change as you remove extra points. When you remove the unnecessary anchor points from the artwork, it gets simplified, the file size gets reduced and therefore it renders or displays and prints faster.

• You can change a Corner point on a path to smooth point. Control panel avails the options to quickly convert multiple anchor points.

• A particular portion of the artwork can be erased using :(i) the Path Eraser tool, (ii)the Eraser tool, or (iii)the eraser on a Wacom stylus pen. By using Path Eraser tool, draw a path along the existing path.

3.9 KEY TERMS

• **Fidelity**: Controls the distance that the mouse or stylus should cover before adding a new anchor point to the path.

• **Smoothness**: When Smoothness tool is used, it controls the smoothness that will be applied.

• **Simplify paths**: It removes extra anchor points and this tool also preserves the shape of the path.

• **Angle Threshold**: This assumes a value between 0 and 180 degrees and controls the smoothness of corners.

• **Straight Lines**: Between the object's original anchor points, it creates straight lines.

• **Show Original**: Displays the original path behind the simplified path.

3.10 END QUESTIONS

1. What is the procedure to draw the S curve?

2. Describe various options of the Eraser tool.

3. How a path can be stretched while preserving its overall shape?

4. Write down the steps to join two endpoints?

1. Write various uses of the pen tool?

2. How would you draw two curved segments connected by a corner.

3. How can you smoothen and simplify a path?

4. Write the steps to reposition anchor points after drawing?

3.11 FURTHER READINGS

Olav Martin Kvern, David Blatner, Bob Bringhurst (2012). Real World Adobe InDesign CS6 : Peachpit Press.

Karlin D. (2008). Learning Illustrator Cs6 with 100 Practical Exercises: Adobe Press.

Adobe Creative Team. (2012). Adobe Illustrator CS6 Classroom in a Book: Adobe Press.

Peter Lourekas, Elaine Weinmann (2012). Illustrator CS6: Visual QuickStart Guide, First Edition. Peachpit Press.

UNIT 4 WORK WITH SHAPES

Structure

4.0 Introduction
4.1 Unit Objectives
4.2 Shapes
4.3 Draw Shapes
4.3.1 Draw Ellipses and Circles
4.3.2 Draw Polygons and Stars
4.4 Flare Tool
4.5 Pathfinder Tools and Use of Shape Modes
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4.8 END QUESTIONS
4.9 Further Reading

4.0 INTRODUCTION

In Illustrator, by using basic shapes, various objects can be created. You can edited them to create a new shape.In Illustrator various shapes can be drawn, for example straight lines, squares, rectangles, polygons, ellipses, arcs and flares. By using Transform panel objects can be transformed. By performing scaling, shearing and distorting, or by using envelopes objects can be reshaped. We have learn about the various methods for cutting, dividing and trimming objects, clipping masks and blending objects.

4.1 UNIT OBJECTIVES

After going through this unit, you will be able to:

• Draw different shapes using various tools in Illustrator

• Transforming the objects using different tools

• Scale, shear and distort objects

• Reshape objects using envelopes

• Using the Pathfinder panel, combine objects into new shapes

• Cut,divide and trim objects, clipping masks and blending objects

4.2 SHAPES

(i) **Straight Line Segment**

By using the the Line Segment tool, you can draw one straight line segment at a time. Click on the Line Segment tool and follow the below steps:

a. Place the pointer at the starting point of the line and drag to the end point, where you need to end the line.

b. Click and define the length and angle of the line, where it need to begin.

c. If you need to fill the line, click on the 'Fill Line' with the current fill color. Click OK. You can draw various shapes with the help of this tool like Ellipse, Circles, Stars,Polygons, etc.

(ii) **Rectangles and Squares**

Click on the Rectangle tool or the Rounded Rectangle tool. Follow any one of the below steps:

a. To create a rectangle, drag diagonally until you get the desired shape.

b. To draw a square, press down the Shift key and continue to drag diagonally,until you get the desired shape.

c. For create a square or rectangle by defining values, click the point on the top-left corner. Specify the width and height and then Click OK.

(iii) **Specify the Corner Radius of a Rounded Rectangle**

The corner radius determines the roundness of the rectangle's corners. The default radius can be changed as the new rectangles are drawn. The radius for individual rectangles can also be changed.

a. Select the Rounded Rectangle tool, click in the document window and specify the required value for the corner radius. The default radius does not applies to the existing rounded rectangles, it only applies to the rectangles which have been rounded recently. Another procedure is: go to Edit menu > Preferences > General (Windows) or Illustrator > Preferences > General (Mac OS) and specify new value for the corner radius.

b. Corner radius can also be changed by pressing the Up or the Down Arrow key, while creating the Rounded Rectangle tool.

c. Pressing the Left Arrow key will create square corners while creating the Rounded Rectangle tool.

d. Pressing the Right Arrow key will create rounded corners while creating with the Rounded Rectangle tool.

(iv) **Draw As**

Select the Arc tool and follow one of the below functions:

a. Place and click the pointer, where you need to begin the Arc. Drag the point to where you need to end the arc.

b. Place and click the pointer, where you need to begin the Arc. In the dialog box, select a square on the reference point locator. After specifying any of the following options, click OK. The other features are explained below:

Length X-Axis: The option specifies the width of the arc.

Length Y-Axis: This option specifies the height of the arc.

Type: With the help of this option you can specify the mode of the path i.e. Open or Close path.

Base Along: This option specifies the direction of the arc. Select the X-axis or the Y-axis, to define the position of the arc i.e. horizontal or vertical.

Slope: The slope of the arc can be specified with this option. To create a concave (inward) slope, specify a negative value. To create a convex (outward) slope, specify a positive value. If the value is defined as zero, a straight line will be created.

Fill Arc: This will fill the arc with the current fill color.

(v) **Reshaping using Envelopes**

a. **About envelopes**

Envelopes are the objects which can reshape or distort the selected objects. Envelops can also be created out of the object, i.e. on the blank space of the artboard. Preset warp shape or a mesh grid can be used as an envelop. Envelopes can be used on any object, except graphs, guides, or linked objects (see Figures 4.1 and 4.2).

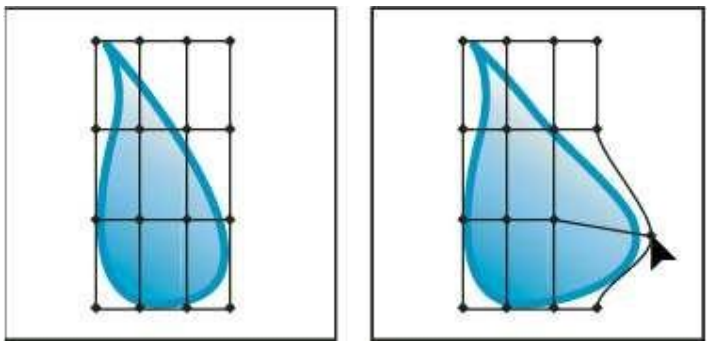


Fig. 4.1 Mesh Grid Envelope

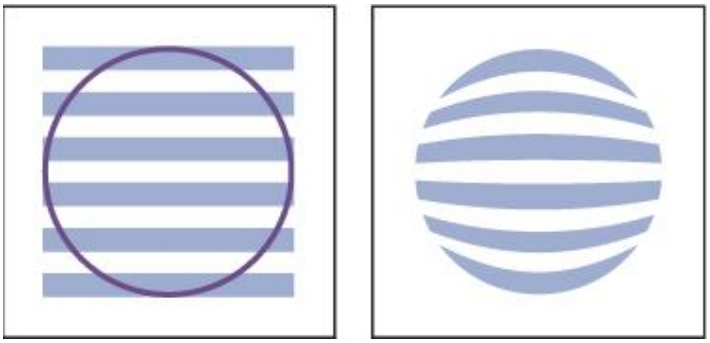


Fig. 4.2 Envelop created from Another object

Envelopes are listed as <Envelop, in the Layers paneL You can continue to edit the original objects, once you apply an envelope. At any time you can edit, expand or delete an envelope. An envelope shape or the enveloped object can be edited, but both cannot be done at the same time.

b. **Distort objects using an envelope**

To create an envelope, First select one or more objects. Then follow any of the below methods:

. Go to Object menu > Envelope Distort > Make With Warp, to preset warp shape for the envelope. From the Warp Options dialog box, select a warp style and set options.

ii. Go to Object menu > Envelope Distort > Make With Mesh, to set up a rectangular grid for the envelope. Define the number of rows and columns in the Envelope Mesh dialog box.

iii. Bring the object which is to be used for the shape of an envelop to the top of the stack. You can use the Layers panel if it is not at the top. Or by using an Arrange command, move it up and reselect all objects. Now, go to Object menu > Envelope Distort > Make With Top Object.

Reshape the envelope, By following below steps,:

i. By using the Direct Selection or Mesh tool, move any anchor point on the envelope.

ii. Select an anchor point by using either the Direct Selection or Mesh tools to delete anchor points on the mesh grid. Then press Delete key.

iii. To add anchor points to the mesh grid, select the grid with the Mesh tool. To fill an envelope or to apply a stroke, you can use the Appearance panel.

c. **Edit the contents of an envelope**

Select the envelope, and follow one of the below:

i. In the Control panel click the Edit Contents button.

ii. Go to Object menu > Envelope Distort> Edit Contents.

iii. Edit as required

If you need to return the object to its enveloped state, any one of the following steps can be followed:

• In the Control panel, click the Edit Envelope button.

• Go to Object menu > Envelope Distort > Edit Envelope.

d. **Resetting an envelope**

After selecting the envelope and follow one of the below functions:

i. Select a new warp style and in the Control panel specify options, to reset or switch to a preset warp style. Click the Envelope Options button, to specify more options.

ii. If you need to reset or switch to a mesh grid envelope, Go to Object menu > Envelope Distort > Reset With Mesh. You can also specify the number of rows and columns for the mesh grid. Select Maintain Envelope Shape, to keep the warp shape intact.

e. **Removing an envelope**

You can remove Envelopes by either expanding them or releasing them. When you expand an enveloped object, the envelope will be removed and the object retains its distorted shape. You will find two separate objects that are created in releasing an enveloped object, i.e., the object will get back in its original state and the envelope shape. Follow the below steps to perform this:

I. To expand an envelope, first, select the envelope then go to Object menu > Envelope Distort > Expand.

ii. To release an envelope, first, select the envelope then go to Object > Envelope Distort > Release.

(vi) **Envelope options**

With the help of Envelope options, you can specify the distortion of the art to fit the envelope. Go to Object menu > Envelope Distort > Envelope Options or after selecting the envelope object, click the Envelope Options button.

a. **Anti-Alias**

This option smoothers rasters, when the object is distorted with an envelope. If Anti-Alias option is deselected, the time it takes to distort rasters can be decreased.

b. **Preserve Shape Using**

When you use non-rectangular envelopes for the distortion, this option specifies how rasters preserve their shape. Select the Clipping Mask, if you need to use a clipping mask on the raster. To apply an alpha channel to the raster, use Transparency.

c. **Fidelity**

This option specifies the accuracy of the object to fit the envelope mould. Increasing the Fidelity percentage will add more points to the distorted paths and that increases the time that it takes to distort objects.

d. **Distort Appearance**

With the help of this option, you can specify the distort appearance attributes like applied effects or graphic styles along with an object's shape.

e. **Distort Linear Gradients**

This option distores the Linear gradients along with an object's shape.

f. **Distort Pattern**

Fills Patterns are distorted along with an object's shape.

Note: If the expansion of the envelope will be done by keeping the Distort option selected, the respective area will expanded separately.

g. **Combining objects**

If you need to create shapes in a variety of ways, vector objects can combined. The method which is used to combine them will define the resulting paths or shapes and they may be differ.

(vii) **Pathfinder effects**

By using Pathfinder effects you can combine multiple objects, this tool has ten interaction modes. Unlike compound shapes, you cannot edit the interaction between the objects, if a Pathfinder effect is applied.

a. **Compound shapes**

By using this option you can combine multiple objects and they can be specified. There are four kinds of interactions in the Compound shapes, add, subtract, intersect and exclude. To edit it or change its interaction mode, select each object within a compound shape.

b. **Compound paths**

Using compound paths, an object can be used to cut a hole within another object. For example, a doughnut shape can be created from two nested circles. The paths act as grouped objects, once you create a compound path. Using the Direct Selection tool or Group Selection tool, you can select and manipulate the objects separately. Using the same, a combined path can also be selected and edited.

(viii) **Methods for cutting, dividing, and trimming objects**

Illustrator avails following methods to cut, divide and trim objects:

a. **Divide Objects Below command**

This command discards or deletes the original selection, it acts as a cookie cutter or stencil. To use it go to Object menu > Path > Divide Objects Below.

b. **Cut Path at Selected Anchor Point button**

This command cuts a path at the anchor point such that one anchor point is split into two. When the Direct Selection tool, select one or more anchor points and locate the button in the Control panel.

c. **Knife tool**

This command cuts objects in a custom or freehand path, that is drawn with the tool. It divides objects into their component filled faces (a face is an area undivided by a line segment).

d. **Scissors tool**

This command splits a path, graphics frame or empty text frame, at an anchor point or along a segment

e. **Split Into Grid command**

You can divide one or more objects into multiple rectangular objects, which are arranged in rows and columns. You can modify the height, width and gutter size between rows and columns. These can also be created quickly for laying out artwork guides. To use it, go to Object menu> Path > Split Into Grid.

f **Compound paths and compound shapes**

This command creates a hole by using another object.

g. **Pathfinder effects**

With this command you can trim and divide overlapping objects in different ways.

(ix) **Clipping masks**

With this command you can hide portions of the other objects .

a. **Cut objects with the Divide Objects Below command**

Select the object which is to be used as a cutter, overlap it to the object which to cut then go to Object menu > Path > Divide Objects Below.

b. **Cut objects with the Knife tool**

Select the Knife tool and follow one of the below steps:

i. Drag the pointer over the object, to cut in a curved path.

ii. If you need a straight cut, press Alt key (Windows) or Option (Mac OS) then click on the artboard and then drag.

c. **Divide an object into a grid**

Select the object. If multiple objects are selected, the grid of objects will acquires the appearance attributes of the topmost object. Go to Object menu > Path > Split Into Grid. Specify the number of rows and columns.And, perform any of the following (optional):

i. Specify Height and Width to set the size of each row and column.

ii. Specify Gutter values. The specified values sets the amount of space that separates columns and rows from one another.

iii. Specify the values for Total to modify the dimensions of the entire grid of objects.

iv. Incase, if you need to add guides along the row and column edges, click Add Guides.

v. Click OK.

d. **Clipping masks**

A clipping mask clips the artwork to the shape of a mask, in such a way, that only areas that is within the shape are visible and rest area will get hide. Clipping set is a combination of both the clipping mask and the objects that are masked. You can prepare a clipping set by selecting two or more objects or from all objects in a group or layer. In the Layers panel, object level clipping sets are combined as a group. If layer level clipping sets are created, then the top object of the layer will clip all beneath objects. Operations, like transformation and alignment, which are performed on an object-level clipping set are based on the clipping mask's bound, and not the unmasked boundary. If the object-level clipping mask is created then, you can select the clipped content, only by using the Layers panel, the Direct Selection tool or by isolating the clipping set (see Figure 4.3).

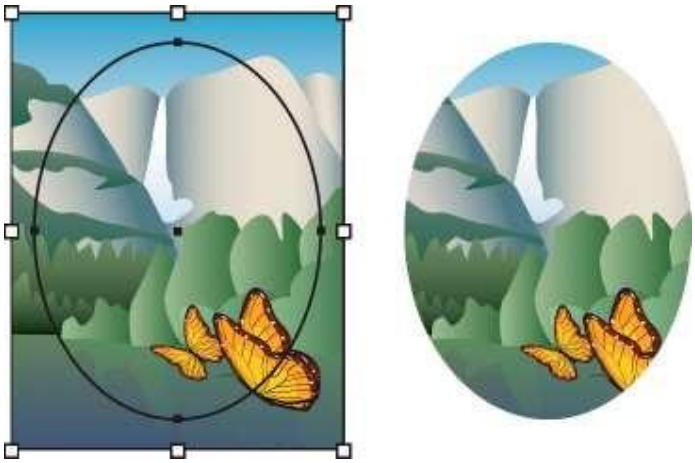


Fig. 4.3 Befor Masking (Left), After Masking (Right)

To create clipping masks, go through following steps:

i. Within the Layers panel, move the objects that are to be masked into the clipping mask's group.

ii. Your any artwork can be masked. Although, clipping masks allows only vector objects to be moved within it.

iii. The first object in the layer or group, masks all the object beneath it in the group or layer panel.

Iv. No Fill or stroke effect will be applied in a clipping mask, regardless of its previous properties. You can use the Transparency option to create an opacity mask or a semitransparent mask.

e. **Hide parts of objects with a clipping mask**

Create the object that to be used as a mask. This object is known as the clipping path. A vector object can only be used as a Clipping paths. Move the clipping path above the objects you need to mask, in the stacking order. After selecting the clipping path, select the objects you want to mask, then go to Object menu > Clipping Mask > Make.

You need to create a group of the objects first, to create a clipping path from the area where two or more objects overlapping.

f. **Create a clipping mask for a group or layer**

Create the object that is needed to use as the mask. This object is known as the clipping path.A vector object can only be used as a Clipping paths. Move the objects and the clipping path into a layer or group. The masking object must be at the top of the group or layer in the Layers panel. Then click the name of the layer or group. Select Make Clipping Mask from the Layers panel menu or click the Make/Release Clipping Masks button at the bottom of the Layers panel.

g. **Edit a clipping mask**

Select and target the clipping path in the Layers panel. After selection of the clipping set, go to Object menu > Clipping Mask > Edit Mask. Follow one of the below functions:

i. Select the Direct Selection tool and move the clipping path by dragging the center reference point of the object.

ii. Select the Direct Selection tool then reshape the clipping path.

iii. Apply a fill and stroke to the clipping path.

If you need to select all clipping paths in a document, with the Selection tool, click on the blank space of the art board i.e. deselect all the artwork. Then go to Select menu > Object > Clipping Masks.

h. **Edit paths within a clipping net**

To edit portions of a path that fall outside the clipping mask, select the particular path within the clipping mask boundary then Edit the path.

Then follow the steps given below:

i. In the Layers panel, select the path.

ii. Position the Direct Selection tool on the portion of the path that appears within the mask. Click when the path's outline appears.

Note: Select the sections that appear within the mask, to select a clipped path, Edit the path.

i **Add or remove an object from the masked artwork**

In the Layers panel, drag the object within or out of the group or layer, that contains the clipping path.

j. **Release objects from a clipping mask**

Follow one of the below steps:

i. Select the group that contains the clipping mask, go to Object menu > Clipping Mask > Release.

ii. In the Layers panel, Select the layer or name of the group that contains the clipping mask. Select Release Clipping Mask from the panel menu. Or from the bottom of the panel, Click the Make/Release Clipping Masks button.

You will find that the clipping mask is not visible, if it is not selected or you have not assigned it a new paint attributes. This is because of the 'none' value has been assigned at the time of mask creation.

(a) **Blending Objects**

You can use blend objects option to create and divide the shapes equally into two objects.Create a smooth transition between objects, by creating blend between two open paths. You can combine blends of colors and objects, for the creation of transitions in the shape of a particular object.

Once you create a blend, The blended objects are treated as one object. if Editing the anchor points of the original objects or move one of the original objects, the blend effect changes accordingly. If you have added a new object with the original objects, the new object do not have their own anchor points. Expand the blend to divide the blend into distinct objects in order (see Figures 4.4 and 4.5).

Note: Blending objects is like applying blending mode or transparency to objects.

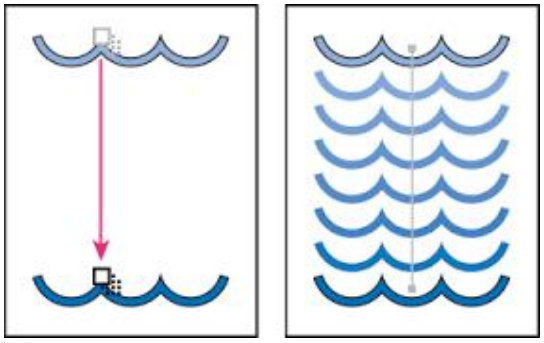


Fig. 4.4 Distribution of Shapes Between Two Objects

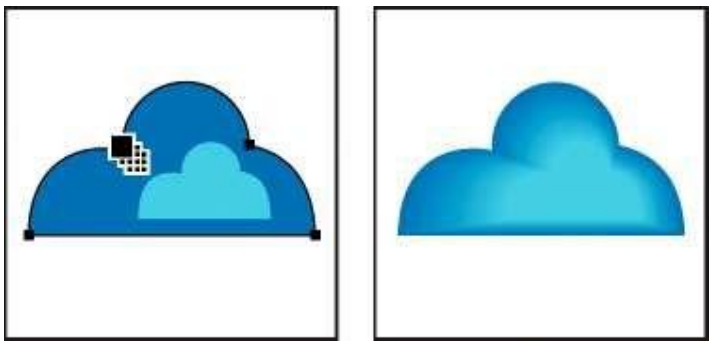


Fig. 4.5 Distribution of Color Between Two Objects

Consider the following rule before working with blend objects and their associated colors:

I. You can not blend Mesh objects.

ii. The blended shapes are painted with a blended process color,. Process colors are used to paint the intermediate steps if you blend between two different spot colors.

iii. If both the object has pattern applied and used to blend, then the pattern of the topmost layer object will be applied.

Iv. If you have defined the Blending modes of the object with the Transparency panel, then the topmost object's blending mode will be applied on the Blending.

v. If the Blended objects uses multiple appearance attributes, like effects, fills or strokes, then the attributes may also get Blended.

Vi. If the Blending is done by using two instance of the same symbol, then the Blended steps will be the instances of that symbol. However, if the instance are from different symbols, then the Blended steps will not be instances of that symbol.

vii. By default, Blends does not have transparency attributes, That is why if any of the steps is overlapping transparent objects, these objects will not show through each other. This setting can be changed from the Transparency panel, by selecting the blend and deselecting the Knockout Group.

(xi) **Create blends**

With the help of the Blend tool and Make Blend command, blends can be created. A Blend object is a series of intermediate objects and colors.

a. **Create a blend with the Blend tool**

Select the Blend tool and follow one of the below steps:

i. If you want to Blend in a sequential order but without rotation then, click anywhere on the object.

ii. If you need to Blend to a particular anchor point then, by using Blend tool click the anchor point. When the pointer is positioned accurately on the Anchor point, then the pointer changes from a white square to a transparent one with a black dot in its center.

iii. If you need to Blend Open paths then click on the endpoints of each path.

iv. After finishing the procedure to add the object to Blend, then in the Tools panel, click the Blend tool again.

By default When creating a smooth color transition, the Illustrator calculates the optimum number of steps. You can specify the number of sets or distance in the Blending option box.

b. **Create a blend with the Make Blend command**

Select the objects to be Blended. Then go to Object menu > Blend > Make.

(xii) **Blend options**

Go to Object menu > Blend > Blend Options or double-click the Blend tool to control the Blending option. To apply changes on an existing blend, you need to select the blended object first then use Blending options.

a. **Spacing**

With the help of this option you can define the number of steps that to be added to the blend, the options are as follows:

i. **Smooth Color**: This option automatically calculate the number of blending steps. When different fill, gradient or pattern objects or are used to Blend, then the steps are calculated to provide the optimum number of steps for a smooth color transition. The calculation of the number of steps is based on the longest distance between the bounding box edges of the two objects. This is applicable when the objects contain same colors or if they contain gradients or patterns.

ii. **Specified Steps**: You can control the number of steps between the start and end of the blend.

iii. **Specified Distance**: This option controls the distance between the steps in the blend. The distance is measured, from one edge of a object to the corresponding edge of the other object, for

example from the extreme left edge of one object to the extreme left edge of the next.

b. **Orientation**

This option controls the orientation of blending objects. The corresponding options are:

i. **Align to Page**: The blend is oriented perpendicular to the x-axis of the Page.

ii. **Align to Path**: The blend is oriented perpendicular to the path (see Figures 4.6 and 4.7).

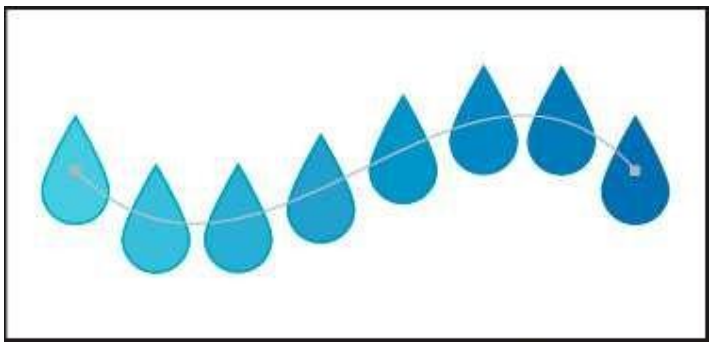


Fig 4.6 Align to page orientation

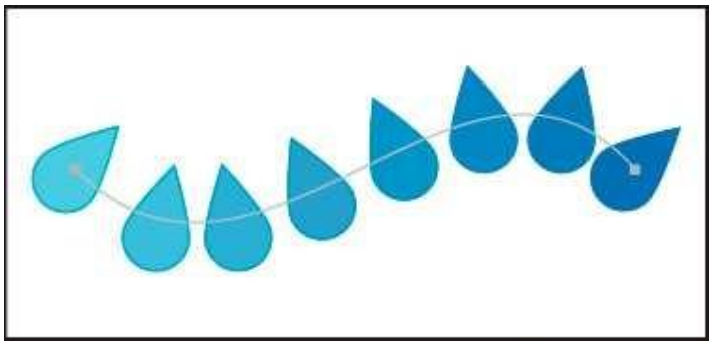


Fig. 4.7 Align to Path orientation

c. **Change the spine of a blended object**

The path along which the steps in a blended object are aligned is known as the spine. By default, a straight line will be created by spine. To modify the spine following options are available:

i. Drag the anchor points and path segments on the spine with the Direct Selection tool, to adjust the shape of the spine.

ii. Create an object to replace the spine with a different path. Select the spine object and the blended object, go to Object menu > Blend > Replace Spine.

iii. If you need to to reverse the order of a blend on its spine then, select the blended object and go to Object menu > Blend > Reverse Spine.

d. **Reverse the stacking order in a blended object**

Select the blended object. Select Object > Blend > Reverse Front To Back (Figure 4.8).

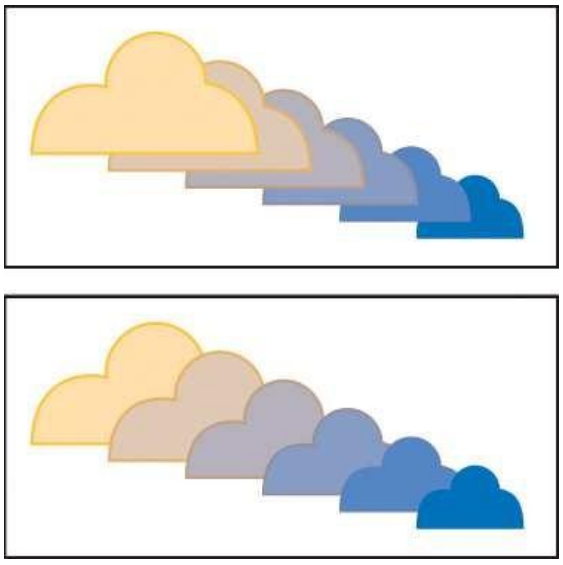


Fig. 4.8 Original Stacking order (top) Reverse Front to Back command (bottom)

e. **Release or expand a blended object**

When a Blended object is released, the original objects will be preserved and new objects will be removed. Expanding a blended object will divide the blend into separate objects and you can edit them individually.

Select the object and follow one of the below steps:

i. Go to Object menu > Blend > Release.

ii. Go to Object menu > Blend > Expand.

CHECK YOUR PROGRESS

1. Explain Anti-Alias?
2. Describe clipping mask?
3. Write the use of the slope option?
4. In Pathfinder effects, what is the use the subtract option?

5. What is the use of the fill arc option?

4.3 DRAW SHAPES

Illustrator allows easy and quick methods to draw various shapes.

4.3.1 **Draw Ellipses and Circles**

To create an ellipse, click the Ellipse tool and follow one of the below steps:

(i) Click on the artboard and drag the mouse diagonally until you get the required size of the ellipse.

(ii) Click on the top-left corner of the ellipse's bounding box is required.

(iii) Define height and width for the ellipse and click OK.

Note: Press the Shift key while dragging, to create a circle. You can specify dimensions, after you have entered the Width value. To copy that value into the Height box, click on the word Height.

4.3.2 **Draw Polygons and Stars**

Polygons

Select the Polygon tool and follow any one of the below steps:

(i) Drag until you get the required size of the polygon. If you need to rotate the polygon, drag the pointer in an arc. To add and remove sides from the polygon, press the Up and the Down Arrow keys.

(ii) Click the point where you need to create the polygon, that will be the center of the shape. Specify the number of sides and a radius and click OK.

Stars

Select the Star tool and follow any one of the below steps:

(i) Drag until you get the required size of the star. If you need to rotate the star, drag the pointer in an arc. To add and remove points from the star press the Up and Down Arrow keys.

(ii) Click the point where you need to create the star, that will be the center of the shape. Specify the number of extremities required for the star. Radius 1, it defines the distance from the center of the star to the inner area of the star. Radius 2, it defines the distance from the center of the star to the outer area of the star. Then click OK.

4.4 FLARE TOOL

Drawing flares

You can create flare objects with the help of Flare tool, the object can include a halo, rays and rings and a bright center. This tool can apply a effect similar to a lens flare in a photograph.

With the help of a center handle and an end handle in a Flare, you can control position of the flare and its rings. The flare path begins from the center handle, which is in the bright center of the flare (see Figure 4.9).

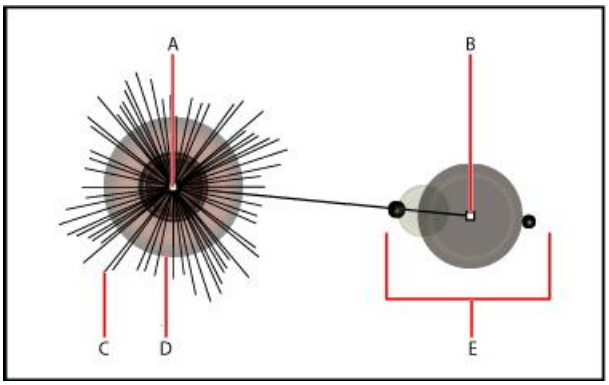


Fig. 4.9 Components of a Flare: A. Center handle B. End handle C. Rays (shown black for clarity) D. Halo E. Rings

Create a default flare

In the Tools panel, click on the Flare tool. Then press Alt key (Windows) or Option key (Mac OS) and click on the artboard, first click will create the center handle of the flare to appear.

Note: Create Flares over an existing object for better results.

Draw a flare

In the Tools panel, select the Flare tool and position the center handle of the flare. Press the mouse button and drag mouse to define the size of the halo, the size of the center, you can also control the rotation of the rays while pressing down the mouse button.

If you want to constrain the rays to a set an angle before press Shift key before releasing the mouse. You can use Up Arrow or Down Arrow key to add or subtract rays press. To hold the center of the flare constant, Press Ctrl (Windows) or Command (Mac OS). Release the mouse button after getting the desired share and rotation.

Further, if you want to add rings to the flare and place the end handle, press and drag the mouse again. Use the Up or the Down Arrow keys before releasing the mouse button, to add or subtract rings. For random placement of the rings, press the tilde (~) key. When you get the end handle on the desired location, release the mouse button. You can fill colors in the elements of the flare, like halos, centers, rays, rings, etc. You can also set different opacities (see Figure 4.9).

Create a flare by using the dialog box in Flare Tool Options

In the Tools panel, select the Flare tool and position the center handle of the flare.

From the Flare tool options Dialog Box, you can control the diameter, brightness, opacity and fuzziness of the flare's center or the percentage of the size of the halo. If the Fuzziness value is set to zero, it will be a sharp halo and if it is set to 100, it will be fuzzy. After specifying the setting values, click OK.

You can also control options of the rings of the flare by selecting the Rings option. You can define: the number of rings, the distance between the center handle and end handle, the direction of the rings, the size of the largest ring and the angle of the rings. To include rays in the flare, select the option Rays and specify the number of rays required. The length of the ray can be expressed as a percentage of the average ray. For halos The fuzziness and sharpness of the rays can be control by the values between 0 to 100.

Edit a flare

If you need to edit a flare, select the Flare tool. You can change the direction as well lenght of the flare by moving either the center handle or the end handle endpoint. Another method is select the flare and click on the Flare tool option. A dialog box will open. Click on Rest while pressing Alt+T. And another method is, go to the Object menu > Expand option in the flare option. After selecting Expand. You can edit the elements of the flare in the same manner as the elements of blends. By using Adobe Illustrator's tools and commands, or by using masks and effects, one can easily modify an object's shape or size. 3D shapes can also be created.

CHECK YOUR PROGRESS

6. Write down the steps to draw an ellipse?
7. Name some of the components of a Flare?
8. With a Flora tool, which are the flare objects that can be created?

4.5 PATHFINDER TOOLS AND USE OF SHAPE MODES

a. **Pathfinder panel overview**

You can use the Pathfinder panel, to combine objects into new shapes, (Window menu > Pathfinder). You can control the interaction between components of a compound shape with the help of top row of buttons in the panel. These buttons are also known as shape mode. Below is the list of the shape modes that can choosen:

i. Subtract from Shape Area This option cuts out the area of the component from the underlying geometry.

ii. **Add To Shape Area**

This option adds the shape with the beneath shape.

iii. **Exclude Overlapping Shape Areas**

With this option, you can invert the the underlying geometry with the area of the component, which in turns filled regions into holes and vice versa.

iv. **Intersect Shape Areas**

This option uses the area of the component to clip the underlying geometry, in a way a mask would (see Figure 4.10).

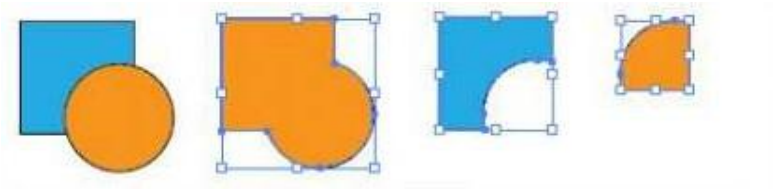


Fig. 4.10 Shape Modes

In the above image you can see,

A. All components in the Add mode B. Subtract mode applied to spares

C. Intersect mode applied to squares D. Exclude mode applied to squares.

The Pathfinder applies on the objects which are in the bottom row of buttons in the panel, it allows to create final shape combinations on the first click.

b. **Pathfinder options**

You will get Pathfinder Options double-clicking a Pathfinder effect in the Appearance panel or from the Pathfinder panel menu.

i **Precision**

With this option, you can control the preciseness with which the Pathfinder effects make calculation of an object or path. For more accuracy, specify more value. But higher value will require more time to create the result.

ii. **Remove Redundant Points**

This option remove unwanted points.

iii. **Divide And Outline Will Remove Unpainted Artwork**

If you need to remove unpainted or the area which is not filled, select the artwork and click the Divide or Outline button.

c. **Pathfinder effects**

i. **Add**

This option traces the outline of all the selected objects and behaves like they all are a single object. Color of the topmost object will be applied.

ii. **Subtract**

It subtracts the top object from its all the below objects.

iii. **Minus Back**

Substracts the back object from the front object. by adjusting the stacking order, the area of the object can be removed.

iv. **Intersect**

Traces overlapping areas outlines of all the selected objects.

v. **Exclude**

Subtracts overlapping area by tracing the non overlapping areas of the selected objects. If you use even number of objects, it make the overlap area transparent. And if odd number are objects are used then fill applied to the overlap areas.

vi. **Divide**

Applying effect separat. a piece of artwork into its component filled faces (a face is defined as an area which is undivided by a line segment).

vii. **Merge**

Subtracts the hidden area of the below objects. It removes the strokes and merges any overlapping objects.

viii. **Trim**

Applying this effect removes the part of a filled object that is hidden, but does not merge same color objects.

ix. **Outline**

This option divides the outlines or edges of the objects and makes them separate. It also removes the fill of all the objects.

x. **Crop**

It removes all the objects or the area of the artwork which lay outside of the topmost object.Even it removes the strokes. Only the overlapping areas remained fill.

xi. **Hard Mix**

It uses the highest value of each color component and combines the color. For example, if Color1 is 70% cyan, 35% magenta, 35 % yellow, and 10 per cent black and Coor 2 is 36% cyan, 28% magenta, 45% yellow and 15% black, then the resulting hard color Will be 70% cyan, 35% magenta, 45% yellow and 15% black.

xii. **Soft Mix**

By overlapping artwork, you can see the underlying colors visible. Thereafter, this separates the image into its component faces. You can control the visibility of the overlapping colors.

xiii. **Trap**

Applying this effect creates a small area of overlap (called a trap) between two adjoining colors. This therefore compensates for potential gaps between colors in an artwork.

d. **Apply Pathfinder effects**

By applying Pathfinder effects, you can overlap objects and create new shapes. You will get Pathfinder effects in the Effect menu or the Pathfinder panel.

i. If you use Pathfinder effects from the Effect menu then the effects will only be applied to layers, groups and text objects. Editing can be done even you apply the effect. Appearance panel can also be used to modify or remove the effect.

ii. If you use Pathfinder effects from the Pathfinder panel, then you can combine objects, groups and layers to create the effects. Click a Pathfinder button to create the combination of the shapes. In this method, you cannot edit the original objects after applying the effects. Multiple objects of the result, will automatically grouped.

e. **Apply a Pathfinder effect using the Effects menu**

To apply effects, follow any one of the below step:

i. Select the groupe of the object that you need to use.

ii. Move the objects you need to use into a separate layer, move them and target the layer.

iii. Go to Effect menu > Pathfinder and select a Pathfinder effect.

If you need to apply the same Pathfinder effect again, go to Effect menu > Apply [effect].

f. **Apply a Pathfinder effect using the Pathfinder panel**

You need to select the required objects. In the Pathfinder panel, Alt-click (Windows) or Option-click (Mac OS) a Shape Mode button (in the top row) or click a pathfinder button (in the bottom row).

4.5.1 Compound Shapes

A compound shape consists of two or more objects, each object is editable. you can precisely modify or edit the shape mode, shape, location, stacking order and appearance of each included path, and that's how complex shapes can be easily created with the compound shapes.

In the Layers panel, Compound shapes appear as <Compound Shape> items and act as grouped objects. You can go to the Layers panel, to show, select and alter the contents of a compound shape, e.g., to change the stacking order. Direct Selection tool or the Group Selection tool can be used for the selection of the components.

In Add, Intersect or Exclude mode of the compound shape, the transparency and paint attributes of the topmost component will be applied. If you need to modify any of these attributes on any individual component then you can select that particular component from the Layer panel and can make the required changes.

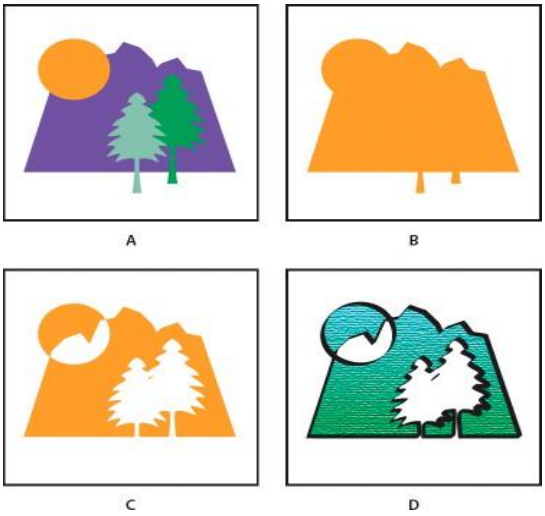


Fig. 4.11 Working with Compound Shapes

A. Original objects B. Compound shape created C. Individual shape modes applied to each component D. Style applied to entire compound shape.

(i) **Work with compound shapes**

The procedure of creating a compound shape can be followed in two parts. In a compound shape all components has the same shape mode. Assign shapes modes to the components, until you obtain the required combination of shape areas (see Figure 4.11).

(ii) **Create a compound shape**

Select that objects that to be use to create the compound shape. All closed paths, compound paths, groups, blends, text, envelopes, or other compound shapes and warps can be included to create a compound shape. Open path will be automatically closed, if they are used to create compound path. Follow any one of the below steps:

a. Alt-click (windows) or Option-click (Mac OS) a Shape Modes button in the Pathfinder panel.

b. Go to the Pathfinder panel menu > Make Compound Shape. The Add mode, by default is assigned to each component of the compound shape.

c. If you need to modify the shape of a component, then use the Direct Selection tool or Layers panel > click a Shape Mode button.

Note: The backmost or most last component does not have any relation with the component shape, so any changes made to it will not make any effect to the compound object. To make out the best result, you can create complex compound shapes by nesting other compound shapes (containing approx 10 components each), as compared by using many individual components.

(iii) **To modify a compound shape**

i. You can use the Direct Selection tool or Layers panel, if you need to modify an individual component of the compound shape.

ii. You can identify the mode which is currently applied, by looking at the highlighted Shape Mode button in the Pathfinder panel.

iii. Click a different Shape Mode button in the Pathfinder panel.

(iv) **To release and expand a compound shape**

You can get back individual shapes by using the Release option. If you use Expand option then the individual components can not be selected.

Do one of the following after selecting the compound shape:

a. In the Pathfinder panel click Expand.

b. Pathfinder panel menu > Expand Compound Shape. The mode of the compound object i.e. Path or Shape will be depend on the shape mode.

c. Pathfinder panel menu > Release Compound Shape.

(v) **Move compound shapes between Illustrator and Photoshop**

In Adobe Photoshop the shape layers and layer clipping paths or vector masks are types of compound shapes. You can import or modify the Shape layers and Layer clipping paths into Illustrator as compound shapes. As well from Illustrator the compound shapes can be exported to Photoshop. When using compound shapes with Photoshop, the following points need to be considered:

a. The Compound shapes that reside at the at top layer of the layer hierarchy can only be exported to Photoshop in the form of shape layers,.

b. When exported to the PSD file format, a compound shape (that is not an integer or that is painted with a stroke using a join other than round) is rasterized.

4.5.2 **Compound Paths**

A compound path consists of two or more paths that are painted in such a way that when the paths overlap, you can see the holes. The paint and style attributes of the backmost object will be applied to all the objects that are defined as a compound path.

In the Layers panel, Compound paths appear as <Compound Path> items and act as grouped objects. You can use the Direct Selection tool or the Group Selection tool for the selection of a part of a compound path. Individual component's shapes can be modified but attributes like, appearance, attributes, graphic styles or effects for individual components cannot be changed in the Layers panel. For the compound path creation, if you need more flexibility than Compound shapes can be created and expanded.

(i) **Cut a hole in an object using a compound path**

Select the object to be used as a hole. Then overlap the object with the object that to be cut. Select all objects that are to be included in the compound path. Go to Object > Compound Path > Make.

(ii) **Apply fill rules to compound paths**

You can define whether a compound path is a an even-odd path or nonzero winding path.

(iii) **Even-odd fill rule**

To determine whether a point is inside or outside a shape, this rule uses mathematical equations. This rule is the more predictable, as every other region within an even-odd compound path is a hole. Compound paths imported from applications, such as Adobe Photoshop applications will use the even-odd rule by default.

(iv) **Nonzero winding fill rule**

To determine if a point is outside or inside a shape, this uses mathematical equations. Illustrator uses the nonzero winding rule by default (see Figure 4.12).

The paths that intersect themselves are the self-intersecting paths. Illustrator allows to choose the method to make these paths either nonzero winding or even-odd.

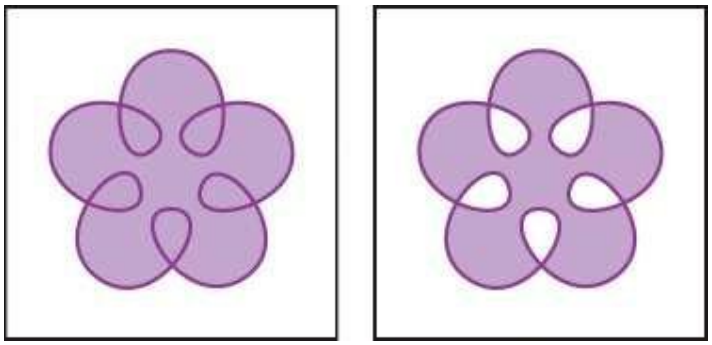


Fig. 4.12 Self Intersecting Path with non-zero winding

Whether overlapping paths that appear with holes or are filled by clicking a Reverse Path Direction button (Attributes panel), can be specified.

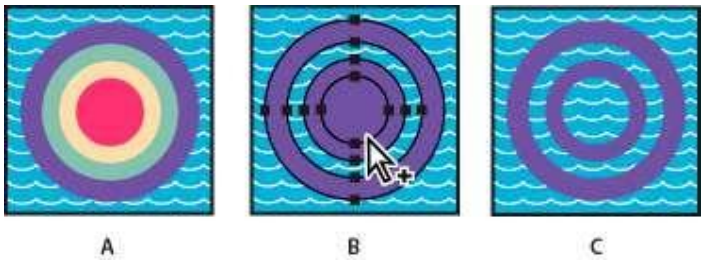


Fig. 4.13 Fill Rules

The above figure shows: A. Four Circular Paths B. Circular paths selected and converted into compound paths C. Reverse Path Direction applied to the innermost path

(v) **Change the fill rule for a compound path**

i. Using the Selection tool or Layers panel, select the compound path.

ii. Click the Use Nonzero Winding Fill Rule button or the Use Even-Odd Fill Rule button in the Attributes panel (see Figure 4.13).

(vi) **Change a hole in a compound path to a filled area**

i. Make sure that the nonzero winding fill rule is used by the compound path.

ii. Select the part of the compound path to reverse with the Direct Selection tool. Make sure not to select the entire compound path.

ii. Click the Reverse Path Direction On button or the Reverse Path Direction Off button from the Attributes panel.

(vii) **Return a compound path to its original components**

i. Using the Selection tool or Layers panel, select the compound path.

ii. Then, select Object > Compound Path > Release.

CHECK YOUR PROGRESS

9. Name the tool which is used to combine objects into new shapes?

10. How many pathfinder effects are available in Illustrator?

11. Define a compound path.

12. What does to compound shape consist of?

4.6 SUMMARY

• In the Illustrator, various objects can be created with the help of basic shapes and then editing them to create new shapes.

• You can create even create logo with the help of basic shapes. Tools and commands can also be used to create basic shapes, copy and combine objects to create new shapes, paint objects, and more.

• The Flare tool creates flare objects with a halo, rays and rings and a bright center, just like creating an effect similar to a lens flare in a photograph. With the help of center handle and an end handle you can move the flare and its rings. The flare path begins from the center handle, which is in the bright center of the flare.

• Transforming means to either move, scale, reflect, shear or rotate an object. The option is available in the Transformation tool. Then the Transform commands and specialised tools can be selected for more variations. Transform panel's Display option avails the details about the location, size and orientation of one or more selected objects. Selected objects can be modified, the fill of the pattern changed or both can be done together by assigning different values to this option. Besides this, the object's proportions can be locked and the transformation reference point can be changed with this tool.

• Envelope objects are use to reshape or distort the selected objects. You can use a preset warp shape or a mesh grid as an envelope. You can also make an envelop out of an object. Graphs, guides, or linked objects, can not be used as an envelop objects.

• Use the Pathfinder panel (Window > Pathfinder) to combine objects to create new shapes. The interaction between components of a compound shape is controlled by the top row of buttons in the panel which are known as shape modes.

• A compound shape consists of two or more objects, each of which is assigned a shape mode and is an editable art. You can precisely manipulate the shape mode, shape, location, stacking order and appearance of each included path. Compound shapes make it easy to create complex shapes.

• A compound path consists of two or more paths that are painted in such a way that the overlapping paths creates holes. When objects are defined as a compound path then the paint and style attributes of the backmost object are applied.

• Blend objects creates and distributes shapes evenly between two objects. To create a smooth transition between objects, you can blend between two open paths. To create color transitions in the shape of a particular object, you can combine blends of colors and objects.

4.7 KEY TERMS

• **Slope**: Specifies the direction of the arc's slope

• **Fill Arc**: Applies current fill color to the arc.

• **Transforming**: To either move, scale, reflect, shear or rotate an object

• **Bounding Box**: Box which appears when one or more objects are selected with the Selection tool

• **Scaling**: To increase or decrease the size of the object

• **Shearing**: Slanting or skewing an object along the vertical or the horizontal axis, or to a specified angle that is relative to some specified axis

• **Intensity**: The rate of change of the distortion

• **Complexity**: The closeness of the results of any particular brush, on the object's outline

• **Simplify**: Reduces the superfluous points that do not make a marked difference in overall appearance of the shape

• **Twirl Rate**: Demonstrates the rate at which a twirl is applied

• **Envelopes**: The objects that reshape or distort selected objects

• **A compound shape**: Consists of two or more objects, such that each is an editable art and is assigned a shape mode

• **A compound path**: Consists of two or more paths that are painted in such a way, that holes appear where the paths overlap

• **A clipping mask**: An object which clips artwork to the shape of a mask, i.e., only areas that lie within the shape are visible

• **Blending**: Creating and distributing shapes evenly between two objects

4.8 END QUESTIONS

1. Name the shapes that can be drawn in Illustrator?

2. Explain Flare tool ?

3. What do you mean by transformation of objects?

4. Describe scaling, shearing and distorting of objects?

5. Define envelopes.

6. What are compound shapes?

7. Explain compound paths?

8. What is blending of objects?

1. Write down the steps to draw polygons.

. How can you transform the patterns of an object?

4. What is the procedure to Scale objects to a specific height and width?

5. How will you reset an envelope?

6. Describe pathfinder options.

7. How can one create a compound shape?

8. Describe the different ways of creating blends.

4.9 FURTHER READINGS

Olav Martin Kvern, David Blatner, Bob Bringhurst (2012). Real World Adobe Illustrator CS6 : Peachpit Press.

Karlin D. (2008). Learning Illustrator Cs6 with 100 Practical Exercises: Adobe Press.

Adobe Creative Team. (2012). Adobe Illustrator CS6 Classroom in a Book: Adobe Press.

Peter Lourekas, Elaine Weinmann (2012). Illustrator CS6: Visual QuickStart Guide, First Edition. Peachpit Press.