

# 8

# VECTOR DRAWING TECHNIQUES

## Lesson overview

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

- Differentiate between bitmap and vector graphics.
- Draw straight and curved paths using the Pen tool.
- Convert a path to a selection, and convert a selection to a path.
- Save paths.
- Draw and edit shape layers.
- Draw custom shapes.
- Import and edit a Smart Object from Adobe Illustrator.



This lesson will take about 90 minutes to complete. Copy the Lesson08 folder onto your hard drive if you haven't already done so. As you work on this lesson, you'll preserve the start files. If you need to restore the start files, copy them from the *Adobe Photoshop CS6 Classroom in a Book DVD*.



Unlike bitmap images, vector images retain their crisp edges when you enlarge them to any size. You can draw vector shapes and paths in your Photoshop images and add vector masks to control what is shown in an image.

## About bitmap images and vector graphics

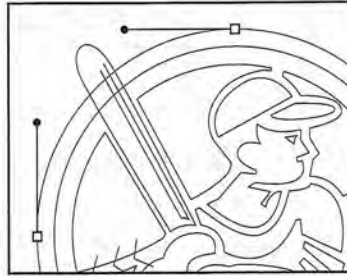
Before working with vector shapes and vector paths, it's important to understand the basic differences between the two main categories of computer graphics: *bitmap images* and *vector graphics*. You can use Photoshop to work with either type of graphic; in fact, you can combine both bitmap and vector data in an individual Photoshop image file.

Bitmap images, technically called *raster images*, are based on a grid of dots known as *pixels*. Each pixel is assigned a specific location and color value. In working with bitmap images, you edit groups of pixels rather than objects or shapes. Because bitmap graphics can represent subtle gradations of shade and color, they are appropriate for continuous-tone images such as photographs or artwork created in painting programs. A disadvantage of bitmap graphics is that they contain a fixed number of pixels. As a result, they can lose detail and appear jagged when scaled up onscreen or printed at a lower resolution than they were created for.

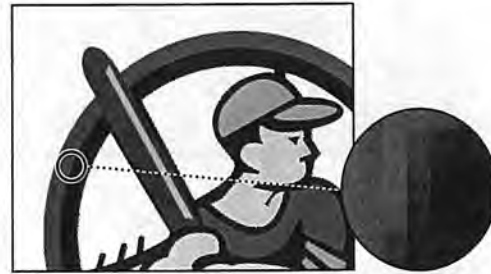
Vector graphics are made up of lines and curves defined by mathematical objects called *vectors*. These graphics retain their crispness whether they are moved, resized, or have their color changed. Vector graphics are appropriate for illustrations, type, and graphics such as logos that may be scaled to different sizes.



Logo drawn as vector art

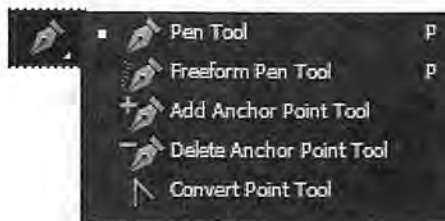


Logo rasterized as bitmap art



# About paths and the Pen tool

In Photoshop, the outline of a vector shape is a *path*. A path is a curved or straight line segment you draw using the Pen tool, Freeform Pen tool, or a shape tool. The Pen tool draws paths with the greatest precision; shape tools draw rectangles, ellipses, and other shape paths; the Freeform Pen tool draws paths as if you were drawing with a pencil on paper.



*Julianne Kost is an official Adobe Photoshop evangelist.*

## Tool tips from the Photoshop evangelist

### Accessing tools quickly



Each tool in the Tools panel has a single-letter keyboard shortcut. Type the letter, get the tool. Press Shift with the shortcut key to cycle through any nested tools in a group. For example, press P to select the Pen tool, and press Shift+P to toggle between the Pen and Freeform Pen tools.

Paths can be open or closed. An open path (such as a wavy line) has two distinct endpoints. A closed path (such as a circle) is continuous. The type of path you draw affects how it can be selected and adjusted.

Paths that have no fill or stroke do not print when you print your artwork. This is because paths are vector objects that contain no pixels, unlike the bitmap shapes drawn by the Pencil tool and other painting tools.

## Getting started

Before you begin, you'll view the image you'll be creating—a poster for a fictitious toy company.

- 1 Start Photoshop, and then immediately hold down Ctrl+Alt+Shift (Windows) or Command+Option+Shift (Mac OS) to restore the default preferences. (See “Restoring default preferences” on page 4.)
- 2 When prompted, click Yes to delete the Adobe Photoshop Settings file.



3 Click the Mini Bridge tab to open the Mini Bridge panel. If Bridge isn't running in the background, click Launch Bridge.

4 In the Mini Bridge panel, choose Favorites from the pop-up menu on the left. Double-click the Lessons folder, and then double-click the Lesson08 folder.

5 Select the 08End.psd file, and press the spacebar to see it in full-screen view.

To create this poster, you'll work with an image of a toy spaceship, and practice making paths and selections using the Pen tool. As you create the background shapes and type, you'll learn more about shape layers and vector masks, as well as ways to use Smart Objects.

6 When you've finished looking at 08End.psd, press the spacebar again. Then double-click the 08Start.psd file to open it in Photoshop.

**Note:** If you open the 08End.psd file in Photoshop, you might be prompted to update type layers. If so, click Update. You may need to update type layers when files are transferred between computers, especially between operating systems.



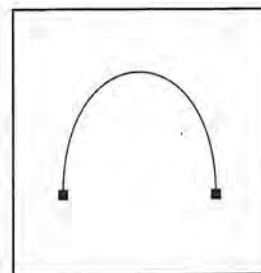
7 Choose File > Save As, rename the file **08Working.psd**, and click Save. Click OK in the Photoshop Format Options dialog box.

## Using paths with artwork

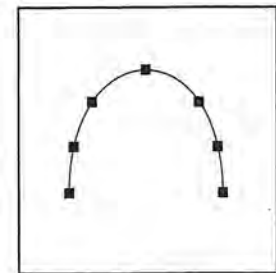
You'll use the Pen tool to select the toy spaceship. The spaceship has long, smooth, curved edges that would be difficult to select using other methods.

You'll draw a path around the spaceship, and create another path inside it. You'll convert the paths to selections, and then subtract one selection from the other so that only the spaceship and none of the background is selected. Finally, you'll make a new layer from the spaceship image, and change the image that appears behind it.

When drawing a freehand path using the Pen tool, use as few points as possible to create the shape you want. The fewer points you use, the smoother the curves are—and the more efficient your file is.



Correct number of points



Too many points

## Creating paths with the Pen tool

You can use the Pen tool to create paths that are straight or curved, open or closed. If you're unfamiliar with the Pen tool, it can be confusing to use at first. Understanding the elements of a path and how to create them with the Pen tool makes paths much easier to draw.

To create a straight path, click the mouse button. The first time you click, you set the starting point. Each time that you click thereafter, a straight line is drawn between the previous point and the current point. To draw complex straight-segment paths with the Pen tool, simply continue to add points.

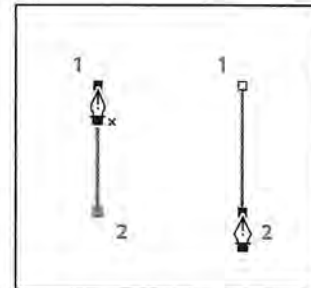
To create a curved path, click to place an anchor point, drag to create a direction line for that point, and then click to place the next anchor point. Each direction line ends in two direction points; the positions of direction lines and points determine the size and shape of the curved segment. Moving the direction lines and points reshapes the curves in a path.

Smooth curves are connected by anchor points called *smooth points*. Sharply curved paths are connected by *corner points*. When you move a direction line on a smooth point, the curved segments on both sides of the point adjust simultaneously, but when you move a direction line on a corner point, only the curve on the same side of the point as the direction line is adjusted.

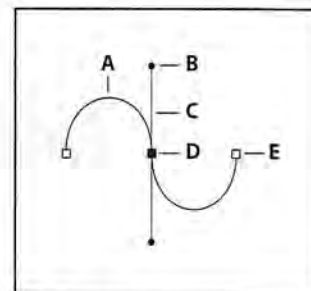
Path segments and anchor points can be moved after they're drawn, either individually or as a group. When a path contains more than one segment, you can drag individual anchor points to adjust individual segments of the path, or select all of the anchor points in a path to edit the entire path. Use the Direct Selection tool to select and adjust an anchor point, a path segment, or an entire path.

Creating a closed path differs from creating an open path in the way that you end it. To end an open path, click the Pen tool in the Tools panel. To create a closed path, position the Pen tool pointer over the starting point, and click. Closing a path automatically ends the path. After the path closes, the Pen tool pointer appears with a small *x*, indicating that your next click will start a new path.

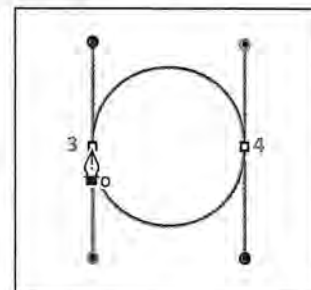
As you draw paths, a temporary storage area named Work Path appears in the Paths panel. It's a good idea to save work paths, and it's essential if you use multiple discrete paths in the same image file. If you deselect an existing Work Path in the Paths panel and then start drawing again, a new work path will replace the original one, which will be lost. To save a work path, double-click it in the Paths panel, type a name in the Save Path dialog box, and click OK to rename and save the path. The path remains selected in the Paths panel.



Creating a straight line



A. Curved line segment  
B. Direction point  
C. Direction line  
D. Selected anchor point  
E. Unselected anchor point




Creating a closed path

► **Tip:** If you're not familiar with the Pen tool, it can be a little confusing. To make the task of outlining the spaceship easier, we've included a video of these steps in the Lesson08/Video folder. Double-click the Paths.mp4 file to follow along.

## Drawing the outline of a shape

You'll use the Pen tool to connect the dots from point A to point S, and then back to point A. You'll set straight segments, smooth curve points, and corner points.

The first step is to configure the Pen tool options and the work area. Then you'll trace the outline of a spaceship using a template.

- 1 Double-click the Mini Bridge tab to close the panel and free up more of the workspace.
- 2 In the Tools panel, select the Pen tool () .
- 3 In the options bar, select or verify the following settings:
  - Choose Path from the Tool Mode pop-up menu.
  - From the Path Operations menu, choose Combine Shapes.
  - In the Pen Options menu, make sure that Rubber Band is not selected.
  - Make sure that the Auto Add/Delete option is selected.



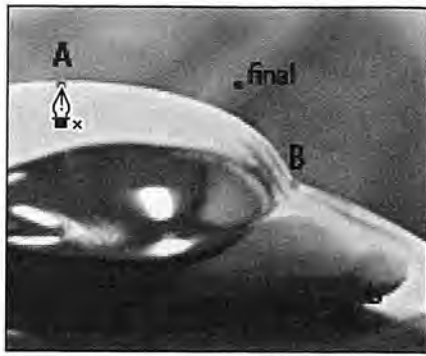
A. Tool Mode menu B. Path Operations menu C. Pen Options menu

- 4 Click the Paths tab to bring that panel to the front of the Layers panel group.

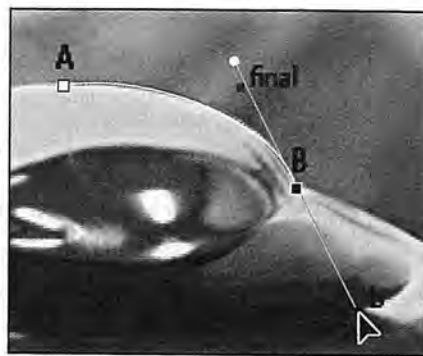


The Paths panel displays thumbnail previews of the paths you draw. Currently, the panel is empty, because you haven't started drawing.

- 5 If necessary, zoom in so that you can easily see the lettered points and red dots on the shape template. Make sure you can see the whole template in the image window, and be sure to reselect the Pen tool after you zoom.
- 6 Click point A (the blue dot at the top of the spaceship), and release the mouse. You've set the first anchor point.
- 7 Click point B, and drag the cursor to the red dot labeled b. Release the mouse. You've set the direction of the curve.



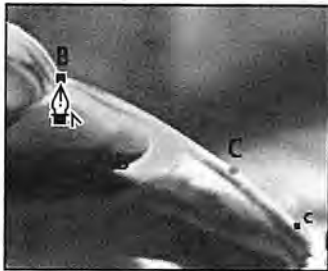
Creating the first anchor point at A



Setting a smooth point at B

At the corner of the cockpit (point B), you'll need to convert the smooth point to a corner point to create a sharp transition between the curved segment and the straight one.

- 8 Alt-click (Windows) or Option-click (Mac OS) point B to convert the smooth point into a corner point and remove one of the direction lines.
- 9 Click point C, and drag to the red dot labeled c. Do the same for points D and E.



Converting the smooth point



Adding a segment



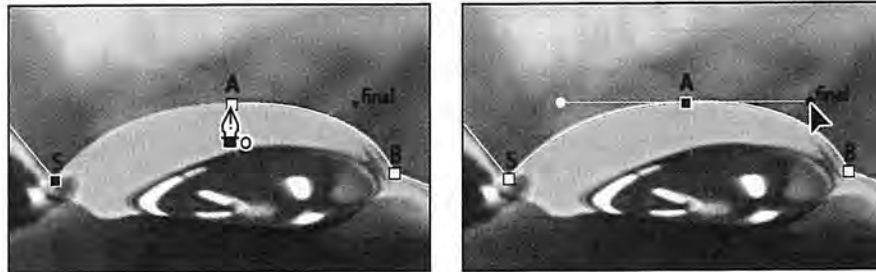
Rounding the corner to a corner point

If you make a mistake while you're drawing, choose **Edit > Undo** to undo the step. Then resume drawing.

- 10 Click point F, and release the mouse without dragging a handle.
- 11 Click point G, and drag over from point G to its red dot.
- 12 Click point H, and drag up to its dot. Then Alt-click or Option-click to create another corner point at point H.
- 13 Click point I, and drag up to its dot in the yellow area. Then Alt-click or Option-click to create a corner point at point I.
- 14 Click point J, and drag to its dot. Then create a corner point at point J.
- 15 Click point K, and drag to its dot; click point L and drag to its dot; and then create a corner point at point L.
- 16 Click point M, drag to its dot, create a corner point at point M, and then click point N, and drag to its dot.



- 17 Click points O and P, leaving straight lines. Click Point Q, and drag the handle to the corresponding red dot to create the curve around the tail of the fin.
- 18 Click at points R and S without dragging to create straight lines.
- 19 Move the pointer over point A so that a small circle appears in the pointer icon, indicating that you are about to close the path. (The small circle may be difficult to see.) Drag from point A to the red dot labeled “final,” and then release the mouse button to draw the last curved line.



- 20 In the Paths panel, double-click Work Path, type **Spaceship** in the Save Path dialog box, and click OK to save it.

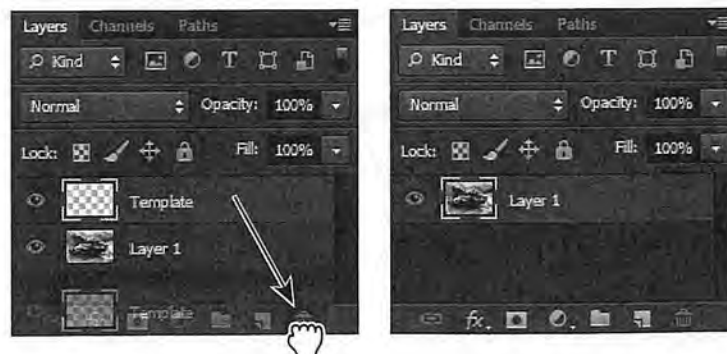


- 21 Choose File > Save to save your work.

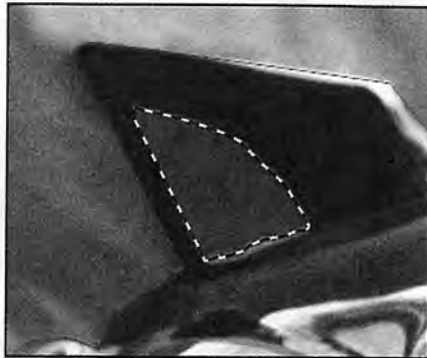
## Converting selections to paths

Now, you'll create a second path using a different method. First you'll use a selection tool to select a similarly colored area, and then you'll convert the selection to a path. (You can convert any selection made with a selection tool into a path.)

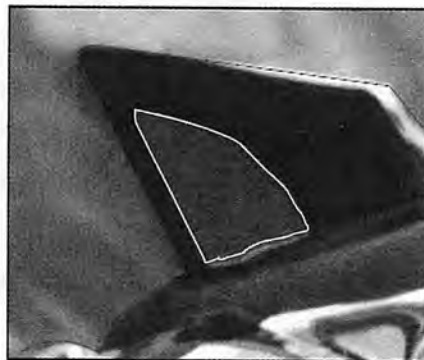
- 1 Click the Layers tab to display the Layers panel, and then drag the Template layer to the Delete button at the bottom of the panel. You no longer need this layer.



- 2 Select the Magic Wand tool (⌨) in the Tools panel, hidden under the Quick Selection tool.
- 3 In the options bar, make sure the Tolerance value is 32.
- 4 Carefully click the green area inside the spaceship's vertical fin.



- 5 Click the Paths tab to bring the Paths panel forward. Then, click the Make Work Path From Selection button (⌘) at the bottom of the panel.



The selection is converted to a path, and a new work path is created.

- 6 Double-click the path named Work Path, name it **Fin**, and then click OK to save the path.



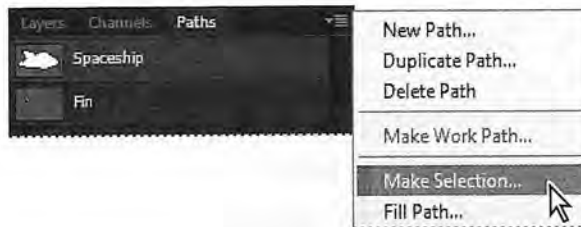
- 7 Choose File > Save to save your work.

## Converting paths to selections

Just as you can convert selection borders to paths, you can convert paths to selections. With their smooth outlines, paths let you make precise selections. Now that you've drawn paths for the spaceship and its fin, you'll convert those paths to a selection and apply a filter to the selection.

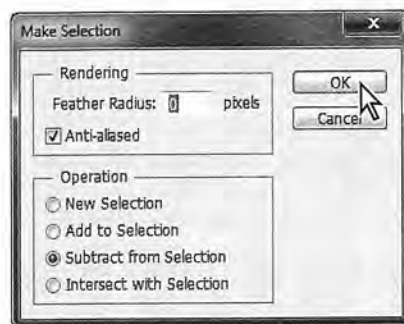
► **Tip:** You can also click the Load Path As Selection button at the bottom of the Paths panel to convert the active path to a selection.

- 1 In the Paths panel, click the Spaceship path to make it active.
- 2 Choose Make Selection from the Paths panel menu, and then click OK to convert the Spaceship path to a selection.



Next, you'll subtract the Fin selection from the Spaceship selection so that you can see the background through the vacant areas in the fin.

- 3 In the Paths panel, click the Fin path to make it active. Then, from the Paths panel menu, choose Make Selection.
- 4 In the Operation area of the Make Selection dialog box, select Subtract From Selection, and click OK.



The Fin path is simultaneously converted to a selection and subtracted from the Spaceship selection.

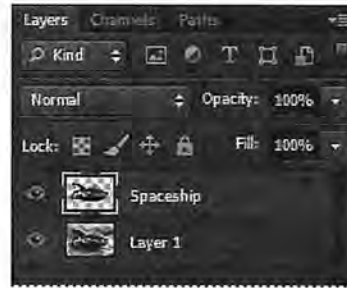
Leave the paths selected, because you'll use them in the next exercise.

## Converting the selection to a layer

Now you'll see how creating the selection with the Pen tool can help you achieve interesting effects. Because you've isolated the spaceship, you can create a duplicate of it on a new layer. Then, you can copy it to another image file—specifically, to the image that's the background for the toy-store poster.

- 1 Make sure that you can still see the selection outline in the image window. If you can't, repeat the previous exercise, "Converting paths to selections."
- 2 Choose Layer > New > Layer Via Copy.

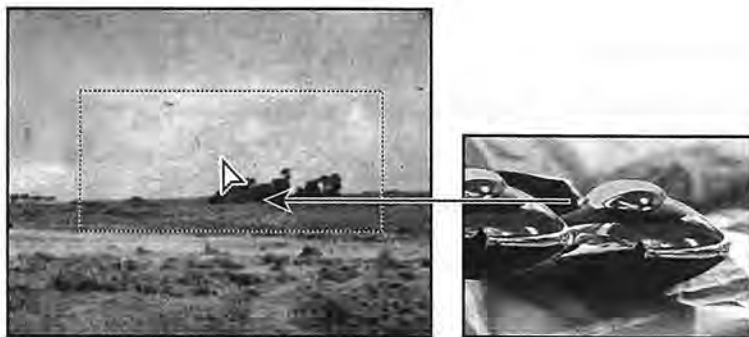
- 3 Click the Layers tab to bring the Layers panel to the front. A new layer appears in the Layers panel, called Layer 2. The Layer 2 thumbnail shows that the layer contains only the image of the spaceship, not the background of the original layer.



- 4 In the Layers panel, rename Layer 2 **Spaceship**, and press Enter or Return.
- 5 Choose File > Open, and double-click the 08Landscape.psd file in the Lessons/Lesson08 folder.

The 08Landscape.psd file contains the landscape that you'll use as the background for the spaceship.

- 6 Choose Window > Arrange > 2 Up Vertical so that you can see both the open files. Click the 08Working.psd image to make it active.
- 7 Select the Move tool (⇧+), and drag the spaceship from the 08Working.psd image window to the 08Landscape.psd image window so that the spaceship appears to be hovering over the planet.



- 8 Close the 08Working.psd image without saving changes, leaving the 08Landscape.psd file open and active.



Now you'll position the spaceship more precisely over the poster background.

**9** Select the Spaceship layer in the Layers panel, and choose Edit > Free Transform.

A bounding box appears around the spaceship.

**10** Position the pointer near any corner handle until it turns into the rotate cursor (↻), and then drag to rotate the spaceship until its angle is about -12 degrees.

For precise rotation, you can enter the value in the Rotate box in the options bar. When you're satisfied, press Enter or Return.

**11** Make sure the Spaceship layer is still selected, and then use the Move tool to drag the ship so that it grazes the top of the planet, as in the third image.



**12** Choose File > Save As, rename the file **08B\_Working.psd**, and click Save. Click OK in the Photoshop Format Options dialog box.

## Creating vector objects for the background

Many posters are designed to be scalable, either up or down, while retaining a crisp appearance: a good use for vector shapes. Next, you'll create vector shapes with paths, and use masks to control what appears in the poster. Because they're vectors, the shapes can be scaled in future design revisions without a loss of quality or detail.

### Drawing a scalable shape

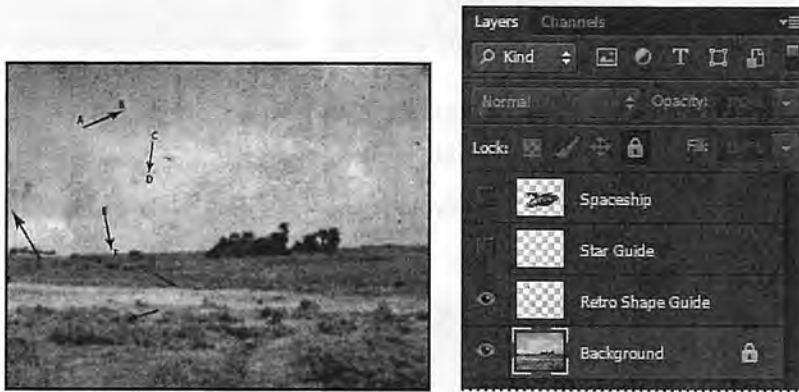
You'll begin by creating a white kidney-shaped object for the backdrop of the poster.

**1** Choose View > Rulers to display the horizontal and vertical rulers.


- 2 Drag the tab for the Paths panel out of the Layers panel group so that it floats independently. Since you'll be using the Layers and Paths panels frequently in this exercise, it's convenient to have them separated.



- 3 Toggle the eye icons in the Layers panel to show the Retro Shape Guide and Background layers, and to hide the other two layers. Select the Background layer to make it active.



The guide layer will serve as a template as you draw the kidney shape.

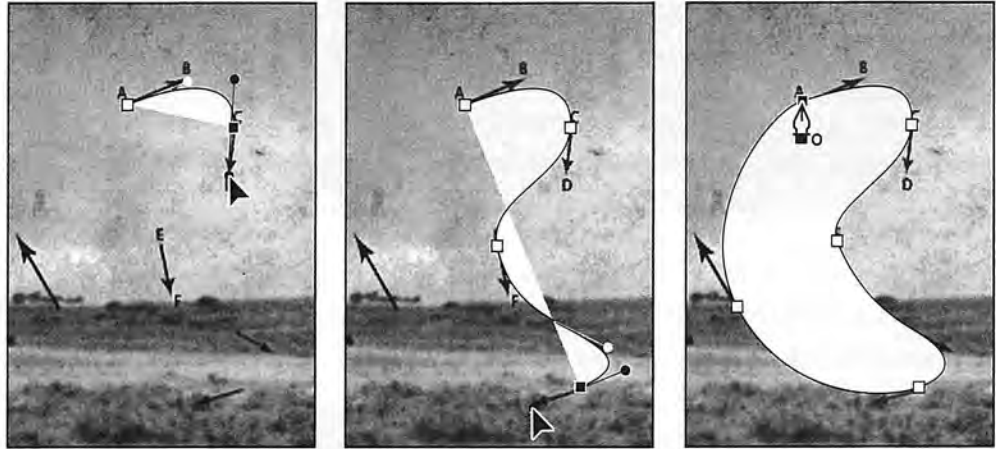
- 4 In the Tools panel, select the Pen tool (.
- 5 In the options bar, choose Shape from the pop-up menu, and then click the Fill color. Select white for the fill color.



● **Note:** If you have trouble, open the spaceship image again and practice drawing the path around the spaceship shape until you get more comfortable with drawing curved path segments. Also, be sure to read the sidebar, "Creating paths with the Pen tool."

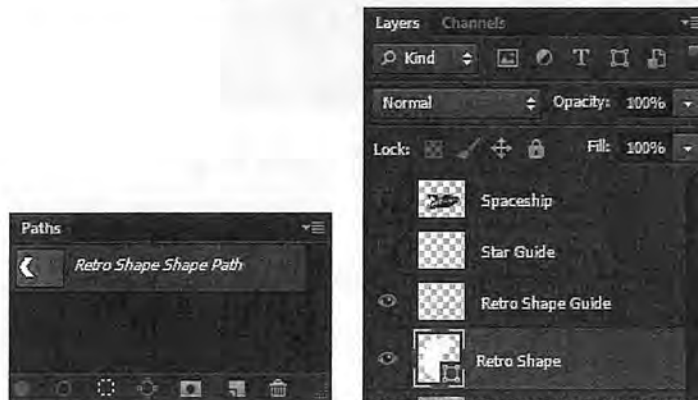
6 Create the shape by clicking and dragging as follows:

- Click point A, drag a direction line up to point B, and then release.
- Click point C, drag a direction line to point D, and then release.
- Continue to draw curved segments in this way around the shape until you return to point A, and then click point A to close the path. Don't worry if the shape flips in on itself; it will right itself as you continue.



Notice that as you drew, Photoshop automatically created a new layer, Shape 1, just above the active layer (the Background layer) in the Layers panel.

7 Double-click the Shape 1 layer name, rename the layer **Retro Shape**, and press Enter or Return.



8 Hide the Retro Shape Guide layer in the Layers panel.

## Deselecting paths

You may need to deselect paths to see the appropriate options in the options bar when you select a vector tool. Deselecting paths can also help you view certain effects that might be obscured if a path is highlighted.

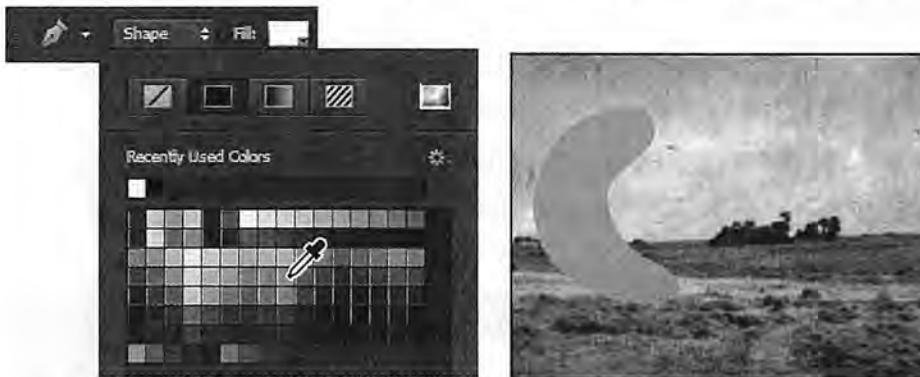
Notice that the border between the white kidney shape and the background has a grainy quality. What you see is actually the path itself, which is a nonprinting item. This is a visual clue that the Retro Shape layer is still selected. Before proceeding to the next exercise, you'll make sure that all paths are deselected.

- 1 In the Paths panel, click in the empty area beneath the path to deselect all paths.
- 2 Choose File > Save to save your work.

## Changing the fill color of a shape layer

You created the shape with a white fill so that it was easy to see. But for the poster, you'll change the color of the shape to blue.

- 1 Select the Pen tool in the Tools panel, if it's not already selected.
- 2 In the options bar, click the Fill color. Select the Light Cyan Blue color.



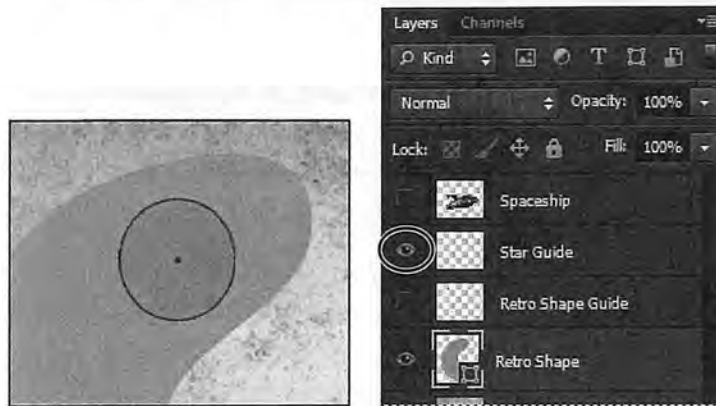
The fill color of the shape changes to the blue you selected.

## Subtracting shapes from a shape layer

After you create a shape layer (vector graphic), you can set options to subtract new shapes from the vector graphic. You can also use the Path Selection tool and the Direct Selection tool to move, resize, and edit shapes. You'll add some interest to the retro shape by subtracting a star shape from it, allowing the outer-space background to show through. To help you position the star, you'll refer to the Star Guide layer, which has been created for you. Currently, that layer is hidden.



- 1 In the Layers panel, show the Star Guide layer, but leave the Retro Shape layer selected. The Star Guide layer is now visible in the image window.

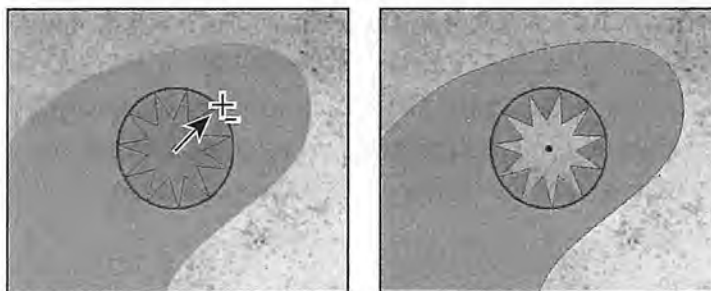


- 2 In the Paths panel, select the Retro Shape shape path.
- 3 In the Tools panel, select the Polygon tool (⬡), hidden under the Rectangle tool (▭).
- 4 On the options bar, do the following:
  - For Sides, type 11.
  - From the Path Operations pop-up menu, choose Subtract Front Shape. The pointer now appears as cross-hairs with a small minus sign (+).
  - Click the Settings icon to the left of the Sides option to display the Polygon Options window. Select Star, and type 50% in the Indent Sides By box. Then click an empty area of the options bar to close the window.



● **Note:** As you drag, you can rotate the star by dragging the pointer to the side.

- 5 Click on the orange dot in the center of the orange circle in the image window, and drag outward until the tips of the star rays touch the circle's perimeter.

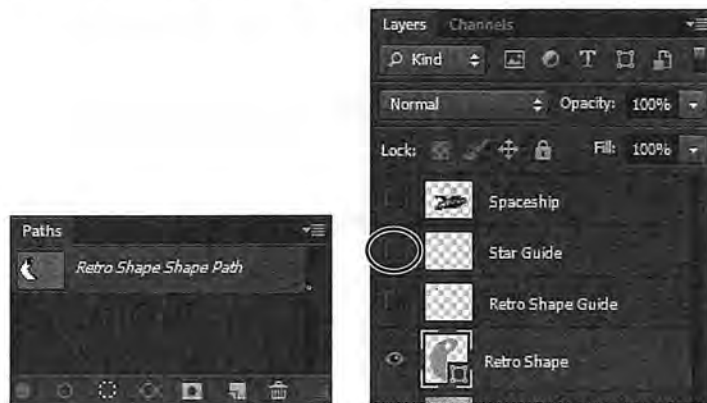


When you release the mouse button, the star shape becomes a cutout, allowing the sky to show through.

Notice that the star has a grainy outline, reminding you that the shape is selected. Another indication that the shape is selected is that the Retro Shape shape path is selected in the Paths panel.

**6** In the Layers panel, hide the Star Guide layer.

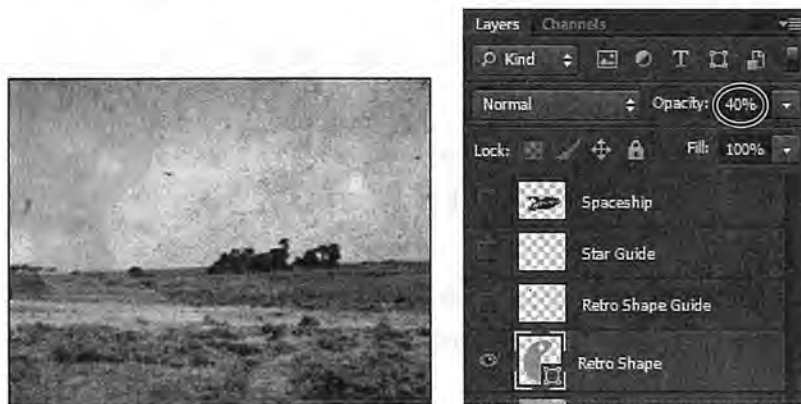
Notice that the thumbnails in both the Layers panel and Paths panel show the retro shape with the star-shaped cutout.



**7** Click in the area beneath the path in the Paths panel to deselect the path.

The path is now deselected, and the grainy path lines have disappeared, leaving a sharp edge between the blue areas and the sky. Also, the Retro Shape shape path is no longer highlighted in the Paths panel. That shape is pretty bright, though, and may overpower the spaceship. You'll make the shape semitransparent.

**8** In the Layers panel, reduce the opacity of the Retro Shape layer to 40%.

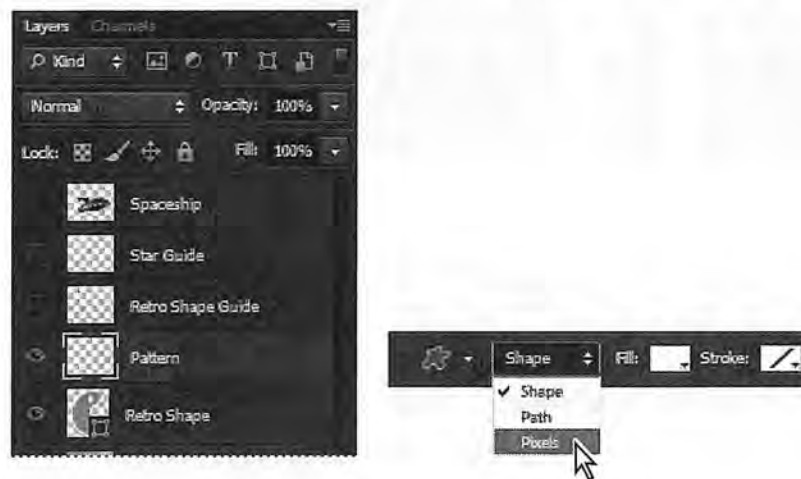


**9** Choose File > Save to save your work.

## Working with defined custom shapes

Another way to use shapes in your artwork is to draw a custom or preset shape. Doing so is as easy as selecting the Custom Shape tool, picking a shape from the Custom Shape Picker, and dragging in the image window. You'll do just that to add checkerboard patterns and clumps of grass to the background of your poster for the toy store.

- 1 Make sure the Retro Shape layer is selected in the Layers panel. Then click the New Layer button (📄) to add a layer above it. Rename the new layer **Pattern**, and then press Enter or Return.
- 2 In the Tools panel, select the Custom Shape tool (🔗), which is hidden under the Polygon tool (⬡).
- 3 In the options bar, choose Pixels from the Tool Mode menu.

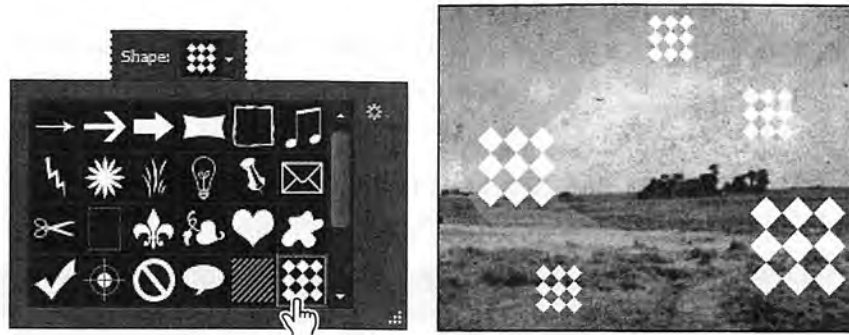


● **Note:** The options in the options bar change depending on what you choose from the Tool Mode menu. When you work in Shape mode, you can select a fill or stroke in the options bar; in Pixels mode, those options aren't available.

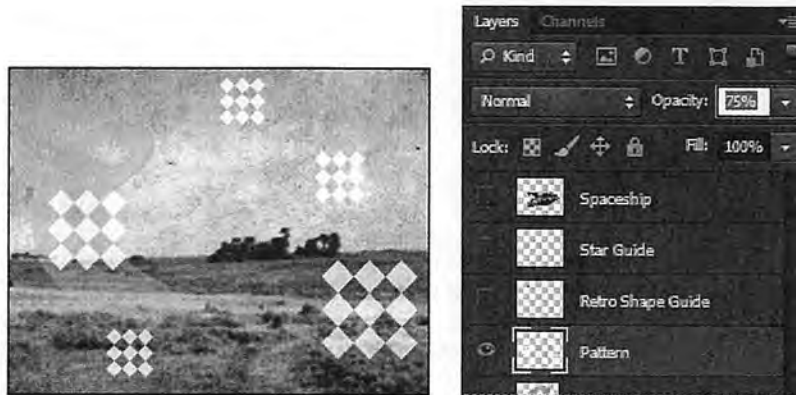
- 4 In the options bar, click the arrow next to the Shape option to open the Custom Shape Picker.
- 5 Double-click the checkerboard preset in the Custom Shape Picker (you may need to scroll or drag the corner of the picker to see it) to select it and close the picker.
- 6 Make sure that the foreground color is white. Then press Shift and drag diagonally in the image window to draw and size the shape so that it's about 2 inches square.

Pressing Shift constrains the shape to its original proportions.

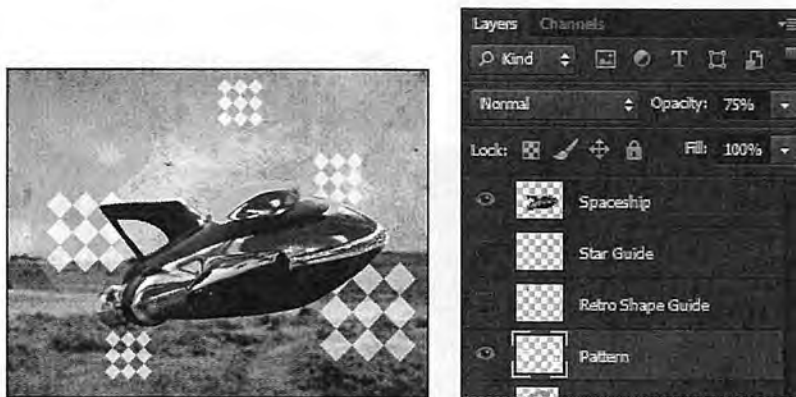
- 7 Add five more checkerboards of various sizes until your poster resembles the figure below.



- 8 In the Layers panel, reduce the opacity of the Pattern layer to 75%.



- 9 In the Layers panel, show the Spaceship layer so you can see the whole composition.



You'll use the Custom Shape tool to add clumps of grass to the background. You can apply a fill and stroke to shapes when you work in Shape mode.



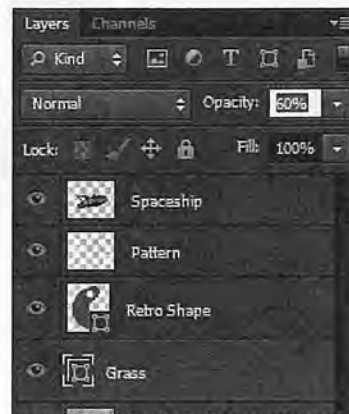
- 10 With the Custom Shape tool still selected, open the Custom Shape Picker, and double-click the clump of grass (called Grass 2).
- 11 Choose Shape from the Tool Mode menu. Then, select Dark Yellow Green for the Fill color, select Darker Green Cyan for the Stroke color, and enter .75 for the stroke width.
- 12 Press Shift as you draw four clumps of grass in the lower left corner of the background and an additional clump in the lower right corner.

► **Tip:** If the clumps of grass are on separate layers, you weren't holding down the Shift key as you drew them. Delete the grass, and repeat steps 12–13.



Pressing Shift as you draw ensures that all the shapes are on the same layer.

- 13 Select the Path Selection tool (⌘) in the Tools panel, and then Shift-select all five clumps of grass.
- 14 Choose Distribute Widths from the Path Alignment menu in the options bar. Photoshop distributes the grass clumps evenly across the bottom of the background.
- 15 Rename the layer **Grass**, change its opacity to **60%**, and drag the layer just above the Background layer in the Layers panel.



- 16 Deselect the layer, and then choose File > Save to save your work so far.

# Importing a Smart Object

Smart Objects are layers that you can edit in Photoshop nondestructively; that is, changes you make to the image remain editable and don't affect the actual image pixels, which are preserved. Regardless of how often you scale, rotate, skew, or otherwise transform a Smart Object, it retains its sharp, precise edges.

You can import vector objects from Adobe Illustrator as Smart Objects. If you edit the original object in Illustrator, the changes will be reflected in the placed Smart Object in your Photoshop image file. You'll work with a Smart Object now by placing text created in Illustrator into the toy-store poster.

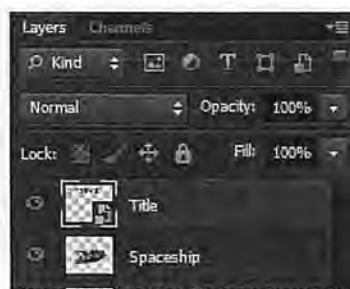
## Adding the title

The toy-store name was created in Illustrator. You'll add it to the poster now.

- 1 Select the Move tool (V) in the Tools panel. Then select the Spaceship layer, and choose File > Place. Navigate to the Lessons/Lesson08 folder, select the Title.ai file, and click Place. Click OK in the Place PDF dialog box that appears.

The Retro Toyz text is added to the middle of the composition, inside a bounding box with adjustable handles. A new layer, Title, appears in the Layers panel.

- 2 Drag the Retro Toyz object to the upper left corner of the poster, and then press Shift and drag a corner to make the text object proportionally larger—so that it fills the top portion of the poster, as in the following figure. When you've finished, either press Enter or Return, or click the Commit Transform button (✓) in the options bar.



When you commit to the transformation, the layer thumbnail icon changes to reflect that the title layer is a Smart Object.

As with any shape layer or Smart Object, you can continue to edit its size and shape if you'd like. Simply select the layer, choose Edit > Free Transform to access the control handles, and drag to adjust them. Or, select the Move tool (V), and select Show Transform Controls in the options bar. Then adjust the handles.

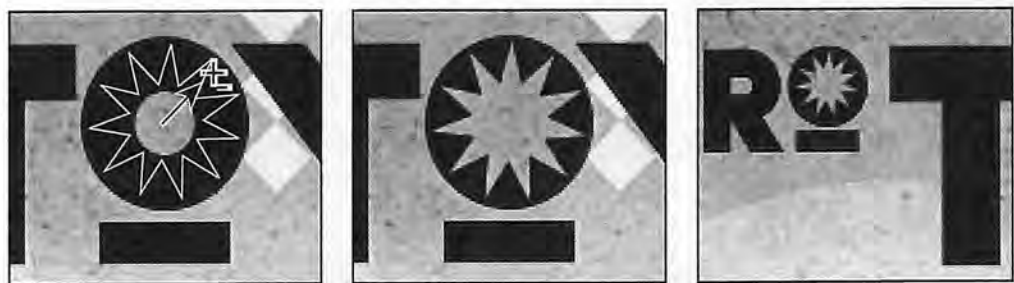
## Adding a vector mask to a Smart Object

For a fun effect, you'll turn the center of each letter "O" in the title into a star that matches the cutout you created earlier. You'll use a vector mask, which you can link to a Smart Object in Photoshop.

- 1 Select the Title layer, and then choose Layer > Vector Mask > Reveal All.



- 2 Select the Polygon tool (⬡), hidden beneath the Custom Shape tool (⚙️). The options you used earlier to create the star should still be in effect: settings for an 11-sided star with a 50% indent. The Polygon tool holds your settings until you change them again.
- 3 Choose Path from the Tool Mode menu in the options bar. Make sure Subtract From Front is still selected from the Path Operations menu. Then select the vector mask thumbnail in the Title layer.
- 4 Click in the center of the "O" in "Toyz," and drag the cursor outward until the star covers the center of the "O."
- 5 Repeat step 4 to add a star in the small "O" in Retro.



## Rotating the canvas (OpenGL only)

You've been working with the image with "Retro Toyz" at the top of the work area and the ground at the bottom. But if your video card supports OpenGL, you can rotate the work area to draw, type, or position objects from a different perspective. You'll rotate the view as you add a copyright statement along the side of the image. (If your video card doesn't support OpenGL, skip this section.)

First, you'll type the text.

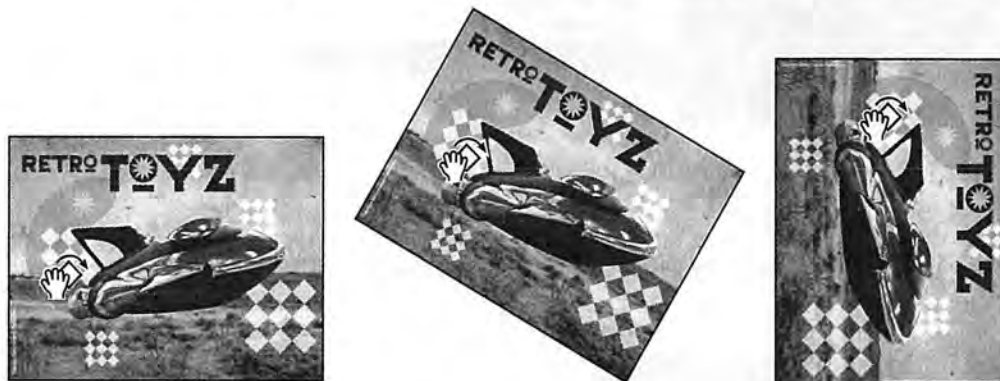
- 1 Choose Window > Character to open the Character panel. Select a serif font such as Myriad Pro with a small size such as 10 pt, and set the color to white.
- 2 Select the Horizontal Type tool, and then click in the lower left corner of the image. Type **Copyright YOUR NAME Productions**, substituting your own name.



You want the copyright to run along the left side of the image. You'll rotate the canvas to make it easier to place.

- 3 Select the Rotate View tool (⌘), hidden beneath the Hand tool (⌘).
- 4 Press the Shift key as you drag the tool in an arc to rotate the canvas 90 degrees clockwise. Pressing the Shift key restrains the rotation to 45-degree increments.

► **Tip:** You can also enter a value in the Rotation Angle box in the options bar.



- 5 Select the Copyright text layer, and then choose Edit > Transform > Rotate 90° CCW.

- 6 Use the Move tool to align the text along the top edge of the image, which will be the left edge when it is in its usual position.



- 7 Select the Rotate View tool again, and then click Reset View in the options bar.
- 8 Choose File > Save to save your work.

## Finishing up

As a final step, clean up the Layers panel by deleting your guide template layers.

- 1 Make sure that the Copyright, Title, Spaceship, Pattern, Retro Shape, Grass, and Background layers are the only visible layers in the Layers panel.
- 2 Choose Delete Hidden Layers from the Layers panel menu, and then click Yes to confirm the deletion.



- 3 Choose File > Save to save your work.

Congratulations! You've finished the poster. It should look similar to the following image.





## Review questions

- 1 How can the Pen tool be useful as a selection tool?
- 2 What is the difference between a bitmap image and a vector graphic?
- 3 What is a shape layer?
- 4 What tools can you use to move and resize paths and shapes?
- 5 What are Smart Objects, and what is the benefit of using them?

## Review answers

- 1 If you need to create an intricate selection, it can be easier to draw the path with the Pen tool and then convert the path to a selection.
- 2 Bitmap, or raster, images are based on a grid of pixels and are appropriate for continuous-tone images such as photographs or artwork created in painting programs. Vector graphics are made up of shapes based on mathematical expressions and are appropriate for illustrations, type, and drawings that require clear, smooth lines.
- 3 A shape layer is a vector layer that contains either a shape (including fill and stroke), pixels, or a path.
- 4 You use the Path Selection tool and the Direct Selection tool to move, resize, and edit shapes. You can also modify and scale a shape or path by choosing Edit > Free Transform Path.
- 5 Smart Objects are vector objects that you can place and edit in Photoshop without a loss of quality. Regardless of how often you scale, rotate, skew, or otherwise transform a Smart Object, it retains sharp, precise edges. A great benefit of using Smart Objects is that you can edit the original object in the authoring application, such as Illustrator, and the changes will be reflected in the placed Smart Object in your Photoshop image file.