



Adobe Animate

2022
release



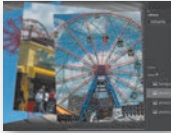
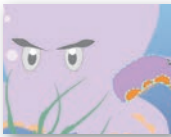
Classroom in a Book[®]

The official training workbook from Adobe

Russell Chun

FREE SAMPLE CHAPTER

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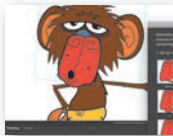
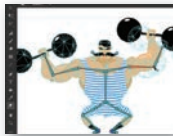

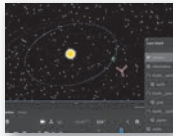


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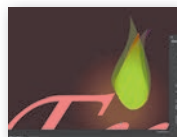
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BONUS LESSON WORKING WITH SOUND AND VIDEO ONLINE

3

ANIMATING SYMBOLS WITH MOTION TWEENS

Lesson overview

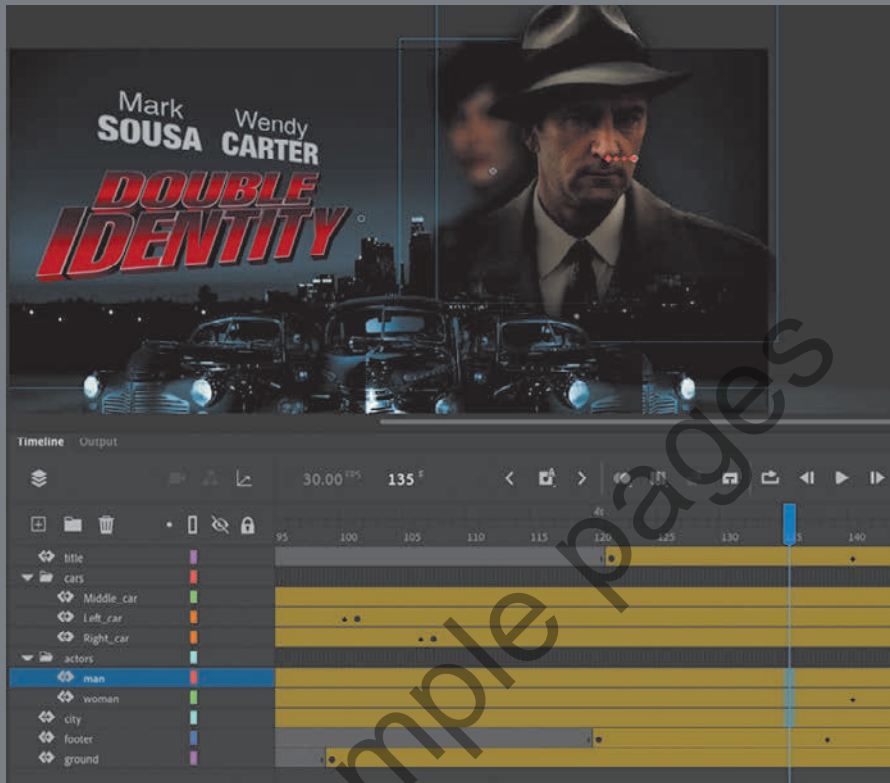
In this lesson, you'll learn how to do the following:

- Animate the position, scale, and rotation of objects using motion tweening.
- Adjust the pacing and timing of your animation.
- Animate transparency and filters.
- Change the path of an object's motion.
- Create a nested animation.
- Split a motion tween.
- Change the easing of an object's motion.
- Animate in 3D space.



This lesson will take about 2 hours to complete.

To get the lesson files used in this chapter, download them from the web page for this book at www.adobepress.com/AnimateCIB2022. For more information, see “Accessing the lesson files and Web Edition” in the Getting Started section at the beginning of this book.



Use Adobe Animate to change almost any aspect of an object—position, color, transparency, size, rotation, and more—over time. Motion tweening is a basic technique for creating animation with symbol instances.

Getting started

● **Note** If you have not already downloaded the project files for this lesson to your computer from your Account page, make sure to do so now. See “Getting Started” at the beginning of the book.

Start by viewing the finished movie file to see the animated title page that you’ll create in this lesson.

- 1 Double-click the 03End.mp4 file in the Lesson03/03End folder to play the final animation, which was exported as a high-definition video file.



The project is an animated opener that would be placed on a website for an imaginary soon-to-be-released motion picture. In this lesson, you’ll use motion tweens to animate several components on the page: the cityscape, the main actors, several old-fashioned cars, and the main title.

- 2 Close the 03End.mp4 file.
- 3 Double-click the 03Start.fla file in the Lesson03/03Start folder to open the initial project file in Animate. This file is an ActionScript 3.0 document that is partially completed and already contains many of the graphic elements imported into the library for you to use. You’ll use all the animation functionality available in an ActionScript 3.0 document and then export an MP4 video file.
- 4 From the view options above the Stage, choose Fit In Window, or choose View > Magnification > Fit In Window, so that you can see the entire Stage on your computer screen.
- 5 Choose File > Save As. Name the file **03_workingcopy.fla**, and save it in the 03Start folder.

Saving a working copy ensures that the original start file will be available if you want to start over.

About animation

Animation is the change of an object’s appearance over time. Animation can be as simple as moving a ball across the Stage, which is a change in the object’s position. It can also be much more complex. As you’ll see in this lesson, you can animate many different properties of an object. In addition to an object’s position, you can change its color or transparency, change its size or rotation, or even animate the filters that you saw in the previous lesson. You also have control over an object’s path of motion and even its *easing*, which is the way an object accelerates or decelerates its property changes.

In Animate, the basic workflow for animation goes like this: Select an object on the Stage and choose Create Motion Tween. Move the playhead to a different point in time and move the object to a new position or change one of its properties. Animate takes care of the rest by smoothly interpolating the changes between the two points in time.

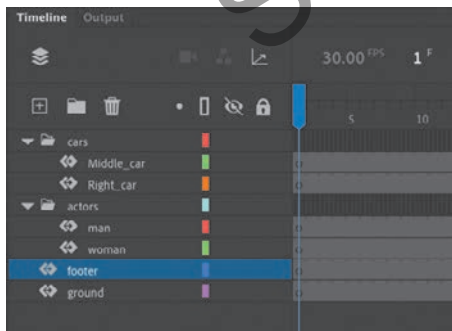
Motion tweens create animation for changes in position on the Stage and for changes in size, color, or other attributes. Motion tweens require you to use a symbol instance. If the object you’ve selected is not a symbol instance, Animate will automatically ask to convert the selection to a symbol.

Animate also automatically separates motion tweens onto their own layers, which are called tween layers. There can be only one motion tween per layer, and there can be no other element on the layer. Tween layers allow you to change various attributes of your instance at different key points over time. For example, a spaceship could be very small on the left side of the Stage at the beginning keyframe and much larger at the far-right side of the Stage at an ending keyframe, and the resulting tween would make the spaceship both fly across the Stage and slowly grow in size.

Note The term “tween” comes from the world of classic animation. Senior animators would be responsible for drawing the beginning and ending poses for their characters. The beginning and ending poses were the keyframes of the animation. Junior animators would then come in and draw the “in-between” frames, or do the “in-betweening.” Hence, “tweening” refers to the smooth transitions between keyframes.

Understanding the project file

The 03Start.fla file contains a few of the animated elements already or partially completed. Each of the six layers—man, woman, Middle_car, Right_car, footer, and ground—contains an animation. The man and woman layers are in a folder called actors, and the Middle_car and Right_car layers are in a folder called cars.

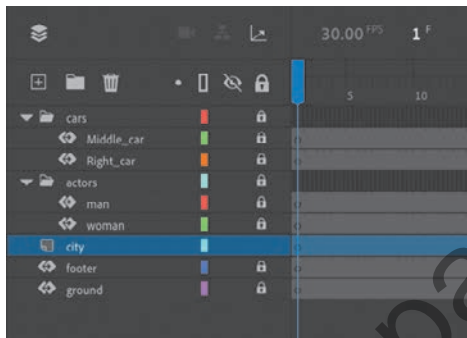


You'll be adding more layers to create an animated cityscape, refining the animation of one of the actors and adding a third car and a 3D title. All the necessary graphic elements have been imported into the library. The Stage is set at a standard HD size, 1280 pixels by 720 pixels, and the Stage color is black. You might need to choose a different view option to see the entire Stage.

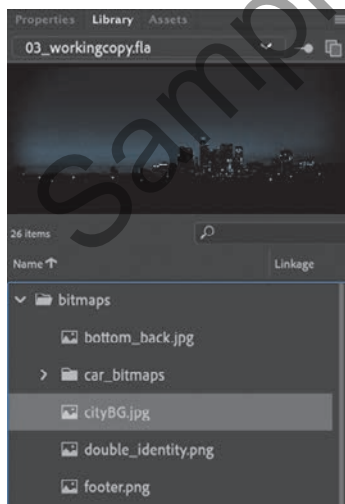
Animating position

You'll start this project by animating the cityscape. It will begin slightly lower than the top edge of the Stage and then rise slowly until its top is aligned with the top of the Stage.

- 1 Lock all the existing layers so you don't accidentally modify them. Create a new layer above the footer layer and rename it **city**.

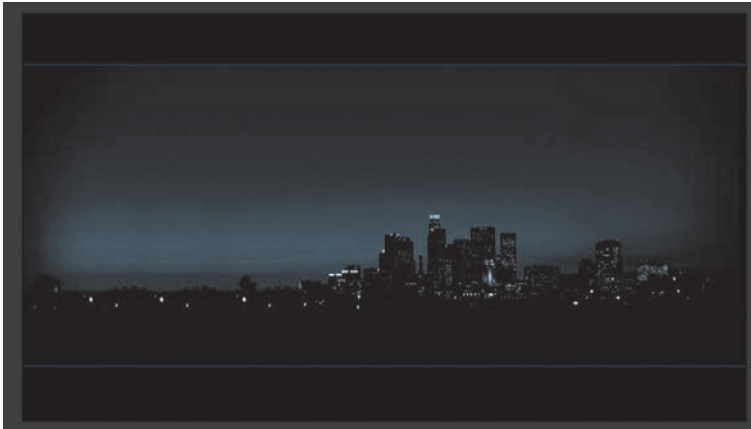


- 2 Drag the bitmap image called **cityBG.jpg** from the bitmaps folder in the Library panel to the Stage in frame 1 of the city layer.

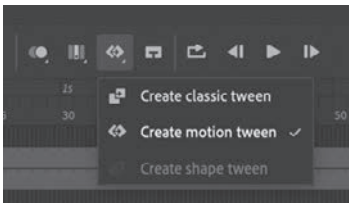


- 3 In the Properties panel, set the value of X to **0** and the value of Y to **90**.

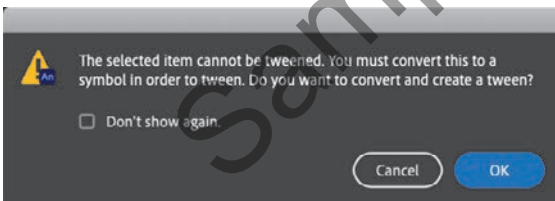
This positions the cityscape image just slightly below the top edge of the Stage.



- 4 Select the cityscape image and choose Create Motion Tween above the timeline, or right-click and choose Create Motion Tween, or choose Insert > Create Motion Tween.



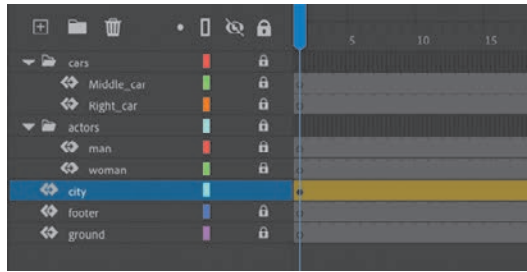
- 5 A dialog box appears warning you that your selected object is not a symbol. Motion tweens require symbols. Animate asks if you want to convert the selection to a symbol so that it can proceed with the motion tween. Click OK.



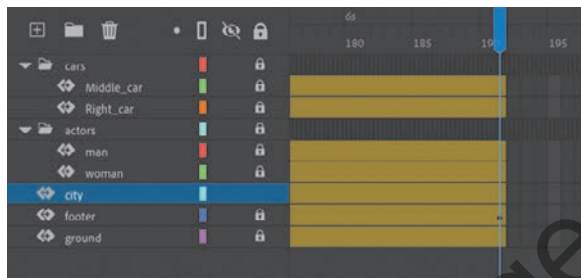
Tip Although in this task you had Animate automatically convert your object into a symbol for tweening, it's best practice to do it yourself before animating. That way, you control the naming and choice of the symbol yourself and have a better understanding of all your assets in your library.

Animate automatically converts your selection to a symbol, with the default name Symbol 1, and stores it in your library. Animate also converts the current layer to a tween layer so that you can begin to animate the instance. Tween layers are distinguished by a special icon in front of the layer name, and the frames are tinted gold in the timeline. The range of frames covered by the tween is the tween span. The tween span is represented by all the colored frames from the

first keyframe to the last keyframe. Tween layers are reserved for motion tweens; hence, no drawing is allowed on a tween layer.



- 6 Move the blue playhead to the end of the tween span, at frame 191.



- 7 Select the instance of the cityscape on the Stage, and while holding down the Shift key, move the instance up the Stage.

Holding down the Shift key constrains the movement to the vertical or horizontal direction.

- 8 For more precision, set the value of Y to **0.0** in the Properties panel.

A small black diamond appears in frame 191 at the end of the tween span. This indicates a keyframe at the end of the tween.

Animate smoothly interpolates the change in position from frame 1 to frame 191 and represents that motion with a motion path on the Stage.

► **Tip** Temporarily hide all the other layers to isolate the cityscape and to better see the results of the motion tween.



- 9 Drag the playhead back and forth at the top of the timeline to see the smooth motion. You can also choose Control > Play (or press Return/Enter) to make Animate play the animation.

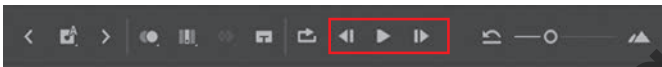
Animating changes in position is simple because Animate automatically creates keyframes at the points where you move your instance to new positions. If you want to have an object move to many different points, simply move the playhead to the desired frame and then move the object to its new position. Animate takes care of the rest.

Tip Remove a motion tween by selecting the tween and clicking Remove Tween in the Frame tab of the Properties panel. You can also right-click the motion tween on the timeline or the Stage and choose Remove Motion Tween.

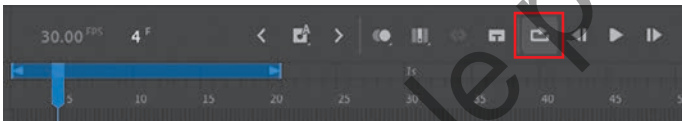
Previewing the animation

Integrated into the Timeline panel is a set of playback controls. These controls allow you to play, rewind, loop, or go step by step backward or forward through your timeline to review your animation in a controlled manner. You can also use the playback commands on the Control menu.

- 1 Click any of the playback buttons on the controller above the timeline to play, stop, or step forward or backward one frame. Hold the Step Forward or Step Backward button to move the playhead to the last or first frame.



- 2 Select the Loop button (to the left of the controller), and then click the Play button.



The playhead loops, allowing you to see the animation over and over for careful analysis.

- 3 Move the start or end markers in the timeline header to define the range of frames that you want to see looped.

The playhead loops within the marked frames. Click the Loop button again to turn it off.

Tip You can also use the Time Scrub tool (hidden under the Hand tool) to move back and forth on the timeline to preview your animation. Select the Time Scrub tool (or hold down Spacebar+T) and drag left and right on the Stage.

Changing the pacing and timing

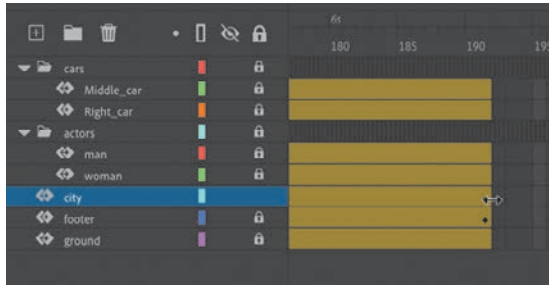
You can change the duration of the entire tween span or change the timing of the animation by dragging keyframes on the timeline.

Changing the animation duration

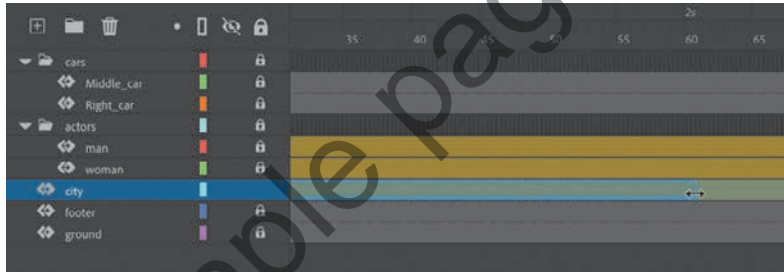
If you want the animation to proceed at a slower pace (and thus take up a much longer period of time), you need to lengthen the entire tween span between the beginning and end keyframes. If you want to shorten the animation, you need to decrease the tween span. Lengthen or shorten a motion tween by dragging its ends on the timeline.

- 1 Move your mouse pointer close to the end of the tween span in the city layer.

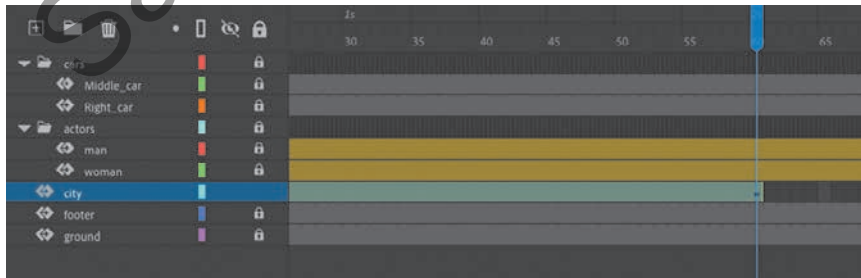
Your pointer changes to a double-headed arrow, indicating that you can lengthen or shorten the tween span.



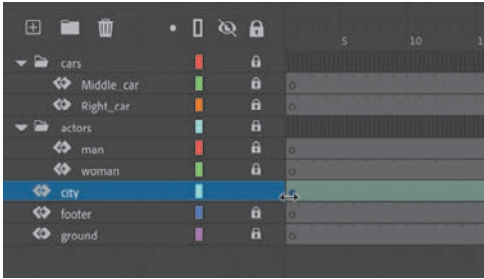
- 2 Drag the end of the tween span back to frame 60.



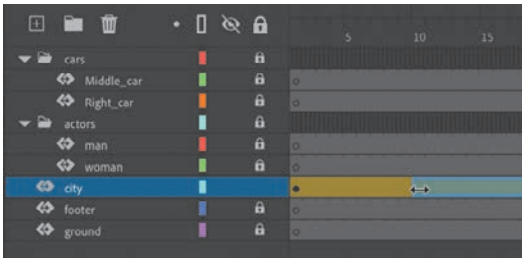
Your motion tween shortens to 60 frames, reducing the time it takes the cityscape to move.



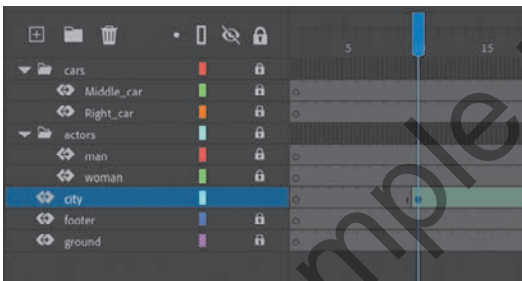
- 3 Move your pointer close to the beginning of the tween span (at frame 1).



- 4 Drag the beginning of the tween span forward to frame 10.



Your motion tween begins at a later time, so it now plays only from frame 10 to frame 60.



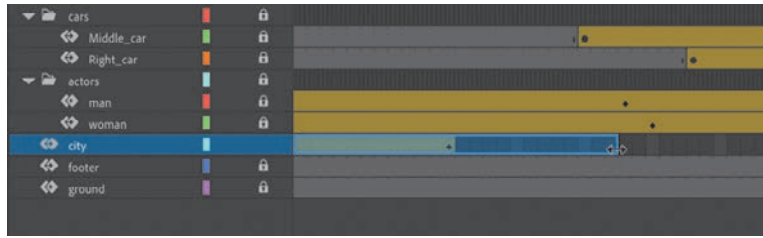
Adding frames

You'll want the last keyframe of your motion tween to hold for the remainder of the animation. Add frames by Shift-dragging the end of a tween span.

- 1 Move your pointer close to the end of the tween span.

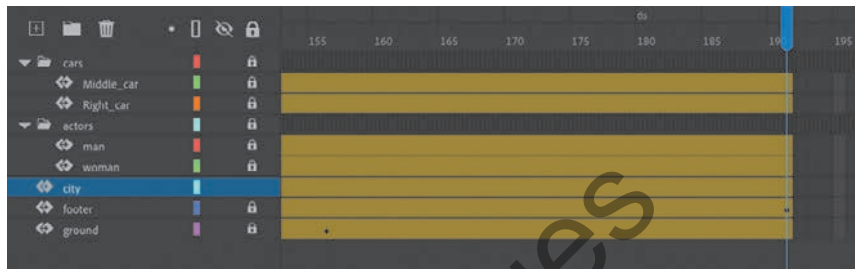
Note If you have multiple keyframes in a tween, changing the length of the tween span by dragging one end or the other will distribute all your keyframes uniformly. The relative timing of events in your animation remains the same; only the length changes.

- 2 Hold down the Shift key and drag the end of the tween span forward to frame 191. Make sure that your tween span is *not* selected.



► **Tip** You can also add individual frames by choosing Insert > Timeline > Frame (F5) or remove individual frames by choosing Edit > Timeline > Remove Frames (Shift+F5).

The last keyframe in the motion tween remains at frame 60, but Animate adds frames through frame 191.

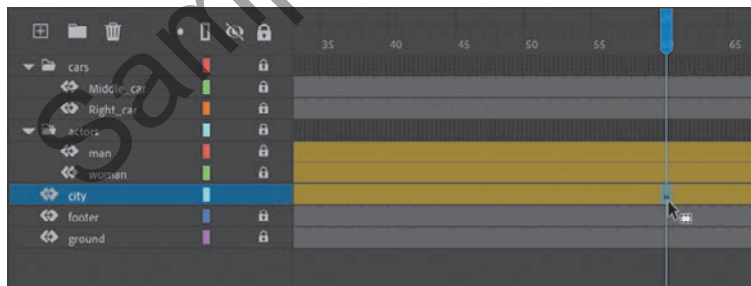


Moving keyframes

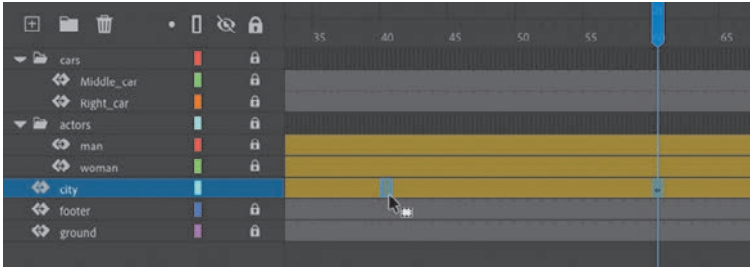
If you want to change the pacing of an animation, you can select individual keyframes and then drag them to new positions.

- 1 Click the keyframe at frame 60.

The keyframe at frame 60 is selected. Begin dragging the keyframe. A tiny box appears next to your mouse pointer, indicating that you can move the keyframe.



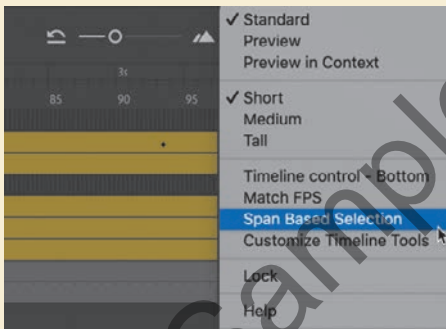
- 2 Drag the keyframe to frame 40.



Now, because the last keyframe in the motion tween is reached earlier in the animation, the motion of the cityscape proceeds more quickly.

Span-based vs. frame-based selection

By default, Animate uses frame-based selection, which means you can select individual frames within a motion tween. However, if you prefer to click a motion tween and have the entire span (the beginning and end keyframes and all the frames in between) be selected, you can enable Span Based Selection from the Frame View menu in the upper-right corner of the Timeline panel (or you can Shift-click to select the entire span).



With Span Based Selection enabled, you can click anywhere within the motion tween to select it, and move the whole animation backward or forward along the timeline as a single unit.

If you want to select individual keyframes while Span Based Selection is enabled, hold down Command/Ctrl and click a keyframe.

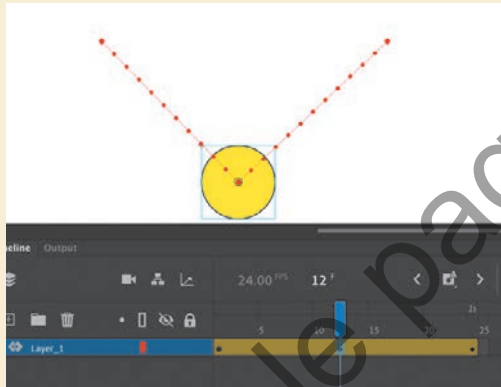
Moving keyframes vs. changing time in tween spans

Managing the timing of your animation by moving keyframes and stretching or squashing tween spans can sometimes be frustrating because you will get different outcomes depending on what you've selected on the timeline and how you drag those selections.

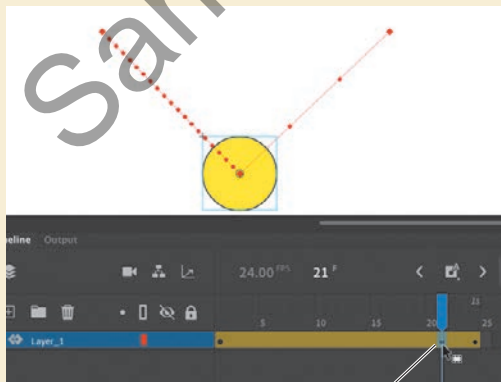
If you want to simply move the location of a keyframe within a tween span, make sure that only a single keyframe is selected and that the tiny box appears next to your pointer as you begin dragging the keyframe to a new location.

If you want to select individual keyframes while Span Based Selection is enabled, hold down the Command/Ctrl key and click a keyframe.

Consider the following animation, where a ball moves from the left side of the Stage to the bottom edge and then to the right side, making a figure "V." On the timeline, three keyframes mark the three positions of the ball.

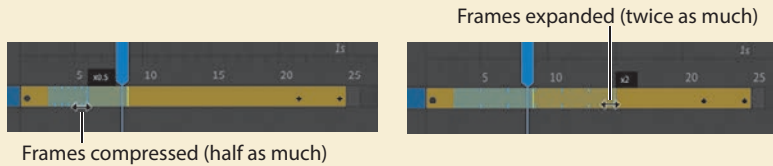


Moving the middle keyframe changes the timing of when the ball hits the bottom of the Stage.



Keyframe moved

When you select a span of frames within a tween, you can compress or expand its duration by dragging the selection when the double-headed arrow appears near the right edge of the selection. A black flag appears indicating when the amount of compression or expansion is a multiple of the original length (x0.5, x2, x4, etc.).



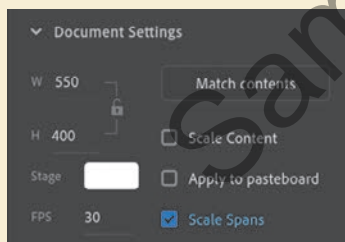
Understanding frame rate

The speed of your animation is tied to the frame rate of your document (shown in the Properties section of the Properties panel with the Document tab selected), but do not modify the frame rate to change the speed or duration of your animation.

The frame rate determines how many frames on the timeline make up 1 second of time. The default is either 30 or 24 frames per second (fps). The seconds are marked on the timeline. Frame rate is a measure of how smooth an animation appears—the higher the frame rate, the more frames there are to show the action. Animations at slower frame rates appear choppy because there are fewer frames to show the action. Slow-motion videography depends on very high frame rates to capture action that happens very quickly, such as a speeding bullet or a falling water droplet.

If you want to modify the overall duration or speed of your animation, don't change the frame rate. Instead, add frames to, or delete frames from, your timeline.

If you want to change the frame rate but keep the overall duration constant, select the Scale Spans option in the Properties panel before you modify the frame rate.

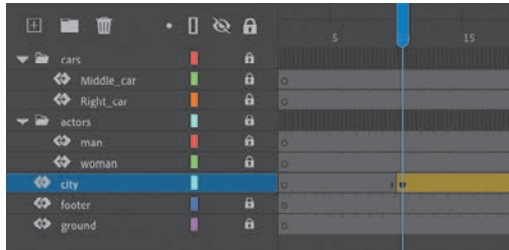


Animating transparency

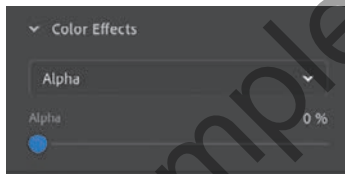
In the previous lesson, you learned how to change the color effect of any symbol instance to change the transparency, tint, or brightness. You can change the color effect of an instance in one keyframe and change the value of the color effect in another keyframe, and Animate will automatically display a smooth change, just as it does with changes in position.

You'll change the cityscape in the beginning keyframe to be totally transparent but keep the cityscape in the ending keyframe opaque. Animate will create a smooth fade-in effect.

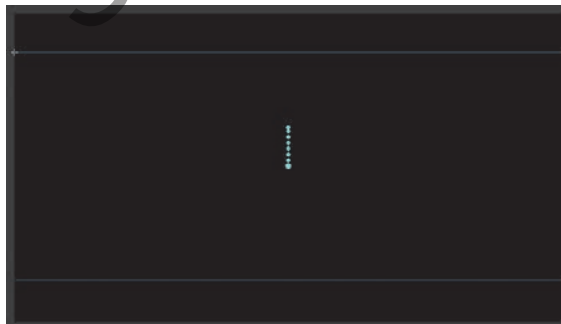
- 1 Move the playhead to the first keyframe of the motion tween (frame 10).



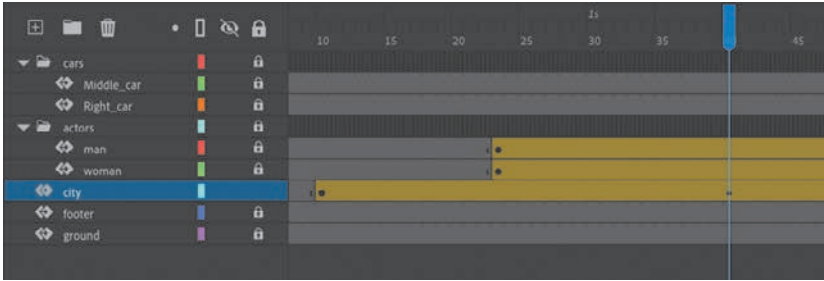
- 2 Select the cityscape instance on the Stage.
- 3 In the Color Effects section of the Properties panel, choose Alpha from the Style menu.
- 4 Set the Alpha value to 0%.



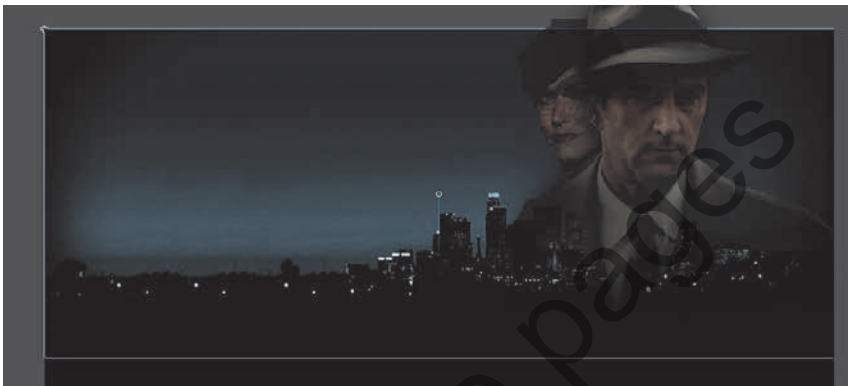
The cityscape instance on the Stage becomes totally transparent, but you can still see the blue bounding box around it.



- 5 Move the playhead to the last keyframe of the motion tween (frame 40).



- 6 Make sure that the cityscape instance on the Stage is still selected.
- 7 In the Properties panel, in the Color Effects section, set the Alpha value to **100%**. The cityscape instance on the Stage becomes totally opaque.



- 8 Preview the effect by choosing Control > Play (or pressing Return/Enter). Animate interpolates the changes in both position and transparency between the two keyframes.

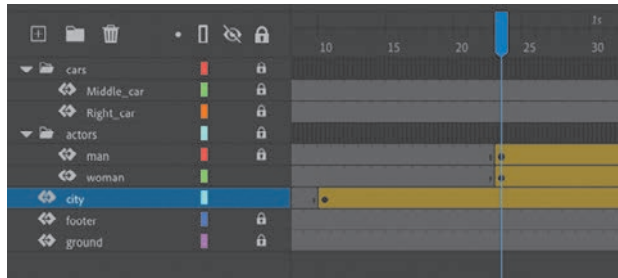
Animating filters

Filters, which give instances special effects such as blurs and drop shadows, can also be animated. You'll next refine the motion tween of the actors by applying a blur filter to one of them to make it appear as if the camera changes focus. Animating filters is no different from animating changes in position or changes in color effect. You simply set the values for a filter at one keyframe and set different values for the filter at another keyframe, and Animate creates a smooth transition.

- 1 Make sure that the actors layer folder on the timeline is visible.
- 2 Unlock the woman layer.

Note Filters can be applied, but not animated, in an HTML5 Canvas document.

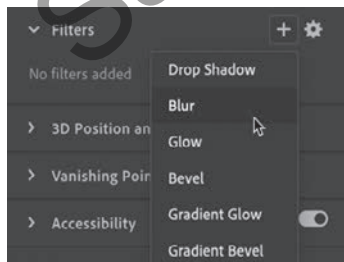
- 3 Move the playhead to the beginning keyframe of the motion tween in the woman layer, at frame 23.



- 4 Select the instance of the woman on the Stage. You won't be able to see her because she has an alpha value of 0% (totally transparent). Click the upper-right side of the Stage to select the transparent instance. Or click frame 23 in the woman layer in the timeline to highlight it, then click the Object tab in the Properties panel.



- 5 In the Properties panel, click the Add Filter (+) button in the Filters section, and choose Blur from the menu to add a blur to the instance.

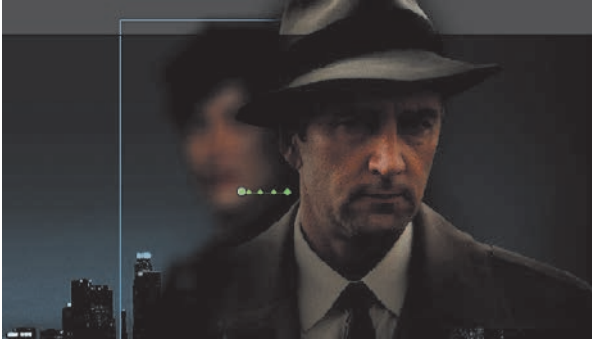


- 6 In the Filters section of the Properties panel, select the link icon to apply equal values to the x and y directions if it isn't already selected. Set the Blur X value to **20** pixels.

The Blur Y value also changes to 20 pixels.

- 7 Move the playhead along the entire timeline to preview the animation.

The woman instance is blurred throughout the motion tween.

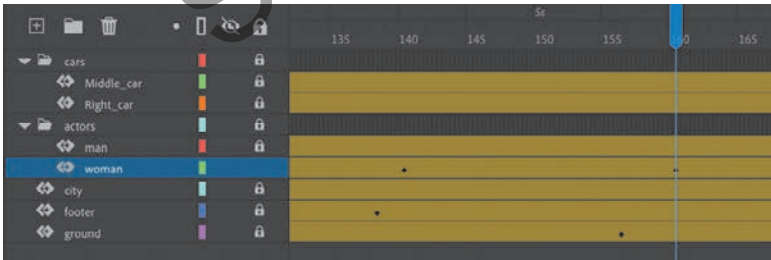


- 8 Select frame 140 in the woman layer and choose Insert Keyframe above the timeline.

Animate establishes a keyframe at frame 140.



- 9 Select frame 160 of the woman layer and choose Insert Keyframe above the timeline to add another keyframe.

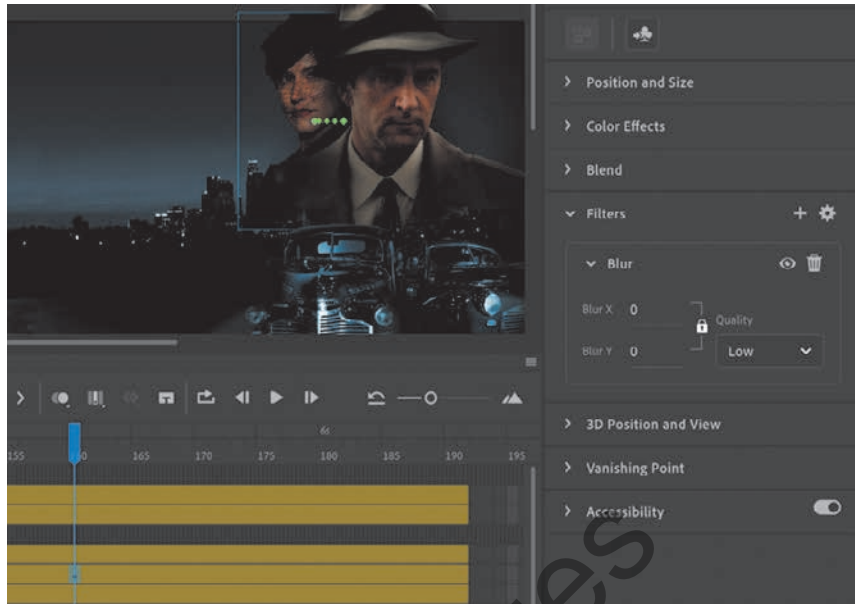


► **Tip** Click the Enable or Disable Filter button in the Filters section of the Properties panel to toggle the visibility of the filter effect on your animation to make your work easier. The Enable or Disable Filter option doesn't affect the final exported animation, however.

► **Tip** You can add more than one filter to an animation. Drag the filters to rearrange the order in which they appear in the Properties panel, or collapse each filter to save space in the panel.

10 Select the Object tab of the Properties panel.

11 In the Properties panel, change the value of the Blur filter to X=0 and Y=0.



The Blur filter changes from the keyframe at frame 140 to the keyframe at 160. Animate creates a smooth transition from a blurry instance to an in-focus instance.

Understanding property keyframes

Changes in properties are independent of one another and do not need to be tied to the same keyframes. That is, you can have a keyframe for position, a different keyframe for the color effect, and yet another keyframe for a filter. Managing many different kinds of keyframes can become overwhelming, especially if you want different properties to change at different times during the motion tween. Fortunately, Animate provides a few helpful tools for keyframe management.

When viewing the tween span, you can choose to view the keyframes of only certain properties. For example, you can choose to view only the Position keyframes so that you can see when your object moves. Or you can choose to view only the Filter keyframes so that you can see when a filter changes. Right-click a motion tween in the timeline, choose View Keyframes, and then choose the desired property from the list. You can also choose All or None to see all the properties or none of the properties.