**Tutorial 3: Building a Motion Tween Animation**

Tween is a common term used among animators that describes the process of creating movement by automatically filling in the successive frames between a starting frame and an ending frame. Flash is easily capable of performing this type of interpolated animation through the use of **keyframes** and motion **tweens**.

In this tutorial we will build an animation that utilizes both the motion tween and a keyframe. The goal is to animate a ball so that it travels from the lower left corner of the stage to the upper right corner, as shown in Figure 1-33. We will also be adding a `stop()` action to the last frame in the timeline. Instead of the animation looping endlessly, this action will be used to force the Playhead to hold the frame once the ball reaches its destination.

Figure 1-33 A ball travels in a diagonal line from the lower corner of the stage to the upper corner.

The specific features for Tutorial 3 are as follows:

1. Building vector symbols that can be animated.
2. Understanding and constructing non-blank keyframes, referred to as **keyframes**.
3. Applying an interpolation technique called Tween to create motion animation.  
   NOTE: Tweens are an easy way to construct simple animations. Most of the animations in this text will be more sophisticated and will require the use of **ActionScript** code to control motion and impart interactivity.
4. Exploring the idea of stopping and holding an animation on a specific frame.
Part I: Creating an Object to be Animated

Start Adobe Flash. Choose Flash File (AS3). Save this new Flash document as BallMove.fla. Set the stage width and height to 300 (this was first done in Tutorial 2, Part II, Step 1).

Only one symbol will be required in the library.

Step 1: Choose Insert > New Symbol…. The Create New Symbol dialog box will appear.

Step 2: Enter the name Ball.

Step 3: It is important that all animated symbols be created as MovieClip types rather than Graphic types. MovieClip types are versatile and in later chapters we will use the fact that they can be programmed.

Choose Movie Clip from the Type drop down menu.

The entry should look like Figure 1-34. Click OK.

Figure 1-34 The Create New Symbol dialog box.

Step 6: Select the Oval Tool from the Toolbar.

Step 7: Click the Fill Color chip from the Toolbar. Select a gradient grey from the color pop-up panel.
Step 8: Drag out a circular shape, as shown in Figure 1-35, and release the mouse.

Step 9: Click Scene 1 to close the Ball drawing canvas. Verify that Ball exists as a symbol in the Library.

Figure 1-35 Drawing canvas for Ball and Symbol Ball in the Library.
Part II: Constructing the Animation using a Classic Motion Tween

In this part of the tutorial we build the animation using a Classic Motion Tween. An object that has a Classic Motion Tween applied to it must reside on a layer by itself. In other words, if the ball is to be animated, it cannot share the layer with other objects.

**Task 1: Place the ball on the stage and set its starting position.**

Step 1: Rename the timeline layer as Ball 1 Layer by double-clicking Layer1 and retyping the name. Press [ENTER] when done.

Step 2: Choose the Selection tool. Click frame 1 in Layer 1.

Step 3: With the Library panel open, drag an instance of the Ball symbol from the Library to the stage.

Step 4: With the instance of the ball selected on the stage, position the ball in the lower left corner of the Stage, as shown in Figure 1-36. This is the ball’s starting position.

Figure 1-36 Ball on stage.
Task 2: Create an ending position.

Step 1: Right-click frame 10 in Layer 1. From the pop-up menu, select Insert Keyframe. This keyframe command will not clear out a frame in the way that a Blank Keyframe does. Instead, inserting a keyframe retains the contents of the starting frame and allows a change to its properties, such as position, height, or color. In this tutorial we will change only the position.

Step 2: Using the Selection tool, position the ball so that it sits in the upper-right corner of the stage. At this point, the screen should look similar to Figure 1-37.

Figure 1-37 Keyframe added to frame 10.
**Task 3: Apply a Classic Tween**

Step 1: Right-click any frame between the start frame (frame 1) and the end frame (frame 10), such as frame 5, and select **Create Classic Tween** from the pop-up menu. Flash immediately fills in the successive frames between the first and final keyframes. See Figure 1-38.

Step 2: To see the animation so far, choose Control > Test Movie. Notice that once the ball moves to its final destination at the upper right corner of the stage, the animation repeats itself over and over again. In the next section of this tutorial, a stop action will be added to force the ball to remain at its final destination.

![Figure 1-38 Classic Tween applied between keyframes.](image)

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**Part III: Placing a Hold on the Animation using a `stop()` Action**

Often times an animation is designed to loop endlessly. However, on occasion, it is necessary to force the animation to stop on a specific frame. This can be done by placing a stop action instruction on a new layer directly in the frame we wish to pause.

Step 1: Click Layer 1 in the timeline.

Step 2: From the Timeline panel, locate and click the icon to insert a new layer. This icon is shown in Figure 1-39. At this point, a new layer named Layer 2 will appear in the Timeline panel.
Step 3: Right Click frame 10 in Layer 2. From the pop-up menu, select **Blank Keyframe**. The `stop()` action will be placed in this Blank Keyframe in the next step.

Step 4: Choose **Windows -> Actions**. A window labeled **ACTIONS – FRAME** will appear.

Step 5: Enter the instruction `stop();` in the window. Figure 1-40 shows the instruction in the Action window.

Close the **ACTIONS – FRAME** window. Notice that an italicized `a` now appears in frame 10 of Layer 2.

Step 7: Test the animation. Choose **Control > Test Movie**.
Figure 1-40  Action window for Frame 10 of Layer 2 containing ActionScript code.

```
stop();
```