



Adobe® Creative Cloud™
After Effects® CC

A large, stylized 3D rendering of the letters 'A', 'E', and 'S' in a metallic, reflective font. The letters are set against a dark background with vibrant, colorful light trails and geometric patterns in shades of purple, blue, and green, creating a futuristic and dynamic visual effect.

CLASSROOM IN A BOOK®

The official training workbook from Adobe Systems



Adobe®
After Effects® CC



CLASSROOM IN A BOOK®
The official training workbook from Adobe Systems

Adobe® After Effects® CC Classroom in a Book®

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GETTING STARTED

Adobe After Effects CC provides a comprehensive set of 2D and 3D tools for compositing, animation, and effects that motion-graphics professionals, visual effects artists, web designers, and film and video professionals need. After Effects is widely used for digital post-production of film, video, DVD, and the web. You can composite layers in various ways, apply and combine sophisticated visual and audio effects, and animate both objects and effects.

About Classroom in a Book

Adobe After Effects CC Classroom in a Book is part of the official training series for Adobe graphics and publishing software, developed with the support of Adobe product experts. The lessons are designed to let you learn at your own pace. If you're new to Adobe After Effects, you'll learn the fundamental concepts and features you'll need to master the program. And if you've been using Adobe After Effects for a while, you'll find that Classroom in a Book teaches many advanced features, including tips and techniques for using the latest version.

Although each lesson provides step-by-step instructions for creating a specific project, there's room for exploration and experimentation. You can follow the book from start to finish, or do only the lessons that match your interests and needs. Each lesson concludes with a review section summarizing what you've covered.

Prerequisites

Before beginning to use *Adobe After Effects CC Classroom in a Book*, make sure that your system is set up correctly and that you've installed the required software and hardware. You should have a working knowledge of your computer and operating system. You should know how to use the mouse and standard menus and commands, and also how to open, save, and close files. If you need to review these techniques, see the printed or online documentation included with your Microsoft® Windows® or Apple® Mac® OS software.

To complete the lessons in this book, you'll need to have both Adobe After Effects CC and Adobe Bridge CC installed.

Installing After Effects and Bridge

You must purchase the Adobe After Effects CC software separately. For system requirements and complete instructions on installing the software, visit www.adobe.com/support. Note that After Effects CC requires a 64-bit operating system and OpenGL 2.0 support. You must also have Apple QuickTime 7.6.6 or later installed on your system.

Many of the lessons in this book use Adobe Bridge. After Effects and Bridge use separate installers. You must install these applications from Adobe Creative Cloud onto your hard disk. Follow the onscreen instructions.

Optimizing performance

Creating movies is memory-intensive work for a desktop computer. After Effects CC requires a minimum of 4GB of RAM. The more RAM that is available to After Effects, the faster the application will work for you. For information about optimizing memory, cache, and other settings for After Effects, see “Improve performance” in After Effects Help.

Restoring default preferences

The preferences files control the way the After Effects user interface appears on your screen. The instructions in this book assume that you see the default interface when they describe the appearance of tools, options, windows, panels, and so forth. Therefore, it's a good idea to restore the default preferences, especially if you are new to After Effects.

Each time you quit After Effects, the panel positions and certain command settings are recorded in the preferences files. To restore the original default settings, press Ctrl+Alt+Shift (Windows) or Command+Option+Shift (Mac OS) while starting After Effects. (After Effects creates new preferences files if they don't already exist the next time you start the program.)

Restoring the default preferences can be especially helpful if someone has already customized After Effects on your computer. If your copy of After Effects hasn't been used yet, these files won't exist, so this procedure is unnecessary.

Important: If you want to save the current settings, you can rename a preferences file instead of deleting it. When you are ready to restore those settings, change the name back, and make sure that the file is located in the correct preferences folder.

- 1 Locate the After Effects preferences folder on your computer:
 - **For Windows:** .../Users/<user name>/AppData/Roaming/Adobe/AfterEffects/12.0.
 - **For Mac OS:** .../Users/<user name>/Library/Preferences/Adobe/After Effects/12.0
- 2 Rename any preferences files you want to preserve, and then restart After Effects.

● **Note:** In Mac OS 10.7 and later, the user library folder is hidden by default. To see it, in the Finder, choose Go > Go To Folder. In the Go To Folder dialog box, type ~/Library, and then click Go.

Accessing the Classroom in a Book files

The lessons in *Adobe After Effects CC Classroom in a Book* use specific source files, such as image files created in Adobe Photoshop® and Adobe Illustrator®, audio files, and prepared QuickTime movies. To complete the lessons in this book, you need to download the lesson files from peachpit.com. You can download the files for individual lessons, or download them all in a single file.

Your Account page is also where you'll find any updates to the chapters or to the lesson files. Look on the Lesson & Update Files tab to access the most current content.

To access the Classroom in a Book files, do the following:

- 1 On a Mac or PC, go to www.peachpit.com/redeem, and enter the code found at the back of your book.
- 2 If you do not have a Peachpit.com account, create one when you're prompted to do so.
- 3 Click the Lesson & Update Files tab on your Account page. This tab lists downloadable files.
- 4 Click the lesson file links to download them to your computer.
- 5 Create a new folder on your hard disk, and name it **Lessons**. Then, drag the lesson files you downloaded into the Lessons folder on your hard disk.

● **Note:** As you complete each lesson, you will preserve the start files. In case you overwrite them, you can restore the original files by downloading the corresponding lesson files from your Account page at peachpit.com.

When you begin each lesson, you will navigate to the folder with that lesson number, where you will find all of the assets, sample movies, and other project files you need to complete the lesson.

If you have limited storage space on your computer, you can download each lesson folder individually as you need it, and delete it afterward if desired. You do not have to save any finished project if you don't want to, or if you have limited hard disk space.

About copying the sample movies and projects

You will create and render one or more QuickTime movies in some lessons in this book. The files in the Sample_Movie folders are examples that you can use to see the end results of each lesson and to compare them with your own results.

The files in the End_Project_File folders are samples of the completed project for each lesson. Use these files for reference if you want to compare your work in progress with the project files used to generate the sample movies. These end-project files vary in size from relatively small to a couple of megabytes, so you can either download them all now if you have ample storage space, or download just the end-project file for each lesson as needed, and then delete it when you finish that lesson.

How to use these lessons

Each lesson in this book provides step-by-step instructions for creating one or more specific elements of a real-world project. The lessons build on each other in terms of concepts and skills, so the best way to learn from this book is to proceed through the lessons in sequential order. In this book, some techniques and processes are explained and described in detail only the first few times you perform them.

Many aspects of the After Effects application can be controlled by multiple techniques, such as a menu command, a button, dragging, and a keyboard shortcut. Only one or two of the methods are described in any given procedure, so that you can learn different ways of working even when the task is one you've done before.

The organization of the lessons is also design-oriented rather than feature-oriented. That means, for example, that you'll work with layers and effects on real-world design projects over several lessons, rather than in just one lesson.

Additional resources

Adobe After Effects CC Classroom in a Book is not meant to replace documentation that comes with the program or to be a comprehensive reference for every feature. Only the commands and options used in the lessons are explained in this book. For comprehensive information about program features and tutorials, refer to these resources:

- **Adobe After Effects Help and Support:** www.adobe.com/support/aftereffects is where you can find and browse Help and Support content on Adobe.com.
- **Adobe Creative Cloud Learning:** helpx.adobe.com/creative-cloud/tutorials.html provides inspiration, key techniques, cross-product workflows, and updates on new features. The Creative Cloud Learn page is available only to Creative Cloud members.
- **Adobe Forums:** forums.adobe.com lets you tap into peer-to-peer discussions, questions, and answers about Adobe products.
- **Adobe TV:** tv.adobe.com is an online video resource for expert instruction and inspiration about Adobe products, including a How To channel to get you started with your product.
- **Adobe Design Center:** www.adobe.com/designcenter offers thoughtful articles on design and design issues, a gallery showcasing the work of top-notch designers, tutorials, and more.
- **Resources for educators:** www.adobe.com/education and edex.adobe.com offer a treasure trove of information for instructors who teach classes on Adobe software. Find solutions for education at all levels, including free curricula that use an integrated approach to teaching Adobe software and can be used to prepare for the Adobe Certified Associate exams.

Also check out these useful links:

- **Adobe Marketplace & Exchange:** www.adobe.com/cfusion/exchange is a central resource for finding tools, services, extensions, code samples, and more to supplement and extend your Adobe products.
- **Adobe After Effects CC product home page:** www.adobe.com/products/aftereffects
- **Adobe Labs:** labs.adobe.com gives you access to early builds of cutting-edge technology as well as forums where you can interact with both the Adobe development teams building that technology and other like-minded members of the community.

Adobe certification

The Adobe training and certification programs are designed to help Adobe customers improve and promote their product-proficiency skills. There are four levels of certification:

- Adobe Certified Associate (ACA)
- Adobe Certified Expert (ACE)
- Adobe Certified Instructor (ACI)
- Adobe Authorized Training Center (AATC)

The Adobe Certified Associate (ACA) credential certifies that individuals have the entry-level skills to plan, design, build, and maintain effective communications using different forms of digital media.

The Adobe Certified Expert program is a way for expert users to upgrade their credentials. You can use Adobe certification as a catalyst for getting a raise, finding a job, or promoting your expertise.

If you are an ACE-level instructor, the Adobe Certified Instructor program takes your skills to the next level and gives you access to a wide range of Adobe resources.

Adobe Authorized Training Centers offer instructor-led courses and training on Adobe products, employing only Adobe Certified Instructors. A directory of AATCs is available at partners.adobe.com.

For information on the Adobe Certified programs, visit www.adobe.com/support/certification/main.html.

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4

WORKING WITH SHAPE LAYERS

Lesson overview

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

- Create custom shapes.
- Customize a shape's fill and stroke.
- Use path operations to transform shapes.
- Animate shapes.
- Repeat shapes.
- Snap layers into alignment.
- Explore design options with the Brainstorm feature.
- Add a Cartoon effect to a video layer for a distinctive look.
- Use an expression to animate properties in time with audio.



This lesson will take approximately an hour to complete. Download the Lesson04 project files from the Lesson & Update Files tab on your Account page at www.peachpit.com, 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, download them from your Account page.



PROJECT: DJ PROMO CLIP

Shape layers make it easy to create expressive backgrounds and intriguing results. You can animate shapes, apply animation presets, and add Repeaters to intensify their impact.

Getting started

Shape layers are created automatically when you draw a shape with any of the drawing tools. You can customize and transform an individual shape or its entire layer to create interesting results. In this lesson, you will use shape layers to build a dynamic background for the introduction of a reality series called *DJ Quad Master*. You'll also use the Cartoon effect to change the overall look of the video. This effect can be processor-intensive. You may choose to skip the Cartoon effect exercise; if you do, you'll be able to finish the project, but it won't match the sample movie.

First, you'll preview the final movie and set up the project.

- 1 Make sure the following files are in the AECC_CIB/Lessons/Lesson04 folder on your hard disk, or download them from your Account page at www.peachpit.com now:
 - In the Assets folder: DJ.mov, gc_adobe_dj.mp3
 - In the Sample_Movie folder: Lesson04.mov
- 2 Open and play the Lesson04.mov sample movie to see what you will create in this lesson. When you are done, quit QuickTime Player. You may delete this sample movie from your hard disk if you have limited storage space.

As you start After Effects, restore the default application settings. See “Restoring default preferences” on page 2.

- 3 Start After Effects, and then immediately hold down Ctrl+Alt+Shift (Windows) or Command+Option+Shift (Mac OS) to restore default preferences settings. When prompted, click OK to delete your preferences.
- 4 Click Close to close the Welcome screen.

After Effects opens to display a blank, untitled project.

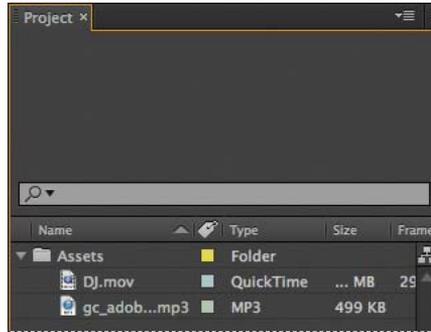
- 5 Choose File > Save As > Save As, and then navigate to the AECC_CIB/Lessons/Lesson04/Finished_Project folder.
- 6 Name the project **Lesson04_Finished.aep**, and then click Save.

Creating the composition

Next, you'll import the files you need and create the composition.

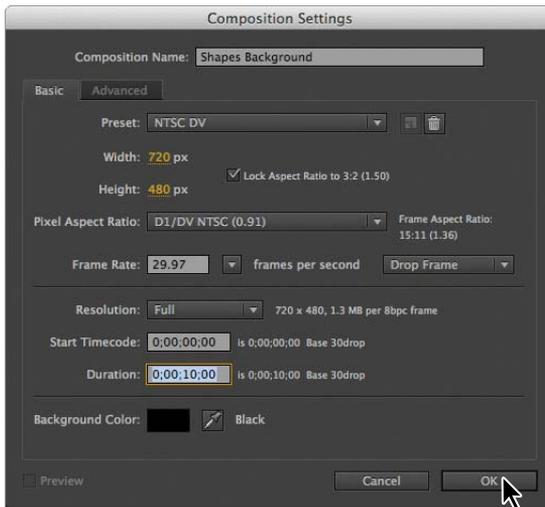
- 1 Double-click an empty area of the Project panel to open the Import File dialog box.

- 2 Navigate to the AECC_CIB/Lessons/Lesson04/Assets folder on your hard disk, Shift-click to select the DJ.mov and gc_adobe_dj.mp3 files, and then click Import or Open.
- 3 Choose File > New > New Folder to create a new folder in the Project panel.
- 4 Name the folder **Assets**, press Enter or Return to accept the name, and then drag the footage items you imported into the Assets folder. Then expand the folder so you can see its contents.



- 5 Press Ctrl+N (Windows) or Command+N (Mac OS) to create a new composition.
- 6 In the Composition Settings dialog box, name the composition **Shapes Background**, select the NTSC DV preset, and set the Duration to **10:00**. Then click OK.

► **Tip:** To specify 10 seconds, type **10.** in the Duration box. The period indicates that there are no units in that position. To specify 10 minutes, type **10..** in the box.



After Effects opens the new composition in the Timeline and Composition panels.

Adding a shape layer

One advantage of using a shape layer, rather than a solid layer, is that you can use the Fill option to create a linear or radial gradient. You'll use the Rectangle tool to create a gradient background for the composition.

About shapes

After Effects includes five shape tools: Rectangle, Rounded Rectangle, Ellipse, Polygon, and Star. When you draw a shape directly in the Composition panel, After Effects adds a new shape layer to the composition. You can apply stroke and fill settings to a shape, modify its path, and apply animation presets. Shape attributes are all represented in the Timeline panel, and you can animate each setting over time.

The same drawing tools can create both shapes and masks. Masks are applied to layers to hide or reveal areas of an image, while shapes have their own layers. When you select a drawing tool, you can specify whether the tool draws a shape or a mask.

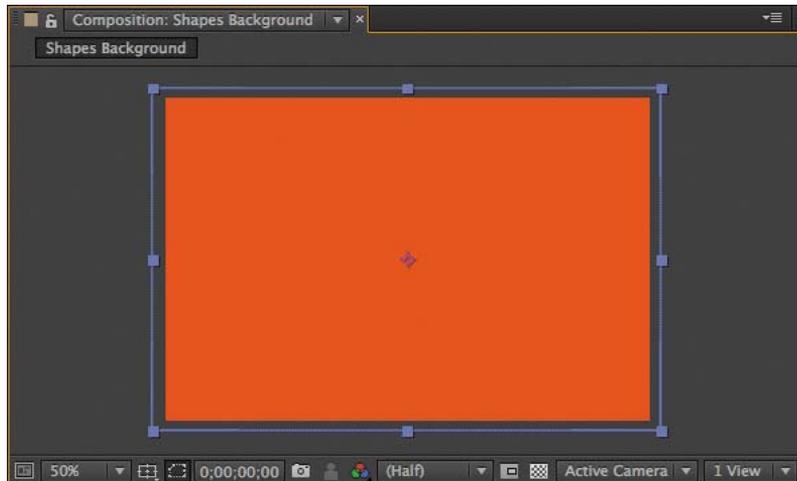
Drawing a shape

You'll begin by drawing the rectangle that will contain the gradient fill.

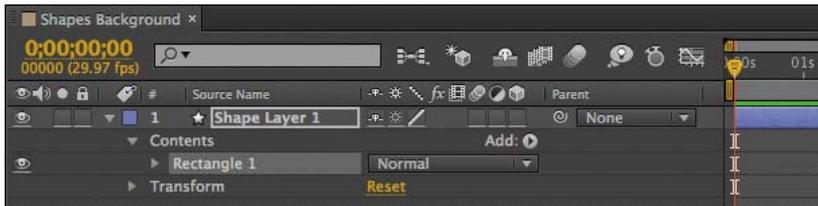
- 1 Select the Rectangle tool (▭).



- 2 Choose 50% from the Magnification Ratio pop-up menu at the bottom of the Composition panel so that you can see the entire composition.
- 3 Click just outside the upper left corner of the composition, and drag the tool to the area just outside the bottom right corner, so that a rectangle covers the entire composition.



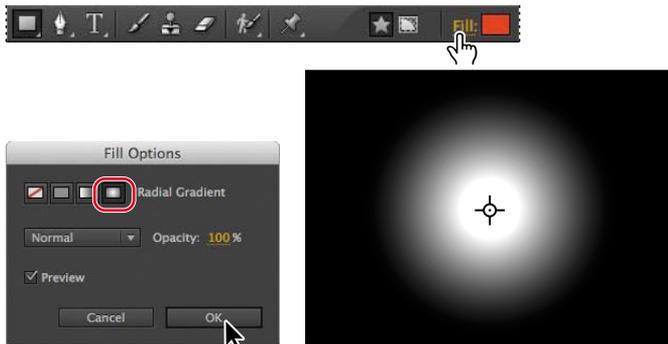
The shape appears in the Composition panel, and After Effects adds a shape layer named Shape Layer 1 to the Timeline panel.



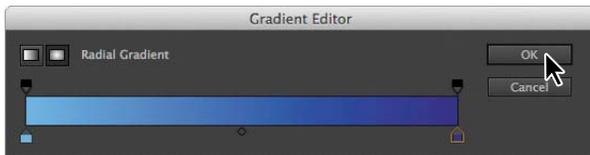
Applying a gradient fill

You can change the color of a shape by modifying its Fill settings in the Tools panel. Clicking the word *Fill* opens the Fill Options dialog box, where you can select the kind of fill, its blending mode, and its opacity. Clicking the Fill Color box opens the Adobe Color Picker if the fill is solid, or the Gradient Editor if the fill is a gradient.

- 1 Click the word *Fill* to open the Fill Options dialog box.
- 2 Select the Radial Gradient option (■), and click OK.



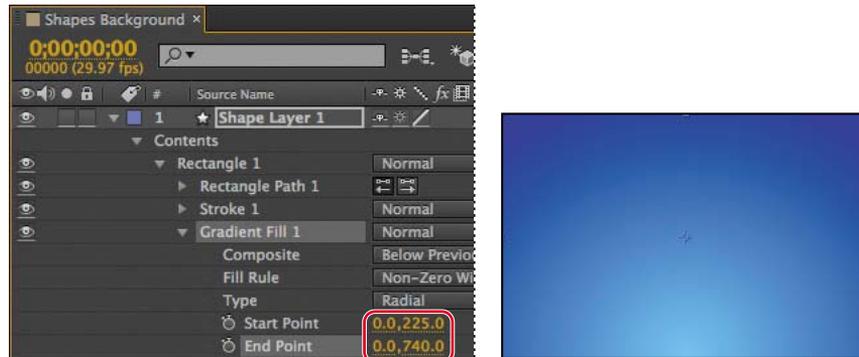
- 3 Click the Fill Color box (next to the word *Fill*) to open the Gradient Editor.
- 4 Select the white color stop (the left color stop below the gradient ramp), and select a light blue color. (We used R=100, G=185, B=240.)
- 5 Select the black color stop (the right color stop below the gradient ramp), and select a dark blue color. (We used R=10, G=25, B=150.)
- 6 Click OK to apply the new gradient colors.



Modifying gradient settings

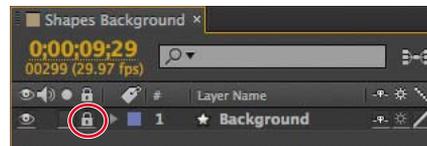
The gradient is a little small, and it falls off quickly. You'll adjust the settings for the shape layer to expand the gradient.

- 1 In the Timeline panel, expand Shape Layer 1 > Contents > Rectangle 1 > Gradient Fill 1, if it isn't already visible.
- 2 Change the Start Point to **0, 225** and the End Point to **0, 740**.



Now the gradient originates at the bottom of the screen and falls off near the top and edges of the composition.

- 3 Hide the Shape Layer 1 properties.
- 4 Select the layer name (Shape Layer 1), press Enter or Return, and type **Background**. Press Enter or Return again to accept the new layer name.
- 5 Click the Lock column (🔒) for the Background layer so that you don't accidentally select it.



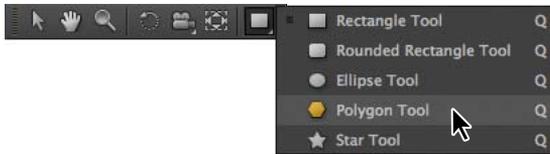
Creating custom shapes

Though there are only five shape tools, you can modify the paths you draw to create a wide variety of shapes. The Polygon tool, in particular, gives you great flexibility. You'll use it to create rotating sun shapes in the background.

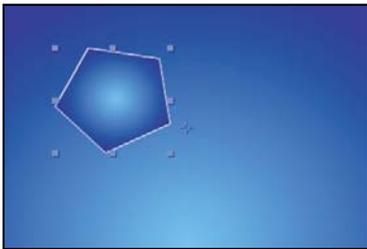
Drawing a polygon

By default, the Polygon tool draws a shape using the settings of the last shape drawn with that tool. However, by adjusting the points, position, rotation, outer radius, outer roundness, and other values, you can dramatically alter the initial shape. You'll modify a simple polygon to create a much more interesting shape.

- 1 Select the Polygon tool (⬡), which is hidden behind the Rectangle tool (▭).
- 2 Drag a polygon shape in the Composition panel.

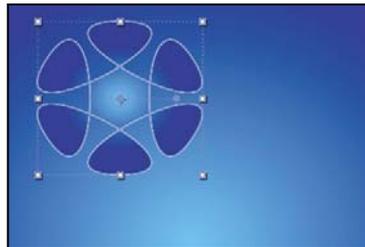


▶ **Tip:** While you're dragging the shape, you can press the spacebar to reposition the shape in the Composition panel.



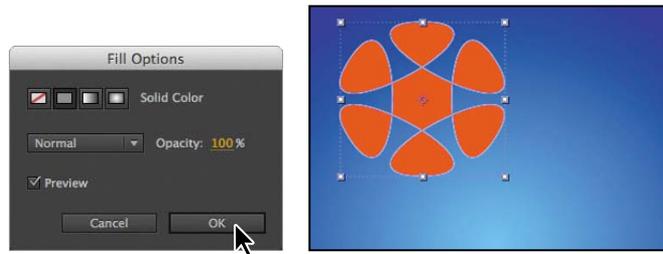
- 3 In the Timeline panel, expand Shape Layer 1 > Contents > Polystar 1 > Polystar Path 1.
- 4 Change the Points to **6**, the Rotation to **0** degrees, and the Outer Radius to **150**.
- 5 Change the Outer Roundness to **-500%**.

▶ **Tip:** You can change settings to values below 0 and above 100% for more dramatic results.

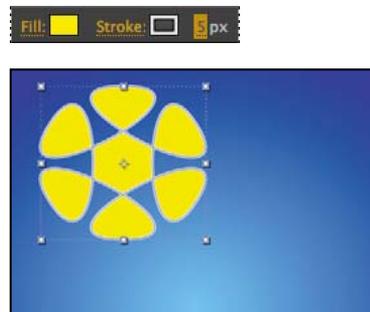


- 6 Hide the Polystar Path 1 properties.

- 7 Click the word *Fill* in the Tools panel to open the Fill Options dialog box. Select the Solid Color icon (■), and then click OK.



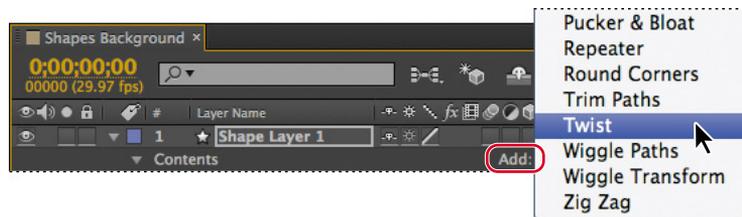
- 8 Click the Fill Color box, and select a bright yellow. (We used R= 250, G=250, B=0.) Click OK.
- 9 Click the Stroke Color box, and select a bright gray. (We used R=230, G=230, B=230.) Click OK.
- 10 Change the Stroke Width in the Tools panel to 5 pixels to emphasize the stroke.



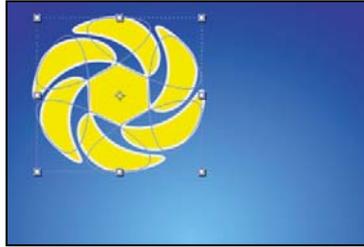
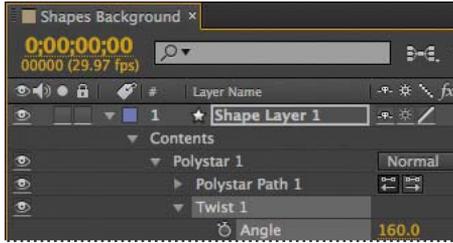
Twisting a shape

The Twist path operation rotates a path more sharply in the center than at the edges. Positive values twist clockwise; negative values twist counterclockwise. You'll use the Twist path operation to give the shape a little more definition.

- 1 In the Timeline panel, open the Add pop-up menu next to Contents in the Shape Layer 1 layer, and choose Twist.



- 2 Expand Twist 1.
- 3 Change the Angle to **160**.



- 4 Hide the Polystar 1 properties.
- 5 Choose File > Save to save your work so far.

Repeating a shape

You've created the basic shape, but you need many copies of it to fill the composition. You could duplicate the shape manually, but instead, you'll use the Repeater path operation to create multiple rows of suns.

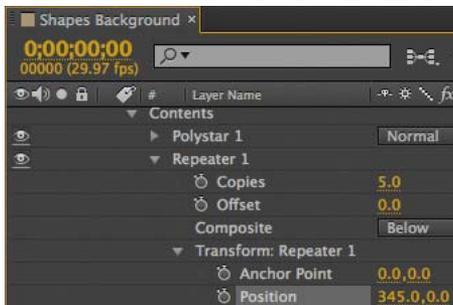
- 1 Select Shape Layer 1.

You're selecting the layer because you want to add the Repeater to the entire shape group, not just an individual shape.

- 2 Open the Add pop-up menu, and then choose Repeater.
- 3 Expand Repeater 1.
- 4 Change the number of copies to **5**.

The Repeater creates four copies of the shape, overlapping each other. You'll separate them next.

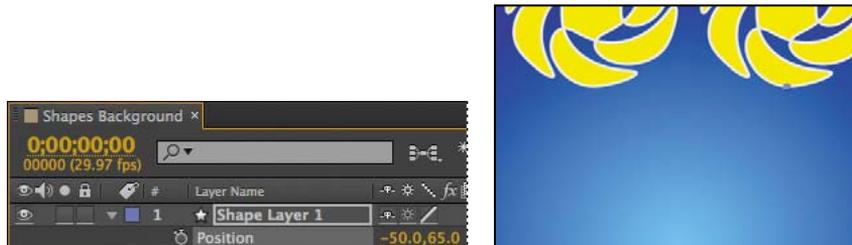
- 5 Expand Transform: Repeater 1.
- 6 Change the Position to **345,0**. The first value represents the x axis. To move the shapes closer together, use a smaller value for the x axis; to move them farther apart, use a larger value.



Note: There are multiple Transform properties in the Timeline panel, applying to different path operators. Make sure you're selecting the appropriate Transform property for the object or layer you want to affect. In this case, you want to affect only the Repeater.

Now the shapes are farther apart. But you can't see them all at the same time. To move all of the shapes, you need to move the entire shape layer.

- 7 Hide the Transform: Repeater 1 properties.
- 8 Select Shape Layer 1, and then press P to display the Position property for the layer. Change the Position to **-50, 65**.



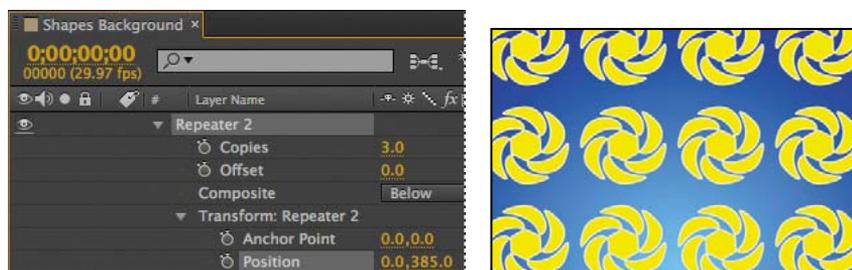
The shape layer is now in the upper left corner of the composition. You'll scale the layer and then add more rows.

● **Note:** Because the horizontal and vertical values are linked, both values change when you change one.

- 9 Select Shape Layer 1, and then press S to display the Scale property for the layer. Change the Scale value to **50%**.



- 10 Press S to hide the Scale property for the layer.
- 11 Expand Shape Layer 1 > Contents.
- 12 Select Shape Layer 1, and then choose Repeater from the Add pop-up menu.
- 13 Expand Repeater 2 > Transform: Repeater 2.
- 14 Change the Position to **0, 385** so that there is vertical space between the rows.

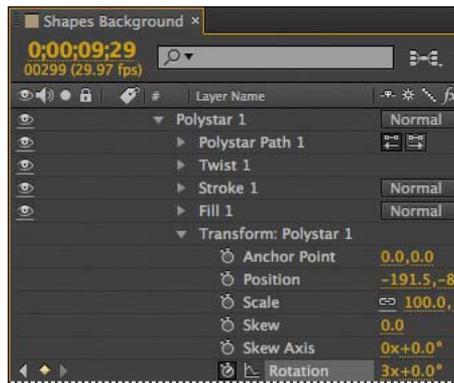


- 15 Hide the Repeater 2 properties.

Rotating shapes

The suns should rotate on the background. You'll animate the Rotation property for the original shape; changes will automatically apply to the duplicated shapes.

- 1 In the Timeline panel, expand Shape Layer 1 > Contents > Polystar 1 > Transform: Polystar 1.
- 2 Press the Home key or drag the current-time indicator to the beginning of the timeline.
- 3 Click the stopwatch (⌚) next to the Rotation property to create an initial keyframe for the layer.
- 4 Press the End key, or drag the current-time indicator to the end of the timeline.
- 5 Change the Rotation to **3x+0** degrees. This setting causes the shape to rotate three times in 10 seconds.

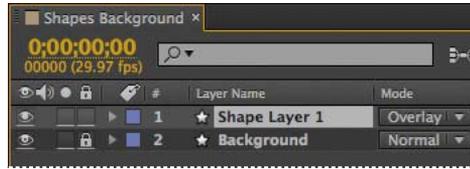


- 6 Hide the properties for Shape Layer 1.
- 7 Drag the current-time indicator across the timeline to preview the rotation.

Blending shapes with the background

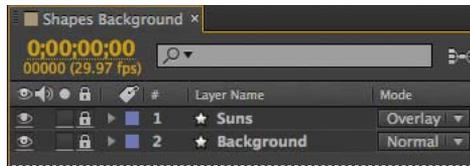
The rotating suns look good, but they contrast with the background too much. You want the character in the main video file to be the focus of attention. You'll change the blending mode and opacity for the shape layer to make the background more subtle.

- 1 Click Toggle Switches/Modes at the bottom of the Timeline panel.
- 2 Choose Overlay from the Mode pop-up menu for the Shape Layer 1 layer.



- 3 Select Shape Layer 1, and then press T to display the Opacity property for the layer.
- 4 Change the Opacity value to 25%.
- 5 Press T to hide the Opacity property.
- 6 Select Shape Layer 1, press Enter or Return, and type **Suns** for the layer name. Press Enter or Return again to accept the new name.
- 7 Lock the layer to prevent accidental changes to it.

● **Note:** Instead of changing the opacity for the entire layer, you could change the opacity for the original shape. The value would apply to all the duplicates as well.



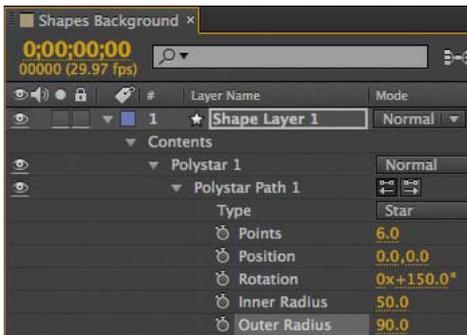
Creating stars

The Star tool is similar to the Polygon tool. A polygon is simply a star without an Inner Radius or Inner Roundness property; both tools create shapes called poly-stars. You'll use the Star tool to draw a star for the background, and then use the Pucker & Bloat operation to change the star's shape. Then you'll duplicate the star and rotate the stars around the layer's anchor point.

Drawing a star

The Star tool is grouped with the other shape tools. To draw a star, drag the Star tool in the Composition panel.

- 1 Select the Star tool (☆), which is hidden beneath the Polygon tool (⬡).
- 2 Change the fill and stroke settings for the shape before you draw the star:
 - Click the Fill Color box, and select a medium blue. (We used R=75, G=120, B=200.) Then click OK.
 - Click the word *Stroke*, and click None (☐) in the Stroke Options dialog box. Click OK.
- 3 Draw a star near the center of the composition. After Effects adds a shape layer named Shape Layer 1 to the Timeline panel.
- 4 In the Timeline panel, expand Shape Layer 1 > Contents > Polystar 1 > Polystar Path 1.
- 5 Change the Points to 6 and the Rotation to 150 degrees.
- 6 Change the Inner Radius to 50 and the Outer Radius to 90. The radius values change the shape of the star.



● **Note:** If you have trouble seeing the star in front of the background, you can temporarily hide the Suns and Background layers by clicking the Video switches (eye icons) for the layers in the Timeline panel.

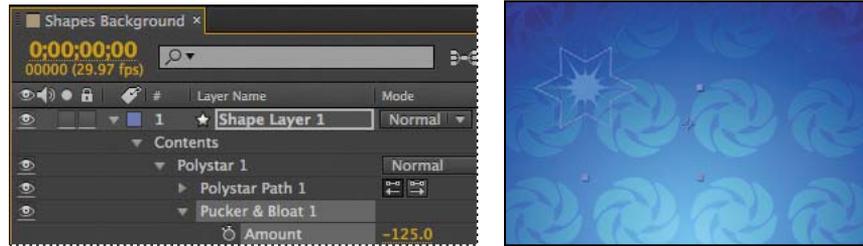
- 7 Expand the Transform: Polystar 1 properties.
- 8 Change the Position to **-180, -70**.
- 9 Collapse the Polystar 1 properties to hide them.

Applying Pucker & Bloat

After Effects includes a powerful path operation called Pucker & Bloat. You can pucker a shape by pulling the path's vertices outward while curving segments inward, or bloat a shape by pulling the vertices inward while curving segments outward. Negative values pucker a shape; positive values bloat it. You'll pucker the star to give it a distinctive look.

- 1 Select Shape Layer 1.
- 2 Choose Pucker & Bloat from the Add pop-up menu.

- 3 Expand Pucker & Bloat 1.
- 4 Change the Amount to **-125** to pucker the star.



This star shape will go well in the background. Now you can duplicate and animate it.

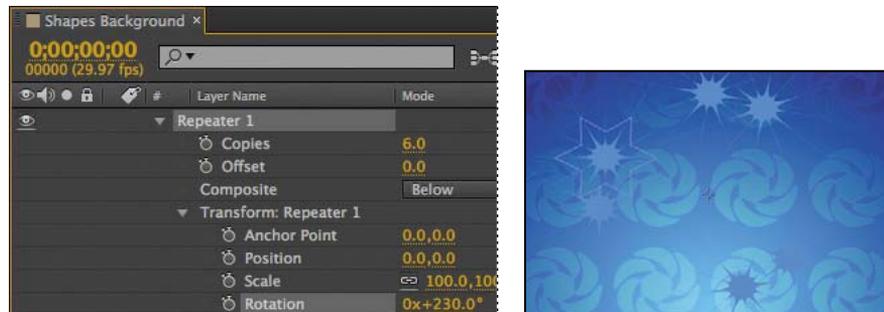
Duplicating shapes

You want to have multiple stars in slightly different sizes rotating around the screen. You'll use the Repeater path operation again, but this time you'll modify the Transform properties for the Repeater to get different results.

- 1 Select Shape Layer 1, and choose Repeater from the Add pop-up menu.
- 2 Expand Repeater 1, and change the number of copies to **6**.

Now there are six stars on the screen.

- 3 Expand Transform: Repeater 1.
- 4 Change the Position to **0, 0** and the Rotation to **230** degrees.



Because you applied the rotation to the Repeater, rather than the shape, each star rotates around the layer's anchor point to a different degree. When you change the Transform properties for the Repeater, the change is multiplied by the number of copies created. For example, if there are 10 copies of a shape and you change the Rotation value to 10 degrees, the first shape retains the original value of 0, the second shape rotates 10 degrees, the third shape rotates 20 degrees, and so on. The same concept applies to each of the Transform properties.

In this project, the anchor point for the layer differs from the position of the shapes, so the chain of stars begins to wrap in on itself.

- 5 Change the End Opacity to **65%**. Each star is more transparent than the one before it.
- 6 Hide the Repeater 1 properties.
- 7 Select the Shape Layer 1 layer, and choose Repeater from the Add pop-up menu again to add another Repeater.
- 8 Expand Repeater 2 > Transform: Repeater 2.
- 9 Change the Position to **-140, 0** and the Rotation to **40** degrees.
- 10 Change the Scale to **80%**.

Each duplicate star will be smaller than the one before it. Because there are three duplicates of the first group of stars, some will be 64% the size of the original.

- 11 Change the End Opacity to **0%**.



- 12 Collapse the Repeater 2 properties to hide them.
- 13 Choose File > Save.

Rotating shapes

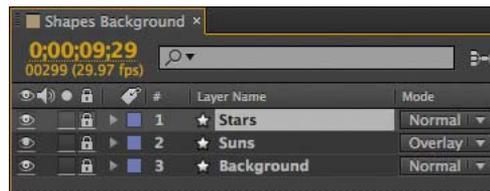
You've rotated the stars around the anchor point for the layer. Now you want to animate each star to rotate around its own axis. To achieve this, you'll animate the Rotation property for the polystar shape itself, not the layer or the Repeater.

- 1 Expand Polystar 1 > Transform: Polystar 1.
- 2 Press the Home key or drag the current-time indicator to the beginning of the timeline.
- 3 Click the stopwatch icon (⌚) for the Rotation property to create an initial keyframe.
- 4 Press the End key, or drag the current-time indicator to the end of the timeline.

- 5 Change the Rotation to **180** degrees.



- 6 Manually preview the composition by dragging the current-time indicator along the timeline. After you confirm that everything is rotating, collapse the layer.
- 7 Rename the Shape Layer 1 layer **Stars**, and press Enter or Return to accept the layer name.
- 8 Lock the Stars layer.



Positioning layers with snapping

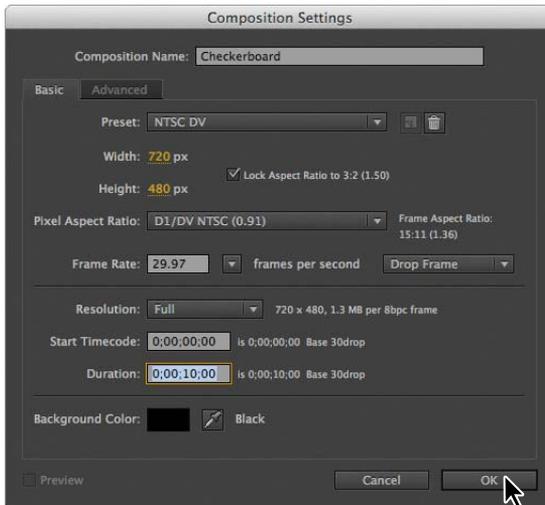
The rotating suns and stars are a good start. Now you'll add a checkerboard pattern to the mix using solid-color layers. Positioning the layers will be easy with the snapping feature in After Effects. You'll create a new composition and nest it within the main composition.

Creating a new composition

This checkerboard background includes multiple layers, so you'll create a new composition for it.

- 1 Press **Ctrl+N** (Windows) or **Command+N** (Mac OS) to create a new composition.

- 2 In the Composition Setting dialog box, name the composition **Checkerboard**, choose NTSC DV from the Preset menu, and type **10:00** for Duration. Then click OK.

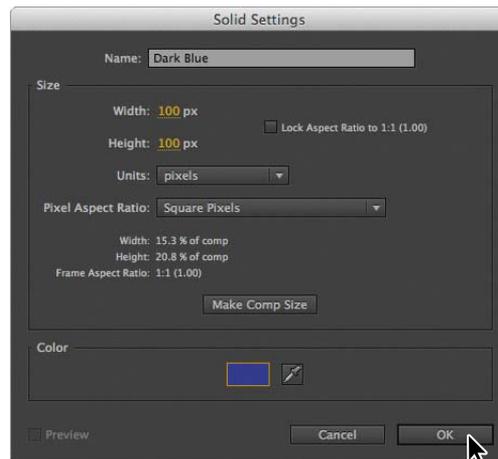


After Effects open the new Checkerboard composition in the Timeline and Composition panels. You'll start by adding two solid layers, the building blocks of the checkerboard background.

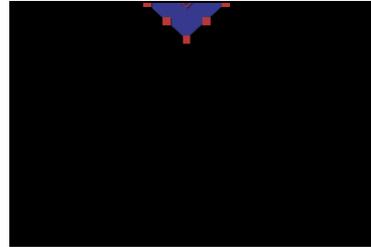
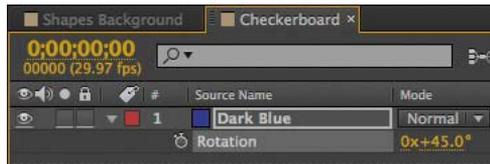
- 3 Choose Layer > New > Solid to create a solid layer.

- 4 In the Solid Settings dialog box, do the following, and then click OK:

- Name the layer Dark Blue.
- Change both the Width and Height to 100 px.
- Choose Square Pixels from the Pixel Aspect Ratio menu.
- Select a dark blue color. (We used R=25, G=50, B=150.)

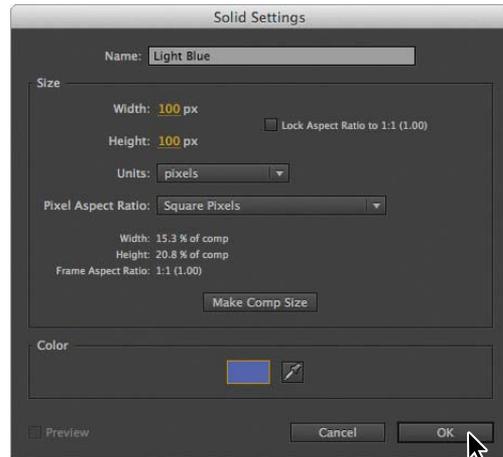


- 5 With the Dark Blue layer selected in the Timeline panel, press R to display the Rotation property for the layer. Then change the Rotation to **45** degrees.
- 6 Select the Selection tool. Then, in the Composition panel, drag the layer up so that only the bottom half of the diamond appears in the composition.

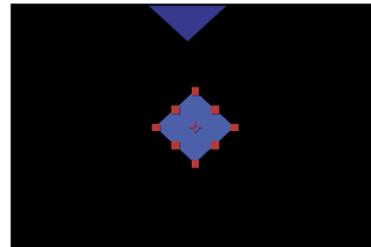


- 7 Press Ctrl+Y (Windows) or Command+Y (Mac OS) to create another solid layer.
- 8 In the Solid Settings dialog box, name the layer **Light Blue**, and change the color to a light blue (we used R=70, G=100, B=230). Then click OK.

The default width and height for a new solid layer match the settings you used previously, so the Light Blue layer has the same dimensions as the Dark Blue layer.



- 9 With the Light Blue layer selected in the Timeline panel, press R to display the Rotation property. Then change the Rotation to **45** degrees.



Snapping layers into position

You've created two layers, but they have no relationship to each other in the composition. You'll use the Snapping option in After Effects to quickly align the layers. When the Snapping option is enabled, the layer feature that is closest to your pointer when you click becomes the snapping feature. As you drag the layer near other layers, features on other layers are highlighted, showing you where the snapping feature would snap if you released the mouse button.

- 1 Select Snapping in the options section of the Tools panel, if it's not already selected.
- 2 Using the Selection tool (⬚), select the Light Blue layer in the Composition panel.

When you select a layer in the Composition panel, After Effects displays the layer handles and anchor point. You can use any of these points as the snapping feature for a layer.

- 3 Click near the corner handle on the left side of the Light Blue layer, and drag it near the lower right edge of the Dark Blue layer until it snaps into place, with the sides abutted. Be careful not to drag the corner itself, or you'll resize the layer.



As you drag the layer, a box appears around the left corner handle you selected, indicating that it is the snapping feature.

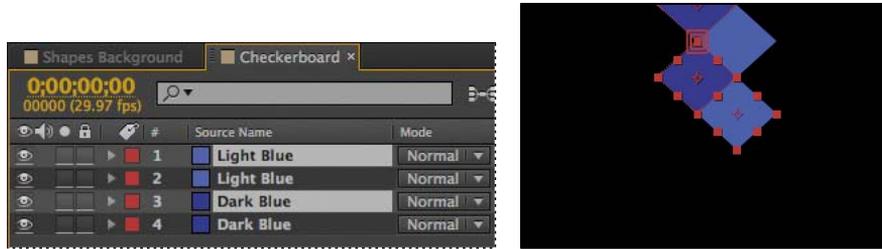
- 4 In the Timeline panel, select both of the layers, and press R to hide the Rotation property for both layers.
- 5 With both layers still selected, choose Edit > Duplicate to copy them.

Note: You're snapping solid-color layers in this exercise, which works well, but you cannot snap shape layers. Also, a layer must be visible to snap to it. 2D layers can snap to 2D layers, and 3D layers can snap to 3D layers.

Tip: If the Snapping option isn't selected, you can temporarily enable it by holding down the Control key (Windows) or Command key (Mac OS) as you click and drag a layer.

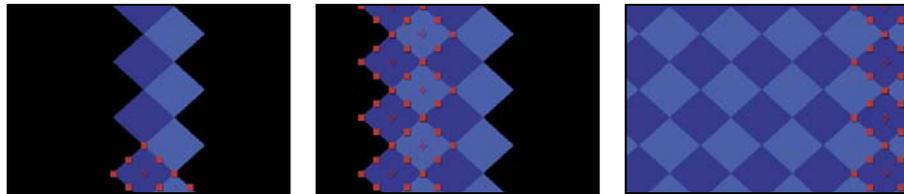
Tip: Instead of choosing Edit > Duplicate, you can press Ctrl+D (Windows) or Command+D (Mac OS) to duplicate layers.

- In the Composition panel, drag the two new layers down to the left, and then down to the right, so that the new Dark Blue layer abuts the original Light Blue layer. Remember that the snapping feature is determined by where you initially click when you begin to drag.



- Repeat steps 5–6 twice, so that you have a column of diamonds filling the screen.
- Choose Edit > Select All to select the layers in the Timeline panel.
- Press Ctrl+D (Windows) or Command+D (Mac OS) to duplicate the layers. Then move them to the left in the Composition panel until they snap into place.
- Repeat step 9 until the the Composition panel is full. Pull the duplicate layers to the left or right as necessary. Remember to click near an appropriate snapping feature as you begin dragging each time.

● **Tip:** If you need to generate a checkerboard more quickly, use the Checkerboard effect. For more information, see After Effects Help.

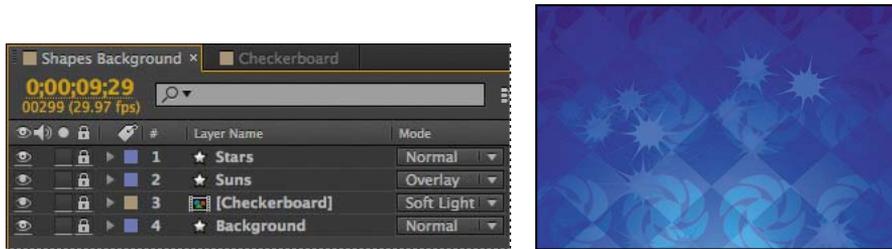


Nesting the composition

Now that the Checkerboard composition is complete, you'll nest it inside the main composition. To blend the checkerboard with the rest of the background, you'll change its blending mode, too.

- Select the Shapes Background tab in the Timeline panel.
- Drag the Checkerboard composition from the Project panel to the Timeline panel, placing it just above the Background layer.
- Choose Soft Light from the Mode menu for the Checkerboard layer in the Timeline panel.

- 4 Lock the Checkerboard layer to ensure you don't accidentally change it.



- 5 Save your work so far.

Incorporating video and audio layers

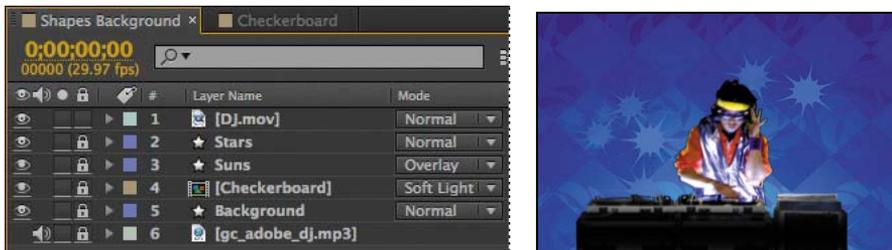
The background is in place. Now you can add the video of the DJ and the audio track that accompanies it.

Adding audio and video files

You imported files at the beginning of the lesson. Now you'll add them to the composition. The DJ.mov clip has no background and was rendered with a premultiplied alpha channel, so the underlying layers are visible.

- 1 Press the Home key or drag the current-time indicator to the beginning of the composition.
- 2 Open the Assets folder in the Project panel, if it isn't already open.
- 3 Drag the DJ.mov footage item to the Timeline panel, placing it above the other layers.
- 4 Drag the gc_adobe_dj.mp3 item from the Project panel to the Timeline panel, placing it beneath the other layers.
- 5 Lock the audio layer that you just added to the Timeline panel so that you can't accidentally change it later. Then choose File > Save.

Note: You can place an audio layer anywhere in the layer stack, but moving it to the bottom keeps it out of the way while you work.

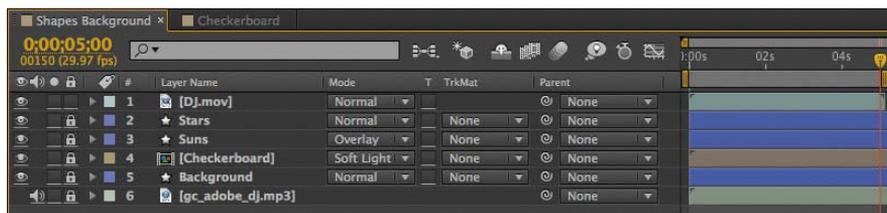


Trimming the work area

The DJ.mov clip is only 5 seconds long, but the composition is 10 seconds. If you rendered this movie now, the DJ would disappear halfway through the movie. To fix the problem, you'll move the work area end point to the 5-second mark. Then only the first 5 seconds will render.

- 1 Move the current-time indicator to the 5-second mark. You can drag the current-time indicator in the Timeline panel, or click the Current Time box and then type **500**.
- 2 Press N to move the work area end point to the current time.

● **Note:** Alternatively, if you do not want to keep the last five seconds of the composition, you can change the duration of the composition to 5 seconds. To do so, choose Composition > Composition Settings, and then type **5.00** in the Duration box.



Applying a Cartoon effect

After Effects includes a Cartoon effect, which makes it easy to create a stylized look for your video. Since this intro for the *DJ Quad Master* reality series is very different from other reality series, the Cartoon effect will work perfectly here.

- 1 Select the DJ.mov layer in the Timeline panel.
- 2 Choose Effect > Stylize > Cartoon.

The Cartoon effect performs three operations on a layer. First, it smooths the layer, removing a great deal of detail. Therefore, it works best on video footage rather than a graphic layer, such as the background in this project. Next, the Cartoon effect emphasizes the edges of shapes, based on their brightness values. Finally, it simplifies the color in the layer.



▶ **Tip:** For interesting results, try changing the Cartoon Render options from Fill & Edges to Fill (for a color-only effect) or Edges (for black-and-white line art).

The default settings do a pretty good job, but you'll fine-tune them in the Effect Controls panel.

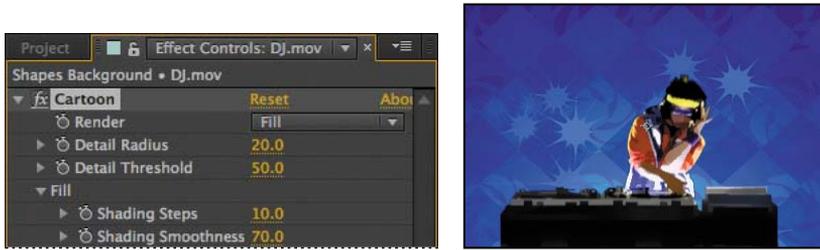
- 3 In the Effect Controls panel, choose Fill from the Render pop-up menu.

For this project, you're selecting Fill only temporarily so that you can more easily see the results of the Fill settings as you make adjustments.

- 4 Change the Detail Radius amount to **20** and the Detail Threshold amount to **50**.

These settings control how much detail is removed and how it is smoothed. Higher values remove more detail.

- 5 In the Fill area, change the Shading Steps value to **10**, and make sure the Shading Smoothness value is 70.

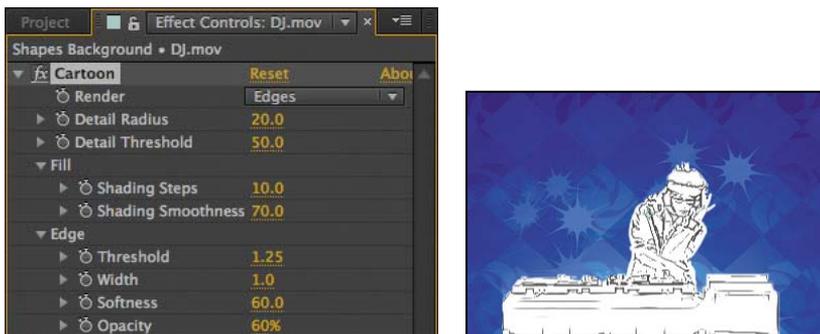


These settings determine how color is reduced and how gradients are preserved. In this project, changing these values reduces the number of colors in the DJ's shirt, creating a simpler design.

- 6 Choose Edges from the Render pop-up menu so you can focus on the edge controls. The layer becomes black and white temporarily.
- 7 In the Edge area, change the Threshold to **1.25** and the Width to **1**.

These settings reduce the number of black lines on the subject.

- 8 Leave the Softness value at its current setting (60), but lower the Opacity to **60%** to make the lines more subtle.



- 9 Choose Fill & Edges from the Render pop-up menu to restore the color.
- 10 Expand Advanced to see the advanced controls, which give you precise control over the edges.

- 11 Change the Edge Enhancement value to **50** to sharpen the edges of the layer.
- 12 Change the Edge Black Level to **2** to fill in more areas of the image with solid black. This makes the image even more cartoonish.



- 13 Lock the DJ.mov layer to ensure you don't accidentally make changes to it as you continue the project.

Adding a title bar

You've created an exciting background and added the video of the DJ and the audio track. The only thing missing is the title to identify the program. You'll use the Rectangle tool and path operations to create a dynamic shape, and then you'll add the text.

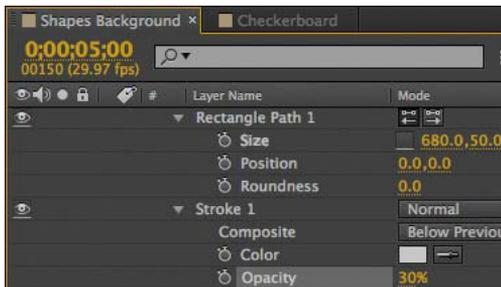
Creating a self-animating shape

Wiggle Paths turns a standard rectangle into a series of jagged peaks and valleys. You'll use it to create a shape that looks like a soundwave. Because the operation is self-animating, you need to change only a few properties for the entire shape to move on its own.

- 1 Select the Rectangle tool (□), which is hidden beneath the Star tool (☆).
- 2 Click the Fill Color box, and select a light yellow. (We used R=255, G=255, B=130.) Click OK.
- 3 Click the word *Stroke*. In the Stroke Options dialog box, select Solid Color, and click OK.
- 4 Click the Stroke Color box, and select a light gray. (We used R=200, G=200, B=200.) Click OK.

- 5 Change the Stroke Width to **10** pixels.
- 6 Draw a rectangle across the composition—near the bottom and approximately 50 pixels high.
- 7 In the Timeline panel, expand Rectangle 1 > Rectangle Path 1.
- 8 Unlink the Size values, and then change them to **680, 50**.
- 9 Expand Stroke 1, and then change the Stroke Opacity to **30%**.

► **Tip:** If you need to reposition the rectangle, use the Selection tool to drag it into place in the Composition panel.



- 10 Hide the Rectangle 1 properties.
- 11 Select Shape Layer 1, and choose Wiggle Paths from the Add pop-up menu.
- 12 Expand Wiggle Paths 1. Then change the Size to **150** and the Detail to **80**.
- 13 Choose Smooth from the Points menu to make the path less jagged.
- 14 Change Wiggles/Second to **5** to speed up the movement.



- 15 Move the current-time indicator across the timeline to see the shape move. It's not exactly an audio waveform, but it's a stylistic version of one.
- 16 Hide all the properties for the layer.
- 17 Rename the layer **Lower Third**, and then lock the layer.

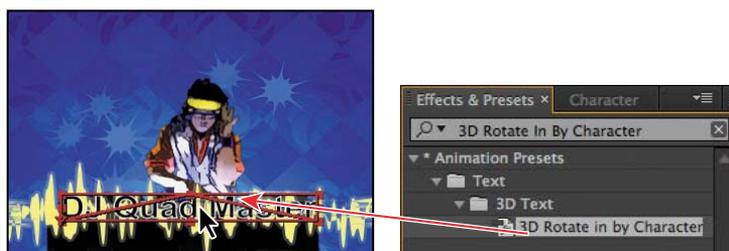
Adding text

All you need to do now is add the title of the program. You'll use an animation preset to make the text stand out.

- 1 Press the Home key or move the current-time indicator to the beginning of the composition.
- 2 Select the Horizontal Type tool (T). In the Character panel, select a sans serif font, such as Arial Bold or Helvetica Bold, and specify a size of **60** pixels.
- 3 Click the Fill Color box in the Character panel, and select black (R=0, G=0, B=0). Then click the Stroke Color box, and select white (R=255, G=255, B=255).
- 4 Change the Stroke Width to **2** pixels.
- 5 Click an insertion point in the Composition panel, and type **DJ Quad Master**.
- 6 Select the Selection tool (⬅), and then reposition the text over the waveform shape.



- 7 Select the text in the Composition panel. In the Effects & Presets panel, type **3D Rotate In By Character** in the Search box. Then drag the 3D Rotate In By Character animation preset onto the text.



After Effects applies the preset to the selected text.

- 8 Make a RAM preview to see the movie so far. Press the spacebar to stop the preview.



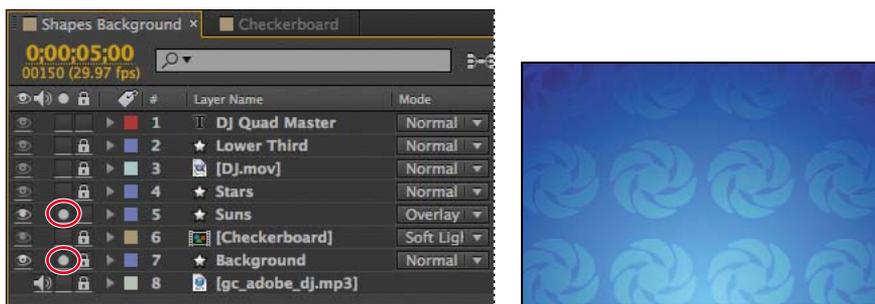
● **Note:** With the Cartoon effect in place, the RAM preview may take longer than usual to render and begin playing.

Using Brainstorm to experiment

The Brainstorm feature makes it easy to try different settings for effects, and to quickly apply the one you like. To use the Brainstorm feature, select the layer or properties you want to include, and then click the Brainstorm icon. The Brainstorm dialog box displays multiple variations of your image, based on randomized settings. You can save one or more of the variants, apply one to a composition, or redo the Brainstorm operation.

The Brainstorm feature works especially well with animation presets. You'll use it to explore possibilities for the Suns layer you created for this project.

- 1 Save the project, and then choose File > Save As > Save A Copy. Name the copy of the project **Brainstorm**, and save it in the Lesson04/Finished_Project folder.
- 2 Unlock the Suns layer in the Timeline panel.
- 3 Click the Solo switches (●) for the Suns and Background layers, so that you see only these two layers in the Composition panel.

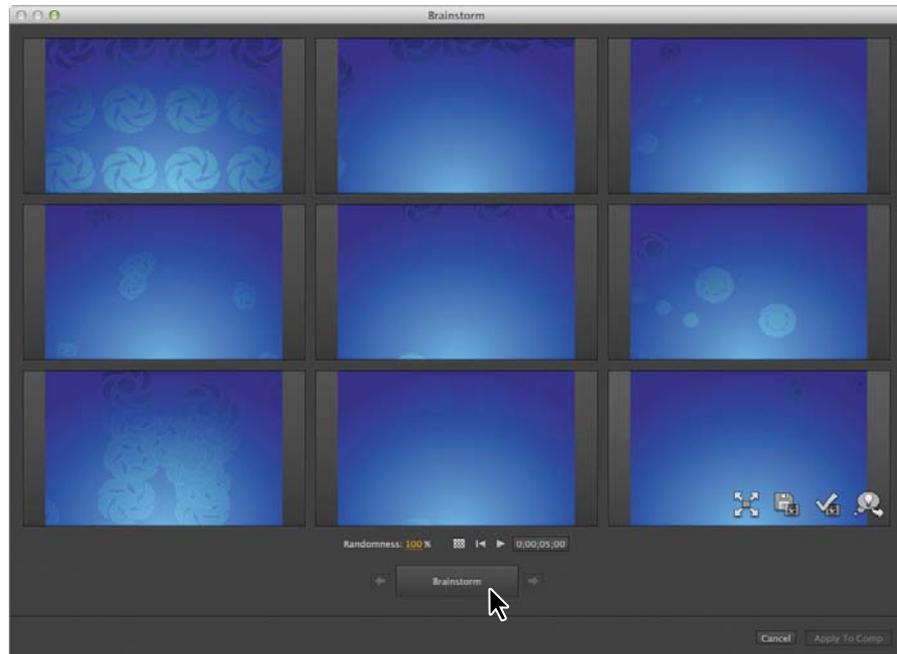


You can isolate one or more layers for animating, previewing, or rendering by *soloing*. Soloing excludes all other layers of the same type from the Composition panel.

● **Note:** Selecting Contents selects all the properties for the layer, so that the Brainstorm feature includes them all in the operation. You can also use the Brainstorm feature to experiment with one or more specific properties.

- 4 Expand the Suns layer, and then select Contents.
- 5 Click the Brainstorm icon (🧠) at the top of the Timeline panel to open the Brainstorm dialog box.
- 6 Select the level of randomness Brainstorm should apply to the layer properties. The default value is 25%; for drastic changes, try a higher number.
- 7 Click the Brainstorm button. The feature randomizes the properties and displays variants. You can click the Brainstorm button multiple times; each time, it randomizes the settings by the percentage you've selected.

▶ **Tip:** To return to a previous variation, click the Back button. To see all the variants in action, click the Play button.



- 8 When you find a variation you like, move the pointer over the variant, and then click the check mark icon to apply it to the composition.



- 9 If you don't want to apply any of the variants, click Cancel to close the Brainstorm dialog box. Then unsolo the Suns and Background layers.



Extra credit

Animating layers to match audio

Currently, the suns and stars move at their own pace. The movie will be more compelling if the checkerboard background is animated with the music. You can scale the diamonds that make up the background in time with the amplitude of the audio file. First, you need to create keyframes from the audio information.

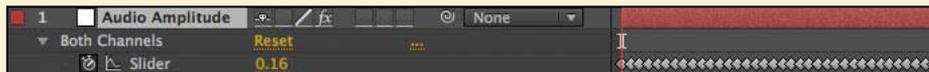
- 1 Unlock the `gc_adobe_dj.mp3` layer in the Timeline panel. Then right-click or Control-click the layer, and choose **Keyframe Assistant > Convert Audio To Keyframes**.

After Effects adds the Audio Amplitude layer. The new layer is a null object layer, meaning it has no size or shape and won't appear in a final render. Null objects let you parent layers or drive effects.

- 2 Select the Audio Amplitude layer, and choose **Edit > Cut**.
- 3 Select the Checkerboard tab in the Timeline panel. Then choose **Edit > Paste** to paste the Audio Amplitude layer into that composition.
- 4 With the Audio Amplitude layer selected, press **E** to display the effects properties for the layer.

Three categories of effects properties are available for the layer: Left Channel, Right Channel, and Both Channels. You need only the Both Channels properties, so you'll delete the others.

- 5 Delete the Left Channel and Right Channel categories. Then expand the Both Channels category. Move the current time indicator across the timeline, and notice how the Slider value changes as you move across the keyframes.



When you converted the audio to keyframes, After Effects created keyframes that specify the amplitude of the audio file in each frame of the layer. You'll sync the scale of the background to those values.

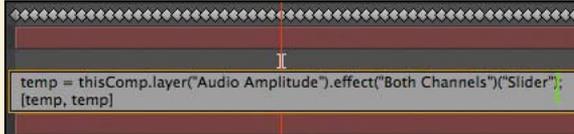
- 6 Select a light blue diamond in the Composition panel. Then press **S** to display its Scale property in the Timeline panel.
- 7 In the Timeline panel, Alt-click (Windows) or Option-click (Mac OS) the Scale stopwatch to add an expression. The words `transform.scale` appear in the time ruler for the layer.



continues on next page

Extra credit (continued)

- With the transform.scale expression selected in the time ruler, click the pick whip icon (⌘) on the Expression:Scale line, and drag it to the Slider property name in the Audio Amplitude layer. You may need to expand the Timeline panel to see both the selected Light Blue layer and the Audio Amplitude layer, depending on which light blue layer you selected. If necessary, you can move the Audio Amplitude layer to a different position in the layer stack.



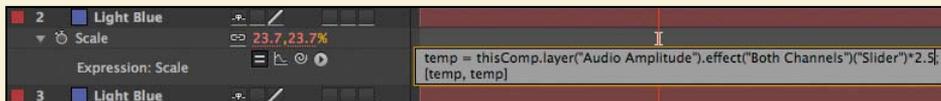
When you release the mouse, the pick whip snaps, and the expression in the solid layer time ruler now reads "temp = thisComp.layer("Audio Amplitude").effect("Both Channels")("Slider"); (temp,temp)" This means that the Scale values for the solid layer will depend on the Slider values of the Audio Amplitude layer.

Note: You'll learn more about expressions in Lesson 6.

- Choose Edit > Deselect All to deselect the layers. Then move the current time indicator through the time ruler to see the diamond resize with the audio's amplitude.

The scale definitely changes, but because the amplitude of the sound file isn't very loud, the size of the layer remains small. You'll modify the expression to increase the size of the diamond.

- Select the expression for the Light Blue layer in the time ruler. Click an insertion point just before the semicolon, and type ***2.5** to multiply the scale by 2.5. Then click outside the time ruler to accept the change. Now scrub through the time ruler to watch the diamond scale.



- Select the Scale property name for the Light Blue layer, and choose Edit > Copy to copy the property and expression.
- Select all the other solid layers in the Timeline, and choose Edit > Paste so that all the diamonds will change scale with the music. Then scrub through the time ruler to see the results.
- Click the Shapes Background tab in the Timeline panel to return to the main composition. Hide the Suns layer so the background isn't quite so busy, and then make a RAM preview to watch the diamonds shrink and grow in time with the music.

Review questions

- 1 What is a shape layer, and how do you create one?
- 2 How can you quickly create multiple copies of a shape?
- 3 How can you snap one layer to another?
- 4 What does the Pucker & Bloat path operation do?
- 5 How does the Cartoon effect work?

Review answers

- 1 A shape layer is simply a layer that contains a vector graphic called a shape. To create a shape layer, draw a shape directly in the Composition panel using any of the drawing tools or the Pen tool.
- 2 To quickly duplicate a shape multiple times, apply a Repeater operation to the shape layer. The Repeater path operation creates copies of all paths, strokes, and fills included in the layer.
- 3 To snap one layer to another in the Composition panel, select Snapping in the options section of the Tools panel. Then click next to the handle or point you want to use as a snapping feature, and drag the layer close to the point to which you want to align it. After Effects highlights the points to which it will align when you release the mouse button. Note that you cannot snap shape layers.
- 4 The Pucker & Bloat operation pulls the path's vertices outward while curving segments inward (puckering), or pulls the vertices inward while curving segments outward (bloating). Negative values pucker a shape; positive values bloat it.
- 5 The Cartoon effect stylizes a layer by removing some details and emphasizing others, and by simplifying color. You can change settings in the Effect Controls panel to fine-tune the effect's behavior.

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