

ADOBE® ILLUSTRATOR® CS3

CLASSROOM IN A BOOK®

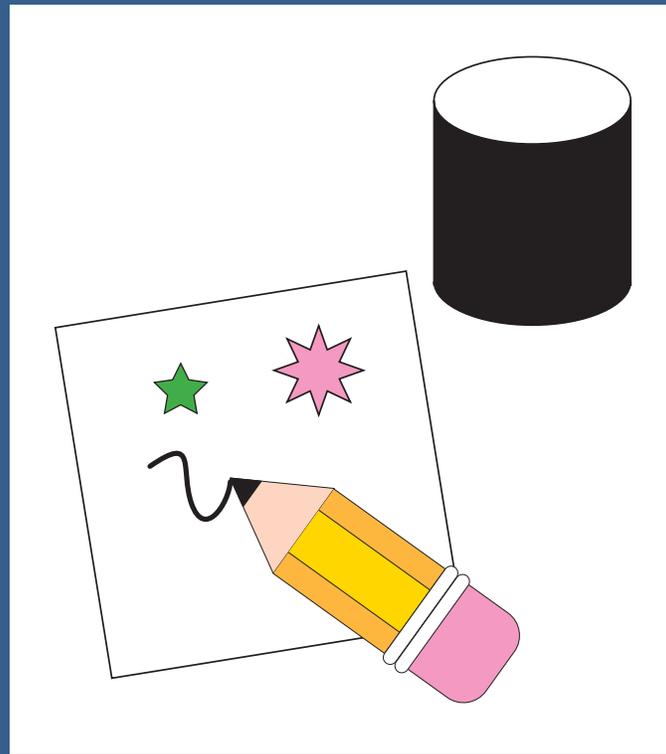
The official training workbook from Adobe Systems

CD-ROM Included for Windows and Mac OS



Table of Contents

| | |
|--|----------|
| Chapter 3. Creating Shapes..... | 1 |
| Getting started..... | 2 |
| Creating basic shapes..... | 3 |
| Using basic shape tools..... | 5 |
| Drawing the pencil shape..... | 5 |
| Using the Pencil tool..... | 11 |
| Drawing the pencil can..... | 13 |
| Using Live Trace to create shapes..... | 14 |
| Tips for drawing polygons, spirals, and stars..... | 18 |
| Exploring on your own..... | 18 |
| Review..... | 19 |



Many objects in Illustrator can be created by starting with basic shapes and then editing them to create new shapes. In this lesson, you will use some basic shapes to create a logo.

Chapter 3. Creating Shapes

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3 Creating Shapes

In this lesson, you'll learn how to do the following:

- Create basic shapes.
- Move, scale, and rotate objects using a variety of methods.
- Draw with the Pencil tool.
- Work with Smart Guides.
- Position objects precisely.
- Work with line segments.
- Use Live Trace.

Getting started

In this lesson, you'll create a logo composed of a pencil, paper and a pencil can. Before you begin, you'll restore the default preferences for Adobe Illustrator CS3, then open a file containing a composite of the finished artwork to preview what you'll create.

1 To ensure that the tools and panels function exactly as described in this lesson, delete or deactivate (by renaming) the Adobe Illustrator CS3 preferences file. See “Restoring default preferences” on page 3.

2 Start Adobe Illustrator CS3.

Note: If you have not already copied the resource files for this lesson onto your hard disk from the Lesson03 folder from the Adobe Illustrator CS3 Classroom in a Book CD, do so now. See “Copying the Classroom in a Book files” on page 2.

Creating basic shapes

You'll begin this exercise by creating a new document and setting the ruler units to inches, displaying a grid to use as a guideline for drawing, and closing the panels that you won't use.

- 1 Choose File > New to open a new, untitled document. Choose Print from the New Document Profile menu and change the units to inches. Leave the rest of the settings as they are, and click OK.
- 2 Choose File > Save As, name the file **Pencil.ai**, and save in the Lesson03 folder. Leave the type of file format set to Adobe Illustrator Document, and click Save. In the Illustrator Options, leave the default settings unchanged and click OK.
- 3 Reset the workspace by choosing Window > Workspace > [Basic].
- 4 Choose View > Show Grid to display a grid that's useful for measuring, drawing, and aligning shapes. This grid won't print with the artwork.
- 5 Choose View > Show Rulers, or hold down Ctrl+R (Windows) or Command+R (Mac OS) to display rulers along the top and left side of the window if they are not already showing. The ruler units are inches because of the change you made in the New Document dialog box.

You can change the ruler units of measure used for all documents or for only the current document. The ruler unit of measure applies to measuring objects, moving and transforming objects, setting grid and guide spacing, and creating ellipses and rectangles. It does not affect the units in the Character, Paragraph, and Stroke panels. These are controlled by the options in the Units & Display Performance dialog box in the program preferences.

- 6 To change options such as artboard size and units after a document is created, choose File > Document Setup.

 You can change the units of measure for rulers by right-clicking (Windows) or Ctrl-clicking (Mac OS) a ruler in your active document. Choose the unit of measure from the context-sensitive menu that appears.

Document Startup Profiles

A document is the space in which you create artwork. In Illustrator, you can create documents destined for many different types of output.

You start a new document by choosing a new document profile based on your intended output. Each profile includes preset values for size, color mode, units, orientation, transparency, and resolution. For example, the Video And Film Document profile uses pixels instead of points, and you can choose a device-specific crop area, such as NTSC DV Widescreen, to create a document in the exact dimensions required, with video-safe guides in place to help you lay out your design for optimal viewing.

—From Illustrator Help

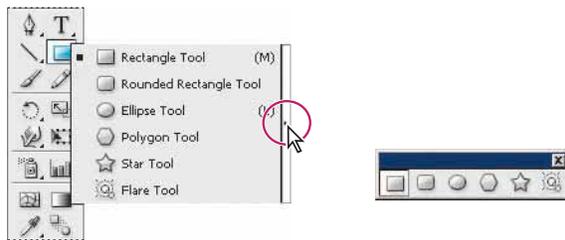


At left you can see the New Document dialog box with the Video and Film New Document profile chosen. The Advanced options (click the arrow to the left of Advanced to toggle open) are context-sensitive, which means that the options change based on which document profile is chosen.

Using basic shape tools

In this lesson, you'll create a simple logo using the basic shape tools. The shape tools are organized under the Rectangle tool. You can tear this group off the Tools panel to display it as a separate free-floating panel.

- 1 Hold down the mouse button on the Rectangle tool (▭) until a group of tools appears, and then drag to the tear-off triangle at the end and release the mouse button.



Tearing off the Rectangle tool group.

- 2 Move the Rectangle tool group away from the Tools panel.

Drawing the pencil shape

In Adobe Illustrator CS3, you control the thickness and color of lines that you draw by setting stroke attributes. A stroke is the paint characteristic of a line, or the outline of an object. A fill is the paint characteristic of the inside of an object. The default settings let you see the objects you draw with a white fill and a black outline.

First you'll draw a series of rectangles and triangles that make up the pencil. You'll display Smart Guides to align your drawing.

- 1 Select the Zoom tool (Q) in the Tools panel, and click the middle of the window once or twice until you are zoomed in to 150%. Notice that 150% is displayed in the bottom-left corner of the window.
- 2 Choose View > Smart Guides to turn them on. Smart Guides automatically snap the edges of objects to nearby objects or their intersecting points as you move them. Smart Guides also show Text Label Hints that display information about the position the pointer is currently snapped to (such as "center") as you manipulate the pointer.

About Smart Guides

When Smart Guides are turned on and you move the cursor over your artwork, the cursor looks for objects, page boundaries, and intersections of construction guides to snap to that area within the tolerance range set in Smart Guides Preferences.

Smart Guides are temporary snap-to guides that help you create, align, edit, and transform objects relative to other objects. To activate Smart Guides, choose View > Smart Guides.

You can use Smart Guides in the following ways:

- When you create an object with the pen or shape tools, use the Smart Guides to position a new object's anchor points relative to an existing object.
- When you move an object, use the Smart Guides to align your cursor to construction guides and existing paths. The alignment is based on the position of the pointer, not the edges of the object, so be sure to click to the exact point you want to align to.
- When you transform an object, Smart Guides automatically appear to assist the transformation. You can change when and how Smart Guides appear by setting Smart Guide preferences.

Note: When Snap to Grid is turned on, you cannot use Smart Guides (even if the menu command is selected).

—From Illustrator Help

3 Choose Window > Transform to display the Transform panel. Then choose Window > Info.

4 Select the Rectangle tool () , and drag it to draw a rectangle that's approximately 0.75 inch wide and 1 inch tall. Use the rulers and the grid as guides. This will be the body of the pencil. You can also use the Info panel to determine the size.

When you release the mouse button, the rectangle is automatically selected and its center point appears. All objects created with the shape tools have a center point that you can drag to align the object with other elements in your artwork. You can make the center point visible or invisible using the Attributes panel, but you cannot delete it.

- 5 In the Transform panel, note the rectangle's width and height. If necessary, enter **.75 inch** in the width text field and **1 inch** in the height text field.

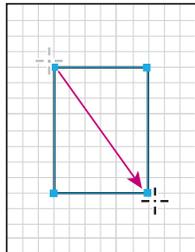


The Transform panel displays rectangle's width and height.

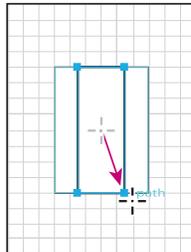
You'll draw another rectangle centered inside the first one to represent the two vertical lines on the pencil.

- 6 With the Rectangle tool still selected, position the pointer over the center point of the rectangle, hold down Alt (Windows) or Option (Mac OS), and drag out diagonally from the center point to draw a rectangle that's centered inside the other. Release the mouse button and then the Alt/Option key when the rectangle is the same height as the first rectangle (1 inch).

Holding down Alt/Option as you drag the Rectangle tool draws the rectangle from its center point rather than from its top left corner. Smart Guides indicate when you've snapped to the first rectangle's edge, by displaying the text label hint "path."



Drag to draw first rectangle.



Alt/Option+drag to draw second rectangle.

Besides dragging a tool to draw a shape, you can click with the tool to open a dialog box of options. Now you'll create a rounded rectangle, which will be the eraser, by setting options in a dialog box.

7 Select the Rounded Rectangle tool () and click once in the artwork to open the Rounded Rectangle dialog box. Type **0.75** in the Width text field, press Tab, and type **0.75** in the Height text field. Then press Tab again, and type **0.20** in the Corner Radius text box (the radius is the amount of the curve on the corners). Click OK.

 *To automatically enter identical Width and Height values in the Ellipse or Rectangle dialog box, enter a Width or Height value, and then click the name of the other value to enter the same amount.*

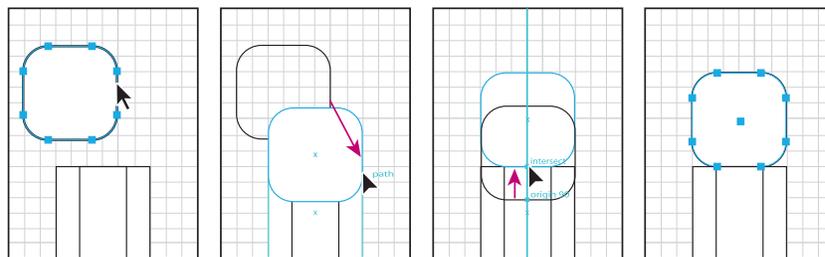
You'll use Smart Guides to help you align the eraser to the top of the pencil body.

8 Choose View > Hide Bounding Box to hide the bounding boxes of selected objects. This will prevent you from accidentally distorting the eraser shape when you move and align it.

The bounding box appears as a temporary boundary around selected objects. With the bounding box, you can move, rotate, duplicate, and scale objects easily by dragging the selection or a handle (one of the hollow squares surrounding the selected objects).

9 With the Rounded Rectangle tool still selected, hold down Ctrl (Windows) or Command (Mac OS) to access the Selection tool () temporarily. Select the right edge of the eraser without releasing the mouse button, and then drag the right side of the eraser to align with the right side of the pencil body. (Smart Guides indicate the path of the right side.) Release the mouse button to drop the eraser on top of the pencil body.

10 Hold down Ctrl (Windows) or Command (Mac OS), select the bottom edge of the eraser, and drag it up to the intersect point at the top of the pencil body. Release the mouse button.



Select right edge of eraser shape.

Drag eraser to path on pencil body.

Drag bottom of eraser to top of pencil body.

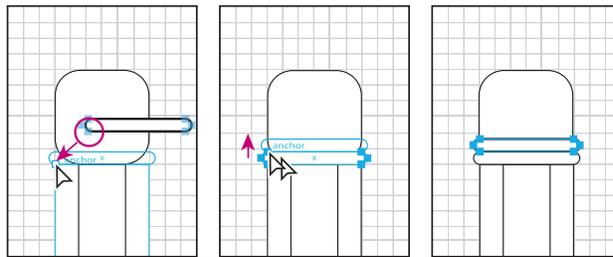
Result.

Next you'll create two shapes to represent the metal bands connecting the eraser to the pencil.

11 To create the first band, click once anywhere in the artwork to open the Rounded Rectangle dialog box again. Type **0.85** in the Width text box, **0.10** in the Height text box, and **0.05** in the Corner Radius text box. Click OK.

12 Using the Selection tool, click the band, select the bottom left anchor point, and move the band to the top of the pencil body. Release the mouse button. (Smart Guides snap the anchor point to the top corner of the pencil body.)

13 With the band still selected, hold down Alt (Windows) or Option (Mac OS), select the anchor point again, drag straight up to make a copy, and move it above the original band. Release the mouse button. (Smart Guides snap the anchor point of the new copy to the top of the original band.)



Move first metal band between eraser and pencil body.

Alt/Option+drag a copy above first metal band.

Smart Guides snap objects into position.

You've been working in Preview mode. This default view of a document lets you see how objects are painted (in this case, with a white fill and black stroke). If paint attributes seem distracting, you can work in Outline mode.

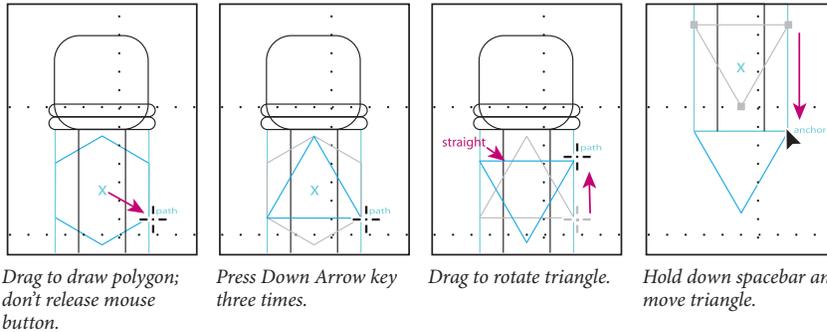
Now you'll draw two triangles to represent the pencil tip and its lead, using Outline mode.

14 Choose View > Outline to switch from Preview to Outline mode.

Illustrator lets you control the shape of polygons, stars, and ellipses by pressing certain keys as you draw. You'll draw a polygon and change it to a triangle.

15 Select the Polygon tool () and position the pointer over the center point of the two rectangles.

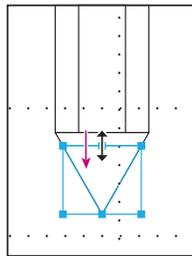
16 Drag to begin drawing a polygon, but don't release the mouse button. Press the Down Arrow three times to reduce the number of sides on the polygon to a triangle, and move the mouse in an arc to rotate one side of the triangle to the top. Before you release the mouse button, hold down the spacebar and drag the triangle down to position it below the pencil body. Release the mouse button when the triangle is positioned.



Now you'll create the second triangle for the pencil's lead tip using the Scale tool.

17 Choose View > Show Bounding Box to turn the bounding box back on and switch to the Selection tool (⬅). Make sure that the triangle is still selected. Notice how the bounding box is rotated. Choose Object > Transform > Reset Bounding Box. After rotating objects, you can reset the bounding box.

18 With the triangle still selected, choose Edit > Copy and Edit > Paste in Front to paste a copy directly on top. Select the Selection tool and holding the Shift key, resize from the top, middle point of the bounding box to the desired size for the pencil lead.



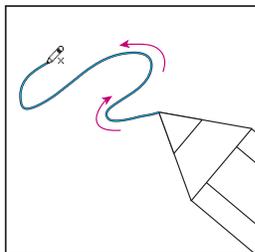
19 Choose Select > All to select the pencil shapes. Choose Object > Group to group.

- 20 With the group still selected, you will now rotate the pencil. In the Transform panel (Window > Transform) enter **-130** in the Rotate (⤵) field and press Enter or Return to apply the rotation.
- 21 Choose View > Preview, and then choose File > Save to save your work.

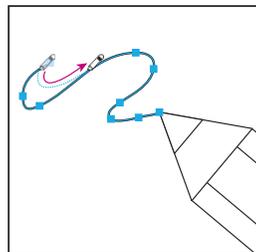
Using the Pencil tool

The Pencil tool lets you draw open and closed paths as if you were drawing with a pencil on paper. Anchor points are created as you draw and are placed on the path where Illustrator deems necessary. However, you can adjust them once the path is complete. The number of anchor points set down is determined by the length and complexity of the path and by tolerance settings in the Pencil Tool Preferences dialog box, which we will discuss briefly.

- 1 With the pencil group rotated, select the Pencil tool (🖋) in the Tools panel. In the Control panel, click Stroke color and select Black in the Swatches panel that appears, then click Fill color in the Control panel and select None (☐).
- 2 From the tip of the pencil group, click and drag to draw a curvy path with the Pencil tool. It's very similar to drawing with a regular pencil.
- 3 With the path still selected, position the Pencil tool on or near the end of the path located farthest from the large pencil tip you drew. When you're close enough to the path, the small x disappears from the tool. Click and drag from the end of the path to some point closer to the large pencil tip in the drawing, making sure to connect the end point of the new curve to the original squiggly line you drew. Illustrator will redraw the shape of the original squiggly line to match this new curve.



Click and drag with the Pencil tool to create a shape.



Draw over the path with Pencil tool to redraw a portion.

Pencil tool settings

The Pencil tool may behave differently than you would expect. The Pencil tool settings allow you to change how the tool works on paths you draw or edit, which gives you more control over how it functions.. Double-click the Pencil tool to set any of the following options.



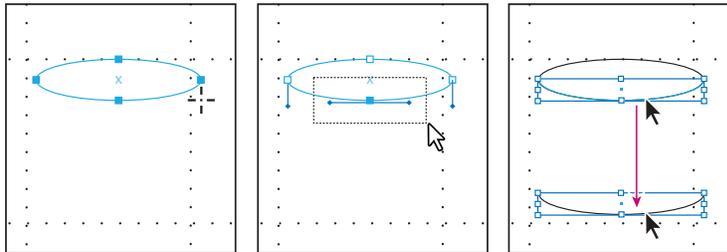
- **Fidelity** Controls how far you have to move your mouse or stylus before a new anchor point is added to the path. The higher the value, the smoother and less complex the path. The lower the value, the more the curves will match the pointer's movement, resulting in sharper angles. Fidelity can range from 0.5 to 20 pixels.
- **Smoothness** Controls the amount of smoothing applied when you use the tool. Smoothness can range from 0% to 100%. The higher the value, the smoother the path. The lower the value, the more anchor points are created, and the more the line's irregularities are preserved.
- **Fill New Pencil Strokes** Applies a fill to pencil strokes you draw after selecting this option, but not to existing pencil strokes. Remember to select a fill before you draw the pencil strokes.
- **Keep Selected** Determines whether to keep the path selected after you draw it. This option is selected by default.
- **Edit Selected Paths** Determines whether or not you can change or merge an existing path when you are within a certain distance of it (specified with the next option).
- **Within: _ pixels** Determines how close your mouse or stylus must be to an existing path in order to edit the path with the Pencil tool. This option is only available when the Edit Selected Paths option is selected.

—From Illustrator Help

Drawing the pencil can

Next you'll work with straight lines and line segments to create a can for holding pencils. Shapes can be created in many ways within Illustrator, and usually simpler is better.

- 1 With **Pencil.ai** open, select the Hand tool () in the Tools panel, and move to the upper right of the pencil to give yourself room to work.
- 2 Choose Window > Info to open the Info panel if it's not already open. Choose View > Smart Guides and make sure Smart Guides are still selected.
- 3 Select the Ellipse tool () from the same group as the Rectangle tool () in the Tools panel. Draw an ellipse that has a width of 1" and a height of .25". (To see the size of the shape as you draw, reference the Info panel). In the Control panel, choose 1pt from the Stroke weight pop-up menu. Click the Fill color in the Control panel and select None ().
- 4 With the Direct Selection tool (), drag across the lower part of the ellipse to select the bottom half (you may need to close the Swatches panel to make the selection). Choose Edit > Copy, Edit > Paste in Front to create a new path. Switch to the Selection tool and drag it down a few inches holding the Shift key down after you begin dragging.

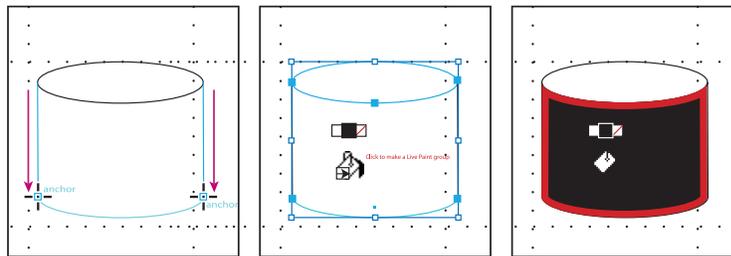


Draw an ellipse that has a width of 1" and height of .25".

Select the line segment and copy/paste in front.

Shift+drag the copied line segment below.

- 5 Select the Line Segment tool (↖) in the Tools panel. Hold down Shift while drawing a line from the left anchor point of the ellipse to the left anchor point of the new path. The anchor points highlight when the line snaps to them. Repeat on the right side of the ellipse. Select the Selection tool (⬚) and drag across these shapes to select them, then choose Object > Group.
- 6 Select the Live Paint Bucket tool (🪣) in the Tools panel. Click the Fill color in the Control panel and select Black in the Swatches panel that appears. With the grouped object still selected, click the center of the lower part of the can (see image below). That part of the can is now filled with black. You will learn more about the Live Paint Bucket tool in Lesson 6, “Color and Painting.”



Draw 2 lines to create the pencil can sides.

Click to paint the pencil can.

The result.

- 7 Choose File > Save and close the file.

Using Live Trace to create shapes

In this part of the lesson, you will review how to work with Live Trace. Live Trace will trace existing artwork, like a picture from another graphics program. You can then convert the drawing to vector paths or a Live Paint object

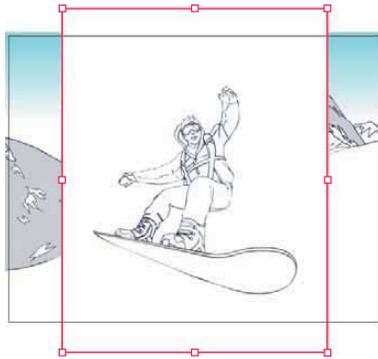
- 1 Choose File > Open, and open the L3start_02.ai file in the Lesson03 folder.
- 2 Choose File > Save As, name the file **snowboarding.ai**, and select the Lesson03 folder in the Save As window. Leave the file format set to Adobe Illustrator Document, and click Save. In the Illustrator Options dialog box, accept the default settings by clicking OK.

Note: A missing profile dialog box may appear. Click OK to continue.

- 3** With the Selection tool (⬚), select the snowboarder sketch.

Note that the Control panel options change when the scanned image is activated. It says Linked File on the left side of the Control panel and you can see the resolution (PPI: 150).

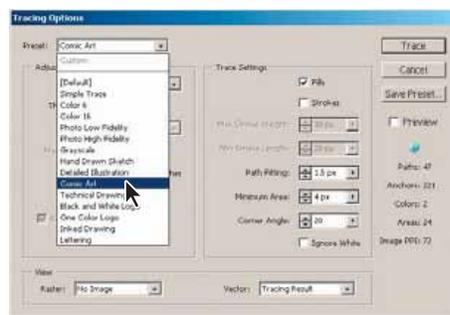
- 4** Click the Live Trace button (Live Trace) in the Control panel. This converts the image from raster to vector.



Choose the Live Trace button to recreate the artwork as vector.

Understand that the reason it is called Live Trace is that you can change the settings, or even the original placed image, and see immediate updates in Illustrator.

- 5** In this example, you selected the default trace setting, which worked fine for this image. To experiment with other presets and options, such as Comic Art, click the Tracing Options Dialog button (⌘) in the Control panel, choose Comic Art from the Preset pop-up menu and check Preview. Leave the Tracing Options dialog box open.



Change options using the Tracing Options dialog window.

Tracing options

Preset specifies a tracing preset.

Mode specifies a color mode for the tracing result.

Threshold specifies a value for generating a black and white tracing result from the original image. All pixels lighter than the Threshold value are converted to white, all pixels darker than the Threshold value are converted to black. (This option is available only when Mode is set to Black and White.)

Palette specifies a palette for generating a color or grayscale tracing from the original image. (This option is available only when Mode is set to Color or Grayscale.) To let Illustrator determine the colors in the tracing, select Automatic.

Max Colors specifies a maximum number of colors to use in a color or grayscale tracing result. (This option is available only when Mode is set to Color or Grayscale and when panel is set to Automatic.)

Output To Swatches creates a new swatch in the Swatches panel for each color in the tracing result.

Blur blurs the original image before generating the tracing result. Select this option to reduce small artifacts and to smooth jagged edges in the tracing result.

Resample resamples the original image to the specified resolution before generating the tracing result. This option is useful for speeding up the tracing process for large images but can yield degraded results.

Note: The resample resolution is not saved when you create a preset.

Fills creates filled regions in the tracing result.

Strokes creates stroked paths in the tracing result.

Max Stroke Weight specifies the maximum width of features in the original image that can be stroked. Features larger than the maximum width become outlined areas in the tracing result.

Min Stroke Length specifies the minimum length of features in the original image that can be stroked. Features smaller than the minimum length are omitted from the tracing result.

Path Fitting controls the distance between the traced shape and the original pixel shape. Lower values create a tighter path fitting; higher values create a looser path fitting.

Minimum Area specifies the smallest feature in the original image that will be traced. For example, a value of 4 specifies that features smaller than 2 pixels wide by 2 pixels high will be omitted from the tracing result.

Corner Angle specifies the sharpness of a turn in the original image that is considered a corner anchor point in the tracing result.

Raster specifies how to display the bitmap component of the tracing object.

Vector specifies how to display the tracing result.

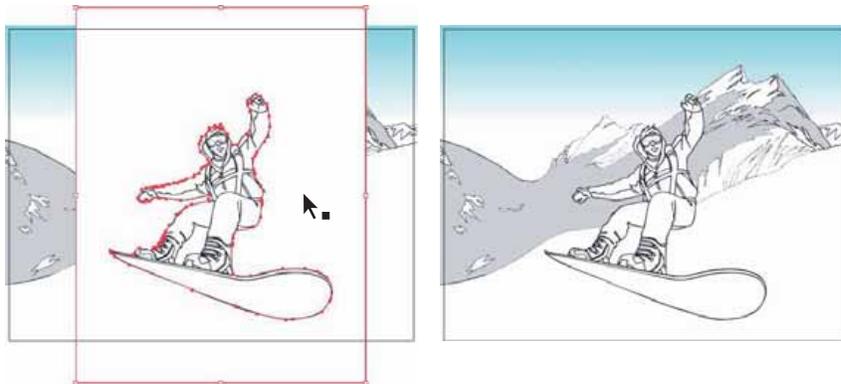
Select Preview in the Tracing Options dialog box to preview the result of the current settings.

—From Illustrator Help

As you see, the Live Trace feature can interpret black and white sketches as well as full-color images.

- 6 After experimenting with other settings in the Tracing Options dialog box, click Trace.
- 7 With the snowboarder still selected, click the Expand button () in the Control panel.
- 8 Choose Object > Ungroup to ungroup the shapes. Choose Select > Deselect All to deselect the shapes.
- 9 Select the Selection tool in the Tools panel, then click the white background surrounding the snowboarder. Press Delete to remove the white shape.

Note: If any unexpected white area is deleted, undo several steps by choosing Edit > Undo. Try tracing again and experimenting in the Tracing Options dialog box by raising the Threshold value to 210 or more.



After ungrouping, select the white area

Press Delete to remove the white area.

- 10 Choose File > Save and close the file.

 For information on Live Trace, see “Tracing artwork” in Illustrator Help.

Tips for drawing polygons, spirals, and stars

You can control the shapes of polygons, spirals, and stars by pressing certain keys as you draw the shapes. As you drag the Polygon, Spiral, or Star tool, choose any of the following options to control the shape:

- To add or subtract sides on a polygon, points on a star, or number of segments on a spiral, hold down the Up Arrow or Down Arrow key while creating the shape. This only works if the mouse button is held down. Once the mouse is released, the tool remains set to the last specified value, and this will no longer work.
- To rotate the shape, move the mouse in an arc.
- To keep a side or point at the top, hold down Shift.
- To keep the inner radius constant, start creating a shape and then hold down Ctrl (Windows) or Command (Mac OS).
- To move a shape as you draw it, hold down the spacebar. This also works for rectangles and ellipses.
- To create multiple copies of a shape, hold down the ~ (tilde) key as you draw.

Exploring on your own

Experiment with shapes by creating a shape such as a circle, star or rectangle. Clone it several times using the Alt/Option key. Apply different colors and strokes to the shapes and reselect them using the Select Same menu item.

Review

▶ Review questions

- 1 What are the basic shape tools? Describe how to tear or separate a group of shape tools away from the Tools panel.
- 2 How do you select a shape with no fill?
- 3 How do you draw a square?
- 4 How do you change the number of sides on a polygon as you draw?
- 5 How can you convert a raster image to editable vector shapes?

▶ Review answers

- 1 There are six basic shape tools: Ellipse, Polygon, Star, Flare, Rectangle and Rounded Rectangle. To tear off a group of tools from the Tools panel, position the pointer over the tool that appears in the Tools panel and hold down the mouse button until the group of tools appears. Without releasing the mouse button, drag to the triangle at the bottom of the group, and then release the mouse button to tear off the group.
- 2 Items that have no fill must be selected by clicking the stroke.
- 3 To draw a square, select the Rectangle tool in the Tools panel. Hold down Shift and drag to draw the square, or click the artboard to enter equal dimensions for the width and height in the Rectangle dialog box.
- 4 To change the number of sides on a polygon as you draw, select the Polygon tool in the Tools panel. Start dragging to draw the shape and hold the Down Arrow key to reduce the number of sides and the Up Arrow key to increase the number of sides.
- 5 If you want to base a new drawing on an existing piece of artwork, you can trace it. To convert the tracing to paths, click Expand in the Control panel or choose Object > Live Trace > Expand. Use this method if you want to work with the components of the traced artwork as individual objects. The resulting paths are grouped together.

Chapter 3. Creating Shapes

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