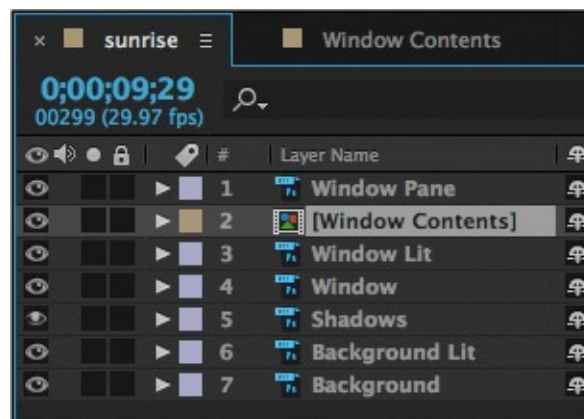


A new Timeline panel named Window Contents appears. It contains the Sun, Birds, and Clouds layers you selected in step 1 above. The Window Contents composition also appears in the Composition window.

- Click the sunrise Timeline panel to see the contents of the main composition. Notice that the Sun, Birds, and Clouds layers have been replaced by the Window Contents layer, which refers to the Window Contents composition.



## Creating the track matte

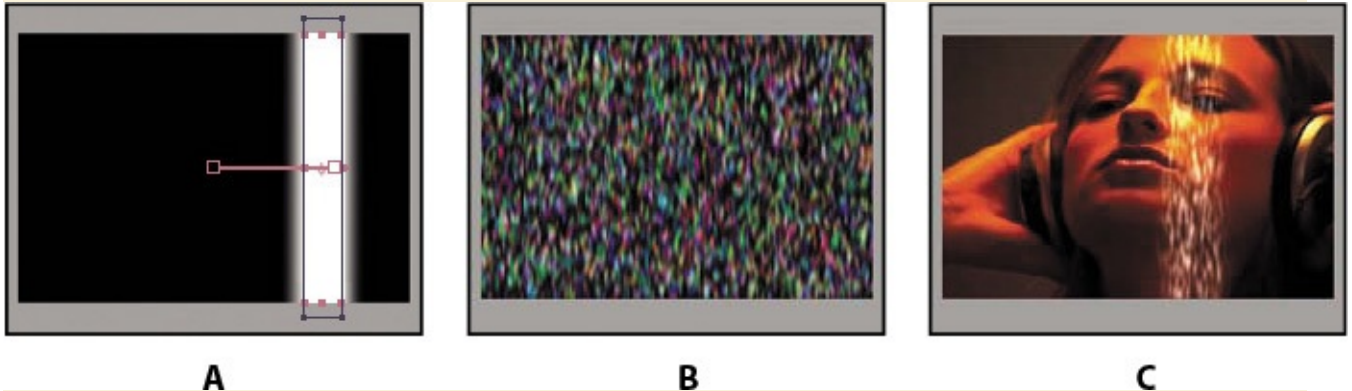
Now, you will create the track matte to hide the outside scenery behind all areas of the image except the windowpane. To do that, you'll duplicate the Window Lit layer and use its alpha channel.

## About track mattes and traveling mattes

When you want one layer to show through a hole in another layer, set up a *track matte*. You'll need two layers—one to act as a matte, the other to fill the hole in the matte. You can animate either the track matte layer or the fill layer. When you animate the track matte layer, you create a *traveling matte*. If you want to animate the track matte and fill layers using identical settings, you can precompose them.

You define transparency in a track matte using values from either its alpha channel or the luminance of its pixels. Using luminance is handy when you want to create a track matte from a layer without an alpha channel, or a layer imported from a program that can't create an alpha channel. In both alpha-channel mattes and luminance mattes, pixels with higher values are more transparent. In most cases, you use a high-contrast matte so that areas are either completely transparent or completely opaque. Intermediate shades should appear only where you want partial or gradual transparency, such as along a soft edge.

After Effects preserves the order of a layer and its track matte after you duplicate or split the layer. Within the duplicated or split layers, the track matte layer remains on top of the fill layer. For example, if your project contains layers X and Y, where X is the track matte and Y the fill layer, duplicating or splitting both of these layers results in the layer order XYXY.



### *Anatomy of a traveling matte*

**A.** *Track matte layer: a solid with a rectangular mask, set to Luma Matte. The mask is animated to travel across the screen.*

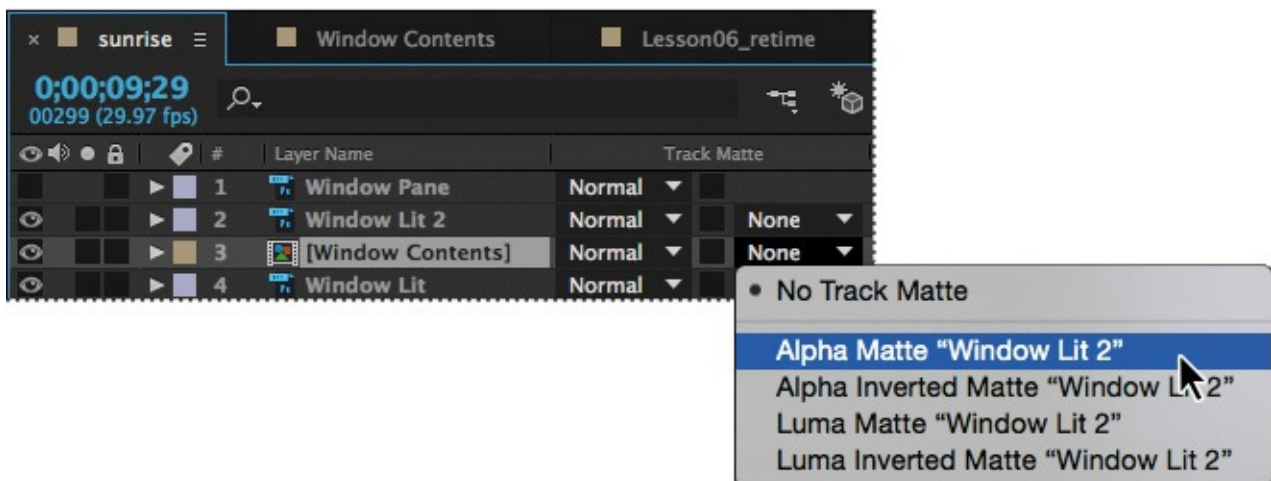
**B.** *Fill layer: a solid with a pattern effect.*

**C.** *Result: The pattern is seen in the track matte's shape and added to the image layer, which is below the track matte layer.*

1. In the sunrise Timeline panel, select the Window Lit layer.
2. Choose Edit > Duplicate.
3. Drag the duplicate layer, Window Lit 2, up in the layer stack so that it's above the Window Contents layer.
4. Click Toggle Switches/Modes in the Timeline panel to display the TrkMat column,

so you can apply the track matte.

5. Select the Window Contents layer, and choose Alpha Matte “Window Lit 2” from the TrkMat pop-up menu.



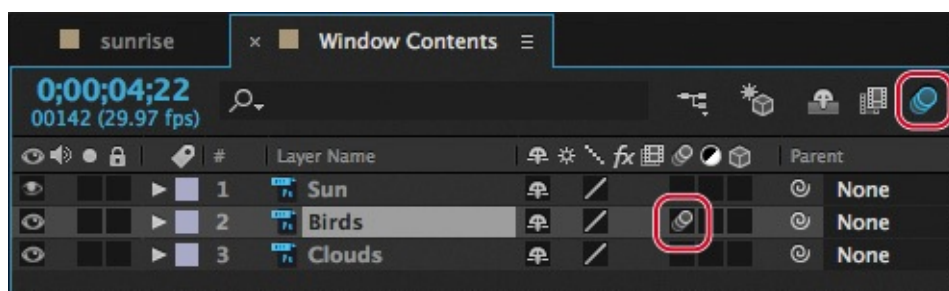
The alpha channel of the layer above (Window Lit 2) is used to set transparency for the Window Contents layer, so the scenery outside the window shows through the transparent areas of the windowpane.

6. Press the Home key or move the current-time indicator to the beginning of the time ruler, and then press the spacebar to preview the animation. Press the spacebar again when you're done.
7. Choose File > Save to save your project.

## Adding motion blur

The birds will look more authentic if they include motion blur. You'll add the motion blur and then set the shutter angle and phase, which control the intensity of the blur.

1. Switch to the Window Contents Timeline panel.
2. Go to 4:22—the middle of the birds' animation. Then select the Birds layer, and choose Layer > Switches > Motion Blur to turn on motion blur for the layer.
3. Click the Enable Motion Blur button (ⓘ) at the top of the Timeline panel to display the motion blur for the Birds layer in the Composition panel.

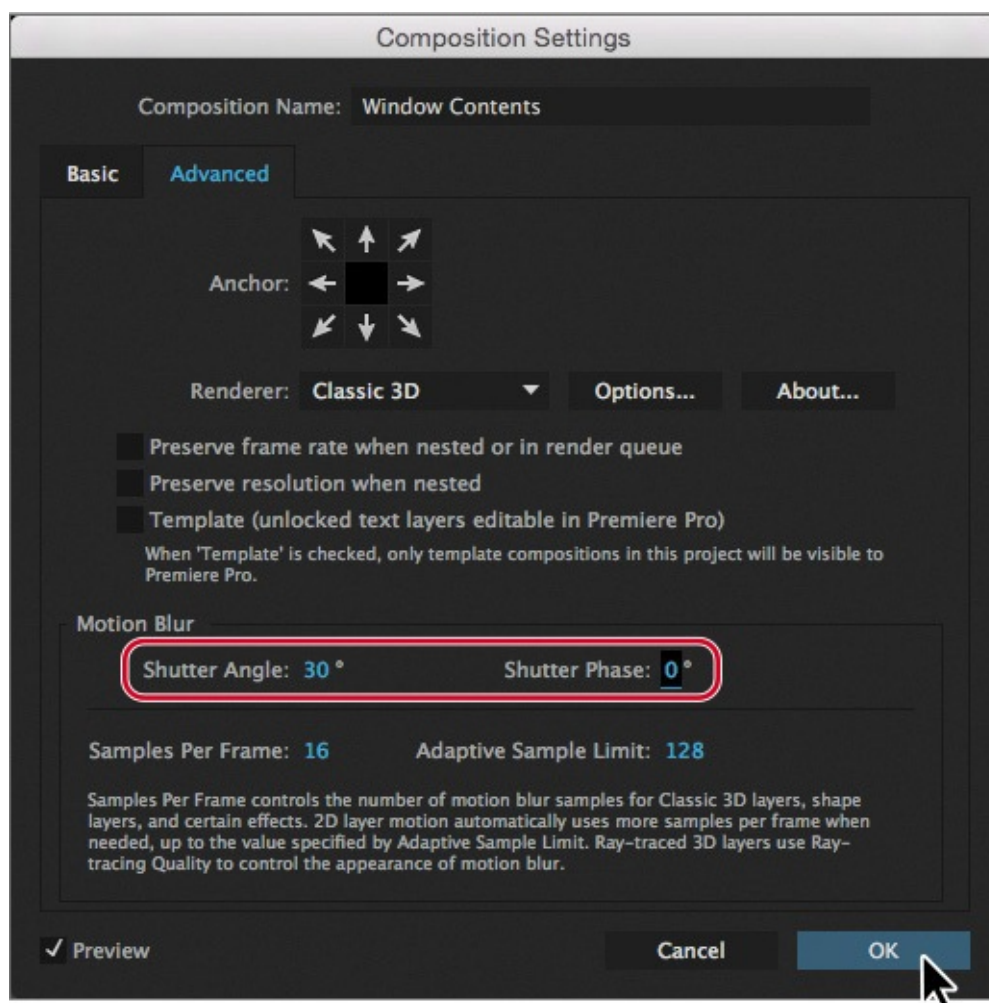


4. Choose Composition > Composition Settings.
5. In the Composition Settings dialog box, click the Advanced tab, and reduce the Shutter Angle to **30** degrees.

The Shutter Angle setting imitates the effect of adjusting a shutter angle on a real camera,

which controls how long the camera aperture is open, gathering light. Larger values create more motion blur.

6. Change the Shutter Phase to **0** degrees, and then click OK.



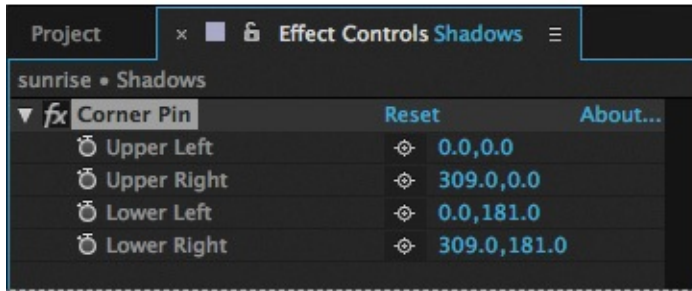
## Animating the shadows

It's time to turn your attention to the shadows cast on the table by the clock and the vase. In a realistic time-lapse image, those shadows would shorten as the sun rises.

There are a few ways to create and animate shadows in After Effects. For example, you could use 3D layers and lights. In this project, however, you'll use the Corner Pin effect to distort the Shadows layer of the imported Photoshop image. Using the Corner Pin effect is like animating with the Photoshop Free Transform tool—the effect distorts an image by repositioning each of its four corners. You can use it to stretch, shrink, skew, or twist an image, or to simulate perspective or movement that pivots from the edge of a layer, such as a door opening.

1. Switch to the sunrise Timeline panel, and make sure you're at the beginning of the time ruler.
2. Select the Shadows layer in the Timeline panel, and then choose Effect > Distort > Corner Pin. Small circles appear around the corner points of the Shadows layer in the Composition panel.





### Note

If you don't see the controls, choose View Options from the Composition panel menu. In the View Options dialog box, select the Handles and Effect Controls options, and then click OK.

You'll start by setting the four corners of the Shadows layer to correspond to the four corners of the glass tabletop. Begin about midway into the animation, when the sun is high enough to start affecting the shadow.

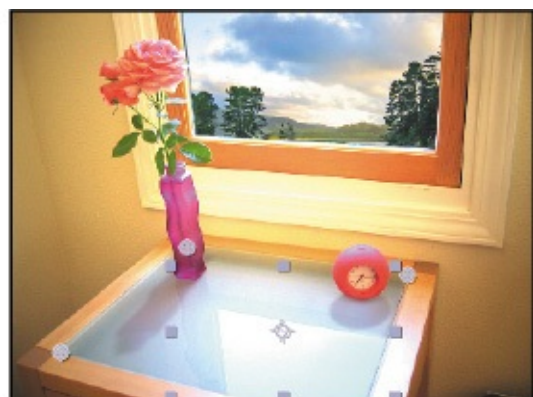
- Go to 6:00, and then drag each of the four corner-pin handles to the respective corners of the glass tabletop. Notice that the x and y coordinates update in the Effect Controls panel.

### Tip

The lower right corner of the Shadows layer is offscreen. To adjust that corner, switch to the Hand tool (☞), and drag up in the Composition panel so that you can see some of the pasteboard below the image. Then switch back to the Selection tool (☛), and drag the lower right corner-pin handle to the approximate location of the lower right corner of the glass tabletop.

If you have trouble getting the shadows to look right, you can manually enter the values shown in the figure that follows step 4.

- Set a keyframe for each corner at 6:00 by clicking the stopwatch icon (⌚) for each position in the Effect Controls panel.



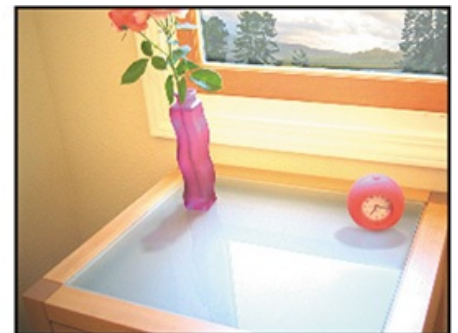
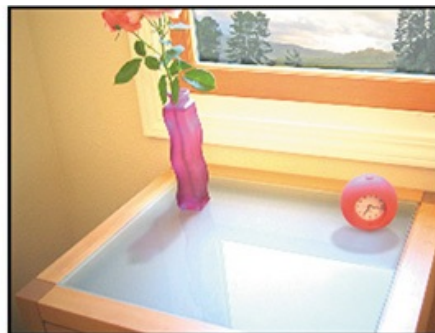
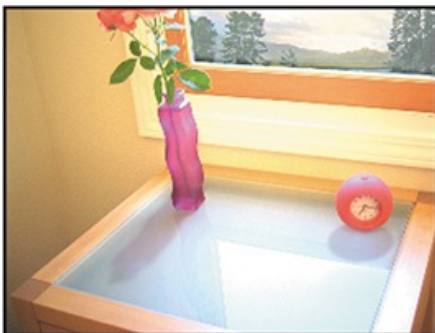
- Press the End key, or move the current-time indicator to the last frame of the

composition.

6. Using the Selection tool (⌘), shorten the shadows: Drag the two lower corner-pins about 25% closer to the back edge of the tabletop. You may also need to move the two upper corners in slightly so that the bases of the shadows still align properly with the vase and the clock. Your corner-pin values should be similar to those in the figure below; you can enter the values directly if you prefer not to drag the corners. After Effects adds keyframes.



7. If necessary, select the Hand tool (⌘), and drag the composition down to center it vertically in the Composition panel. Then switch back to the Selection tool, and deselect the layer.
8. Go to 0:00, and then press the spacebar to preview the entire animation, including the corner-pin effect. When you're done, press the spacebar again.

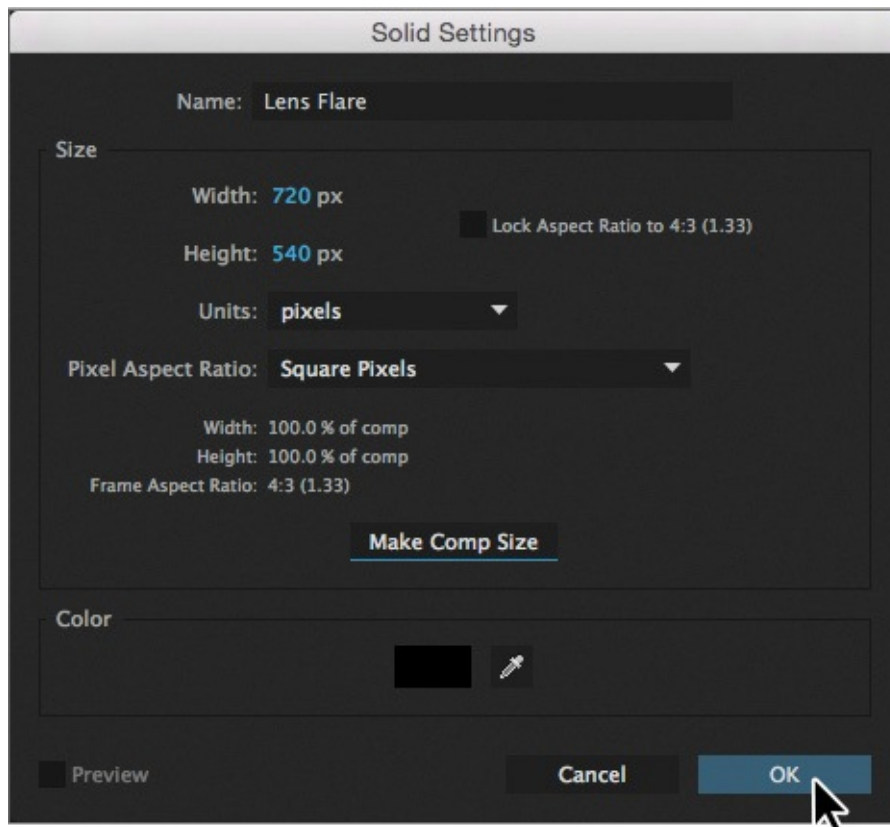


9. Choose File > Save to save your project.

## Adding a lens flare effect

In photography, when bright light (such as sunlight) reflects off the lens of a camera, it causes a flare effect. Lens flares can be bright, colorful circles and halos, depending on the type of lens in the camera. After Effects offers a few lens flare effects. You'll add one now to enhance the realism of this time-lapse photography composition.

1. Go to 5:10, where the sun is shining brightly into the lens of the camera.



2. With no layers selected in the Timeline panel, choose Layer > New > Solid.
3. In the Solid Settings dialog box, name the layer **Lens Flare**, and click the Make Comp Size button. Then set the Color to black by clicking the swatch and setting all the RGB values to 0 in the Solid Color dialog box. Click OK to return to the Solid Settings dialog box.
4. Click OK to create the Lens Flare layer.
5. With the Lens Flare layer selected in the sunrise Timeline panel, choose Effect > Generate > Lens Flare.

The Composition panel and the Effect Controls panel display the visual and numeric default Lens Flare settings, respectively; you'll customize the effect for this composition.

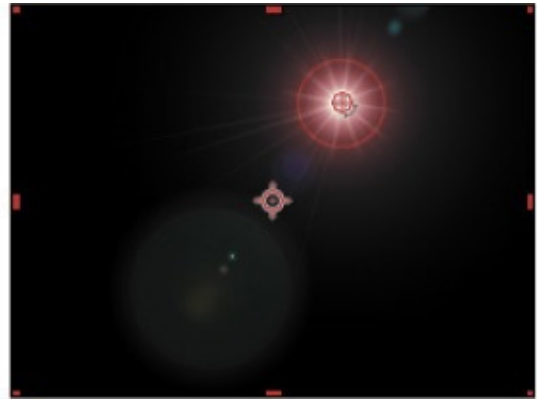
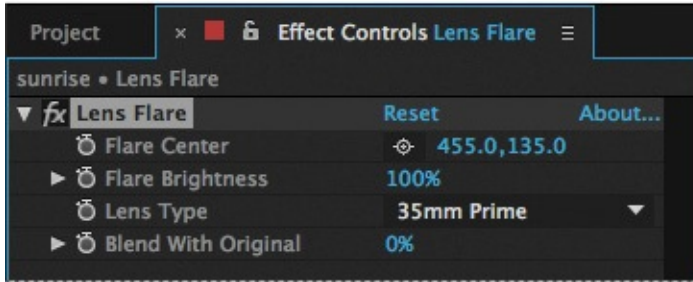
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### ▶ Tip

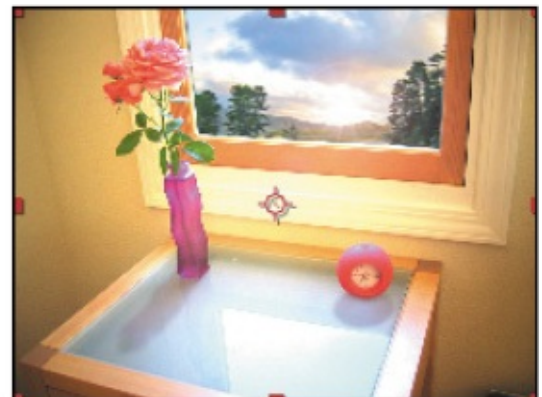
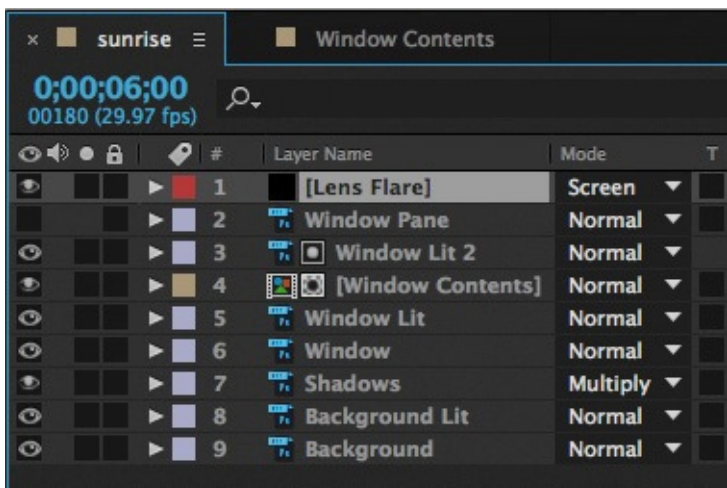
You can also enter the Flare Center values directly in the Effect Controls panel.

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6. Drag the Flare Center cross-hairs icon (⊕) in the Composition panel to the center of the sun. You cannot see the sun in the Composition panel; the x, y coordinates, which you can read in the Effect Controls or Info panel, are approximately 455, 135.
7. In the Effect Controls panel, change the Lens Type to 35mm Prime, a more diffuse flare effect.



8. Make sure you're still at 5:10. In the Effect Controls panel, click the stopwatch icon (⌚) for the Flare Brightness property to set a keyframe at the default value of 100%.
9. Adjust the brightness of the lens flare to peak when the sun is highest:
  - Go to 3:27, and set the Flare Brightness value to **0%**.
  - Go to 6:27, and set the Flare Brightness value to **0%**, also.
  - Go to 6:00, and set the Flare Brightness to **100%**.
10. With the Lens Flare layer selected in the Timeline panel, choose Layer > Blending Mode > Screen to change the blending mode.



### Tip

You can also choose Screen from the Mode pop-up menu in the Timeline panel.

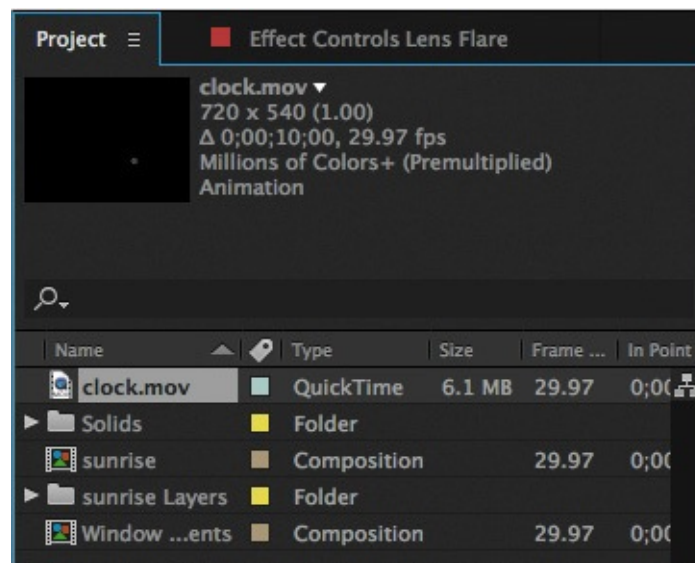
11. Press the Home key or move the current-time indicator to the beginning of the time ruler, and then press the spacebar to preview the Lens Flare effect. When you're done, press the spacebar again.
12. Choose File > Save to save your project.



## Adding a video animation

The animation now looks very much like a time-lapse photo—except the clock isn’t working yet! The hands of the clock should be spinning quickly to show the progress of time. To show this, you will add an animation that was created specifically for this scene. The animation was created in After Effects as a set of 3D layers that are lit, textured, and masked to blend into the scene.

1. Bring the Project panel forward. Close the sunrise Layers folder, and then double-click an empty area in the panel to open the Import File dialog box.
2. In the Lessons/Lesson06/Assets folder, select the clock.mov file, and click Import or Open.



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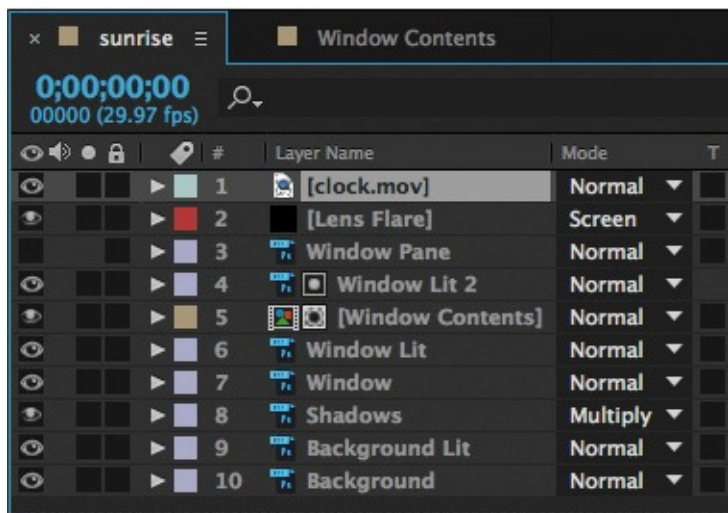
### Note

You’ll learn more about 3D layers in [Lessons 11](#), “[Using 3D Features](#),” and [12](#), “[Working with the 3D Camera Tracker](#).”

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The QuickTime movie clock.mov now appears at the top of the Project panel.

3. Click in the sunrise Timeline panel to make it active, and then go to the beginning of the time ruler. Drag the clock.mov footage item from the Project panel to the top of the layer stack in the Timeline panel.



4. Preview the animation by pressing the spacebar. Press the spacebar again to stop playback when you're done.
5. Choose File > Save to save the project.

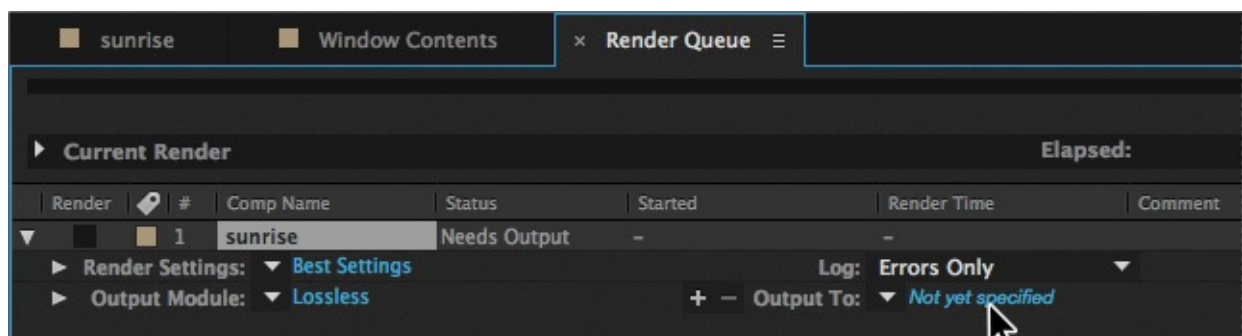
## Rendering the animation

To prepare for the next task—retiming the composition—you need to render the sunrise composition and export it as a movie.

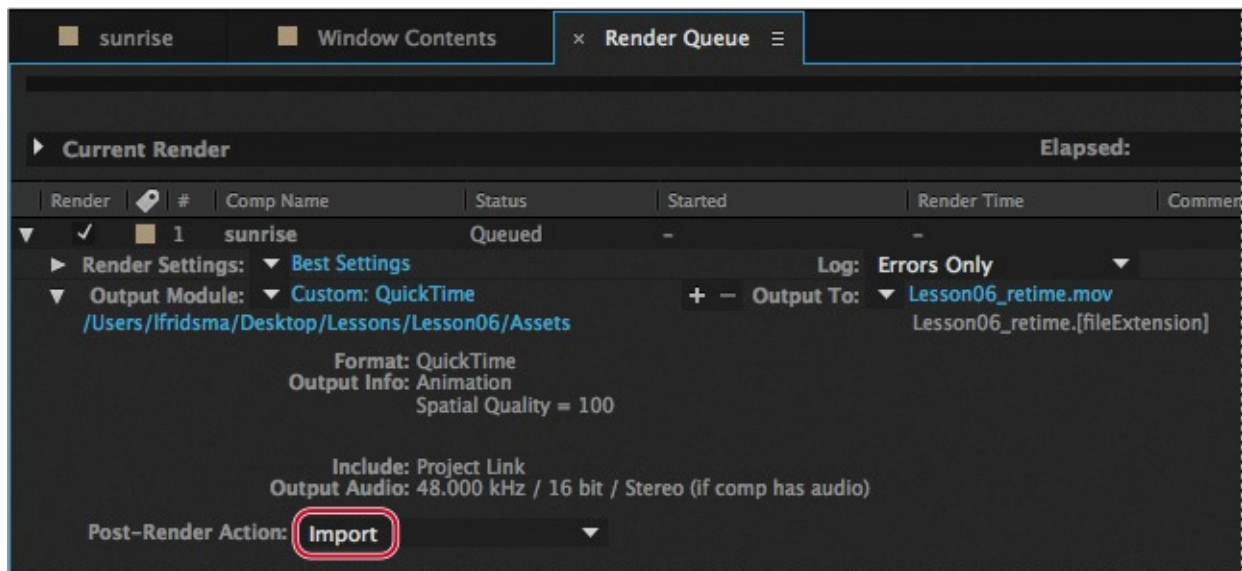
1. Select the sunrise composition in the Project panel, and then choose Composition > Add To Render Queue.

The Render Queue panel opens. Depending on the size of your screen, you may need to maximize the panel to see all the settings.

2. (Optional) Choose Panel Group Settings > Maximize Panel Group from the Render Queue panel menu to make the panel larger.
3. Accept the default Render Settings in the Render Queue panel. Then click the blue, italicized words *Not Yet Specified* next to the Output To pop-up menu.



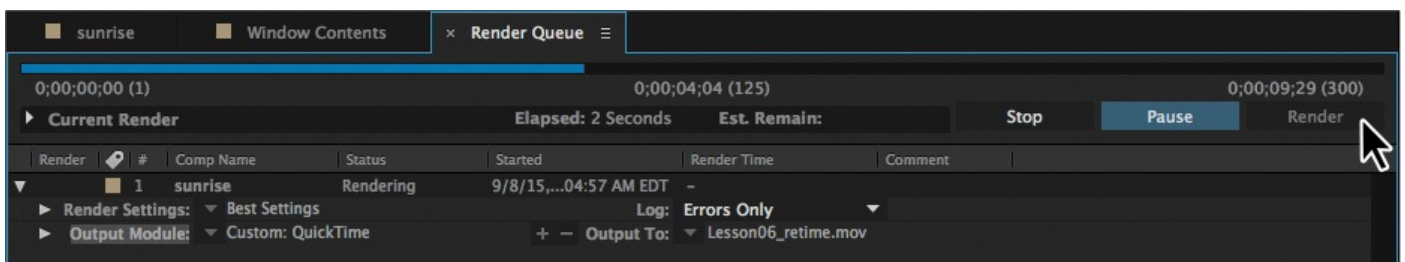
4. Navigate to the Lessons/Lesson06/Assets folder, and name the file **Lesson06\_retime.avi** (Windows) or **Lesson06\_retime.mov** (Mac OS). Then click Save.
5. Expand the Output Module group, and then choose Import from the Post-Render Action menu. After Effects will import the movie file after it's rendered.



6. Hide the Output Module section.

7. Click the Render button in the Render Queue panel.

After Effects displays a progress bar as it renders and exports the composition, and plays an audio alert when it is finished. It also imports the resulting movie file into the project.



8. When After Effects has finished rendering and exporting the composition, choose Panel Group Settings > Restore Panel Group Size from the Render Queue panel menu if you maximized the panel earlier, and then close the Render Queue panel.

## Retiming the composition

So far, you have created a straightforward time-lapse simulation. That's fine, but After Effects offers more ways to play with time using the time-remapping feature. Time remapping lets you dynamically speed up, slow down, stop, or reverse footage. You can also use it to do things like create a freeze-frame result. The Graph Editor and the Layer panel are a big help when remapping time, as you'll see in the following exercise, when you retime the project so that the time-lapse speed changes over the course of the movie.

### Tip

You can get even finer control with the Timewarp effect, which you'll use in [Lesson 13, "Advanced Editing Techniques."](#)

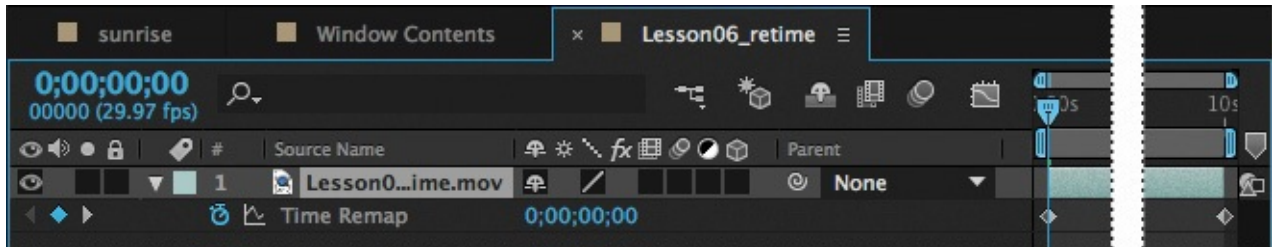
For this exercise, you'll use the movie that you just imported as the basis of a new composition, which will be easier to remap than the original.

1. Drag the Lesson06\_retime movie onto the Create A New Composition button (🎬) at the bottom of the Project panel.

After Effects creates a new composition named Lesson06\_retime, and displays it in the Timeline and Composition panels. Now you can remap all of the elements of the project at once.

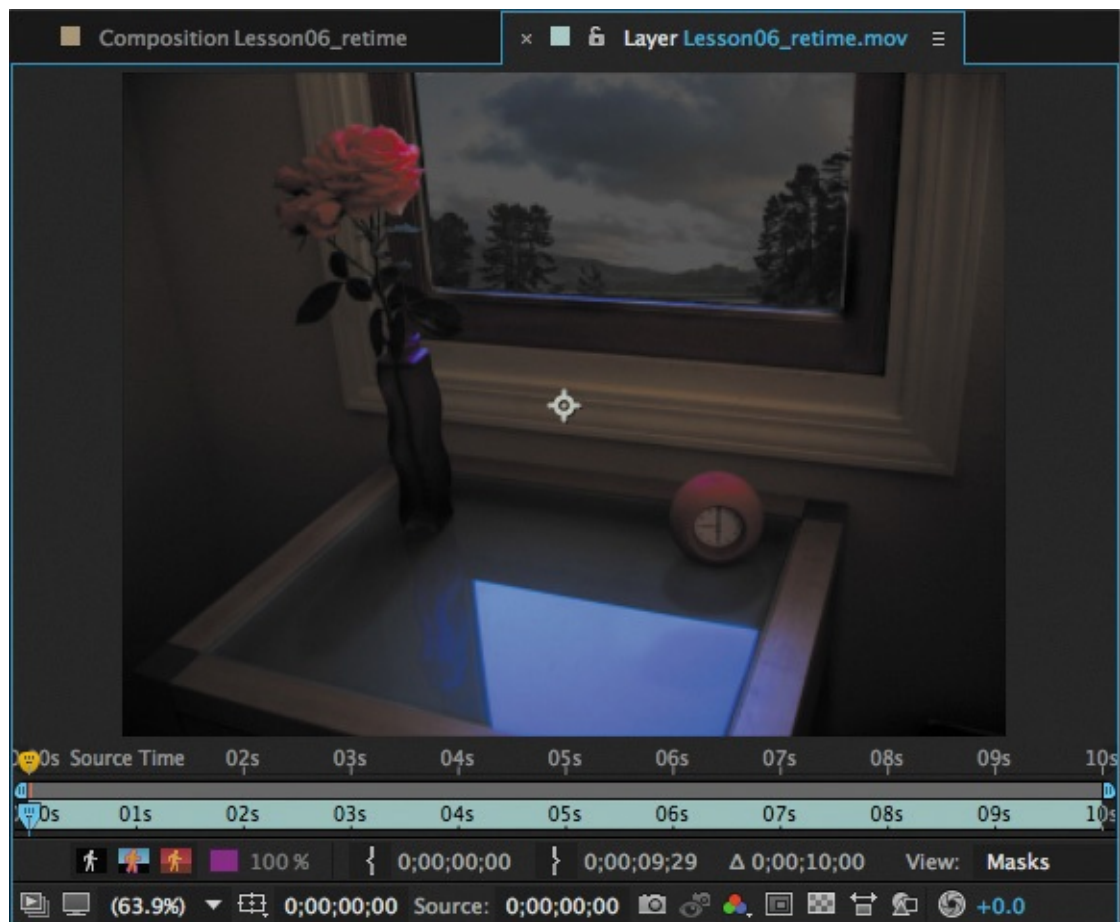
2. With the Lesson06\_retime layer selected in the Timeline panel, choose Layer > Time > Enable Time Remapping.

After Effects adds two keyframes, at the first and last frames of the layer, visible in the time ruler. A Time Remap property also appears under the layer name in the Timeline panel; this property lets you control which frame is displayed at a given point in time.



3. Double-click the Lesson06\_retime layer name in the Timeline panel to open it in the Layer panel.

The Layer panel provides a visual reference of the frames you change when you remap time. It displays two time rulers: The time ruler at the bottom of the panel displays the current time. The Source Time ruler, just above the time ruler, has a remap-time marker that indicates which frame is playing at the current time.

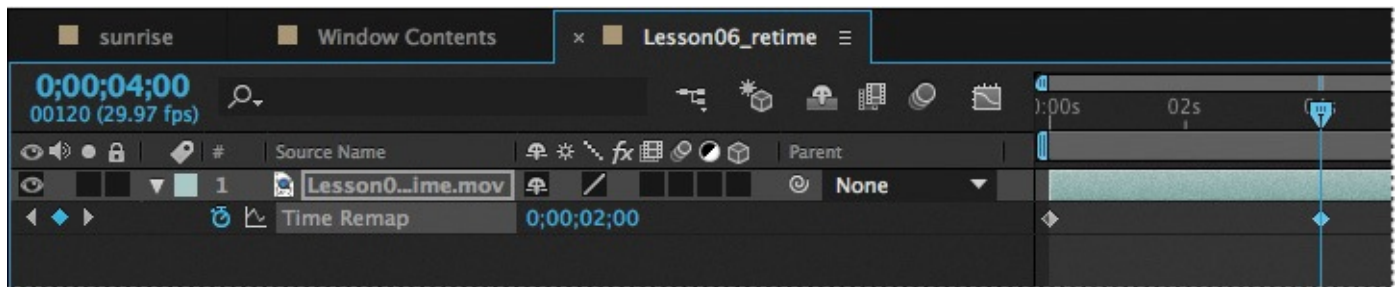


4. Drag the current-time indicator across the time ruler in the Timeline panel, and notice that the source-time and current-time markers in the two Layer panel rulers are synchronized. That will change as you remap time.



5. Go to 4:00, and change the Time Remap value to **2:00**.

This remaps time so that frame 2:00 plays at 4:00. In other words, the composition now plays back at half-speed for the first four seconds of the composition.

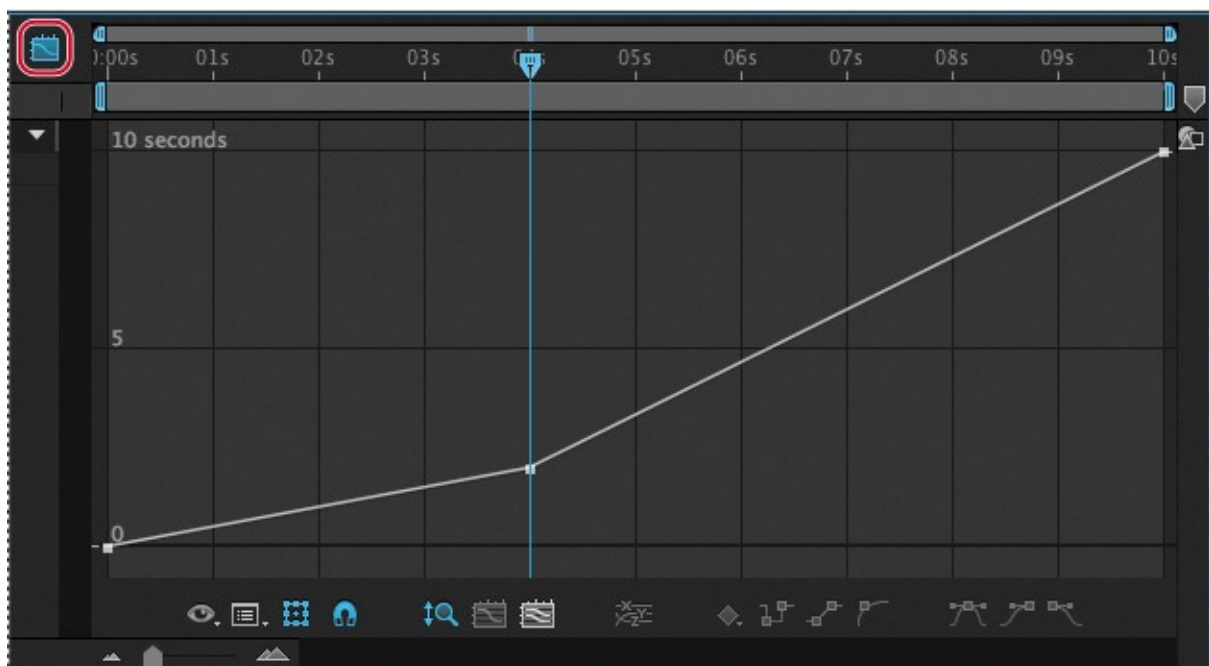


6. Press the spacebar to preview the animation. The composition now runs at half-speed until 4:00, and at a faster speed thereafter. Press the spacebar again when you have finished previewing the animation.

## Viewing time remapping in the Graph Editor

Using the Graph Editor, you can view and manipulate all aspects of effects and animations, including effect property values, keyframes, and interpolation. The Graph Editor displays changes in effects and animations as a two-dimensional graph, with playback time represented horizontally (from left to right). In layer bar mode, in contrast, the time ruler represents only the horizontal time element, without a graphical display of changing values.

1. Make sure the Time Remap property is selected for the Lesson06\_retime layer in the Timeline panel.
2. Click the Graph Editor button (📊) to display the Graph Editor.



The Graph Editor displays a time-remap graph that shows a white line connecting the keyframes at 0:00, 4:00, and 10:00. The angle of the line is shallow up to 4:00, and then becomes steeper. The steeper the line, the faster the playback time.

## Using the Graph Editor to remap time

When remapping time, you can use the values in the time-remap graph to determine and control which frame of the movie plays at which point in time. Each Time Remap keyframe has a time value associated with it that corresponds to a specific frame in the layer; this value is represented vertically on the time-remap graph. When you enable time remapping for a layer, After Effects adds a Time Remap keyframe at the start and end points of the layer. These initial Time Remap keyframes have vertical time values equal to their horizontal position.

By setting additional Time Remap keyframes, you can create complex motion effects. Every time you add a Time Remap keyframe, you create another point at which you can change the playback speed or direction. As you move the keyframe up or down in the time-remap graph, you adjust which frame of the video is set to play at the current time.

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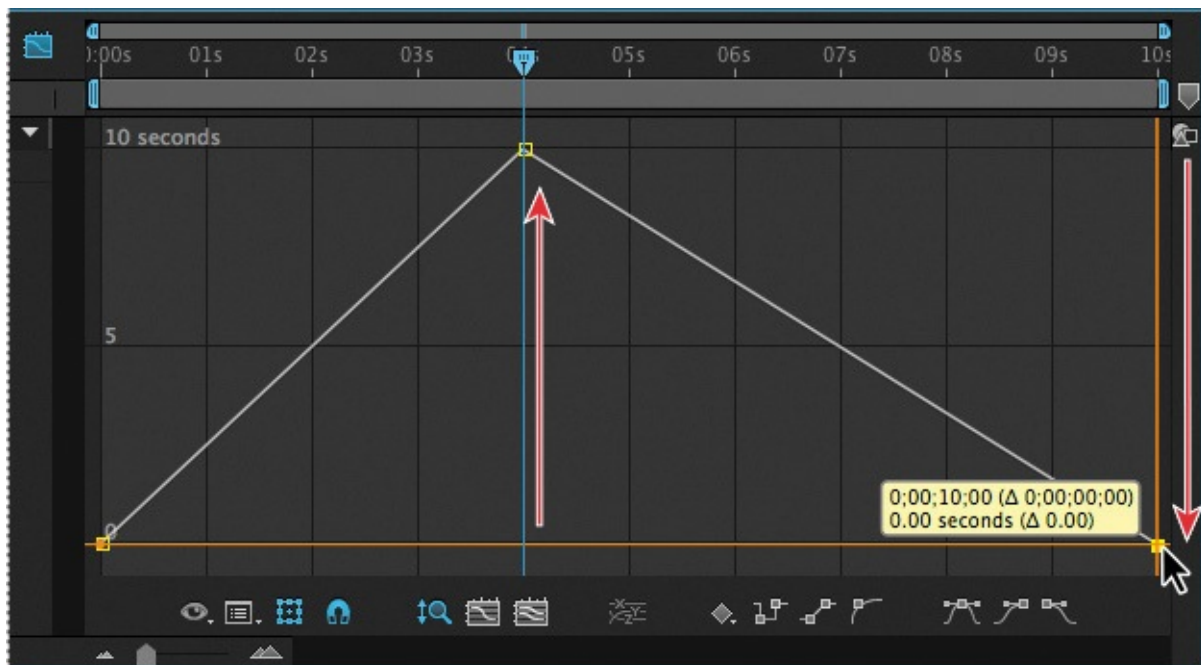
### ► Tip

Watch the Info panel as you drag to see more information as you adjust the keyframe.

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You'll have some fun with the timing of this project.

1. In the time-remap graph, drag the middle keyframe vertically from 2 up to 10 seconds.
2. Drag the last keyframe down to 0 seconds.



3. Go to 0:00, and then press the spacebar to preview the results. Watch the time ruler and Source Time ruler in the Layer panel to see which frames are playing at any given point in time.

The animation progresses rapidly over the first four seconds of the composition, and then plays in reverse for the rest of the composition.

4. Press the spacebar to stop the preview.

Having fun yet? Keep going.

5. Ctrl-click (Windows) or Command-click (Mac OS) the last keyframe to delete it. The composition is still in fast-forward mode for the first 4 seconds, but now it holds on a single frame (the last frame) for the rest of the composition.
6. Press the Home key or move the current-time indicator to the beginning of the time ruler, and then press the spacebar to preview the animation. Press the spacebar again when you're done.
7. Ctrl-click (Windows) or Command-click (Mac OS) the dotted line at 6:00 to add a keyframe at 6:00 with the same value as the keyframe at 4:00.

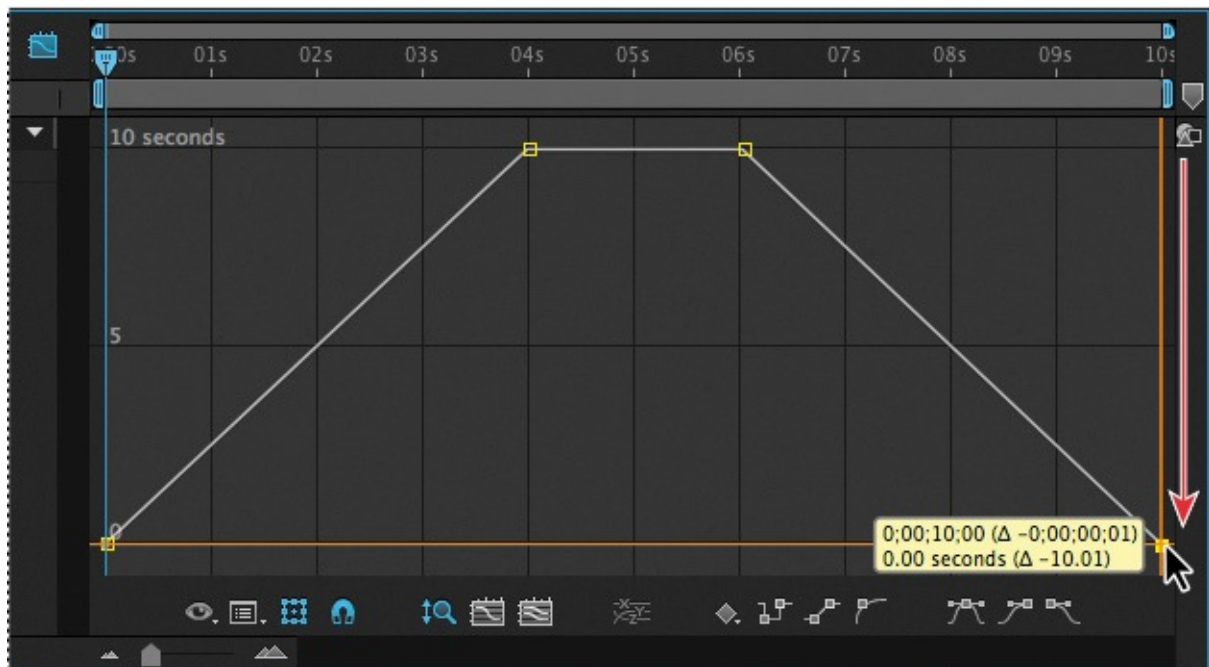
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### ● Note

Pressing Ctrl or Command temporarily activates the Add Vertex tool.

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8. Ctrl-click (Windows) or Command-click (Mac OS) at 10:00 to add another keyframe, and then drag it down to 0 seconds.



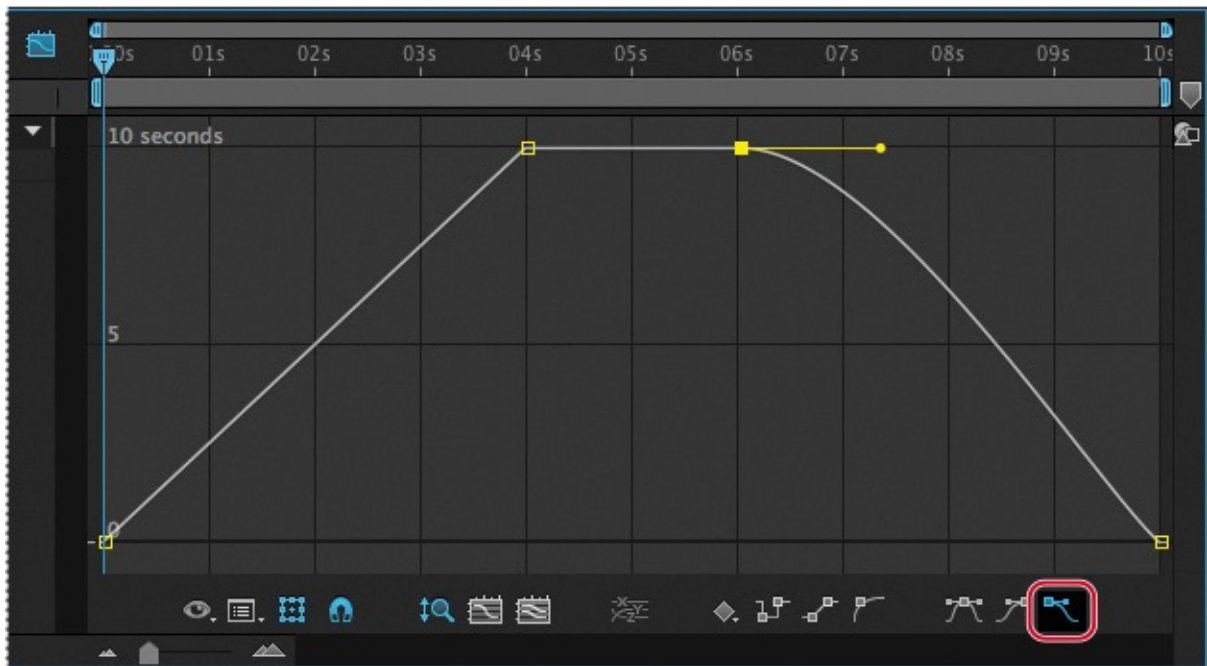
The animation progresses rapidly, holds for two seconds on the last frame, and then runs in reverse.

9. Go to the beginning of the composition, and then press the spacebar to preview the change. Press the spacebar again when you're done.

## Adding an Easy Ease Out

Soften the shift in time that occurs at 6 seconds with an Easy Ease Out.

1. Click to select the keyframe at 6:00, and then click the Easy Ease Out button (⌘) at the bottom of the Graph Editor. This slows the shift into reverse—the footage runs slowly in reverse at first, and then gradually speeds up.



2. Choose File > Save to save your work so far.

#### ► Tip

You can refine the amount of ease on this transition further by dragging the Bezier handle that appears out of the right side of the keyframe at 6:00. If you drag it to the right, the transition is softer; if you drag it down or to the left, the transition is more pronounced.

## Scaling the animation in time

Finally, use the Graph Editor to scale the entire animation in time.

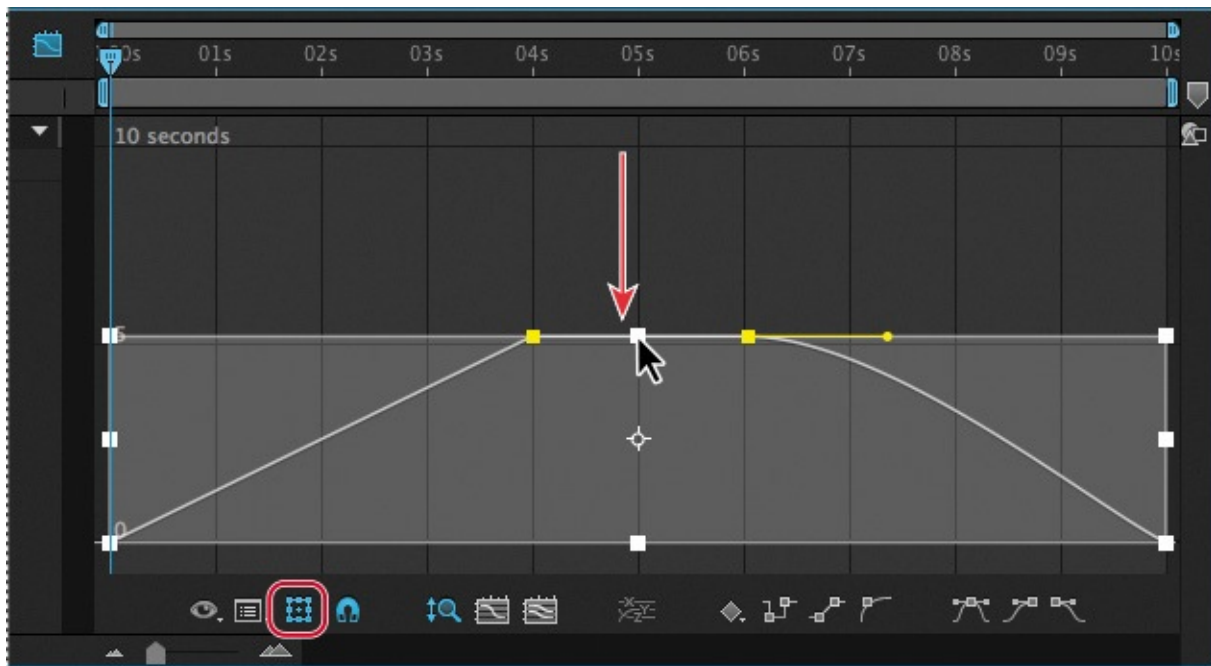
1. Click the Time Remap property name in the Timeline panel to select all of the Time Remap keyframes.
2. Make sure the Show Transform Box button (⌘) at the bottom of the Graph Editor is selected; a free-transform selection box should be visible around all of the keyframes.

#### ► Tip

If you press Ctrl (Windows) or Command (Mac OS) while you drag, the entire free-transform box scales around the center point, which you can also drag to offset. If you press Alt (Windows) or Option (Mac OS) and drag one corner of the free-transform box, the animation is skewed in that corner as you drag. You can also drag one of the right transform handles to the left to scale the entire animation so that it happens more quickly.

3. Drag one of the upper transform handles from 10 seconds to 5 seconds.





The entire graph shifts, reducing the top keyframe values and slowing playback.

4. Press the Home key or move the current-time indicator to the beginning of the time ruler, and then press the spacebar to preview the change. Press the spacebar again when you're done.
5. Choose File > Save.

Congratulations. You've completed a complex animation, including shifts in time. You can render and export the time-remap project if you'd like. Follow the instructions in [“Rendering the animation”](#) in this lesson, or see [Lesson 14, “Rendering and Outputting,”](#) for detailed instructions on rendering and exporting a composition.

## Review questions

1. Why would you import a layered Photoshop file as a composition?
2. What is the pick whip, and how do you use it?
3. What is a track matte, and how do you use it?
4. How do you remap time in After Effects?

## Review answers

1. When you import a layered Photoshop file into After Effects as a composition, After Effects preserves the layer order, transparency data, and layer styles from the source Photoshop document. It also preserves other features, such as adjustment layers and type.
2. The pick whip creates expressions that link the values of one property or effect to another layer. The pick whip is also a way to create parenting relationships. To use the pick whip, simply drag the pick whip icon from one property to another.
3. When you want one layer to show through a hole in another layer, you can use a track matte. To create a track matte, you need two layers: one to act as a matte, and

another to fill the hole in the matte. You can animate either the track matte layer or the fill layer. When you animate the track matte layer, you create a traveling matte.

4. There are several ways to remap time in After Effects. Time remapping lets you dynamically speed up, slow down, stop, or reverse footage. When remapping time, you can use the values in the time-remap graph in the Graph Editor to determine and control which frame of the movie plays at which point in time. When you enable time remapping for a layer, After Effects adds a Time Remap keyframe at the start and end points of the layer. By setting additional Time Remap keyframes, you can create complex motion effects. Every time you add a Time Remap keyframe, you create another point at which you can change the playback speed or direction.