1. In the Project panel, select the Drop composition, and choose Edit > Duplicate to create a copy of the composition.
2. Double-click the Drop 2 composition in the Project panel to open it. Then, in the Timeline panel, expand the Drop layer, and the Contents category.
3. Select Shape 1, and then choose Fill from the Add pop-up menu.
4. Expand Fill 1, click the Color box, and choose any fill color you like
5. Expand Stroke 1, click the Color box, and choose the stroke color you like.
6. Move the current-time indicator across the time ruler to preview the rotating pinwheels.
7. Hide all the properties for the layer.
8. Choose File > Save to save your work so far.

Positioning layers with snapping

You've created and manipulated shapes in a variety of ways. Now you'll create a checkerboard pattern. Positioning the layers will be easy with the snapping feature in After Effects.

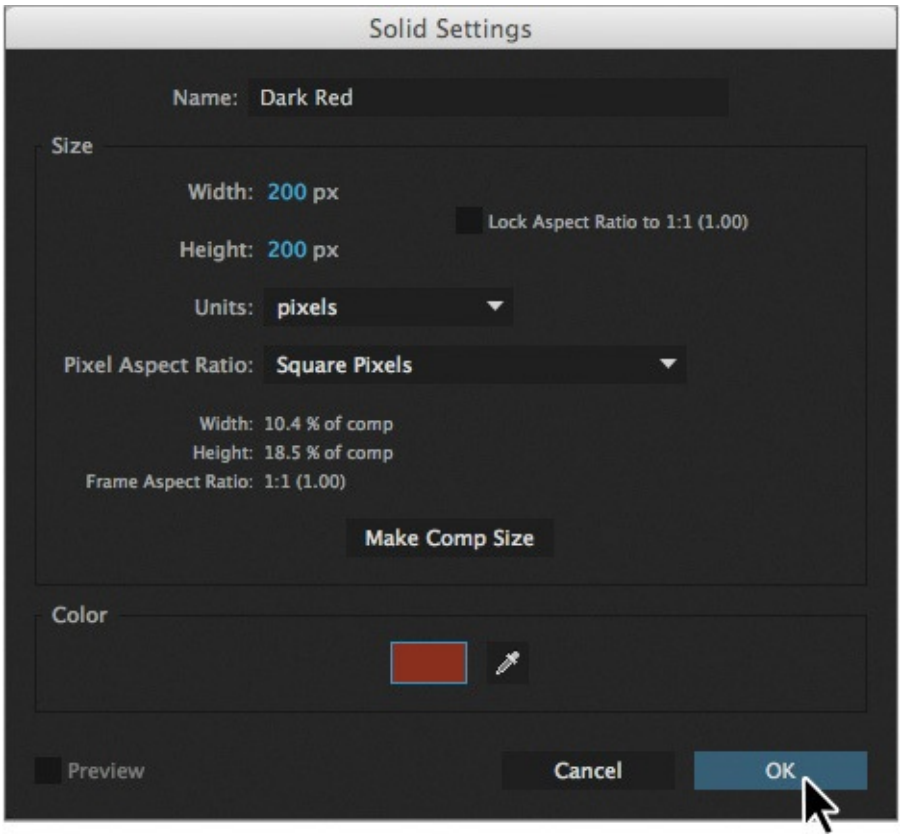
Creating a new composition

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

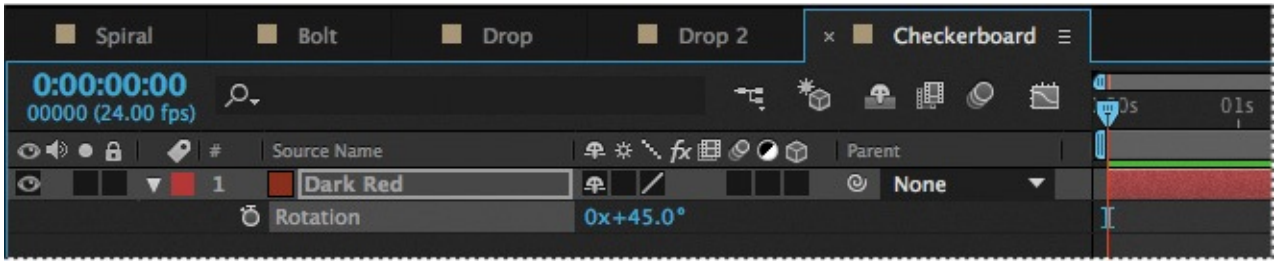
1. Press Ctrl+N (Windows) or Command+N (Mac OS) to create a new composition.
2. In the Composition Settings dialog box, name the composition **Checkerboard**, choose HDTV 1080 24 from the Preset menu, and type **10:00** for Duration. Then click OK.

After Effects opens 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.

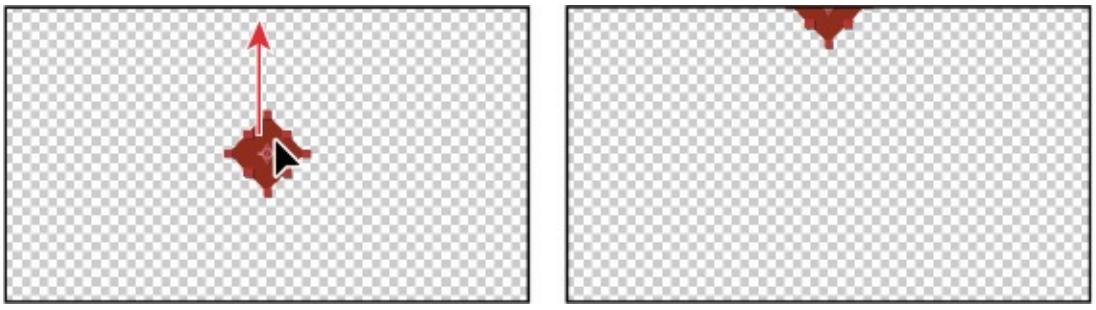
3. Choose Layer > New > Solid to create a solid layer.
4. In the Solid Settings dialog box, do the following, and then click OK:
   - Name the layer **Dark Red**.
   - Change both the Width and Height to **200** px.
   - Choose Square Pixels from the Pixel Aspect Ratio menu.
   - Select a dark red color. (We used R=145, G=0, B=0.)



5. With the Dark Red 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.

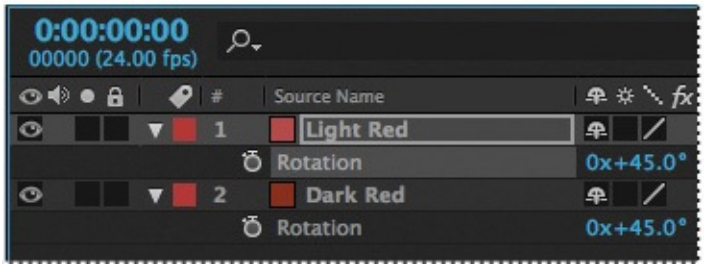


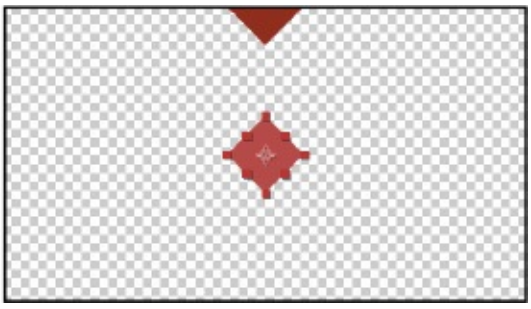
7. Press Ctrl+Y (Windows) or Command+Y (Mac OS) to create another solid layer.

8. In the Solid Settings dialog box, name the layer **Light Red**, and change the color to a light red (we used R=180, G=75, B=75). Then click OK.

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

9. With the Light Red 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.

Note

You can snap two shape layers together, but not two shapes within a single layer. 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.

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1. Select Snapping in the options section of the Tools panel, if it's not already selected.

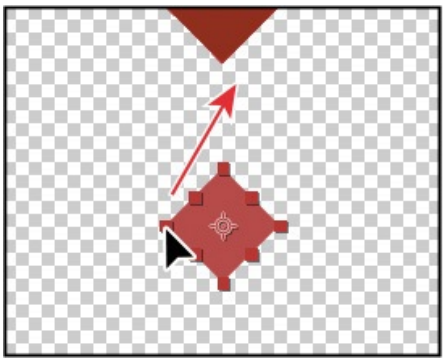
Tip

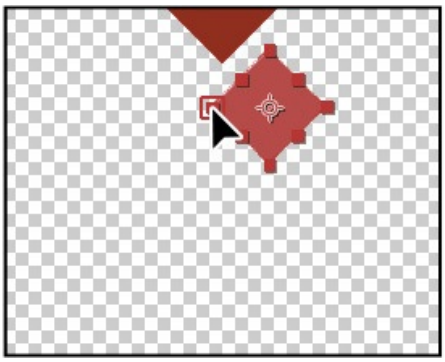
If the Snapping option isn't selected, you can temporarily enable it: Click a layer and start dragging, and then press Ctrl (Windows) or Command (Mac OS) as you drag the layer.

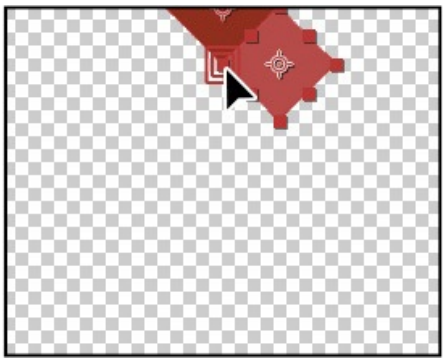
2. Using the Selection tool, select the Light Red layer in the Composition panel.

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 Red layer, and drag it near the lower right edge of the Dark Red 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.

Tip

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

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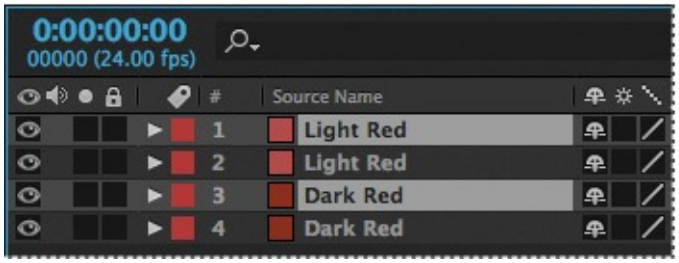
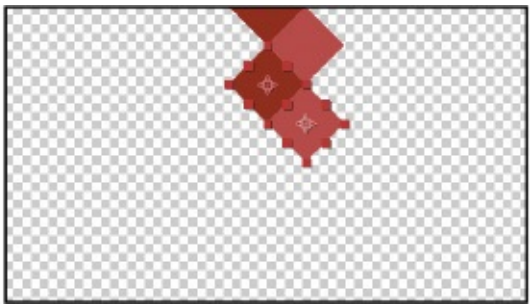
6. In the Composition panel, drag the two new layers down to the left, and then down to the right, so that the new Dark Red layer abuts the original Light Red layer. Remember that the snapping feature is determined by where you initially click when you begin to drag.





7. Repeat steps 5–6 until you have a column of diamonds filling the screen.

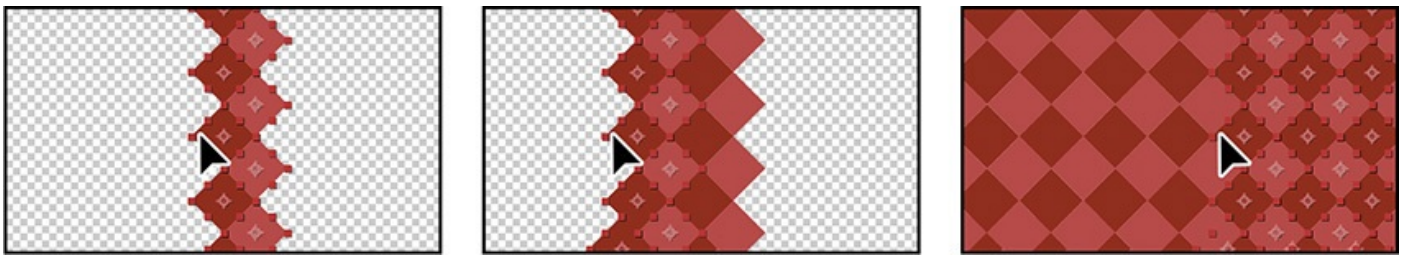
8. Choose Edit > Select All to select the layers in the Timeline panel.

9. 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.

10. Repeat step 9 until 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.



11. Choose File > Save to save your work.

Adding compositions to a 3D project

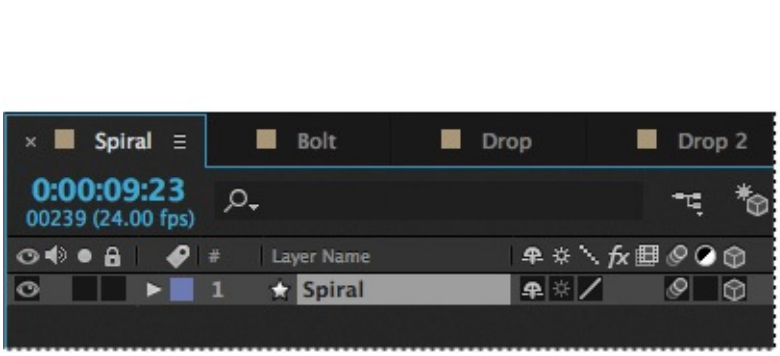
You've created several compositions, all of which need to stay in position as the camera moves through the scene. You'll integrate the compositions using the 3D Camera Tracker effect, which lets you add 3D layers to a clip with the same movement and perspective changes as the original.

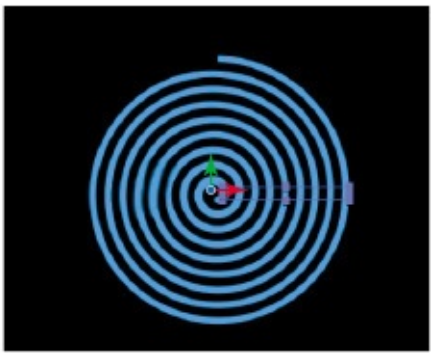
You'll work extensively with the 3D Camera Tracker effect in Lesson 12. For this project, we've set the effect up so that all you need to do is to position layers and parent them to a null object to attach them to the 3D scene. A null object is an invisible layer that has all the properties of a visible layer, so that it can be a parent to any layer in the composition. In this case, the null object tracks the camera movement.

1. In the Project panel, double-click the Tracking composition (in the tracking.aep folder) to open it. Choose Fit from the Magnification Ratio pop-up menu at the bottom of the Composition panel so that you can see the entire composition.

The Tracking composition includes the background video you'll use to place the shapes you've created.

2. Select the Spiral composition in the Timeline panel, and then select the 3D switch ( ) for the Spiral layer.





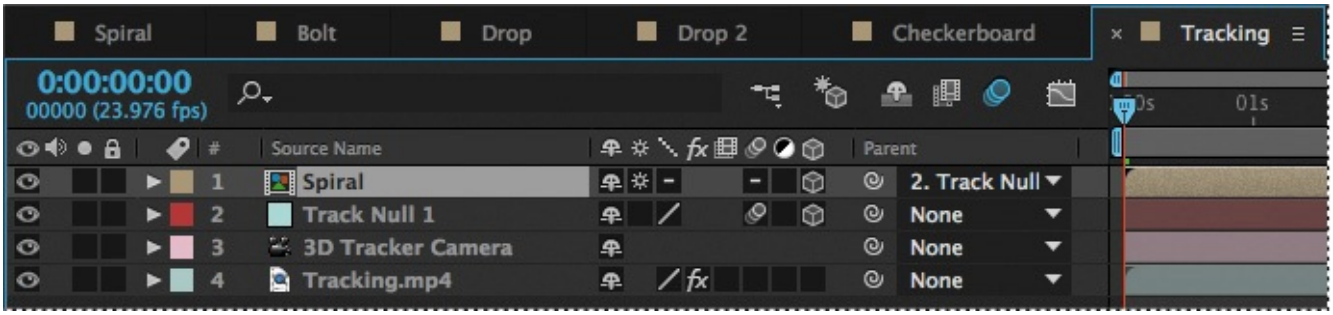
3. Select the Tracking composition in the Timeline panel again. Then drag the Spiral composition from the Project panel to the Timeline panel, placing it at the top of the layer stack.

4. Select the 3D switch for the Spiral layer, and then select the Collapse Transformations switch ( ) for the layer, too.

The Collapse Transformations switch ensures that transformations in a nested composition aren't flattened; instead, when the project is rendered, transformations in the nested composition will be performed at the same time transformations are performed for the containing composition.

5. In the Timeline panel, click the Parent pop-up menu for the Spiral layer, and choose

2. Track Null 1. This sets the Track Null 1 layer as the parent of the Spiral layer, which in turn becomes the child layer.

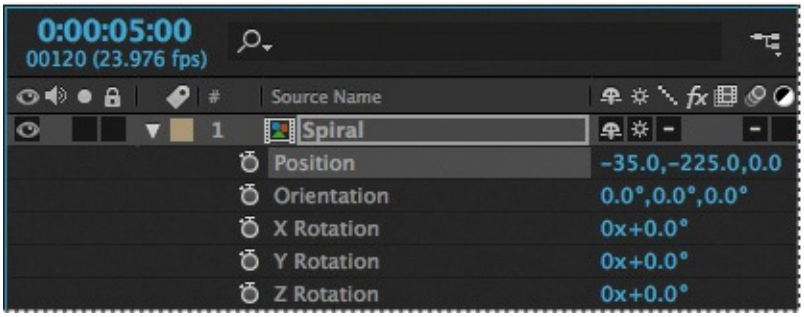


6. With the Spiral layer selected, press P to reveal its Position property. Change the value to **0**, **0**, **0**. This moves the spiral to the same location as the Null object.

7. Move the current-time indicator to 5:00 so you can clearly see the Spiral layer's position in the image. Then press Shift+R to reveal the Rotation properties, and change the Orientation values to **0**, **0**, **0**.

The spiral is almost in the right place, but you want to position it perfectly in the cul-de-sac. You'll tweak its position.

8. Change the Position for the layer to **–35**, **–225**, **0**.



9. Press the spacebar to preview the spiral rotating in the cul-de-sac. Press the spacebar again to stop the preview. Hide the Spiral layer's properties to keep the Timeline panel tidy.

You've placed the first composition. You'll repeat the process to place the others.

10. Drag the Bolt composition from the Project panel to the top of the Timeline panel, and select the 3D switch for the Bolt layer.

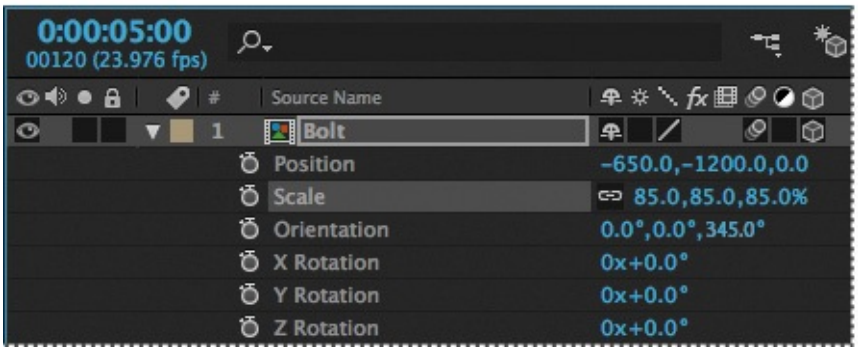
11. Select 3. Track Null 1 from the Parent menu for the Bolt layer. Then press the P key, press Shift+R, and press Shift+S to reveal the Position, Rotation, and Scale properties for the layer.

Pressing the Shift key as you press keyboard shortcuts lets you view multiple layer properties at the same time.

12. Change the Position values to **–650**, **–1200**, **0**. Change the Orientation to **0**, **0**, **345**. Change the Scale to **85%**. Finally, select the Motion Blur switch for the Bolt layer, and then hide the layer's properties.

Note

You may need to adjust the Position, Orientation, and Scale values, depending on how you drew the lightning bolt.

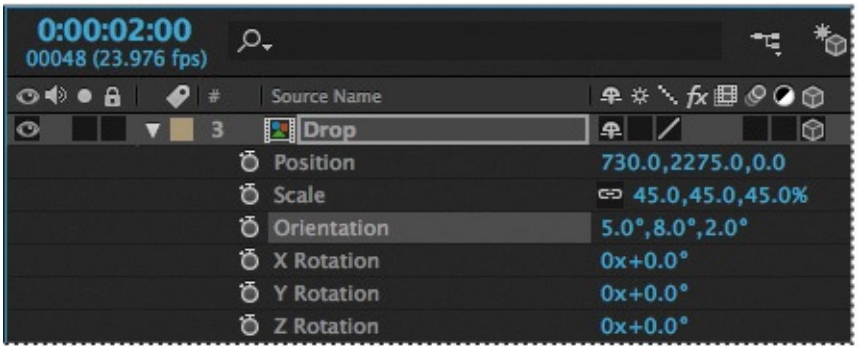


Next, you'll use the same process to integrate the Drop composition.

13. Go to 2:00 so you can see the driveway where this composition will be placed. Drag the Drop composition from the Project panel to the top of the stack in the Timeline panel, and select the 3D switch for the layer.

14. Select 4. Track Null 1 from the Parent menu for the Drop layer. Then press P, Shift+R, and Shift+S to reveal the Position, Rotation, and Scale properties.

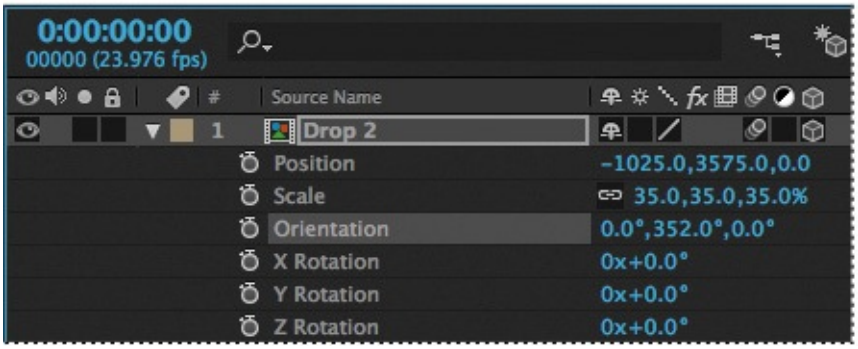
15. Change the Position values to **730**, **2275**, **0**; the Orientation values to **5**, **8**, **2**; and the Scale to **45%**. Then select the Motion Blur switch for the layer, and hide the layer's properties.



You'll place the Drop2 composition in the lower left driveway, visible as the camera begins to pan.

16. Go to the beginning of the time ruler. Drag the Drop2 composition from the Project panel to the top of the Timeline panel, select the 3D switch, and select 5. Track Null 1 from the Parent menu.

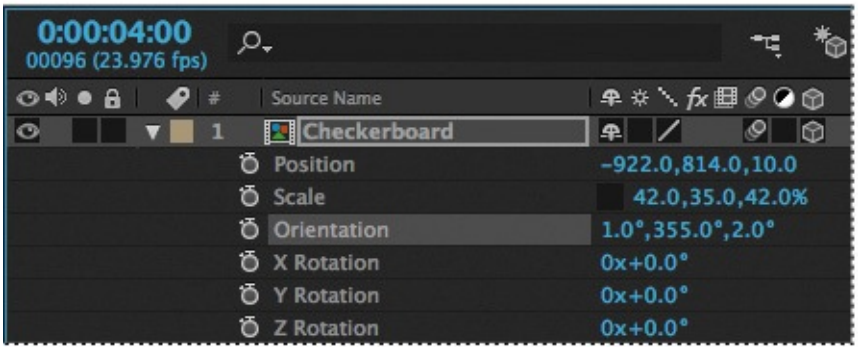
17. Press P, Shift+R, and Shift+S. Change the Position values to **–1025**, **3575**, **0**; the Orientation to **0**, **352**, **0**; and the Scale to **35%**. Select the Motion Blur switch for the layer, and hide the layer's properties.



Finally, you'll add the Checkerboard composition. You'll need to scale it a little differently so that it fits into the driveway.

18. Go to 4:00 in the time ruler. Drag the Checkerboard composition from the Project panel to the top of the Timeline panel, select its 3D switch, and choose 6. Track Null 1 from the Parent menu.

19. Press P, Shift+R, and Shift+S. Change the Position values to **–922**, **814**, **10** and the Orientation to **1**, **355**, **2**. Then click the link icon for the Scale property to unlink the values, and change the values to **42%**, **35%**, **42%**. Select the Motion Blur switch for the layer, and hide the layer's properties.

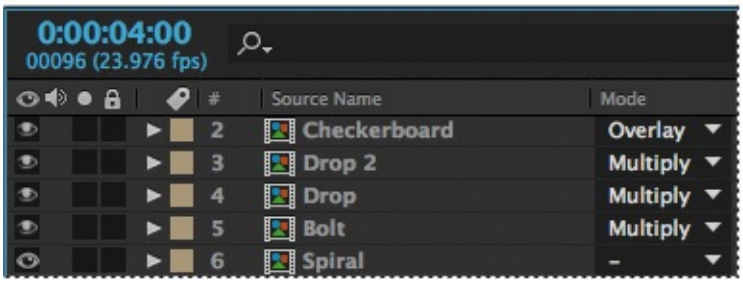


Adding the finishing touches

The layers work pretty well with the underlying video, but they'll blend more convincingly if you change the blending modes. You'll also add the audio file.

1. Click the Toggle Switches/Modes button at the bottom of the Timeline panel.

2. Choose Multiply from the Mode menu for all the layers except the Checkerboard layer; choose Overlay for the Checkerboard layer. (You won't be able to change the mode for the Spiral layer, because Collapse Transformations is selected.)



3. Drag the Melody.aif clip from the Project panel to the bottom of the layer stack in the Timeline panel.

4. Press the spacebar to enjoy your creation! When you're done previewing the project, save your work.

Extra credit

Animating layers to match audio

Currently, the spiral shape turns in a slow circle. The movie will be more compelling if the size of the spiral is animated to match the beat of the music. You can scale the spiral in time with the amplitude of an audio file. First, you need to create keyframes from the audio information.

1. Select the Spiral composition in the Timeline panel. Drag the Beat.aif file from the Project panel into the Timeline panel, and place it beneath the Spiral layer.

2. Right-click or Control-click the Beat.aif 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.

3. Select the Audio Amplitude layer, and 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'll work with the Both Channels category.

4. Expand the Both Channels category.

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 spiral to those values.

5. Select the Spiral layer, and press S to reveal the Scale property for the

layer.

6. 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.

7. 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.

When you release the mouse, the pick whip snaps, and the expression in the shape layer time ruler now reads *temp = thisComp.layer("Audio Amplitude").effect("Both Channels")("Slider"); [temp, temp, temp]*. (You may need to click the expression to see the full thing.) This expression means that the Scale values for the shape layer will depend on the Slider values of the Audio Amplitude layer.

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

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

The scale definitely changes, but sometimes the spiral disappears. You'll modify the expression so that the spiral remains visible.

9. In the time ruler, click the expression to make it active. Click an insertion point at the end of the first line, between the closing parentheses and the semicolon. Type **+90**, and then click an empty area of the Timeline panel to accept the change.

10. Preview the composition, and watch the spiral pulse to the beat of the audio file.

11. Return to the Tracking composition in the Timeline panel. Then press the spacebar, and watch the spiral pulse as the camera moves through the scene. Save your work.

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 Twist path operation do?

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 Twist path operation rotates a path more sharply in the center than it does at the edges. Entering a positive value twists clockwise; entering a negative value twists counterclockwise.