



CLASSROOM IN A BOOK

The official training workbook from Adobe

Russell Chun

Adobe Animate CC 2017 release

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CLASSROOM IN A BOOK[®]

The official training workbook from Adobe



Adobe Animate CC Classroom in a Book[®] (2017 release)

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Getting Started

The 2017 release of Adobe Animate CC provides a comprehensive authoring environment for creating sophisticated animations and interactive, media-rich applications that you can publish to a variety of platforms. Animate CC is widely used in the creative industry to develop engaging projects integrating video, sound, graphics, and animation. You can create original content in Animate CC or import assets from other Adobe applications such as Photoshop or Illustrator, quickly design animation and multimedia, and use code to integrate sophisticated interactivity.

Use Animate CC to generate graphics and animation assets, to build innovative and immersive websites, to create stand-alone applications for the desktop, or to create apps to distribute to mobile devices running on the Android or iOS system.

With extensive controls for animation, intuitive and flexible drawing tools, and output options for HD video, HTML5, mobile apps, desktop applications, and Flash Player, Adobe Animate CC is a rare example of a robust multimedia authoring environment that enables your imagination to become reality.

About Classroom in a Book

Adobe Animate CC Classroom in a Book (2017 release) 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 so you can learn at your own pace. If you're new to Animate, you'll learn the fundamental concepts and features you'll need to use the program. Classroom in a Book also teaches many advanced features, including tips and techniques for using the latest version of this application.

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 correspond to your interests and needs. Each lesson concludes with review questions to reinforce what you've learned.

What's New

The 2017 release of Adobe Animate CC provides more expressive tools, powerful controls for animation, and robust support for a wider variety of playback platforms.

The lessons in this book provide opportunities to use some of the updated features and improvements in Animate CC, including

- The new Camera tool that puts you in the director's chair to frame the action with camera moves such as zooming and panning
- The expanded Paintbrush tool featuring flexible controls and customizations of Art and Pattern brushes for vector-based painterly effects
- Integration of Typekit and Google Web fonts in HTML5 Canvas projects
- Support for HTML5 video

- A new Framepicker for graphic symbols to provide better controls for character lip syncing
- Tagged swatches that allow quick and easy editing of colors
- Collaboration with other designers and with other Adobe applications through Creative Cloud libraries

Prerequisites

Before you begin using *Adobe Animate CC Classroom in a Book (2017 release)*, make sure your system is set up correctly and that you've installed the required software. 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.

In addition, you need to download the free Adobe AIR runtime, available at <u>get.adobe.com/air/</u>, to publish desktop applications in <u>Lesson 10</u>.

Installing Animate CC

You must purchase the Adobe Animate CC application as part of Adobe Creative Cloud. The following specifications are the minimum required system configurations.

Windows

- Intel[®] Pentium 4, Intel Centrino[®], Intel Xeon[®], or Intel Core[™] Duo (or compatible) processor
- Microsoft[®] Windows[®] 7 (64 bit), Windows 8.1 (64 bit), or Windows 10 (64 bit)
- 2 GB of RAM (8 GB recommended)
- 1024x900 display (1280x1024 recommended)
- 4 GB of available hard-disk space for installation; additional free space required during installation (cannot install on removable flash storage devices)
- Broadband Internet connection and registration are necessary for required software activation, validation of subscriptions, and access to online services.

Mac OS

- Multicore Intel[®] processor
- Mac OS X v10.10 (64-bit), 10.11 (64-bit), or 10.12 (64-bit)
- 2 GB of RAM (8 GB recommended)
- 1024x900 display (1280x1024 recommended)
- QuickTime 12.x software recommended
- 4 GB of available hard-disk space for installation; additional free space required during installation (cannot install on a volume that uses a case-sensitive file system or on removable flash storage devices)
- Broadband Internet connection and registration are necessary for required software

activation, validation of subscriptions, and access to online services.

For updates on system requirements and complete instructions on installing the software, visit <u>helpx.adobe.com/animate/system-requirements.html</u>.

Install Animate CC from Adobe Creative Cloud at <u>creative.adobe.com</u> and make sure that you have your login and password accessible.

Online Content

Your purchase of this Classroom in a Book includes online materials provided by way of your Account page on <u>peachpit.com</u>. These include:

Lesson files

To work through the projects in this book, you will need to download the lesson files from <u>peachpit.com</u>. You can download the files for individual lessons or it may be possible to download them all in a single file.

Web Edition

The Web Edition is an online interactive version of the book providing an enhanced learning experience. Your Web Edition can be accessed from any device with a connection to the Internet and it contains:

- The complete text of the book
- Hours of instructional video keyed to the text
- Interactive quizzes

In addition, the Web Edition may be updated when Adobe adds significant feature updates between major Creative Cloud releases. To accommodate the changes, sections of the online book may be updated or new sections may be added.

Accessing the Lesson files and Web Edition

If you purchased an eBook from <u>peachpit.com</u> or <u>adobepress.com</u>, your Web Edition will automatically appear under the Digital Purchases tab on your Account page. Click the Launch link to access the product. Continue reading to learn how to register your product to get access to the lesson files.

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The Lesson Files can be accessed through the Registered Products tab on your Account

page. Click the Access Bonus Content link below the title of your product to proceed to the download page. Click the lesson file links to download them to your computer.

Bonus material

We've provided additional material for both <u>Lessons 9</u> and <u>10</u> on <u>peachpit.com</u>. You'll find "<u>Working with Sound and Video—Supplement</u>" for <u>Lesson 9</u> and "<u>Publishing—Supplement</u>" for <u>Lesson 10</u> in your account once you register your book as described earlier in "<u>Accessing the Lesson files and Web Edition</u>". Download the supplements from the same page as the lesson files.

How to Use the Lessons

Each lesson in this book provides step-by-step instructions for creating one or more specific elements of a real-world project. Some lessons build on projects created in preceding lessons; most stand alone. All the lessons build on one another 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.

You will create and publish final project files, such as SWF files, HTML files, videos, or AIR desktop applications, in some lessons in this book. The files in the End folders (01End, 02End, and so on) within the Lesson folders are samples of completed projects 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 projects.

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

Additional Resources

Adobe Animate CC Classroom in a Book (2017 release) 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 Animate Learn and Support: helpx.adobe.com/animate.html is where you can find and browse Help and Support content on <u>Adobe.com</u>. You can also reach that page by choosing Help > Animate Help or Help > Animate Support Center or pressing F1. Visit <u>helpx.adobe.com/animate/topics.html</u> for documentation on individual features and to download a PDF of the Help file.

Adobe Creative Cloud Learn: For inspiration, key techniques, cross-product workflows, and updates on new features, go to the Creative Cloud Learn page, <u>helpx.adobe.com/creative-cloud/learn/tutorials.html</u>. Available to all.

Adobe Forums: <u>forums.adobe.com</u> lets you tap into peer-to-peer discussions, questions, and answers on Adobe products. The Adobe Animate CC forum is accessible by choosing Help > Adobe Online Forums.

Adobe Create: <u>create.adobe.com/</u> offers thoughtful articles on design and design issues, a gallery showcasing the work of top-notch designers, tutorials, and more.

Resources for educators: <u>www.adobe.com/education</u> and <u>edex.adobe.com</u> 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 sites:

Adobe Add-ons: <u>creative.adobe.com/addons</u> is a central resource for finding tools, services, extensions, code samples, and more to supplement and extend your Adobe products.

Adobe Animate CC product home page: www.adobe.com/products/animate.html

Adobe Authorized Training Centers

Adobe Authorized Training Centers offer instructor-led courses and training on Adobe products. A directory of AATCs is available at <u>training.adobe.com/trainingpartners</u>.

Contributor

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1. Getting Acquainted

Lesson Overview

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

- Create a new file in Adobe Animate CC
- Adjust Stage settings and document properties
- Add layers to the Timeline
- Understand and manage keyframes in the Timeline
- Work with imported images in the Library panel
- Move and reposition objects on the Stage
- Open and work with panels
- Select and use tools in the Tools panel
- Preview your animation
- Save your file



This lesson will take less than 1 hour to complete. Copy the Lesson01 folder, which contains the images you'll use in this lesson, onto your hard drive if it's not already there. Download the project files for this lesson from the Registered Products tab on your Account page at <u>www.peachpit.com</u> (click the Access Bonus Content link for this product) and store them on your computer in a convenient location, as described in the Getting Started section of this book. Your Account page is also where you'll find any updates to the chapters or to the lesson files.



In Animate, the Stage is where you lay out all your visual elements, the Timeline organizes frames and layers, and other panels let you edit and control your creation.

Starting Adobe Animate CC and Opening a File

The first time you start Adobe Animate CC you'll see a Welcome screen with links to standard file templates, tutorials, and other resources. In this lesson, you'll create a simple slideshow-type animation to showcase a few vacation snapshots. You'll add a background, photos, and some decorative elements, and in the process you'll learn about positioning elements on the Stage and placing them along the Timeline so they appear one at a time, in sequence. You'll begin learning how to use the Stage to organize your visual elements spatially, and how to use the Timeline to organize your elements temporally.

- **1.** Start Adobe Animate CC. In Windows, choose Start > Programs > Adobe Animate CC. On a Mac, double-click Adobe Animate CC in the Adobe Animate CC folder in the Applications folder.
- 2. Choose File > Open. In the Open dialog box, select the 01End.fla file in the Lesson01/01End folder and click Open to see the final project.

🛑 Note

If you have not already downloaded the project files for this lesson to your computer from your Account page on <u>peachpit.com</u>, make sure to do so now. See "<u>Getting Started</u>" at the beginning of the book.

▶ T ip

You can also start Animate by double-clicking an Animate file (*.fla or *.xfl), such as the 01End.fla file that is provided to show you the completed project.

3. Choose File > Publish.

Animate creates the necessary files to play in the target platform. In this example, the HTML5 Canvas Document creates an HTML file, a JavaScript file, and a folder of images to display the final animation in a browser. The files are saved in the same folder as your Animate document.

🛑 Note

The Output panel will display an error message saying that EaseIJS is starting frame numbers at 0 instead of 1. You can ignore that warning since you will not be dealing with different frame numbers on the Timeline in this lesson.

4. Double-click the HTML file.

An animation plays. During the animation, several overlapping photos appear one by one, with stars appearing at the end.



5. Close the browser.

Creating a new document

You'll create the simple animation that you just previewed by starting a new document.

1. In Animate, choose File > New.

The New Document dialog box opens.

	New Document
General Templates Type:	
 HTML5 Canvas WebGL (Preview) ActionScript 3.0 AIR for Desktop AIR for Android AIR for iOS ActionScript 3.0 Class ActionScript 3.0 Interface ActionScript File JSFL Script File 	Width: 550 px Height: 400 px Ruler units: Pixels Frame rate: 24.00 fps Background color:
	Cancel OK

2. Under the General tab, choose the first option, HTML5 Canvas.

The other options target different playback technologies. For example, WebGL is a document type for animation that takes advantage of hardware-accelerated support for graphics. ActionScript 3.0 is a document type that targets the Flash Player. AIR for Android and AIR for iOS are documents configured for playback as apps on an Android or an Apple mobile device. AIR for Desktop are documents for playback as stand-alone programs on Windows or Mac desktop computers.

3. On the right-hand side of the dialog box, you can choose the dimensions of the Stage by entering new pixel values for the Width and Height. Enter **800** for Width and **600** for Height. Keep the Ruler units as Pixels.

Width:	<u>800</u> px
Height:	600 px
Ruler units:	Pixels 🔻
Frame rate:	24.00 fps
Background color:	
	Make Default
	Make Default

Leave the Frame Rate and Background Color for the Stage at their default settings. You can always edit these document properties, as explained later in this lesson.

4. Click OK.

Animate creates a new HTML5 Canvas document with all the specified settings.

5. Choose File > Save. Name the file 01_workingcopy.fla, and from the File Format/Save As Type menu, choose Animate document (*.fla). Although the software application is called Animate, be aware that the file extension is still .fla or .xfl, which both preserve echoes of the name of the ancestor of Animate: "Flash."

Save it in the 01Start folder. Saving your file right away is a good working habit that ensures your work won't be lost if the application or your computer crashes. You should always save your Animate file with the extension .fla (or .xfl if you save it as a Animate Uncompressed Document) to identify it as the Animate source file.

Understanding Document Types

Adobe Animate CC is an animation and multimedia authoring tool that creates media for multiple platforms and playback technologies. Knowing where your final animation will play determines what type of document you'll choose as a new file.

😑 Note

Not all features are supported across all document types. For example, WebGL documents don't support text and HTML5 Canvas documents don't support the 3D Rotation or Translation tool. Unsupported tools are grayed out.

Playback environment

The playback, or runtime, environment is the technology that your final, published files use to play. Your animation could play in a browser with the Flash Player, or they could play in a browser with HTML5 and JavaScript. Or, they could play as an app on a mobile device. You should make that decision first so you can choose the appropriate document type.

Regardless of the playback environment and document type, *all* document types are saved as FLA or XFL (Animate) files. The difference is that each document type is configured to export different, final published files.

- Choose HTML5 Canvas to create animated assets that play back in a modern browser using HTML5 and JavaScript. You can add interactivity by inserting JavaScript within Animate CC, or to the final published files.
- Choose WebGL for pure animated assets to take advantage of hardware-accelerated support of graphics.

😑 Note

This latest version of Animate CC supports only ActionScript 3.0. If you need ActionScript 1.0 or 2.0, you must work with Flash Professional CS6 or lower.

• Choose ActionScript 3.0 to create animation and interactivity that plays in the Flash Player in a desktop browser. ActionScript 3.0 is the latest version of Animate's scripting language, which is similar to JavaScript. Choosing an ActionScript 3.0 document

doesn't mean you have to include ActionScript code. It simply means that your playback target is the Flash Player.

🛑 Note

The ActionScript 3.0 document also supports publishing content as a projector for either Mac or Windows. A projector plays as a stand-alone application on the desktop, without needing a browser.

- Choose AIR to create animation and interactivity that plays as an application on Windows or Mac desktops, without needing a browser. You can add interactivity in an AIR document using ActionScript 3.0.
- Choose AIR for Android or AIR for iOS to publish an app for an Android or an Apple mobile device. You can add interactivity for your mobile app using ActionScript 3.0.

▶ Tip

You can easily switch from one document type to another. For example, you can convert an ActionScript 3.0 document into an HTML5 Canvas document if you have an old Flash banner ad animation that you want to update. Use Commands > Convert To Other Document Formats to choose a new document type. Some functionality and features may be lost in the conversion, however. For example, conversion to an HTML5 Canvas document will comment out ActionScript code.

Getting to Know the Workspace

The Adobe Animate CC work area includes the command menus at the top of the screen and a variety of tools and panels for editing and adding elements to your movie. You can create all the objects for your animation in Animate, or you can import elements you've created in Adobe Illustrator, Adobe Photoshop, Adobe After Effects, or other compatible applications.

By default, Animate displays the menu bar, Timeline, Stage, Tools panel, Properties panel, Edit bar, and a few other panels. As you work in Animate, you can open, close, group, ungroup, dock, undock, and move panels around the screen to fit your work style or your screen resolution.



Choosing a new workspace

Animate also provides a few preset panel arrangements ("workspaces") that may better suit the needs of particular users. Use the Window > Workspaces submenu to choose a different workspace or to save a new one. The same functionality is provided by the workspace switcher at the right end of the Application bar.

1. Click the workspace switcher and choose a new workspace.

The various panels are rearranged and resized according to their importance in the chosen workspace. For example, the Animator and Designer workspaces put the Timeline at the top for easy and frequent access.



- 2. If you've moved some of the panels around and want to return to one of the prearranged workspaces, choose Window > Workspaces > Reset [preset name] and click OK in the confirmation dialog box.
- **3.** To return to the default workspace, choose Window > Workspaces > Essentials. In this Classroom in a Book, we'll be using the Essentials workspace.

Saving your workspace

If you find an arrangement of panels that suits your style of work, you can save it as a custom workspace and return to it at a later date.

1. Open the workspace switcher and choose New Workspace.



The New Workspace dialog box appears.

2. Enter a name for your new workspace. Click OK.



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By default, the Animate interface is dark. However, you can change the interface to a lighter gray if you prefer. Choose Edit > Preferences (Windows) or Animate > Preferences (Mac), and in the General preferences option, select Light for User Interface.

Animate saves the current arrangement of panels and adds it to the options in the Workspace menu, which you can access at any time.

About the Stage

The big white rectangle in the middle of your screen is called the Stage. As with a theater stage, the Stage in Animate is the area that viewers see when a movie is playing. It contains the text, images, and video that appear on the screen. Move elements on and off the Stage to place them in and out of view. You can use the rulers (View > Rulers) or grids (View > Grid > Show Grid) to help you position items on the Stage. Additionally, you can pull guides from the ruler (View > Guides) or use the Align panel and other tools you'll learn about in later lessons in this book.

By default, you'll see the gray area off the Stage where you can place elements that won't be visible to your audience. The gray area is called the pasteboard. To see only the Stage, choose View > Pasteboard to deselect the option. For now, leave the option to view the pasteboard selected.

You can also click the Clip The Content Outside Stage button to crop the graphic elements that fall beyond the Stage area to see how your audience will view your final project.





Default Stage

Stage with Clip The Content Outside Stage selected

To scale the Stage so that it fits completely in the application window, choose View > Magnification > Fit In Window. You can also choose different magnification view options from the menu just above the Stage.



┝ Tip

You can view the Stage in full-screen mode without the distraction of the various panels by choosing View > Screen Mode > Full Screen Mode. Use F4 to toggle the panels, and press the Esc key to return to Standard Screen Mode.

Changing the Stage properties

Now you'll change the color of the Stage. The Stage color, along with other document properties such as the Stage dimensions and frame rate, are available in the Properties panel, which is the vertical panel just to the right of the Stage.

1. In the Properties pane of the Properties panel, note that the dimensions of the current Stage are set at 800 × 600 pixels, which you chose when you created the new document.

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2. Click the Background color button next to the Stage and choose a new color from the color palette. Choose dark gray (#333333).



Your Stage is now a different color. You can change the Stage properties at any time.

Working with the Library Panel

The Library panel is accessible from a tab just to the right of the Properties panel. The Library panel is where you store and organize symbols created in Animate, as well as imported files, including bitmaps, graphics, sound files, and video clips. Symbols are graphics used frequently for animation and for interactivity.

🔵 Note

You'll learn much more about symbols in <u>Lesson 3</u>.

About the Library panel

The Library panel lets you organize library items in folders, see how often an item is used in a document, and sort items by type. When you import items into Animate, you can import them directly onto the Stage or into the library. However, any item you import onto the Stage is also added to the library, as are any symbols you create. You can then easily access the items to add them to the Stage again, edit them, or see their properties.

To display the Library panel, choose Window > Library, or press Ctrl+L (Windows) or Command+L (Mac).

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You can also access the assets that you've stored in your Creative Cloud account by clicking the CC Libraries icon (Window > CC Libraries).

Importing an item to the Library panel

Often, you'll create graphics directly with Animate's drawing tools and save them as symbols, which are stored in the library. Other times you'll import media such as JPEG images or MP3 sound files, which are also stored in the library. In this lesson, you'll import several images into the library to be used in the animation.

 Choose File > Import > Import To Library. In the Import To Library dialog box, select the background.png file in the Lesson01/01Start folder, and click Open.

Animate imports the selected PNG image and places it in the Library panel.

2. Continue importing photo1.jpg, photo2.jpg, and photo3.jpg from the 01Start folder. Don't import the last image, photo4.jpg. You'll use that image later in this lesson. You can also hold down the Shift key to select multiple files and import all of the images at once.

The Library panel displays all the imported images with their filenames and a thumbnail preview. These images are now available to be used in your Animate document.



Adding an item from the Library panel to the Stage

To use an imported image, simply drag it from the Library panel onto the Stage.

- **1.** Choose Window > Library to open the Library panel if it isn't already open.
- **2.** Select the background.png item in the Library panel.
- **3.** Drag the background.png item onto the Stage and place it approximately in the center of the Stage.



▶ T ip

You can also choose File > Import > Import To Stage, or press Ctrl+R (Windows) or Command+R (Mac) to import an image file to the library and put it on the Stage all in one step.

Understanding the Timeline

In the default Essentials workspace, the Timeline is located below the Stage. Like films, Animate documents measure time in frames. As the movie plays, the playhead, shown as a red vertical line, advances through the frames in the Timeline. You can change the content on the Stage for different frames. To display a frame's content on the Stage for any particular time, move the playhead to that frame in the Timeline.

At the bottom of the Timeline, Animate indicates the selected frame number, the current frame rate (how many frames play per second), and the time that has elapsed so far in the movie.



Frame rate

The Timeline also contains layers, which help you organize the artwork in your document. At the moment, your project only has one layer, which is called Layer 1. Think of layers as multiple film strips stacked on top of one another. Each layer can contain a different image that appears on the Stage, and you can draw and edit objects on one layer without affecting objects on another layer. The layers are stacked in the order in which they overlap each other, so that objects on the bottom layer in the Timeline are on the bottom of the stack on the Stage. You can hide, lock, or show the contents of layers as outlines by clicking the dots in the layer under the layer option icons.



Changing the appearance of the Timeline

You can adjust the Timeline's appearance to accommodate your workflow. When you want to see more layers, select Short from the Frame View menu in the upper-right corner of the Timeline. The Short option decreases the height of frame cell rows. The Preview and Preview In Context options display thumbnail versions of the contents of your keyframes in the Timeline.

You can also change the width of the frame cells by selecting Tiny, Small, Normal, Medium, or Large. In this book, we show the Timeline frames in their default, Normal, size.



For finer control over the Timeline frame sizes, drag the Resize Timeline View slider. The slider adjusts the size of the frames so you can see more or less of the Timeline. Click the Reset Timeline Zoom To The Default Level button to revert the Timeline view to its Normal size.

Renaming a layer

It's a good idea to separate your content on different layers and name each layer to indicate its contents so that you can easily find the layer you need later.

- **1.** Select the existing layer in the Timeline, called Layer 1.
- **2.** Double-click the name of the layer to rename it and type **background**.
- **3.** Click outside the name box to apply the new name.



4. Click the dot below the lock icon to lock the layer. Locking a layer prevents you from accidentally making changes to it.



The pencil icon with a diagonal slash that appears after the layer name indicates that you can't make edits to the layer because it is locked.

Adding a layer

A new Animate document contains only one layer, but you can add as many layers as you need. Objects in the top layers will overlap objects in the bottom layers.

- **1.** Select the background layer in the Timeline.
- 2. Choose Insert > Timeline > Layer. You can also click the New Layer button below the Timeline. A new layer appears above the background layer.



3. Double-click the new layer to rename it and type **photo1**. Click outside the name box to apply the new name.

Your Timeline now has two layers. The background layer contains the background photo, and the newly created photo1 layer above it is empty.

- **4.** Select the top layer called photo1.
- **5.** Choose Window > Library to open the Library panel if it isn't already open.
- **6.** Drag the library item called photo1.jpg from the library onto the Stage. The photo1 JPEG appears on the Stage and overlaps the background image.



- **7.** Choose Insert > Timeline > Layer, or click the New Layer button () below the Timeline to add a third layer.
- **8.** Rename the third layer **photo2**.

😑 Note

As you add more layers and your overlapping graphics become more complicated, click the dot below the eye icon in your layer to hide the contents of any layer. Alternatively, hold down the Shift key and click the dot below the eye icon to make the layer transparent so you can see what's below it. Hiding or making a layer transparent only affects how you see your project in Animate—it doesn't affect your final exported project. Double-click the Layer icon to modify the level of transparency in the Layer Properties dialog box.

Working with layers

If you don't want a layer, you can easily delete it by selecting it and then clicking the Delete button below the Timeline.



If you want to rearrange your layers, simply drag any layer to move it to a new position in the layer stack.

Inserting frames

So far, you have a background photo and another overlapping photo on the Stage, but your entire animation exists for only a single frame. To create more time on the Timeline and make this animation run for a longer duration, you must add additional frames.

1. Select frame 48 in the background layer. Use the Resize Timeline View slider at the bottom-right corner of the Timeline to expand the Timeline frames to make it easier to identify frame 48.



2. Choose Insert > Timeline > Frame (F5). You can also right-click and choose Insert Frame from the context menu that pops up.

Animate adds frames in the background layer up to the selected frame, frame 48.

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- **3.** Select frame 48 in the photo1 layer.
- **4.** Choose Insert > Timeline > Frame (F5). You can also right-click and choose Insert Frame from the menu.

Animate adds frames in the photo1 layer up to the selected frame, frame 48.

5. Select frame 48 in the photo2 layer and insert frames on this layer.

You now have three layers, all with 48 frames on the Timeline. Since the frame rate of your Animate document is 24 frames per second, your current animation lasts 2 seconds.

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Selecting multiple frames

Just as you can hold down the Shift key to select multiple files on your desktop, you can hold down the Shift key to select multiple frames on the Animate Timeline. If you have several layers and want to insert frames into all of them, hold down the Shift key and drag where you want to add frames. Then choose Insert > Timeline > Frame.

Creating a keyframe

A keyframe indicates a change in content on the Stage. Keyframes are indicated on the Timeline as a circle. An empty circle means there is nothing in that particular layer at that particular time. A filled-in black circle means there is something in that particular layer at that particular time. The background layer, for example, contains a filled keyframe (black circle) in the first frame. The photo1 layer also contains a filled keyframe in its first frame. Both layers contain photos. The photo2 layer, however, contains an empty keyframe in the first frame, indicating that it is currently empty.



Filled keyframe

You'll insert a keyframe in the photo2 layer at the point in time when you want the next photo to appear.

1. Select frame 24 on the photo2 layer. As you select a frame, Animate displays the frame number beneath the Timeline.



2. Choose Insert > Timeline > Keyframe (F6).

A new keyframe, indicated by an empty circle, appears in the photo2 layer in frame 24.



- **3.** Select the new keyframe at frame 24 in the photo2 layer.
- 4. Drag photo2.jpg from your library onto the Stage.

The empty circle at frame 24 becomes filled, indicating that there is now content in the photo2 layer. At frame 24, your photo appears on the Stage. You can drag the red playhead from the top of the Timeline to "scrub," or show what's happening on the Stage, at any point along the Timeline. You'll see that the background photo and photo1 remain on the Stage throughout the Timeline, but photo2 appears only at frame 24.


Understanding frames and keyframes is essential for mastering Animate. Be sure you understand how the photo2 layer contains 48 frames with 2 keyframes—an empty keyframe at frame 1 and a filled keyframe at frame 24.



Moving a keyframe

If you want your photo2.jpg to appear later or earlier in time, you need to move the keyframe in which it appears closer or further to the right on the Timeline. You can easily move any keyframe along the Timeline by simply selecting it, and then dragging it to a new position.

- **1.** Select the keyframe in frame 24 on the photo2 layer.
- **2.** Move your mouse cursor slightly, and you'll see a box icon appear near your cursor indicating that you can reposition the keyframe.
- **3.** Drag the keyframe to frame 12 in the photo2 layer.



The photo2.jpg now appears on the Stage much earlier in the animation.



Removing keyframes

If you want to remove a keyframe, do not press the Delete key! Doing so will delete the contents of that keyframe on the Stage. Instead, select the keyframe and choose Modify > Timeline > Clear Keyframe (Shift+F6). Your keyframe will be removed from the Timeline.

Organizing Layers in a Timeline

At this point, your working Animate file has only three layers: a background layer, a photo1 layer, and a photo2 layer. You'll be adding additional layers for this project, and as in most other projects, you'll end up having to manage multiple layers. Layer folders help you group related layers to keep your Timeline organized and manageable, just like you make folders for related documents on your desktop. Although it may take some time to create the folders, you'll save time later because you'll know exactly where to look for a specific layer.

Creating layer folders

For this project, you'll continue to add layers for additional photos, and you'll place those layers in a layer folder.

- **1.** Select the photo2 layer and click the New Layer button at the bottom of the Timeline.
- 2. Name the layer **photo3**.

- **3.** Insert a keyframe at frame 24.
- **4.** Drag the photo3.jpg from the library onto the Stage.

You now have four layers. The top three contain photos of scenes from Coney Island that appear at different keyframes.



5. Select the photo3 layer and click the New Folder icon at the bottom of the Timeline (**[**]).

A new layer folder appears above the photo3 layer.

6. Name the folder **photos**.



Adding layers to layer folders

Now you'll add the photo layers to the photos folder. As you arrange layers, remember that Animate displays the content in the layers in the order in which they appear in the Timeline, with the top layer's content at the front and the bottom layer's content at the back.

1. Drag the photo1 layer into the photos folder.

Notice how the bold line indicates the destination of your layer. When you place a layer inside a folder, Animate indents the layer name.

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- **2.** Drag the photo2 layer into the photos folder.
- **3.** Drag the photo3 layer into the photos folder.

All three photo layers should be in the photos folder, in the same stacking order as they were outside the folder.

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You can collapse the folder by clicking the arrow just to the left of the folder name. Expand the folder by clicking the arrow again. Be aware that if you delete a layer folder, you delete all the layers inside that folder as well.

Cut, copy, paste, and duplicate layers

When managing multiple layers and layer folders, you can rely on cut, copy, paste, and duplicate layer commands to make your workflow easier and more efficient. All the properties of the selected layer are copied and pasted, including its frames, keyframes, any animation, and even the layer name and type. You can also copy and paste layer folders and their contents.

To cut or copy any layer or layer folder, simply select the layer and right-click the layer name. In the menu that appears, choose Cut Layers or Copy Layers.



Right-click the Timeline again and choose Paste Layers. The layer or layers that you cut or copied are pasted into the Timeline. Use Duplicate Layers to copy and paste in one operation.

You can also cut, copy, paste, or duplicate layers from the application menu bar. Choose Edit > Timeline > and choose Cut Layers, Copy Layers, Paste Layers, or Duplicate Layers.

Using the Properties Panel

The Properties panel gives you quick access to the attributes you're most likely to need. What appears in the Properties panel depends on what you've selected. For example, if nothing is selected, the Properties panel includes options for the general Animate document, including changing the Stage color or dimensions. If you've selected an object on the Stage, the Properties panel shows its *x* and *y* coordinates and its width and height, among other information. You'll use the Properties panel to move your photos on the Stage.

Positioning an object on the Stage

You'll begin by moving the photos with the Properties panel. You'll also use the Transform panel to rotate the photos.

- **1.** At frame 1 of the Timeline, select the photo1.jpg image that you dragged onto the Stage in the photo1 layer. A blue outline indicates that the object is selected.
- **2.** In the Properties panel, type **50** for the X-value and **50** for the Y-value. Press Enter (Windows)/Return (Mac) to apply the values. You can also drag over the X- and Y-values to change their values. The photo moves to the left side of the Stage.



▶ Tip

If the Properties panel is not open, choose Window > Properties, or press Ctrl+F3 (Windows)/Command+F3 (Mac).

The X- and Y-values are measured on the Stage from the top-left corner. X begins at 0 and increases to the right, and Y begins at 0 and increases downward. The registration point (the point from which Animate makes measurements) for imported photos is at the top-left corner.

- **3.** Choose Window > Transform to open the Transform panel.
- **4.** In the Transform panel, select Rotate, and type **-12** in the Rotate box, or drag over the value to change the rotation. Press Enter (Windows)/Return (Mac) to apply the value. The selected photo on the Stage rotates 12 degrees counterclockwise.



- **5.** Select frame 12 of the photo2 layer. Now click the photo2.jpg on the Stage to select it.
- **6.** Use the Properties panel and Transform panel to position and rotate the second photo in an interesting way. Use X=**200**, Y=**40**, and a Rotate of **6** to give it some contrast with the first photo.



- **7.** Select frame 24 in the photo3 layer. Now click photo3.jpg on the Stage to select it.
- **8.** Use the Properties panel and Transform panel to position and rotate the third photo in an interesting way. Use X=**360**, Y=**65**, and a Rotate of −**2** so all your photos have visual variety.



) Note

When images are scaled or rotated in Animate, they may appear jagged. You can smooth each image by double-clicking the bitmap icon in the Library panel. In the Bitmap Properties dialog box that appears, select the Allow Smoothing option.

Working with panels

Just about everything you do in Animate involves a panel. In this lesson, you use the Library panel, Tools panel, Properties panel, Transform panel, History panel, and the Timeline. In later lessons, you'll learn to use other panels to control various aspects of your project. Because panels are such an integral part of the Animate workspace, it pays to know how to manage them.

To open any panel in Animate, choose its name from the Window menu.



Individual panels float freely, and they can be combined in docks, groups, or stacks.

- A **dock** is a collection of panels or panel groups in a vertical column. Docks stick to the left or right edges of the user interface.
- A **group** is a collection of panels that can be placed within a dock or can float freely.
- A **stack** is similar to a dock but can be placed anywhere in the interface.

In the default Essentials workspace, most of the panels are organized in three docks on the right side of the screen. The Timeline and Output panels are grouped at the bottom, and the Stage is on the top. However, you can move a panel to any position that is convenient for you.

- To move a panel, drag it by its tab to a new location.
- To move a panel group or stack, drag it by the area next to the tabs.

As the panel, group, or stack passes over other panels, groups, docks, or stacks, a blue highlighted **drop zone** will appear. If you release the mouse button while a drop zone is visible, the panel will be added to the group, dock, or stack.

- To dock a panel, drag it by its tab into a new position at the left or right edge of the screen. If you drag it over the top or bottom of an existing dock, a horizontal drop zone will show you the panel's new location. If a vertical drop zone appear, dropping the panel will create a new dock.
- To group a panel, drag its tab onto the tab of another panel or the drop zone at the top of an existing group.
- To create a stack, drag a group out of a dock or an existing stack so it floats freely. Alternatively, drag one free-floating panel onto the tab of another floating panel.

You also have the option of displaying most of the panels as icons to save space but still maintain quick access. Click the double arrowheads in the top-right corner of a dock or stack to collapse the panels to icons. Click the double arrowheads again to expand the icons into panels.

Using the Tools Panel

The Tools panel—the long, narrow panel on the far right side of the work area—contains selection tools, drawing and type tools, painting and editing tools, navigation tools, and tool options. You'll use the Tools panel frequently to switch to tools designed for the task at hand. Most often, you'll use the Selection tool, which is the black arrow tool at the top of the Tools panel, for selecting and clicking on items on the Stage or the Timeline. When you select a tool, check the options area at the bottom of the panel for more options and other settings appropriate for your task.



Selecting and using a tool

When you select a tool, the options available at the bottom of the Tools panel and the Properties panel change. For example, when you select the Rectangle tool, the Object Drawing mode and Snap To Objects options appear. When you select the Zoom tool, the Enlarge and Reduce options appear.

The Tools panel contains too many tools to display all at once. Some tools are arranged in hidden groups in the Tools panel; only the tool you last selected from a group is displayed. A small triangle in the lower-right corner of the tool's button indicates that there are other tools in the group. Click and hold the icon for the visible tool to see the other tools available, and then select one from the menu.

You'll use the PolyStar tool to add a little decoration to your short animation.

- **1.** Select the folder in the Timeline, and then click the New Layer button.
- **2.** Name the new layer **stars**.
- **3.** Lock the other layers below it so you don't accidentally move anything into them.

😑 Note

If you're working with a smaller display, the bottom of the Tools panel may be cut off. That makes some of the tools and buttons invisible. But there's an easy way to fix the problem: drag the left edge of the Tools panel to widen it so it can show multiple columns of tools.



4. In the Timeline, move the playhead to frame 36 and select frame 36 in the stars layer.

^{5.} Choose Insert > Timeline > Keyframe (F6) to insert a new keyframe at frame 36 in the stars layer.



You will create star shapes to appear at frame 36 in this layer.

6. In the Tools panel, select the PolyStar tool, which is indicated by the hexagon shape.



7. In the Properties panel, click the colored square next to the pencil icon, which indicates the color of the outline, or stroke, and choose the red diagonal line.



The red diagonal line represents a color of None for the stroke.

8. Click the colored square next to the paint bucket icon, which indicates the color of the fill, and choose a bright, cheery color such as yellow. You can click the color wheel at the upper right to access the Adobe Color Picker, or you can change the Alpha percentage at the upper right, which determines the level of transparency.



Color Picker

9. In the Properties panel, click the Options buttons under Tool Settings.

The Tool Settings dialog box appears.

10. For Style, choose **star**. For Number Of Sides, enter **5**, and for Star Point Size, enter **0.5**. Click OK.



The options determine the shape of your star.

11. Make sure the empty keyframe in frame 36 of the title layer is selected. Click on the Stage where you want to begin adding a star and drag to change the width of your star. Move your cursor around the first click to rotate the star. Make multiple stars of different sizes and with different angles of rotation.



- **12.** Exit the PolyStar tool by selecting the Selection tool.
- **13.** Use the Properties panel or the Transform panel to reposition or rotate your stars on the Stage, if desired. Or, choose the Selection tool and simply click to select a star and drag it to a new position on the Stage. The X- and Y-values in the Properties panel update as you drag the star around the Stage.
- **14.** Your animation for this lesson is finished! Compare the Timeline in your file with the Timeline in the final file, 01End.fla.

Undoing Steps in Animate

In a perfect world, everything would go according to plan. But sometimes you need to move back a step or two and start over. You can undo steps in Animate using the Undo command or the History panel.

To undo a single step in Animate, choose Edit > Undo or press Ctrl+Z

(Windows)/Command+Z (Mac). To redo a step you've undone, choose Edit > Redo.

The easiest way to undo multiple steps in Animate is to use the History panel, which displays a list of all the last 100 steps you've performed. Closing a document clears its history. To access the History panel, choose Window > History.

For example, if you aren't satisfied with the newly added stars, you can undo your work and return your Animate document to a previous state.

 Choose Edit > Undo to undo the last action you made. You can choose the Undo command multiple times to move backward as many steps as are listed in the History panel. You can change the maximum number of Undo commands by selecting Animate > Preferences.

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- **2.** Choose Window > History to open the History panel.
- **3.** Drag the History panel slider up to the step just before your mistake. Steps below that point are dimmed in the History panel and are removed from the project. To add a step back, move the slider back down.



🔵 Note

If you remove steps in the History panel and then perform additional steps, the removed steps will no longer be available.

Previewing Your Movie

As you work on a project, it's a good idea to preview it frequently to ensure that you're achieving the desired effect. To quickly see your animation within the Animate environment, choose Control > Play, or simply press the Enter/Return key.

To see how an animation or movie will appear to a viewer in its runtime environment, choose Control > Test Movie > In Browser. You can also press Ctrl+Enter (Windows) or Command+Return (Mac) to preview your movie.

1. Choose Control > Test.

Animate creates the required published files in the same location as your FLA file and

opens and plays the animation in your default browser.



Animate automatically loops your movie in this preview mode.

If you don't want the animation to loop when you test your movie, in Animate choose File > Publish Settings, and deselect the Loop Timeline option.



2. Close the browser window and return to Animate.

Modifying the Content and Stage

When you first started this lesson, you created a new file with the Stage set at 800 pixels by 600 pixels. However, your client may later tell you that they want the animation in several different sizes to accommodate different layouts. For example, they'd like to create a smaller version with a different aspect ratio for a banner ad. Or, they may want to create a version that will run on AIR for Android devices, which has specific dimensions.

Fortunately, you can modify the Stage even after all your content is put in place. When you change the Stage dimensions, Animate provides the option of scaling the content with the Stage, automatically shrinking or enlarging all your content proportionally.

Stage resizing and content scaling

You'll create another version of this animated project with different Stage dimensions.

1. At the bottom of the Properties panel, note that the dimensions of the current Stage are set at 800 × 600 pixels. Click the Advanced Settings button in the Properties section.

The Document Settings dialog box appears.

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In the Width and Height boxes, enter new pixel dimensions. Enter 400 for the Width and 300 for the Height.

You can click the link icon between the Width and Height fields to constrain the proportions of the Stage. With the link icon selected, changing one dimension will automatically change the other proportionately.

3. Select the Scale Content option.

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4. Leave the Anchor option as is.

The Anchor option lets you choose the origin from which your content is resized, if the proportions of the new Stage are different.

5. Click OK.

Animate modifies the dimensions of the Stage and automatically resizes all the content. If your new dimensions are not proportional to the original size, Animate will resize everything to maximize the content to fit. This means that if your new Stage size is wider than the original, there'll be extra Stage space to the right. If your new Stage size is taller than the original, there'll be extra Stage space on the bottom.

- **6.** Choose File > Save As.
- **7.** In the Save dialog box choose Animate Document (*.fla) from the File Format menu and name the file **01_workingcopy_resized.fla**.

You now have two Animate files, identical in content but with different Stage dimensions. Close this file and reopen **01_workingcopy.fla** to continue this lesson.

Saving Your Movie

A mantra in multimedia production is "Save early, save often." Applications, operating systems, and hardware crash more often than anyone wants, and at unexpected and inconvenient times. You should always save your movie at regular intervals to ensure that, if a crash does happen, you won't have lost too much of your time.

🔵 Note

If you have unsaved changes in your open document, Animate adds an asterisk at the end of its filename at the top of the document window as a friendly reminder.

Animate can help alleviate much of the worry over lost work. The Auto-Recovery feature creates a backup file in case of a crash.

Using Auto-Recovery for a backup

The Auto-Recovery feature is a preference set for the Animate application for all documents.

The Auto-Recovery feature saves a backup file, so that in case of a crash, you have an alternate file to return to.

- **1.** Choose Edit > Preferences (Windows) or Animate > Preferences (Mac). The Preferences dialog box appears.
- **2.** Choose the General category from the left column.
- **3.** Select the Auto-Recovery option, if it's not already selected, and enter a time (in minutes) for the interval that Animate creates a backup file.

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4. Click OK.

Animate creates a new file in the same location as your FLA with **RECOVER_** added to the beginning of the filename. The file remains as long as the document is open. When you close the document or when you quit Animate safely, the file is deleted.

Saving an XFL document

You've already saved your Animate movie as an FLA file, but you can also save your movie in an uncompressed format known as XFL. The XFL format is actually a folder of files rather than a single document. The XFL file format exposes the contents of your Animate movie so that other developers or animators can easily edit your file or manage its assets without having to open the movie in the Animate application. For example, all the imported photos in your Library panel appear in a Library folder within the XFL format. You can edit the library photos or swap them with new photos. Animate will make the substitutions in the movie automatically.

- **1.** Open the 01_workingcopy.fla file. Choose File > Save As.
- **2.** Name the file **01_workingcopy.xfl** and choose Animate Uncompressed Document (*.xfl). Click Save.



Animate creates a folder named 01_workingcopy, which contains all the files for your Animate movie.

3. Close the Animate document by choosing File > Close.

Modifying an XFL document

In this exercise, you'll modify the Library folder of the XFL document to make changes to your Animate movie.

1. Open the LIBRARY folder inside the 01_workingcopy folder.

The folder contains all the photos you imported into your Animate movie.



- **2.** Select the photo3.jpg file and delete it.
- **3.** Drag the photo4.jpg file from the 01Start folder and move it to the LIBRARY folder inside the 01_workingcopy folder. Rename photo4.jpg as **photo3.jpg**.



Swapping out photo3.jpg with a new image in the LIBRARY folder automatically makes the change in the Animate movie.

4. To open an XFL document, double-click the .xfl file.

The last image in keyframe 24 of your Timeline has been swapped with the photo4.jpg image with which you made the substitution.



🔵 Note

To find out how to keep your copy of Animate CC up to date and to learn about the many sources of help available to you within Animate, see the Getting Started section at the beginning of this book.

Review Questions

- **1**. What is the Stage?
- **<u>2</u>.** What's the difference between a frame and a keyframe?
- 3. What's a hidden tool, and how can you access it?
- **<u>4</u>**. Name two methods to undo steps in Animate and describe them.
- **<u>5</u>**. When saving an Animate file, which file format should you choose if you want to be able to swap out assets without opening the file in Animate?

Review Answers

- **1**. The Stage is the rectangular area viewers see when a movie is playing. It contains the text, images, and video that appear on the screen. Objects that you store on the pasteboard outside of the Stage do not appear in the movie.
- **2.** A frame is used to measure time on the Timeline. A keyframe is represented on the Timeline with a circle and indicates a change in content on the Stage.
- 3. Because there are too many tools to display at once in the Tools panel, some tools are

grouped, and only one tool in the group is displayed. (The tool you most recently used is the one shown.) Small triangles appear on tool icons to indicate that hidden tools are available. To select a hidden tool, click and hold the tool icon for the tool that is shown, and then select the hidden tool from the menu.

- **4.** You can undo steps in Animate using the Undo command or the History panel. To undo a single step at a time, choose Edit > Undo. To undo multiple steps at once, drag the slider up in the History panel.
- **<u>5</u>**. Saving an Animate file in the XFL format stores the file's assets in such a way that they can be replaced or edited without editing the Animate file itself.

2. Creating Graphics and Text

Lesson Overview

- Draw rectangles, ovals, and other shapes
- Modify the shape, color, and size of drawn objects
- Understand fill and stroke settings
- Create and edit curves and variable-width strokes
- Use Art and Pattern brushes for expressive drawing
- Edit colors quickly with tagged swatches
- Apply gradients and transparencies
- Create and edit text
- Add web fonts into HTML5 Canvas documents
- Distribute objects on the Stage
- Export art to SVG

This lesson will take approximately 120 minutes to complete. Download the project files for this lesson from the Registered Products tab on your Account page at <u>www.peachpit.com</u> (click the Access Bonus Content link) and store them on your computer in a convenient location, as described in the Getting Started section of this book. Your Account page is also where you'll find any updates to the lessons or to the lesson files.



You can use rectangles, ovals, lines, and custom art or pattern brushes to create interesting, complex graphics and illustrations in Adobe Animate CC. Edit their shapes and combine them with gradients, transparencies, text, and filters for even greater expressive possibilities.

Getting Started

Start by viewing the finished movie to see the project you'll be creating in this lesson.

1. Double-click the 02End.html file in the Lesson02/02End folder to view the final project in a browser.



) 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.

The project is a simple static illustration for a banner ad. This illustration is for Mug's Coffee, a fictional cafe that's promoting its store and coffee. In this lesson, you'll draw the shapes, modify them, and learn to combine simple elements to create more complex visuals. You won't create any animation just yet. After all, you must learn to walk before you can run! And learning to create and modify graphics is an important step before doing any animation with Animate.

- **2.** In Animate, choose File > New. In the New Document dialog box, choose HTML5 Canvas.
- **3.** On the right-hand side of the dialog box, make the Stage size **700** pixels by **200** pixels, and make the color of the Stage a light brown by clicking the icon next to Background Color and then clicking the #CC9966 color swatch. Click OK.
- 4. Choose File > Save. Name the file 02_workingcopy.fla and save it in the 02Start folder. Saving your file right away is a good working habit (even if you've enabled the Auto-Recovery feature). It ensures that you won't lose your work if the application or your computer crashes.

Understanding Strokes and Fills

Every graphic in Animate starts with a shape. A shape consists of two components: the *fill*, or the insides of the shape, and the *stroke*, or the outlines of the shape. If you always keep these two components in mind, you'll be well on your way to creating beautiful and complicated visuals.

The fill and the stroke function independently of each other, so you can modify or delete either without affecting the other. For example, you can create a rectangle with a blue fill and a red stroke, and then later change the fill to purple and delete the red stroke entirely. You'll be left with a purple rectangle without an outline. You can also move the fill or stroke independently, so if you want to move the entire shape, make sure that you select both its fill and stroke.

Creating Shapes

Animate includes several drawing tools, which work in different drawing modes. Many of your creations will begin with simple shapes such as rectangles and ovals, so it's important that you're comfortable drawing them, modifying their appearance, and applying fills and strokes.

You'll begin by drawing the cup of coffee.

🔵 Note

In Animate CC, as well as in HTML documents and in web design and development in general, colors are often specified by hexadecimal numbers. The six digits after the # sign represent the red, green, and blue contributions to the color.

Using the Rectangle tool

The coffee cup is essentially a cylinder, which is a rectangle with an oval at the top and an oval at the bottom. You'll start by drawing the rectangular body. It's useful to break down complicated objects into their component parts to make drawing them easier.

1. In the Tools panel, select the Rectangle tool (). Make sure the Object Drawing mode icon () is *not* selected.



2. Choose a stroke color () and a fill color () from the bottom of the Tools panel.

Choose #663300 (dark brown) for the stroke and #CC6600 (light brown) for the fill.

- **3.** On the Stage, draw a rectangle that is a little taller than it is wide. You'll specify the exact size and position of the rectangle in step 6.
- **4.** Select the Selection tool ().



- **5.** Drag the Selection tool around the entire rectangle to select its stroke and its fill. When a shape is selected, Animate displays it with white dots. You can also double-click a shape, and Animate will select both the stroke and fill of the shape.
- **6.** In the Properties panel, Position And Size section, enter **130** for the width and **150** for the height. Press Enter (Windows) or Return (Mac) to apply the values.

🔵 Note

Even though we have set the color of the Stage to brown, many figures in this chapter are set on a white background to enhance the visibility of the tool or technique being described.

Using the Oval tool

Now you'll create the opening at the top and the rounded bottom.

- **1.** In the Tools panel, select the Oval tool.
- **2.** Make sure the Snap To Objects button (**(**) is depressed. This option forces shapes that you draw on the Stage to snap to each other to ensure that lines and corners connect to one another.
- **3.** Click inside the rectangle and drag across it to make an oval inside the rectangle. Snap To Objects makes the sides of the oval connect to the sides of the rectangle.



4. Draw another oval near the bottom of the rectangle.



👂 Note

The last fill and stroke you used are applied to the next objects you create, unless you change the settings before you draw.

Making Selections

To modify an object, you must first be able to select different parts of it. In Animate, you can make selections using the Selection, Subselection, or Lasso tool. Typically, you use the Selection tool to select an entire object or a section of an object. The Subselection tool lets you select a specific point or line in an object. With the Lasso tool, you can make a free-form selection.

Selecting strokes and fills

Now you'll make the rectangle and ovals look more like a coffee cup. You'll use the Selection tool to delete unwanted strokes and fills.

- **1.** In the Tools panel, select the Selection tool ().
- **2.** Click the fill above the top oval to select it.

The shape above the top oval is highlighted.



3. Press the Backspace (Windows)/Delete (Mac) key. The fill is cleared from the selected area.



4. Shift-click each of the three line segments above the top oval to select them all and

press Backspace/Delete.



Animate deletes the individual strokes, leaving the top oval connected to the rectangle.

5. Now Shift-select the fill and strokes below the bottom oval, as well the oval's upper arc (which represents the inside of the bottom of the cup), and press Backspace/Delete.

The remaining shape appears as a cylinder.



▶ Tip

If you press the Option or Alt key while moving one of the control points, Animate scales the selected object relative to its transformation point, represented by the circle icon. You can move the transformation point anywhere, even outside the object. Press Shift to constrain the object proportions. Hold Ctrl/Command to distort the object from a single control point.

Editing Shapes

When drawing in Animate, you'll often start with the Rectangle and Oval tools. But to create more complex graphics, you'll use other tools to modify those base shapes. The Free Transform tool, the Copy and Paste commands, and the Selection tool can help transform the plain cylinder into a coffee cup.

Using the Free Transform tool

The coffee cup will look more realistic if you taper the bottom rim. You'll use the Free Transform tool to change its overall shape. With the Free Transform tool, you can change an object's scale, rotation, or skew (the way it is slanted), or distort an object by dragging control points around a bounding box.

1. In the Tools panel, select the Free Transform tool ().



- **2.** Drag the Free Transform tool around the cylinder on the Stage to select it. Transformation handles appear on the cylinder.
- **3.** Press and hold Shift+Ctrl/Shift+Command as you drag one of the lower corners inward. Holding these keys while dragging lets you move both corners the same distance simultaneously.



4. Click outside the shape to deselect it.

The bottom of the cylinder is narrow, and the top is wide. It now looks more like a coffee cup.

Using Copy and Paste

Use Copy and Paste commands to easily duplicate shapes on the Stage. You'll set the surface level of the coffee by copying and pasting the top rim of the coffee cup.

- **1.** Select the Selection tool. Hold down the Shift key and select the top arc and bottom arc of the coffee cup opening.
- **2.** Choose Edit > Copy (Ctrl+C/Command+C). The top strokes of the oval are copied.



3. Choose Edit > Paste In Place (Shift+Ctrl+V/Shift+Command+V).

A duplicate oval appears on the Stage, exactly overlying the original that you copied. The duplicate remains selected.

4. In the Tools panel, select the Free Transform tool.

Transformation handles appear on the oval.

5. Press the Shift key as you drag a corner inward. Make the oval about 10 percent smaller. Pressing the Shift key lets you change the shape uniformly so the oval maintains its aspect ratio.

The top edge of the coffee cup is in place.



- **6.** Choose Edit > Paste In Place (Shift+Ctrl+V/Shift+Command+V) one more time to add another duplicate of the original oval to the Stage.
- **7.** Select the Free Transform tool. Shift-drag a corner inward to shrink the new oval about another 10 percent smaller.



8. Drag the oval over the rim of the coffee cup so it overlaps the front lip. You can also press the Down Arrow key to nudge the selected oval down the Stage.



- **9.** Click outside the selection to deselect the oval.
- **10.** Select the lower portions of the smaller oval and delete them. Your coffee cup now is filled with coffee!

Changing shape contours

With the Selection tool, you can push and pull lines and corners to change the overall contours of any shape. It's a fast and intuitive way of working with shapes.

1. In the Tools panel, select the Selection tool.

2. Move your mouse cursor close to one of the sides of the coffee cup.

A curved line appears near your cursor, indicating that you can change the curvature of the stroke.

3. Drag the stroke outward.

The side of the coffee cup bends, giving the cup a slight bulge.



4. Drag the other side of the coffee cup outward slightly. The coffee cup now has a more rounded body.

▶ T ip

Hold down the Option/Alt key while dragging the sides of a shape to add a new corner.

Changing strokes and fills

If you want to change the properties of any stroke or fill, you can use the Ink Bottle tool or the Paint Bucket tool. The Ink Bottle tool changes stroke colors; the Paint Bucket tool changes fill colors.

- **1.** In the Tools panel, select the Paint Bucket tool (
- **2.** In the Properties panel, choose a darker brown Fill color (#663333).



3. Click the top surface of the coffee that is inside the cup. The fill of the top oval changes to the darker brown color.



┝ Tip

If your Paint Bucket tool changes the fill in surrounding areas, there may be a small gap in the shape outline that allows the fill to spill over. Close the gap manually, or use the Gap Size menu at the bottom of the Tools panel to choose the gap size that Animate will close automatically.



- **4.** In the Tools panel, select the Ink Bottle tool (Mark).
- **5.** In the Properties panel, choose a darker brown stroke color (#330000).
- **6.** Click the top stroke above the surface of the coffee.

The stroke around the surface of the coffee changes to a darker brown color.

▶ Tip

You can also select a stroke or a fill and change its color by using the Properties panel without selecting the Paint Bucket or Ink Bottle tool.

Animate drawing modes

Animate provides three drawing modes that determine how objects interact with one another on the Stage and how you can edit them. By default, Animate uses Merge Drawing mode, but you can enable Object Drawing mode or use the Rectangle Primitive or Oval Primitive tool to use Primitive Drawing mode.

Merge Drawing mode

In this mode, Animate merges drawn shapes, such as rectangles and ovals, where they overlap, so that multiple shapes appear to be a single shape. If you move or delete a shape that has been merged with another, the overlapping portion is permanently removed.


Object Drawing mode

In this mode, Animate does not merge drawn objects; they remain distinct and separate, even when they overlap. To enable Object Drawing mode, select the drawing tool you want to use, and then click the Object Drawing button at the bottom of the Tools panel.

To convert an object to shapes (Merge Drawing mode), select it and choose Modify > Break Apart (Ctrl+B/Command+B). To convert a shape to an object (Object Drawing mode), select it and choose Modify > Combine Objects > Union.



Primitive Drawing mode

When you use the Rectangle Primitive tool or the Oval Primitive tool, Animate draws your rectangles or ovals as independent objects that maintain some editable features. Unlike regular objects, you can modify the corner radius and start and end angle of rectangle primitives, and adjust the inner radius of oval primitives using the Properties panel.



Using Gradient and Bitmap Fills

The *fill* is the interior of the drawn object. Currently, you have selected a solid brown fill color, but you can also use a gradient or a bitmap image (such as a JPEG file) as a fill, or you can specify that the object has no fill at all.

In a *gradient*, one color gradually changes into another. Animate can create *linear* gradients, which change color horizontally, vertically, or diagonally, or *radial* gradients, which change

color moving outward from a central focal point.

For this lesson, you'll use a linear gradient fill to add three-dimensionality to the coffee cup. To give the appearance of a top layer of foaming cream, you'll import a bitmap image to use as the fill. You can use the Color panel to import a bitmap file.

Creating gradient transitions

You'll use the Color panel to define the colors to use in your gradient. By default, a linear gradient moves from one color to a second color, but you can use up to 15 color transitions in a gradient in Animate. A *color pointer* determines where each color is defined, and smooth color changes happen between each of the pointers. Add color pointers beneath the gradient definition bar in the Color panel to add more colors, and hence, more gradients.

You'll create a gradient that moves from tan to white to dark tan on the surface of the coffee cup to give it a rounded appearance.

1. Select the Selection tool. Select the fill that represents the front surface of the coffee cup.



2. Open the Color panel (Window > Color). In the Color panel, select Fill Color (the Paint Bucket icon) and choose Linear Gradient from the Color Type menu.



The front surface of the coffee cup is filled with a color gradient that changes from left to right.



- **3.** In the Color panel, select the color pointer at the left end of the color gradient definition bar (the triangle above it turns black when selected), and then type **FFCCCC** in the Hex value field to specify a light tan color. Press Enter/Return to apply the color. You can also select a color from the color picker or double-click the color pointer to select a color from the color swatches.
- **4.** Select the far-right color pointer, and then enter **B86241** for a dark tan color. Press Enter/Return to apply the color.



The gradient fill for the coffee cup gradually changes from light tan to dark tan across its surface.

5. Click beneath the gradient definition bar to create a new color pointer.



- **6.** Drag the new color pointer to the middle of the gradient.
- **7.** Select the new color pointer, and then type **FFFFFF** in the Hex value field to specify white for the new color. Press Enter/Return to apply the color.



The gradient fill for the coffee cup gradually changes from light tan to white to dark tan.

8. Deselect the fill on the Stage by clicking elsewhere on the Stage. Select the Paint Bucket tool and make sure the Lock Fill button () at the bottom of the Tools panel is deselected.



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If the Lock Fill button isn't visible on your Tools panel, widen the panel by dragging the left edge (as explained in <u>Lesson 1</u>). This allows multiple columns of tools to be shown.

The Lock Fill option locks the current gradient to the first shape to which it was applied so that subsequent shapes extend the gradient. You'll want a new gradient for the back surface of the coffee cup, so the Lock Fill option should be deselected.

9. With the Paint Bucket tool, select the back surface of the coffee cup.

Animate applies the gradient to the back surface.



▶ Tip

To delete a color pointer from the gradient definition bar, simply drag it off the bar.

Using the Gradient Transform tool

In addition to choosing colors and positioning the color pointers for a gradient, you can adjust the size, direction, or center of a gradient fill. To squeeze the gradient in the front surface and reverse the gradient in the back surface, you'll use the Gradient Transform tool.

1. Select the Gradient Transform tool. (The Gradient Transform tool is grouped with the Free Transform tool.)



2. Click the front surface of the coffee cup. Transformation handles appear.



- **3.** Drag the square handle on the right side of the bounding box inward to squeeze the gradient tighter. Drag the center circle to move the gradient to the left so the white highlight is positioned slightly left of center.
- **4.** Now click the back surface of the coffee cup. Transformation handles appear.



5. Drag the round handle on the corner of the bounding box to rotate the gradient 180 degrees so the gradient fades from dark tan on the left to white to light tan on the right. Narrow the gradient and move it to the right slightly, so the highlight falls on the right side of the inner surface.

The coffee cup now looks more realistic because the shadows and highlights make it appear that the front surface is convex and the back surface is concave.

▶ T ip

Move the center circle to change the center of the gradient, drag the arrow circle to rotate the gradient, or drag the arrow in the square to stretch or compress the gradient.

Adding a bitmap fill

You'll make this cup of coffee a little fancier by adding a frothy layer of cream. You'll use a JPEG image of foam as a bitmap fill.

- **1.** Select the top surface of the coffee with the Selection tool.
- **2.** Choose Window > Color to open the Color panel.
- **3.** Choose Bitmap Fill from the Color Type menu.



- **4.** In the Import To Library dialog box, navigate to the coffeecream.jpg file in the Lesson02/02Start folder.
- **5.** Select the coffeecream.jpg file and click Open.



The top surface of the coffee fills with the foam image.

The cup of coffee is complete! Rename the layer containing your completed drawing **coffee cup**. All that's left to do is to add some hot steam.

▶ Tip

You can also use the Gradient Transform tool to change the width, orientation, size, or rotation of a bitmap fill.

Grouping objects

Now that you're finished creating your cup of coffee, you can make it into a single group. A group holds together a collection of shapes and other graphics to preserve their integrity. When the elements that compose the coffee cup are grouped, you can move them as a unit without worrying that the cup might merge with underlying shapes. Use groups to organize your drawing.

- **1.** Select the Selection tool.
- **2.** Select all the shapes that make up the cup of coffee.



3. Choose Modify > Group.

The cup of coffee is now a single group. When you select it, a blue outline indicates its bounding box.



4. If you want to change any part of the cup of coffee, double-click the group to edit it. Notice that all the other elements on the Stage dim, and the Edit bar above the Stage displays Scene 1 Group. This indicates that you are now in a particular group and can edit its contents.



5. Click the Scene 1 icon in the Edit bar at the top of the Stage, or double-click an empty part of the Stage, and return to the main scene.

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To change a group back into its component shapes, choose Modify > Ungroup (Shift+Ctrl+G/Shift+Command+G).

Using Variable-Width Strokes

You can make many different styles of lines for your strokes. In addition to a solid line, you can choose dotted, dashed, or ragged, or even customize your own. In addition, you can create lines with variable widths and edit the variations with the Width tool.

In this lesson, you'll use the Pencil tool to create variable-width lines to represent the aroma wafting off the coffee. You'll also make the aroma slightly transparent. Transparency is measured as a percentage and is referred to as *alpha*. An Alpha value of 100% indicates that a color is totally opaque, whereas an Alpha value of 0% indicates that a color is totally transparent.

Adding variable-width lines

Now you'll add some whimsical lines above your coffee illustration to give it some personality.

- **1.** On the Timeline, insert a new layer and name it **coffee aroma**. You'll draw your lines in this layer.
- **2.** In the toolbar, select the Pencil tool (). Choose Smooth from the Pencil Mode menu at the bottom of the Tools panel.



- **3.** In the Properties panel, select a dark brown stroke color at 50% Alpha value.
- **4.** For Stroke, enter **15** for the stroke size. From the Style menu, choose Solid, and from the Width menu, choose the thick and thin profile, Width Profile 2.

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5. Draw a few wavy lines above the coffee.

Animate renders each line with a thick-and-thin width. Although it appears as a complicated shape, the entire object is a single selectable stroke.



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Edit variable-width lines as you would any other stroke. Use the Selection or Subselection tool to bend the curves or move the anchor points.

Editing the width of lines

You can finesse where the bulges appear in your lines, and how much of a bulge there is. Use the Width tool to make those edits.

- **1.** In the Tools panel, select the Width tool ().
- **2.** Move your mouse pointer over one of your variable-width strokes.

Anchor points appear along the line to show you where the thick and thin portions of the line are located.



3. Drag the handles at any anchor point to change the width of the line. Exaggerate some of the restrictions and bulges.



- **4.** Drag an anchor point along the stroke to move its location.
- 5. Drag anywhere along the stroke to add a new anchor point and define the width at that

location. Animate displays a small plus sign next to your pointer to indicate that you can add an anchor point.



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Hold down Alt/Option when you want to modify only one side of a variablewidth line.

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To delete an anchor point of a variable-width line, click to select the anchor point, and press Backspace/Delete.

Using Swatches and Tagged Swatches

Swatches are preset samples of color. Access them via the Swatches panel (Window > Swatches, or Ctrl+F9/Command+F9). You can also save colors that you've used in your graphics as new swatches so you always have them to refer to.

Tagged swatches are specially marked swatches that are linked to the graphics on your Stage that are using them. If you change a tagged swatch in your Swatch panel, and all your graphics that use the tagged swatch will be updated.

Saving a swatch

You'll save a swatch for the brown color that you used for the wisps of coffee steam above the mug.

- **1.** Select the Selection tool and click one of the variable-width strokes above your coffee mug.
- 2. Open the Swatches panel (Ctrl+F9/Command+F9), or click the Swatches icon.

The Swatches panel opens, showing the default colors with gradients in the bottom row.



3. Click Create A New Swatch at the bottom of the Swatches panel.

A new swatch appears with the exact color and transparency information of the coffee wisp that you selected.



Create A New Swatch

Creating a tagged swatch

You'll convert your saved swatch to a tagged swatch and use it for all the coffee wisps.

1. With the coffee steam color swatch selected, click Convert To A Tagged Swatch at the bottom of the Swatch panel.



The Tagged Color Definition dialog box appears.

2. Enter **coffee steam** in the Name field and click OK.

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The dialog box closes and a new tagged swatch appears in the Tagged Swatches section of the Swatches panel.

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Using a tagged swatch

You'll use your new tagged swatch for all your coffee wisps above the mug.

1. Select the Selection tool and, holding down the Shift key, click every coffee wisp above the mug.



- **2.** Open the Swatches panel.
- **3.** Select the coffee steam tagged swatch.

The selected graphics use the tagged swatch as their color. In the Properties panel, a tagged swatch is indicated by the white triangle in the bottom-right corner of the color.

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Updating tagged swatches

The real power of tagged swatches is apparent when you have to make updates to your project. Suppose the art director or your client doesn't like the color of the coffee steam rising above the mug. Since each wisp uses a tagged swatch, you can simply update the color of the tagged swatch and all graphics using that tagged swatch will update.

- **1.** Open the Swatches panel.
- **2.** In the Tagged Swatches section of the Swatches panel, double-click the coffee steam tagged swatch.

The Tagged Color Definition dialog box opens with the name and color information.

3. Change the color to a different shade of brown. The new color appears in the top half of the color preview window. Click OK to close the dialog box.



The new color information is saved and all the graphics using the tagged swatch update to the new color.

Creating Curves

You've used the Selection tool to pull and push on the edges of shapes to intuitively make curves. For more precise control, you can use the Pen tool.

Using the Pen tool

Now you'll create a soothing, wavelike background graphic.

- **1.** Choose Insert > Timeline > Layer, and name the new layer **dark brown wave**.
- 2. Drag the layer to the bottom of the layer stack.
- **3.** Lock all the other layers.



4. In the Tools panel, select the Pen tool (

- **5.** Set the stroke color to a dark brown and Alpha to 100%. Select the Hairline option for Style and Uniform thickness for the Width.
- **6.** Begin your shape by clicking off the left edge of the Stage to establish the first anchor point.
- 7. Move the mouse pointer over the Stage and press—but don't release!—the mouse button to place the next anchor point. Keep holding the mouse button and drag in the directon you want the line to continue. You will drag out a direction line from the new anchor point, and when you release the mouse button you will have created a smooth curve between the two anchor points.

To learn more about drawing with the Pen tool, see the sidebar "<u>Creating paths with the</u> <u>Pen tool</u>."



8. Continue to move the mouse to the right across the Stage, pressing and dragging out direction lines to build the outline of the wave. Keep going past the right edge of the Stage and click once to set a corner point.

You have drawn the top edge of your wave; now you need to complete the shape by drawing the bottom.

9. Click once below the previous corner point, and then draw a wavy line back to the left across the Stage, similar (but not exactly parallel) to the first curved line. Take care not to place your anchor points directly under the anchor points in the upper line so the wave has a free-form outline.



- **10.** Continue the lower wavy line past the left edge of the Stage and click below the initial anchor point to place another corner point.
- **11.** Close your shape by clicking the first anchor point.



- **12.** Select the Paint Bucket tool.
- **13.** Set the Fill color to a dark brown.
- **14.** Click inside the outline you just created to fill it with color.
- **15.** Select the Selection tool, and click the outline to select it. Press the Delete key to remove the stroke.



🔵 Note

Don't worry about making all the curves perfect. It takes practice to get used to the Pen tool. You'll also have a chance to refine your curves in the next part of the lesson.

Editing curves with the Selection and Subselection tools

Your first try at creating smooth waves probably won't be very good. Use the Selection tool or the Subselection tool to refine your curves.

- **1.** Select the Selection tool.
- **2.** Hover over a line segment and look at the arced line segment that appears near your pointer. This indicates that you can edit the curve. If a right-angle segment appears near your cursor, this indicates that you can edit the corner point.
- **3.** Drag the curve to edit its shape.



- **4.** In the Tools panel, select the Subselection tool (**N**).
- **5.** Click the outline of the shape.
- **6.** Drag the anchor points to new locations or move the handles to refine the overall shape.



Deleting or adding anchor points

Use the hidden tools under the Pen tool to delete or add anchor points as needed.

1. Press and hold on the Pen tool to access the hidden tools under it.



- 2. Select the Delete Anchor Point tool (2.).
- **3.** Click an anchor point on the outline of the shape to delete it.
- **4.** Select the Add Anchor Point tool ()).
- **5.** Click the curve to add an anchor point.

Creating paths with the Pen tool

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

To create a straight path, click the mouse button. The first time you click, you set

the starting point. Each time that you click thereafter, a straight line is drawn between the previous point and the current point. To draw complex straightsegment paths with the Pen tool, simply continue to add points.



Creating a straight line

To create a curved path, start by pressing the mouse button to place an anchor point, then drag to create a direction line for that point and release the mouse button. Then move the mouse to place the next anchor point and drag out another set of direction lines. At the end of each direction line is a direction point; the positions of direction lines and points determine the size and shape of the curved segment. Moving the direction lines and points reshapes the curves in a path.

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



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

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

to select and adjust an anchor point, a path segment, or an entire path.



Creating a closed path Creating a closed path

Closed paths differ from open paths in the way that you end each one. To end an open path, select the Selection tool or press Escape. To create a closed path, position the Pen tool pointer over the starting point (a small ° will appear by the pointer), and click. Closing a path automatically ends the path. After the path closes, the Pen tool pointer appears with a small *, indicating that your next click will start a new path.

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Using Transparency to Create Depth

Next, you'll create a second wave to overlap the first wave. You'll make the second wave slightly transparent to create a rich, layered effect. You can apply transparency to either the stroke or the fill.

Modifying the Alpha value of a fill

- **1.** Select the shape in the dark brown wave layer.
- **2.** Choose Edit > Copy.
- **3.** Choose Insert > Timeline > Layer, and name the new layer **light brown wave**.



4. Choose Edit > Paste In Place (Ctrl+Shift+V/Command+Shift+V).

The Paste In Place command puts the copied item in the exact same position from where it was copied.

5. Select the Selection tool and move the pasted shape slightly to the left or to the right so the crests of the waves are somewhat offset.



- **6.** Select the fill of the shape in the light brown wave layer.
- **7.** Choose Window > Color to open the Color panel. Set the fill color to a slightly different brown hue (**#CC6666**), and then change the Alpha value to **50%**.



The color swatch in the Color panel previews your newly selected color. Transparency is indicated by the gray grid that you can see through the transparent color swatch.



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You can also change the transparency of a shape from the Properties panel by clicking the Fill Color icon and changing the Alpha value in the pop-up color picker.

Adding shadows

Transparent fills are effective for creating shadows, which can provide a sense of depth for your illustration. You'll add a shadow for your coffee mug and another decorative shadow at the bottom of the Stage.

- **1.** Choose Insert > Timeline > Layer, and name the new layer **shadow**.
- **2.** Choose Insert > Timeline > Layer again, and name the second new layer **big shadow**.
- **3.** Drag the shadow layer and the big shadow layer to the bottom of the layer stack.



- **4.** Select the Oval tool.
- **5.** For the Stroke, select None, and for the Fill, select a dark brown color (**#663300**) with a 15% Alpha value.
- 6. In the shadow layer, draw an oval that sits just under the coffee mug.



7. In the big shadow layer, draw a much larger oval whose top edge just extends over the bottom of the Stage from below.

The overlapping transparent ovals add a rich, layered appearance to the illustration.



Being Expressive with the Paint Brush

Although the Pen tool excels at making precision curves like the waves you created in the background, it's not very good for creating spontaneous, expressive marks.

For a more painterly approach, use the Paint Brush tool (20). The Paint Brush tool allows you to make shapes that are more organic and free-form as well as shapes with regularly repeating patterns for borders and decorations. And, as with other graphics created with Animate, the shapes you create with the Paint Brush tool remain fully vector-based.

Choose from dozens of different brushes, and if you don't find something you can use, you can customize the brushes or even create your own.

Exploring the Brush Library

You'll add a little pizzazz to this banner ad by using the Paint Brush tool for the café name and logo. You'll hand-draw the letters with a brush that simulates rough chalk to provide a little more of a rustic atmosphere to the café brand.

- **1.** In the Timeline, add a new layer on top of your other layers and rename it **chalk**.
- **2.** Select the Paint Brush tool. In the Properties panel, choose a nice stroke color that will contrast against the reds and oranges in the artwork that you've already created. In this example, we chose a vibrant yellow.
- **3.** In the Fill And Stroke section, enter **15** for the stroke size.

This will give you a good thickness for the café lettering.

4. Now, to choose your brush style, click the Brush Library button (to the right of the Style menu).

Properties	Library
4	Paint Brush Tool
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Style:	। 🔽 🖉 🖉
	Manage Paint Brushes
Width:	- + - <u>9</u>
Scale:	Normal 🔽 Hinting

The Brush Library panel opens. Animate organizes all the brushes in large categories on the left column: Arrows, Artistic, Decorative, Line Art, Pattern Brushes, and Vector Pack.

5. Select a category to see the subcategories, and select a subcategory to view the individual brushes. For this task, select Artistic > Chalk Charcoal Pencil and double-click the Charcoal – Thick brush.



The Charcoal-Thick brush is added to the Style menu, and it becomes the currently active brush style.

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Stroke:	± 15.00
Style:	
	Manage Paint Brushes
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6. Now for the fun. Next to your coffee mug, hand-letter the name of the café, **Mug's Coffee**.



The chalk style lettering looks very complex, but it's controlled by a simple vector line. If you select the Selection or the Subselection tool and click one of your letters, you can see the stroke inside each letter. Push and pull on the stroke, move, or edit it with the Transform tool just like you would any other vector shape.



Creating a pattern

Now it's time to add a decorative border around your banner ad.

- **1.** Create a new layer above all your other layers and rename it **border**.
- **2.** Select the Line tool. Click the Stroke color swatch in the Properties panel and select a muted brown or orange color that would harmonize well with the rest of the background graphics.
- **3.** In the Properties panel, click the Brush Library button next to Style.

The Brush Library panel opens.

4. Select Pattern Brushes > Dashed > Dashed Square 1.3. If you find something more appealing, feel free to select it instead. Double-click your choice.

×			
Brush Library			
Q			
Arrows	Borders	Dashed Line	-
Artistic	Dashed		
Decorative	Decorative	Dashed Square	
Line art	Geometric	:========:	
Pattern Brushes	Novelty	Dashed Square 1.3	
Vector Pack	PatternArrow		
		DashedCircle	
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ч			

The Dashed Square 1.3 brush is added to the Style menu, and it becomes the currently active brush style.

Properties	Library 🗮
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5. Create a long horizontal line at the top edge of the Stage and another one at the bottom of the Stage.

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Hold Shift while drawing with the Line tool to constrain the tool to horizontal or vertical lines.

The dashed regular pattern at the top and bottom of the Stage provides a nice contrast to the curves and chalk-style lettering.



Editing and creating your own Art or Pattern Brush

You might not find a brush to your liking in the Brush Library, or you may need something very specific for your project. In either case, you can edit an existing brush or you can create an entirely new one. Pattern brushes repeat a shape over the length of a stroke whereas Art brushes stretch the base art over the length of the stroke.

To edit a brush, click the Edit Brush Style button next to the Style menu in the Properties panel.



The Paint Brush Options dialog box appears, with multiple controls to refine how the brush applies the base shapes.



Art brushes and Pattern brushes have different options. Experiment with different spacing, how the shapes repeat or stretch to fit, or how corners and overlaps are handled. When you're satisfied with your new brush, click Add to add your customized brush to the Style menu.

To create an entirely new brush, first create some shapes on the Stage that you want to base your brush on. For example, if you want to create a train track, create the base art that repeats for a Pattern brush.



Select the artwork on the Stage; then click the Create New Paint Brush From Selection button in the Properties panel near the Style menu.

Stroke:	 0.10
Style:	
Width:	
Scale:	Hinting

The Paint Brush Options panel appears. From the Type menu, you can choose either Art Brush or Pattern Brush, and then refine the brush options. The preview window shows you the results of your chosen options.

Paint Brush Options
Type: Pattern Brush Art Brush Pattern Brush Pattern Brush
 Stretch to fit Add space to fit Approximate path Spacing: 0% At corners: Flank artwork
Pressure Sensitivity: Minimum Width: 1% Maximum Width: 100 % Tilt Sensitivity:
Minimum Width: 1% Maximum Width: 100 % Apply to existing strokes and update the brush
Add Cancel

Enter a name for your new brush and click Add. Your new brush will be added to your Style menu and available for you to use.

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Managing paint brushes

If you've created a new brush or customized an existing one, you can save it to the Brush Library.

1. Click the Manage Paint Brushes button in the Properties panel.

Stroke:	-ù	20	0.00	
Style:		•	ø	¥
	Manage Paint Brushes			
Width:		•		<u>•</u>
Scale:	Normal			

The Manage Document Paint Brushes dialog box opens, displaying the current paint brushes that you've added to the Style menu. It shows you which ones are currently in use on the Stage and which ones aren't.

Manage Document Paint Brushes		
Charcoal – Thick In Use		
Dashed Square 1.3 In Use		
000000000000000000000000000000000000000		
✓ Train tracks		
Select all Save To Brush Library Delete		
Close		

- **2.** Select the brushes you want to delete or save to your Brush Library. You cannot delete a brush that is currently in use.
- **3.** If you save a brush to your Brush Library, it'll appear in the Brush Library in the category called My Brushes.

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Vector Pack			
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Pressure-sensitive graphics tablets

Animate supports input from pressure-sensitive tablets, such as the Wacom graphics tablets, to control variable-width strokes or the Art or Pattern brushes. Pressing harder with the stylus creates fatter strokes, whereas pressing lightly results in thinner strokes. You can adjust the tilt or sensitivity percentages in the Paint Brush Options dialog box to modify the range of thicknesses in the shapes you create. Try drawing with a stylus on a tablet with variable-width strokes enabled for a natural, intuitive way of creating vector images.

Rotating the Stage for easier drawing

When you draw on regular paper, it's often easier to rotate the page to get a better angle to draw or to write something. In Animate, you can do the same thing with the Stage using the Rotation tool.

The Rotation tool is grouped under the Hand tool in the Tools panel.



Select the Rotation tool and click the Stage to specify the pivot point, indicated by a crosshair. Once the pivot point has been established, drag the Stage to rotate it to your desired angle.



Click the Center Stage button at the top of the Stage to reset the Stage to its normal orientation.



Creating and Editing Text

Now let's add text to complete this illustration. Various options are available for text depending on what kind of document you're working on. For an HTML5 Canvas document like the one in this lesson, you can use static text or dynamic text.

Use static text for simple display text that uses fonts available on your (the designer's) computer. When you create static text on the Stage and publish to an HTML5 project, Animate automatically converts fonts into outlines. That means you don't have to worry about your audience having the required fonts to see the text as you intended it. The downside is that too much text can bloat your file size.

Use dynamic text to leverage web fonts available either through Typekit or Google. Thousands of high-quality fonts are available to you via Typekit through your Creative Cloud subscription, and the fonts are hosted by Typekit and accessible directly through the Properties panel within Animate. High-quality open source fonts are available through Google Fonts, which are hosted on Google servers.

In the next task, you'll create a tag line for the café and some descriptions of its products. You'll choose an appropriate web font and add the text.

Using the Text tool to add dynamic text

You'll create your text with the Text tool.

- **1.** Select the top layer.
- **2.** Choose Insert > Timeline > Layer, and name the new layer **text**.
- **3.** Select the Text tool (**T**).
- **4.** Choose Dynamic Text from the Text Type menu in the Properties panel.



5. Drag out a text box under the café name starting near the coffee cup and ending at the right edge of the Stage.



6. Begin typing. Enter **Taste the Difference**.



The text may not fit, or it might not be the size or font that you want. Don't worry—you'll select a web font for your text box in the next task.

- **7.** Exit the Text tool by choosing the Selection tool.
- **8.** Add three more pieces of smaller text on the Stage in the same layer just below your tag line: **Coffee, Pastries**, and **Free Wi-Fi**.



Adding a web font

Now you'll link a web font to your project. Make sure you have an Internet connection because Animate retrieves the list of available fonts from the web. The processes for adding a Typekit font and a Google Font are very similar. In this task, you'll add a Typekit font.

1. Select the **Taste the Difference** text and click Add Web Fonts (its icon is a globe) in the Properties panel, in the Character section. Choose Typekit from the menu that pops up.



Animate displays the Typekit Web Fonts opening screen.



2. Click Get Started.

The Add Web Fonts dialog box appears.


All the available Typekit fonts are listed. You can scroll through them all with the scroll bar on the right. You can also search for specific fonts or use the Sort By or Filter button to narrow your search.

3. For now, peruse the range of typefaces and pick one that you think would suit this banner ad. Click the name of your preferred font under the sample text.

All Fonts Selected Fon	ts			4₹ Sort By	√ Filter
Luminance MAC Rhino Fonts	4>	Luminance SC MAC Rhino Fonts	1>	Luxi Sans Bigelow & Holmes	4>
AaBbCcDd		AaBbCcDd		AaBbCcDd	
Luxi Serif Bigelow & Holmes	4>	M+1c M+Fonts	7 >	M+ Im M+ Fonts	5>
AaBbCcDd		AaBbCcDd		AABBCCdd	
Magion Web Suitcase Type Foundry	2>	Merriweather Sorkin Type Co	8 >	Metalista Web Suitcase Type Foundry	1>

More detail about the selected font appears, including the different styles (italic, bold, and so on), its classification (serif or sans serif), and the foundry name.

4. Click the Select button.





5. Click OK.

The dialog box closes and the selected web font is added to your project.

6. In the Properties panel, Character section, choose the newly added web font from the Family menu. Web fonts are listed at the very top of the menu.



Your selected Typekit web font is applied to the text box on the Stage. Choose a color that works nicely with the composition. Adjust the font size and/or the line spacing (the space between lines) in the Properties panel (line spacing is in the Paragraph section) to get all the text to fit comfortably in the space.

7. Select the other three pieces of text and use the Family menu to apply the same web font.



Identifying your domain

After you add your Typekit web font, you must identify the domain where your HTML5 project will be hosted. For Google Fonts, you do not need to perform these steps.

- **1.** Choose File > Publish Settings.
 - The Publish Settings dialog box appears.
- **2.** Click the Web Fonts tab on the far right tab.
- **3.** In the empty field, enter the URL where your banner ad will be hosted. Include the http://protocol. Since you won't actually upload this sample project, you can make up a domain name or leave it blank.



- **4.** Click OK to close the dialog box.
- **5.** Choose Control > Test to test your project.

Animate shows you a preview of the ad in your browser. The Test movie output that uses web fonts is meant for preview only. Use the File > Publish option to generate the final files to upload to your server.



Removing a web font

If you change your mind, you can easily remove a Typekit web font and choose a different one.

1. Select the text that uses the web font you want to remove.

Searching for the right font

The Add Web Fonts dialog box provides tools that help you find the right font for your project quickly and easily. Previews of the upper- and lowercase forms for A, B, C, and D are shown for each font family. If you want to see more details, click the font name. Sample sentences are displayed in all the different stylistic variants available (italic, bold, regular, and so on). You can use the Sort button to

organize the fonts, or you can use the Filter button to show only certain kinds of typefaces, such as ones that are serif or sans serif, or ones with thick and thin transitions.

Search Typekit fonts				-	Q
All Fonts Selected Fonts			-	↓≓ Sort By	▼ Filter K
				Classification	
AaBbCcDd	AaBbCcDd		Aal	MN	1 M H
League Gothic The League of Moveable Ty; 2 >	Abril Fatface TypeTogether	2 >	Acta Post	m	MM
Ac Bb(c Dd	AaBbCcDd		AaI	Recommended	d For
Acta Poster Swashes DSType 1>	Acumin Pro Adobe	4>	Acuta Ar	Properties	
AaBbCcDd	AaBbCcDd		AaB	h h ł	
Adelle TypeTogether 14 >	Adobe Caslon Pro Adobe	3 >	Adobe Ga	Ab Al	B 246 246

Knowing a little about typography is valuable in creating elegant and impactful Animate projects. Typography—the study and practice of creating letter forms is a subtle but essential part of design. The shape of each letter and its interaction with neighboring letters and the white space around them can drive the overall look and feel, as well as the emotion of your project.

The two major categories of typefaces are serif and sans serif.

Serif fonts are distinguished by small lines at the ends of strokes that make up a letter form. Times New Roman is the best-known example of a serif typeface. Serif typefaces are best used for long passages of text because the serifs help readability. Sans serif fonts, on the other hand, lack the embellishments at the ends of strokes ("sans" is French for "without"). Sans serif typefaces are cleaner, starker, and generally perceived as more modern. Helvetica is the best-known example of a sans serif typeface. Sans serif fonts are often used for larger display purposes such as headers or titles.



Other kinds of typefaces include script, which mimic a calligraphic pen, or decorative, which are more illustrative and very unique. Within each of these categories are a myriad of variations, so take time to think, search, and decide which font would best suit your project.

2. Deselect the font by choosing a different one.

In this example, the Merriweather font is deselected and the _sans font is selected.

	- Character		1
	Family: sans	- 8	Т
	Web Fonts		*
Tk	Merriweather	Sample	
🗸 Tr	_sans	Sample	
Ţ	'_serif	Sample	
Ŧ	'_typewriter	Sample	
Tr	ゴミック	文字もじモジ	

- **3.** Click the Add Web Fonts button and choose Typekit to open the Add Typekit Web Fonts dialog box.
- 4. Click Selected Fonts.

Animate displays all the fonts, indicated by a blue checkmark, that have been selected for your project.



If the font has a gray checkmark, that means you're still using it in some text on the Stage. You must deselect a font from every bit of text before removing it from your

project.

5. Deselect the font by clicking on it.

Now, no fonts are displayed in the Selected Fonts area.



6. Click OK.

The Add Web Fonts dialog box closes. The web font is removed from the Family menu in the Properties panel.

Matching the color of an existing object

If you want to match a color exactly, you can use the Eyedropper tool () to sample a fill or a stroke. After you click an object with the Eyedropper tool, Animate automatically switches to the Paint Bucket tool or the Ink Bottle tool loaded with the selected color and associated properties that you can apply to another object.

You'll use the Eyedropper tool to sample the color of one of the decorative background waves and apply it to the three pieces of smaller text.

- **1.** Select the Selection tool.
- 2. Shift-select all three of the smaller pieces of text: Coffee, Pastries, and Free Wi-Fi.



- **3.** Select the Eyedropper tool.
- **4.** Click the fill of the shape in the dark brown wave layer.



The three selected pieces of text change color to match the fill of the dark brown wave layer. Using the same colors helps to unify the composition.



Aligning and Distributing Objects

Finally, you'll tidy up the text so the layout is organized. Although you can use rulers (View > Rulers) and grids (View > Grid > Show Grid) to help position objects, here you'll use the Align panel, which is more effective when you're dealing with multiple objects. You'll also rely on the smart guides that appear when you move objects around the Stage.

Aligning objects

The Align panel, as you might guess, aligns any number of selected objects horizontally or vertically. It can also distribute objects evenly.

- **1.** Select the Selection tool.
- 2. Select the first small piece of text, Coffee.
- **3.** Move the text box left or right until smart guides appear. Align the left edge of the selected text with the left edge of the larger text above it.



- **4.** Select the third small piece of text, Free Wi-Fi.
- **5.** Move the text left or right until smart guides appear. Align the right edge of the selected text with the right edge of the larger text above it.



- **6.** Select all three small pieces of text.
- **7.** Open the Align panel (Window > Align).



8. Deselect the Align to Stage option, if it is already selected. Click the Align Bottom Edge button.

Animate aligns the bottom edges of the text.

9. Click the Space Evenly Horizontally button.

The selected text is adjusted so that the spaces between them become uniform.



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You might have to lock the lower layers so you don't accidentally select the shapes in the lower layers.

Converting and Exporting Art

You've completed your composition, made up of a simple illustration and layered design and text elements. You may still need to take additional steps, however, in order to optimize it for display in the final, published playback environment.

Converting vector art to bitmap art

Vector art, especially art with complex curves and many shapes and different line styles, can be processor-intensive and can take its toll on mobile devices, where performance suffers. The Convert To Bitmap command provides a way to turn selected artwork on the Stage into a single bitmap, which can be less taxing on the processor.

Once you've converted the object to a bitmap, you can move it without worrying about it merging with underlying shapes. However, the graphics are no longer editable with Animate's editing tools.

- **1.** Select the Selection tool.
- **2.** Unlock your layers. Select the wavy coffee aroma lines in the coffee aroma layer, as well as the coffee group in the coffee cup layer.



3. Choose Modify > Convert To Bitmap.

Animate converts the cup of coffee and wavy lines to a single bitmap and stores the bitmap in the Library panel.



Choose Edit > Undo (Ctrl+Z/Command+Z) to undo the conversion to bitmap and revert your coffee mug and aroma strokes to vector graphics.

Exporting art as PNG, JPG, or GIF

If you want a simple image file in a format such as a PNG, JPG, or GIF, use the Export Image panel to choose your format and fine-tune the compression for optimal web download performance.

1. Choose File > Export > Export Image.

The Export Image dialog box opens.



Exporting art as SVG

Scalable Vector Graphics (SVG) is a common XML-based format for displaying vector graphics in a browser. You can export your final composition from Animate as SVG, embedding or linking any bitmap images. The exported SVG produces a static image of your project. However, SVG only supports static text.

To export your artwork as SVG, do the following:

- **1.** Choose File > Export > Export Image (Legacy).
- **2.** From the File Format menu, choose SVG Image (*.svg) and click Save.
- **3.** In the ExportSVG dialog box that appears, select Embed for Image Location.

ExportSVG	
SVG Profiles: SVG 1.1	
Options	
✓ Include hidden layers	
Image Location:	
Embed	
🔿 Link	
Copy images into a folder and update links	
images	
Cancel	ОК

The Image Location options determine whether your bitmap images are encoded into the SVG file or kept as separate files and linked to your SVG. Embedding images creates larger SVG files, whereas linking allows you to swap and edit the images easily.

4. Click OK.

Animate exports an SVG file with any image data encoded in the text file. An SVG document is a text file marked up much like an HTML document. All the visual information, including corner points, curves, text, and color information, is encoded in a compact form.

When you open an SVG file in your browser, it renders the image, and all the vector information is preserved. Curves remain sharp even up close, and any static text in your composition is selectable.

2. Choose the appropriate file format, select the amount of compression, select a color palette, and even compare different settings to weigh image quality and file size. You can also resize the image.

That Animate provides such a robust environment for creating compelling, rich, and sophisticated graphics and text paired with such flexibility in output options is truly

remarkable, and something that will help drive all your creative pursuits.

🛑 Note

If your Animate document contains multiple frames, you can also choose to export it as an animated GIF.

Review Questions

- **<u>1</u>**. What are the three drawing modes in Animate, and how do they differ?
- **<u>2</u>**. When would you use each of the selection tools in Animate?
- **<u>3</u>**. What can you do with the Width tool?
- **<u>4.</u>** What is the difference between an Art brush and a Pattern brush?
- **<u>5</u>**. What are web fonts and how are they used in HTML5 Canvas documents?
- **<u>6</u>**. What does the Align panel do?

Review Answers

- **<u>1</u>**. The three drawing modes are Merge Drawing mode, Object Drawing mode, and Primitive Drawing mode.
 - In Merge Drawing mode, shapes drawn on the Stage merge to become a single shape.
 - In Object Drawing mode, each object is distinct and remains separate, even when it overlaps another object.
 - In Primitive Drawing mode, you can modify the angles, radius, or corner radius of an object.
- **2.** Animate includes three selection tools: the Selection tool, the Subselection tool, and the Lasso tool.
 - Use the Selection tool to select an entire shape or object.
 - Use the Subselection tool to select a specific point or line in an object.
 - Use the Lasso tool to draw a free-form selection area.
- **3.** Use the Width tool to edit the variable widths of a stroke. You can drag the handle bars of any anchor point to expand or narrow the width, add or delete anchor points, or move anchor points along the stroke.
- **4.** An Art brush uses a base shape and stretches it to fit a vector stroke to simulate an expressive, creative, and often painterly mark. A Pattern brush uses a base shape that repeats to create decorative patterns.
- **5.** Web fonts are fonts specifically created for online viewing that are hosted on a server. Animate offers two kinds of web fonts for inclusion in HTML5 Canvas documents: Typekit and Google Fonts.
- **<u>6</u>**. The Align panel aligns any number of selected elements horizontally or vertically and can distribute elements evenly.

3. Creating and Editing Symbols

Lesson Overview

- Import Adobe Illustrator and Adobe Photoshop artwork
- Create and edit symbols
- Understand symbols and instances
- Positioning objects on the Stage
- Adjust transparency and color, and turn visibility on or off
- Apply blending effects
- Apply special effects with filters
- Position objects in 3D space



This lesson will take about 90 minutes to complete. Download the project files for this lesson from the Registered Products tab on your Account page at <u>www.peachpit.com</u> (click the Access Bonus Content link) and store them on your computer in a convenient location, as described in the Getting Started section of this book. Your Account page is also where you'll find any updates to the lessons or to the lesson files.



Symbols are reusable assets that are stored in your Library panel. The movie clip, graphic, and button symbols are three types of symbols that you will be creating and using often for special effects, animation, and interactivity.

Getting Started

Start by viewing the final project to see what you'll be creating as you learn to work with symbols.

1. Double-click the 03End.html file in the Lesson03/03End folder to view the final project in your browser. You'll need the Flash Player installed for your browser to view the movie.



🛑 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 "<u>Getting</u> <u>Started</u>" at the beginning of the book.

The project is a static illustration of a cartoon frame. In this lesson, you'll use Illustrator graphic files, imported Photoshop files, and symbols to create an attractive static image with interesting effects. Learning how to work with symbols is an essential step before creating any animation or interactivity.

- **2.** Close the 03End.html file.
- **3.** In Adobe Animate CC, choose File > New. In the New Document dialog box, choose ActionScript 3.0.
- **4.** On the right side of the dialog box, change the Stage to **600** pixels wide by **450** pixels high and click OK.
- **5.** Choose File > Save. Name the file **03_workingcopy.fla** and save it in the 03Start folder.

Importing Adobe Illustrator Files

As you learned in Lesson 2, you can draw objects in Animate using the Rectangle, Oval, and other tools. However, you can also create original artwork in a variety of applications and import it into Animate. If you're more familiar with Adobe Illustrator, for example, you may find it easier to design layouts in Illustrator, and then import them into Animate to add animation and interactivity.

) Note

To learn more about Adobe Illustrator, turn to the *Adobe Illustrator CC Classroom in a Book* from Adobe Press. For more information, visit <u>adobepress.com</u> or <u>peachpit.com</u>.

When you import an Illustrator file saved in AI format, Animate will automatically recognize layers, frames, and symbols. You can choose how Animate should import the different layers of the original file and how to import text (see the section "<u>Using simple import options</u>").

In this exercise, you'll import an Illustrator file that contains all the characters for the cartoon frame.

- **1.** Choose File > Import > Import To Stage.
- **2.** Navigate to the Lesson03/03Start folder and select characters.ai.
- 3. Click Open.

The Import [filename] To Stage dialog box appears.

There are two modes for importing Illustrator assets into Animate: one with advanced options and one without. The advanced options appear by default, but you can hide or show the advanced options by clicking the button at the bottom of the panel. For now, keep the advanced options displayed.

Import characters.ai to Stage			
Select Illustrator Artboard: 1 - "Artboard 2" 🛛 🔻			
Select all layers			
v ⊻ 👷 hero			
✓ ✓ Compound Path>			
\checkmark = <compound path=""> 1</compound>			
<pre>Compound Path> 2</pre>			
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Compound Path>_6			
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Compound Path>_8			
Compound Path>_9			
Compound Path> 11			
Compound Path> 12			
Compound Path>_13			
Compound Path>_14			
Compound Paths 15			
Convert layers to: Animate layers 🔻			
✓ Place objects at original position			
Import as a single bitmap image			
Set stage size to the same as Illustrator artboard(612 x 792)			
Hide Advanced Options Cancel Import			

- **4.** On the left side of the dialog box, Animate shows the graphics in each layer from the Illustrator file. The layer names and hierarchy remain identical to those of the original Illustrator layers.
- **5.** Click the Collapse All button.

Animate collapses the individual paths and groups to show just the two layers called hero and robot.



6. Click the hero layer, and in the Layer Import Options on the right, select Create A Movie Clip.



We chose to import the hero layer from Illustrator as a movie clip symbol because a movie clip symbol supports a variety of visual effects, even for single-frame images. If you select the Import As Bitmap option, Animate will convert the Illustrator graphics to a bitmap image instead of preserving the vector paths.

7. Select the robot layer, and in the options on the right, *don't* select either of the layer import options. You'll see how these two different import options affect how your assets come into Animate.

Select all layers	\$₹	Layer import options for 'robot':
▶ 🗹 🙀 hero		
robot		Import as hitman
		Create a movie clip
		Registration:

8. Click Import.

The hero and robot layers from the original Illustrator file are imported and placed on layers with the same names in Animate. The hero is converted to a movie clip symbol, which is saved to the Library panel. The robot is not yet a movie clip symbol (you'll learn about how to create a movie clip symbol within Animate later in this lesson).



Using simple import options

Often, you don't need the fine control to select individual layers or individual graphics within a layer to import into Animate. For a simple, quick, and easy import process, click Hide Advanced Options in the lower-left corner of the dialog box and use the following options:

Layer Conversion



Selecting Maintain Editable Paths And Effects lets you continue to edit the vector drawing in Animate. The other option, Single Flattened Bitmap, imports the Illustrator artwork as a bitmap image.

Text Conversion



Selecting Editable Text leaves the text as text so you can edit it in Animate. The Vector Outlines option converts the text into resolution-independent vector paths, which are no longer editable with the Text tool. Use this option if you don't have the correct fonts installed on your computer to import the text. Selecting Flattened Bitmap Image converts text to a bitmap image, which is not editable.

• Convert Layers To



Select Animate Layers to preserve the layers from Illustrator and import each layer from Illustrator into a layer in Animate. The Single Animate Layer option flattens the Illustrator layers into one Animate layer, and the Keyframes option separates the Illustrator layers into individual Animate keyframes.

Copying artwork from Illustrator and pasting into Animate

If you don't need to bring an entire Illustrator file into Animate, you can copy portions of the Illustrator file and paste them into an Animate document.

When you copy and paste (or drag and drop) artwork from Illustrator into Animate, the Paste dialog box appears. The Paste dialog box provides import settings for the Illustrator file you're copying. You can paste the file as a single bitmap object, or you can paste it using the current preferences for AI files. Just as when you import the file to the Stage or the Library panel, when you paste Illustrator artwork, you can convert Illustrator layers to Animate layers.

Importing SVG files

Animate can also import SVG artwork (see the description of the SVG format in the previous chapter). To import an SVG file, simply drag and drop the file onto the Stage or use one of the File > Import commands. In the import process, you can choose to convert SVG layers to Animate layers or to keyframes, or to flatten them into a single Animate layer.

About Symbols

A *symbol* is a reusable asset that you can use for special effects, animation, or interactivity. There are three kinds of symbols that you can create: the graphic, button, and movie clip. Symbols can reduce the file size and download time for many animations because they can be reused. You can use a symbol countless times in a project, but Animate includes its data only once.

Symbols are stored in the Library panel. When you drag a symbol to the Stage, Animate

creates an instance of the symbol, leaving the original in the library. An instance is a copy of a symbol located on the Stage. You can think of the symbol as an original photographic negative, and the instances on the Stage as prints of the negative. With just a single negative, you can create multiple prints.

It's also helpful to think of symbols as containers. Symbols are simply containers for your content. A symbol can contain a JPEG image, an imported Illustrator drawing, or a drawing that you created in Animate. At any time, you can go inside your symbol and edit it, which means editing or replacing its contents.

Each of the three kinds of symbols in Animate is used for a specific purpose. You can tell whether a symbol is a graphic ((), button (), or movie clip ()) by looking at the icon next to it in the Library panel.

Movie clip symbols

The movie clip is one of the most powerful and versatile types of symbol. When you create animation, you will typically use movie clip symbols. You can apply filters, color settings, and blending modes to a movie clip instance to enhance its appearance with special effects.

😑 Note

In spite of its name, a movie clip symbol isn't necessarily animated.

A movie clip symbol also contains its own independent timeline. You can have an animation inside a movie clip symbol just as easily as you can have an animation on the main Timeline. This makes very complex animations possible; for example, a butterfly flying across the Stage can move from left to right as well as have its wings flapping independently of its movement.

Most importantly, you can control movie clips with ActionScript to make them respond to the user. For example, you can control a movie clip's position or rotation to create arcade-style games. Or a movie clip can have drag-and-drop behavior, which comes in handy when building a jigsaw puzzle.

Button symbols

Button symbols are used for interactivity. They contain four unique keyframes that describe how they appear when the mouse is interacting with them. However, buttons need code to make them do something.

You can also apply filters, blending modes, and color settings to buttons. You'll learn more about buttons in <u>Lesson 8</u> when you create a nonlinear navigation scheme to allow the user to choose what to see.

Graphic symbols

Graphic symbols are the most basic kind of symbol. Often you use graphic symbols to build more complex movie clip symbols. They do not support ActionScript and you can't apply filters or blending modes to a graphic symbol.

However, graphic symbols are useful when you have multiple versions of a drawing that you want to easily switch between—for example, when synchronizing lips to sound, keeping all the different mouth positions in individual keyframes of a graphic symbol makes voice syncing easy. Graphic symbols also are used to synchronize an animation inside a graphic symbol to the main Timeline.

Importing symbols

Working with symbols in Adobe Illustrator is similar to working with them in Animate. In fact, you can use many of the same keyboard shortcuts in both Illustrator and Animate: press F8 in either application to create a symbol. When you create a symbol in Illustrator, the Symbol Options dialog box lets you name the symbol and set options specific to Animate, including the symbol type (such as movie clip) and registration point location.

If you want to edit a symbol in Illustrator without disturbing anything else, double-click the symbol to edit it in isolation mode. Illustrator dims all other objects on the artboard. When you exit isolation mode, the symbol in the Symbols panel—and all instances of the symbol—are updated accordingly.

Use the Symbols panel or the Control panel in Illustrator to assign names to symbol instances, break links between symbols and instances, swap a symbol instance with another symbol, or create a copy of the symbol.

Creating Symbols

You learned how to create a movie clip symbol while importing assets from Illustrator. You can also create symbols within Animate. There are two main ways of creating a symbol. Both methods are valid; the one you use depends on your preferred way of working.

The first method is to start with nothing selected on the Stage, and then to choose Insert > New Symbol. Animate will put you in symbol-editing mode where you can begin drawing or importing graphics for your symbol.

The second method is to select existing graphics on the Stage and then convert them to symbols. Whatever is selected will automatically be placed inside your new symbol.

Most designers prefer to use this second method because they can create all their graphics on the Stage and see them together before making the individual components into symbols.

😑 Note

When you use the command Convert To Symbol, you aren't actually "converting" anything; rather, you're placing whatever you've selected inside a symbol.

For this lesson, you'll select the different parts of the imported Illustrator graphic, and then convert the various pieces to symbols.

1. On the Stage, select only the cartoon robot in the robot layer.



2. Choose Modify > Convert To Symbol (F8).

The Convert To Symbol dialog box opens.

- **3.** Name the symbol **robot** and choose Movie Clip from the Type menu.
- **4.** Leave all other settings as they are. The Registration grid indicates the center point (x=0, y=0) and transformation point of your symbol. Leave the registration at the top-left corner.



5. Click OK. The robot symbol appears in the Library panel. In the Library panel, click the disclosure triangle next to the characters.ai folder to reveal the hero symbol that was converted to a movie clip symbol when you imported it.



You now have two movie clip symbols in your library and an instance of each on the Stage as well.

Importing Adobe Photoshop Files

Now, you'll import a Photoshop file for the background. The Photoshop file contains two layers with a blending effect. A blending effect can create special color mixes between different layers. You'll see that Animate can import a Photoshop file with all the layers intact and retain all the layer blending information as well.

🛑 Note

To learn more about Adobe Photoshop, turn to the *Adobe Photoshop CC Classroom in a Book* from Adobe Press. For more information, visit <u>adobepress.com</u> or <u>peachpit.com</u>.

As with the options for importing Illustrator files, there are two modes for importing Photoshop assets into Animate: one with advanced options and one without. And like the options for importing Illustrator files, the Import [filename] To Stage dialog box displays the advanced options when it opens.

- **1.** Select the top layer in your Timeline.
- **2.** Choose File > Import > Import To Stage.
- **3.** Navigate to the Lesson03/03Start folder and select background.psd.
- 4. Click Open.

The Import To Stage dialog box appears.

Import "backgrou	und.psd" to Stage
Select Photoshop layer comp:	
✓ Select all layers 🗶 💐	Import options for 'flare':
🗹 🌌 flare	Import this image layer as:
Background	 Bitmap image with editable layer styles Flattened bitmap image
	Create movie clip
	Instance name:
	Registration:
	Publish settings:
	Compression: Lossy 🔻
	Quality: Use publish setting Custom
	Calculate bitmap size
Convert layers to: Animate layers 🔻	
Import as a single bitmap image	
✓ Place objects at original position	
Set stage size to the same as Photoshop Canvas	(600 x 450)
Hide Advanced Options	Cancel Import

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If you can't select the PSD file, choose All Files from the Enable menu. If the Enable menu isn't visible, click Options.

5. Click Show Advanced Options at the bottom of the dialog box if the advanced options are hidden.

Animate shows two different layers from the Photoshop file, one named **flare** and the other named **Background**.

- **6.** Make sure both layers have a check mark in front of them indicating that they're selected. If not, you can click the Select All Layers option.
- 7. Click the flare layer to highlight it, and from the options to the right, select Bitmap

Image With Editable Layer Styles.



8. Select the Background layer, and from the options to the right, select Bitmap Image With Editable Layer Styles.



9. Leave all the other options at their default settings and click Import.

Animate preserves the layers from Photoshop and creates identically named layers in Animate.



The Photoshop layers are automatically converted into movie clip symbols and saved in your library. The movie clip symbols are contained in the folder called background.psd Asset.



All the blending and transparency information is maintained and translated from the Photoshop layers to the Animate movie clip Blending properties. To see this, select the flare layer in the Timeline and then click the flare image on the Stage to select it. Open the Properties panel, and in the Display section you'll see that Lighten is chosen from the Blending menu.



The option that you did not select, Flattened Bitmap Image, would have imported a bitmap image with its blending and transparency effects fixed in the image. The Lighten effect would be permanently applied to the bitmap image itself and not as a Blending option in the Properties panel.

10. Drag the robot and the hero layers to the top of the Timeline so they overlap the background layers.



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If you want to edit your Photoshop files, you don't have to go through the entire import process again. You can edit any image on the Stage or in the Library panel in Adobe Photoshop CC or any other image-editing application.

Right-click an image on the Stage or an image in the Library panel and choose Edit With Adobe Photoshop to edit in Photoshop, or choose another Edit With option to open the graphic in your preferred application. Animate launches the application, and once you have saved your changes, your image is immediately updated in Animate.

Make sure that you right-click an image on the Stage or library, and not the movie clip. This is often easier to achieve in the Library panel.

🔵 Note

The simple import options for Photoshop files are identical to those for Illustrator files. Choose settings for the Layer Conversion, Text Conversion, and Convert Layers To options for a quick and easy import process.

😑 Note

You also have the option of changing the Animate Stage size to match the Photoshop canvas. However, the current Stage is already set to the correct dimensions (600 pixels \times 450 pixels).

About image formats

Animate supports multiple bitmap image formats for import. Animate can handle JPEG, GIF, PNG, and PSD (Photoshop) files. Use JPEG files for images that include gradients and subtle variations, such as those that occur in photographs. GIF files are used for images with large solid blocks of color or black-and-white line drawings. Use PNG files for images that include transparency. Use PSD files if you want to retain all the layer, transparency, and blending information from a Photoshop file.

Converting a bitmap image to a vector graphic

Sometimes you'll want to convert a bitmap image to a vector graphic. Animate handles bitmap images as a series of colored dots (or pixels); vector graphics are handled as a series of lines and curves. This vector information is rendered on the fly, so that the resolution of vector graphics is not fixed like a bitmap image. That means you can zoom in on a vector graphic and your computer will always display it sharply and smoothly. Converting a bitmap image to a vector often has the effect of making it look "posterized" because subtle gradations are converted to editable, discrete blocks of color, which can be an interesting effect.

To convert a bitmap to a vector, import the bitmap image into Animate. Select the bitmap and choose Modify > Bitmap > Trace Bitmap. The options determine how faithful the vector image will be to the original bitmap.

In the following figure, the left image is an original bitmap and the right image is a vector graphic.



Exercise caution when using the Trace Bitmap command, because a complicated vector graphic is often more memory- and processor-intensive than the original bitmap image.

Editing and Managing Symbols

You now have multiple movie clip symbols in your library and several instances on the Stage. You can better manage the symbols in your library by organizing them in folders. You can also edit any symbol at any time. If you decide you want to change the color of one of the robot's arms, for example, you can easily go into symbol-editing mode and make that change.

Adding folders and organizing the library

The Library panel provides handy tools for streamlining the organization of your collection of symbols.

1. In the Library panel, right-click in an empty space and choose New Folder from the context menu. Alternatively, you can click the New Folder button () at the bottom of the Library panel, or choose New Folder from the panel menu in the upper-right corner of the panel.

A new folder is created in your library.

2. Name the folder characters.



- **3.** Drag the hero and the robot movie clip symbols into the characters folder. You may have to open the folder characters.ai/hero to find the hero movie clip symbol.
- **4.** You can collapse or expand folders to hide or view their contents and keep your Library panel organized.



Editing a symbol from the library

You can edit symbols directly from the library whether or not they've been used on the Stage.

1. Double-click the robot movie clip symbol icon in the library.

Animate puts you in symbol-editing mode. In this mode, you can see the contents of your symbol—in this case, the robot on the Stage. Notice that the Edit bar at the top of the Stage tells you that you are no longer in Scene 1 but are inside the symbol called robot.



2. With the Selection tool active, double-click the drawing to edit it.

Animate drills down one group deeper to show all the vector drawing objects that make up the group.



- **3.** Click an empty part of the Stage to deselect everything.
- **4.** Select the Paint Bucket tool. Select a new fill color and apply it to a drawing group on the robot, for example, a particular panel on its shoulder.



5. Click Scene 1 on the Edit bar above the Stage to return to the main Timeline.

The movie clip symbol in the library reflects the changes you made. The instance on the Stage also reflects the changes you made to the symbol. All instances of the symbol will change if you edit the symbol.


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You can quickly and easily duplicate symbols in the library. Select the Library symbol, right-click, and choose Duplicate. Or choose Duplicate from the Library panel menu (in the upper-right corner of the panel). Animate creates an exact copy of the selected symbol in your library.

Editing a symbol in place

You may want to edit a symbol in context with the other objects on the Stage. You can do so by double-clicking an instance on the Stage. You'll enter symbol-editing mode, but you'll also be able to see the symbol's surroundings. This editing mode is called editing in place.

1. Using the Selection tool, double-click the robot movie clip instance on the Stage.

All other objects on the Stage are dimmed and you are put into symbol-editing mode. Notice that the Edit bar shows that you are no longer in Scene 1 but are inside the symbol called robot.



2. Double-click the group to edit it.

The drawing groups that make up the group inside the symbol are displayed. Note that the Edit bar shows that you are in a group inside the symbol called robot.



3. Select the Paint Bucket tool. Select a new fill color and apply it to the robot's chest plate.



4. Click Scene 1 on the Edit bar above the Stage to return to the main Timeline. You can

also just double-click any part of the Stage outside the graphic with the Selection tool to return to the next-higher group level.

The movie clip symbol in the Library panel reflects the changes you made. The instance on the Stage also reflects the changes you made to the symbol. All instances of the symbol will change according to the edits you make to the symbol.



Breaking apart a symbol instance

If you no longer want an object on the Stage to be a symbol instance, you can use the Break Apart command to return it to its original form.

- **1.** Use the Selection tool to select the robot instance on the Stage.
- **2.** Choose Modify > Break Apart.

Animate breaks apart the robot movie clip instance. What's left on the Stage is a group, which looks the same as the symbol instance. You can break apart the group even further to edit it.

3. Choose Modify > Break Apart once more.

Animate breaks apart the group into its individual components, which are the vector drawing objects. You could even break apart one more time and your drawing objects will convert to shapes.



4. Choose Edit > Undo several times to return your robot to a symbol instance.

Changing the Size and Position of Instances

You can have multiple instances of the same symbol on the Stage. Now you'll add a few more robots to create a small robot army. You'll learn how to change the size and position (and even rotation) of each instance individually.

- **1.** Select the robot layer in the Timeline.
- **2.** Drag another robot symbol from the Library panel onto the Stage.

A new instance appears.



3. Select the Free Transform tool.

Control handles appear around the selected instance.



4. Drag the control handle on one side of the selection to flip the robot so it is facing in the other direction.



5. Drag the control handle on one corner of the selection while holding down the Shift key to reduce the size of the robot. The Shift key constrains the transformation so the width and height change proportionally.



6. Drag a third robot from the Library panel onto the Stage. With the Free Transform tool, flip the robot, resize it, and make it overlap the second robot. Move the characters into an attractive arrangement.

The robot army is growing! Notice how transformations to an instance do not change the library symbol, and do not change other instances. On the other hand, edits to the library symbol change all of its instances.



Using rulers and guides

You may want to be more precise in your placement of your symbol instances. In Lesson 1, you learned how to use the *x* and *y* coordinates in the Properties panel to position individual objects. In Lesson 2, you learned to use the Align panel to align several objects to each other.

Another way to position objects on the Stage is to use rulers and guides. Rulers appear on the top and left edge of the Pasteboard to provide measurement along the horizontal and vertical axes. Guides are vertical or horizontal lines that appear on the Stage but do not appear in the final published movie.

1. Choose View > Rulers (Alt+Shift+R/Option+Shift+Command+R).

Horizontal and vertical rulers measured in pixels appear along the top and left edges of the pasteboard. As you move objects on the Stage, tick marks indicate the bounding box positions on the rulers. The x=0 and y=0 points begin at the upper-left corner of the Stage with the X-values increasing to the right and the Y-values increasing going down.



2. Move your mouse pointer over the top horizontal ruler and drag a guide down onto the Stage.

A colored line appears on the Stage that you can use as a guide for alignment.



3. Double-click the guide with the Selection tool.

The Move Guide dialog box appears.

4. Enter **435** as the new pixel value of the guide. Click OK.



The guide is repositioned 435 pixels from the top edge of the Stage.

- **5.** Choose View > Snapping > Snap To Guides and make sure Snap To Guides is selected. Objects will now snap to any guides on the Stage.
- **6.** Drag the large robot instance and the hero instance so their bottom edges align with the guide.



▶ Tip

Choose View > Guides > Lock Guides to lock your guides. This prevents you from accidentally moving them. Clear all guides by choosing View > Guides > Clear Guides. Change the color of the guides and the snapping accuracy by choosing View > Guides > Edit Guides.

Changing the Color Effect of an Instance

The Color Effect option in the Properties panel allows you to change several properties of any instance. These properties include brightness, tint (the overall coloring), and alpha.

Changing the brightness

Brightness controls how dark or light the instance appears on the Stage.

- **1.** Using the Selection tool, click the smallest robot on the Stage.
- **2.** In the Properties panel, in the Color Effect section choose Brightness from the Style menu.



3. Drag the Bright slider to **-40%**.

The robot instance on the Stage becomes darker and appears to recede into the distance.



Changing the transparency

Alpha is a measure of the level of opacity. Decreasing the alpha value decreases the opacity and increases the amount of transparency.

- **1.** Click the glowing orb to select it. In the Properties panel you should see flare chosen from the Instance Of menu.
- **2.** In the Properties panel, in the Color Effect section choose Alpha from the Style menu.



3. Drag the Alpha slider to a value of **50%**.

The orb in the flare layer on the Stage becomes semitransparent.



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To reset the Color Effect of any instance, choose None from the Style menu.

Understanding Display Options

The Display section in the Properties panel for movie clips offers options for controlling an instance's visibility, blending, and rendering.

Visible property for movie clips

The Visible property makes objects either visible or invisible to the audience. You can directly control the Visible property of movie clip instances on the Stage by selecting or deselecting the option in the Properties panel.

- **1.** Select the Selection tool.
- **2.** Select one of the robot movie clip instances on the Stage.
- **3.** In the Properties panel, in the Display section, notice that the Visible option is selected by default, meaning that the instance is visible.



4. Deselect the Visible check box.

The selected instance becomes invisible.



The instance is present on the Stage, and you can still move it to a new position, but the audience won't be able to see it. Use the Visible option to turn instances on or off during the course of your movie, rather than deleting them entirely. You can also use the Visible option to position invisible instances on the Stage in order to make them visible later on with code.

5. Select the Visible option to make the instance visible on the Stage again.

Blending effects

Blending refers to how the colors of an instance interact with the colors below it. You saw how the instance in the flare layer had the Lighten option applied to it (carried over from Photoshop), which integrated it more with the instance in the Background layer.

Animate offers a variety of Blending options; you'll find them listed on the Blending menu in the Display section of the Properties panel. Some have surprising results, depending on the colors in the instance and the colors in the layers below it. Experiment with all the options to understand how they work. The following figure shows some of the Blending options and their effects on the robot instance over a blue-black gradient.



Export As Bitmap

The robots and the hero character in this lesson are movie clip symbols containing complex vector graphics imported from Illustrator. Vector art can be processor-intensive, and it can take a toll on performance and playback. A rendering option called Export As Bitmap can help. The Export As Bitmap option renders the vector art as a bitmap, reducing the performance load (but increasing memory use). The movie clip still consists of editable vector graphics in the FLA file, however, so you can still modify the artwork.

- **1.** Select the Selection tool.
- **2.** Select the hero movie clip instance on the Stage.
- **3.** In the Properties panel, in the Display section choose Export As Bitmap from the Render menu.



The hero movie clip instance appears as it will be rendered when published. You may see a slight "softening" of the illustration because of the rasterization of the art.

4. In the Bitmap Background menu (below the Render menu), make sure Transparent is chosen (the default).



The Transparent option renders the background of your movie clip symbol as transparent. Alternately, you can choose Opaque and pick a color for the background of your movie clip symbol.

About accessibility

The Accessibility section of the Properties panel for movie clips provides options for visually impaired users of your content using the Flash Player and Microsoft Active Accessibility (MSAA) (the latter on Internet Explorer and Firefox on Windows only). By entering names and descriptions for your movie clips and child objects (movie clips inside movie clips) in the Properties panel, screen readers can read them aloud and give audible identification of your content.

For more information and best practices for making your content accessible, visit Adobe's site on creating accessible content at <u>https://helpx.adobe.com/animate/using/creating-accessible-content.html</u>.

Applying Filters for Special Effects

Use filters to create special effects that you can apply to movie clip instances. Several filters are available in the Filters section of the Properties panel. Each filter has different options that can refine the effect.

Applying a blur filter

You'll apply a blur filter to some of the instances to help give the scene a greater sense of depth.

- **1.** Select the glowing orb in the flare layer.
- **2.** In the Properties panel, expand the Filters section.
- **3.** Click Add Filter at the top of the Filters section and choose Blur from the menu.



Properties and values for the Blur filter are displayed.

4. If they aren't linked already, click the link icons next to the Blur X and Blur Y values to link the blur effect in both directions.

5. Set the value of Blur X and Blur Y to **10** pixels.

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The instance on the Stage becomes blurry, helping to give an atmospheric perspective to this scene.



😑 Note

It's best to keep the Quality setting for filters on Low. Higher settings are processor-intensive and can bog down performance, especially if you've applied multiple filters.

More filter options

At the top-right corner of the Filters section is a menu of commands that help you manage and apply multiple filters.

Save As Preset lets you save a particular filter and its settings so you can apply it to another instance. Copy and Paste let you copy and paste a selected filter or all the filters and apply them to other instances. The Reset Filter command resets the values for the selected filter to the defaults. The Enable or Disable Filter button (the eyeball icon next to the Filter name) lets you see your instance with or without the filter applied.



Positioning in 3D Space

You also have the ability to position and animate objects in real three-dimensional space. However, objects need to be movie clip symbols to be moved in 3D. Two tools allow you to position objects in 3D: the 3D Rotation tool and the 3D Translation tool. The Transform panel also provides information for position and rotation.

Understanding the 3D coordinate space is essential for successful 3D placement of objects. Animate divides space using three axes: the x, y, and z axes. The x axis runs horizontally across the Stage with x=0 at the left edge. The y axis runs vertically with y=0 at the top edge. The z axis runs into and out of the plane of the Stage (toward and away from the viewer) with z=0 at the plane of the Stage.

🔵 Note

The 3D Rotation and 3D Translation tool are only supported in Animate ActionScript 3.0 and AIR documents. In HTML5 Canvas and WebGL documents, the 3D tools are disabled.

Changing the 3D rotation of an object

You'll add some text to your image, but to add a little more interest, you'll tilt it to put it in perspective. Think about the beginning text introduction to the *Star Wars* movies, and see if you can achieve a similar effect.

1. Insert a new layer at the top of the layers stack and rename it **text**.

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- **2.** Select the Text tool from the Tools panel.
- **3.** In the Properties panel, choose Static Text from the Text Type menu. Choose a striking font and set it to a large size with an interesting color that will add some pizzazz. Your font might look different from what's shown in this lesson, depending on the fonts available on your computer.
- **4.** Click on the Stage in your text layer and begin typing your title.



- **5.** To exit the Text tool, select the Selection tool.
- **6.** With the text object still selected, choose Modify > Convert To Symbol (F8).
- **7.** In the Convert To Symbol dialog box, enter **title** for Name and choose Movie Clip for Type. Click OK.



Your text is put into a movie clip symbol, and an instance remains on the Stage. **8.** Select the 3D Rotation tool (



A circular, multicolored target appears on the instance. This is a guide for the 3D rotation. It's useful to think of the guides as lines on a globe. The red longitudinal line rotates your instance around the x axis. The green line along the equator rotates your instance around the y axis. The circular blue guide rotates your instance around the z axis.



- **9.** Drag any one of the guides to rotate your instance in 3D space. A label will be added to your mouse pointer to show which axis you're manipulating.
 - Drag left or right on the red guide to rotate around the x axis.
 - Drag up or down on the green guide to rotate around the y axis.
 - Drag around the circle on the blue guide to rotate around the z axis.

You can also drag the outer orange circular guide to freely rotate the instance in all three directions.



Changing the 3D position of an object

In addition to changing an object's rotation in 3D space, you can move it to a specific point in 3D space. Use the 3D Translation tool, which is hidden under the 3D Rotation tool.

- **1.** Select the 3D Translation tool (
- **2.** Click your text to select it.



A guide appears on the instance. This is a guide for the 3D translation. The red guide represents the x axis, the green is the y axis, and the blue is the z axis.



3D Translation control (global)

3D Translation control (local)

- **3.** Drag any one of the guides to move your instance in 3D space. Notice that your text stays in perspective as you move it around the Stage.
 - Drag left or right on the red guide to move along the x axis.
 - Drag up or down on the green guide to move along the y axis.
 - Drag up or down on the blue guide to move along the z axis. Dragging up moves away from you, deeper into the scene, and dragging down moves toward you.



Global vs. local transformations

When you select the 3D Rotation or 3D Translation tool, be aware of the Global Transform option (), found at the bottom of the Tools panel when one of the 3D tools is selected. When Global Transform is selected, the rotation and positioning of 3D objects are relative to the global, or Stage, coordinate system. The 3D display over the object that you're moving shows the three axes in constant position, no matter how the object is rotated or moved. Notice in the following image how the 3D display is always perpendicular to the Stage.



However, when the Global option is turned off (the button is raised), rotation and positioning are relative to the object. The 3D display shows the three axes oriented relative to the object, not the Stage. For example, in the following image, notice that the 3D Translation tool shows the z axis pointing out from the rectangle, not from the Stage.



Resetting the transformation

If you've made a mistake in your 3D transformations and want to reset the rotation of your instance, you can use the Transform panel.

- **1.** Select the Selection tool and select the instance that you want to reset.
- **2.** Choose Window > Transform to open the Transform panel.

The Transform panel shows all the values for the x, y, and z rotations and positions in 3D space.

3. Click Remove Transform in the lower-right corner of the Transform panel.

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The selected instance returns to its original rotation.

Understanding the vanishing point and the perspective angle

Objects in 3D space represented on a 2D surface (such as the computer screen) are rendered with perspective to make them appear as they do in real life. Correct perspective depends on many factors, including the vanishing point and the perspective angle, both of which can be changed in Animate.

The vanishing point determines where on the horizon parallel lines of a perspective drawing converge. Think of railroad tracks and how the parallel tracks converge to a single point as they recede into the distance. The vanishing point is usually at eye level in the center of your field of view, so the default settings are exactly in the middle of the Stage. You can, however, change the vanishing point setting so it appears above or below eye level, or to the right or left.

The perspective angle determines how quickly parallel lines converge to the vanishing point. The greater the angle, the quicker the convergence, and therefore, the more severe and distorted the illustration appears.

- **1.** Select an object on the Stage that has been moved or rotated in 3D space.
- **2.** In the Properties panel, expand the 3D Position And View section.



Perspective Angle

Vanishing Point

3. Drag on the X- and Y-values for Vanishing Point Position at the bottom of the 3D Position And View section to change the vanishing point, which is indicated on the Stage by intersecting gray lines.



- **4.** To reset the Vanishing Point to the default values (to the center of the Stage), click Reset.
- **5.** Drag on the Perspective Angle value to change the amount of distortion. The greater the angle, the more the distortion.



Creating an Adobe Creative Cloud Library to share assets

Creative Cloud Libraries make your favorite assets available to you anywhere. You can use CC Libraries to create and share your graphics and more, including colors, brushes, symbols, and even entire documents. Share and access them across other Creative Cloud apps whenever you need them. You can also share libraries with anyone who has a Creative Cloud account, so it's easy to collaborate, keep designs consistent, and even create style guides to use across projects. Your shared library assets are always up to date and ready to use. CC Libraries work much like the Animate Library panel you used in this lesson.

To create a new CC Library to share assets, follow these steps:

1. Choose Window > CC Libraries to open the CC Libraries panel, or click the CC Libraries panel icon.

Your own panel may look different from this, depending on the contents of your CC Libraries.



2. Click the Library panel menu, and choose Create New Library. The Create New Library dialog box opens.



3. Enter a new name for your library, and then click Create.

Your new CC Library is created. Click the Plus button at the bottom of the library to add assets for sharing.



To share your CC Library, do the following:

• Open the Libraries Options menu and choose Collaborate or Share Link.



If you choose Collaborate, your browser will open and you can invite others to view or edit your CC Library. If you choose Share Link, a public link is created for others to download the assets from your CC Library.

Review Questions

- **<u>1</u>**. What is a symbol, and how does it differ from an instance?
- **<u>2</u>**. Name three ways you can create a symbol.
- **3.** When you import an Illustrator file using the simple import options, what happens if you choose to convert layers to Animate layers? To keyframes?
- 4. How can you change the transparency of an instance in Animate?
- **<u>5</u>**. What are the two ways to edit symbols?

Review Answers

- **1.** A *symbol* is a graphic, button, or movie clip that you create once in Animate and can then reuse throughout your document or in other documents. All symbols are stored in your Library panel. An *instance* is a copy of a symbol located on the Stage.
- 2. You can create a symbol by choosing Insert > New Symbol, or you can select existing objects on the Stage and choose Modify > Convert To Symbol. A third way to create a symbol is to import graphics from Illustrator or Photoshop and create a symbol during the import process.
- **3.** When you convert layers of an Illustrator file to Animate layers, Animate recognizes the layers in the Illustrator document and adds them as separate layers in the Timeline. When you import layers as keyframes, Animate adds each Illustrator layer to a separate frame in the Timeline and creates keyframes for them.
- **<u>4</u>**. The transparency of an instance is determined by its alpha value. To change the transparency, select Alpha from the Color Effect menu in the Properties panel, and then

change the alpha percentage.

5. To edit a symbol, either double-click the symbol in the library to enter symbol-editing mode, or double-click the instance on the Stage to edit it in place. Editing a symbol in place lets you see the other objects around the instance.

4. Animating Symbols

Lesson Overview

- Animate the position, scale, and rotation of objects
- Adjust the pacing and timing of your animation
- Animate transparency and special effects
- Change the path of an object's motion
- Create nested animation
- Split a motion tween
- Change the easing of an object's motion
- Animate in 3D space
- Animate camera moves with the Camera tool



This lesson will take approximately 2 hours to complete. Download the project files for this lesson from the Registered Products tab on your Account page at <u>www.peachpit.com</u> (click the Access Bonus Content link) and store them on your computer in a convenient location, as described in the Getting Started section of this book. Your Account page is also where you'll find any updates to the lessons or to the lesson files.



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

Getting Started

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

1. Double-click the 04End.html file in the Lesson04/04End folder to play the animation in a browser.



) 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.

The project is an animated splash page 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 04End.html file.
- **3.** Double-click the 04Start.fla file in the Lesson04/04Start 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.
- 4. From the view options above the Stage, choose Fit In Window, or 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 04_workingcopy.fla, and save it in the 04Start 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 movement, or change, of objects through time. Animation can be as simple as moving a box across the Stage from one frame to the next. It can also be much more complex. As you'll see in this lesson, you can animate many different aspects of a single object. You can change an object's position on the Stage, change its color or transparency, change its size or rotation, or animate the special 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.

In Animate, the basic workflow for animation goes like this: Select an object on the Stage, right-click, and choose Create Motion Tween from the context menu. Move the red 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.

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 on their own layers, which are called tween layers. There can be only one motion tween per layer without any other element in 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 on the left side of the Stage at the beginning keyframe and at the far-right side of the Stage at an ending keyframe, and the resulting tween would make the spaceship fly across the Stage.

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 04Start.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.

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You'll be adding more layers to create an animated cityscape, refining the animation of one

of the actors, as well as 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 generous 1280 pixels by 787 pixels, and the Stage color is black. You might need to choose a different view option to see the entire Stage. Choose View > Magnification > Fit In Window, or choose Fit In Window from the view options at the upper-right corner of the Stage, to view the Stage at a magnification percentage that fits your screen.

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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.

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

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

4. Right-click the cityscape image and choose Create Motion Tween or choose Insert > Motion Tween.

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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 it can proceed with the motion tween. Click OK.



Animate automatically converts your selection to a symbol with the default name **Symbol 1**, and stores it in your Library panel. Animate also converts the current layer to a tween layer so 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 blue. 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, and hence, no drawing is allowed on a tween layer.



- **6.** Move the red 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 right angles.

8. For more precision, set the value of Y to **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.



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

▶ T ip

Hide all the other layers to isolate the cityscape and to better see the results of the motion tween.

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 red playhead to the desired frame, and then move the object to its new position. Animate takes care of the rest.

▶ T ip

Remove a motion tween by right-clicking the motion tween on the Timeline or the Stage and choosing Remove Tween.

Preview the animation

Integrated into the bottom of the Timeline is a set of playback controls. These controls allow you to play, rewind, 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 below the Timeline to go to the first

frame, go to the last frame, play, stop, or move forward or backward one frame.



2. Select Loop Option (to the right of the Controller) and then click the Play button. The playhead loops, allowing you to see the animation over and over for careful analysis.

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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 Loop Option again to turn it off.

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.

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Your pointer's cursor 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.

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

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

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



🛑 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 timing of your entire animation remains the same; only the length changes.

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 mouse cursor close to the end of the tween span.
- 2. Hold down the Shift key and drag the end of the tween span forward to frame 191.


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



▶ T ip

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

Moving keyframes

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

1. Click the keyframe at frame 60.



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

2. Drag the keyframe to frame 40.

The last keyframe in the motion tween moves to frame 40, so the motion of the cityscape proceeds more quickly.



Span-based vs. frame-based selections

By default, Animate does not use span-based selection, which means you can select individual keyframes 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 Options menu on the upper-right corner of the Timeline (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 the Ctrl/Command key and click a keyframe.

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 red playhead to the first keyframe of the motion tween (frame 10).



- **2.** Select the cityscape instance on the Stage.
- **3.** In the Properties panel, Color Effect section, choose Alpha from the Style menu.

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4. Set the Alpha value to **0**%.

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The cityscape instance on the Stage becomes totally transparent.



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

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



8. Preview the effect by choosing Control > Play (Enter/Return).

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 refine the motion tween of the actors next 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.
- **3.** Move the red 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 the woman layer in the Timeline to highlight it; then click within the outline that appears on the Stage.



- **5.** In the Properties panel, expand the Filters section.
- **6.** Click the Add Filter button in the Filters section and choose Blur from the menu to add a blur to the instance.
- **7.** In the Filters section of the Properties panel, make sure that the link icons are selected in order to to constrain the blur values to both the *x* and *y* directions equally. Set the Blur X and Blur Y values to **20** pixels.

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8. Move the red playhead across the entire Timeline to preview the animation. The woman instance is blurred throughout the motion tween.



9. Right-click the woman layer at frame 140, and choose Insert Keyframe > Filter.

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	Select All Frames		

Animate establishes a keyframe for filters at frame 140.

10. Move the red playhead to frame 160, and right-click the woman layer and choose Insert Keyframe > Filter to add another filter keyframe.



- **11.** Select the instance of the woman on the Stage at frame 160.
- **12.** 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 CC 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 to see when your object moves. Or, you can choose to view only the Filter keyframes to see when a filter changes. Right-click a motion tween in the Timeline, choose View Keyframes, and then select the desired property among the list. You can also choose All or None to see all the properties or none of the properties.

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Cut Frames Copy Frames Paste Frames Clear Frames Select All Frames		 ✓ Scale ✓ Skew ✓ Rotation ✓ Color ✓ Filter
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When inserting a keyframe, you can also insert a keyframe specific to the property you want to change. Right-click a motion tween in the Timeline, choose Insert Keyframes, and then select the desired property.

You can also view an advanced panel, called the Motion Editor, to see and edit how the different properties of your object change over the course of the motion tween. You'll learn more about the Motion Editor in the next lesson.

Animating Transformations

Now you'll learn how to animate changes in scale or rotation. These kinds of changes are made with the Free Transform tool or with the Transform panel. You'll add a third car to the project. The car will start small, and then become larger as it appears to move forward toward the viewer.

1. Lock all the layers on the Timeline.



- **2.** Insert a new layer inside the cars folder and rename it **Left_car**.
- **3.** Select frame 75 and insert a new keyframe (F6).

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- **4.** Drag the movie clip symbol called carLeft from the Library panel to the Stage at frame 75.
- **5.** Select the Free Transform tool.

The transformation handles appear around the instance on the Stage.



- **6.** While holding down the Shift key, click and drag a corner handle inward to make the car smaller.
- 7. In the Properties panel, make sure that the width of the graphic is about 400 pixels.
- **8.** Alternatively, you can use the Transform panel (Window > Transform) and change the scale of the car to about **29.4**%.





10. In the Properties panel, Color Effect section, choose Alpha from the Style menu.11. Set the value of the Alpha to 0%.

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▼ Display			
	✓ Visible		

The car becomes totally transparent.

- **12.** Right-click the car on the Stage and choose Create Motion Tween. The current layer becomes a tween layer.
- **13.** Move the red playhead on the Timeline to frame 100.



14. Select the transparent instance of the car on the Stage, and in the Properties panel, change the Alpha value to **100**%.

A new keyframe is automatically inserted at frame 100 to indicate the change in transparency.

15. While holding down the Shift key, drag a corner handle outward to make the car larger. For more precision, use the Properties panel and set the dimensions of the car to width=**1380** pixels and height=**445.05** pixels.

▶ T ip

Holding down the Alt/Option key while dragging one corner handle of the bounding box causes the box to resize relative to the opposite corner rather than relative to the object's transformation point (usually the center).

16. Position the car at X=**607** and Y=**545**.



You have used Animate to tween the change in position and the change in scale as well as the change in transparency from frame 75 to frame 100.

17. Move the Left_car layer in between the Middle_car and Right_car layers so that the car in the center overlaps the cars on the side.



Save your progress so far in this document **04_workingcopy.fla**. In the next section, you'll work with a different file.

Motion presets

If your project involves creating identical motion tweens repeatedly, Animate allows you to save and reuse motion tweens as presets. The Motion Presets panel (Window > Motion Presets) can store any motion tween so you can apply it to different instances on the Stage.

For example, if you want to build a slideshow where each image fades out in the same manner, you can save that transition as a motion preset.

- **1.** Create your transition using the first slide in your show.
- **2.** Select that slide's motion tween on the Timeline or the slide's instance on the Stage.
- **3.** In the Motion Presets panel, click the Save Selection As Preset button at the bottom of the panel. Alternatively, right-click the motion tween and choose Save As Motion Preset.
- **4.** Name your motion preset, and it will be saved in the Motion Presets panel.
- **5.** Select a new instance on the Stage and choose the motion preset.
- **6.** Click Apply, and Animate will apply your saved motion preset to the new instance.



Animate provides a number of motion presets that you can use to quickly build sophisticated animations without much effort.

Changing the Path of the Motion

The motion tween of the left car that you just animated shows a colored line with dots indicating the path of the motion. You can edit the path of the motion easily to make the car travel in a curve, or you can move, scale, or rotate the path just like any other object on the Stage.

To better demonstrate how you can edit the path of the motion, open the sample file 04MotionPath.fla in the Lesson04/04Start folder. The file contains a single tween layer with a rocket ship moving from the top left of the Stage toward the bottom right.



Moving the path of the motion

You will move the path of the motion so the relative movement of the rocket ship remains the same but its starting and ending positions change.

- **1.** Select the Selection tool.
- **2.** Click the path of the motion to select it.

The path of the motion becomes highlighted.



3. Drag the motion path to move it to a different place on the Stage.

The relative motion and timing of the animation remain the same, but the starting and ending positions are relocated.



Changing the scale or rotation of the path

You can also manipulate the path of the object's motion using the Free Transform tool.

- **1.** Select the path of the motion.
- **2.** Select the Free Transform tool.

Transformation handles appear around the path of the motion.



3. Scale or rotate the path of the motion as desired. You can make the path smaller or larger, or rotate the path so the rocket ship starts from the bottom left of the Stage and ends at the top right.



Editing the path of the motion

Making your objects travel on a curved path is a simple matter. You can either edit the path with Bezier precision using anchor point handles, or you can edit the path in a more intuitive manner with the Selection tool.

1. Select the Convert Anchor Point tool, which is hidden under the Pen tool.



2. Click the starting point or the ending point of the motion path on the Stage and drag the control handle out from the anchor point.



The handle on the anchor point controls the curvature of the path.

- **3.** Choose the Subselection tool.
- **4.** Drag the handle at each end of the path to edit its curve. Make the rocket ship travel in a wide curve.

┝ T ip

You can also directly manipulate the path of the motion with the Selection tool. Select the Selection tool and make sure the path is deselected. Move your pointer close to the path of the motion. A curved icon appears next to your pointer, indicating that you can edit the path. Drag the path of the motion to change its curvature. Choose the spots where you drag carefully! Each drag breaks the path into smaller segments, making it harder to achieve a smooth curve. Mastery will come with practice.





Orienting objects to the path

Sometimes the orientation of the object traveling along the path is important. In the motion picture splash page project, the orientation of the car is constant as it moves forward. However, in the rocket ship example, the rocket ship should follow the path with its nose pointed in the direction in which it is heading. Orient To Path in the Properties panel gives you this option.

1. Select the motion tween on the Timeline (Shift-click to select the whole tween).



2. In the Properties panel, under Rotation, select the Orient To Path option.

Animate inserts keyframes for rotation along the motion tween to orient the nose of the rocket ship to the path of the motion.



▶ Tip

To direct the nose of the rocket ship, or any other object, along the path of its motion, you must orient its position so that it is facing in the direction that you want it to travel. Use the Free Transform tool to rotate its initial position so that it is oriented correctly.

Swapping Tween Targets

The motion tween model in Animate CC is object based. This means that an object and its motion are independent of each other, and you can easily swap out the target of a motion tween. If, for example, you'd rather see an alien moving around the Stage instead of a rocket ship, you can replace the target of the motion tween with an alien symbol from your Library panel and still preserve the animation.

1. Drag the movie clip symbol of the alien from the Library panel onto the rocket ship.



Animate asks if you want to replace the existing tween target object with a new object.



2. Click OK.

Animate replaces the rocket ship with the alien. The motion remains the same, but the target of the motion tween has changed.



) Note

You can also use the Properties panel to swap instances. Select the object that you want to swap on the Stage. In the Properties panel, click the Swap button. In the dialog box that appears, choose a new symbol and click OK. Animate will swap the target of the motion tween.

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👂 Note

If your symbol instance disappears from view after the symbol swap, choose View > Magnification > Show All (Ctrl+3/Cmd+3) to change the zoom level to show all objects on the Stage.

Creating Nested Animations

Often, an object that is animated on the Stage will have its own animation. For example, the wings of a butterfly moving across the Stage may flap as it moves. Or the alien that you swapped with the rocket ship could be waving his arms. These kinds of animations are called *nested animations*, because they are contained inside the movie clip symbols. Movie clip symbols have their own Timeline that is independent of the main Timeline.

In this example, you'll give the alien his own independent movement, so he can wave as he flies across the Stage.

Creating animations inside movie clip symbols

We'll animate some of the symbols that make up the alien's body to allow him to wave.

1. In the Library panel, double-click the alien movie clip symbol icon.

You are now in symbol-editing mode for the alien movie clip symbol. The alien appears in the middle of the Stage. In the Timeline, the parts of the alien are separated in layers.

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- **2.** Select the Selection tool.
- **3.** Right-click the alien's left arm and choose Create Motion Tween.

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Animate converts the current layer into a tween layer and inserts 1 second's worth of frames so you can begin to animate the instance.

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- **4.** Select the Free Transform tool.
- **5.** Move the mouse pointer near the corner transformation handle until the cursor changes to the rotation icon. Drag the corner handle near the hand to rotate the arm upward to the alien's shoulder height.



A keyframe is inserted at the end of the motion tween. The left arm rotates smoothly from the resting position to the outstretched position.

- **6.** Move the red playhead back to frame 1.
- **7.** Now create a motion tween for the alien's other arm. Right-click his right arm and choose Create Motion Tween.

The current layer is converted into a tween layer and 1 second's worth of frames are inserted.

8. Choose the Free Transform tool if it's not selected already.



9. As you did for the left arm, drag the corner transformation handle near the right hand to rotate the arm upward to the alien's shoulder height.

Animate inserts a keyframe at the end of the motion tween. The arm rotates smoothly from the resting position to the outstretched position.

10. Select the last frame in all the other layers and insert frames (F5) so that the head, body, and feet all remain on the Stage for the same amount of time as the moving arms.



11. Click the Scene 1 button in the Edit bar at the top of the Stage to exit symbol-editing mode.

Your animation of the alien raising his arms is complete. Wherever you use the movie clip symbol, the alien's nested animation will continue to play.

12. Preview the animation by choosing Control > Test.

Animate opens a window showing the exported animation. The alien moves along the motion path while the nested animation of his arms moving plays and loops.



) Note

Animations inside of movie clip symbols won't play on the main Timeline. Choose Control > Test to preview nested animations.

Note

Animations inside movie clip symbols will loop automatically. To prevent the looping, you need to add code to tell the movie clip Timeline to stop on its last frame. You'll learn to control the Timeline with ActionScript or JavaScript in later lessons.

Graphic Symbols

You've been using movie clip symbols for your animation, and you've seen how they allow for independent, nested animations. But you can also have nested animations and graphics inside of *graphic symbols*, although they work a little differently.

An animation inside a graphic symbol doesn't play independently as it does in a movie clip symbol. It will only play if there are sufficient frames on the main Timeline where the instance is placed. And while you can control the internal playhead of a movie clip's Timeline with ActionScript, you can control the playhead of a graphic symbol directly in the Properties panel. Because of the ease with which you can pick and choose what frame inside a graphic symbol shows, graphic symbols are ideal for lip syncing or other character variations.

Using the Frame Picker for phonemes

If animated characters talk, their mouth will be synchronized with their words. Each sound, or *phoneme*, is produced by a different mouth shape. For example, an explosive "p" or "b" sound will be made by closing the lips, or an "o" sound will be made by a rounded open mouth. Animators draw a collection of these mouth positions to be used to synchronize to the soundtrack.

You can store each mouth position as a keyframe in a graphic symbol. Animate's Frame Picker panel lets you choose the frame in the graphic symbol's Timeline that matches each sound.

In this task, you'll animate the alien's mouth using the Frame Picker.

1. Open the sample file 04FramePicker_start.fla in the Lesson04/04Start folder. The file contains your familiar alien character on the Stage.

The alien is not animated on a path, but his head is a graphic symbol with multiple keyframes inside of its Timeline.



2. Double-click the alien_head graphic symbol in the library.

Animate takes you to symbol-editing mode for the alien_head graphic symbol. Notice that the Timeline contains five keyframes in the mouth layer.



3. Examine each keyframe in the mouth layer by advancing the playhead from frame 1 to frame 5.

Each keyframe shows the mouth in a different position. Frame 1 has a small closed mouth, frame 2 a rounded mouth, frame 3 a wide open mouth, and so on.



4. Return to Scene 1 and choose Control > Test.

Animate creates a SWF to play the animation. Nothing happens because there is only a

single frame on the main Timeline, and a graphic symbol needs frames on the main Timeline to play its own Timeline.

- **5.** Close the test movie panel and return to your Animate document.
- **6.** Select frames 45 in the head and body layer and choose Insert > Timeline > Frame (F5). Frames are added to both layers up to frame 45.



7. Choose Control > Play (Enter/Return).

Animate plays the animation. Your alien now can't stop talking! The graphic symbol plays all of its five keyframes repeatedly during the 45 frames of the main Timeline. The graphic symbol is, by default, set to loop, but you'll select a single frame to play instead.

8. Select the alien's head on the Stage and in the Properties panel, Looping section, select Single Frame from the Options menu. Leave the value of the First field at **1**.

- Looping	
Options:	Single Frame
First:	
	Use Frame Picker

Now the Stage displays only one frame from the alien_head graphic symbol, which is frame 1.

9. Select frame 10 of the head layer and insert a new keyframe (F6).



10. With the playhead at your new keyframe on frame 10, select the alien head on the Stage. In the Properties panel, Looping section, click Use Frame Picker.

Looping		
Options:	Single Frame	-
First:		
	Use Frame Picker	

The Frame Picker panel opens. The Frame Picker shows thumbnail images of all the frames inside the graphic symbol.

11. You'll have the alien mouth the word "hello." For the first part of the word, select frame 3 in the Frame Picker.



Now, when the animation reaches frame 10 the alien head symbol will switch from displaying frame 1 (the closed mouth) to frame 3 for the beginning of the word, "h".



- **12.** Insert a new keyframe in frame 12 of the main Timeline.
- **13.** In the Frame Picker, select frame 4.



When the animation plays frame 12, the alien head graphic symbol will change to frame 4. His mouth opens a little wider for the "eh" part of "hello."



14. Insert a new keyframe in frame 14 of the main Timeline.

15. In the Frame Picker, select frame 2.

When the animation reaches frame 14, the head symbol will switch to displaying frame 2. His mouth is rounded for the "oh" sound.



- **16.** In a new keyframe at frame 17, use the Frame Picker to change the mouth back to frame 1.
- **17.** Finally, in a new keyframe at frame 30, use the Frame Picker to change the mouth to frame 5 so the alien gives us a broad smile.



18. Choose Control > Play (Enter/Return).

Animate plays the animation. Your alien lip syncs "hello," pauses, and then smiles. You're done with this document, so you can save and close it.

🕨 Note

If you add frame labels to your graphic symbol's Timeline, those labels will also appear in the Frame Picker to make it easier to select the frames you want.

Easing

Easing refers to the way in which a motion tween proceeds. You can think of easing as acceleration or deceleration. An object that moves from one side of the Stage to the other side can start off slowly, then build up speed, and then stop suddenly. Or, the object can start off quickly and then gradually slow to a halt. Your keyframes indicate the beginning and end points of the motion, but the easing determines how your object gets from one keyframe to the next.

A simple way to apply easing to a motion tween is to use the Properties panel. Easing values range from -100 to 100. A negative value creates a more gradual change from the starting position (known as an ease-in). A positive value creates a gradual slowdown (known as an

ease-out).

A more advanced way of applying easing is to use the new Motion Editor, which you'll learn about in the next lesson.

Splitting a motion tween

Easing affects the entire span of a motion tween. If you want the easing to affect only frames between keyframes of a longer motion tween, you should split the motion tween. For example, return to the 04_workingcopy.fla file of the cinematic animation. The motion tween of the car in the Left_car layer begins at frame 75 and ends at frame 191, at the very end of the Timeline. However, the actual movement of the car starts at frame 75 and ends at frame 100. You'll split the motion tween so you can apply an ease to the tween just from frame 75 to frame 100.

1. In the Left_car layer, select frame 101, which is the frame just after the second keyframe where the car ends its movement.



2. Right-click frame 101 and choose Split Motion.

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U • •	Copy Motion Paste Motion	
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П.	Split Motion Join Motions Reverse Keyframes Motion Path	•

The motion tween is cut into two separate tween spans. The end of the first tween is identical to the beginning of the second tween.

Motion tween split



- **3.** In the Middle_car layer, select frame 94, right-click, and choose Split Motion to cut the motion tween into two separate tween spans.
- **4.** In the Right_car layer, select frame 107, right-click, and choose Split Motion to cut the motion tween into two spans.

The motion tweens of all three cars have now been split.



Applying eases to motion tweens

You'll apply an ease-in to the motion tweens of the approaching cars to give them a sense of weight and and to make them decelerate as real cars would.

1. In the Middle_car layer, select any frame between the first and second keyframes of the first motion tween (frame 70 to frame 93).



2. In the Properties panel, Ease section, enter **100** for the Ease value.



This applies an ease-out to the motion tween.

3. In the Left_car layer, select any frame between the first and second keyframes of the first motion tween (frame 75 to frame 100).

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- **4.** In the Properties panel, enter **100** for the Ease value to apply an ease-out to the motion tween.
- **5.** In the Right_car layer, select any frame between the first and second keyframes of the first motion tween (frame 78 to frame 106).



- **6.** In the Properties panel, enter **100** for the Ease value to apply an ease-out to the motion tween.
- **7.** Select Loop at the bottom of the Timeline and move the start and end markers in the Timeline header to frames 60 and 115, respectively.

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Loop playback

8. Click Play (Enter/Return).

Animate plays the Timeline in a loop between frames 60 and 115 so you can examine the ease-out motion of the three cars.

Frame-by-Frame Animation

Frame-by-frame animation is a technique that creates the illusion of movement by making incremental changes between every keyframe. Frame-by-frame animation in Animate is similar to traditional hand-drawn cel animation where each drawing is on a separate sheet of paper, and it's just as tedious.

Frame-by-frame animations increase your file size rapidly because Animate has to store the contents for each keyframe. Use frame-by-frame animation sparingly.

In the next section, you'll insert a frame-by-frame animation inside the carLeft movie clip symbol to make it move up and down in a jittery fashion. When the movie clip loops, the car will rumble slightly to simulate the idle of the motor.

Inserting a new keyframe

The frame-by-frame animations inside the carMiddle and carRight movie clip symbols have already been done. You'll finish the animation for the carLeft symbol.

1. In the Library panel, double-click the carRight movie clip symbol to examine its completed frame-by-frame animation.

Inside the carRight movie clip, three keyframes establish three different positions for the car and its headlights. The keyframes are spaced unevenly to provide the unpredictable up and down motion.



2. In the Library panel, double-click the carLeft move clip symbol.

You enter symbol-editing mode for the carLeft symbol.

▶ T ip

If the image of the car isn't visible, select Fit In Window from the Zoom menu in the upper-right corner of the Stage.



3. Select frame 2 in both the lights layer and the smallRumble layer.



4. Right-click and choose Insert Keyframe (F6).

Animate inserts a keyframe in frame 2 of the lights layer and the smallRumble layer. The contents of the previous keyframes are copied into the new keyframes.



Changing the graphics

In the new keyframe, change the appearance of the contents to create the animation.

1. In frame 2, select all three graphics (the car and its two headlights) on the Stage (Edit > Select All, or Ctrl+A/Command+A) and move them down the Stage by 1 pixel. You can
use the Properties panel to decrease the Y-position value by 1 pixel or press the Down Arrow key to nudge the graphics by 1 pixel.

The car and its headlights move down slightly.

- **2.** Next, repeat the process of inserting keyframes and changing the graphics. For a random motion like an idling car, at least three keyframes are ideal.
- **3.** Select frame 4 in both the lights layer and the smallRumble layer.
- **4.** Right-click and choose Insert Keyframe (F6).

Keyframes are inserted into frame 4 of the lights and smallRumble layers. The contents of the previous keyframes are copied into the new keyframes.



5. Select all three graphics on the Stage (Edit > Select All, or Ctrl+A/Command+A) and move them up the Stage by 2 pixels. You can use the Properties panel or press the Up Arrow key twice to nudge the graphics by 2 pixels.

The car and its headlights move up slightly.

6. Test the idling motion by enabling the Loop Playback option at the bottom of the Timeline and click Play (Enter/Return).

😑 Note

In this section, you created the car's idling motion by manually moving the car's position frame by frame. In the next lesson, you'll learn to use the Refine Tween panel, which can automatically modify your motion tween to simulate natural movements such as bounces or random jitters like the idling of a car.

Animating 3D Motion

Finally, you'll add a title and animate it in 3D space. Animating in 3D presents the added complication of a third (z) axis. When you choose the 3D Rotation or 3D Translation tool, you need to be aware of the Global Transform option at the bottom of the Tools panel. (The tools and the Global Transform option were introduced in the previous lesson, in "Positioning in 3D Space.") Global Transform toggles between a global option (button depressed) and a local option (button raised). Moving an object with the global option selected makes the transformation relative to the global coordinate system, whereas moving an object with the local option on makes the transformation relative to itself.

1. Click Scene 1 in the Edit bar to return to the main Timeline. Insert a new layer at the top of the layer stack and rename it **title**.



- **2.** Lock all the other layers.
- **3.** Insert a new keyframe at frame 120.

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- **4.** Drag the movie clip symbol called movietitle from the Library panel onto the Stage. The movietitle instance appears in your new layer in the keyframe at frame 120.
- **5.** Position the title in the empty sky at x=**180** and y=**90**.



6. Right-click the movie title and choose Create Motion Tween.

Animate converts the current layer to a tween layer so you can begin to animate the instance.

7. Move the red playhead to frame 140.



8. Select the 3D Rotation tool .



The 3D rotation control appears on the selected movie clip.

- **9.** Deselect the Global Transform option at the bottom of the Tools panel **S** to put the 3D Rotation tool into local mode.
- **10.** Drag downward on the green Y control to rotate the title around the y axis to angle it so that it seems to recede into the distance. Its angle is at about –50 degrees. You can check the rotation values in the Transform panel (Window > Transform).



- **11.** Move the red playhead to the first keyframe at frame 120.
- **12.** Drag upward on the Y control to rotate the title around the y axis in the opposite direction so that the instance looks like just a sliver.



The change in the 3D rotation becomes a motion tween, so the title appears to swing in three dimensions.

🛑 Note

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Animating the 3D rotation or translation of a symbol is currently not supported in HTML5 Canvas documents or in WebGL documents.

Animating Camera Moves

So far, you've learned to animate different properties of symbol instances on the Stage—their position, scale, rotation, transparency, filters, and 3D position.

However, as an animator, you're not just directing the motion of your characters and objects on the Stage like a play. You're also in control of the camera, making you more like the director of a movie. That means controlling where to point the camera to frame the action, zooming in or out, panning, or even rotating the camera for special effect. All of these camera movements are available in Animate with the Camera tool.

Enabling the camera

Enable the camera with the Camera tool in the Tools panel or with the Add/Remove Camera button below the Timeline. You'll be animating the camera to simulate a zoom-out and a pan effect to focus on different parts of a larger static version of the movie opener that you worked on in this lesson.

1. Choose File/Open and navigate to Lesson04/04Start folder to open 04CameraStart.fla. This file is an ActionScript 3.0 document that is partially completed and contains the graphic elements already in place on the Stage. The Timeline contains added frames and a motion tween in the title layer.



2. Select the Camera tool on the Tools panel, or click Add Camera at the bottom of the Timeline.



A Camera layer is added to the top of your Timeline and becomes active. On the Stage, the camera controls appear.





Characteristics of the camera

The Camera layer operates a little differently than a normal layer in which you are accustomed to adding graphics.

- The size of your Stage becomes the frame of your camera view.
- You can only have one Camera layer, and it is always at the top of all your other layers.
- You cannot rename the Camera layer.

- You can't add objects or draw in the Camera layer, but you can add classic or motion tweens to the layer, which allows you to animate the camera motion and camera filters.
- When your Camera layer is active, you cannot move or edit objects in other layers. Disable the Camera layer by choosing your Selection tool, or by clicking the Remove Camera button at the bottom of the Timeline.

😑 Note

Clicking the Remove Camera button at the bottom of the Timeline doesn't actually delete your Camera layer; it only hides it from view. You can click the button again to restore the Camera layer. To delete the Camera layer entirely, select it and click the Delete button (trash can icon).

Zooming the camera

First, you'll use the camera to zoom into a small part of the Stage to focus on the woman on the left. Your camera will initially hide a part of her face to create a little bit of mystery.

1. Make sure your Camera layer is active and the on-Stage controls are present. There are two modes on the controls, one for Rotate and another for Zoom. The Zoom mode should be highlighted.



2. Drag the slider to the right.



The Camera view zooms closer into the Stage.

3. When your slider reaches the edge of the slider, release your mouse.

The slider snaps back to the center, allowing you to continue dragging to the right to continue zooming.

You can also enter a numerical value for the zoom in the Properties panel in the Camera Properties section.



4. Continue zooming the camera until you've reached about 270%.

Your Stage shows a close-up view of the cityscape between the two main characters.



🛑 Note

When using the camera zoom mode, be aware of the image resolution. As with any bitmap, zooming in too dramatically will reveal the limitations of the original embedded image.

Moving the camera

You don't want the camera to focus on the empty space between the two characters, so you'll move the camera to focus on the woman.

1. With your pointer on the Stage, drag the camera to the left.

The contents of the Stage move to the right. It may feel a little counterintuitive, but remember, you're moving the camera and not the contents of the Stage. So if you point your camera to the left, the objects in view will move to the right.



2. Continue dragging the camera to frame the woman so that she's in the middle with her eyes cut off at the top edge of the camera.

Animating a pan

A pan is the motion of the camera left to right or up and down. In this next step, you'll pan the camera slowly upward to reveal the woman's face. You'll use a motion tween to animate the camera movement.

1. On the Timeline, select any frame in the Camera layer and right-click. In the context menu that appears, choose Create Motion Tween.

A motion tween is added to the Camera layer, indicated by the blue-colored frames. You currently only have a single keyframe, so you'll be adding additional keyframes further along the Timeline to complete the motion.

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2. Move the playhead to frame 25.

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3. With your pointer over the Stage, drag the camera upward to reveal the woman's face. Hold down the Shift key to constrain the motion to a straight vertical line.



A new keyframe is established at frame 25, and Animate creates a smooth motion of the camera between the two keyframes.

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4. Select Loop at the bottom of your Timeline and move the start marker to the first of the Camera layer keyframes and move the end marker a few frames beyond the second keyframe.



5. Press Enter/Return to preview the motion tween, which animates your camera panning upward to reveal the woman's face.

Panning across the Stage

Your viewers now see this mystery woman, who is looking to her left. But who or what is she looking at? Next, you'll animate the camera to pan across the Stage to reveal the target of her gaze.

1. On the Timeline, still in the Camera layer, create a keyframe (F6) at frame 40.



The camera will hold its position from frame 25 to frame 40.

- **2.** Move the playhead to frame 70.
- **3.** Hold down Shift and drag the camera to the right to reveal the man's face.



A new keyframe is automatically created at frame 70 with the camera in its new position. The camera pans across the Stage from left to right between frames 40 and 70.

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However, the man's face isn't completely in view. Next, you'll zoom the camera out slightly and Animate will tween both the pan and the zoom together.

4. Drag the slider on the on-Stage camera control to the left to zoom out slightly.



The zoom positions the man's face off-center, so you'll have to adjust the framing slightly.

5. Drag the camera to re-center the man's face.



6. Deselect the Loop option and preview your animation by pressing Enter/Return. The Camera slowly pans upward on the woman's face. It pauses a moment, and then pans to the right while slightly zooming out to show the man's face.

Zooming out

To complete the animation, you'll zoom the camera all the way out to reveal both characters and the whole Stage.

1. On the Timeline, create a keyframe (F6) at frame 90.

The camera will hold its position from frame 70 to frame 90.

2. Move the playhead to frame 140.



3. In the Properties panel, in the Camera Properties section, enter 100% for the Zoom.



4. Drag the camera on the Stage to re-center the view.



5. Preview the whole animation by pressing Enter/Return.

After the mystery man is revealed, the camera zooms out to show both characters, the cityscape, and the animation of the title fading into view.

🛑 Note

Although you only animated camera zoom and pans in this task, you can change and animate the rotation of the camera in much the same way with the Rotate on-Stage camera control or Rotate option in the Camera Properties section of the Properties panel.

Animating camera color effects

You can also apply and animate camera color effects to create a color tint or to change the contrast, saturation, brightness, or hue of the entire view on the Stage. In the next step, you'll animate the camera to desaturate the view, emphasizing the film noir genre of this fictional movie promotion.

1. On the Timeline, create a keyframe (F6) at frame 160.



2. In the Properties panel in the Camera Color Effects section, select Adjust Color.

The Brightness, Contrast, Saturation, and Hue values appear, all of them with a value of 0.

Tint.	
Red:	
Green:	
Blue:	
Adjust Color	
Brightness :	<u>0</u>
Contrast :	<u>0</u>
Saturation :	<u>0</u>
Hue :	

3. Move the playhead to frame 190 and create a new keyframe (F6).



4. Change the Saturation to –100 by dragging on the value, or by double-clicking on the value and entering the number.



The view through the camera becomes desaturated and all the graphics on the Stage appear black and white. Animate creates a motion tween of the camera becoming more desaturated from frame 160 to frame 190.



Testing Your Movie

You can quickly preview your animation by "scrubbing" the red playhead back and forth on the Timeline or by choosing Control > Play. You can also use the integrated Controller at the bottom of the Timeline.

However, to preview your animation as your audience will see it and to preview any nested animations within movie clip symbols, you should test your movie. Choose Control > Test.

Animate exports the published files—in this case, a SWF file—and saves them in the same location as your FLA file. The SWF file is the compressed, final Animate media that you would embed in an HTML page to play in a browser with the Flash Player. Animate displays the SWF file in a new window with the exact Stage dimensions and plays your animation.

Test your movie for both your 04CameraStart.fla document and your 04_workingcopy.fla document.



🕨 Note

If you've targeted a different publishing platform with a different document type (such as Adobe AIR), those playback options will be available for you in the Control > Test Movie menu.

┝ Tip

The exported SWF In Test Movie mode will loop automatically. To prevent the looping in Test Movie mode, choose Control > Loop Playback while the movie is playing to deselect the Loop option.

To exit Test Movie mode, click the Close window button.

You can also preview your animation by choosing Control > Test Movie > In Browser, and Animate will export a SWF file and open it automatically in your default browser.

Generating PNG sequences and sprite sheets

While you can create sophisticated animations to play as a SWF file with the Flash Player, you can also use powerful tools in Animate to create your animation and export it as a series of images for use in other environments. For example, animations with HTML5 or on mobile devices often rely on sequential PNG files or a single file that packs all the images organized in rows and columns, known as a sprite sheet. The sprite sheet is accompanied by a data file that describes the position of each image, or sprite, in the file.

Generating either PNG sequences or a sprite sheet of your animation is easy.

First, your animation must be within a movie clip symbol. In the Library panel, right-click the symbol and choose Export PNG Sequence.

In the next steps, you select the destination on your hard drive for your images and the dimensions of your images.



For a sprite sheet, right-click the symbol and choose Generate Sprite Sheet. The Generate Sprite Sheet dialog box that appears provides different options, such as sizing, background color, and the particular data format.

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Sprite Sheet Preview		
Sprite Sheet output		
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Height: <u>1024</u> px		Rotate
Image format: PNG 32 bit 💌		Trim
Background color: 📈	Border padding:	o px
	Shape padding:	<u>0</u> px
Browse 04MotionPath_End.png		Export Cancel

Click Export to output the sprite sheet and data file. The data file determines what kind of development environment you'll use your sprite sheet in. JSON, Starling, Cocos2D, and Adobe Edge Animate are some of the data formats available.

Review Questions

Sprite Sheet: 24 frames

- **<u>1</u>**. What are two requirements of a motion tween?
- **<u>2</u>**. What kinds of properties can a motion tween change in an ActionScript 3.0 document?
- **3.** What are property keyframes, and why are they important?
- **<u>4</u>.** How can you edit the path of an object's motion?
- **<u>5</u>**. What does easing do to a motion tween?
- **<u>6</u>**. What kind of animation is possible with the Camera tool?

Review Answers

- **1**. A motion tween requires a symbol instance on the Stage and its own layer, which is called a tween layer. No other tween or drawing object can exist on the tween layer.
- **2.** A motion tween creates smooth transitions between different keyframes of an object's location, scale, rotation, transparency, brightness, tint, filter values, or 3D rotation or translation.

- **3.** A keyframe marks a change in one or more properties of an object. Keyframes are specific to each property, so that a motion tween can have keyframes for position that are different from keyframes for transparency.
- **4.** To edit the path of an object's motion, choose the Selection tool and click and drag directly on the path to bend it. You can also choose the Convert Anchor Point tool and Subselection tool to pull out handles at the anchor points. The handles control the curvature of the path.
- **5.** Easing changes the rate of change in a motion tween. Without easing, a motion tween proceeds linearly, where the same amount of change happens over time. An ease-in makes an object begin its animation slowly, and an ease-out makes an object end its animation slowly.
- **<u>6</u>**. The Camera tool can change the view of the Stage. Use the Camera tool to zoom in to a different part of the Stage, zoom out to show more, rotate, or pan. You can also use the Camera tool to adjust the tint or color effect of the view.

5. Advanced Motion Tweening

Lesson Overview

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

- Use the Motion Editor to refine and create complex animation
- Understand when to use the Motion Editor
- Change the Motion Editor view
- Edit a property curve
- Copy and paste a property curve
- Use eases to create more realistic motion
- Add different eases to different property curves
- Modify or remove an ease
- Understand the difference between a property curve and an ease curve



This lesson will take approximately 1 hour to complete. Download the project files for this lesson from the Registered Products tab on your Account page at <u>www.peachpit.com</u> (click the Access Bonus Content link) and store them on your computer in a convenient location, as described in the Getting Started section of this book. Your Account page is also where you'll find any updates to the lessons or to the lesson files.



The advanced Motion Editor in Adobe Animate CC makes creating complicated animation fast and easy. Use the Motion Editor to view how the properties of your motion tween change over time, and apply eases for sophisticated effects.

Getting Started

Start by viewing the finished movie file to see the animated infographic that you'll create in this lesson.

1. Double-click the 05End.html file in the Lesson05/05End folder to play the animation in a browser.



🔵 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.

The project is a short animated infographic illustrating the idea of China as an emerging economic threat to the highest-traded currencies in the world. The animation is something you might see accompanying a story in the business and economy section of a news site. In the animation, blocks with the American, European Union, and Japanese flags, representing the Dollar, the Euro, and the Yen, respectively, stack themselves up. A moment later, a large hand with the Chinese flag bumps the stack, sending them tumbling down. In this lesson, you'll use the Motion Editor to make refinements in the motion tweening of the blocks, including the bouncing movements as they fall.

- 2. Close the 05End.html file.
- **3.** Double-click the 05Start.fla file in the Lesson05/05Start folder to open the initial project file in Animate. This file is an HTML5 Canvas document that already contains all the graphics created for you, with movie clip symbols saved in the library. Each of the graphics has its own layer, and instances of the symbols have been placed on the Stage in their initial positions.
- 4. Choose View > Pasteboard or press Shift+Ctrl+W (Windows)/Shift+Command+W

(Mac) to enable the pasteboard so that you can see all the graphics positioned just off the Stage.



▶ T ip

If the View > Pasteboard command is selected but you still can't see the offstage graphics, check the status of the Clip The Content Outside Stage button, which is described in Lesson 1.

5. Choose File > Save As. Name the file **05_workingcopy.fla**, and save it in the 05Start folder.

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

About the Motion Editor

You don't have to use the Motion Editor at all to create your animations. However, if you're dealing with a motion tween that contains multiple properties that change at different times through the animation (for example, a rocket that fades and rotates as it moves across the Stage), or if you're handling animation that mimics real-world physics (like bounces and springs), then the Motion Editor can make your task much simpler.

The Motion Editor is an advanced panel that is integrated into the Timeline and accessible only when editing a motion tween. The panel shows you how the properties of your animation change over the course of the tween as lines on a graph. It takes some time to become familiar with the meaning of the lines and how the curves translate to visual changes on the Stage. But once you recognize how the curves reflect changes in your animation, you have a powerful tool at your disposal. You can modify the curves on the graph, called *property curves*, by adding or deleting anchor points, and change their curvature with Bezier precision. You can copy property curves and apply them to other properties or other motion tweens.

🛑 Note

The Motion Editor is available only for motion tweens (and not classic tweens, shape tweens, inverse kinematics with the Bone tool, or frame-by-frame animations).

The Motion Editor also allows you to apply sophisticated eases to your animation. Although you can apply eases through the Properties panel, the Motion Editor provides a wider range of ease types, with options to customize any ease. The Motion Editor also visually shows you how your ease affects a property curve. You can even apply different eases to different property curves.

Understanding the Project File

The 05Start.fla file has five layers. The background layer contains background elements that will not be animated. The China layer contains the movie clip instance of the hand and Chinese flag representing China. Each of the top three layers (US, Euro, and Yen) contains a corresponding movie clip instance of a block representing those currencies.



The Stage is set at 500 pixels by 600 pixels, and the color of the Stage is gray.

For this lesson, you'll add motion tweens in the top four layers, and refine the movements of

the blocks with the Motion Editor.

Adding Motion Tweens

You'll start this project by animating the three boxes representing the US Dollar, the Euro, and the Japanese Yen. The three boxes will start below the Stage and rise up.

- **1.** Select all three blocks (the ones with the US flag, the European Union flag, and the Japanese flag).
- 2. Right-click the multiple selection and choose Create Motion Tween.



Animate creates motion tweens for all three movie clip instances and extends the Timeline for those three layers to frame 24, representing one second of time.

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📲 background	

- **3.** Move the red playhead to frame 24.
- **4.** Add additional frames to the other two layers so they extend to frame 24.
- **5.** Select all three blocks and, while holding down the Shift key, move them up onto the Stage. Drag the blocks high enough onto the Stage so they'll have room to fall down and tumble over.

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Ending keyframes are added to all three instances.

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6. Press Enter/Return to preview your animation.

The three blocks move upward onto the Stage, sticking together.

Editing Property Curves

The motion tween of the three blocks positions them on the Stage for the viewer to see, but the movement is sluggish and not very interesting. To create a more dynamic animation that gives some life and snappiness to the blocks, you'll modify the curve for their Y-properties in the Motion Editor.

1. Double-click the motion tween in the US layer on the Timeline, or right-click and choose Refine Tween.



The motion tween expands to reveal the Motion Editor panel. The Motion Editor contains two straight red lines. One represents the change in the X-position, and the other represents the change in the Y-position. Both the X- and Y-properties are grouped under the Location property group.



2. Click the X-property to select it.

The horizontal red line becomes bold, and the downward diagonal line fades. The horizontal red line represents the value of the block's X-position, which remains

unchanged over the span of the motion tween. Note that the scale on the vertical axis of the graph is limited to a range from 238 to 240.



3. Now, select the Y-property.

The downward diagonal line becomes bold, and the horizontal line fades. The diagonal line represents the value of the block's Y-position, which decreases over the course of the tween (the block moves upward). Because of the change in Y-property values, the vertical scale now expands to encompass a wider range.



Understanding the Motion Editor values

The units on the vertical axis of the Motion Editor measure the values of the selected property. When you select the Y-property, Animate shows the pixel units of the Y-position of the motion tween.

The initial value of the curve appears to be greater than 560, and the final value of the curve appears to be about 200. However, those values don't seem to match the initial Y-values when you look at the position of the US movie clip in the Properties panel. Why the discrepancy?

The Motion Editor measures from the transformation point of your object. Since the transformation point of your object is in the center, the Motion Editor vertical values show the Y-property values as the initial position plus half of the movie clip's height.



Adding anchor points

You want to create a *nonlinear* property curve for the first block that moves on the Stage that is, you want the block to move a different distance during each interval of time. An object on a *linear* property curve moves the same distance during each interval of time, which is represented by a straight line in the Motion Editor. A nonlinear path is curved.

To change the shape of the property curve, you add anchor points. From each anchor point, you can change the curvature or direction of the curve.

1. Select Add Anchor Point On Graph at the bottom of the Motion Editor.



2. Make sure the Y-property curve is still selected, and move your mouse pointer over the property curve.

Your cursor changes to the Pen tool icon with a plus sign, indicating that you can add an anchor point to the curve.



3. Use your mouse to drag the curve downward at frame 21 and release the mouse button when the anchor point is at about the 25-pixel mark (the graph will scroll to follow your mouse below the 250-pixel mark).

This adds a new anchor point to the curve, and a new keyframe is added at frame 21.



The anchor point allows you to change the motion of your animation. The new curve overshoots the final Y-value of the motion tween just before the final keyframe. The resulting motion makes the movie clip move rapidly up, then fall back to its final Y-position value. You can see the motion by pressing the Enter/Return key.

- **4.** Select Add Anchor Point To Graph again.
- **5.** Add a new anchor point at frame 5 and drag it to the right to about frame 8.

Adding another anchor point to the graph also adds a new keyframe to the motion tween. The new curve looks like a broad, lazy "S" shape, with a smooth flattened slope at the beginning, a steep section in the middle, and the bump at the end.



▶ Tip

You can also double-click a location on a property curve to add a new anchor point.

6. Test your new motion by pressing Enter/Return.

Your red playhead moves through the motion tween. Your new curve makes your movie clip slowly accelerate into its motion, then rapidly shoot past its destination, and then fall back to its ending value.

Changing the curvature

Each new anchor point comes with direction handles on either side, which allow you to change the curvature at that point. The anchor points and direction handles work just like the ones created by the Pen tool when drawing paths.

- **1.** Click the anchor point on the Y-property curve at the keyframe at frame 21. The direction handles at the selected anchor point appear.
- **2.** Use the left direction point to drag the left handle downward so the direction handles are horizontal.



The property curve flattens out at frame 21, which makes the movie clip remain at that Y-position for just a split second before moving again. That slight hang-time gives the movie clip a more realistic physics-based motion, just as a ball that you throw up in the air stays still for a moment before falling back to the ground.

3. Test your new motion by pressing Enter/Return.

Your red playhead moves through the motion tween. Your new curve makes your movie clip have a more realistic motion.

🛑 Note

Some anchor points (for example, the first and last anchor points of a property curve) do not have direction handles by default. Hold down the Alt/Option key and drag a selected anchor point to pull out a direction handle and edit the curvature.

▶ T ip

Hold down the Alt/Option key and click an anchor point to remove its direction handles, converting it to a corner point without smooth curves.

Moving anchor points

You can move any anchor point, including the ones at the first and last keyframes, to new property values along the vertical axis. You can also move any of the anchor points (except the first one) to new times along the motion tween. In effect, when you move anchor points to new times, you move the keyframes within the tween span.

1. Select the anchor point at frame 8.

The handle bars at the selected anchor point appear.

2. Drag the anchor point slightly up and to the right (to the next keyframe).



The property curve flattens out even more, creating a more extended ease-in effect.

▶ Tip

Hold down the Alt/Option key as you move a direction handle of an anchor point to change the angle of that direction handle independently of the other. You can adjust the length of each direction handle without holding Alt/Option. If you adjust the length or angle of one side of a directon handle independently of the other, you can create more dramatic changes to the property curve.

3. Test your new motion by pressing Enter/Return.

The final motion is more interesting than a linear one, with your motion tween rising up and falling back down like somebody had tossed it up in the air.

▶ T ip

Hold down the Shift key to constrain the dragging motion to a vertical or horizontal direction.

Deleting anchor points

If you've added too many anchor points, you can always remove them (except for the first and last anchor points). Removing an anchor point has the same effect as removing a keyframe of the motion tween.

Hold down the Command/Ctrl key.



Your cursor turns into the Pen icon with a minus sign when you hover over any anchor point. Click any anchor point (except the first or last).

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Tip
You can use the arrow keys to nudge a selected anchor point for precise control.
Press the Up or Down Arrow key to move the anchor point one property unit up
or down, or Shift-Up or Shift-Down to move the anchor point ten property units
up or down.
```

Animate removes the anchor point from the property curve. Do not remove any anchor points from your project at this point in the lesson. If you do, press Ctrl+Z (Windows) Command+Z (Mac) to undo the operation.

Deleting property curves

Click Remove Tween For Selected Property (the trash can icon) at the bottom of the Motion Editor to delete a tween for a selected property curve.



At the moment, your animation has a tween for only one property—the Y-property—so deleting the curve would remove the property changes in your tween. Use the Remove Tween option if you want to delete the animation of a particular property when you have multiple properties changing.

Viewing Options for the Motion Editor

Animate provides different viewing options for the Motion Editor so you can refine your property curves with greater accuracy.



1. Use the menu at the bottom of the Motion Editor to change the zoom level. The vertical axis expands to show a more granular level of property values. Scroll up

or down to see the top or bottom of the curve.

- 2. Click 100% Zoom to reset the Motion Editor to its default view.
- **3.** Click Fit To View to expand the Motion Editor to fill the existing space on the Timeline. Click the icon again (its name is now Restore View) to return to the default view.

🔵 Note

You can enter a custom magnification level for the Motion Editor, but the minimum value is 100% and the maximum value is 400%.

▶ T ip

You can also hold down the Ctrl/Command key and scroll inside the Motion Editor to change the magnification.

Copying and Pasting Curves

You've spent a lot of effort creating a custom property curve for the motion of the first movie clip. Fortunately, you don't have to work through those same steps for the other movie clips. Animate provides quick and easy ways to duplicate individual property curves or entire motion tweens.

In the following section, you'll duplicate the motion of the US block to the European Union and Japanese blocks.

- **1.** In the Motion Editor of the motion tween for the US movie clip, select the Y-property curve.
- **2.** Right-click the Y-property curve and choose Copy.
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Animate copies the curve for the Y-property.

3. Double-click the motion tween in the Euro layer.

The Motion Editor in the US layer collapses and the Motion Editor in the Euro layer expands. Both the X-property and Y-property curves of the motion tween in the Euro layer are straight, linear motions.

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- **4.** Select the Y-property.
- 5. Right-click the Y-property curve and choose Paste To Fit Current Range.



The property curve data copied from the US clip is applied to the Euro clip, but it is adjusted to fit the range of Y-position values for the Euro clip's motion.



The final pasted curve has the correct shape and anchor point curvatures, but it is squeezed to fit the starting and ending points of the Euro motion tween. That means its ending point is lower on the Stage than you want.

6. Hold down the Shift key and drag the final anchor point down so its property value is identical to the previous anchor point. (The final anchor point should be at a point where the Euro block sits immediately under the US block with no space between them.)



7. Hold down the Shift key and click and drag the anchor point at frame 21 to about Y=150 in the Motion Editor to re-create the gentle slope in the original curve.



8. Test your new motion by pressing Enter/Return.

Both the US and the European Union blocks slowly ease in to their motion, fly up high, and then settle back down in the middle of the Stage.

┝ Tip

In the Motion Editor, you can use Ctrl+C (Windows)/Command+C (Mac) to copy a selected property curve and Ctrl+C/Command+V to paste a curve.

Paste vs. Paste To Fit Current Range

When you paste a copied property curve, you have the choice between two commands: Paste and Paste To Fit Current Range. In the previous task, you used Paste To Fit Current Range, which mapped the beginning and end points of the copied curve onto the beginning and end points of its destination.

The simple Paste command will paste the exact property curve—both the shape of the curve and its original values. If you were to choose Paste for your Euro movie clip property curve, it would follow the exact motion on the y axis as the copied curve (the US motion tween). The end result would be the Euro movie clip hiding under the US movie clip.

Duplicating entire motion tweens

Copying and pasting individual curves in the Motion Editor allows you to duplicate the animation of individual properties. For example, you could duplicate the Y-motion of a tween, but not its rotation.

In this project, since you want to duplicate the entire motion tween of the US block (which consists of change only along the Y-property), you can use the commands Edit > Timeline > Copy Motion and Edit > Timeline > Paste Motion.

You'll use Copy Motion and Paste Motion to copy the motion tween of the European Union movie clip and paste it into the Yen movie clip.

- **1.** Double-click the motion tween in the Euro layer to collapse the Motion Editor.
- **2.** Shift-click the motion tween in the Euro layer.

The entire motion tween span is selected.



3. Right-click and choose Copy Motion, or choose Edit > Timeline > Copy Motion.

Timeline Output	Clear Keyframe View Keyframes
 China P US P Euro P Yen background 	Cut Frames Copy Frames Paste Frames Paste and Overwrite Frames Clear Frames Select All Frames
	Copy Motion Rester Motion

The entire Euro layer motion tween is copied.

- **4.** Select the motion tween in the Yen layer.
- **5.** Right-click and choose Paste Motion, or choose Edit > Timeline > Paste Motion.

Timeline Output	☉ 🛱 🛛 1 5 10	Clear Keyframe View Keyframes
China ₽ US ₽ Euro ₽ Yen background		Cut Frames Copy Frames Paste Frames Paste and Overwrite Frames Clear Frames Select All Frames
		Copy Motion Paste Motion

The property curves of the Yen motion tween now are identical to that of the Euro motion tween, with different beginning and ending values.

If you want to refine the motion of the Yen block further, open its Motion Editor. Select the Y-position property and lower the height to which it rises (by dragging the anchor point in frame 21 *up* slightly) before falling back down. Doing so will create a slight separation between all the blocks. Make minor adjustments to the positions of the property curve keyframes until you're satisfied with the overall motion.

Wrap things up by closing the Motion Editor.



Adding Complex Eases

Now that your three blocks representing the US, European Union, and Japanese currencies are animated, it's time to animate the hand that pushes them. The hand will move horizontally onto the Stage and give the stack of blocks a shove, sending them toppling.

The motion of the hand easing into the Stage and the toppling motion can be quite complex. As the blocks topple, they bounce up and down, decreasing in height after each bounce. The Motion Editor, fortunately, makes much of the motion quick and easy to edit.

Adding the next motion tween

The next motion tween will be applied to the hand of China. The movie clip is positioned just off the left of the Stage in the layer called China.

1. Select frame 90 for all the layers, and press F5 (Insert > Timeline > Frame).

Animate adds frames to all the layers up to frame 90. This establishes the span of time for the hand to enter and knock over the blocks.

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2. Select frame 40 in the China layer and insert a new keyframe (F6) to define the moment when the hand starts to move.

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A keyframe is added to the China layer at frame 40 and the movie clip instance from the previous keyframe is copied into it.

3. Right-click the China movie clip instance just off the Stage and choose Create Motion Tween.

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4. Move the red playhead to frame 55, the point where we want the hand to make contact with the blocks.

5. Move the hand straight across the Stage so that its palm butts up against the stack of blocks. (Use the right-arrow key to keep the movie clip's motion restricted to a horizontal direction.) The X-position should be at about 2. Make sure that the Y-position remains at Y=210 in the ending keyframe as in the beginning keyframe.



The China movie clip instance is now animated so it moves straight across the Stage from the left to right and stops at frame 55. The movie clip stays at its ending position from frame 55 to frame 90.

- 6. Select frame 56 of the China layer.
- 7. Right-click and choose Split Motion.



The motion tween in the China layer is split into two motion tweens—one that begins at frame 40, and another that begins at frame 56.

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8. At frame 56, right-click and choose Remove Motion.

The motion tween at frame 56 is deleted, leaving the movie clip instance as a static graphic from frame 56 to the last frame of the animation. The motion tween from frame 40 to frame 56 is now ready for an ease.

Timeline Output																		
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Adding an ease-in

The Motion Editor provides a host of different ease types that can give a simple motion, like the China movie clip's shove, a more interesting effect.

1. Double-click the motion tween in the China layer, or right-click and choose Refine Tween.

The Motion Editor opens to reveal property curves for both the X- and Y-properties. The X-property curve is angled upward whereas the Y-property curve is relatively flat.



- 2. Select the X-property curve.
- **3.** Click the Add Ease button at the bottom of the Motion Editor.



The Ease panel opens, listing the different ease presets grouped by category, from No Ease at the top to Custom Ease at the bottom. The different ease presets change the way the motion tween proceeds from the first keyframe to the last.

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▼ Location X Y		No Ease Simple Stop and Start Bounce and Spring Other Eases Custom	100 90 80 70 60 50 40 30 20 10 6 0 Easing		
/ ↔		Add Ease	<u>[</u> Q	100% 🔽	

4. Double-click the Simple category.

The category opens, revealing Slow, Medium, Fast, and Fastest presets. The eases in the Simple category affect one side of the motion tween (either the beginning or the end). The eases in the Stop and Start categories affect both sides of the motion tween. The eases in the other categories are more complex ease types.

┝ T ip

You can use the Up, Down, Left, and Right Arrow keys to navigate the ease types in the Ease panel of the Motion Editor.

5. Select the Fast ease preset.



Note

After you've chosen an ease preset, the label on the Add Ease button changes to the name of the preset.

The Fast ease curve is displayed, showing graphically the intensity of the ease. Slower eases are fairly shallow and closer to a straight line, whereas faster eases have progressively greater curvature.

6. Double-click the Easing value and change it to −60; then press Tab or Enter/Return to exit the entry field and confirm the value. You can also drag on the Easing value to change it (drag left or down to decrease the value; drag right or up to increase it).

No Ease ▼ Simple Slow Medium	100 90 80 70 60	
Fast Fastest	50 40	
 Stop and Start Bounce and Spring 	30 20 10	
	-60 Easing	

The Easing value determines the strength of the ease for each ease preset and the direction of the ease. A positive number represents an ease-out, and a negative number represents an ease-in.

7. Click off the Ease panel to dismiss it, or press the Esc key.

A dotted line appears in the Motion Editor superimposed on the original property curve. This is called the "resultant curve" and shows the effect of the ease on the tween.



8. Close the Motion Editor and test your new motion by pressing Enter/Return.

The motion tween of the China block proceeds slowly, gaining momentum until it finally collides with the stack of smaller blocks in the middle of the Stage.



If the clip is selected, its motion tween path on the Stage shows the position of the instance at each frame. The clustering of the dots on the left side of the tween path means that the object doesn't move very far in the beginning of its motion, but gradually speeds up.

Removing an ease

Eases can be deleted as quickly as you've added them.

- **1.** Double-click the motion tween in the China layer, or right-click and choose Refine Tween.
- **2.** Click the Ease button at the bottom of the Motion Editor, which now bears the label Simple(Fast).

Animate opens the Ease panel, displaying the currently selected ease.

3. Select No Ease to remove the ease preset, and press Esc to close the Ease panel.



- 4. Press Ctrl+Z (Windows)/Command +Z (Mac) to undo the removal of the ease. You'll keep the ease in place for this project.
- **5.** Double-click the China motion tween to close the Motion Editor.

Property curves vs. ease curves

When you apply an ease to a motion tween with the Motion Editor, the original property curve is not altered permanently. In the first section of this lesson, you altered the property curves of a motion tween directly by adding anchor points and changing its curvature. Applying eases is akin to applying a filter that influences the outcome of an original property. Like a filter, the ease can be edited or removed altogether.

It is possible to both modify a property curve and add an ease, but the combined result can be unpredictable.

Animating bounces

As soon as the hand graphic hits the stack of blocks, you'll want to animate the blocks tumbling down. You'll create a motion tween with multiple complex eases to create the bouncing effect.

- Timeline Output o 🔒 🛛 P China . ₽ US P Euro 🖗 Yen background
- **1.** Drag-select frame 56 in the US, Euro, and Yen layers.

2. Right-click and choose Split Motion.



New motion tweens begin at frame 56 in all three layers.



- **3.** Move the playhead to frame 90.
- **4.** Move the US movie clip instance to the bottom of the Stage at X=500 and Y=530.



5. Using the Free Transform tool, rotate it 180 degrees clockwise so it appears upside down.



6. Move the Euro movie clip instance to the bottom just off the Stage in the same manner and and use the Free Transform tool to rotate it 90 degrees clockwise. You may have to hide the US layer above it so you can grab the Euro graphic.



7. Move the Yen movie clip instance to the bottom just off the Stage and use the Free Transform tool to rotate it 180 degrees clockwise. Hide the Euro layer so the Yen graphic is easier to work with.



8. Test your new motion by pressing Enter/Return.



The three blocks fall gracefully in a diagonal direction, rotating as they fall. You'll want a more violent, realistic tumble, so the next step is to add some eases.

Using the BounceIn ease

One of the presets in the Ease panel is BounceIn, which simulates a bouncing motion. The distance to the final property value gradually decreases as the motion tween approaches its ending keyframe.

1. Double-click the last motion tween in the US layer to open the Motion Editor.



Animate expands the motion tween in the US layer, revealing the Motion Editor panel. The Motion Editor contains property curves for both the X- and Y-properties for Location as well as Z-properties for Transform > Rotation.

- 2. Select the Y-property under Location.
- **3.** Click Add Ease at the bottom of the Motion Editor to open the Ease panel.
- **4.** Double-click the Bounce And Spring category to reveal the presets within.
- **5.** Select the BounceIn ease preset and enter **5** for the Easing value.



The BounceIn ease simulates a bounce that slowly decays as the motion tween approaches its end. The Easing value for the BounceIn ease determines the number of bounces.

6. Press Tab to confirm the Easing value and press Esc to close the Ease panel.

7. Test your new motion by pressing Enter/Return. Select Loop at the bottom of the Timeline and set the markers at frames 56 and 90 so you can repeat the motion automatically.



Loop playback

The US instance bounces (only in the Y-direction) as it falls to the ground. Note the path of the bounce on the Stage defined by the dots.

8. Collapse the Motion Editor for the US layer, and expand the Motion Editor for the Euro

layer.

9. Apply a BounceIn ease to the Euro instance, and change the Easing value to 4.



- **10.** Collapse the Motion Editor for the Euro layer, and expand the Motion Editor for the Yen layer.
- **11.** Apply a BounceIn ease to the Yen instance, and change the Easing value to 3.



12. Test your new motion by pressing Enter/Return.

When the three blocks fall, each tumbles with a different number of bounces. The top block bounces the most with five bounces, the middle bounces four times, and the bottom block bounces three times.



🛑 Note

If you're encountering strange, unpredictable behaviors, check to make sure that you've applied the BounceIn ease only to the Y-property curve. You want the bouncing motion to affect only the vertical motion, and not the horizontal motion or the rotation.

Applying a second ease to a different property curve

The Motion Editor is powerful because it enables you to treat each property curve of one motion tween independently. For example, you can apply one ease for the Y-property and a different ease for the X-property. This is exactly what you'll do next. You'll add an ease-out for the horizontal motion of each instance, while maintaining the BounceIn ease for the vertical motion.

- **1.** Expand the Motion Editor for the US layer.
- 2. Select the X-property under Location.



- **3.** Click Add Ease at the bottom of the Motion Editor to open the Ease panel.
- **4.** Double-click the Simple category.
- **5.** Select the Fast ease preset and enter **50** for the Easing value.



The Easing value of 50 represents a strong ease-out motion.



- **6.** Apply Fast eases with an Easing value of 50 for the X-property curves of the other two motion tweens (the Euro and the Yen instances).
- **7.** Test your new motion by pressing Enter/Return. Use the Loop option at the bottom of the Timeline so you can repeat the motion automatically.

As the three blocks bounce to the ground, their forward momentum gradually slows down, creating a more realistic animation.



Review Questions

- **1**. How do you access the Motion Editor for a motion tween?
- **<u>2</u>.** What's the difference between a property curve and an ease curve?
- **<u>3</u>**. What does the Easing value do to an ease?
- **<u>4</u>**. How do you change the curvature of a property curve?

Review Answers

- **<u>1</u>**. To open the Motion Editor panel, double-click a motion tween span on the Timeline, or right-click a motion tween span and choose Refine Tween.
- **2.** A property curve is the graphical representation of how a property of a motion tween changes values over time. An ease curve represents a different rate of change that you can apply to an individual property curve. Animate displays the effects of an ease curve on a property curve as a dotted line.
- **3.** The Easing value changes the strength and direction of an ease. Easing values affect eases differently, depending on the type of ease selected. For example, the Easing value for BounceIn eases determines the number of bounces, whereas the Easing value for a Simple Fast ease determines whether the ease is an ease-in or ease-out, and the strength

of the ease.

4. To change the curvature of a property curve, select the property in the Motion Editor and select Add Anchor. Click the curve to add a new anchor point and move the direction handles to change the the shape of the curve at that point. You can move the anchor points up or down to change the property value, or you can move the anchor points left or right to change the position of the keyframe within the motion tween.

6. Animating Shapes and Using Masks

Lesson Overview

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

- Animate shapes with shape tweens
- Use shape hints to refine shape tweens
- Shape tween gradient fills
- View onion skin outlines
- Apply easing to shape tweens
- Create and use masks
- Understand mask limitations
- Animate the Mask and Masked layers



This lesson will take approximately 2½ hours to complete. Download the project files for this lesson from the Registered Products tab on your Account page at <u>www.peachpit.com</u> (click the Access Bonus Content link) and store them on your computer in a convenient location, as described in the Getting Started section of this book. Your Account page is also where you'll find any updates to the lessons or to the lesson files.



You can easily morph—create organic changes in shape—with shape tweens. Masks provide a way to selectively show only parts of a layer. Together, they allow you to add more sophisticated effects to your animations.

Getting Started

You'll start the lesson by viewing the animated logo that you'll create as you learn about shape tweens and masks in Adobe Animate CC.

1. Double-click the 06End.html file in the Lesson06/06End folder to play the animation in a browser.



The project is an animation of a flame flickering at the top of a fictional company name. Not only does the shape of the flame change constantly, but so does the radial gradient fill inside the flame. A linear gradient sweeps across the letters of the company name from left to right. In this lesson, you'll animate both the flame and the colors that move across the letters.

- **2.** Close your browser. Double-click the 06Start.fla file in the Lesson06/06Start folder to open the initial project file in Animate.
- **3.** Choose File > Save As. Name the file **06_workingcopy.fla** and save it in the 06Start folder. Saving a working copy ensures that the original start file will be available if you want to start over.

😑 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.

Animating Shapes

In the previous two lessons, you learned to create animations with symbol instances. You could animate the motion, scale, rotation, color effect, or the filters applied to symbol instances. However, you couldn't animate the actual contours of a graphic. For example, creating an animation of the undulating surface of the ocean or the slithering motion of a snake's body is difficult—if not impossible—with motion tweens. To do something more organic, you have to use shape tweening.

Shape tweening is a technique for interpolating stroke and fill changes between different keyframes. Shape tweens make it possible to smoothly morph one shape into another. Any kind of animation that requires the stroke or the fill of a shape to change—for example, animation of clouds, water, or fire—is a perfect candidate for shape tweening.

Because shape tweening applies only to shapes, you can't use groups, symbol instances, or bitmap images.

Understanding the Project File

The 06Start.fla file is an ActionScript 3.0 document that contains most of the graphics already completed and organized in different layers. However, the file is static, and you'll add the animation.

The text layer is at the very top and contains the company name, "Firestarter." The flame layer contains the flame, and the bottom layer, called glow, contains a radial gradient to provide a soft glow.



There are no assets in the library.

Creating a Shape Tween

To create the flickering flame effect, you'll animate the undulating changes in a flame's typical teardrop shape. You'll rely on shape tweening to handle the smooth morphing from one shape to the next, as well as the gradual shifts in color. A shape tween requires at least two keyframes on the same layer. The beginning keyframe contains a shape drawn with the drawing tools in Animate or imported from Adobe Illustrator. The ending keyframe also contains a shape. A shape tween interpolates the smooth changes between the beginning keyframe and the end keyframe.

Establish keyframes containing different shapes

In the following steps, you'll animate the flame that will sit on top of the company name.

1. Select frame 40 for all three layers.



2. Choose Insert > Timeline > Frame (F5).

Frames are added to all three layers up to frame 40 to define the overall length of the animation.

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- **3.** Lock the text layer and the glow layer. This prevents you from accidentally selecting or moving the graphics in those layers.
- **4.** After making sure that none of the frames is selected, right-click frame 40 in the flame layer and select Insert Keyframe, or choose Insert > Timeline > Keyframe (F6). The contents of the previous keyframe in frame 1 are copied into the new keyframe.

You now have two keyframes on the Timeline in the flame layer, at frame 1 and at frame 40. Next, you'll change the shape of the flame in the end keyframe.

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- **5.** Choose the Selection tool.
- **6.** Click away from the shape to deselect it. Move your cursor close to the outlines of the shape and drag the contours of the flame to make the flame skinnier.



The beginning keyframe and the end keyframe now contain different shapes—a fat flame in the beginning keyframe, and a skinny flame in the end keyframe in frame 40.

Apply the shape tween

Next, you'll apply a shape tween between the keyframes to create the smooth transitions.

- **1.** Click any frame between the beginning keyframe and the end keyframe in the flame layer.
- 2. Right-click and select Create Shape Tween. Or, from the Insert menu choose Shape

Tween.



Flash applies a shape tween between the two keyframes, which is indicated by a black forward-pointing arrow and a green fill in the tween span.



3. Watch your animation by choosing Control > Play (Enter/Return), or by clicking the Play button at the bottom of the Timeline.



You have created a smooth animation between the keyframes in the flame layer, morphing the shape of the first flame into the shape of the second flame.

😑 Note

Don't worry if your flame doesn't morph exactly the way you want it to. Small changes between keyframes work best. Your flame may rotate while going from the first shape to the second. You'll have a chance to refine the shape tweening later in this lesson with shape hints.

Blend types

In the Properties panel, you can modify your shape tween by choosing either the Distributive or the Angular option for Blend. These two options determine how Animate makes the interpolations to change the shapes from one keyframe to the next.

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The Distributive option is the default and works well for most cases. It creates animations where the intermediate shapes are smoother.

Use the Angular blend if your shapes have many points and straight lines. Flash attempts to preserve apparent corners and lines in the intermediate shapes.

Changing the Pace

The keyframes of a shape tween can be easily moved along the Timeline in order to change the timing or pacing of the animation.

Moving a keyframe

The flame slowly transforms from one shape to another over a period of 40 frames. If you want the flame to make the shape change more rapidly, you need to move the keyframes closer together.

1. Select the last keyframe of the shape tween in the flame layer.



2. Drag the last keyframe to frame 6.

The shape tween shortens.

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3. Press Enter/Return to play your animation.

The flame flickers quickly, and then remains static until frame 40.

Adding More Shape Tweens

You can add shape tweens by creating more keyframes. Each shape tween simply requires two keyframes to define its beginning state and its end state.

Insert additional keyframes

You want the flame to continually change shape, just like a real flame would. You'll add more keyframes throughout the animation and apply shape tweens between all the keyframes.

 Right-click frame 17 in the flame layer and choose Insert Keyframe. Or, choose Insert > Timeline > Keyframe (F6).

The contents of the previous keyframe are copied into the second keyframe.



2. Right-click frame 22 in the flame layer and choose Insert Keyframe (F6). The contents of the previous keyframe are copied into the new keyframe.

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3. Continue inserting keyframes at frames 27, 33, and 40.



Your Timeline now has seven keyframes in the flame layer, with a shape tween between the first and second keyframes.

4. Move the red playhead to frame 17.



- **5.** Choose the Selection tool.
- **6.** Click away from the shape to deselect it. Drag the contours of the flame to create another variation in its shape. You can make the base thicker, or change the curvature of the tip to make it lean left or right.



7. Modify the flame shapes in each of the newly inserted keyframes to create subtle variations.



Extending the shape tweens

Your next step is to extend the shape tween so the flame morphs from one shape to the next.

 Right-click any frame between the second and third keyframes and choose Create Shape Tween. Or choose Insert > Shape Tween.



A black forward-pointing arrow on a green background appears between the two keyframes, showing that you've applied a shape tween.



2. Continue to insert shape tweens between all the keyframes.

You should have six shape tweens in the flame layer.



3. Press Enter/Return to watch the animation play.



Your flame flickers back and forth for the duration of the animation. Depending on how extensive your modifications to the flame have been, your flame may undergo some weird contortions between keyframes—for example, flipping or rotating unpredictably. Don't worry! You'll have a chance to refine your animation later in the lesson with shape hints.

Broken tweens

Every shape tween needs a beginning and an end keyframe. If the last keyframe of a shape tween is missing, Flash shows the broken tween as a dotted black line (rather than a solid arrow).

Insert a keyframe to fix the tween.



Creating a Looping Animation

Your flame should flicker back and forth continuously for as long as the logo is onscreen. You can create a seamless loop by making the first and last keyframe identical, and by putting the animation inside a movie clip symbol. A movie clip timeline loops continuously, independently of the main Timeline.

Duplicating keyframes

Make the first keyframe identical to the last keyframe by duplicating its contents.

 Right-click the first keyframe on the flame layer and select Copy Frames. Or choose Edit > Timeline > Copy Frames.



The contents of the first keyframe are placed on your clipboard.

2. Right-click the last keyframe on the flame layer and select Paste Frames. Or choose Edit > Timeline > Paste Frames.



The first and last keyframes now contain identical flame shapes.

▶ Tip

You can quickly duplicate keyframes by first selecting a keyframe and then Alt/Option-dragging the keyframe to a new position.

Previewing the loop

Use the Loop button at the bottom of the Timeline to preview your animation.

 Click the Loop button at the bottom of the Timeline, or choose Control > Loop Playback (Alt+Shift+L/Option+Shift+L) to enable continuous playback when you play the movie.



Markers appear on the Timeline header indicating the range of frames that loop during playback. Next, adjust the markers to extend the loop to include the entire movie.

😑 Note

The Loop Playback option loops only in the Animate CC authoring environment, and not when it is published. To create a loop, put your animation in a movie clip symbol, or use a this.gotoAndPlay() command for ActionScript 3.0 documents or for an HTML5 Canvas document, as described in the later lessons on interactivity.

2. Extend the markers to include all the frames on your Timeline (frames 1 through 40), or click the Modify Markers button and choose Marker Range All.



3. Press Enter/Return to test the animation.

The flame animation plays and loops continuously. Click the Pause button or press Enter/Return again to stop the animation.

Inserting the animation into a movie clip

When your animation plays in a movie clip symbol, the animation loops automatically.

1. Select all the frames on the flame layer, and right-click and choose Cut Frames. Or, choose Edit > Timeline > Cut Frames.



The keyframes and shape tweens are removed from the Timeline and placed on the clipboard.

2. Choose Insert > New Symbol (Ctrl+F8/Command+F8).

The Create New Symbol dialog box appears.

3. Enter **flame** as the name of the symbol, and choose Movie Clip as the Type. Click OK.



A new movie clip symbol is created and opens in symbol-editing mode.

4. Right-click the first frame on your movie clip timeline and select Paste Frames. Or, choose Edit > Timeline > Paste Frames.



The flame animation from the main Timeline is pasted into your movie clip symbol's timeline.



5. Click the Scene 1 button on the Edit bar at the top of the Stage, or choose Edit > Edit Document (Ctrl+E/Command+E).

You exit symbol-editing mode and return to the main Timeline.

6. Select the flame layer, which is currently empty. Drag your newly created flame movie clip symbol from the Library panel to the Stage.

An instance of the flame movie clip symbol appears on the Stage.


7. Choose Control > Test (Ctrl+Enter/Command+Return).

Flash exports the SWF in a new window, where you can preview the animation. The flame flickers continuously in a seamless loop.

Shape tweening with variable width strokes

Any aspect of a shape can be shape tweened, including the new variable widths of a shape's stroke. In Lesson 2, you learned to use the Variable Width Stroke tool to create lines with thick and thin variations for more expressive graphics. You can change the width of the strokes in different keyframes, and when you apply a shape tween between those keyframes, Flash creates smooth interpolations of those stroke widths.

Considering the ability to animate the thickness of a shape's stroke, the contours of the stroke itself, and the inside fill of a shape, the creative possibilities are nearly limitless.

Using Shape Hints

Animate CC creates the smooth transitions between keyframes of your shape tween, but sometimes the results are unpredictable. Your shapes may go through strange contortions, flips, and rotations to get from one keyframe to another. You may like the effect, but more often than not, you'll want to maintain control of the transformations. Using shape hints can help refine the shape changes.

Shape hints force Animate to map points on the start shape to corresponding points on the end shape. By placing multiple shape hints, you can control more precisely how a shape tween appears.

Adding shape hints

Now you'll add shape hints to the shape of the flame to modify the way it morphs from one shape to the next.

1. Double-click the flame movie clip symbol in the library to enter symbol-editing mode.

Select the first keyframe of the shape tween in the flame layer.



- 2. Choose Modify > Shape > Add Shape Hint (Ctrl+Shift+H/Command+Shift+H). A red circled letter "a" appears on the Stage. The circled letter represents the first shape hint.
- **3.** Choose the Selection tool and make sure that Snap To Objects is selected.

The magnet icon at the bottom of the Tools panel should be depressed. Snap To Objects ensures that objects snap to each other when being moved or modified.



4. Drag the circled letter to the tip of the flame.



▶ Tip

Shape hints should be placed on the edges of shapes.

- **5.** Choose Modify > Shape > Add Shape Hint again to create a second shape hint. A red-circled "b" appears on the Stage.
- **6.** Drag the "b" shape hint to the bottom of the flame shape.



You have two shape hints mapped to different points on the shape in the first keyframe. **7.** Select the next keyframe of the flame layer (frame 6).

A corresponding red-circled "b" appears on the Stage, hiding an "a" shape hint that is directly under it.



8. Drag the circled letters to corresponding points on the shape in the second keyframe. The "a" hint goes on the top of the flame, and the "b" hint goes on the bottom of the flame.

The shape hints turn green, indicating that you've correctly placed the shape hint.



9. Select the first keyframe.

Note that the initial shape hints have turned yellow, indicating that they are correctly placed. The shape hints in the beginning keyframe turn yellow and those in the ending keyframe turn green when placed properly.



10. Scrub the playhead through the first shape tween on the Timeline to see the effect of the shape hints on the shape tween.

The shape hints force the tip of the flame in the first keyframe to map to the tip of the flame in the second keyframe and the bottoms to map to each other. This restricts the transformations.

To demonstrate the value of shape hints, you can deliberately create a mess of your shape tweens. In the end keyframe, put the "b" hint at the top of the flame and the "a" hint at the bottom.



Beginning keyframe

End keyframe

Animate forces the tip of the flame to tween to the bottom of the flame, and vice versa. The result is a strange flipping motion as Animate tries to make the transformation. Put the "a" back at the top and the "b" back at the bottom after you're done experimenting.

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You can add a maximum of 26 shape hints to any shape tween. Be sure to add them consistently in a clockwise or counterclockwise direction for best results.

Removing shape hints

If you've added too many shape hints, you can easily delete the unnecessary ones. Removing a shape hint in one keyframe will remove its corresponding shape hint in the other keyframe.

- Drag an individual shape hint entirely off the Stage and pasteboard.
- Choose Modify > Shape > Remove All Hints to delete all the shape hints.

Only the content in the keyframes of a shape tween is displayed fully rendered. All other frames are shown as outlines. To see all frames fully rendered, use onion skinning, as described in the next exercise.

Previewing Animations with Onion Skinning

It's sometimes useful to see how your shapes are changing from one keyframe to another on the Stage all at once. Seeing how the shapes gradually change lets you make smarter adjustments to your animation. You can do so using the onion skinning option, available at the bottom of the Timeline.

Onion skinning shows the contents of the frames before and after the currently selected frame.

The term "onion skin" comes from the world of traditional hand-drawn animation, in which animators draw on thin, semitransparent tracing paper known as onionskin. A light box shines a light behind the drawings to help see them through several sheets. When creating an action sequence, animators flip back and forth quickly between drawings held between their fingers. This allows them to see how the drawings smoothly connect to each other.

Turning on onion skinning

There are two modes for onion skinning—onion skin and onion skin outlines. Although both show previous and future frames, onion skin displays graphics fully rendered whereas onion skin outlines shows only the outlines of your graphics. In this task, you'll use onion skin outlines.

1. Click the Onion Skin Outlines button at the bottom of the Timeline.



Animate shows several outlines of the flame, with the currently selected frame in red. The previous two frames are shown in blue and the future two frames are shown in green. The outlines of flame fade the further away it is from the current frame.



On the Timeline, Animate displays markers to bracket your currently selected frame. The blue-marked bracket (to the left of the playhead) indicates how many previous frames are shown on the Stage, and the green-marked bracket (to the right of the playhead) indicates how many future frames are shown.

5 5	10	15	

2. Move the playhead to a different frame.

Animate keeps the markers around the playhead no matter where you move it, always showing the same number of frames behind and ahead.

3. Click the Onion Skin button at the bottom of the Timeline.



Onion skinning switches from outline mode to the standard onion skin mode, showing the onion skins of your flame fully rendered. The flames from previous frames are tinted blue, and the flames from future frames are tinted green.



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You can even scrub the playhead back and forth along the Timeline to see the ghostly images of the onion skins moving along with the animation. You cannot see onion skins during normal playback, however.

Adjusting the markers

You can move either marker to show more or fewer onion skin frames.

• Drag the blue marker to adjust the number of past onion skin frames shown.



- Drag the green marker to adjust the number of future frames displayed.
- Hold down the Ctrl/Command key while dragging either marker to move the past and future markers in equal amounts.
- Hold down the Shift key while dragging either marker to move the onion skin range to a different spot on the Timeline (as long as it still encompasses the playhead).
- Click the Modify Markers menu button to select a preset marker option. For example, you can choose Marker Range 2 or Marker Range 5 to have the markers show two or five frames in front and behind the current frame.



Customizing onion skin colors

If you don't like the green and blue color coding of previous and future frames, you can change them in the preferences.

- **1.** Choose Edit > Preferences (Windows)/Animate CC > Preferences (Mac).
 - The Preferences dialog box appears.
- **2.** In the Onion Skin Color section, click the color boxes for Past, Present, or Future to choose new colors.

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Animating Color

Shape tweens interpolate all aspects of a shape, which means both the stroke and fill of a shape can be tweened. So far, you've modified the stroke, or outlines, of the flame. In the next section, you'll modify the fill so that the color gradient can change—perhaps glow brighter and more intense at some points in the animation.

Adjusting the gradient fills

Use the Gradient Transform tool to change the way the color gradient is applied to a shape, and use the Color panel to change the actual colors used in a gradient.

- **1.** If you're not already in symbol-editing mode for your flame symbol, double-click the flame movie clip symbol in the library to edit it.
- **2.** Select the second keyframe on the flame layer (frame 6).
- **3.** Select the Gradient Transform tool, which is grouped with the Free Transform tool in the Tools panel.

The control points for the Gradient Transform tool appear on the gradient fill of the flame. The various control points allow you to stretch, rotate, and move the focal point of the gradient within the fill.



4. Use the control points to tighten the color gradient into the base of the flame. Reduce the gradient's size, make it wider and positioned lower on the flame, and move the focal point (represented by a tiny triangle) of the gradient to one side.



Your flame's orange core appears lower and more intense because the colors are distributed in a smaller area.

- **5.** Move the playhead along the Timeline between the first and second keyframe. The shape tween automatically animates the colors inside the flame as well as its contours.
- **6.** Select the third keyframe on the flame layer (frame 17). In this frame, you'll adjust the actual color of the gradient.



- **7.** Choose the Selection tool and click the fill of the flame on the Stage.
- **8.** Open the Color panel (Window > Color).

The Color panel appears, showing you the gradient colors of the selected fill.



- **9.** Click the inner color marker, which is currently yellow.
- **10.** Change the color to a hot pink (#F109EE).

The center color of the gradient turns pink.



11. Move the playhead along the Timeline between the second and third keyframes.



The shape tween automatically animates the center color in the gradient from yellow to pink. Experiment with the other keyframes by modifying the gradient fill and see what kinds of interesting effects you can apply to your flickering flame.

🔵 Note

Shape tweens can smoothly animate solid colors or color gradients, but they can't animate between different types of gradients. For example, you can't shape tween a linear gradient into a radial gradient.

Creating and Using Masks

Masking is a way of selectively hiding and displaying content on a layer. It enables you to control the content that your audience sees. For example, you can make a circular mask and allow your audience to see only through the circular area so that you get a keyhole or spotlight effect. In Animate, you put a mask on one layer and the masked content in a layer below it.

For the animated logo you're creating in this lesson, you'll make the text a little more visually interesting by using the text itself as a mask.

Define the mask layer

You'll create a mask from the "Fire starter" text that will reveal an image of a fire beneath it.

 Return to the main Timeline. Unlock the text layer. Double-click the icon in front of the text layer name, or select the text layer and choose Modify > Timeline > Layer Properties.

The Layer Properties dialog box appears.

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2. Select Mask and click OK.

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The text layer becomes a mask layer, indicated by the mask icon in front of the layer name. Anything in this layer will act as a mask for a masked layer below it.

Timeline Output				
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For this lesson, we're using the text already in place as the mask, but the mask can be any filled shape. The color of the fill doesn't matter. What's important to Animate is the size, location, and contours of the shape. The shape will be the "peephole" through which you'll see the content on the layer below. You can use any of the drawing or text tools to create the fill for your mask.

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Masks do not recognize strokes, so use only fills in the mask layer. Text created with the Text tool also works as a mask.

🔵 Note

Animate does not recognize different Alpha levels in a mask created on a timeline, so a semitransparent fill in the mask layer has the same effect as an opaque fill, and edges will always be hard. However, in an ActionScript 3.0 document, you can dynamically create masks that will allow transparencies with ActionScript code.

Create the masked layer

The masked layer is always under the mask layer.

- **1.** Click the New Layer button, or choose Insert > Timeline > Layer.
 - A new layer appears.
- 2. Rename the layer **fiery effect**.



3. Drag the fiery effect layer under the mask layer (named "text") and a little to the right so that it becomes indented.

The fiery effect layer becomes a masked layer, paired with the mask layer above it. Any content in the masked layer will be masked by the layer above it.



You can also double-click a normal layer under a mask layer, or choose Modify > Timeline > Layer Properties, and select Masked to modify the layer into a masked layer.

4. Choose File > Import > Import To Stage, and select fire.jpg from the 06Start folder. The bitmap image of fire appears on the Stage, and the words appear over the image.



See the effects of the mask

To see the effects of the mask layer on its masked layer, lock both layers.

1. Click the Lock option for both the text layer and the fiery effect layer.



Both mask and masked layers become locked. The shapes of the letters in the mask layer reveal parts of the image in the masked layer.

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2. Choose Control > Test.

As the flame flickers above the text, the letters reveal the fiery texture in the layer below it.

🔵 Note

You can have multiple masked layers under a single mask layer.

Traditional masks

It might seem counterintuitive that the shapes in the mask layer reveal, rather than hide, the content in the masked layer. However, that's exactly how a traditional mask in photography or painting works. When a painter uses a mask, the mask protects the painting from paint splatters. When a photographer uses a mask in the darkroom, the mask protects the photosensitive paper from the light, to prevent those areas from getting any darker. So thinking of a mask as something that protects a lower, masked layer is a good way to remember which areas are hidden and which are revealed.

Animating the Mask and Masked Layers

The letters of your animated logo have more drama now that you've created a mask with an image of fire behind it. However, the client for this fictional project now demands that it have even more punch. Although she likes the look of the fiery letters, she wants an animated effect.

Fortunately, you can include animations in either the mask or the masked layer. You can create an animation in the mask layer if you want the mask itself to move or expand to show different parts of the masked layer. Or, you can create an animation in the masked layer if you want the content to move under a mask, like scenery whizzing by a train window.

Adding a tween to the masked layer

To make the logo more compelling for your client, you'll add a shape tween to the masked layer. The shape tween will move a glow from left to right for a portion of the movie under the letters.

1. Unlock both the text layer and the fiery effect layer.

The effects of the mask and masked layer are no longer visible, but their contents are now editable.

- **2.** Delete the bitmap image of the fire in the fiery effect layer.
- **3.** Choose the Rectangle tool and open the Color panel (Window > Color).
- **4.** In the Color panel, make sure Fill Color is selected and choose Linear Gradient from the Color Type menu.
- **5.** Create a gradient that starts with red on the left (#FF0000), yellow in the middle (#FFFC00), and red again on the right (#FF0000). Make sure your Alpha settings are at 100% so the colors are not transparent.



6. Create a rectangle in the fiery effect layer that encompasses the letters in the text layer.



7. Choose the Gradient Transform tool and click the fill of your rectangle to select it.

The control handles for the Gradient Transform tool appear on the fill of the rectangle. We'll use this tool to position the gradient off the Stage so it can make a dramatic entrance.



8. Drag the center point of the gradient so that the yellow color appears on the far left side of the Stage.



The yellow glow will enter from the left and move to the right.

9. Right-click frame 20 in the fiery effect layer and choose Insert Keyframe (F6). The contents of the previous keyframe are copied into the new keyframe.



10. Right-click the last frame (frame 40) in the fiery effect layer and choose Insert Keyframe (F6).

The contents of the keyframe at frame 20 are copied into the new keyframe. You now have three keyframes in the fiery effect layer.



- **11.** Make sure that your playhead is still in the last frame (frame 40).
- **12.** Drag the center point of the gradient far enough to the right so that the yellow color is just barely visible on the right side of the Stage.



13. Right-click anywhere on the Timeline between the second and third keyframe in the fiery effect layer and select Create Shape Tween. Or, from the top menu, choose Insert > Shape Tween.

The color gradient is shape-tweened so the yellow glow moves within the fill of the rectangle from left to right.



14. Watch your animation by choosing Control > Test.

While the flame burns above the letters, a soft yellow glow flashes across the letters.



Easing a Shape Tween

Eases help your animation bear a sense of weight by enabling you to add an acceleration or deceleration component to its motion.

You add an ease to a shape tween in the Properties panel. Ease values range from -100, which indicates an ease-in, to 100, which indicates an ease-out. An ease-in makes the motion start off slowly. An ease-out slows down the motion as it approaches its end keyframe.

😑 Note

The Motion Editor, which is the advanced panel integrated into the Timeline that provides different ease types, is not available for shape tweens.

Adding an ease-in

You'll make the glow that flashes across the letters of the logo begin slowly, and then pick up speed. The ease-in will help viewers take notice of the animation before it proceeds.

- **1.** Click anywhere inside the shape tween in the fiery effect layer.
- **2.** In the Properties panel, enter **-100** for the Ease value.

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Animate applies an ease-in effect to the shape tween.

3. Make sure your mask and masked layers are locked, and choose Control > Test to test your movie.

The soft yellow glow flashes across the letters, starting off slowly, and then adding a little more sophistication to the entire animation.

🛑 Note

You can apply either an ease-in or an ease-out to a shape tween, but not both.

Review Questions

- **<u>1</u>**. What is a shape tween, and how do you apply it?
- **2.** What are shape hints, and how do you use them?
- 3. What does the color-coding of the onion skin markers indicate?
- **<u>4.</u>** How is a shape tween different from a motion tween?
- **<u>5</u>**. What is a mask, and how do you create one?
- **<u>6</u>**. How do you see the effects of a mask?

Review Answers

- **1.** A shape tween creates smooth transitions between keyframes containing different shapes. To apply a shape tween, create different shapes in an initial keyframe and in a final keyframe. Then, select any frame between the keyframes in the Timeline, right-click, and select Create Shape Tween.
- **<u>2</u>**. Shape hints are labeled markers that indicate how one point on the initial shape of a

shape tween will map to a corresponding point on the final shape. Shape hints help refine the way the shapes will morph. To use shape hints, first select the initial keyframe of a shape tween. Choose Modify > Shape > Add Shape Hint. Move the first shape hint to the edge of the shape. Move the playhead to the final keyframe, and move the corresponding shape hint to a matching edge of the shape.

- **3.** By default, Animate shows the onion skins in previous frames in blue and the onion skins in future frames in green. The onion skin in the currently selected frame is in red. The colors can be customized in the Preferences panel.
- **4.** A shape tween uses shapes, whereas a motion tween uses symbol instances. A shape tween smoothly interpolates the change of stroke or fill of a shape between two keyframes. A motion tween smoothly interpolates the changes in location, scale, rotation, color effect, or filter effect of a symbol instance between two keyframes.
- **<u>5</u>**. Masking is a way of selectively hiding and displaying content on a layer. In Animate, you put a mask on the top mask layer and the content in the layer below it, which is called the masked layer. Both the mask and the masked layers can be animated.
- **<u>6</u>**. To see the effects of the mask layer on the masked layer, you must lock both layers, or test your movie with Control > Test.

7. Natural and Character Animation

Lesson Overview

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

- Use the Bone tool to build armatures (skeletons) of movie clips
- Use the Bone tool to build armatures of shapes
- Animate natural motion of armatures using inverse kinematics
- Constrain and pin the armature joints
- Edit the position of armature bones and joints
- Refine shape deformations with the Bind tool
- Simulate physics with the Spring feature
- Adjust the speed setting to add a sense of weight to armatures



This lesson will take approximately two and a half hours to complete. Download the project files for this lesson from the Registered Products tab on your Account page at <u>www.peachpit.com</u> (click the Access Bonus Content link) and store them on your computer in a convenient location, as described in the Getting Started section of this book. Your Account page is also where you'll find any updates to the lessons or to the lesson files.



You can easily create complex and natural motion with articulations—joints between linked objects and within shapes—using the Bone tool for animation called inverse kinematics.

Getting Started

You'll start the lesson by viewing the animated walking monkey that you'll create as you learn about natural motion in Adobe Animate CC.

1. Double-click the 07End.html file in the Lesson07/07End folder to play the animation.



The animation depicts a cartoon monkey walking in an endless cycle with a scrolling motion in the background. His arms and legs swing naturally, and his tail curls and unfurls naturally and smoothly. In this lesson, you'll build the armature (a skeleton) that controls the monkey and all his limbs, and then animate his walk cycle.

- **2.** Double-click the 07Start.fla file in the Lesson07/07Start folder to open the initial project file in Animate.
- **3.** Choose File > Save As. Name the file **07_workingcopy.fla**, and save it in the 07Start folder. Saving a working copy ensures that the original start file will be available if you want to start over.

Natural Motion and Character Animation with Inverse Kinematics

When you want to animate natural motion of an articulated object (one that has multiple joints), such as a walking person, or as in this example, a walking monkey, Animate CC makes it easy to do so with inverse kinematics. Inverse kinematics is a mathematical way of calculating the different angles of a jointed object to achieve a certain configuration. You can pose your object in a beginning keyframe, and then set a different pose at a later keyframe. Animate will use inverse kinematics to figure out the different angles for all the joints to smoothly get from the first pose to the next.

Inverse kinematics makes animating easy because you don't have to worry about animating each segment of an object or limb of a character. You just focus on the overall poses, and

Animate will take care of the rest.

Building your first armature to animate a character

When animating a clearly articulated object (a character with limbs and joints), first determine which pieces of the character need to move. At the same time, examine how those pieces connect together and move. This will almost always be a hierarchical structure, like a tree, starting from a root and branching out in various ways. This structure is called the *armature*, and, like a real skeleton, each rigid piece that makes up the armature is called a *bone*. The armature defines where your object can bend and how the different bones are connected.

You use the Bone tool () to create your armature. The Bone tool tells Animate how a series of movie clip instances are connected, or provides the jointed structure within a shape. A connection between two or more bones is called a *joint*.

1. In your 07working_copy.fla file, open the Library panel and view the graphics for the monkey character that have already been created and imported for you.



2. Drag all the pieces of the monkey from the Library panel onto the Stage, and drag two instances each of the foot, hand, leg, lower leg, arm 1, and arm 2. Arrange them so you

have the different segments in roughly the arrangement you need to form the whole body (with head, body, pelvis, two arms, and two legs). For the back arm, use the Free Transform tool to rotate all three of the pieces (arm 1, arm 2, and hand) 180 degrees.



Keeping some space between the pieces will make connecting the bones for your armature easier. Don't worry about getting the pieces looking exactly right because you'll move them together in a later step.

- **3.** Select the Bone tool.
- **4.** Click the middle of the monkey's chest and drag with the Bone tool to the top of his left upper arm. Release the mouse button.



Your first bone is defined. Animate shows the bone as a straight line with a square at its base joint and a circle at its tip joint. Each bone is defined from one joint to the next.

The following shows the bones and their relationship to each other without the full rendering of the movie clips (with Show All Layers As Outlines enabled).



5. Now click the end of your first bone (at the monkey's shoulder) and drag it to the top of his lower arm (his elbow). Release the mouse button.



Your second bone is defined.

6. Click the end of your second bone and drag it to the base of the monkey's hand. Release the mouse button.



Your third bone is defined. Note that the four movie clip instances, which are now connected with bones, have been moved to a new layer with a new icon and the default name Armature_#. This special type of layer keeps your armatures separate from other objects on the Timeline such as graphics or motion tweens.

🔵 Note

The first Armature layer created in a pristine file will be called "Armature_1" and each time you add a new Armature layers its name will be incremented by one. Don't worry if the name of your Armature layer doesn't match the one in these screenshots.



7. Select the Selection tool and experiment with grabbing the last bone in the chain (the monkey's hand) and moving it up and down the Stage.



Because the bones connect the whole arm, moving the hand causes the forearm and the upper arm to move as well.

Extending your armature

You'll continue to build out the armature of the monkey by connecting his other arm, head and pelvis, and legs.

- **1.** Click the base of your very first bone (in the monkey's chest) and drag the Bone tool to the top of his other upper arm. The first bone is considered your "root bone." Release the mouse button.
- **2.** Continue creating more bones to the base of the other hand.

Your armature now extends out in two directions: one for the monkey's left arm and one for his right.



- **3.** Click the base of your very first bone (in the monkey's chest) and drag the Bone tool to middle of the pelvis.
- **4.** Extend the armature from the pelvis down to both of the monkey's lower legs. The pelvis will branch off to the right and left thighs, lower legs, and feet.
- **5.** Lastly, connect the torso to the monkey's head.

Your armature now connects all the pieces of the monkey, defining how each piece can rotate and move in relation to the other pieces in the armature.



Armature hierarchy

The first bone of an armature is the root bone and the parent of the child bones linked to it. A bone can have more than one child attached to it as you have for your monkey armature, making for a very complex relationship. The bone in the chest is the parent, and each bone to the upper arm is a child, and the arms are siblings to each other. As your armature becomes more complicated, you can use the Properties panel to navigate up and down the hierarchy using these relationships.



When you select a bone in an armature, the top of the Properties panel displays a series of arrows.

You can click the arrows to move through the hierarchy and quickly select and view the properties of each bone. If the parent bone is selected, you can click the down arrow to select the child. If a child bone is selected, you can click the up arrow to select its parent, or click the down arrow to select its own child if it has one. The sideways arrows navigate between sibling bones.

Moving the bones of the armature

Now that you've connected each of the movie clips with your bones in a complete armature, you can edit each bone's relative position. You initially placed them with gaps between the bones to make connecting them easier. Holding down the Alt/Option key allows you to move the position of any bone in your armature.

- **1.** Select the Selection tool.
- **2.** Hold down the Alt/Option key and move the monkey's left upper arm closer to his body. You can also use the Free Transform tool.



The upper arm is repositioned, but the armature remains intact.

3. Hold down the Alt/Option key and move all the parts of the monkey's body closer together to eliminate the gaps in his joints.

The monkey and its armature should look similar to the following figure.


Removing and adding bones and movie clips

To remove a bone, simply select the Selection tool and click the bone to select it; then press Backspace/Delete. The bone and all of its children will be removed, but the movie clip will remain.

To remove a movie clip, select it on the Stage and press Backspace/Delete. The movie clip and its associated bone will be removed.

If you want to add more movie clips to your armature, drag new movie clip instances onto the Stage in a *different* layer. You cannot add new objects to an armature layer. Once on the Stage, you can use the Bone tool to connect the added instance to the bones of your existing armature. The new instance will be moved to the same layer as the armature.

Modifying the position of the joint

If you want to change the point where one bone connects to another—the joint—use the Free Transform tool to move its transformation point. This also moves the rotation point of the bone.

1. If, for example, you made a mistake and attached the end point of your bone to the *middle* of the monkey's hand rather than at the base, his hand would rotate unnaturally.



2. To modify the position of the joint, select the Free Transform tool and click the hand to select it. Move the transformation point to the base of the hand.



3. The bone now connects to the new transformation point of the movie clip, and as a result, the hand rotates around the wrist.



Rearranging the stacking order

When you build an armature, the most recent bone will move to the top of stack in your graphics. Depending on the order in which you connected your bones, the individual movie clips may not overlap correctly. For example, in the previous task, the monkey's feet and legs may not overlap in a way that makes sense. One leg should be behind his pelvis, and one leg should be in front. Use the Modify > Arrange command to change the stacking order of the movie clips in your armature so they overlap each other correctly.

- **1.** Select the Selection tool and Shift-select the three movie clips that make up the monkey's back leg.
- 2. Choose Modify > Arrange > Send To Back, or right-click and select Arrange > Send To Back (Shift+Ctrl+Down/Shift+Command+Down).

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The selected bones of the armature move to the bottom of the stacking order, so his right leg is now behind all the other pieces of his body.



- **3.** Select the three clips that comprise the monkey's right arm and use the Modify > Arrange command to move his right arm behind the body.
- 4. Select the three pieces of the monkey's left arm and choose Modify > Arrange > Bring To Front, or right-click and choose Arrange > Bring To Front (Shift+Ctrl+Up/Shift+Command+Up).

The selected bones of the armature move to the top of the stacking order, so his left arm is now above all the other pieces of his body.

- **5.** You may need to move individual bones forward or backward so they overlap correctly. For example, in the monkey's leg, his pants and his shoes should overlap his lower leg.
- **6.** Select the Selection tool and move the armature around to see how the right and left arms and legs of the monkey move behind or in front of his body, and make any corrections, if needed.



🔵 Note

Use Modify > Arrange > Send To Back to move selected graphics all the way to the bottom of the stacking order, or use Modify > Arrange > Send Backward to move the selected graphics just one level back. Similarly, use Bring To Front to move graphics to the top of the stacking order or use Bring Forward to move graphics just one level up.

Creating a Walk Cycle

A walk cycle is a basic looping animation showing a character walking. Not only are the swinging arms and legs coordinated, but for the most convincing walk cycles, the body and head are also animated for the subtle bobbing motion that provides the sense of weight. Walk cycles can be enormously complicated (deceptively so), but can imbue a character with a lot of personality.

Armatures help make creating a walk cycle easier because you can move the character's limbs in place to define the key poses in the cycle. Think of poses as keyframes for the animation. In the next task, you'll create a simple walk cycle defined with four poses.

Posing your armature

You have an initial pose for your monkey in frame 1. You will insert three additional poses for the monkey to create a basic walk cycle. The fifth pose will be a duplicate of the very first pose, so when the animation loops, the cycle will be seamless. The four basic poses can be summarized in the following diagram:



Graphic by Ajaykarat at English Wikipedia CC BY 3.0

In the first pose, the foreground leg is forward and the background leg is back. In the second pose, the legs pass each other. In the third pose, the background leg is forward and the foreground leg is back. In the fourth pose, the legs pass each other again. The arms swing in the opposite direction from the legs.

1. Using the Selection tool, drag the monkey's left foot and move it behind him. Try to keep his foot flat on the ground, which will help him look like he's pushing the ground rather than bicycling in the air.

As you drag his foot, the bones that are connected to it also move. You may also have to drag his thigh or his lower leg to get the position of the armature just right. If you have trouble controlling the armature, don't worry! It takes practice, and in the following sections, you'll learn more tips and tricks to constrain or isolate certain joints to make precision positioning.

- **2.** Move the monkey's right foot so it is stepping forward.
- **3.** Move the monkey's left arm forward and his right arm behind him.

Your first pose is completed in frame 1 of your armature layer.



Isolating the rotation of individual bones

As you pull and push on the armature to create your pose, you may find it difficult to control the rotation of individual bones because of their linkages. Holding down the Shift key as you move individual bones will isolate their rotation.

- **1.** Select the monkey's left hand.
- **2.** With the Selection tool, drag the hand.

The whole arm moves to follow the motion of the hand.

3. Now, holding down the Shift key, drag the monkey's hand.



The hand rotates around the wrist, but the rest of the arm doesn't move. The Shift key isolates the rotation of the selected bone.

Holding down the Shift key helps you isolate the rotations of individual bones so that you can position your poses exactly as you want them. Return to the monkey's legs and arms to make any necessary adjustments using the Shift key.

Pinning individual bones

Another way you can more precisely control the rotation or position of your armature is to fix individual bones in place, leaving the child bones free to move in a different pose. You do this by using the Pin option in the Properties panel.

- **1.** Select the Selection tool.
- **2.** Select the bone in the monkey's right thigh.

The bone becomes highlighted, indicating that it is selected.



3. In the Properties panel, select the Pin option.



The tail, or end that connects to the child bone, is fixed to the Stage in the current position. A white circle with a black dot appears on the joint to indicate that it is pinned.



4. Drag the last bone (the foot) in the monkey's leg.



Only the last two bones move. Note how the armature motion is different when using the Pin option versus using the Shift key. The Shift key isolates an individual bone and all the rest of the bones connected to it. When you pin a bone, the pinned bone remains fixed, but you're free to move all the child bones.

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You can also select a bone and click its tail when your cursor changes to the icon of a pushpin. That selected bone will be pinned. Click again to unpin the bone.



Disabling and Constraining Joints

Before you insert the rest of the poses, you can add refinements to your armature that will make it easier to position the monkey's limbs. The various joints of the monkey can freely rotate, which isn't particularly realistic, particularly in his pelvis. Many armatures in real life are constrained to certain angles of rotation. For example, your forearm can rotate up toward your bicep, but it can't rotate in the other direction beyond your bicep. Your hips can wiggle around your torso, but not by very much. These are constraints that you can also impose on your own armature. When working with armatures in Animate CC, you can choose to constrain the rotation for various joints or even constrain the translation (movement) of the various joints.

Disabling the rotation of joints

If you drag the monkey's pelvis, you'll see that the bone that connects the torso with the pelvis can rotate freely, which allows wildly unrealistic positions.



1. Select the bone that connects the monkey's torso with his pelvis. The bone is highlighted.



2. In the Properties panel, deselect the Enable option in the Joint: Rotation section.



The circle around the joint at the head of the selected bone disappears, which means that the joint no longer is able to rotate.



3. Now drag the pelvis.

The pelvis no longer can rotate around the joint in the torso.



Constraining the range of rotation

There's still some work to do with the monkey's pelvis. Although it can't freely rotate around the joint in the monkey's torso, it can still rotate around the child joint 360 degrees. You can constrain that range of rotation.

- **1.** Click one of the bones that connects the monkey's pelvis with one of his legs to select it.
 - The bone becomes highlighted.



2. In the Properties panel, select the Constrain option in the Joint: Rotation section.



The angle indicator changes from a full circle to a partial circle on the joint, showing the minimum and maximum allowable angles and the current position of the bone.



3. In the Properties panel, set the Left Offset rotation angle to **–6** degrees and the Right Offset rotation angle to **6** degrees.

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4. Drag the pelvis.



You can move the pelvis, but its rotation is constrained to only a few degrees clockwise and a few degrees counterclockwise, preventing your armature from being in unrealistic positions and making it much easier to control and position your poses.

Constraining the translation of joints

In real life, joints only allow rotation of bones. However, in Animate CC, you can allow joints to actually slide in either the *x* (horizontal) or the *y* (vertical) direction, and set the limits on how far those joints can travel.

In this example, you'll allow the joint in the pelvis to move up and down. This will give the armature some degree of motion so you can create a slight bobbing action.

- **1.** If it's not already selected, click the same bone that you selected to constrain rotation in the previous task.
- **2.** In the Properties panel, select Enable in the Joint: Y Translation section.



Arrows appear from the joint, indicating that the joint can travel in the up and down directions.



3. Select the Constrain option in the Joint: Y Translation section of the Properties panel. The arrowheads on the joint turn into T-shapes (straight lines), indicating that the translation is limited.



4. Set Top Offset to **–6** and Bottom Offset to **6**.



The bars on the joint shorten to indicate how much translation in the *y* direction the pelvis can do.

5. Grab the pelvis of the monkey and try to move it around.

The constraints on joint rotation and joint translation impose limits on the poses that help you create more realistic animations. The pelvis can now move slightly up and down as well as rock back and forth in a limited fashion.

Using on-Stage controls for joint constraints

You can make quick adjustments to any joint rotation or translation constraints by just using the on-Stage controls that appear over joints, rather than making those adjustments in the Properties panel. Using the on-Stage controls lets you see the constraints in context with the other bones and graphics on the Stage.



Simply select a bone and move your mouse pointer over the joint in the head of the bone. A circle with four arrowheads highlights in blue. Click it to access the on-Stage controls.



To change the constraints for rotation, move your mouse over the outer edge of the circle, which will highlight in red, and click it.



Click inside the circle to define the minimum and maximum angles for the joint rotation. The shaded area is the range of permissible rotation. You can also drag to change the angles within the circle. Click outside the circle to confirm your adjustments.



If you want to disable the rotation at that joint, click the lock icon that appears when you roll over the center of the circle.



To change the constraints for translation (movement up and down, or side to side), move your mouse over the arrows inside the circle, which will highlight in



Click either the horizontal or vertical arrows, and then drag the offsets to constrain the translation of the joint in either direction.

Adding Poses

Your armature is now ready. You've connected your bones and made the appropriate constraints to make it easier to pose. In the Timeline, you insert poses just as you would insert keyframes for a motion tween.

Inserting poses

Recall that your goal is to define four unique poses that will allow a natural walk cycle.

 On the Timeline, select frame 10 and choose Insert > Timeline > Keyframe, or rightclick and choose Insert Pose.

🔵 Note

When dealing with armature layers, "poses" and "keyframes" are essentially the same thing.

A new pose/keyframe is inserted at frame 10. The pose in the first keyframe is copied and pasted into the second keyframe.



2. Move the arms and legs of your monkey armature so they are passing each other. The leg that is moving forward should have his knee rising and feet off the ground.

red.



- **3.** On the Timeline, select frame 20 and insert a third keyframe.
- **4.** Move the arms and legs of your monkey armature so now the left leg and right arm are forward and the right leg and left arm are back, the opposite of the pose in frame 1.



5. Add a fourth keyframe/pose in frame 30 with the legs and arms passing each other.6. Select frame 40 and insert additional frames to extend the Timeline.



7. Hold down the Alt/Option key and drag the first keyframe (in frame 1) to frame 40.

The keyframe containing the pose in frame 1 is duplicated in keyframe 40. Now that first and last keyframes are identical, the animation can loop seamlessly.

First and last keyframes are identical



8. The first four keyframes should look similar to this figure, but feel free to experiment and give your monkey a personality of its own! Getting his feet, arms, and body coordinated may take a lot of little adjustments and refinements.



9. Select Loop Playback at the bottom of the Timeline (Shift+Alt+L/Shift+Option+L) and extend the markers to cover the entire animation span from frame 1 to frame 40.

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You can edit poses on the Timeline just as you can with keyframes of a motion tween. Right-click along the Timeline and choose Insert Pose to insert a new pose. Right-click any pose and select Clear Pose to remove the pose from the layer. Ctrl-click/Command-click a pose to select it. Drag the pose to move it to a different position along the Timeline.

10. Click the Play button at the bottom of the Timeline (Enter/Return key) to view your animation loop.

The animation won't be perfect, but you can see, once your armature is complete, how easy and fun it is to create different poses and natural, complex motions.

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You can add eases to your inverse kinematics animations by selecting the animation on the Timeline and choosing an Ease Type and Strength in the Properties panel. Eases can change the animation by starting slowly (ease-in) or by ending gradually (ease-out).

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Add more nuance to your walk cycle to create even more realism! Tilt the monkey's head just slightly in some of the poses and see how a little head bob can make his walk a little more natural.

Changing joint speed

Joint speed refers to the stickiness, or stiffness, of a joint. A joint with a low joint speed value will be sluggish. A joint with a high joint speed value will be more responsive. You can set the joint speed value for any selected joint in the Properties panel.

The joint speed is apparent when you drag the very end of an armature. If there are slow joints higher up on the armature chain, those particular joints will be less responsive and will rotate to a lesser degree than the others.

To change the joint speed, click a bone to select it. In the Properties panel, set the joint Speed value from 0% to 100%.

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The joint speed doesn't affect the actual animation; it only affects how the armature responds to the way you pose it on the Stage, making it easier to move.

Inverse Kinematics with Shapes

The monkey is an armature made with various movie clip symbols. You can also create armatures with shapes, which are useful for animating objects without obvious joints and segments but can still have an articulated motion. For example, the arms of an octopus have no actual joints, but you can add bones to a smooth tentacle to animate its undulating motion. You can also animate other organic objects such as a snake, a waving flag, leaves of grass bending in the wind, or in the next task, a monkey's tail.

Defining bones inside a shape

You'll create a tail, add a series of bones to it, animate it curling and unfurling, and add it to your monkey walk cycle.

 Choose Insert > New Symbol (Ctrl+F8/Command+F8). In the Create New Symbol dialog box, choose Movie Clip for the symbol and enter **monkey_tail** for the symbol name.

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2. Click OK.

Animate creates a new symbol and puts you into symbol-editing mode for that symbol.

- **3.** Select the Rectangle tool.
- **4.** Select a light brown fill color (#8B4B0E) and a 2 point black stroke, and create a long, thin rectangle about 350 pixels wide and 20 pixels tall.



5. Select the Selection tool and reshape the right end of the rectangle to create a smooth, rounded end for the monkey's tail.



- **6.** Select the Bone tool.
- **7.** Click inside the rectangular shape starting from the left side, and drag a bone inside the tail just a fraction of the way.

Animate creates an armature of your rectangular shape and moves it to its own Armature layer.



8. Click the end of the first bone and drag out the next bone a little farther down toward the tip of the tail.



The second bone is defined.

9. Continue building the tail armature with a total of six or seven bones.



10. When the armature is complete, use the Selection tool to drag the last bone to see how the deformation of the tail follows the bones of the armature.



Animating the tail

Animating an armature within a shape follows the same process as animating an armature build with movie clips. You establish different poses for your armature with keyframes along the Timeline.

 Select frame 60 on the Timeline in the monkey_tail movie clip symbol and choose Insert > Timeline > Frames (F5).

Animate adds frames up to frame 60 on the Timeline.



2. In the first frame, move your monkey tail armature so the tip of the tail lies flat on the ground.



3. Select frame 20.

4. Choose Insert > Timeline > Keyframe (F6).

Animate inserts a new keyframe at frame 20 with the same pose that is in frame 1.



- **5.** Select frame 30.
- **6.** Move the armature so the monkey's tail curls upward.



Animate automatically inserts a keyframe at frame 30 with the new pose. The monkey's tail remains flat from frames 1 through 20. After frame 20, the tail will begin to curl until it reaches the pose at frame 30.

- 7. Select frame 50 and insert a new keyframe (F6).
- **8.** Click to select the keyframe in frame 1. Hold down the Alt/Option key and drag the keyframe in frame 1 to frame 60.

Animate duplicates the first keyframe to frame 60. Your Timeline should now have five keyframes. The first, second, and fifth keyframes should have the tail flat. The third and fourth keyframes should have the tail curled.



9. Play the animation as a loop.

The monkey's tail curls and unfurls repeatedly across 60 frames.

Combining the tail and the walk cycle

Since the tail animation plays longer than the monkey walk cycle (which is 40 frames), when you combine the animations, the movements won't be in synchrony, providing a less regular, and more organic, cycle.

- **1.** Return to the main Stage.
- **2.** Rename the empty layer **tail** and make sure it's under the Armature layer. Add enough frames in the tail layer to match the walk cycle (40 frames).



3. Drag an instance of the monkey_tail movie clip symbol from the library to the Stage, placing the base of the tail behind the monkey's body.



4. Test your animation (Control > Test Movie > In Browser).



Animate exports the necessary files to play the animation with HTML and JavaScript in a browser. The monkey walks continuously while the movie clip animation of his tail curls.

Editing the shape

You don't need any special tools to edit a shape that contains bones. Many of the same drawing and editing tools in the Tools panel, such as the Paint Bucket, the Ink Bottle, and the Subselection tools, are available to you to edit the fill, the stroke, or the contours.

- **1.** Use the Paint Bucket tool to change the fill color of an armature shape.
- **2.** Use the Ink Bottle tool to change the stroke color or style of an armature shape.
- **3.** Select the Subselection tool and click the outline of the armature shape. The anchor points and the control handles appear around the contour of the shape, allowing you to drag the anchor points to new locations or drag the handles to change the curvatures.



- **4.** Select the Add Anchor Point tool and click the outline of the armature shape to add new anchor points.
- **5.** Select the Delete Anchor Point tool and click the outline of the armature shape to remove anchor points.

🔵 Note

The organic control of a shape by its armature is a result of a mapping between the anchor points along the shapes and its bones. You can edit the connections between the bones and their control points and refine the behavior with the Bind tool. The Bind tool is grouped under the Bone tool. Consult the Animate Help documentation for more information on how to use this advanced tool.

Adding the background

Your monkey stays in one spot on the Stage, so to make the illusion complete, add a scrolling background to make it seem like he's really taking a stroll.

- **1.** Insert a new layer on the main Timeline and name it **background**.
- 2. Move the new background layer to the bottom of the other layers.

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3. A scrolling background movie clip is already provided in the library. The movie clip is called background, and it depicts a sidewalk moving from left to right by using shape

tweens of line segments.



4. Drag an instance of the background movie clip on the Stage into the bottom layer. Place the instance approximately at x=-170 and y=620.



5. Choose Test > Movie > In Browser.

Animate opens your browser to display your movie. Your monkey animation is complete!



Simulating Physics with Springiness

So far, you've seen how armatures can help you easily pose your characters and objects in different keyframes to create smooth, natural motion. But you can also add a bit of physics to your armatures so they react to how they move from pose to pose. The Spring feature helps you do this easily.

Spring simulates physics in any animated armature, whether you're using movie clips or a shape. A flexible object normally would have some "springiness" that would cause it to jiggle on its own as it moves, and continue to jiggle even after motion of the entire body stops. The amount of springiness depends on the object—for example, a dangling rope would have a lot of jiggle, but a diving board would be much stiffer and have less jiggle. You can set the strength of the spring depending on your object, and you can even set different springiness amounts for each bone in an armature to help you get the exact amount of rigidity or flexibility in your animation. In a tree, for example, the larger branches will be less springy than the smaller, end branches.

Define bones for your armature

In the following steps, you'll animate a leaf being blown by the wind. The first step for any inverse kinematics animation is to build the armature with the Bone tool.

1. Open the file 07_IK_spring_start.fla.

2. On the Stage you will see a simple shape of a leaf and its stem.



- **3.** Select the Bone tool.
- **4.** Click inside the leaf shape starting in the base of the stem and drag the first bone to the base of the leaf.



The first bone is defined. The contents of the current layer are separated to a new Armature layer.

- **5.** Click the end of the first bone and drag out the next bone a little farther down the leaf.
- **6.** Continue creating more bones to extend the armature to the tip of the leaf. Your completed armature should have about four bones.



Setting the spring strength for each bone

Next, you'll set the strength value for the spring for each bone. The strength value can range from 0 (no spring) to 100 (maximum spring).

1. Select the last bone (at the tip of the leaf) of the armature.



2. In the Properties panel, in the Spring section, enter **100** for the Strength.



The last bone has the maximum spring strength since the tip is the most flexible part of the whole armature and would have the most independent motion.

3. Select the next bone in the armature. You can simply click it on the Stage or you can

navigate up the armature hierarchy with the arrows in the Properties panel.



4. In the Properties panel, in the Spring section, enter **80** for the Strength.



The middle of the leaf is a little less flexible than the tip, so it has a smaller strength value.

5. Select the next adjacent bone, and in the Properties panel, in the Spring section, enter **60** for the Strength.

The base of the leaf is even less flexible than the middle, so it has an even smaller strength value.

Insert the next pose

Next, you'll create a new pose of the leaf in a downward position and Animate will use the spring values to add wiggling, fluttering, and other internal motions.

- **1.** Select frame 90 on the Timeline and choose Insert > Timeline > Frame (F5) to add frames to the Timeline.
- **2.** Select frame 20 of the Armature layer, which contains your leaf.
- **3.** Grab the bone at the tip of the leaf and pull it downward as if the wind blew on the leaf.



A new pose is created in frame 20.

4. Return the playhead to frame one and play the animation (Enter/Return key).

The leaf moves downward from the first pose to the second, but even past the second keyframe, the leaf continues to bend and sway slightly. The back and forth rotation of the leaf armature, combined with the addition of springiness to the bones, simulates the responses to physical forces within an actual leaf stem and makes the animation more realistic. Features like Spring and Damping (which you'll learn about next) make it much simpler to animate complicated natural motions in Animate.



🔵 Note

The effects of the Spring feature are more apparent when there are additional frames on the Timeline after the armature's final pose, as in this lesson. The additional frames allow you to see the residual bouncing effect after the last pose.

Adding damping effects

Damping refers to how much the spring effect decreases with time. It wouldn't be realistic if the swaying of the leaf continues indefinitely. Over time, the swaying should lessen and eventually stop. You can set a Damping value for each bone from 0 (no damping) to 100 (maximum damping) to control how rapidly these effects diminish.

1. Select the last bone of the leaf (at the tip), and in the Properties panel, in the Spring

section, enter **50** for the Damping value.



The Damping value will decrease the rocking of the leaf over time.

- **2.** Select the next bone in the armature (in the middle of the leaf) and in the Properties panel, enter the maximum value (**100**) for Damping.
- **3.** Select the next bone in the armature (at the base of the leaf) and in the Properties panel, enter the maximum value (**100**) for Damping.
- **4.** Choose Control > Test Movie > In Animate to see the effects that the Damping values have on the motion of your leaf.

The leaf still sways, but the motion quickly subsides. The Damping values help add a sense of weight to the armature. Experiment with both the Strength and Damping values in the Spring section of your armature to get the most realistic motion.

Review Questions

- **<u>1</u>**. What are the two ways of using the Bone tool?
- **<u>2</u>**. Define and differentiate these terms: a bone, a joint, and an armature.
- **<u>3</u>**. What is the hierarchy of the armature?
- **<u>4.</u>** How do you constrain or disable the rotation of joints?
- **<u>5</u>**. What do strength and damping refer to in the Spring feature?

Review Answers

- **1**. The Bone tool can connect movie clip instances together to form an articulated object that can be posed and animated with inverse kinematics. The Bone tool can also create an armature within a shape, which can be posed and animated with inverse kinematics as well.
- **2.** Bones are the objects that connect individual movie clips together or that make up the internal structure of a shape for motion with inverse kinematics. Joints are the articulations between bones. Joints can rotate as well as translate (slide in both the *x* and *y* directions). Armatures refer to the complete articulated object. Armatures are separated on their own special Armature layers on the Timeline where poses can be inserted for animation.
- 3. An armature is made up of bones that are ordered in a hierarchy. When a bone is connected to another, one is the parent and the other is the child. When a parent bone has many child bones, each child bone can be described as a sibling to each other.
- **4.** Hold down the Shift key to temporarily disable the motion of the armature and isolate a single bone's rotation. Use the Properties panel to pin a bone to prevent it from rotating, or deselect the Enable option in the Rotation section of the Properties panel to disable a

particular joint's rotation.

5. Strength is the amount of springiness of any individual bone in an armature. Add springiness with the Spring feature to simulate the way different parts of a flexible object jiggle when the entire object moves and continue to jiggle when the object stops. Damping refers to how quickly the springiness effect subsides over time.

8. Creating Interactive Navigation

Lesson Overview

- Create button symbols
- Add sound effects to buttons
- Duplicate symbols
- Swap symbols and bitmaps
- Name button instances
- Write ActionScript 3.0 code to create nonlinear navigation
- Identify code errors with the Compiler Errors panel
- Use the Code Snippets panel to quickly add interactivity
- Create and use frame labels
- Create animated buttons



This lesson will take approximately 3 hours to complete. If you don't yet have the project files for this lesson, download them from the Registered Products tab on your Account page at <u>www.peachpit.com</u> (click the Access Bonus Content link) and store them on your computer in a convenient location, as described in the Getting Started section of this book. Your Account page is also where you'll find any updates to the lessons or to the lesson files.


Let your viewers explore your project and become active participants. Button symbols and code work together to create engaging, user-driven, interactive experiences.

Getting Started

To begin, view the interactive restaurant guide that you'll create as you learn to make interactive projects in Adobe Animate CC.

1. Double-click the 08End.html file in the Lesson08/08End folder to play the animation.



The project is an interactive restaurant guide for an imaginary city that runs on Adobe Flash Player in the browser. Viewers can click any button to see more information about a particular restaurant. In this lesson, you'll be working in an ActionScript 3.0 document to create interactive buttons and structure the Timeline properly. You'll learn to write ActionScript code to provide instructions for what each button will do.

🛑 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.

- 2. Close the 08End.html file.
- **3.** Double-click the 08Start.fla file in the Lesson08/08Start folder to open the initial project file in Animate. The file is an ActionScript 3.0 document that will play with the Flash Player in a desktop browser. The document includes several assets already in the Library panel, and the Stage has already been sized properly.



4. Choose File > Save As. Name the file **08_workingcopy.fla** and save it in the 08Start folder. Saving a working copy ensures that the original start file will be available if you want to start over.

🛑 Note

Animate warns you if your computer doesn't have the same fonts contained in a FLA file. Choose substitute fonts, or simply click Use Default to have Animate automatically make the substitutions.

About Interactive Movies

Interactive movies change based on the viewer's actions. For example, when the viewer clicks a button, a different graphic with more information is displayed. Interactivity can be simple, such as a button click, or it can be complex, receiving inputs from a variety of sources, such as the movements of the mouse, keystrokes from the keyboard, or even the tilting of a mobile device.

In an Animate ActionScript 3.0 document, you use ActionScript to achieve most interactivity. ActionScript provides the instructions that tell each button what to do when the user clicks one of them. In this lesson, you'll learn to create a nonlinear navigation—one in which the movie doesn't have to play straight from the beginning of the Timeline to the end. ActionScript can tell the Animate playhead to jump around and go to different frames of the Timeline based on which button the user clicks. Different frames on the Timeline contain different content. The user doesn't actually know that the playhead is jumping around the Timeline; the user just sees (or hears) different content appear as the buttons are clicked on the Stage.

You can also create interactive navigation in an Animate HTML5 Canvas document, but instead of writing ActionScript code, you write JavaScript code. In this lesson, you learn the basics of buttons and nonlinear Timeline navigation using ActionScript, but you'll be able to use the same principles when you work on JavaScript code in HTML5 Canvas documents. You'll learn to insert JavaScript in an HTML5 Canvas document in Lesson 10.

Creating Buttons

A button is a basic visual indicator of something the user can interact with. The user often clicks a button with the mouse, but many other types of interactions are possible. For example, something can happen when the user rolls the mouse pointer over a button.

Buttons are a kind of symbol that have four special states, or keyframes, that determine how the button appears. Buttons can look like virtually anything—an image, a graphic, or a bit of text. They don't have to be those typical pill-shaped gray rectangles that you see on many websites.

Creating a button symbol

In this lesson, you'll create buttons with small thumbnail images and restaurant names. A button symbol's four special states are represented on the button's Timeline as frames, just like on the main Timeline. The four frames include the following:

- The Up state shows the button as it appears when the mouse is not interacting with it.
- The Over state shows the button as it appears when the mouse is hovering over it.
- The Down state shows the button as it appears when the mouse is hovering over it and the mouse button is depressed.
- The Hit state indicates the clickable area of the button.

You'll understand the relationship between these states and the button appearance as you work through this exercise.

- **1.** Choose Insert > New Symbol.
- **2.** In the Create New Symbol dialog box, choose Button from the Type menu and name the symbol **gabel loffel button**. Click OK.



Animate puts you in symbol-editing mode for your new button.

3. In the Library panel, expand the restaurant thumbnails folder and drag the graphic symbol gabel loffel thumbnail to the middle of the Stage.



4. In the Properties panel, set the X-value to **0** and the Y-value to **0**.

The upper-left corner of the small gabel loffel restaurant image is now aligned to the registration point of the symbol (marked by the small cross in the center of the screen).

 Select the Hit frame in the Timeline and choose Insert > Timeline > Frame to extend the Timeline.

The gabel loffel image now extends through the Up, Over, Down, and Hit states.



- **6.** Insert a new layer. The new layer will accommodate an image that appears when the user's mouse hovers over the button.
- 7. In the new layer, select the Over frame and choose Insert > Timeline > Keyframe. Animate inserts a new keyframe in the Over state of the top layer.



8. In the Library panel, expand the restaurant previews folder, and drag the **gabel loffel over info** movie clip symbol onto to the Stage.



9. Move the move clip symbol until it's over the lower part of the button. When guides appear along the bottom and side of the object, let it snap into place. The Properties panel, Position and Size section, should show approximately X=**0** and the Y=**217**.

The gray information box will appear over the restaurant image whenever the mouse cursor rolls over the button.

10. Insert a third layer above the first two.

We'll use this layer to bind a sound file to the Down state so the button will make a click when it's depressed.

11. Select the Down frame on the new layer and choose Insert > Timeline > Keyframe. A new keyframe is inserted in the Down state of the new layer.



12. Drag the sound file called clicksound.mp3 from the Library panel to the Stage.

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102 item: Name > = = = > = = > = = > = = > = = > = = = =	AS Linkag AS Linkag imported image assets imported photo assets ackground itmaps licksound.mp3 abel loffel button

The beginning of the sound's waveform appears in the Down keyframe of the top layer of your button symbol.



13. Select the Down keyframe where the waveform appears, and in the Properties panel, Sound section, make sure that Event is chosen in the Sync menu.

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▼ Label		
Name:		
Type:		
▼ Sound		
Name:	clicksound.mp3	
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Sync:	Event 🔻	
	✓ Event	
	Start	
	Stop	
	Stream	

Note You'll learn more about sound in Lesson 9.

A clicking sound will play only when a viewer depresses the button.

14. Click Scene 1 in the Edit bar above the Stage to exit symbol-editing mode and return to the main Timeline. Your first button symbol is complete! Look in your Library panel to see the new button symbol stored there.



Invisible buttons and the Hit keyframe

Your button symbol's Hit keyframe indicates the area that is "hot," or clickable by the user. Normally, the Hit keyframe contains a shape that is the same size and location as the shape in your Up keyframe. In most cases, you want the graphics that users see to be the same area where they click. However, in certain advanced applications, you may want the Hit keyframe and the Up keyframe to be different. If your Up keyframe is empty, the resulting button is known as an invisible button.

Users can't see invisible buttons, but because the Hit keyframe still defines a clickable area, invisible buttons remain active. So, you can place invisible buttons over any part of the Stage and use ActionScript to program them to respond to users.

Invisible buttons are useful for creating generic hotspots. For example, placing them on top of different photos can help you make each photo respond to a mouse click without having to make each photo a different button symbol.

Duplicating buttons

Now that you've created one button, you'll be able to create others more easily. You'll duplicate one button here, change the image in the next section, and then continue to duplicate buttons and modify images for the remaining restaurants.

1. In the Library panel, right-click the gabel loffel button symbol and choose Duplicate. You can also choose Duplicate from the Library panel menu.



2. In the Duplicate Symbol dialog box, choose Button from the Type menu, and name it **gary gari button**. Click OK.



Swapping bitmaps

Bitmaps and symbols are easy to swap on the Stage and can significantly speed up your workflow.

- **1.** In the Library panel, double-click the icon for your newly duplicated symbol (gary gari button) to edit it.
- **2.** Select the restaurant image on the Stage.
- **3.** In the Properties panel, click Swap.



4. In the Swap Symbol dialog box, select the next thumbnail image, gary gari thumbnail, in the restaurant thumbnails folder, and click OK.

Swap Symbol	
Swap Symbol Swap Symbol Image assets Image assets	OK Cancel

The original thumbnail (shown with a dot next to the symbol name) is swapped out for the one you selected. Because they are both the same size, the replacement is seamless.

5. Now select the Over keyframe on Layer 2 and click the gray information box on the Stage.



6. In the Properties panel, click Swap and swap the selected symbol with the symbol called gary gari over info.

The instance of your button in the Over keyframe is replaced with one that is appropriate for the second restaurant. Because the symbol was duplicated, all other elements, such as the sound in the top layer, remain the same.



7. Continue duplicating your buttons and swapping the two instances inside them until you have four different button symbols in your Library panel, each representing a different restaurant (gabel loffel button, gary gari button, il piatto button, and pierre platters button). When you're done, take a moment to organize all your restaurant buttons in a folder in your Library panel.



Placing the button instances

Now you'll put the buttons on the Stage and give them names in the Properties panel so that ActionScript can identify them.

1. On the main Timeline, insert a new layer and rename it **buttons**.



2. Drag each of your buttons from the Library panel to the middle of the Stage, placing them in a horizontal row. Don't worry about their exact position because you'll align them nicely in the next few steps.



- **3.** Select the first button, and in the Properties panel, set the X-value to **100**.
- **4.** Select the last button, and in the Properties panel, set the X-value to **680**.
- **5.** Select all four buttons. In the Align panel (Window > Align), deselect Align To Stage, select Space Evenly Horizontally, and then click Align Top Edge.



All four buttons are now evenly distributed and aligned horizontally.

- **6.** With all the buttons still selected, in the Properties panel, enter **170** for the Y-value.
 - All four buttons are positioned on the Stage correctly.



7. Now you can test your movie to see how the buttons behave. Choose Control > Test. Note how the gray information box in the Over keyframe appears when your mouse hovers over each button, and how pressing your mouse button over each button triggers the clicking sound. At this point, however, you haven't provided any instructions for the buttons to actually do anything. That part comes after you name the buttons and learn a little about ActionScript.



Naming button instances

Next you'll name each button instance so that ActionScript can reference it. Beginners often forget this crucial step.

1. Click in an empty part of the Stage to deselect all the buttons, and then select just the first button.



2. Type **gabelloffel_btn** in the Instance Name field in the Properties panel.

Library Pro	operties		▼≣
Q	gabelloffel_btn		
	Button	-	
Instance of:	gabel loffel butto	on Swap	
	nd Size		
X :	100.00	Y: <u>170.00</u>	

3. Name each of the other buttons **garygari_btn**, **ilpiatto_btn**, and **pierreplatters_btn**.

Make sure that you use all lowercase letters, leave no spaces, and double-check the spelling of each button instance. Animate is very picky, and one typo will prevent your entire project from working correctly!

4. Lock all the layers.

Naming rules

Naming instances is a critical step in creating interactive projects in Animate. The most common mistake made by novices is not to name, or to incorrectly name, a button instance.

Instance names are important because ActionScript and JavaScript use the names to reference those objects. Instance names are not the same as the symbol names in the Library panel. The names in the Library panel are simply organizational reminders.

Instance naming follows these simple rules and best practices:

- **1.** Do not use spaces or special punctuation. Underscores are okay to use.
- 2. Do not begin a name with a number.
- **3.** Be aware of uppercase and lowercase letters. ActionScript and JavaScript are case-sensitive.
- **4.** End your button name with _btn. Although it is not required, it helps identify those objects as buttons.
- **5.** Do not use any word that is reserved for an ActionScript command.

Understanding ActionScript 3.0

Adobe Animate CC uses ActionScript 3.0, a robust scripting language, to extend the functionality of ActionScript and Adobe AIR documents. Although ActionScript 3.0 may seem intimidating to you if you're new to scripting, it can give you great results with some very simple scripts. As with any language, it's best to take the time to learn the syntax and basic terminology.

😑 Note

The most recent version of Animate CC supports only ActionScript 3.0. If you need to program in ActionScript 1.0 or 2.0, you must use Flash Professional CS6 or earlier.

About ActionScript

ActionScript, which is similar to JavaScript, lets you add more interactivity to ActionScript 3.0 and AIR documents. In this lesson, you'll use ActionScript to attach behaviors to buttons. You'll also learn how to use ActionScript for such simple tasks as stopping an animation.

You don't have to be a scripting expert to use ActionScript. In fact, for common tasks, you may be able to copy script that other Animate users have shared. And you can also use the Code Snippets panel, which provides an easy, visual way to add ActionScript to your project or share ActionScript code among developers.

However, you'll be able to accomplish much more in Animate—and feel more confident using the application—if you understand how ActionScript works.

This lesson isn't designed to make you an ActionScript expert. Instead, it introduces common terms and syntax, walks you through a simple script, and provides an introduction to the ActionScript language.

If you've used scripting languages before, the documentation on the Adobe Learn & Support web pages (accessed via the Help menu in Animate) may provide additional guidance you need to use ActionScript proficiently. If you're new to scripting and you want to learn ActionScript, you may find an ActionScript 3.0 book for beginners helpful.

Understanding scripting terminology

Many of the terms used in describing ActionScript are similar to terms used for other scripting languages. The following terms are used frequently in ActionScript documentation.

Variable

A *variable* represents a specific piece of data that helps you keep track of things. For example, you can use variables to keep track of a score in a game, or the number of clicks a user has made with the mouse. When you create, or *declare*, a variable, you also assign a data type, which determines what kind of data the variable can represent. For example, a String variable holds a set of alphanumeric characters, whereas a Number variable must contain a number.

👂 Note

Variable names must be unique, and they are case-sensitive. The variable *mypassword* is not the same as the variable *MyPassword*. Variable names can contain only numbers, letters, underscores, and dollar signs (but by convention, \$ is not used in ActionScript); they cannot begin with a number. These are the same naming rules that apply to instances. (In fact, variables and instances are conceptually the same.)

Keyword

In ActionScript, a *keyword* is a reserved word that is used to perform a specific task. For example, **var** is a keyword used to create a variable.

Because these words are reserved, you can't use them as variable names or in other ways. ActionScript always uses them to perform their assigned tasks. As you enter ActionScript in the Actions panel, keywords will turn a different color. This is a great way to know if a word is reserved by Animate.

Arguments

Arguments, the values most often seen between parentheses () in a line of code, provide specific details for a particular command. For example, in the code gotoAndPlay(3); the argument instructs the playhead on the Timeline to go to frame 3.

Function

A *function* groups together related lines of code that you can refer to by name. Using a function makes it possible to run the same set of statements without having to type them repeatedly.

Objects

In ActionScript 3.0, you work with objects that help you do certain tasks. A Sound object, for example, helps you control sound, and a Date object can help you manipulate time-related data. The button symbols that you created earlier in this lesson are also objects, called SimpleButton objects.

Objects created in the authoring environment (as opposed to those created with ActionScript) can be referenced in ActionScript only if they have a unique instance name. Buttons on the Stage are referred to as instances, and in fact, *instances* and *objects* are synonymous.

Methods

Methods are commands that result in action. Methods are the doers of ActionScript, and each kind of object has its own set of methods. Understanding ActionScript involves learning the methods for each kind of object. For example, two methods associated with a MovieClip object are stop() and gotoAndPlay().

Properties

Properties describe an object. For example, the properties of a movie clip include its height and width, *x* and *y* coordinates, and horizontal and vertical scale. Many properties can be changed, whereas other properties can only be "read," meaning they simply describe an object.

Using proper scripting syntax

If you're unfamiliar with program code or scripting, you may find ActionScript code challenging to decipher. Once you understand the basic *syntax*—the grammar and punctuation of the language—you'll find it easier to follow a script.

- The *semicolon* at the end of the line tells ActionScript that it has reached the end of the code line.
- As in English, every open *parenthesis* must have a corresponding close parenthesis, and the same is true for *brackets* and *curly brackets*. If you open something, you must close it. Very often, the curly brackets in ActionScript code will be separated on different lines. This makes it easier to read what's inside the curly brackets.
- The *dot* operator (.) provides a way to access the properties and methods of an object. Type the instance name, followed by a dot, and then enter the name of the property or method. Think of the dot as a way to separate objects, methods, and properties.
- Whenever you're entering a string (like the URL of a website), use *quotation marks* around it.
- You can add *comments* to remind yourself or others of what you are accomplishing with different parts of the script. To add a comment for a single line, start it with two slashes (//). To type a multiline comment, start it with /* and end it with */. Comments are ignored by Animate and won't affect your code at all.

Animate provides assistance in the following ways as you write scripts in the Actions panel:

- Words that have specific meanings in ActionScript, such as keywords and statements, appear in blue as you type them in the Actions panel. Non-reserved words, such as variable names, appear in black. Strings appear in green. Comments, which ActionScript ignores, appear in gray.
- As you work in the Actions panel, Animate detects the action you are entering and displays a code hint. There are two types of code hints: a tooltip that contains the complete syntax for that action and a pop-up menu that lists possible ActionScript elements.
- As your Actions panel fills up with code, you can collapse groups of code to make reading easier. When you have related blocks of code (grouped by curly braces), click the minus symbol in the code margin to collapse them, and click the plus symbol in the code margin to expand them.

Navigating the Actions panel

The Actions panel is where you write all your code. Open the Actions panel by choosing Window > Actions, or by selecting a keyframe on the Timeline and clicking the ActionScript panel button on the top right of the Properties panel.



You can also right-click any keyframe and choose Actions.

The Actions panel gives you a flexible environment for entering code, as well as different options to help you write, edit, and view your code.

The Actions panel is divided into two parts. On the right of the Actions panel is the Script pane—the blank slate where you can write code. You enter ActionScript (or JavaScript if you're in an HTML5 Canvas document) in the Script pane just as you would in a text-editing application.

On the left is the Script navigator, which tells you where your code is located. Animate places ActionScript on keyframes on the Timeline, so the Script navigator can be particularly useful if you have lots of code scattered in different keyframes and on different timelines.



At the bottom of the Actions panel, Animate displays the line number and column number (or character in the row) of the current position of the text insertion point.

The upper-right corner of the Actions panel contains options for finding, replacing, and inserting code.

Preparing the Timeline

Every new Animate project begins with just a single frame. To create room on the Timeline to add more content, you'll have to add more frames to at least one layer.

1. Select a later frame in the top layer. In this example, select frame 50.



2. Choose Insert > Timeline > Frame (F5). You can also right-click and choose Insert Frame.

Animate adds frames in the top layer up to the selected point, frame 50.

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3. Select frame 50 in the other two layers and insert frames up to the selected frame. All your layers have 50 frames on the Timeline.

Timeline	Output													
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📲 title			â											
📲 bac	kground 💦		â											

Adding a Stop Action

Now that you have frames on the Timeline, your movie will play linearly from frame 1 to frame 50. However, with this interactive restaurant guide, you'll want your viewers to choose a restaurant to see in whichever order they choose. So you'll need to pause the movie at the very first frame to wait for your viewer to click a button. You use a stop action to pause your Animate movie. A stop action simply stops the movie from continuing by halting the playhead.

1. Insert a new layer at the top and rename it **actions**.



2. Select the first keyframe of the actions layer and open the Actions panel (Window > Actions).

3. In the Script pane, type **stop()**;.



The code appears in the Script pane and a tiny lowercase "a" appears in the first keyframe of the actions layer to indicate that it contains some code. The movie will now stop at frame 1.



Creating Event Handlers for Buttons

Events are occurrences that happen in your movie that Animate can detect and respond to. For example, a mouse click, a mouse movement, and a key press are all events. A pinch and a swipe gesture on mobile devices are also events. These events are produced by the user, but some events can happen independently of the user, like the successful loading of a piece of data or the completion of a sound. With ActionScript, you can write code that detects events and respond to them with an event handler.

The first step in event handling is to create a listener that will "listen" for the event. An event listener in ActionScript 3.0 looks something like this:

Click here to view code image

```
wheretolisten.addEventListener(whatevent, responsetoevent);
```

The actual command (or method) is addEventListener(). The other words are placeholders for objects and parameters for your situation. wheretolisten is the object where the event occurs (often a button), whatevent is the specific kind of event (such as a mouse click), and responsetoevent is the name of a function that is triggered when the event happens. So if you want to listen for a mouse click over a button called btn1_btn, and the response is to trigger a function called showimage1, the code would look like this:

Click here to view code image

btn1_btn.addEventListener(MouseEvent.CLICK, showimage1);

The next step is to create the function that will respond to the event—in this case, the function called showimage1. A *function* simply groups a bunch of actions together; you can then trigger that function by referencing its name. A function looks something like this:

Click here to view code image

Function names, like button names, are arbitrary. You can name functions whatever makes sense to you. In this particular example, the name of the function is showimage1. It receives
one parameter (within the parentheses) called myEvent, the event that invoked the listener.
The item following the colon indicates what type of object it is. If an event triggers this
function, Animate executes all the actions between the curly brackets.

Adding the event listener and function

You'll add ActionScript code to listen for a mouse click on each button. The response will make Animate go to a particular frame on the Timeline to show different content.

- **1.** Select the first frame of the actions layer.
- **2.** Open the Actions panel.
- 3. In the Script pane of the Actions panel, beginning on the second line, type

Click here to view code image

```
gabelloffel_btn.addEventListener(MouseEvent.CLICK, restaurant1);
```



The listener listens for a mouse click over the gabelloffel_btn object on the Stage. If the event happens, it triggers the function called restaurant1.

4. On the next line of the Script pane, type

```
Click here to view code image
```

```
function restaurant1(event:MouseEvent):void {
  gotoAndStop(10);
}

actions:1 → ⊕ ♀ ≧ ↔ ♥

    stop();
    gabelloffel_btn.addEventListener(MouseEvent.CLICK, restaurant1);
    gotoAndStop(10);
    }
```

) Note

The keyword void refers to the data type that is returned by the function and means that nothing is returned. Sometimes, after functions are executed, they "return" data, such as doing some calculations and returning an answer.

┝ T ip

As you enter code in the Script pane of the Actions panel, Animate will help by providing pop-up menus listing code options.

The function called restaurant1 contains instructions to go to frame 10 and stop there. The code for your Gabel Loffel button is complete.

Mouse events

The following list contains the ActionScript code for common mouse events for the desktop. Use these codes when you create your listener, and make sure that you pay attention to lowercase and uppercase letters. For most users, the first event (MouseEvent.CLICK) will suffice for all projects. That event happens when the user presses and releases the mouse button.

- MouseEvent.CLICK
- MouseEvent.MOUSE MOVE
- MouseEvent.MOUSE_DOWN
- MouseEvent.MOUSE UP
- MouseEvent.MOUSE OVER
- MouseEvent.MOUSE_OUT

For a complete list of all the events available for a button, check out the Animate Help files and look for the events of the SimpleButton class.

🔵 Note

In the code examples, you may come across this mysterious character:

Do not try to include it when you type your code into the Actions panel! It's called a "code continuation character" and it's used only when a line of code is too long to be shown on a single line in the book. It lets you know that the line of code continues into the next line of text.

5. On the next line of the Script pane, enter additional code for the remaining three buttons. You can copy and paste lines 2 through 5, and simply change the names of the button, the name of the function (in two places), and the destination frame. The full

script should read as follows:

Click here to view code image

```
stop();
gabelloffel btn.addEventListener(MouseEvent.CLICK, restaurant1);
function restaurant1(event:MouseEvent):void {
 gotoAndStop(10);
}
garygari btn.addEventListener(MouseEvent.CLICK, restaurant2);
function restaurant2(event:MouseEvent):void {
gotoAndStop(20);
}
ilpiatto btn.addEventListener(MouseEvent.CLICK, restaurant3);
function restaurant3(event:MouseEvent):void {
 gotoAndStop(30);
}
pierreplatters btn.addEventListener(MouseEvent.CLICK, restaurant4);
function restaurant4(event:MouseEvent):void {
gotoAndStop(40);
}
```

😑 Note

ActionScript, like other programming languages, is very picky, and a single misplaced period can cause your entire project to grind to a halt. Be extra careful with punctuation. Use the Automatic Close Brace option in Animate > Preferences > Code Editor to have Animate automatically complete curly braces in case you forget.

Take advantage of color hinting, and double-check that keywords and other commands show up in color.

ActionScript commands for Timeline navigation

The following list contains the ActionScript code for common navigation commands. Use these codes when you create buttons to stop the playhead, start the playhead, or move the playhead to different frames on the Timeline. The gotoAndStop and gotoAndPlay commands require additional information, or arguments, within their parentheses as indicated.

- stop();
- •play();
- •gotoAndStop(framenumber or "framelabel");
- •gotoAndPlay(framenumber or "framelabel");
- nextFrame();
- prevFrame();

) Note

Be sure to include the final curly bracket for each function, or the code won't work.

▶ T ip

Click the Format Code button at the upper-right corner of your Actions panel () to tidy up your code and make it easier to read. You can change the formatting settings in Edit > Preferences > Code Editor (Windows) or Animate CC > Preferences > Code Editor (Mac).

Checking for errors

Debugging is a necessary process, even for veteran coders. Even if you're extra careful, errors will creep into your code. Fortunately, Animate alerts you of syntax errors in the Compiler Errors panel, with information about the nature of the error and its location in the Actions panel.

1. Test your movie by choosing Control > Test.

If there are no code errors, Animate outputs the SWF file in a separate window.

If Animate catches any code errors, the Compiler Errors panel appears automatically (Window > Compiler Errors) with a description of the error and its location. None of your code will be functional if there is a compiler error in any part of the code.

For example, try this: Select frame 1 on the Timeline and open the Actions panel. On line 18, add another ending curly brace.



2. Test your movie (Control > Test).

The Compiler Errors window opens, warning you of an extra character that was added in line 18.



3. Double-click the error message in the Compiler Errors panel.

Animate takes you to the exact location of the error in the Actions panel, where you can fix it. Delete the extra character to remove the error.

Creating Destination Keyframes

When the user clicks each button, Animate moves the playhead to a new spot on the Timeline according to the ActionScript instructions you just programmed. However, you haven't yet placed anything different at those particular frames. That's the next step.

Inserting keyframes with different content

You will create four keyframes in a new layer and place information about each of the restaurants in the new keyframes.

1. Insert a new layer at the top of the layer stack but below the actions layer and rename it **content**.



- **2.** Select frame 10 of the content layer.
- **3.** Insert a new keyframe at frame 10 (Insert > Timeline > Keyframe, or F6).

Timeline Output						
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📲 content 🛛 🖌	ø • •	0				
📲 buttons	• 🏛					
📲 title	• 🏛					
📲 background	• 🔒					
a due due background	ô	i .				

4. Insert new keyframes at frames 20, 30, and 40.

Your Timeline has four empty keyframes in the content layer.

Timeline Output													
		0	ô		10	15	20	. 25	. 30	 40	45	50	. 55
📲 actions		٠		å								0	
🗧 content	0	•	٠	0	0		0		00	00		ģ	
📲 buttons		•	â	•								Q	
📲 title			â									Q	
📲 background			â									q	

5. Select the keyframe at frame 10.

6. In the Library panel, expand the folder called restaurant content. Drag the symbol called **gabel and loffel** from the Library panel to the Stage. The symbol named gabel and loffel is a movie clip symbol that contains a photo, graphics, and text about the restaurant.



7. Position the symbol in the center of the Stage but out of the way of the heading. The Properties panel, Position and Size section, should show X=60 and Y=150.

The restaurant information about gabel and loffel is centered on the Stage and covers all the buttons.

- **8.** Select the keyframe at frame 20.
- **9.** Drag the symbol called **gary gari** from the Library panel to the Stage so it also covers

all the buttons. This is another movie clip symbol that contains a photo, graphics, and text about this restaurant.



- **10.** In the Properties panel, make sure the X-value is set to **60** and the Y-value is set to **150**.
- **11.** Place each of the movie clip symbols from the restaurant content folder in the Library panel at the corresponding keyframes in the content layer.

Each keyframe should contain a different movie clip symbol about a restaurant.

Using labels on keyframes

Your ActionScript code tells Animate to go to a different frame number when the user clicks each of the buttons. However, if you decide to edit your Timeline and add or delete a few frames, you'll need to go back into your ActionScript and change your code so the frame numbers match.

An easy way to avoid this problem is to use frame labels instead of fixed frame numbers. *Frame labels* are names that you give to keyframes. Instead of referring to keyframes by their frame number, you refer to them by their label. So, even if you move your destination keyframes as you edit, the labels remain with their keyframes. To reference frame labels in ActionScript, you must enclose them in quotation marks. The command gotoAndStop("label1") makes the playhead go to the keyframe with the label called

label1.

- **1.** Select frame 10 on the content layer.
- **2.** In the Properties panel, Label section, enter **label1** in the Name field.

Library F	Properties	₹≣
<u>i</u>	Frame	0
▼ Label		
Name	label1	
Туре	: Name	-
▼ Sound		
Name	e: None	T
Effec	t: None	

A tiny flag icon appears on each of the keyframes that have labels.

Timeline	Output													
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📲 but	tons			â										
🚛 title			•	ô										
📲 bac	kground:		•	â										

- **3.** Select frame 20 on the content layer.
- **4.** In the Properties panel, in the Label section, enter **label2** in the Name field.
- **5.** Select frames 30 and 40, and in the Properties panel, enter corresponding names in the Name field for each: **label3** and **label4**.

A tiny flag icon appears on each of the keyframes that has a label.

Timeline	Output														
			0	â	۵		. 10	15	. 20	. 25	. 30	. 35	40	.45	50
📲 act	ions		•			å									0
📲 cor	ntent	1	•	•		0	abel		∎ <mark>•</mark> labe	12	labe	13	abel		Ó
📲 but	tons		•	â											0
📲 title	e		•	ô											0
📲 bac	kground:		•	ô		•									Q

- **6.** Select the first frame of the actions layer and open the Actions panel.
- 7. In your ActionScript code, change all the fixed frame numbers in each of the gotoAndStop() commands to the corresponding frame labels:
 - gotoAndStop(10); should be changed to gotoAndStop("label1");
 - gotoAndStop(20); should be changed to gotoAndStop("label2");
 - gotoAndStop(30); should be changed to gotoAndStop("label3");
 - gotoAndStop(40); should be changed to gotoAndStop("label4");



The ActionScript code now directs the playhead to a particular frame label instead of a particular frame number.

🔵 Note

Be sure that you use straight quotes, and not curly quotes, to surround your label name. In ActionScript, straight and curly quotes are treated differently. However, you can use either single or double quotes.

8. Test your movie by choosing Control > Test.

Each button moves the playhead to a different labeled keyframe on the Timeline, where a different movie clip is displayed. The user can choose to see the restaurants in any order. However, since the restaurant information covers the buttons, you can't see the original menu screen to choose another restaurant. You'll need to provide another button to return to the first frame, which you'll do in the next section.

Creating a Home Button Using Code Snippets

A *home button* simply makes the playhead go back to the first frame of the Timeline, or to a keyframe where an original set of choices, or the main menu, are presented to the viewer. You can create a button that goes to frame 1 using the same process you followed to create the four restaurant buttons. However, in this section, you'll learn to use the Code Snippets panel to add ActionScript to your project.

Adding another button instance

The sample lesson file provides a home, or mainmenu, button for you in the Library panel.

- **1.** Select the Buttons layer and unlock it if it is locked.
- **2.** Drag the button called mainmenu from the Library panel to the Stage. Position the button instance at the upper-right corner.



3. In the Properties panel, set the X-value to 726 and the Y-value to 60.

Using the Code Snippets panel to add ActionScript

The Code Snippets panel provides common ActionScript code that makes it easy for you to add interactivity to your Animate project. If you're unsure of your ability to code your own buttons, you can use the Code Snippets panel to learn how to add interactivity. The Code Snippets panel fills in the Actions panel with all the necessary code and allows you to modify the critical parameters of the code.

You can also save, import, and share code among a team of developers to make the development and production process more efficient.

1. Select the first frame of the actions layer in your Timeline. Select the main menu button on the Stage.



2. Choose Window > Code Snippets, or if your Actions panel is already open, click the Code Snippets button at the top right of the Actions panel.



The Code Snippets panel appears. The code snippets are organized in folders that describe their function.



3. In the Code Snippets panel, expand the folder called ActionScript; then expand the Timeline Navigation folder, and double-click Click To Go To Frame And Stop.



Animate warns you that you need to name the selected object (the main menu button) before you can work with the code.



4. Click OK.

Animate automatically gives the main menu button an instance name, **button_1**. The Actions panel appears showing new ActionScript code added to your script. The new code contains commenting (between /* and */) that describes the function of the code and the different parameters.



5. Replace the gotoAndStop(5) command with gotoAndStop(1).

Clicking the main menu button will trigger the function that moves the playhead to frame 1.

6. Test your movie (Control > Test).

Click one of the restaurant buttons. The restaurant information comes up, covering the buttons. Now, click the main menu button and you return to frame 1, where all the menu buttons are accessible again.

😑 Note

Animate automatically adds code snippets to a new layer called Actions if you don't already have an Actions layer. If your ActionScript is spread out in different layers, it's best to consolidate your code by copying and pasting the code into one keyframe on a single layer.

Code Snippets Options

Using the Code Snippets panel not only makes adding interactivity quick and learning code easy, but it can help organize frequently used code for yourself and for a team working on the same project. The Code Snippets panel contains additional options for saving your code and sharing it with others.

Creating your own code snippet

If you have your own ActionScript code that you expect to use repeatedly, you can store it in the Code Snippets panel and apply it in other projects easily.

- **1.** Open the Code Snippets panel, if it isn't already open.
- **2.** From the Options menu at the upper right of the panel, choose Create New Code Snippet.



The Create New Code Snippet dialog box appears.

3. Enter a title in the Title field and a description in the Description field for your new code snippet. In the Code field, enter the ActionScript you want to save. Use the term **instance_name_here** for any placeholder instance names and be sure to select the option below the Code field.

	Create New Code Snippet
Title:	Home function
Description:	click to return to frame 1
	Use code selected in Actions Panel? Auto-fill
Code:	instance_name_here.addEventListener(MouseEvent.CLICK, returnhome); function returnhome(e:MouseEvent):void{ gotoAndStop(1); }
	Automatically replace instance_name_here when applying code snippet.
	Cancel OK

4. Click OK.

Animate saves your code in the Code Snippets panel under a Custom folder. You can now access your code and apply it to future projects.



▶ T ip

Click Auto-fill if you want to copy the ActionScript code that's currently selected in your Actions panel into the new snippet.

Sharing your code snippet

Soon, you may accumulate a large library of useful code snippets that you want to share with other developers. It's easy to export your custom code snippets and enable other Animate developers to import them into their own Code Snippets panel.

- **1.** Open the Code Snippets panel, if it isn't already open.
- From the Options menu at the upper right of the panel, choose Export Code Snippets XML.



In the Save Code Snippet As dialog box that opens, choose a filename and a destination, and click OK. Animate saves all the code snippets from your Code Snippets panel (the default ones as well as your own custom snippets) in an XML file that you can distribute to other developers on your team.

3. To import custom code snippets, choose Import Code Snippets XML from the Options menu in the Code Snippets panel.

Choose the XML file that contains the custom snippets and click Open. Your Code Snippets panel will now contain all the snippets from the XML file.

Playing Animation at the Destination

So far, this interactive restaurant guide works by using the gotoAndStop() command to show information in different keyframes along the Timeline. But suppose you wanted an image to fade in rather than appear suddenly—how would you play an animation after a user clicks a button? One way is to use the command gotoAndPlay(), which moves the playhead to the frame number or frame label specified by its parameter and plays from that point forward.

Creating transition animations

Next, you'll create a short transition animation for each of the restaurant guides. The transition animation will show the restaurant guides slowly increase in opacity to fade up. Then you'll change your ActionScript code to direct Animate to go to each of the beginning keyframes and play the animation.

1. Move the playhead to the label1 frame label.

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2. Right-click the instance of the restaurant information on the Stage and choose Create Motion Tween.



Animate creates a separate tween layer for the instance so that it can proceed with the motion tween.


3. In the Properties panel, Color Effect section, choose Alpha from the Style menu.

4. Set the Alpha slider to 0%.

▼ Color Effe	ct		
Style:	Alpha	-	
Alpha:	<u> </u>		0 %
🔻 Display			

The instance on the Stage becomes totally transparent.

5. Move the playhead to the end of the tween span at frame 19.

Timeline Output								
		0	ô	۵		10	15	20 25
📲 actions		٠			å			
🔎 Layer 5	1	•	٠		0	•		
📲 content		•	•		0	_ olabel1	L	[]•label2
📲 buttons		٠	٠					
📲 title			â					
📲 background		٠	Ô					

6. Select the transparent instance on the Stage.

7. In the Properties panel, set the Alpha slider to 100%.

The instance is displayed at a normal opacity level. The motion tween from frame 10 to frame 19 produces a smooth fade-in effect.



8. Create similar motion tweens for the remaining restaurants in the keyframes labeled label2, label3, and label4.

Timeline	Output															
			0	ô	۵		. 5	. 10	. 15	20	, 25	. 30	. 35	. 40	.45	50
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📲 but	tons		•	•		•										o
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👂 Note

Recall that you can use the Motion Presets panel to save a motion tween and apply it to other objects to save you time and effort. Select the first motion tween on the Timeline and click Save Selection As Preset. Once it's saved, you can apply the same motion tween to another instance. If your motion tweens are not all the same length as the tween copied in the preset, however, you may need to adjust a start or ending keyframe after applying the preset.

Using the gotoAndPlay command

The gotoAndPlay command makes the Animate playhead move to a specific frame on the Timeline and begin playing from that point.

- **1.** Select the first frame of the actions layer and open the Actions panel.
- 2. In your ActionScript code, change all the first four gotoAndStop() commands to gotoAndPlay() commands. Leave the parameter unchanged:
 - gotoAndStop("label1"); should be changed to gotoAndPlay("label1");
 - gotoAndStop("label2"); should be changed to gotoAndPlay("label2");
 - gotoAndStop("label3"); should be changed to gotoAndPlay("label3");
 - gotoAndStop("label4"); should be changed to gotoAndPlay("label4");

actio	s:1	
1 2 3 4 5	<pre>stop(); gabelloffel_btn.addEventListener(MouseEvent. = function restaurant1(event:MouseEvent):void gotoAndPlay("label1");</pre>	CLICK, restaurant1); {
6789	<pre>garygari_btn.addEventListener(MouseEvent.CLI function restaurant2(event:MouseEvent):void gotoAndPlay("label2"); }</pre>	CK, restaurant2); {
10 11 12 13	<pre>ilpiatto_btn.addEventListener(MouseEvent.CLI function restaurant3(event:MouseEvent):void gotoAndPlay("label3"); }</pre>	CK, restaurant3); {
14 15 16 17	<pre>pierreplatters_btn.addEventListener(MouseEven function restaurant4(event:MouseEvent):void gotoAndPlay("label4"); }</pre>	nt.CLICK, restaurant4); {

For each of the restaurant buttons, the ActionScript code now directs the playhead to a particular frame label and begins playing at that point.

Make sure you keep the function for your Home button unchanged. You'll want that function to remain a gotoAndStop() command.

▶ T ip

A fast and easy way of doing multiple replacements is to use the Find And Replace command in the Actions panel. Click the Find button in the upper-right corner (2), select Find, and then choose Find And Replace from the menu to the right of the Find Text field.

Stopping the animations

If you test your movie now (Control > Test), you'll see that each button goes to its corresponding frame label and plays from that point, but it keeps playing, showing all the remaining animations in the Timeline. The next step is to tell Animate when to stop.

- **1.** Select frame 19 of the actions layer, the frame just before the label2 keyframe on the content layer.
- 2. Right-click and choose Insert Keyframe.

We'll use the new keyframe to add a stop action just before the second animation starts to play.

Timeline Output						
	o	Ô	1 5	10	15 20 25	5
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📕 Layer 6	-	•	0		0.	• 21 25 22 1
📕 Layer 7	•		0			•
📕 Layer 8			0			
📲 content	•	٠	0	o <mark>o</mark> label 1	<mark>0</mark> olabel2	□ blabel3
📲 buttons	•	•				
📲 title	•	Ô	•			
📲 background	•	ô	•			

3. Open the Actions panel.

The Script pane in the Actions panel is blank. Don't panic! Your code has not disappeared. Your code for the event listeners is on the first keyframe of the actions layer. You have selected a new keyframe in which you will add a stop command.

4. In the Script pane, enter **stop()**;.

Animate will stop playing when it reaches frame 19.

- **5.** Insert keyframes at frames 29, 39, and 50.
- **6.** In each of those keyframes, add a stop command in the Actions panel.

		0	ô		5	10		5	20	25	30	35	40	. 45	50	
📲 actions	1	•	•	å					5				00		0	
🖉 Layer 5		•		0												
🔑 Layer 6		•	•	0				[•							
🔑 Layer 7		•		0												
₽ Layer 8		٠	٠	0											-	
📲 content		٠	+	0		001	abel1	[label	12	olat	bel3	Dola	ibel4	Ū.	
📲 buttons		•	•	•											D	
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▶ T ip

If you wish, you could also use the Code Snippets panel to add the stop command.

```
7. Test your movie by choosing Control > Test.
```

Each button takes you to a different keyframe and plays a short fade-in animation. At the end of the animation, the movie stops and waits for the viewer to click the Home button.

▶ T ip

If you want a quick and easy way to duplicate the keyframe containing the stop command, hold down the Option/Alt key while you move it to a new location on the Timeline.

Pinning code in the Actions panel

When you have code scattered in multiple keyframes on the Timeline, it's sometimes difficult to go back and forth to edit or view your code. The Actions panel provides a way for you to keep the code from particular keyframes "pinned" to the Actions panel. Click the Pin Script button at the top of the Actions panel and Animate will create a separate tab for the code currently displayed in the Script pane. The tab will be labeled with the frame number where your code resides. You can pin multiple scripts, allowing you to navigate easily between them.



Animated Buttons

Currently, when you hover your mouse cursor over one of the restaurant buttons, the gray additional information box suddenly appears. But imagine if that gray information box were animated. It would give more life and sophistication to the interaction between the user and the button.

Animated buttons display an animation in the Up, Over, or Down keyframes. The key to creating an animated button is to create an animation inside a movie clip symbol, and then place that movie clip symbol inside the Up, Over, or Down keyframes of a button symbol. When one of those button keyframes is displayed, the animation in the movie clip plays.

Creating the animation in a movie clip symbol

Your button symbols in this interactive restaurant guide already contain a movie clip symbol of a gray information box in their Over states. You will edit each movie clip symbol to add an animation inside it.

1. In the Library panel, expand the restaurant previews folder. Double-click the movie clip symbol icon for gabel loffel over info.

+	Scene 1	E	gabel loffel over info	
	+			
		Get of	ut your Lederhosen!	
		0	MORE	

You enter symbol-editing mode for the movie clip symbol called gabel loffel over info.

- **2.** Select all the visual elements on the Stage (Ctrl+A/Command+A).
- **3.** Right-click and choose Create Motion Tween.
- **4.** In the dialog box that appears asking for confirmation to convert the selection to a symbol, click OK.

Layer 1 is converted to a motion tween layer and adds 1 second's worth of frames to the movie clip Timeline.



5. Drag the end of the tween span back so the Timeline only has 10 frames.



- **6.** Move the playhead to frame 1 and select the instance on the Stage.
- **7.** In the Properties panel, Color Effect section, choose Alpha from the Style menu and set the Alpha value to 0%.

The instance on the Stage becomes totally transparent.



- **8.** Move the playhead to the end of the tween span at frame 10.
- **9.** Select the transparent instance on the Stage.
- **10.** In the Properties panel, set the Alpha value to 100%.

Animate creates a smooth transition between the transparent and opaque instance in the 10-frame tween span.



- **11.** Insert a new layer and rename it **actions**.
- **12.** Insert a new keyframe in the last frame (frame 10) of the actions layer.



- **13.** Open the Actions panel (Window > Actions) and enter **stop()**; in the Script pane. Adding the stop action in the last frame ensures that the fade-in effect plays only once.
- **14.** Exit symbol-editing mode by clicking the Scene 1 button in the Edit bar above the Stage.
- **15.** Choose Control > Test.

▶ Tip

If you want an animated button to repeat its animation, leave out the stop command at the end of the movie clip's Timeline.

When your mouse cursor hovers over the first restaurant button, the gray information

box fades in. The motion tween inside the movie clip symbol plays the fade-in effect, and the movie clip symbol is placed in the Over state of the button symbol.



16. Create identical motion tweens for the other gray information box movie clips to animate all of the restaurant buttons.

Review Questions

- **<u>1</u>**. How and where do you add ActionScript code?
- **<u>2</u>.** How do you name an instance, and why is it necessary?
- **<u>3</u>**. How can you label frames, and when is it useful?
- **<u>4</u>.** What is a function?
- **<u>5</u>**. What is an event? What is an event listener?
- **<u>6</u>**. How do you create an animated button?

Review Answers

- 1. ActionScript code can be attached to keyframes of the Timeline. Keyframes that contain ActionScript are indicated by a small lowercase "a." You add ActionScript in the Actions panel. Choose Window > Actions, or select a keyframe and click the ActionScript panel icon in the Properties panel, or right-click and select Actions. You enter code directly in the Script pane in the Actions panel, or you can add ActionScript through the Code Snippets panel.
- **2.** To name an instance, select it on the Stage, and then type in the Instance Name field in the Properties panel. You need to name an instance so that ActionScript can identify it with code.
- **3.** To label a frame, select a keyframe on the Timeline, and then type a name in the Frame Label box in the Properties panel. You can label frames in Animate to make it easier to reference frames in ActionScript and to give you more flexibility.
- **4.** A function is a group of statements that you can refer to by name. Using a function makes it possible to run the same set of statements without having to type them repeatedly into the same script. When Animate detects an event, it executes a function in response.
- **5**. An event is an occurrence that is initiated by a button click, a keystroke, or any number of inputs that Animate can detect and respond to. An event listener, also called an event handler, is a function that is executed in response to specific events.
- **6**. Animated buttons display an animation in the Up, Over, or Down keyframes. To create an animated button, make an animation inside a movie clip symbol, and then place that movie clip symbol inside the Up, Over, or Down keyframes of a button symbol. When one of those button keyframes is displayed, the animation in the movie clip plays.

9. Working with Sound and Video

Lesson Overview

- Import sound files
- Edit and split sound files
- Use Adobe Media Encoder to prepare video
- Understand video and audio encoding options
- Use components to playback video for Adobe AIR, ActionScript 3.0, or HTML5 Canvas documents
- Embed video as a guide to animation
- Customize options on video playback components
- Work with video that contains alpha channels
- Embed video on the Timeline



This lesson will take approximately 3 hours to complete. Download the project files for this lesson from the Registered Products tab on your Account page at <u>www.peachpit.com</u> (click the Access Bonus Content link) and store them on your computer in a convenient location, as described in the Getting Started section of this book. Your Account page is also where you'll find any updates to the lessons or to the lesson files.

SHEARWOOD WILDLIFE PRESERVE



Sound and video add new dimensions to your projects. Import sound files and edit them directly in Adobe Animate CC, and use Adobe Media Encoder CC to compress and convert video files to use in your projects. Use Animate CC to export your animations as HD video.

Getting Started

Start the lesson by viewing the finished animated zoo kiosk. You'll create the kiosk by adding sound and video files to a project in Adobe Animate CC in an AIR for Desktop document.



1. Double-click the file Shearwood-Wildlife-Preserve.air, a cross-platform program, in the Lesson09/09End folder to play the animation.

The installer will warn you that the application comes from an unknown author, but you can trust us! Click Install. When the installation is done, the application launches a new window at the upper-left corner of your desktop. View the movie of the polar bear with a short soundtrack of an African beat. A zoo director pops up and introduces himself.

🔵 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. On that page you'll also find a downloadable Supplement to this lesson that contains information on bonus topics. See Getting Started at the beginning of the book.

) Note

If your computer asks you to choose an application to open the file, you'll need to install the Adobe AIR runtime. Go to <u>get.adobe.com/air</u> and follow the installation instructions.



- 2. Click a sound button (in the lower-left corner) to hear an animal sound.
- 3. Click one of the buttons bearing the picture and name of an animal to view a short

movie about the animal. Use the interface controls below the movie to pause, continue, or lower the volume.



4. Press Ctrl+Q/Command+Q to close the application (or choose Quit from the Mac OS Dock or Windows Taskbar).

In this lesson, you'll import audio files and put them on the Timeline to provide the short introductory audio flourish and then embed some of those sounds in each button. Moving on to video, you'll use Adobe Media Encoder CC to compress and convert the video files to the appropriate format for Animate. Other useful techniques you'll learn include how to work with transparent backgrounds in video to create the silhouetted zoo director video and how to export Animate content to high-quality video.

- **1.** Double-click the 09Start.fla file in the Lesson09/09Start folder to open the initial project file in Animate CC.
- **2.** Choose File > Save As. Name the file **09_workingcopy.fla**, and save it in the 09Start folder. Saving a working copy ensures that the original start file will be available if you want to start over.

Understanding the Project File

The project file is an AIR for Desktop document. The final published project is a selfcontained application that runs on either the Windows or Mac OS desktop without needing a browser.

The initial setup of the project has been completed except for the audio and video portions and some of the ActionScript code. The Stage is 1000×700 pixels. A photo of a snoozing lion forms the background of the application. Layered above the background is a row of buttons along the bottom of the Stage, with three simple buttons at the left and a set of buttons depicting colorful animals to the right. A title banner spans the top of the Stage.



The Timeline contains several layers that separate the different content.

Timeline Output																	
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🖏 sound buttons	٠	٠		0													٥
📲 buttons	٠	٠		0													0
📲 bottom navbar	٠	٠		0													D
📲 title	٠	٠		0													0
📲 background	٠	٠		0													0

The bottom three layers, called background photo, title, and bottom navbar, contain design elements, text, and images. The two layers directly above, called buttons and sound buttons,

contain instances of button symbols. The videos layer contains several labeled keyframes, and the actions layer contains ActionScript that provides the event handlers for the bottom row of buttons.

If you've completed Lesson 8, you should be familiar with the structure of this Timeline. The individual buttons on the bottom row are already coded so that when the user clicks a button, the playhead moves to a corresponding labeled keyframe in the videos layer. You'll be inserting content into each of those keyframes. But first you'll learn to work with sound.

Using Sounds

You can import several types of sound files into Animate, among them MP3, AIFF, and WAV files, which are three common sound formats. When you import sound files into Animate, they are stored in your Library panel. You can then drag the sound files from the Library panel onto the Stage at different points along the Timeline to synchronize those sounds to whatever may be happening on the Stage.

Importing sound files

You'll import several sound files to the Library panel, which you'll use throughout this lesson.

- **1.** Choose File > Import > Import To Library.
- **2.** Select the Monkey.wav file in the Lesson09/09Start/Sounds folder, and click Open.

The Monkey.wav file appears in your Library panel. The sound file is indicated by a unique icon, and when it is selected the preview window shows a *waveform*—a series of peaks and valleys that represent the sound.



- **3.** Click the Play button in the far upper-right corner of the Library preview window. The sound plays.
- **4.** Double-click the sound icon to the left of your Monkey.wav file.

The Sound Properties dialog box appears, providing information on your sound file, including its original location, size, and other technical properties. Click OK to close the dialog box.



5. Choose File > Import > Import To Library and select the other sound files to import into your Animate project. Import Elephant.wav, Lion.wav, Africanbeat.mp3, and Afrolatinbeat.mp3. Click Open to import the files.

▶ Tip

Hold down the Shift key to select multiple files to import all at once.

Your Library panel should contain all the sound files.

6. Create a folder in your Library panel and place all the sound files in it to organize your Library panel. Name the folder **sounds**.



) Note

In addition to MP3, AIFF, and WAV files, Animate supports ASND (Adobe Sound), SD2 (Sound Designer II), AU (Sun AU), FLAC, and OGG or OFF (Ogg Vorbis).

Placing sounds on the Timeline

You can place a sound at any keyframe along the Timeline, and Animate will play that sound when the playhead reaches the keyframe. You'll place a sound on the very first keyframe that plays at the start of the movie to provide a pleasant audio introduction and set the mood.

- **1.** Select the videos layer on the Timeline.
- **2.** Insert a new layer and rename it **sounds**.

Timeline Output				
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sounds 🖉	•	•		
📲 videos	•	•	0	
📲 sound buttons				
📲 buttons	٠			
📲 bottom navbar	٠		•	
📲 title	•	•	0	
📲 background		٠	0	

- **3.** Select the first keyframe of the sounds layer.
- **4.** Drag the Afrolatinbeat.mp3 file from the sounds folder in your Library panel onto the Stage.

The waveform of your sound appears on the Timeline.

Timeline Output																		
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📲 bottom navbar	•			0														0
📲 title	•			0														0
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5. Select the first keyframe of the sounds layer, if it's not already selected.

In the Properties panel, in the Sound section, note that your sound file is now listed on the Name menu.

6. Choose Stream from the Sync menu.

Library Pro	operties	*≣
	Frame	8
Name:		
Түре:		
- Sound		
Name:	Afrolatinbeat.mp3	-
Effect:	None	0
Sync:	Event	-
	Repeat 💌 x <u>1</u>	
	44 kHz Mono 16 Bit 10.0 s 15	i9

The Sync options determine how the sound plays on the Timeline. Use Stream sync for long passages of music or narration when you want to synchronize the sound with the Timeline.

7. Move the playhead back and forth on the Timeline.

The sound plays as you scrub the Timeline.

8. Choose Control > Test.

The sound plays only for a short time before getting cut off. Because the sound is set to Stream, it plays only when the playhead moves along the Timeline, and if there are sufficient frames to play. There is a stop action at frame 9 that stops the playhead and thus stops the sound.

▼ Sound				
Name:	A	frolatinbeat.mp3		-
Effect:	N	one	▼	2
Sync:	St	ream		-
		Event		
		Start		
		Stop		
	~	Stream		
				45

Understanding sound sync options

Sound sync refers to the way a sound is triggered and played. There are several options: Event, Start, Stop, and Stream. Stream ties the sound to the Timeline so you can easily synchronize animated elements to the sound. Event and Start are used to trigger a sound (usually a short sound) to a specific event, like a button click. Event and Start are similar except that the Start sync does not trigger the sound if it is already playing (so there are no overlapping sounds possible with Start sync). The Stop option is used to stop a sound, although you'll use it rarely, if ever. If you want to stop a sound with a Stream sync, simply insert a blank keyframe.

Adding frames to the Timeline

The next step is to extend the Timeline so that the entire sound (or at least the portions that you desire) plays before the stop action halts the playhead.

1. Click on the Stage to deselect the Timeline, and then place the playhead between frames 1 and 9 by clicking on the top frame numbers.



2. Choose Insert > Timeline > Frame, or press F5, to insert one frame into each layer between frames 1 and 9.

3. Continue inserting frames until the sound will be able to play for about 50 frames before it hits the the stop action in the second keyframe of the actions layer. The keyframe that contains the stop action should be at frame 51.

Timel	ine Output																			
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-	sounds	1 .	•		D	- non					-		Charge were	and the second	flitten.				aler and	
-	videos	•			0															
-	sound buttons	•																		
	buttons	•																		
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	title	•	•																	
-	background	•	•		•															

4. Choose Control > Test.

The sound lasts longer because it has more frames to play before the playhead stops.

Clipping the end of a sound

The sound clip you imported is a bit longer than you need. You'll shorten the sound file by using the Edit Envelope dialog box. Then you'll apply a fade so the sound gradually decreases as it ends.

1. Select the first keyframe of the sounds layer.



2. In the Properties panel, in the Sound section, click the Edit Sound Envelope button, which is to the right of the Effect menu and bears a pencil icon.

The Edit Envelope dialog box appears, showing you the sound's waveform.

The upper and lower waveforms represent the left and right channels of the stereo sound, respectively. The thin black line running horizontally above each waveform shows the sound level for each channel, and together they make up the envelope of the sound. A timeline runs between the waveforms, the Effect menu in the upper-left corner offers preset effects, and buttons that enable view options occupy the bottom-right corner.



3. In the Edit Envelope dialog box, click the Seconds button, if it isn't already selected.

The Timeline changes units to show seconds instead of frames. Click the Frames button to switch back. You can switch back and forth, depending on how you want to view your sound.



4. Click Zoom Out until you can see the entire waveform.

The waveform appears to end at around 240 frames, or about 10 seconds.

5. Drag the right end of the time slider to the left to about frame 45.

The sound shortens by being clipped from the end. The sound now plays for about 45 frames.



6. Click OK to accept the changes you've made.

The waveform on the main Timeline indicates the shortened sound.

Timelin	e Output																			
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, b	uttons		•	•																
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, b	ackground		•	•																

🔵 Note

Edits made in the Edit Envelope dialog box are nondestructive. That means that shortening an audio clip doesn't discard any of the data—it just changes how much of the clip is played in a movie. If you change your mind later, you can always lengthen the clip again.

Changing the volume of a sound

The sound will be more elegant if it slowly fades out instead of being abruptly cut off. You can change the volume levels through time in the Edit Envelope dialog box. Use it to fade in, fade out, or modulate the volume of the left and right channels separately.

- **1.** Select the first keyframe of the sounds layer.
- **2.** In the Properties panel, click the Edit Sound Envelope button.

The Edit Envelope dialog box appears.

Audio splitting

If you want to pause a streaming audio on the Timeline, and then at a later point in time resume audio playback from the point it was stopped, you can use audio splitting. You don't need to split your audio in this lesson, but here's how to do it.

To split sound on the Timeline, the sound must be on Sync streaming. Select the frame at the point when you want to pause the audio; then right-click and choose Split Audio.



Your sound will be split into two streams, indicated by a new keyframe at the point which you split the audio.

Timeline Output													
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📲 Layer 1	ø				a free free					10			

Insert a new keyframe on the frame just behind the keyframe where you split your audio.



Now, move the keyframe containing the second half of your audio, and a gap will be created between the split.



Your audio will play until it reaches the empty keyframe, where it will pause. When your playhead reaches the next keyframe with the split audio, the sound will resume.

3. Select the Frames viewing option, and zoom in on the waveform to see its end near frame 45.



4. Click the left channel level above frame 20.

A box appears on the line, indicating a keyframe has been added for the sound volume.

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•			

5. Click the left channel level above frame 45 and drag it down to the bottom of the channel.



The downward diagonal line indicates the drop in volume level from 100% to 0%.

6. Click the corresponding keyframe on the right channel level and drag it down to the bottom of the channel. Click OK to close the dialog box.



Deleting or changing the sound file

If you don't want the sound on your Timeline, or you want to change to a different sound, you can make those changes in the Properties panel.

- **1.** Select the first keyframe of the sounds layer.
- **2.** In the Properties panel, choose None from the Name menu.

Library Pro	perties	₹≣
<u>.</u>	Frame	0
▼ Label		
Name:		
Type:		
▼ Sound		
Name:	Afrolatinbeat.mp3 🔹	
Effect:	None	
Sync:	Africanbeat.mp3 [№] ✓ Afrolatinbeat.mp3 Elephant.wav	
	Lion.wav Monkey.wav	

The sound is removed from the Timeline.

🔵 Note

To learn about controlling the quality of the sound in your published file, see "<u>Setting the quality of the sounds</u>" in the Supplement to this lesson.

3. Now let's add a different sound. Choose Africanbeat.mp3 from the menu.

The Africanbeat.mp3 sound is added to the Timeline. The settings in the Edit Envelope dialog box that clip the sound and fade it out are reset (since you chose None to remove the Afrolatinbeat.mp3 sound). Return to the Edit Envelope dialog box to customize the Africanbeat.mp3 sound in the same way as the previous sound.



Adding sounds to buttons

In the kiosk, the buttons that control sound appear on your Stage on the left. You'll add sounds to the buttons so that they play whenever the user clicks them.

1. In the Library panel, double-click the icon of the button symbol called sound_button1. You enter symbol-editing mode for that button symbol.



The three layers in the button symbol help organize the content for the Up, Over, Down, and Hit states.

2. Insert a new layer and rename it **sounds**.



- **3.** Select the Down frame in your sounds layer and insert a keyframe.
 - A new keyframe appears in the Down state of your button.

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4. Drag the Monkey.wav file from the sounds folder in your Library panel to the Stage. A waveform for the Monkey.wav file appears in the Down keyframe of the sounds layer.

Timeline Output								
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📲 Highlight					0			0

5. Select the Down keyframe in the sounds layer.

Name:	M	onkey.wav	-
Effect:	N	one	▼ 2
Sync:	St	art	-
		Event	
	~	Start	
		Stop	~0
		Stream	

- **6.** In the Properties panel, in the Sound section, choose Start from the Sync menu. When Sync is set to Start for a keyframe, the sound is triggered whenever the playhead enters that particular keyframe.
- **7.** Choose Control > Test. Test the first button to hear the monkey, and then close the preview window.



8. Edit sound_button2 and sound_button3 to add the Lion.wav and the Elephant.wav sounds to their Down states. Click Scene 1 in the Edit bar to exit symbol-editing mode.

🛑 Note

You can also add sound with an Event or Start Sync to the Over state of a button symbol, and the sound will play whenever the mouse cursor just hovers over the button.

Understanding Video

Animate makes it very easy to deliver video. Combining video, interactivity, and animation can create a very rich and immersive multimedia experience for your viewers.

😑 Note

Video playback is not supported in WebGL documents.

Deploying video varies depending on whether you're working in an ActionScript 3.0, AIR for Desktop, AIR for Android, AIR for iOS, or HTML5 Canvas document.

Video with ActionScript 3.0 or AIR documents

If you're working in an ActionScript 3.0 or an AIR document, as you are in this lesson, you have two options for displaying video. The first option is to use the FLVPlayback component to play the video. A component in Animate is a reusable, packaged module that adds a particular capability to an Animate document. This component is a special widget that is used on the Stage to play your external video.

Using the FLVPlayback component allows you to keep the video separate from your Animate file. If you have a very short video clip, you can use the second option, which is to embed the video directly inside your Animate file.

Video with HTML5 Canvas documents

If you want to display video in an HTML5 Canvas document, you use Animate's Video component. The Video component, like that for ActionScript 3.0 documents, provides an easy interface to point to the correct external video file and change playback parameters.

Video encoding

Whichever approach you're taking to display video, Animate requires that the video be encoded correctly first. To use a playback component from Animate to play your video, the video must be encoded in the H.264 standard, a video codec that delivers high quality with very efficient compression. A *codec* (*compression-decompression*) is a method computers use to compress a video file to save space and then to decompress it to play it back. The H.264 codec is used in MP4 video files (which are very common), so MP4 videos can be used across ActionScript 3.0, AIR, and HTML5 Canvas documents.

🔵 Note

To convert a video to FLV format, you have to use a version of Adobe Media Encoder CC (AME) older than the 2014 release. Stand-alone versions of AME CC and older are not available for download, but you can use your Adobe Creative Cloud subscription to download Adobe Premiere Pro CC or CS6 and that will include a copy of AME.

To *embed* a video in your ActionScript 3.0 or AIR document, your video must be an FLV file, an older format that uses a different codec. Embedding video is a less common way of handling video, so most of your work with video will be done with MP4 files using H.264 encoding.

Using Adobe Media Encoder CC

You can convert your video files to the proper video format using Adobe Media Encoder CC, a stand-alone application that is installed with Animate CC. Adobe Media Encoder can convert single files or multiple files (known as batch processing) to make your workflow easier.

Adding a video file to Adobe Media Encoder

The first step in converting your video file to a compatible Animate format is to add the video to Adobe Media Encoder for encoding.

🔵 Note

If Adobe Media Encoder CC is *not* available on your machine for some reason, use the Adobe Creative Cloud desktop application to download and install it.

1. Launch Adobe Media Encoder CC.



The opening screen displays the Queue panel in the upper right, which shows any current video files that have been added for processing. The Queue panel should be empty. The other panels are the Encoding panel, which shows any video currently being processed; Media Browser, which lets you navigate to find computer for video files; and the Preset Browser, which provides commonly used predefined settings.

2. Choose File > Add Source, or click the Add Source button (with the plus sign icon) in the Queue panel.



A file navigation dialog box opens to allow you to select a video file.

3. Navigate to the Lesson09/09Start folder, select the Penguins.mov file, and click Open. The Penguins.mov file is added to the queue of files for processing and is ready for conversion to your choice of video format.

C)ueue ≡	Watch Folders				
-	► ‡≣ •	- %		✓ Auto-Encode Watch Folders	• •	
	Format		Preset	Output File	Status	
-	🛃 Peng	uins.mov				
	▼ H.2	64	 Match Source – High bitrate 	/Users/ssons/Lesson09/09Start/Penguins.mp4	Ready	

┝ T ip

You can also drag the file directly to the Queue panel from your desktop.

🔵 Note

By default Adobe Media Encoder does not start processing the queue automatically when the program is idle. You can change this setting by choosing Adobe Media Encoder > Preferences > General and selecting the Start Queue Automatically option.

Converting video files for Animate

Converting your video files is easy, and the length of time it takes depends on how large your original video file is and your computer's processing speed.

1. In the first column under Format, stick with the selected default, H.264.



H.264 is a widely accepted codec for web videos and works with Animate's video components.

2. Click the arrowhead in the Preset column to open the Preset menu.



The video presets determine the dimensions of the video and the quality of the video based on specific playback platforms and devices. Keep the current selection at **Match Source – High bitrate**.

3. Click the name of the preset you just chose.

The Export Settings dialog box appears, with advanced settings for cropping, resizing, clipping, and many other video and audio options. You'll resize the penguin video so that it fits comfortably on the Stage of your zoo kiosk project.



4. Click the Video tab. Deselect Match This Property To The Source Video to allow the video to be resized and enter **432** for the Width. Click outside the field to accept the change.

Because the Constrain Proportions option is selected (chain link icon), Animate modifies the Height to 320 to keep the proportions of your video consistent.



5. Click OK.

Animate closes the Export Settings dialog box and saves your advanced video and audio
settings.

6. Click the link under the Output File column.

The Save As dialog box appears. You can choose to save the converted file in a different location on your computer or choose a different filename. Your original video will not be deleted or altered in any way. For this exercise, click Cancel.

7. Click the Start Queue button (with the green triangular icon) in the upper-right corner.

📄 Note

To learn about automating the processing of multiple videos, see "<u>Using the</u> <u>Watch Folders panel and the Preset Browser settings</u>" in the Supplement to this lesson.



Adobe Media Encoder begins the encoding process. The Encoding panel shows the progress of the operation (along with a preview of the video) and the encoding settings.



When the encoding process finishes, "Done" appears in the Status column of the Queue panel.

You now have the Penguins.mp4 file in your Lesson09/09Start folder along with the original Penguins.mov file.

Note

You can change the status of an individual file in the Queue panel by selecting the file in the display list and choosing Edit > Reset Status or Edit > Skip Selection. Reset Status removes the Done label from a completed file so it can be encoded again, whereas Skip Selection makes Animate skip that particular file when you have multiple files in the queue.

Understanding Encoding Options

You can customize many settings when converting your original video. You've already seen how you can change the size of the original video when you converted the penguin movie. You can also crop your video to specific dimensions, convert only a snippet of the video, adjust the type of compression and the compression levels, and even apply filters to the video. To display the encoding options available, select the Penguins.mov file in the Queue panel, and then choose Edit > Reset Status. Click the entry in the Format or the Preset column. The Export Settings dialog box appears, shown here.

Crop button Output tab

Cropping options



Trimming options

Adjusting video length

Your video may have unwanted segments at the beginning or the end. You can shave off footage by placing In and Out points where you want your video to begin and end.

1. Drag the playhead (top blue marker) to scrub through your video to preview the footage. Place the playhead at the point where you want your video to start playing.



) Note

To learn about trimming the dimensions of your videos, see "<u>Cropping your</u> <u>video</u>" in the Supplement to this lesson.

The current-time indicator at the left end of the Timeline shows the position of the playhead in hours, minutes, seconds, and frames.

2. Click the Set In Point button.

The In point moves to the current position of the playhead.

00:00:02:00	()·	Fit 🔻	ŧ	00:00:04:18
	Source Range:	Custom		

- **3.** Drag the playhead to the point where you want your video to stop.
- **4.** Click the Set Out Point button.

The Out point moves to the current position of the playhead.



5. You can also simply drag the In and Out point markers to bracket the desired video segment.

The highlighted portion of your video between the In and Out point markers will be the only segment of your original video that will be encoded.

6. Drag the In and Out points back to their original positions, or choose Entire Clip from the Source Range menu, because you do not need to adjust the video length for this lesson.



▶ T ip

You can use the Left or Right Arrow key on your keyboard to move back or ahead frame by frame for finer control.

Setting advanced video and audio options

The right side of the Export Settings dialog box contains information about the original video and summarizes the export settings.

You can choose one of the options from the top Preset menu. At the bottom, you can navigate to advanced video and audio encoding options using the tabs. At the very bottom, Animate displays the estimated output size.

Export Setting	gs			٦	
Format:	H.264				
Preset:	Custom			ŵ	
Comments:					—— Preset options
Output Name:	Penguins.mp4				
✓ Export Video	Export Audio				
▼ Summary					
Output: /U 43 VB AA	sers/014/2016/Less 2x320 (1.0), 29.97 fps R, 1 pass, Target 10.0 IC, 320 kbps, 48 kHz,	ons/Lesson09/09S , Progressive, 00:00 0 Mbps, Max 12:00 Stereo	tart/Penguins.n 0:06:18 Mbps	np4	Summary of export
Source: Cli 64 44	p, Penguins.mov 8x480 (1.0), 29.97 fps 100 Hz, Stereo	s, Progressive, 00:00	0:06:18		settings
Effects Video	Audio Multiple	exer Captions	Publish		
 Basic Video S 	ettings				
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	Profile: Main			~	
	Level: 3.1			7	
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Use Maximum I	Render Quality	Previews			
Set Start Timec	ode 00:00:00:00				
Time Interpolation	: Frame Sampling	•			
					1797 5400 RT 8478 RT
Estimated File Size	: 8 MB				—— Final output size
Metadata		Cancel	ОК		

Saving advanced video and audio options

If you want to apply the same settings to many videos, it makes sense to save your advanced video and audio options. You can do that in Adobe Media Encoder. Once you have saved your settings, you can easily apply them to other videos in the queue.

1. In the Export Settings dialog box, click the Save Preset button.

 Export Setting 		
Format:	H.264	-
Preset:	Custom	<u> </u>
Comments:		
Output Name:		
✓ Export Video	✓ Export Audio	
▼ Summary		
Output: /Us 432 VBF AA(ers/014/2016/Lessons/Le x320 (1.0), 29.97 fps, Progra t, 1 pass, Target 10.00 Mbps, C, 320 kbps, 48 kHz, Stereo	esson09/09Start/Penguins.mp4 essive, 00:00:06:18 , Max 12.00 Mbps
Source: Clip 648 441	o, Penguins.mov 8x480 (1.0), 29.97 fps, Progra 100 Hz, Stereo	essive, 00:00:06:18

2. In the dialog box that opens, provide a descriptive name for the video and audio options. Click OK.

Choose Name										
Please name this preset:										
zoo kiosk resize										
Save Effects Settings										
Save Publish Settings										
	Cancel	ОК								

3. In the Export Settings dialog box, click OK to return to the queue of videos. You can apply your custom settings to additional videos by simply choosing an item from the Preset menu or from the Preset Browser panel.



4. Press Ctrl+Q/Command+Q to quit Adobe Media Encoder.

Playback of External Video in Your Project

Now that you have successfully converted your video to the correct compatible format, you can use it in your zoo kiosk project. You will have your project play each of the animal videos at the different labeled keyframes on the Timeline.

Your videos are independent of your Animate project. Keeping videos external ensures that you can edit them separately and that the videos can maintain different frame rates from your Animate project.

- **1.** Open your 09_workingcopy.fla project in Animate CC.
- **2.** Select the keyframe labeled penguins in the videos layer.



3. Choose File > Import > Import Video.

The Import Video wizard appears. This wizard guides you step by step through the process of adding video to Animate.

4. In the Import Video wizard, select On Your Computer and click Browse.

Import Video		
Select Video		
Where is your video file?		
On your computer:		
Load external video with playback component		
Embed FLV in SWF and play in timeline		
Embed H.264 video in timeline (design time only – the video c	cannot be exported)	
File path: Browse Convert Video		
O Already deployed to a web server, Flash Video Streaming Service, or	r Flash Media Server:	
URL: CONTRACTOR C		
Examples: http://mydomain.com/directory/video.flv rtmp://mydomain.com/directory/video.xml		
Learn about Flash Media Server Learn about Flash Video Streaming Service		
		Cancel

5. In the Open dialog box, select Penguins.mp4 from the Lesson09/09Start folder and click Open.

The path to the video file is displayed under the Browse button.

6. Select Load External Video With Playback Component. Click Next or Continue.

▶ T ip

You can also select Embed H.264 Video In The Timeline to embed an H.264 encoded video to use as a guide for hand-drawn animation. Animators often use live-action video to guide their frame-by-frame drawings in a technique known as *rotoscoping*. The video appears on your Timeline but is not exported.

7. In the next screen, you choose the *skin*, or the style of the interface controls for the video. From the Skin menu, choose the third option from the top, MinimaFlatCustomColorPlayBackSeekCounterVolMute.swf, if it's not already chosen.

🔵 Note

The skin is a small SWF file that determines the functionality and appearance of the video's controls. You can use one of the skins provided with Animate, or you can choose None from the top of the menu.



The skins fall into three broad categories. The skins whose names begin with "Minima" are the latest designs and include options with a numeric counter. The skins that begin with "SkinUnder" use controls that appear below the video. The skins that begin with "SkinOver" include controls that overlap the bottom edge of the video. A preview of the skin and its controls appears in the preview window.

8. Click the Color box and select#333333 with 75% Alpha. Click Next or Continue.



- **9.** On the next screen of the Import Video wizard, review the information for the video file, and then click Finish to place the video.
- **10.** Your video with the selected skin appears on the Stage. Place the video on the left side of the Stage.



An FLVPlayback component also appears in your Library panel.

🔵 Note

Although the component that plays video in an ActionScript 3.0 document is called FLVPlayback, it plays H.264 encoded video (MP4) and not FLV video.

Library Properties			₹≣
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FLVPlayback : 2.1.0.23			
37 items	Q		
37 items Name	Q	•	AS Linkag
37 items Name I BtnLion.jpg	Q	^	AS Linka
37 items Name a: BtnLion.jpg a: BtnMandril.jpg	Q	•	AS Linka
37 items Name E BtnLion.jpg BtnMandril.jpg E BtnPenguin.jpg	Q	~	AS Linkaç
37 items Name BtnLion.jpg BtnMandril.jpg BtnPenguin.jpg BtnTiger.jpg	Q	^	AS Linka
37 items Name BtnLion.jpg BtnMandril.jpg BtnPenguin.jpg BtnTiger.jpg FLVPlayback	Q	•	AS Linkac
37 items Name BtnLion.jpg BtnMandril.jpg BtnPenguin.jpg BtnTiger.jpg FLVPlayback Lesson09_assets.ai	P	~	AS Linkaç fl.video.F

11. Choose Control > Test. After the musical introduction, click the Magellanic Penguins button.

The FLVPlayback component plays the external penguin video with the skin you chose in the Import Video wizard. If your video does not play, check to make sure your MP4 video file is in the same folder as your FLA file. In the Properties panel, Component Parameters section, the Source item indicates the path to the video file.

Close the preview window.



12. The other animal videos have already been encoded and provided in the 09Start folder. Import the Mandrill.mp4, Tiger.mp4, and Lion.mp4 videos in each of their corresponding keyframes and position them on the Stage in the same location as the Penguins.mp4 movie. Choose the same skin as the Penguin.mp4 video.

🔵 Note

The video files, the 09_workingcopy.swf file, and the skin file are all required for your zoo kiosk project to work. The skin file is published in the same folder as your SWF file.

┝ Tip

You can't preview your video on the Stage in Animate CC. You must test your movie (Control > Test) to see your video play within the video component.

Controlling the video playback

The FLVPlayback component lets you control which video plays, whether the video plays automatically, and other aspects of playback. The options for playback can be accessed in the Properties panel. Select the FLVPlayback component on the Stage and expand the Component Parameters section in the Properties panel.



Individual properties are listed in the left column, and their corresponding values are listed in the right column. Select one of the videos on the Stage, and then choose from among the following options:

- **autoPlay:** When selected, the video plays automatically. When deselected, the video is paused on the first frame.
- **skinAutoHide:** Select this option to hide the controller and display it only when users roll their mouse cursor over the video.

Using the HTML5 Canvas Video component

To display video in an HTML5 Canvas document, use the Video component, which is very similar to the FLVPlayback component that you learned about in the previous tasks to display video in an AIR or ActionScript 3.0 document.

You must add the Video component to the Stage from the Components panel yourself. In contrast to ActionScript 3.0 or AIR documents, there is no Import Wizard to take you through the steps to add video. But the process is straightforward.

To add video in an HTML5 Canvas document, open the Components panel (Window > Components) and expand the Video category.



Drag the Video component from the Components panel to the Stage. The Properties panel, in the Component Parameters section, displays the properties for video playback with the Video component.



Click the Edit button (pencil icon) next to the source in the Component Parameters section of the Properties panel.



The Content Path dialog box opens. Enter the path to the H.264 encoded video file (.mp4), or select the folder icon to navigate to the video file on your computer. Animate will retrieve the correct dimensions of your video. Use the playback and UI options in the Properties panel to change how the video plays from a browser.

- **skin:** This displays the name of your current skin file. Click the name to open the Select Skin dialog box and make another choice from the Skin menu.
- **skinBackgroundAlpha:** To change the transparency of the skin, enter a decimal value from 0 (totally transparent) to 1 (totally opaque).

- **skinBackgroundColor:** To change the color of the skin, click the color chip and select a new color.
- **source:** This displays the name and location of the video file that Animate seeks to play. To change either of those, click the file information.

In the Content Path dialog box that appears, enter a new filename or click the Folder icon to choose a new file to play. The path is relative to the location of your Animate file.

Working with Video and Transparency

For the various animal videos, you want to show the entire frame with the animals in the foreground and the lush environment in the background. But sometimes you want to use a video file that doesn't include a background. For this project, the zoo director was filmed in front of a green screen, which was later removed using Adobe After Effects. When you use the video, the zoo director appears to be in front of the Stage background. A similar effect is used for news weatherpersons, where the background of the video is totally transparent and can show weather graphics behind the person.

Transparencies in video (called alpha channels) are supported only in the FLV format using the On2 VP6 codec. Although the FLV format is no longer supported in Adobe Media Encoder CC, previous versions of Media Encoder can still export to FLV. When encoding a video with an alpha channel from previous versions of Adobe Media Encoder, be sure to choose Edit > Export Settings, click the Video tab, and then select the Encode Alpha Channel option.

You'll import the video file, which is already encoded with an alpha channel in FLV format, into Animate for display with the playback component.

Importing the video clip

Now you'll use the Import Video wizard to import the Popup.flv file, which has already been encoded with an alpha channel.

- **1.** Insert a new layer called **popup video** above the videos layer.
- 2. Insert a keyframe at frame 51 and insert another keyframe at frame 86.



You'll place the video of the zoo director at the end of the musical introduction at the same time the stop action appears (frame 51). The keyframe at frame 86 ensures that the

video of the zoo director disappears from the Stage when the animal videos appear.

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3. Select the keyframe at frame 51.

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- **4.** Choose File > Import > Import Video.
- **5.** In the Import Video wizard, select On Your Computer and click Browse. Select the Popup.flv file in the Lesson09/09Start folder and click Open.
- 6. Select Load External Video With Playback Component. Click Next or Continue.
- 7. Choose None for the skin. Click Next or Continue.



8. Click Finish to place the video.

The video of the zoo director with a transparent background appears on the Stage. Move the video so its bottom edge lines up with the top edge of the navigation bar. Make x=260 in the Properties panel.



9. Choose Control > Test.

After the musical introduction, the zoo director appears and gives a brief talk. If you click one of the animal video buttons, the popup video is removed from the Timeline. If your video does not play, make sure that your video file is in the same folder as your FLA project file.

SHEARWOOD WILDLIFE PRESERVE



🛑 Note

If you don't stop one video before navigating to another keyframe containing a second video, the audio can overlap. One way to prevent overlapping sounds is to use the command SoundMixer.stopAll() to stop all sounds before starting a new video. The ActionScript in the first keyframe of the actions layer in your 09_workingcopy.fla file contains the correct code to stop all sounds before navigating to a new animal video.

Embedding Video

In the previous section, you used the FLVPlayback component to play an external video that's in MP4 format, encoded in H.264. Another way to integrate video in Animate is to use embedded video. Embedded video requires the older FLV format and is best for only very short clips. The FLV file is saved in your library, and you can drag it from the Library panel when you want to place it on the Timeline. The video plays as long as there are sufficient frames on your Timeline.

Keep in mind the following limitations of embedded video: Animate cannot maintain audio synchronization in embedded video that runs more than 120 seconds. The maximum length of embedded movies is the maximum length of any timeline, which is 16,000 frames. Another

drawback of embedding your video is the increase in the size of your Animate project, which makes testing the movie (Control > Test) a longer process and the authoring sessions more tedious.

Because the embedded FLV plays within your Animate project, it is critically important that your FLV have the same frame rate as your Animate file. If not, your embedded video will not play at its intended speed. To make sure your FLV has the same frame rate as your FLA, be sure to set the correct frame rate in the Video tab of Adobe Media Encoder. Since the FLV format is not supported in Adobe Media Encoder CC 2014 or later, you must use a previous version of Adobe Media Encoder to convert your video files to FLV. In this section, the FLV-formatted video file has already been prepared for you.

Embedding an FLV on the Timeline

You'll import an FLV file into Animate and embed it on the Timeline.

- **1.** Working in the file 09_workingcopy.fla, select the first frame of the popup video layer.
- 2. Choose File > Import > Import Video. In the Import Video wizard, select On Your Computer and click Browse. Select the polarbear.flv file in the Lesson09/09Start folder and click Open.



3. In the Import Video wizard, select Embed FLV In SWF And Play In Timeline. Click Next or Continue.



4. Deselect Expand Timeline If Needed, and deselect Include Audio. Click Next or Continue.



5. Click Finish to import the video.

The video of the polar bear appears on the Stage. Use the Selection tool to move it to the left side of the Stage.



The FLV also appears in your Library panel.

6. Choose Control > Test to see the embedded video file play from frame 1 to frame 49.

🔵 Note

This video of the polar bear does not have audio. If you do have a video that contains audio, you will not be able to hear audio in the authoring environment for embedded videos. To hear the audio, you must choose Control > Test.

Using embedded video

It's useful to think of embedded video as a multiframe symbol, very much like a symbol with a nested animation. You can convert an embedded video to a movie clip symbol, and then apply a motion tween to it to create interesting effects.

Next, you'll apply a motion tween to the embedded video so it elegantly fades out just before the zoo director pops up and speaks.

1. Select the embedded video of the polar bear on the Stage; then right-click it and choose Create Motion Tween.



2. An alert asks if you want to convert the embedded video to a symbol so it can apply a motion tween. Click OK.



3. Animate asks if it should add enough frames inside the movie clip symbol so that the entire video can play. Click Yes.



A motion tween is created on the layer.

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4. Right-click frame 30 of the popup video layer and choose Insert Keyframe > All (F6).

Timeline Output						
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5. While your playhead is still at frame 30, select the movie clip containing the embedded video on the Stage, and in the Properties panel, in the Color Effect section, choose Alpha from the Style menu and set the Alpha value at 100%.



6. Move the playhead on the Timeline to frame 50.

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7. Select the movie clip containing the embedded video on the Stage, and in the Properties panel, in the Color Effect section, change the Alpha value to 0%.

) Note

To learn about exporting video to different formats for a variety of platforms see "<u>Exporting video from Animate</u>" in the Supplement to this lesson.

Animate inserts a new keyframe at frame 50 with the Alpha value for your selected movie clip at 0%. The instance fades out from frame 30 to frame 50.

8. Choose Control > Test to see the embedded video play and fade out. Your interactive zoo kiosk is complete!

Review Questions

- **<u>1</u>**. How can you edit the length of a sound clip?
- **<u>2</u>.** What is a skin for a video?
- **<u>3</u>**. What is the correct format for using video in an HTML5 Canvas document?
- **<u>4</u>.** What is the correct video format if you want to embed a video in an ActionScript 3.0 or AIR document?
- **5.** How do you export an Animate animation into a video that's compatible with a specific device?

Review Answers

- **1.** To edit the length of a sound clip, select the keyframe that contains it and click the Edit Sound Envelope button in the Properties panel. Then move the time slider in the Edit Envelope dialog box to clip the sound from the front or from the end.
- 2. The skin is the combination of functionality and appearance of video controls, such as Play, Fast Forward, and Pause buttons. You can choose from a wide array of combinations with the buttons in different positions, and you can customize the skin with a different color or level of transparency. If you don't want viewers to be able to control the video, select None from the Skin menu.
- **3.** To play video with the Animate video playback component, video files must be encoded in the H.264 format. Adobe Media Encoder CC, a separate application, allows you to import many kinds of media types, and trim, crop, and export to an H.264-encoded MP4 video file.
- **<u>4</u>**. To embed video in an ActionScript 3.0 document, video files must be encoded in the FLV format, an older codec.
- 5. In Animate CC, you can export an animation as a video by choosing File > Export > Export Video. The video can be exported with or without the Adobe Media Encoder. In the Media Encoder, you can configure encoding options or choose Preset options that target various platforms, such as the Amazon Kindle, Barnes and Noble Nook, Apple iPhone, Google Android, and other devices.

9. Working with Sound and Video—Supplement

Supplement Contents

- <u>Setting the quality of the sounds</u>
- Using the Watch Folders panel and the Preset Browser settings
- Cropping your video
- Exporting video from Animate

Setting the quality of the sounds

You can control how much or how little your sounds are compressed in the final published file. With less compression, your sounds will be better quality. However, your final application size will be much larger. With more compression, you'll have poor-quality sounds but a smaller file size. You must determine the balance of quality and file size based on your needs. Set the sound quality and compression in the Publish Settings options.

1. Choose File > Publish Settings.

The Publish Settings dialog box appears.

	Pub	lish Settings		
Profile: Default	× &	Target: AIR 23.0 for Desktop Script: ActionScript 3.0	•	२ २
PUBLISH Flash (.swf) SWC OTHER FORMATS HTML Wrapper GIF Image PNG Image SVG Image SWF Archive Mac Projector Win Projector	Output name: JPEG Quality Audio stream Audio event Audio event Audio event Comp Comp Comp Comp Comp Comp Comp Comp	09_workingcopy 80 Enable JPEC deblocking MP3, 16 kbps, Mono Override sound settings Override sound settings D ress movie Deflate verside hidden layers rate size report trace statements t debugging ct from import detailed telemetry detaile telemetry <t< td=""><td></td><td></td></t<>		
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- **2.** Select Flash (.swf) on the left if it's not checked already to see the Audio stream and Audio event settings.
- **3.** Click the Audio Stream settings to open the Sound Settings dialog box. Choose 64 kbps from the Bit Rate menu and deselect Convert Stereo To Mono. Click OK to accept the settings.

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Preprocessing:	Convert	stereo	to mono	
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4. Click the Audio Event settings.

The Sound Settings dialog box appears again.

5. Choose 64 kbps from the Bit Rate menu and deselect Convert Stereo To Mono. Click OK to accept the settings.



Now both the Audio Stream and Audio Event settings should be at 64 kbps with stereo sounds preserved.

The Africanbeat.mp3 file in particular relies on stereo effects, so keeping both the left and right channels is important.

6. Select Override Sound Settings, and click OK to save the settings.

The sound settings in the Publish Settings will determine how all your sounds are exported.

7. Choose Control > Test.

Animate preserves the stereo effect of the sound and determines the quality based on your settings in the Publish Settings dialog box.

Using the Watch Folders panel and the Preset Browser settings

The Watch Folders panel can help you process multiple videos, whereas the Preset Browser stores predefined settings for specific target devices.

Adding a folder to the Watch Folders panel adds all of its contents to the queue, where they're automatically encoded. You can also add a different Output setting to the same folder, which will result in multiple formats for the same set of videos. To add a new Output setting, select a watch folder, and then click the Add Output button at the top of the Watch Folders panel.

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A duplicate selection appears in the list. Choose a new format and/or new preset options. If you want to apply a particular setting from the Preset Browser, choose the setting and simply drag and drop it on top of your selection in the Watch Folders panel.

The ability to define multiple outputs for a set of videos is useful when you need different video formats for high-bandwidth and low-bandwidth viewers, or for different devices such as tablets and mobile phones.

Cropping your video

If you want to show only a portion of your video, you can crop it. If you haven't done so already, choose Edit > Reset Status to reset the Penguins.mov file, and then click the link under the Format or Preset column so you can experiment with the cropping settings.

1. Select the Source tab in the upper-left corner of the Export Settings dialog box, and then click the Crop button.

The cropping box appears over the video preview window.

2. Drag the sides inward to crop from the top, bottom, left, or right.

Animate discards the grayed-out portions outside the box and displays the new dimensions next to your cursor. You can also use the Left, Top, Right, and Bottom settings above the preview window to enter exact pixel values.



3. If you want to keep the crop in a standard proportion, click the Crop Proportions menu and choose an aspect ratio.



- **4.** To see the effects of the crop, click the Output tab in the upper-left corner of the preview window.
- **5.** The options on the Source Scaling menu allow you to choose how the crop will appear in the final output file:



If the video has the selected crop shown here, then the Crop Setting options will affect the outputted file as follows:



• Scale To Fit adjusts the dimensions of the crop and adds black borders to fit the output file.



• Scale To Fill adjusts the dimensions of the crop to fill the size of the output file.



• **Stretch To Fill** adjusts the dimensions of the crop by distorting the image, if necessary, to fill the size of the output file.



• Scale To Fit With Black Borders adds black bands on any of the sides to fit the crop in the dimensions of the output file.



• **Change Output Size To Match Source** changes the dimensions of the output file to match the crop dimensions.



6. Exit the cropping mode without making the crop by clicking the Crop button again under the Source tab to deselect it. You will not need to crop the Penguins.mov video for this lesson.

Exporting Video from Animate

So far, you've been using Adobe Media Encoder to prepare video to integrate within Animate. However, you can also use Media Encoder to export your Animate content to video.

For example, use the powerful drawing and animation tools within Animate to create animation, and then export it as an HD broadcast-quality video, or for playback on a variety of platforms such as an Apple iPhone, Barnes and Noble Nook, Amazon Kindle, or Google Android device.

Exporting video

For this part of the lesson, you'll use one of the animations you created in <u>Lesson 4</u>. In that lesson, you created the cinematic splash screen for the fictional motion picture *Double Identity*.

As part of the promotion for the motion picture, the client requests that the animation run on multiple platforms. You'll export the animation and encode the video to be compatible for a variety of devices.

1. Open the 04_workingcopy.fla file from Lesson 4, or if you haven't completed that lesson, open the 04End.fla file in the Lesson04/04End folder.



2. Choose File > Export > Export Video.

The Export Video dialog box appears. Keep the resolution settings as they are. Deselect Ignore Stage Color, select Convert Video In Adobe Media Encoder, and select When Last Frame Is Reached for the Stop Exporting option.

Click Browse if you want to export the video to a different location. The default location is in the same folder as the 04End.fla file.

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	🔲 Ignore stage color (generate alpha channel)
	✓ Convert video in Adobe Media Encoder
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	O After time elapsed: (hh:mm:ss.msec)
Browse	Lessons/Lesson04/04End/04End.mov
	Export Cancel
Browse	After time elapsed: (hh:mm:ss.msec) Lessons/Lesson04/04End/04End.mov Export Cancel

3. Click Export.

Animate exports and saves a MOV file, and automatically opens Adobe Media Encoder with the file added to the queue.



Choosing a target device for encoding

Now you can export the video to several target devices. You'll export the video to files compatible with iPhone, Nook, Kindle, and Android devices.

1. In Adobe Media Encoder, in the Queue panel, leave the Format setting of the 04End.mov selection as H.264 and from the Preset menu choose Amazon Kindle Fire Native Resolution - 1024x580 29.97.



Adobe Media Encoder configures all the export options so the exported file is compatible with the Amazon Kindle Fire. The resolution is set at 1024 pixels by 580 pixels and the frame rate at 29.97 frames per second.

2. Select the 04End.mov file in the Queue display list. In the Preset Browser panel, in the Preset Name column, click the arrowhead next to System Presets to open the folder and display the list of presets included with Adobe Media Encoder. Click to open the Devices category, then open the Android sub-category and select the preset Android Phone & Tablet – 480p 23.976; then click Apply Preset at the upper-right corner of the panel.

Preset Browser ≡				
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Preset Name	Format	Frame Size	Frame Rate	Target Rate
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✓ Android				
Android Phone & Tablet - 480p 23.976	H.264	640x480	23.976 fps	0.94 Mb
Android Phone & Labier - 400p 25	11.264	C+0x+80	25 fps	0.94 Mb
Android Phone & Tablet - 480p 29.97	H.264	640x480	29.97 fps	0.94 Mb
Android Phone & Tablet - 480p Widesc	H.264	854x480	23.976 fps	1.25 Mb
Android Phone & Tablet - 480p Widesc	H.264	854x480	25 fps	1.25 Mb
Android Phone & Tablet - 480p Widesc	H.264	854x480	29.97 fps	1.25 Mb
Android Phone & Tablet - 800x480 23	H.264	800x480	23.976 fps	1.16 Mb
Android Phone & Tablet - 800x480 25	H.264	800x480	25 fps	1.16 Mb

Adobe Media Encoder adds a second output, configured for the Android phone and tablet.

•		04End.mov			
	-	H.264		Amazon Kindle Fire Native Resol	/Users
	•	H.264	•	Android Phone & Tablet - 480p	/Users

3. Apply additional presets from the Preset Browser panel. For this lesson, it doesn't matter which ones you choose. It's more important that you see the variety of options Media Encoder offers.

Your queue contains several outputs for the 04End.mov selection.



4. Click the Start Queue button at the top of the Queue panel.

Adobe Media Encoder begins encoding the 04End.mov file into the four specified formats, and saves the files in the path specified in the Output File column.



The exported videos wil be sized and made compatible for the specified devices.



10. Publishing

Lesson Overview

- Understand runtime environments
- Understand the output files for different Animate document types
- Modify publish settings
- Create classic tweens for HTML5 animation
- Insert and edit JavaScript in the Actions panel
- Use HTML5 Canvas snippets
- Convert an existing ActionScript 3.0 document to an HTML5 Canvas document
- Publish an Adobe AIR application for the desktop
- Publish a projector for Windows and Mac OS
- Test mobile interactions in the AIR Debug Launcher
- Understand publishing for the iPhone or Android

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6)

This lesson will take approximately 90 minutes to complete. If you don't yet have the project files for this lesson, download them from the Registered Products tab on your Account page at <u>www.peachpit.com</u> (click the Access Bonus Content link) and store them on your computer in a convenient location, as described in the Getting Started section of this book. Your Account page is also where you'll find any updates to the lessons or to the lesson files.



Use the various document types in Adobe Animate CC to create content that targets a variety of platforms and uses, including HTML5 multimedia for the web browser, multimedia for Flash Player, desktop applications, high-definition video, or mobile device apps. Put your content everywhere while still leveraging Animate's powerful and familiar animation and drawing tools.

Understanding Publishing

Publishing is the process that creates the required file or files to play your final Adobe Animate CC project for your viewers. Keep in mind that Animate CC is the authoring application, which is a different environment from where your viewers experience your movie. In Animate CC, you author content, which means you're creating art and animation, and adding text, videos, sound, buttons, and code. In the target environment, such as a desktop browser or a mobile device, your viewers watch the content when it plays back, or runs. So developers make a distinction between "author-time" and "runtime" environments.
👂 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. On that page you'll also find a downloadable Supplement to this lesson that contains information on bonus topics. See Getting Started at the beginning of the book.

Animate can publish content to various runtime environments, and your desired runtime environment determines the Animate document that you must choose when you first begin a project.

Document types

You learned about the various Animate document types in Lesson 1, and you've worked with a few of them throughout the projects in this book. For example, you started an HTML5 Canvas document for Lesson 2, an ActionScript 3.0 document for Lesson 8, and an AIR for Desktop document for Lesson 9. Each project publishes a different set of files for their targeted runtime environment, but each project is saved as an FLA or XFL (Animate) file that you edit in Animate CC.

In this lesson, you'll explore the publishing options for the document types in greater detail. You'll work through an interactive HTML5 Canvas animation, and you'll learn to create desktop applications.

Runtime environments

If an ActionScript 3.0 document is published to SWF and is played back with the Flash Player in a desktop web browser, then the Flash Player is the runtime environment for that ActionScript 3.0 document. Flash Player 23 is the latest version and supports all the new features in Animate CC. The Flash Player is available as a free plug-in from the Adobe website for all the major browsers and platforms. In Google Chrome, Internet Exporer, and others, the Flash Player comes preinstalled and updates automatically.

🔵 Note

The ActionScript 3.0 document also supports publishing content as a projector for either Macintosh or Windows. A projector plays as a stand-alone application on the desktop, without needing a browser.

If you want to target web browsers without requiring the Flash Player, then begin your Animate project with an HTML5 Canvas or WebGL document. To integrate interactivity into an HTML5 Canvas document, you use JavaScript rather than ActionScript. You can add JavaScript directly in the Actions panel or use HTML5 Canvas snippets.

Adobe AIR is another runtime environment. AIR (Adobe Integrated Runtime) runs content directly from your desktop, without the need for a browser. When you publish your content for AIR, you can make it available as an installer that creates a stand-alone application, or you

can build the application with the runtime already installed, known as "captive runtime."

You can also publish AIR applications as mobile apps that can be installed and run on Android devices and iOS devices such as the Apple iPhone or iPad, whose browsers do not support the Flash Player.

😑 Note

Not all features are supported across all document types. For example, WebGL documents don't support text and HTML5 Canvas documents don't support the 3D Rotation and Translation tools. Unsupported tools are grayed out.

🔵 Note

You can't easily switch from one document type to another. For example, you can't convert an HTML5 Canvas document into a WebGL document. However, you can use standard copy and paste commands to move your content from one document to another. The exception is converting an ActionScript 3.0 document into an HTML5 Canvas or WebGL document, which Animate does support.

Publishing for Flash Player

When you publish for Flash Player with an ActionScript 3.0 document, you publish two files: a SWF file and an HTML document that tells the web browser how to display the SWF file. You need to upload both files to your web server along with any other files your SWF file references (such as any video files and skins). By default, the Publish command saves all the required files to the same folder.

┝ Tip

When you change the settings in the Publish Settings dialog box, Animate saves them with the document.

You can specify different options for publishing a movie, including whether to detect the version of Flash Player installed on the viewer's computer.

Clearing the Publish cache

When you test an ActionScript 3.0 document by choosing Control > Test to generate a SWF, Animate puts compressed copies of any fonts and sounds from your project into the Publish cache. When you test your movie again, Animate uses the versions in the cache (if the fonts and sounds are unchanged) to speed up the export of the SWF file. However, you can manually purge the cache by choosing Control > Clear Publish Cache. If you want to clear the cache and test the movie, choose Control > Clear Publish Cache And Test Movie.

Specifying publish settings for Flash Player

You can determine how Animate publishes the SWF file, including which version of Flash Player it requires, and how the movie is displayed and plays.

1. Open the 10Start_banner.fla file, a simple animated banner for the fictional city of Meridien.



2. Choose File > Publish Settings. Alternatively, make sure no object is selected on the Stage so the Properties panel displays the Document properties. Then in the Publish section, under Profile click Publish Settings.



) Note

In general, it's better to control an Animate movie with code than to rely on the Playback settings in the Publish Settings dialog box. For example, add a this.stop() command in the very first frame of your Timeline if you want to pause the movie at the start, or a this.gotoAndPlay(1) or this.gotoAndPlay(0) at the end of your Timeline if you want the movie to loop. When you test your movie (Control > Test), all the functionality will be in place.

The Publish Settings dialog box opens, showing the general settings at the top, the formats on the left, and additional options for selected formats on the right.

	Publish Settings	
Profile: Default	Target: Flash Player 23 Script: ActionScript 3.0	
PUBLISH Flash (.swf) SWC OTHER FORMATS FHTML Wrapper GIF Image JPEG Image OAM Package SVG Image SWF Archive Mac Projector Win Projector	Output name: 10Start_banner JPEC Quality: 90 Enable JPEG deblocking Audio stream: MP3, 16 kbps, Mono Audio event: MP3, 16 kbps, Mono © Override sound settings • ADVANCED Compress movie ZMA Include hidden layers Generate size report Omit trace statements Permit debugging Protect from import Password: Enable detailed telemetry Password: Script time limit: 15 seconds Local playback security: Access local files only Hardware acceleration: None	

The Animate (.swf) and HTML Wrapper formats should already be selected.

3. At the top of the Publish Settings dialog box, choose a version of Flash Player from the Target menu.



) Note

To learn how to set up your published movie to detect the version of Flash Player on the end-user's machine, see "<u>Detecting the version of Flash Player</u>" in the Supplement to this lesson.

Some Animate CC features will not play as expected if you don't choose the latest version of the Flash Player. Choose an earlier version of the Flash Player only if you're targeting a specific audience that does not have the latest version.

- **4.** Note that the ActionScript settings are for version 3.0, which is the latest and only version supported by this release of Animate.
- **5.** Select the Flash (.swf) format on the left side of the dialog box.

The options for the SWF file appear on the right. Expand the Advanced section to see more options, if it isn't already expanded.

6. If you wish, you can modify the output filename and location by entering a new filename. For this lesson, leave Output Name set to 10Start_banner.



7. If you've included bitmaps in your movie, you can set a global quality setting for JPEG compression levels. Enter a value from 0 (lowest quality) to 100 (highest quality). The value of 80 is the default, which you can leave as is for this lesson.

▶ Tip

In the Bitmap properties dialog box for each imported bitmap, you can choose to use the JPEG Quality set in the Publish Settings dialog box, or choose a setting unique for that bitmap. This allows you to publish higher-quality images where you need it—for example, in photos of people—and lower-quality images where you can get away with it—for example, in background textures.



8. If you've included sound, click the Audio Stream or Audio Event value to modify the quality of the audio compression.

The higher the bit rate, the better the sound quality will be. As you'll recall, in Lesson 9

you explored the settings for audio quality. In this interactive banner, there is no sound and thus no need to change the settings.

9. Make sure Compress Movie is selected to reduce file size and download times.



Deflate is the default option. Choose LZMA for better SWF compression. You'll see the biggest improvements in file-size compression if you've built your project with more ActionScript code and vector graphics.

10. Select the HTML Wrapper format on the left side of the dialog box.

Profile: Default	× Ø,	Target: Flash Player 23 Script: ActionScript 3.0	•	۹
PUBLISH SWC OTHER FORMATS HTML Wrapper GIF Image JPEC Image PNG Image OAM Package SVC Image SWF Archive Mac Projector Win Projector	Output name: Template: Size: Width: Height: Playback: Quality: Window Mode: SCALE AND	10Start_banner Flash Only ✓ Detect Fiash Version Version: 23 . 0. 0 Match Movie ▼ 955 p× 310 p× ■ Paused at start ✓ Loop ✓ Display menu ■ Device font High Window ✓ Show warning message ALIGNMENT		Info

🛑 Note

To learn how to change the way your movie is displayed in your user's browser, see "<u>Changing display settings</u>" in the Supplement to this lesson.

11. Make sure that Flash Only is chosen from the Template menu.

▶ T ip

To learn about other template options, select one and then click Info.

Publishing for HTML5

HTML5 is the latest version of the HTML specification for marking up web pages for the browser. HTML5, along with CSS3 and JavaScript, are the modern standard for creating content for the web on the desktop, mobile phones, and tablets. Choosing the HTML5 Canvas document type in Animate targets HTML5 as the published runtime and outputs a collection of HTML5 and JavaScript files.

What is HTML5 Canvas?

Canvas refers to the canvas element, a tag in HTML5 that allows JavaScript to render and animate 2D graphics. Animate CC relies on the CreateJS JavaScript libraries to generate the graphics and animations inside the canvas element of the HTML5 project.

What is CreateJS?

CreateJS is a suite of JavaScript libraries that enable rich, interactive content with HTML5. CreateJS itself is a collection of several separate JavaScript libraries: EaselJS, TweenJS, SoundJS, and PreloadJS.

- EaselJS is a library that provides a display list that allows you to work with objects on the canvas in the browser.
- TweenJS is a library that provides the animation features.
- SoundJS is a library that provides functionality to play audio in the browser.
- PreloadJS is a library that manages and coordinates the loading of content.

With CreateJS, Animate CC generates all the necessary JavaScript code to represent your images, graphics, symbols, animations, and sounds on the Stage. Animate also outputs dependent assets, such as images and sounds. You can easily configure how those image and sound assets are organized in the publish settings.

You can also include your own simple JavaScript commands directly in the Actions panel to control your animation. Those JavaScript commands get exported in the JavaScript files.

Learn more about the CreateJS JavaScript libraries at <u>www.createJS.com</u>.

Using Classic Tweens

While all animation techniques (motion tweens, shape tweens, and animations with the Bone tool) are supported in HTML5 Canvas documents, the CreateJS libraries convert those animations to frame-by-frame animations, which increases the size of the JavaScript file that powers the animation.

Classic tweens, an older way of creating animation, are retained as a runtime tween, which saves file size and gives you the opportunity to control the animation dynamically via

JavaScript. In this section, you'll learn to create classic tweens to complete a sample bird animation that you'll export to HTML5.

Classic tweening is an older approach to animation, but it is very similar to motion tweening. Like motion tweens, classic tweens use symbol instances. Changes to the symbol instances between two keyframes on the Timeline are interpolated to create the animation. You can change an instance's position, rotation, scale, transformation, color effect, or even the filter effect if the symbol is a Movie Clip.

The key differences between classic tweens and motion tweens are as follows:

- Classic tweens require a separate Motion Guide layer to animate along a path.
- Classic tweens are not supported in the Motion Editor.
- Classic tweens don't support 3D rotations or translations.
- Classic tweens are not separated on their own tween layer. However, classic and motion tweens share the same restriction that no other object can exist in the same layer as the tween.
- Classic tweens are Timeline-based, and not object-based, meaning you add, remove, or swap the tween or the instance on the Timeline and not the Stage.

Learning to create animation with classic tweens will help you maintain leaner animation sizes when you publish to HTML5 Canvas.

Understanding the project file

Open the Animate file 10Start_build.fla, which is an HTML5 Canvas document of a bird animation. Save the file as **10_workingcopy_build.fla**. The file already contains the assets for the bird animation. The animation is partially complete, and an instance of the movie clip of the bird animation is on the Stage. In this section, you'll add the animation of the scrolling background with classic tweens, add simple interactivity with JavaScript, and publish the animation as HTML content.

Creating the movie clip symbol

You'll add an animation of scrolling mountains inside a movie clip symbol on the main Timeline.



- **1.** On the main Timeline, insert a new layer, and name it **landscape**. Drag the new layer below the bird layer but above the sky layer.
- **2.** Choose Insert > New Symbol (Ctrl+F8/Command+F8).

The Create New Symbol dialog box appears.

3. Enter **scrolling landscape** for the name, and choose Movie Clip from the Type menu.



4. Click OK.

The new movie clip symbol named scrolling landscape opens in symbol-editing mode. The Stage is blank, indicating that the movie clip symbol is currently empty.

5. Drag the graphic symbol called mountains from the Library panel to the Stage and position it so its lower-left corner aligns with the registration point of the movie clip symbol. In the Properties panel, in the Position And Size section, the position coordinates should read X=0, Y=-155.55.

Properties	Library	=
A		
	Graphic	
Instance of:	mountains	Swap
▼ Position a	ind Size	
X :	0.00	Y: <u>-155.55</u>
çģ W:	1600.00	H: 155.55
▼ Color Effe	ct	
Style:	None	↓
► Looping		

6. Add frames (Insert > Timeline > Frame, or F5) up to frame 30.



Inserting a keyframe and changing the instance

You'll add another keyframe for the mountains, so you'll have an initial keyframe for the mountains at its starting position, and an ending keyframe when the mountains are moved to the left.

 Select frame 30 in Layer 1 of your movie clip symbol, and insert a new keyframe (Insert > Timeline > Keyframe, or F6).

A new keyframe containing a copy of the mountains instance is inserted at frame 30.



2. At frame 30, move the instance of the mountain graphic symbol to the left so the midpoint of the mountains image is centered over the registration point. The Properties panel should show X=-800.

The left and right edges of the graphic match up, so when the animation plays as a loop, the effect is a seamless scrolling mountain range.

Properties	Library		
4	Graphic		
Instance of:	mountains	Swap	
	nd Size		
X :	-800.00	Y: -155.55	
င္လံ္ W:	1600.00	H: <u>155.55</u>	
🔻 Color Effe	ct		
Style:	None	▼	
▶ Looping			

Applying a classic tween

Apply a classic tween to the Timeline between two keyframes.

1. Right-click any frame between the first and second keyframe and choose Create Classic Tween.



Animate creates a tween between the first and second keyframe, indicated by an arrow extending along a blue background.



2. Press Enter/Return on your keyboard, or press the Play button under the Timeline to preview the animation.

A smooth animation plays, showing the mountains moving from right to left.

3. Select Loop at the bottom of the Timeline and choose Marker Range All from the Modify Markers menu to play back the Timeline tween in a loop.



4. To add a little more complexity to the animation, you'll add a second layer of mountains. Insert a new layer, and drag it under the existing layer.



5. Drag another instance of the mountains symbol to the Stage, and in the Properties panel, in the Position And Size section, make sure that the Lock Width And Height icon is broken and change the width (W) to **2000** pixels and the height (H) to **200** pixels. Position the lower-left corner of the instance at the registration point of the symbol so the Properties panel shows X=0, Y=-200.

Properties	Library	=
4		
4	Graphic	▼
Instance of:	mountains	Swap
▼ Position a	and Size	
X:	0.00	Y: <mark>-200.00</mark>
çặ W:	2000.00	H: 200.00
▼ Color Effe	ect	
Style:	None	v
► Looping		

You'll have two mountain ranges, with the taller and wider one behind the first one.



6. Insert a new keyframe (Insert > Timeline > Keyframe, or F6) at frame 30 of the bottom layer.

Timeline	Output											
			0	ô	0	1	5	10	15	20	25	30
📲 Lay	ver 1			•		• >						→ o
📲 Lay	ver 2	ø				•						

- **7.** In the end keyframe at frame 30, move the mountains instance to x=-1000.
- **8.** Right-click any frame between the first and second keyframe, and choose Create Classic Tween.



9. Press Return/Enter on your keyboard, or press the Play button under the Timeline to preview the animation. Select the Loop option to play the tween as a loop.

The second mountain instance moves from right to left, but it's slightly offset from the one in the foreground, creating a rich layered effect. Zoom in to the Stage so the edges of the graphics aren't visible; this will give you a better idea of the seamless scrolling

effect.

26.			
		4	
4		· · · · · · · · · · · · · · · · · · ·	
Timeline Output			
	0 8 1 5 5	10 15 20	25 70 35
			<u>. เว้า เ</u> ว้า เว้า
Layer 1	· · I •,		•
Layer 2	2 · · · .		
The second s			

10. Exit symbol-editing mode to return to the main Timeline.

Adding the movie clip instance

Now that you've completed the classic tweens of the scrolling mountains, you'll add the movie clip symbol to the main Stage.

1. Drag the movie clip symbol named scrolling landscape from the Library panel to the Stage and position the instance so its left and bottom edges align with the left and bottom edges of the Stage. In the Properties panel, in the Position And Size section, the values should read X=0, Y=400.



🔵 Note

Animation by Chris Georgenes (<u>keyframer.com</u>). Used with permission.

2. Save your finished work.

Your final project contains two movie clip instances, each containing multiple classic tweens.

Exporting to HTML5

The process to export your animation to HTML5 and JavaScript is straightforward.

1. Choose File > Publish.

Animate exports the animation as HTML and JavaScript files and saves them in the same folder as your FLA file (according to the default Publish Settings options).

😑 Note

To learn more about the files produced when you export a move to HTML5, see "<u>Understanding the HTML5 output files</u>" in the Supplement to this lesson.

2. Double-click the HTML file, named 10_workingcopy_build.html.



Supported features

The HTML5 Canvas document does not support all Animate CC features. Fortunately, the Output panel displays warnings about any features in your Animate file that can't be successfully exported.

Animate also disables any features that won't export successfully to HTML5 and JavaScript. For example, the 3D Rotation and 3D Translation tools in the Tools panel are grayed out to indicate that 3D rotations and translations are not supported in an HTML5 Canvas document. Many of the blending modes and some Filter effects are not supported as well.

Publish settings

The Publish Settings dialog box lets you change where your files are saved and how they are saved.

1. Click Publish Settings in the Properties panel, or choose File > Publish Settings to open the Publish Settings dialog box.

Profile: Default PUBLISH JavaScript/HTML OTHER FORMATS JPEG Image OAM Package SVG Image V Include hidden layers Center stage Both Make responsive Both Include preloader		Publish Settings
PUBLISH Basic Advanced Spritesheet Web fonts ✓ JavaScript/HTML Output name: 10_workingcopy_build > OTHER FORMATS Output name: 10_workingcopy_build > JPEG Image ✓ Loop Timeline > OAM Package ✓ Include hidden layers > Center stage Both > Make responsive Both > Include preloader Default Preview	Profile: Default	▼
 Export Image assets: images/ Combine into spritesheets Export Sound assets: sounds/ Export CreateJS assets: Images/ 	PUBLISH JavaScript/HTML OTHER FORMATS JPEG Image OAM Package SVG Image	Basic Advanced Spritesheet Web fonts Output name: 10_workingcopy_build I Loop Timeline I Loop Timeline Include hidden layers Center stage Both Make responsive Both Scale to fill visible area Fit in view Scale to fill visible area Fit in view Include preloader Default Preview Include preloader Default Preview Images/ Combine into spritesheets I Export Sound assets:

2. On the Basic tab, do one or more of the following:

Deselect Loop Timeline if you want the Timeline to play only once.

Click the folder icon next to the Output Name field to save your published files to a different folder or under a different filename.

Change the paths next to the Export Asset Options if you want to save your assets to a different folder. The Images checkbox must be selected if your file contains images, and Sounds must be selected if your file contains sounds. For example, if you replaced the gradient fill for a bitmap image in the sky layer of your 10_workingcopy_build.fla file, upon export Animate creates a folder named images that contains the bitmap image.

Select Center Stage to center-align your Animate project in the browser window. You can use the menu next to the option to choose to center your movie Horizontally, Vertically, or Both.

Select Make Responsive to have your Animate project respond to changes in the browser window dimensions, and use the menu next to the option to choose whether the project responds to changes in window height, width, or both. The Scale To Fill Visible Area option determines how your project fills the available space in the browser window.

Select Include Preloader.

3. Select the Advanced tab:

PUBLISH	Basic Advanced Spritesheet Web fonts
 ✓ JavaScript/HTML OTHER FORMATS JPEG Image OAM Package SVG Image 	Template for publishing HTML: Default Template Use Default Import New Export ✓ Overwrite HTML file on publish Include JavaScript In HTML
	Advanced JavaScript Options: ✓ Hosted Libraries ✓ Compact Shapes
	Multiframe bounds JavaScript Namespaces:
	Symbols: lib Images: images
	CreateJS: createjs

Select Include JavaScript In HTML if you want to publish a single file that includes all the necessary JavaScript and HTML code for your file. If you choose this option, Animate will overwrite the exported file each time you publish.

Deselect the Overwrite HTML File On Publish if you want to preserve the HTML file and simply change the JavaScript code that gets generated that drives your animations.

The Hosted Libraries option tells your published file where to find the CreateJS JavaScript libraries. When the option is selected, your published file points to a CDN (Content Distribution Network) at <u>http://code.createjs.com</u> to download the libraries. When the Hosted Libraries option is deselected, Animate includes the CreateJS JavaScript libraries as separate documents that must accompany your project files.

Leave all the other Advanced JavaScript Options at their default settings.

4. Select the Spritesheet tab:

PUBLISH	Basic Advanced Spritesheet Web fonts
✓ JavaScript/HTML OTHER FORMATS JPEG Image OAM Package	✓ Combine image assets into spritesheets Format: ● PNG ● JPEG ● BOTH
SVG Image	Quality:
	Max Size: <u>8192</u> x <u>8192</u> px
	Max Size: 8192 x 8192 px
	Background:

Select Combine Image Assets Into Spritesheets if you want to create a single image file for all the bitmaps that you've imported into your library. An HTML5 web page can load a single image file and retrieve specific portions of the image quicker than multiple smaller images.

Select a Format option for the exported image and set the quality, size, and background color for the image. If you choose a size that's too small to fit the images in your library, Animate will publish multiple sprite sheets as needed.

5. Click OK to save all your settings.

🔵 Note

If you select the Combine Into Spritesheets option on the Basic tab, in the Export Image Assets section, the Combine Image Assets Into Spritesheets option will also be checked in the Advanced tab, and vice versa.

😑 Note

You can publish a transparent Stage from an HTML5 Canvas document. In the Properties panel, in the Properties area, choose the selection with a diagonal red line indicating "no color" for the Stage.

Inserting JavaScript

If you want to add interactivity to your project, you can add JavaScript directly in the Actions panel. That JavaScript will be exported to the published JavaScript files.

Using HTML5 Canvas code snippets

Don't worry if you're not a JavaScript programmer. Animate CC makes it easy to add interactivity by providing common and easily modified JavaScript code in the Code Snippets panel.

Adding a response to a click

Use the HTML5 Canvas code snippets from the Code Snippets panel as you would the AS3 code snippets. In this section, you'll add simple interactivity and make the flying bird respond to a mouse click.

1. Choose Window > Code Snippets.

The Code Snippets panel opens.



2. Click the arrow in front of the HTML5 Canvas folder.

The folder expands to show the code snippets organized in folders according to their function.



3. Open the Event Handlers folder.



4. Select the instance of the bird movie clip on the Stage; then double-click Mouse Click Event in the Event Handlers folder.



Animate warns you that your movie clip instance requires a name and offers to provide a name for you.



5. Click OK.

Animate automatically names your movie clip instance and adds JavaScript code in the Actions panel. The code is extensively commented to explain how the code works.



A new layer, named Actions, is added to the Timeline with a tiny letter "a" in the first keyframe, indicating the location of the new code on the Timeline.

The JavaScript code appears very similar to the following:

Timeline Output					
		0	ô	1	5
📲 Actions	ø			a O	
📲 bird			٠	0	
📲 landscape		٠	٠	•	
📲 sky		٠	٠	0	

Click here to view code image

```
this.movieClip_2.addEventListener("click", fl_MouseClickHandler.bind(this));
function fl_MouseClickHandler ()
{
    // Start your custom code
    // This example code displays the words "Mouse clicked" in the Output panel.
    alert("Mouse clicked");
    // End your custom code
}
```

- 6. The JavaScript code adds an event listener for a mouse click on the instance of the bird. When a click happens, the alert() JavaScript command is triggered, which displays a simple message in a native alert dialog box in the browser.
- **7.** Choose Control > Test to test your newly inserted interactivity.

Animate exports HTML5 and JavaScript and displays the animation in a browser.

8. Click the flying bird in the browser.

A browser dialog box appears with the words "Mouse clicked."



9. Click OK to dismiss the dialog box, and close the browser window.

Controlling the Timeline

Now you'll add a little more complexity to your project. You'll add more JavaScript that controls the Timeline of the flying bird.

- **1.** Select the bird movie clip on the Stage.
- **2.** In the HTML5 Canvas > Actions folder of the Code Snippets panel, double-click the Stop A Movie Clip snippet.



The Actions panel shows that JavaScript code has been added to the movie. The new code stops the Timeline of the bird movie clip instance.



However, the code is triggered immediately. You want the animation of the bird to stop only when the user clicks the bird.

- **3.** Select the newly inserted code, and choose Edit > Cut (Ctrl+X/Command+X).
- **4.** Place your cursor inside the curly braces of your function, and choose Edit > Paste (Ctrl+V/Command+V).

With the pasted code, the command to stop the Timeline of the bird animation happens only after a mouse click is detected.



5. Choose Control > Test to test interactivity.

Animate exports HTML5 and JavaScript and displays the animation in a browser.

6. Click the flying bird in the browser.

The bird stops flapping its wings, and a browser dialog box appears with the words "Mouse clicked." The scrolling mountains in the background continue to move, however.

🕨 Note

The CreateJS JavaScript libraries that drive the publishing process reference timelines starting with frame numbers at 0, whereas Animate and ActionScript start with frame numbers at 1. Therefore, frame numbers in your exported JavaScript code are one less than what you would expect to see in Animate. Because of this difference, Adobe recommends that you always use frame labels instead of frame numbers for Timeline navigation. Keep this in mind when you use the gotoAndStop() or gotoAndPlay() command to control the playhead of the Timeline.

🔵 Note

The Actions panel color-codes your JavaScript just as it would your ActionScript code in an ActionScript 3.0 document. Use color-coding to help make sure your code is clean and error-free.

┝ T ip

Use the Format Code command to clean up the appearance of your code for a consistent, easy-to-read style. Change the formatting preferences by choosing Edit > Preferences (Windows) or Animate CC > Preferences (Mac), and then selecting Code Editor.

😑 Note

Remember that an ActionScript 3.0 document doesn't necessarily contain ActionScript 3.0. An ActionScript 3.0 document is simply an Animate document that publishes for the Flash Player in a browser. An ActionScript 3.0 document can consist of animation only.

Converting to HTML5 Canvas

You may have many old animations that you created in Flash Professional that a client wants to use as HTML5 animations. Don't worry; you don't have to redo all your work. Fortunately, Animate CC includes options to convert existing Flash ActionScript 3.0 documents into HTML5 Canvas documents so your animations can reach the widest audience.

There are two approaches to creating an HTML5 Canvas document with Animate assets. First, you can simply create a new HTML5 Canvas document and copy and paste the layers from one file to your new file. Second, you can open your old Flash file (an ActionScript 3.0 document) and choose Commands > Convert To Other Document Formats. Animate makes the conversion, and you can save your new file as an HTML5 Canvas document.

Converting an AS3 document to an HTML5 Canvas document

You'll convert an animation that you built as an ActionScript 3.0 document in a previous lesson to an HTML5 Canvas document.

1. Open the 10Start_convert.fla file in the 10Start folder.



The project is the animated promotion of the fictional movie *Double Identity* from a previous lesson. The ActionScript 3.0 document contains bitmaps and motion tweens with changes in position, scale, color effects, 3D effects, and filters.

The file targets the Flash Player. The frame rate is set at 30 frames per second, with a black Stage fixed at a generous 1280 pixels in width and 787 pixels in height.

2. Choose Commands > Convert To Other Document Formats.



In the dialog box that appears, choose HTML5 Canvas from the Convert Your Document To menu and enter the new filename as **10_workingcopy_convert.fla**.

Document Type Converter	
Convert your document to: HTML5 Canvas HTML5 Canvas WebGL (Preview)	
/Desktop/10_workingcopy_convert.fla Browse	
Cancel OK	

3. Click OK.

Animate duplicates your content into a new HTML5 Canvas document. The new HTML5 Canvas document contains your converted content.

4. View the warnings in the Output panel.



The Output panel displays the following warning:

* 3D cannot be imported in HTML5 Canvas document.

The HTML5 Canvas document does not support either the 3D Rotation or the 3D Translation tool, so the tween does not display. Keep an eye out for the messages in the Output panel to make sure you understand how Animate handles the transition of your content from Flash Player to HTML5, and what features are unsuccessfully ported over. Often, you'll have to do additional edits to your animation after each conversion.

5. Choose Control > Test to test the converted content.

Animate exports HTML5 and JavaScript and displays the animation in a browser. The converted animation plays, showing all the motion tweens, including the nested animations of the idling cars. The 3D animation of the title, which is unsupported, appears at the end without any animated effects.

🛑 Note

To learn how to replace the 3D rotation of the title (which isn't supported in HTML5) with a scale animation, see "<u>Editing the converted HTML5 Canvas</u>" in the Supplement to this lesson.



The Output panel displays additional warnings regarding features included in the animation.

Understanding image assets

Unlike the previous project in this lesson of the flying bird that uses vector graphics, this animated sequence uses bitmap images. Images imported into the Animate library must be exported so they are accessible to the HTML and JavaScript documents.

1. Examine the folder on your desktop where you saved your Animate file, 10_workingcopy_convert.fla.



Animate has created an additional folder named images. Inside the images folder are all the bitmap assets for the animation saved as a single PNG image. The JavaScript code in your exported documents dynamically loads just the images that it needs to display from the single PNG image, called a *sprite sheet*.

) Note

You were introduced to sprite sheets in <u>Lesson 4</u>.

2. Return to the Animate CC application.

Basic Advanced		
Output name: 10_wo	rkingcopy_conv	ert 😑
✓ Loop Timeline		
🗹 Include hidden laye	ers	
Center stage		
Make responsive		
🗌 Include preloader		
✓ Export Image asset	ts: 🖿 ima	iges/
	🗹 Combir	ne into spritesheets
Export Sound asse	ts: 💼 sou	inds/
Export CreateJS as:	sets: 📄 libs	;/

3. Choose File > Publish Settings.

The Publish Settings dialog box appears. On the Basic tab, the Export Image Assets option lets you set the path and name of the folder that contains all your bitmap images. If Export Image Assets is deselected, Animate will still export and play an animation, but

without any images.

Close the Animate file. Next, you'll learn about publishing an application to play on a computer desktop.

Publishing a Desktop Application

Most desktop computers have the Flash Player installed with their browsers, but you may want to distribute your movie to someone who doesn't have the Flash Player or who has an older version. Perhaps you just want your movie to run without a browser.

You can output your movie as an AIR file, which installs an application on the user's desktop. Adobe AIR is a more robust runtime environment that supports a broader range of technologies.

Viewers must download the free Adobe AIR runtime from Adobe's website at http://get.adobe.com/air/. Alternately, you can output an AIR project with the Captive Runtime option, which includes the AIR runtime so your audience doesn't need to download anything additional.

Creating an AIR application

Adobe AIR allows your viewers to see your Animate content on their desktop as an application. You'll recall that in <u>Lesson 9</u>, the final project was a desktop application of an interactive zoo kiosk. In this section, you'll specify the necessary publish settings to create a desktop application of a restaurant guide.

1. Open 10Start_restaurantguide.fla.

😑 Note

If you open an FLA file that was created on another computer, Animate may warn you that your computer doesn't have the same fonts that were used to build the file. Click OK in the alert dialog box to accept the substitute fonts suggested by Animate.

Properties	Library	
0.0	Document	
	10Start_restaurantguide.fla	
🔻 Publish		
Profile:	Default Publish Settings	
Target:	AIR 23.0 for Desktop	
Script:	ActionScript 3.0	
Class:	/	

This is the same interactive restaurant guide that you created in a previous lesson, with a few modifications to the background image.

- **2.** In the Properties panel, in the Publish section, note that AIR 23.0 For Desktop is chosen from the Target menu.
- **3.** Click the Edit Application Settings button (wrench icon) next to the Target menu. The AIR Settings dialog box appears.

		AIR Setti	ngs	
Gene	ral Signature	Icons	Advanced	languages
Oene	oignature	100113	Advanced	Languages
Output file:	10Start_restaura	antguide.a	air	
Output as:	AIR package			
	O Mac installer			
	O Application w	ith runtim	e embedded	
Name:	10Start_restaura	antguide	Ve	rsion: 1.0
App ID:	10Start-restaura	antguide		
	Example: com.yo	urdomain	.appname	
Description:				
Copyright:				
Window style:	System Chrome	3		
Dendermeder	Auto			
Render mode:	Auto			
Profiles:	Desktop		Extende	d Desktop
	Mobile Device	•	Extende	d Mobile Device
	VT 🔽		Extende	d TV

┝ T ip

You can also open the AIR Settings dialog box from the Publish Settings dialog box. Click the Player Settings button (wrench icon) next to the Target menu.

4. Examine the settings on the General tab.

The Output File field shows the filename of the published AIR installer as 10Start_restaurantguide.air. The Output As options provide three ways to create an AIR application. The first choice, AIR Package, should be selected; here is a description of what each option does:

- AIR Package creates a platform-independent AIR installer.
- Windows Installer (Windows)/Mac Installer (Mac) creates a platform-specific AIR installer.
- Application With Runtime Embedded creates an application without an installer or the need for the AIR runtime to be installed on the end user's desktop.
- **5.** In the App Name/Name field, enter **Meridien Restaurant Guide**.

Gene	ral	Signature	lcons	Advanced	Languages)
Output file:	105	itart_restaura	antguide.a	air		
Output as:		NR package Nac installer Application w	ith runtim	e embedded		
	-					
Name:	Me	ridien Restua	rant Guid	e Ve	rsion: 1.0	

This will be the name of your published application.

6. From the Window Style menu, choose Custom Chrome (Transparent).

Copyright	System Chrome			
	Custom Chrome (opa	que)		
Window style	Custom Chrome (tran	sparent)		
Render mode:	Auto			
Profiles:	Desktop	Extended Desktop		
	Mobile Device	Extended Mobile Device		
	V TV	Extended TV		

Custom Chrome (Transparent) creates an application without any interface or frame elements (known as chrome), and with a transparent background.

7. Click the Signature tab at the top of the AIR Settings dialog box.

General	Signature	Icons	Advanced	Languages
Application Digita	al Signature			
More Info				
Use a code si	gning certifica	te (.p12,	.pfx)	
Certificate:				Nev
Certificate:				Ver
Certificate:				New State
Certificate:	Remember pag	ssword fo	or this session	New
Certificate:	Remember pas	ssword fo	or this session	New
Certificate:	Remember pas Timestamp	ssword fo	or this session	Nev
Certificate:	Remember pas Fimestamp	ssword fo	or this session	Nev

Creating an AIR application requires a certificate so that users can identify and trust the developer of the Animate content. For this lesson, you won't need an official certificate, so you can create your own self-signed certificate.

- 8. Click the Create/New button next to Certificate.
- 9. Enter your information in the empty fields. You can use Meridien Press for Publisher Name, Digital for Organization Unit, and Interactive for Organization Name. Enter your own password in both password fields, and then enter meridienpress.p12 in the Save As field. Click the Folder/Browse button to save it in a folder of your choice. Click OK.

Publisher name:	Meridien Press
Organization unit:	Digital
Organization name:	Interactive
Country:	US
Password:	•••••
Confirm password:	••••
Type:	2048-RSA 🗘
Save as:	/Lessons/Lesson10/10Start/meridienpress.p12

Animate creates a self-signed certificate (.p12) file on your computer.



Animate automatically fills out the path to your .p12 file in the Certificate field. Make sure that the Password field is filled (the password must match the one you used to create the certificate), and that Remember Password For This Session and Timestamp are selected.

Gene	ral	Signature	lcons	Advanced	Languages	
Application D	igita	l Signature				
More Info						
O Lise a cod		ning certifics	to (n12	nful		
00000000	ic sig	ining certifice	ne (.piz,	.prx)		
Certificate:	so	ns/Lesson10	/10Start/r	.prx)	n12 🗸 🕅	New
Certificate:	so	ons/Lesson10	/10Start/r	neridienpress	.p12 🔽 📁	New
Certificate: Password:	so	ons/Lesson10	/10Start/r	neridienpress	.p12 💙 🚺	New
Certificate: Password:	so	ons/Lesson10	/10Start/r ssword fo	neridienpress r this session	.p12 💙 📁	New
Certificate: Password:	so	ons/Lesson10 ••	/10Start/r ssword fo	neridienpress r this session	.p12 💌 📁	New
Certificate: Password:	so	ons/Lesson10 •• emember pas	/10Start/r	neridienpress r this session	.p12 💙 🚺	New

10. Now click the Icons tab at the top of the AIR Settings dialog box.

G	eneral	Signature	Icons	Advanced	Languages
	_				
	icon 10	6x16			
	icon 3	2x32			
	icon 4	8x48			
	icon 12	28x128			
	-				

- **11.** Select icon 128x128, and click the folder icon.
- **12.** Navigate to the AppIconsForPublish folder inside the 10Start folder, select the restaurantguide.png file provided for you, and click Open.



The image in the restaurantguide.png file will be the application icon on the desktop.

13. Click the Advanced tab at the top of the AIR Settings dialog box.

14. Under Initial Window Settings, enter **0** for the X field and **50** for the Y field.

Associated	I file ty	pes				
÷	- 6	1				
Initial wind	low set	tings				
1	Width:			н	eight:	
	X:	0			Y: 50	
Maximum	width:			Maximum h	eight:	
Minimum	width:			Minimum h	eight:	
		Maxi	imizable			
		Mini	mizable			
		🗹 Resia	zable			
		Visib	ole			
~						
Other setti	ngs —					
In	stall fo	lder:				
Program m	enu fol	der:				

When the application launches, it will appear flush to the left side of the screen and 50 pixels from the top.

15. Click Publish and then click OK.

Animate creates an AIR installer (.air).



10Start_restaurantguide.air

Installing an AIR application

The AIR installer is platform-independent, but it requires that the AIR runtime be installed on the user's system.



1. Double-click the AIR installer that you just created, 10Start_restaurantguide.air.

The Adobe AIR Application Installer opens and asks to install the application. Since you used a self-signed certificate to create the AIR installer, Adobe warns of a potential security risk due to an unknown and untrusted developer. (Since you can trust yourself, you're safe to proceed.)

2. Click Install, and then click Continue to proceed with the installation at the default settings.

The application called Meridien Restaurant Guide is installed on your computer and automatically opens.


Notice that the application is positioned at the far left edge of your desktop, 50 pixels (between one-quarter and one-half inch, depending on the resolution of your display) down from the top edge, as you specified in the AIR Settings dialog box. Note, too, that the Stage is transparent so your graphic elements float over the desktop, much like the appearance of other applications.

3. Exit/Quit the application by pressing Alt+F4/Command+Q.

Creating a projector

In some cases—for example, if you don't want to deal with an app that requires installation and all the accompanying security issues—you may want to use a low-tech and simpler distribution method. A *projector* is a self-contained file that includes the Flash Player runtime so your audience can simply double-click the projector icon to play and view your multimedia content.

You can publish either a Macintosh or Windows projector from an ActionScript 3.0 or AIR document. However, unlike when you're creating an AIR application, with a projector you don't have publishing options such as choosing thumbnails for the app icon, or specifying a transparent background or initial position when the app is launched.

- **1.** Open 10Start_restaurantguide.fla.
- **2.** Choose Commands > Export As Projector.
 - The Publish Settings dialog box opens.

	Put	blish Sett	ings		
Profile: Default	- Q	Target:	AIR 23.0 for De ActionScript 3.	esktop 🗸 🔻	२ २
PUBLISH	Output name	e: <mark>./Merid</mark>	ienRestaurantG	uide	

- **3.** Under Other Formats in the left column, select Mac Projector and/or Win Projector. Windows projectors have the file extension .exe and Mac projectors have the file extension .app.
- **4.** Specify the filename and location where you want Animate to save the projector. Each projector (Mac and Windows) needs a unique filename, so highlight each option to enter it.
- 5. Click Publish.

Animate creates the selected projector or projectors in the output location, with a filename that matches the Animate filename. Click OK.

6. Double-click the projector file.



The restaurant guide opens as a separate application on your desktop. Compare your projector application with your AIR application.

🕨 Note

Any dependent assets, such as video files, must also be included with your projector to play correctly. Animate does not embed those dependent files into the projector.

Publishing WebGL animations

WebGL is a technology that uses JavaScript to render graphics—especially 3D graphics—in a web browser. WebGL uses hardware acceleration to render graphics, potentially streamlining the display of complex graphics. Use the Animate WebGL document type to create flat graphics and animation for export as WebGL assets. Your output files consist of various JavaScript files (including JSON files, which are a specific kind of JavaScript file for storing data—JSON stands for JavaScript Object Notation) and image assets.

The Animate WebGL document type is limited (it doesn't support 3D transformations, text, or masks), but keep an eye on WebGL as both the technology and the Animate document type develop.

Publishing to Mobile Devices

You can also publish Animate content to mobile devices running on Google Android or on Apple's iOS, such as the iPhone or iPad. To publish Animate content to a mobile device, you target AIR for Android or AIR for iOS to create an application that viewers download and install on their devices.

Testing a mobile app

Creating an app for mobile devices is more complicated than creating an application for the desktop, because you have to obtain specific certificates for development and distribution. For example, Apple requires that you pay a yearly subscription to be a certified developer to upload apps to the iTunes Store. Developing for an Android device requires a one-time fee. Moreover, you have to factor in the additional time and effort required for testing and debugging on a separate device. However, Animate CC provides several ways to facilitate testing content for mobile devices:

😑 Note

The iOS Simulator is part of Apple's Xcode developer toolset available as a free download from Apple.

🔵 Note

Testing an app on an iOS device requires that you be part of Apple's iOS Developer program, where you create development, distribution, and provisioning certificates. The certificates allow you to install apps on iOS devices for testing and upload apps to the iTunes store.

- You can use the mobile device simulator provided with Animate, the AIR Debug Launcher, to test mobile interactions. The SimController that accompanies the AIR Debug Launcher emulates specific interactions such as tilting the device (using the accelerometer), touch gestures such as swiping and pinching, or even using the geolocation functions.
- For iOS devices, Animate can publish an AIR app to test in the native iOS Simulator, which emulates the mobile app experience on your Mac OS desktop.
- Connect a mobile device to your computer with a USB cable and Animate can publish an AIR app directly to your mobile device.

Simulating a mobile app

You'll use the Adobe SimController and AIR Debug Launcher to simulate mobile device interactions within Animate Professional CC.

) Note

On Windows, a security warning may appear when you use the AIR Debug Launcher. Click Allow Access to continue.

1. Open 10Start_mobileapp.fla.



The project is a simple application with four keyframes that announces an imaginary sports challenge set in our familiar city of Meridien.

The project already contains ActionScript that enables the viewer to swipe the Stage left or right to go to the next or previous frames.

Examine the code in the Actions panel. The code was added from the Code Snippets

panel, which includes dozens of code snippets for interactivity on mobile devices.



- **2.** In the Properties panel, notice that the target is set for AIR 23.0 for Android.
- **3.** Choose Control > Test Movie > In AIR Debug Launcher (Mobile), which should already be checked.

Control Debug Window Help)
Play Rewind Go To End	仓 , 仓.
Step Forward One Frame Step Backward One Frame	
Test	
Test Movie	In Animate
Test Scene	In Browser
Clear Publish Cache Clear Publish Cache and Test Mo	In AIR Debug Launcher (Desktop) ✓ In AIR Debug Launcher (Mobile) On Device via USB
Timeline	On iOS Simulator

The project publishes to a new window. In addition, the SimController application launches, which provides options for interacting with the Animate content.



- **4.** In the Simulator panel, click Touch And Gesture to expand that section.
- **5.** Select Touch Layer.

The simulator overlays a transparent gray box on the Animate content to simulate the touch surface of the mobile device.

6. Choose Gesture > Swipe.

00	Simulator
	Menu Back Search
ACCE	LEROMETER
	CH AND GESTURE
Tour	ch layer Relocate
Alph	na: 20%
c	Touch: O Click and drag Press and tap Two-finger tap Sesture: Pan Rotate Zoom Swipe
Instruc Press di the acti	tion: own the mouse button and move to simulate on.

The simulator is now enabled to emulate a swipe interaction. The instructions at the bottom of the panel detail how you can create the interaction with just your mouse cursor.

7. Press on the touch layer over your Animate content, drag to the left, and then let go of your mouse button.

▶ T ip

You can change the opacity of the touch layer by changing the Alpha value.

🛑 Note

Don't move the window that contains your Animate content (AIR Debug Launcher, or ADL) when you've enabled the touch layer. If you do, the touch layer won't align with the ADL window, and you won't be able to accurately test your mobile interactions.

The yellow dot represents the contact point on the touch layer of the mobile device.



The project recognizes the swipe interaction, and the second keyframe appears.

8. Swipe left and right.

Animate advances ahead one frame, or moves back one frame.

9. Close the window.

Publishing a mobile app

Lastly, you'll examine the settings in Animate to publish a mobile app for iOS. Publishing an app for Android has similar settings.

Although it's beyond the scope of this lesson to present the steps in detail, you'll see the required certificates, assets, and configurations to properly publish and distribute an app through the iTunes store.

1. In Animate, choose File > New, select AIR for iOS for Type, and click OK.

Type:	
The HTML5 Canvas	Width: <u>640</u> px
MebGL (Preview)	Height: <u>960</u> px
ActionScript 3.0	Ruler units: Pixels 💌
An Aik for Desktop	Frame rate: 24.00 fps
AIR for iOS	Background color:
ActionScript 3.0 Class	Make Default
ActionScript 3.0 Interface	

Animate creates a new Animate file, configured for iOS. The Stage size is set at 640×960 , and the target is set to AIR 23.0 for iOS.

2. Click the wrench icon next to the Target menu.

The AIR For iOS Settings dialog box appears.

3. Click the General tab.

		AIR for iOS	Settings		
G	eneral	Deployment	lcons	Languages	
Output file:	Untitle	d-1.ipa			
App name:	Untitle	i-1			
Version:	1.0				
Aspect ratio:	Portra	t		0	
	Full s	creen			
	Auto	orientation			
Render mode:	Auto			0	
Device:	iPhone	and iPad		0	
Resolution:	Standa	ard		0	
iOS Simulator SDK:					1
Included files:	\$ -	5			
	Untitle	d-1.swf d-1-app.xml			
	-				

The General tab contains information about the output files and general settings. The actual published file has the extension .ipa. You can choose different aspect ratios (landscape or portrait), and target specific devices (iPhone and/or iPad) and resolutions. The iOS Simulator SDK field is the path to the iOS Simulator file used for testing

(Control > Test Movie > On iOS Simulator). The Included Files list contains the two required files (a SWF and an XML file), but you can add additional dependent media files if required for your project. For iOS apps, you can also include a PNG file with a specific filename as the default launch image—for example, Default@2x.png—that appears as soon as an app loads.

4. Click the Deployment tab.

		AIR for iOS	Settings	
	Gener	al Deployment	lcons	Languages
iOS Di	igital Signature			
	Use an iOS o	ertificate (.p12)		More Info
	Certificate:			
	Password:			
		Remember pas	sword for	this session
Provisio	oning profile:			
	App ID:	Untitled-1		
	Device test	ing		
100 d	Device deb	uqqinq		
105 0	Ad hoc	099.19		
		store		
	Device test	ing in interpreter r	node	•
	Device deb	ugging in interpret	er mode	
	(Default		\$
	100 750 450			
Telem	etry Options			
	Enable sa	mpler		
Post p	ublishing			
		lightion on coloct	inc da	loop
	install ap	blication on select	a ios de	vices
	Select	Device N	ame	Device Id
	General	00010011	unio	Derice is

The Deployment tab contains information for testing and distribution. The Certificate and Provisioning Profile fields specify the names of required documents that you create as a certified Apple Developer. They certify you as a known and trusted developer so Apple and your potential customers can purchase and download your app with confidence.

The iOS Deployment Type menu lists the various ways you may publish your app, such as testing on a connected USB device, testing on a variety of devices (ad hoc), or for final distribution to the iTunes store. Each phase of development requires different certificates and a new round of publishing.

5. Click the Icons tab.

		AIR for iOS	Settings		
	General	Deployment	Icons	Languages	
	icon 29x29				
	icon 57x57				
	icon 114x114	1			
	icon 512x51	2			
	icon 48x48	(iPad)			
	icon 72x72	(iPad)			
	icon 50x50	(iPad)			
29x29	-				1 河 💼
LUNEO					
Preview.					
i icticu.					

The Icons tab lists the dimensions available for the icons that will identify your app on each mobile device. You must provide icons in a range of resolutions depending on the device you target Select a dimension and click the folder icon to navigate to the graphics file to use for each icon.

6. Click the Languages tab.

		AIR for iOS	Settings		
(General	Deployment	lcons	Languages	
Select the I	anguages b	elow that will be	e support	ed in your application:	
Enable			Name		
	English				
	Chinese				
	Czech				
	Dutch				
	French				
	German				
	Italian				
	Japanese)			
	Korean				
	Polish				
	Portugue	se			
	Russian				
	Spanish				
	Swedish				

The Languages tab lists the different languages available for your app to support. Select the check box in the Enable column next to a language to support it in your app.

👂 Note

For more information about publishing Animate content to AIR for iOS or Android, visit the Adobe AIR Developer Center at <u>www.adobe.com/devnet/air.html</u>. Tutorials, tricks and tips, and sample files are available for download.

Next Steps

Congratulations! You've made it through the last lesson. By now you've seen how Adobe Animate CC, in the right creative hands (yours!), has all the features you need to produce media-rich, interactive projects and animations that publish to multiple platforms. You've completed these lessons—many of them from scratch—so you understand how the various tools, panels, and code work together for real-world applications.

But there's always more to learn. Continue practicing your Animate skills by creating your own animation or interactive site. Get inspired by seeking out animation and multimedia projects on the web and exploring apps on mobile devices. Expand your Animate knowledge by exploring the Adobe Animate Help resources and other fine Adobe Press publications.

Review Questions

- **<u>1</u>**. What's the difference between author-time and runtime?
- **2.** What files do you need to upload to a server to ensure your final Animate movie plays in the Flash Player in web browsers?
- **<u>3.</u>** How can you tell which version of Flash Player a viewer has installed?
- **<u>4</u>**. What is CreateJS?
- **<u>5</u>**. Why is it recommended that animations built in HTML5 Canvas use classic tweens?
- **<u>6</u>**. How do you incorporate interactivity in an HTML5 Canvas document?
- **<u>7</u>**. What is the difference between the way ActionScript and CreateJS JavaScript handle frame numbers on the Animate Timeline?
- **<u>8</u>**. What are the various ways you can test a Animate file for a mobile device?
- **<u>9</u>**. What is a code-signing certificate, and why do you need one for an AIR application?

Review Answers

- **1.** Author-time refers to the environment in which you build your Animate content, such as Animate Professional CC. Runtime refers to the environment in which your Animate content plays back for your audience. The runtime for your content can be the Flash Player in a desktop browser or an AIR application on the desktop or on a mobile device.
- **2.** To ensure that your movie plays as expected in web browsers, upload the Animate SWF file and the HTML document that tells the browser how to display the SWF file. You also need to upload the swfobject.js file, if one was published, and any files your SWF file references, such as video or other SWF files; be sure that they are in the same relative

location (usually the same folder as the final SWF file) as they were on your hard drive.

- **<u>3</u>**. Select Detect Animate Version in the HTML tab in the Publish Settings dialog box to automatically detect the version of Flash Player on a viewer's computer.
- **4.** CreateJS is a suite of open source JavaScript libraries: EaselJS, TweenJS, SoundJS, and PreloadJS. When you publish or test an HTML5 Canvas document, Animate uses CreateJS to generate all the necessary JavaScript code to represent your images, graphics, symbols, animations, and sounds on the Stage. It also outputs dependent assets, such as images and sounds.
- **5.** Although an HTML5 Canvas document supports all motion tweens and shape tweens, they are exported as frame-by-frame animations, and can increase the file size of your exported JavaScript code. Use classic tweens, which are retained as runtime tweens that conserve file size and allow you to control the animation dynamically via JavaScript.
- **6**. Insert JavaScript on a Animate Timeline by writing code directly into the Actions panel. If you're new to JavaScript, you can use the HTML5 Canvas Code Snippets panel, which provides JavaScript snippets for common interactions, such as mouse clicks and Timeline control.
- **7.** In the JavaScript for CreateJS, frame numbers begin at 0. In Animate, frame numbers begin at 1. For this reason, frame labels should be used so you can avoid references to frame numbers.
- 8. You can test your Animate project for a mobile device by testing it in the Air Debug Launcher (Control > Test Movie > In AIR Debug Launcher [Mobile]). The accompanying SimController allows you to simulate various mobile interactions, such as pinches and swipes. You can also test your Animate project by publishing it directly to a connected USB device (Android or iOS). Lastly, you can test an iOS app in the native iOS Simulator (Control > Test Movie > On iOS Simulator).
- **9.** A code-signing certificate is a certified document that acts as your digital signature. You purchase one from a certification authority. It provides a way for your audience to authenticate your identity so they can confidently download and install desktop AIR applications, or AIR apps for Android or iOS.

Supplement Contents

- Detecting the version of Flash Player
- Changing display settings
- Changing playback settings
- Understanding the HTML5 output files
- Editing the converted HTML5 Canvas

Detecting the version of Flash Player

You can automatically detect the version of Flash Player on a viewer's computer; if the Flash Player version detected is not the one required, a message will prompt the viewer to download the updated player.

- If necessary, choose File > Publish Settings, or click the Publish Settings button in the Publish section of the Properties panel.
- **2.** Select the HTML Wrapper format on the left side of the dialog box.
- 3. Select Detect Flash Version.



- 4. In the Version fields, enter the earliest version of the Flash Player to accept.
- **5.** Click Publish, and then click OK to close the dialog box.

Animate publishes three files.



Animate creates a SWF file, an HTML file, and an additional file named swfobject.js that contains extra JavaScript code that will detect the specified Flash Player version. If the browser does not have the earliest Flash Player version you entered in the Version fields, a message is displayed instead of the Animate movie. All three files need to be uploaded to your web server to play your movie.

Changing display settings

You have many options for changing the way your Animate movie is displayed in a browser. The Size and Scale settings for the HTML Wrapper work together to determine the movie's size and amount of distortion and cropping.

- **1.** Choose File > Publish Settings, or click the Publish Settings button in the Publish section of the Properties panel.
- **2.** Select the HTML Wrapper format on the left side of the dialog box.



3. To set the size at which the movie will play in the user's browser, choose one of these items from the Size menu:

Match Movie, to play the Animate project at the exact Stage size set in Animate. This is the usual setting for almost all your Animate projects.

Pixels, to enter a different size in pixels for your Animate movie.

Percent, to enter a different size for your Animate movie as a percentage of the browser window.

4. Click Scale And Alignment to expand the advanced settings below it.



5. To tell Animate how the size of the movie should be adjusted to fit in the user's browser window, choose one of these items from the Scale menu:

Default (Show All), if you want the Scale option to fit the movie in the browser window without any distortions or cropping to show all the content. This is the usual setting for almost all Animate projects. If a user reduces the size of the browser window, the content remains constant but is clipped by the window.



For the following options, choose Percent from the Size menu:

No Border, to scale the movie to fit the browser window without any distortions while cropping the content to fill the window.



Exact Fit, to scale the movie to fill the browser window on both the horizontal and vertical dimensions. With these options, none of the background color shows but the content can be distorted.



No Scale, to keep the movie size constant no matter how big or small the browser window is.



Changing Playback settings

You can change several options that affect the way your Animate movie plays within a browser.

- **1.** Make sure the HTML Wrapper format is still highlighted in the Publish Settings dialog box.
- **2.** Select or deselect one or more of the following Playback options:

Select Paused At Start to have the movie pause at the very first frame.

Deselect Loop to have the movie play only once.



Deselect Display Menu to limit the options in the context menu that appears when you right-click an Animate movie in a browser.

Understanding the HTML5 output files

The default settings create two files: a JavaScript file that contains code that drives the animation, and an HTML file that displays the animation in a browser.



Animate publishes the two files in the same folder as your Animate file.

 Open the HTML file named 10_workingcopy_build.html in a text editor, such as Adobe Dreamweaver.



The HTML file loads the required JavaScript libraries from http://code.createjs.com, which hosts the code. The file also loads the JavaScript code for your animation at 10_workingcopy_build.js. The HTML file initializes and displays the animation in an HTML5 canvas tag.

2. Open the JavaScript file named 10_workingcopy_build.js in a text editor, such as Adobe Dreamweaver.

```
429
430
       (lib.bird_flight = function(mode,startPosition,loop) {
           this.initialize(mode,startPosition,loop,{});
431
432
433
           // wing_right
           this.instance = new lib.wing_right("synched",0);
434
435
           this.instance.parent = this;
436
           this.instance.setTransform(269.6,435.7,1,1,0,0,0,269.6,411.9);
437
438
       this.timeline.addTween(cjs.Tween.get(this.instance).wait(1).to({regX:
       157.6, y: 443.8, startPosition: 1}, 0).wait(1).to({y: 442.5, startPosition: 2
       439.6, startPosition: 3}, 0).wait(1).to({y:436.8, startPosition: 4}, 0).wai
       startPosition:5},0).wait(1).to({regX:269.6,regY:411.9,x:269.6,y:426.9
 ***
       wait(1).to({regX:157.6, regY:420.3, x:157.6, y:435.5, startPosition:7},0)
 .....
       startPosition:8},0).wait(1).to({y:438.3,startPosition:9},0).wait(1).t
 ....
       startPosition:10},0).wait(1).to({y:443.1,startPosition:11},0).wait(1)
 ....
       startPosition:12},0).wait(1).to({regX:269.6,regY:411.9,x:269.6,y:435.
 .....
       ).wait(1));
439
           // body_feathers
440
           this.instance_1 = new lib.body_feathers("synched",0);
441
442
           this.instance_1.parent = this;
           this.instance_1.setTransform(254.1,563,1,1,0,0,0,37,57.1);
443
444
445
       this.timeline.addTween(cjs.Tween.get(this.instance_1).wait(1).to({y:5
       y:554.5},0).wait(1).to({y:539.2},0).wait(1).to({y:524.2},0).wait(1).t
 ***
       ).to({y:516.2},0).wait(1).to({y:517.3},0).wait(1).to({y:521.9},0).wai
 ....
       wait(1).to({y:547.5},0).wait(1).to({y:557.5},0).wait(1).to({y:561.9},
 ***
       ,0).wait(1));
446
```

The code contains all the information to create the graphics and put them in motion, using the CreateJS JavaScript libraries. Scanning the code, you'll find coordinates and all the specific values required for your content.

Editing the converted HTML5 Canvas

To make the animation work as an HTML5 project, you'll fix the 3D rotation of the title, which is not supported. Instead of making the title rotate in 3D, you'll have the title make a dramatic appearance with a change in scale.

- **1.** Unlock the title layer at the top of the layer stack in the Timeline, if it isn't unlocked already.
- **2.** Select frame 155 of the motion tween in the title layer.

Timeline Output																			
		•	8	۵)5	110	115	120	125	130	135	140	145	150	155	160	165	170	175
🔎 title	1			1				0.											
🔻 늘 cars		٠													3				
₽ Middle_car		•	ô																
<i>"</i> ₽ Left_car		•	â																
"₽ Right_car		٠	8																
🕨 💼 actors			8																
🖉 city		٠	8																
🔎 footer		٠	ô																
<i>"</i> ₽ ground		٠	8		1														

3. Insert a new keyframe (Insert > Timeline > Keyframe, or right-click and choose Insert Keyframe > All).

Animate inserts a new keyframe at frame 155 in the title layer.



- **4.** Move the playhead to the beginning of the motion tween, at frame 120.
- **5.** Select the Free Transform tool, and select the title graphic on the Stage.
 - A bounding box with transformation handles surrounds the title graphic.



6. Shift-drag one of the corners of the bounding box outward.

The title graphic enlarges while keeping its original aspect ratio. Make the graphic cover about half the Stage. The end width should be about 1100 pixels.



7. Choose Control > Test to test the converted content.



The animation plays in your browser. Near the end of the sequence, the title graphic appears large and shrinks dramatically, settling into place to complete the cinematic presentation. While not the same as the 3D rotation, the animation is as effective at making an impact.

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Code Snippets

wheretolisten.addEventListener(whatevent, responsetoevent);

btn1_btn.addEventListener(MouseEvent.CLICK, showimage1);

function showimage1 (myEvent:MouseEvent){ };

gabelloffel_btn.addEventListener(MouseEvent.CLICK, restaurant1);

function restaurant1(event:MouseEvent):void { gotoAndStop(10);

}

```
stop();
gabelloffel_btn.addEventListener(MouseEvent.CLICK,¬
restaurant1);
function restaurant1(event:MouseEvent):void {
 gotoAndStop(10);
}
garygari_btn.addEventListener(MouseEvent.CLICK, restaurant2);
function restaurant2(event:MouseEvent):void {
 gotoAndStop(20);
}
ilpiatto_btn.addEventListener(MouseEvent.CLICK, restaurant3);
function restaurant3(event:MouseEvent):void {
 gotoAndStop(30);
}
pierreplatters_btn.addEventListener(MouseEvent.CLICK, ¬
restaurant4);
function restaurant4(event:MouseEvent):void {
 gotoAndStop(40);
}
```
```
this.movieClip_2.addEventListener("click",¬
fl_MouseClickHandler.bind(this));
function fl_MouseClickHandler ()
{
    // Start your custom code
    // This example code displays the words "Mouse clicked"¬
    in the Output panel.
    alert("Mouse clicked");
    // End your custom code
}
```