

## Web Gallery Using Flash



**Title: Web Gallery Using Flash**  
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## Chapter 4 Adobe Animate Timeline

### Learning Outcome

#### Objectives of this chapter are: -

- Animate Timeline
- Frame
- Layers

### Animate Timeline

The Timeline in Adobe Animate organizes and controls a document's content over time in layers and frames. Like a movie film, Animate documents divide lengths of time into frames. Layers are like multiple filmstrips stacked on top of one another, each containing a different image that appears on the Stage.

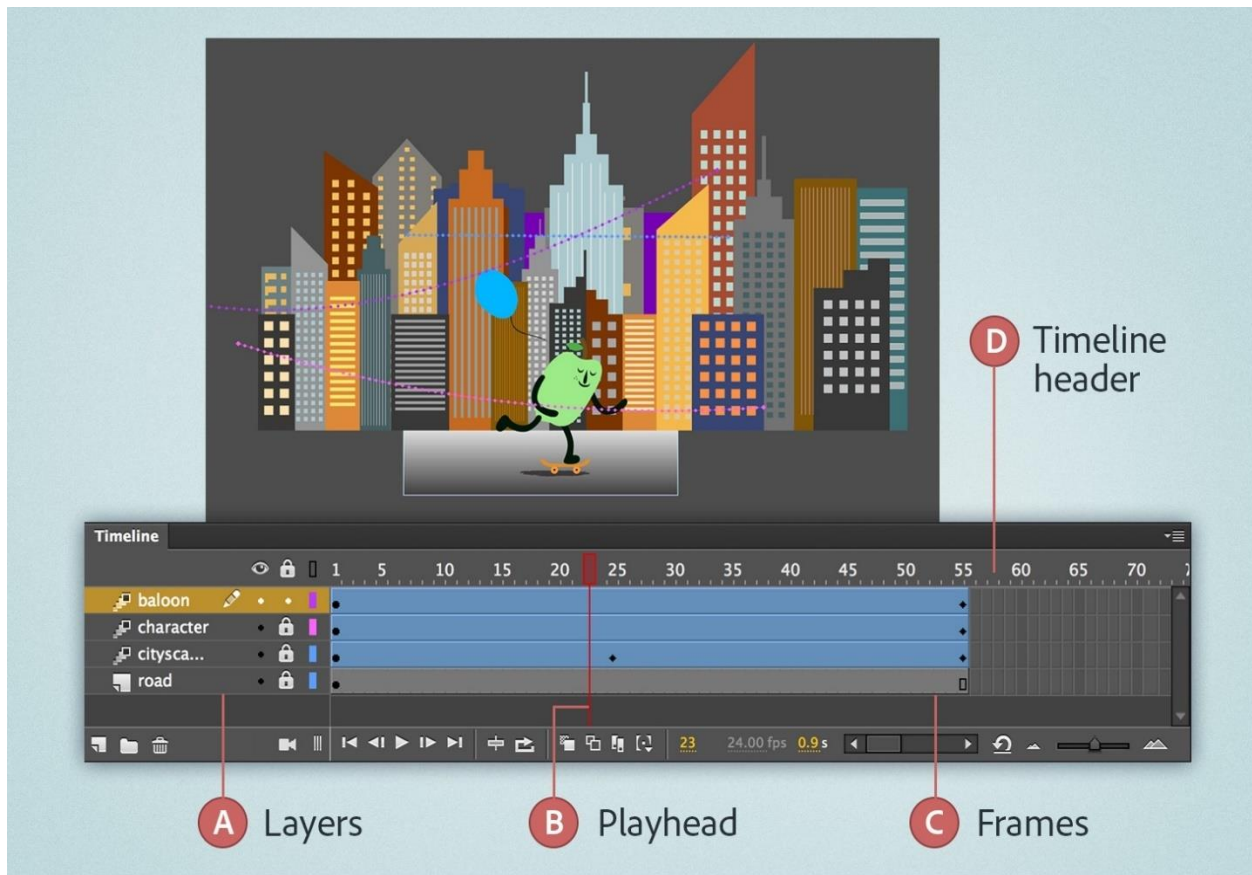


Figure 1 Animate timeline

The major components of the Timeline are: -

- **Layers** - Layers in a document are listed in a column on the left side of the Timeline.
- **Frames** – Frames contained in each layer appear in a row to the right of the layer name.
- **Timeline Header** - The Timeline header at the top of the Timeline indicates frame numbers.
- **Playhead** - Playhead indicates the current frame displayed on the Stage. As a document plays, the playhead moves from left to right through the Timeline.

By default, the playhead loops when it reaches the end. The timeline status displayed at the bottom of the Timeline indicates the selected frame number, the current frame rate, and the elapsed time to the current frame.

## Modern Timeline

Timeline panel's look and feel is enhanced including clear frame interval representation, better readability of frame and time marker, enhanced onion skinning, buttons for creating keyframes, blank frames and so on.

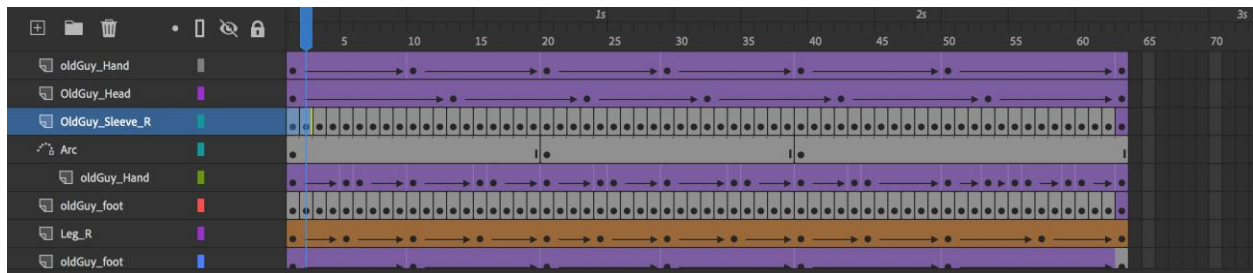


Figure 2 Timeline

## Timeline controls

Timeline header has been made richer by surfacing extra functionality upfront.



Figure 3 timeline controls

## LAYER VIEW

You can toggle from the default multi-layer view to a current layer view by clicking the Layer view icon on the upper left.

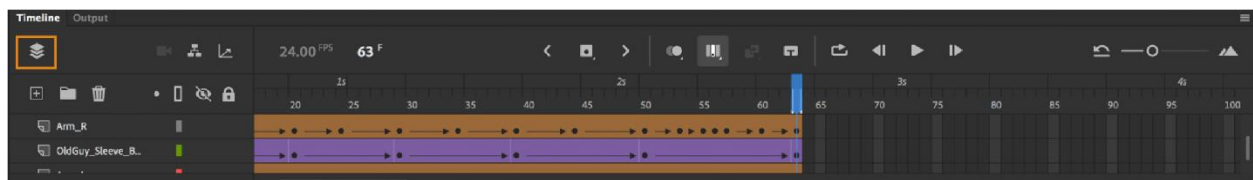


Figure 4 Multi-layer view

## Multi-layer view

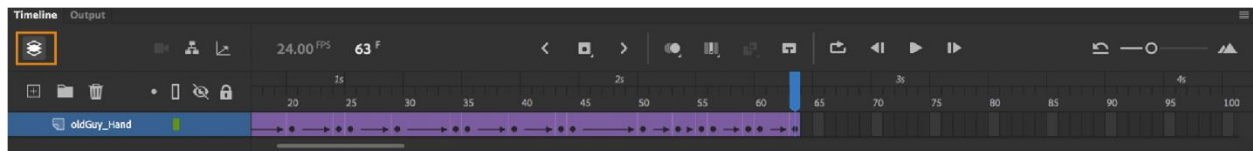


Figure 5 Single layer view

## CAMERA

To enable or disable camera, click the camera button.

**LAYER PARENTING VIEW** - It displays the parenting hierarchy of layers.

**LAYER DEPTH** - It creates a layer depth panel and allows you to modify the depth of active layer provided in the list.

**Note:** When an animation is played, the actual frame rate is displayed. This frame rate can differ from the document's frame rate setting if the computer cannot calculate and display the animation quickly.

## Onion skinning

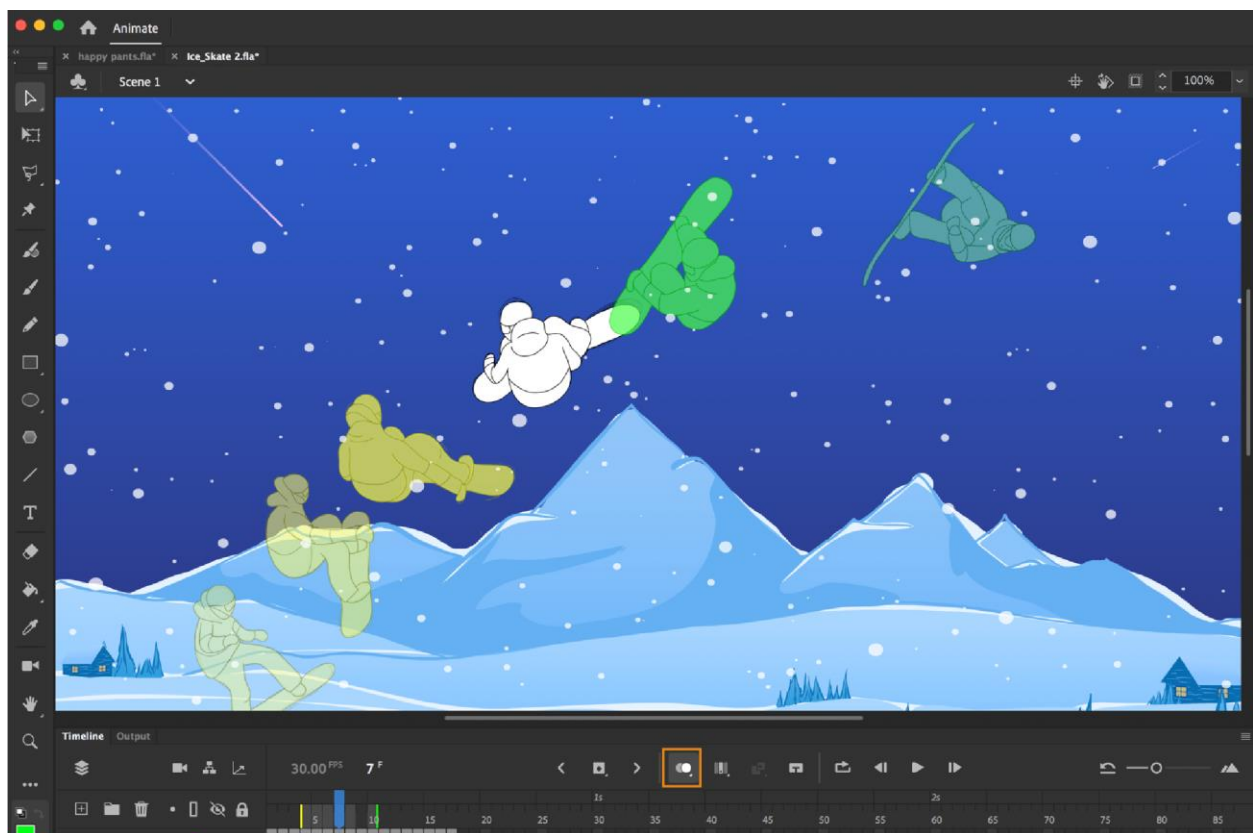





Figure 6 Onion Skinning

Onion skinning has been revamped and made simpler. You can enable onion skinning by clicking the onion skin button. Onion Skinning is further enhanced to selectively exclude (and include) frames by right click any onion skin frame within the onion skin range.

Do one of the following: -

- Click the Onion Skin button  to enable and disable onion skinning. When enabled, All frames between the Start Onion Skin and End Onion Skin markers (in the timeline header) are superimposed as one frame in the **Document** window.
- Click and hold the mouse on the Onion Skin button  to view and select the options like selected range, all frames, anchor markers and advance settings.
- Select the Onion skin icon  (the icon to the left of the Loop icon) in the timeline.

Some of the onion skin parameters in this panel are existing features like **outline mode**, onion skin **previous/future frame color preference**, **anchor markers**: -

- **Keyframe only mode:** **Render only keyframes in onion skin range**, that is skip between frames of tween.
- **Starting Opacity:** Opacity of first onion skin frame on either side of active frame.
- **Decrease by:** Percentage delta decrease across every onion skin frame.
- **Constraints:** Range of previous and next frames are same when constraints are enabled, unless, user edits the range from timeline.

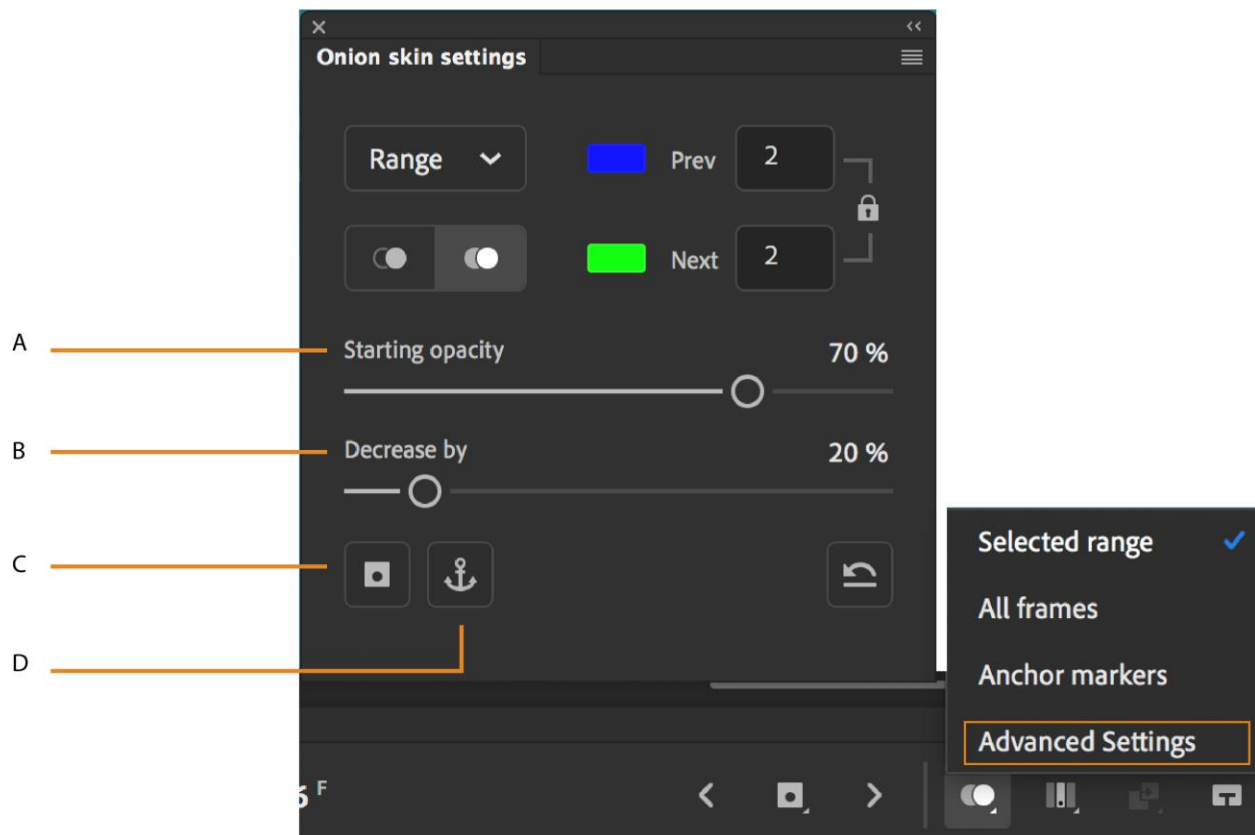
Some of the onion skin parameters in this panel are existing features like outline mode, onion skin previous/future frame color preference, anchor markers.

- **Keyframe only mode:** Render only keyframes in onion skin range, that is it, skip between frames of tween.
- **Starting Opacity:** Opacity of first onion skin frame on either side of active frame.
- **Decrease by:** Percentage delta decrease across every onion skin frame.
- **Constraints:** Range of previous and next frames are same when constraints are enabled, unless, user edits the range from timeline.

### **Advanced Settings**

- **A.** Opacity of first onion frame **B.** Decrease opacity across onion frames **C.** Show keyframes only **D.** Anchor markers



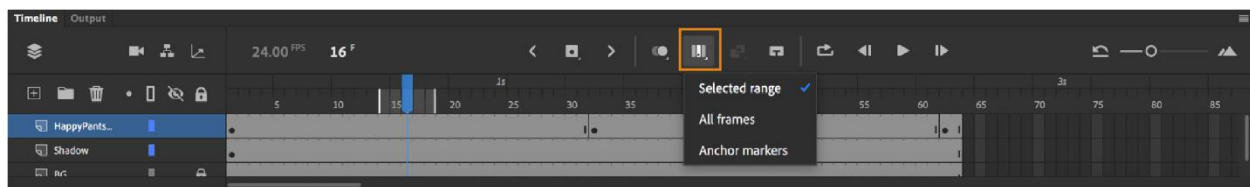


*Figure 7 Onion Skin setting*

## Edit multiple frames

It allows you to view and edit contents in multiple frames within the selected range.

Click and hold the mouse on the **Edit Multiple Frames** button to view and select Edit selected range and edit all frames. Click to disable and enable the Edit Multiple Frames mode.



*Figure 8 Multiple frame editing*

## Create tweens

Click and hold the mouse on the **Create Tween** icon to view and select the options. Select the frame span in the timeline and click **Create Tween** to create a tween as per the recent selection.

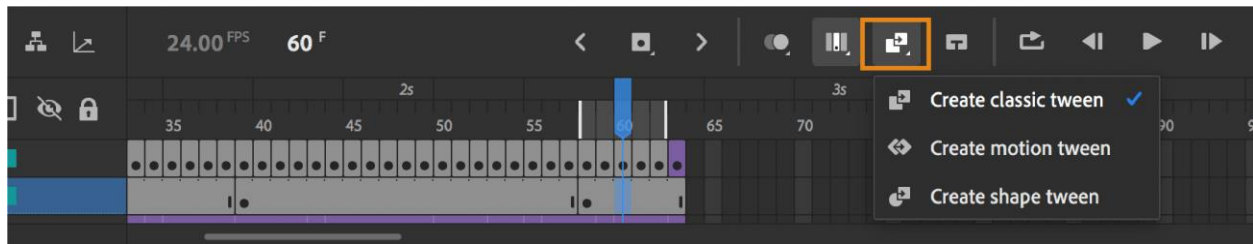


Figure 9 create tween

## Changing the appearance of the timeline

By default, the timeline appears below the main document window. To change its **position**, detach the timeline from the document window and float it in its own window. You can dock it to any other panel of your choice. You can also **hide** the timeline.

To change the number of layers and frames that are visible, **resize the timeline**. To view extra layers when the timeline contains **more layers** than can be displayed, use the **scroll bars** on the right side of the timeline.

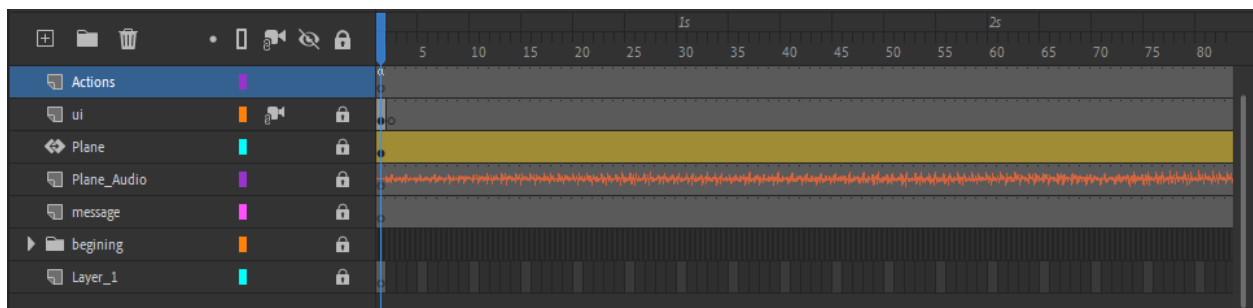


Figure 10 Timeline

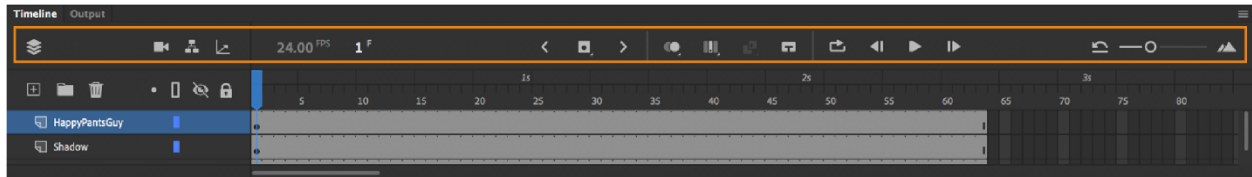
## Dragging the Timeline

- To move the timeline when it is docked to the document window, drag the title bar tab at the upper-left corner of the timeline.
- To **dock an undocked timeline to the application window**, drag the title bar tab to the top or bottom of the document window.
- To **dock an undocked timeline to other panels**, drag the timeline title bar tab to the location you choose. To prevent the timeline from docking to other panels, press control key while you drag. A blue bar appears to indicate where the timeline will dock.
- To lengthen or shorten layer name fields in the timeline panel, drag the bar separating the layer names and the frames portions of the timeline.

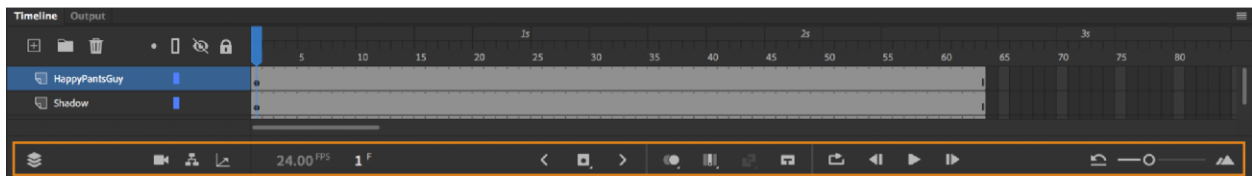
## CUSTOMIZING THE TIMELINE VIEW

- To display the Frame View pop-up menu, click Frame View in the upper-right corner of the Timeline.
- Select from the following options: -

- ❖ To change the size of layers, select Large, Medium, or Short. (The Large frame-width setting is useful for viewing the details of sound waveforms.)
- ❖ To display thumbnails of the content of each frame scaled to fit the timeline frames, select **Preview**. This preview can cause the apparent content size to vary and requires extra screen space.
- ❖ To move the Timeline Controls to the top or bottom, select Header Top or Header Bottom, respectively.
- ❖ To zoom in and zoom out the Timeline, use the **Timeline resize view** slider bar.



*Figure 11 Timeline as header*

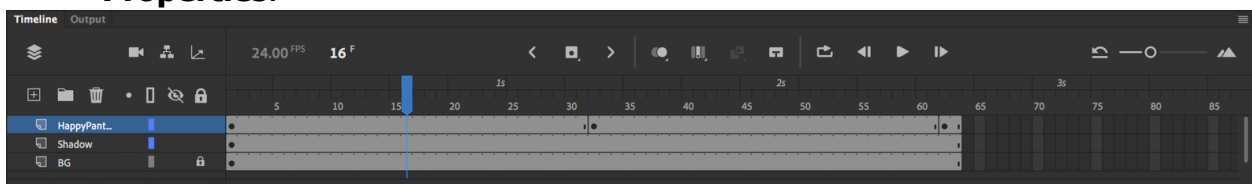


*Figure 12 Timeline as footer*

## CHANGE LAYER HEIGHT IN THE TIMELINE

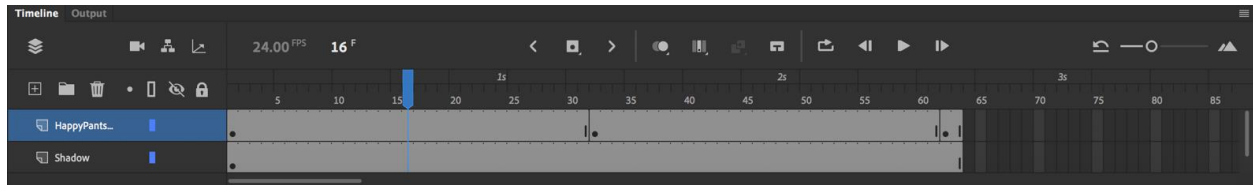
**Do one of the following: -**

- Click the hamburger menu in the Timeline header. Select **Short, Medium, or Tall**.
- Double-click the layer's icon (the icon to the left of the layer name) in the timeline.
- Right-click (Windows) or Control-click (Macintosh) the layer name and select **Properties** from the context menu.
- Select the layer in the timeline and select **Modify > Timeline > Layer Properties**.



*Figure 13 Short layer height*



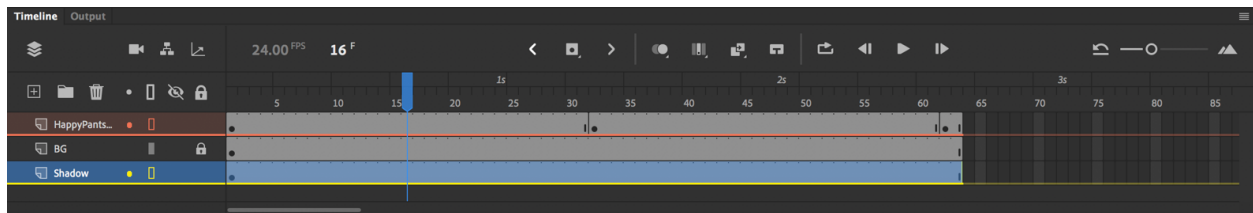


*Figure 14 Tall layer height*

In the **Layer Properties** dialog box, select an option for layer height and click **OK**.

## LAYER COLORING AND PINNING

You can pin or color a layer for easy identification by clicking on the dot that appears just after the layer name. When enabled, an underline with the layer outline color appears across the layer for a quick layer recognition.



*Figure 15*

## SET LAYER OPACITY

**Do one of the following: -**

- To set the visibility to opacity, use **shift + click** the eye column in the timeline.
- Double-click the layer's icon (the icon to the left of the layer name) in the Timeline.
- Right-click (Windows) or **Control+click** (Macintosh) the layer name and select **Properties** from the context menu. In the **Layer Properties** dialog box, select **Visibility>Opacity**.
- Right-click (Windows) or **Control+click** (Macintosh) the layer name and select **Show Others as Transparent**.

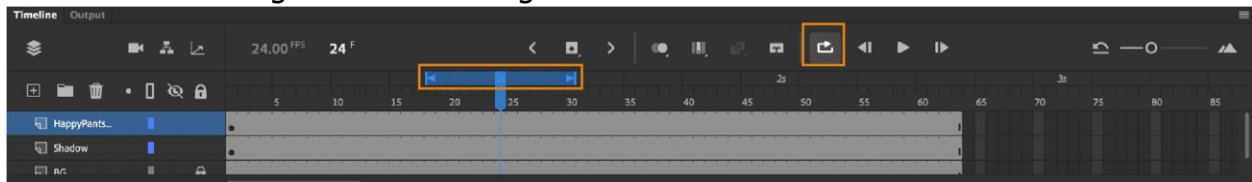
## Resize the timeline panel

- If the timeline is docked to the main application window, drag the bar separating the timeline from the stage area.
- If the timeline is not docked to the main application window, drag the lower-right corner (Windows) or the size box in the lower-right corner (Macintosh).

The blue playhead at the top of the timeline moves as a document plays to indicate the current frame displayed on the Stage. The timeline header shows the frame numbers of the animation. To display a frame on the stage, move the playhead to the frame in the timeline.

To display a specific frame when you are working with many frames, move the playhead along the timeline.

- To go to a frame, click the frame's location in the timeline header, or drag the playhead to the desired position.
- To **center the timeline** on the current frame, click the Center Frame button at the bottom of the timeline.
- Now, loop range can be created by just dragging over the loop section. It allows you to export the frames (as movie or video) in selected range.
- With the loop option turned on in the timeline, you can also loop streaming audio within a range of frames along with other animations.

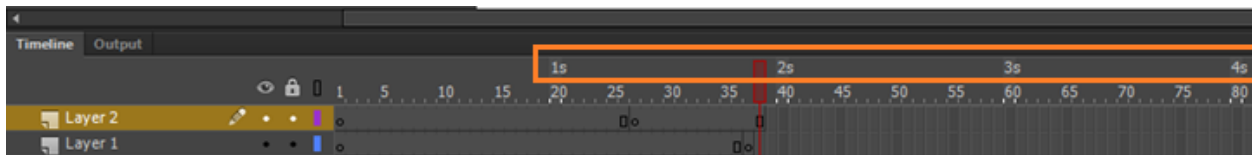


*Figure 16 Looping*

### Viewing time along with frames

The timeline displays the time in seconds along with the frame numbers. This feature allows faster conversion from frames to time and also keeps you aware of the frames per second (fps) value you have set throughout the animation process.

In the following screenshot, the timeline displays 20 frames per second (fps):



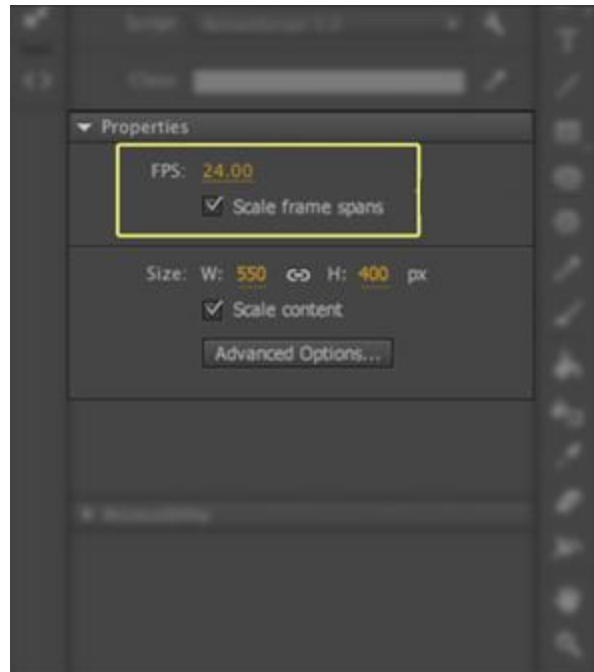
*Figure 17 Viewing time along with frames*

### Managing animation speed

You can manage animation speed by scaling the frame spans, by animating based on time intervals, or you can extend and compress animations by using time controls.

#### **SCALE THE FRAME SPANS**

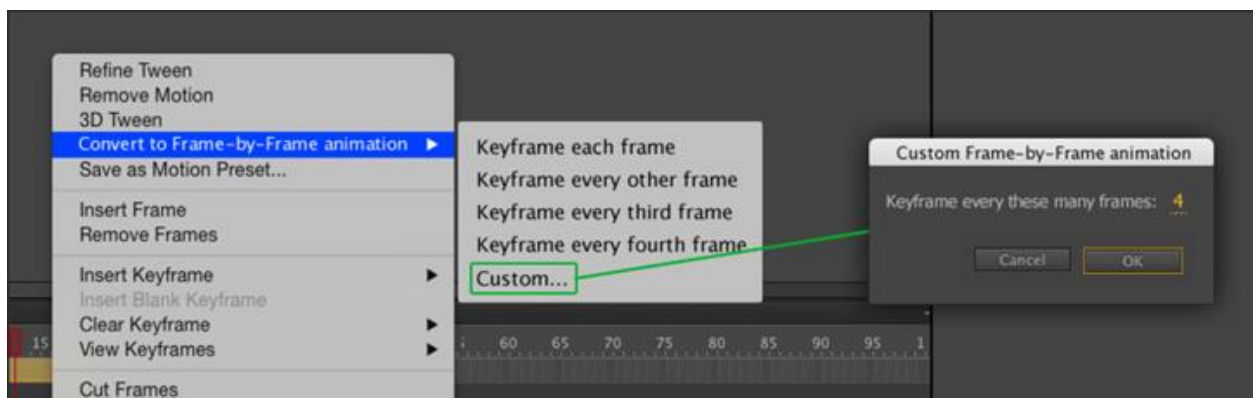
You can change frames per second (fps) for your animation without having to change the animation speed. Use the Scale Frame Spans option as you change fps to keep the time intact.



*Figure 18 Option to scale frame spans*

## ANIMATING BASED ON TIME INTERVALS

Turn your frame spans into **1s**, **2s**, **3s** or to any desired interval. This feature works on classic tween span, shape tween span, motion tween span, keyframe span, or on a blank keyframe span.



*Figure 19 Custom frame by frame animation based on specific time intervals.*

**Convert to Frame-by-Frame animation** option is available in **Modify** menu. You can also assign your desired keys in keyboard shortcut dialog to perform these tasks.

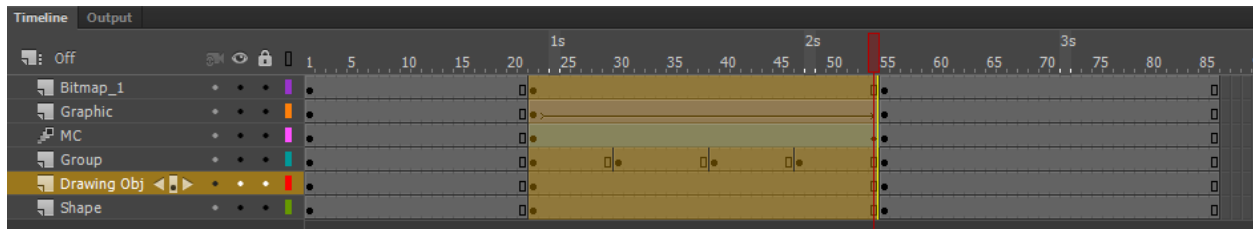
## EXTEND OR COMPRESS ANIMATIONS USING TIMELINE CONTROLS

Now, you can extend the frame duration of selected frames by entering desired number of frames in **Expand frame span** field. The duration of the selected frames are increased by the number entered in the **Expand frame span**.

You can extend or reduce time for the selected span on the timeline. Select the frame span and drag the right-side edge of the selected span on timeline, forward or backward. The frames within the timeline are adjusted automatically.

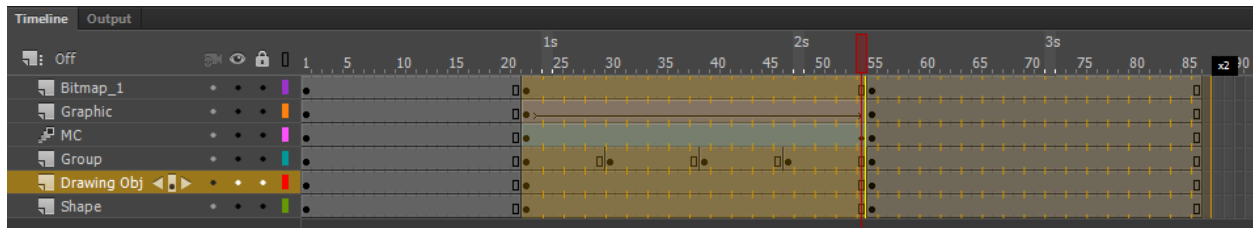
You can replicate your animations multiple times (x2, x3, and so on) by dragging the spans in timeline. You can also compress the frames to their normal position, after extending them.

Select the frames in timeline, click, and drag the highlighted right-side edge of the selection.



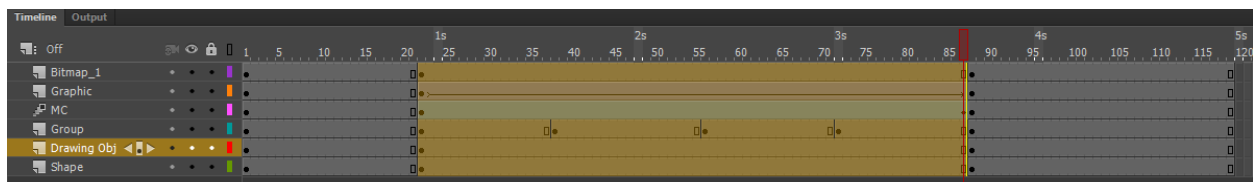
*Figure 20 Frame selection and border*

While dragging, as shown in the following screenshot, you can view the animation in multiples such as **x2**, **x3**, and so on.



*Figure 21 Display of stretched frames while dragging.*

In the following screenshot, you can view the extended span in multiple of x2. x2 is double the size of a selected span. x3 is three times the original size of a span.



*Figure 22 Extended spans after dragging.*

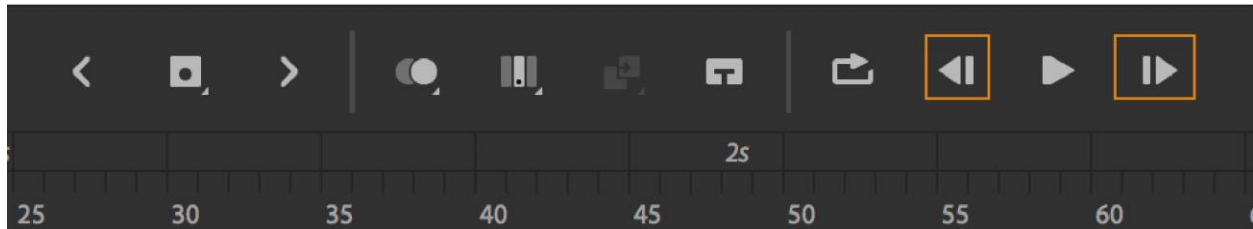
The frame duration can now be extended by entering desired number in **Expand frame Span** field. The duration of the selected frame is increased by the number of frames entered in the **Expand Time Span**.

## Navigating in timeline

### KEYFRAME NAVIGATION

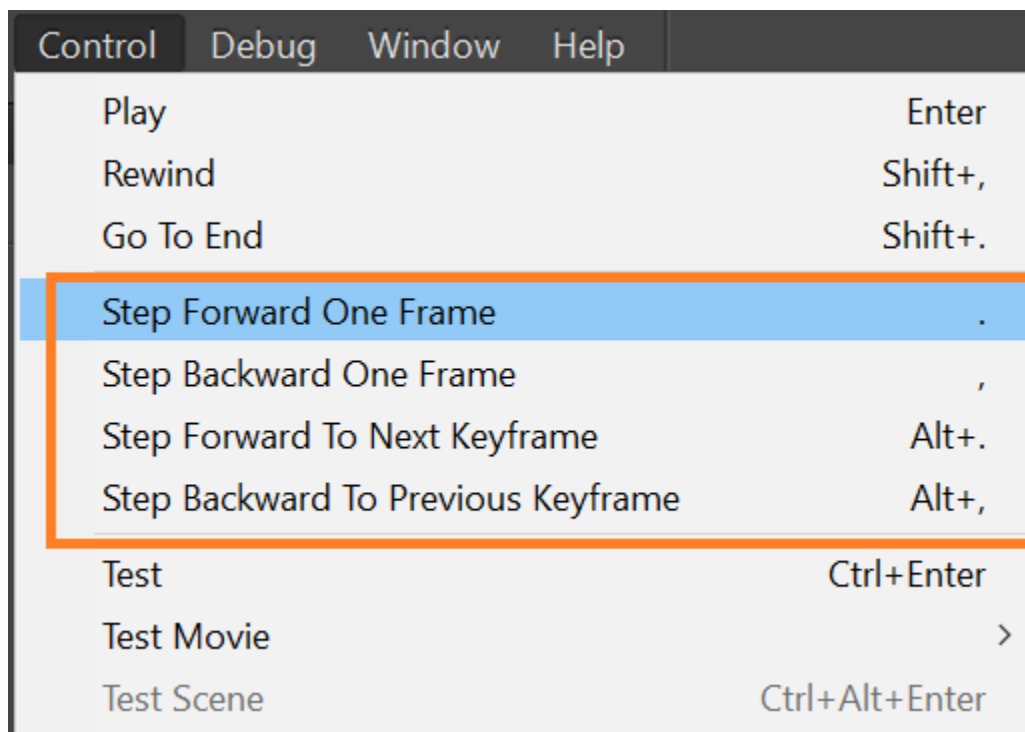
Now, you can click the **Step back one frame** or **step forward one frame** button to move to the previous or next frame. Also, click and hold the mouse on the **Step back one frame** or **step forward one frame** button to move to the first or last frame respectively.

Click the **Play** button to view the preview of your animation.



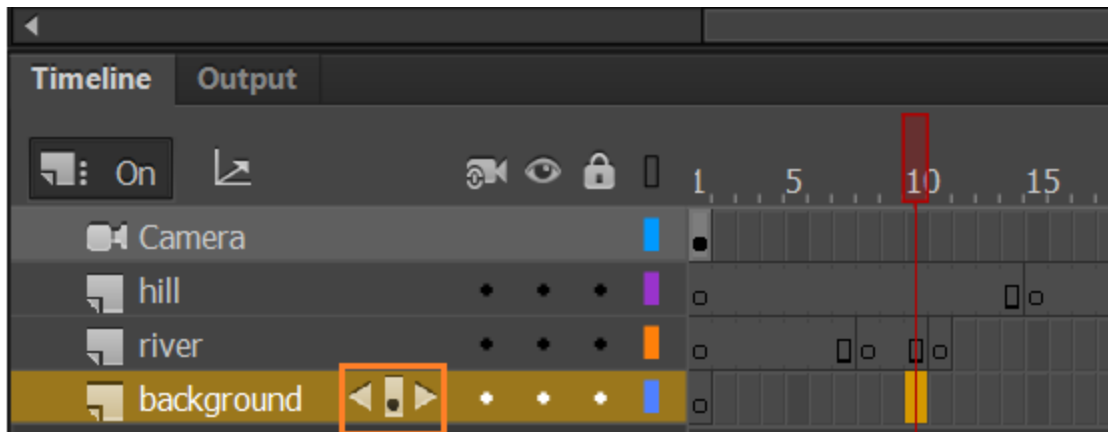
*Figure 23 Navigation in timeline*

You can navigate between keyframes on the active layer using the **Control** menu. You can also use **Alt+.** or **Alt+,** to move forward and backward to next or previous keyframes respectively in the timeline.



*Figure 24 Keyframe navigation options with keyboard shortcuts*

You can navigate between keyframes on the active layer using the left and right controls on the layer. Also, you can use the menu and keyboard shortcuts.



*Figure 25 Timeline displaying left and right controls on layer*

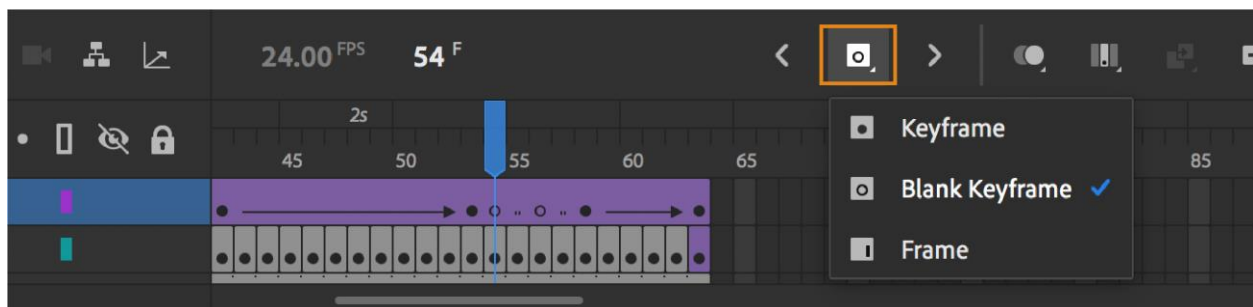
#### Note:

You can use page navigation shortcuts such as Alt + Shift+, for backward and Alt + Shift +. for forward navigation.

#### Insert frames and keyframes

Keyframes, blank keyframes, and frames can be added by just a click of the button on the timeline. Click and hold the mouse on the Keyframe icon to view and select the options. Select a frame in timeline and click Keyframe icon to insert frame, keyframe, or blank keyframe as per the recent selection.

Inserting keyframe or blank keyframe in Timeline panel now has a visual feedback. A subtle glow indicates that the operation has been carried out.



*Figure 26 Inserting keyframe*

Inserting keyframe or blank keyframe in Timeline panel now has a visual feedback. A subtle glow effect indicates that the operation has been carried out.

#### Active layer only mode

The Timeline View icon is modified with a new mode called **Active Layer Only**. To view only the active layers in the timeline, click and hold the mouse on the Timeline View option and select **Active Layer Only**.

#### Panning through timeline from stage



Now, you can also use hand tool to slide the Timeline horizontally.

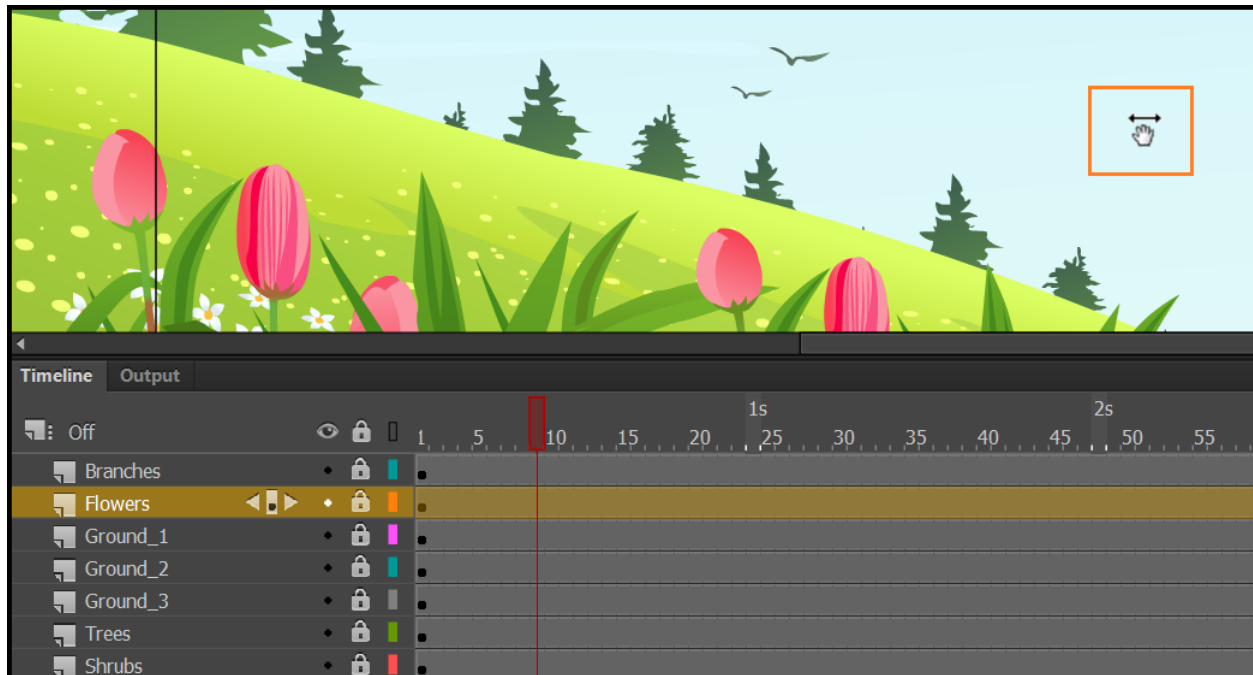


Figure 27 Display of time scrub tool

You can scrub the timeline right from the stage using the new time scrub tool. This tool is grouped with the hand tool in tool panel. You can also use spacebar + T keyboard shortcut to temporarily enable this tool. Drag left or right to view the timeline in the direction of pan.

### Customizable Timeline Toolbar

With the customizable timeline, you can choose what action buttons to be displayed in the timeline toolbar. In the hamburger menu of the timeline, click **Customize Timeline Tools**.

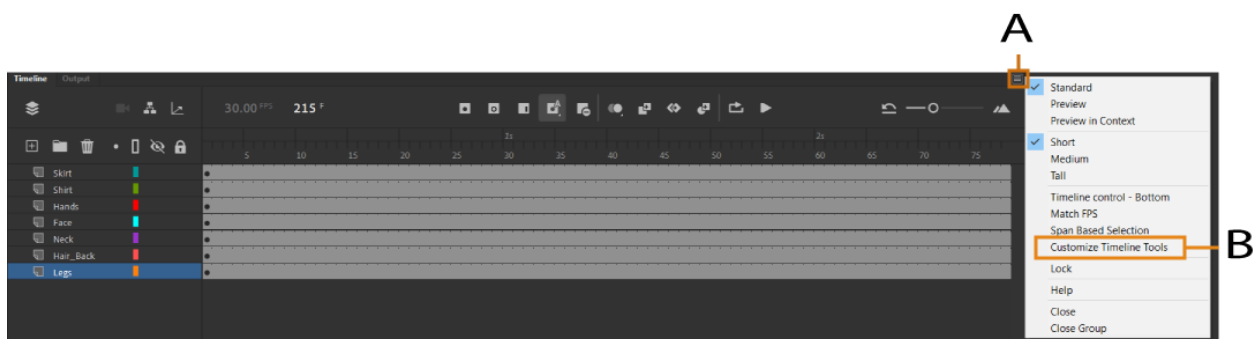
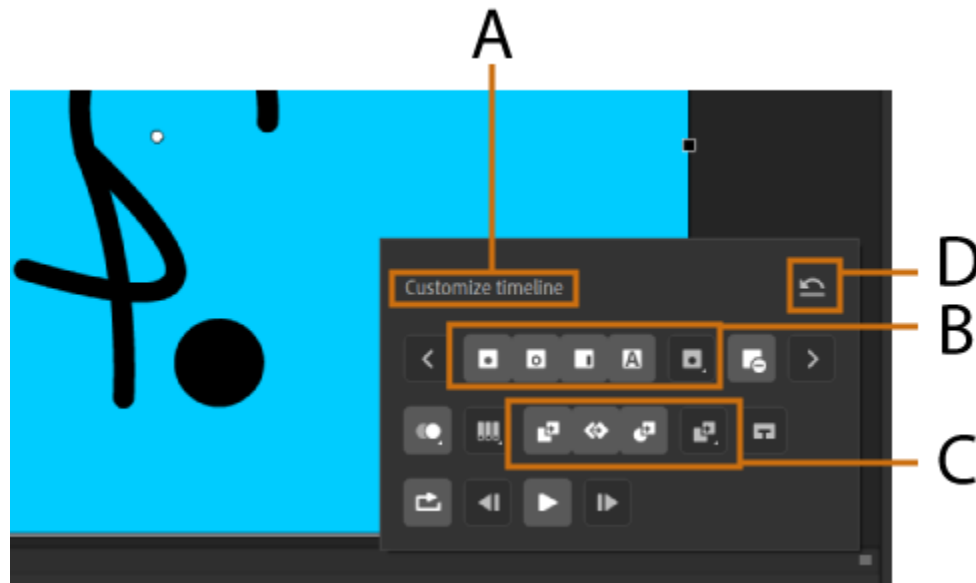


Figure 28 A - Timeline Hamburger Menu B - Menu option to customize timeline toolbar

A panel with toolbar buttons displays, which could be either added or removed from the timeline toolbar. Click anywhere outside the panel to close it. When the panel is open, buttons that are displayed on the timeline toolbar are selected in the panel. To toggle

button selection, click the appropriate buttons. Changes are immediately shown in the timeline toolbar.



*Figure 29 A - Tools Panel B - Frame Buttons Group C - Tween Buttons Group D - Reset*

Timeline toolbar has a few options which are grouped in a single button. Long click the button to reveal all options grouped in the button.

For example, Insert Keyframe or frame group button has following four options grouped under it:

- **Keyframe**
- **Blank Keyframe**
- **Frame**
- **Auto Keyframe**

In the toolbar panel, the above options appear as a grouped button, and individual buttons. If a group button is selected, individual buttons in that group are automatically deselected. And if any individual button in the group is selected, the group button is deselected.

Two such groups exist in the **tool panel**. One for inserting keyframes or frames, and the other for inserting tweens.

There are a few buttons in the **tool panel** that are selected and deselected in pairs. For example, buttons to step keyframes backward or forward, and buttons to step single frame back and forth.

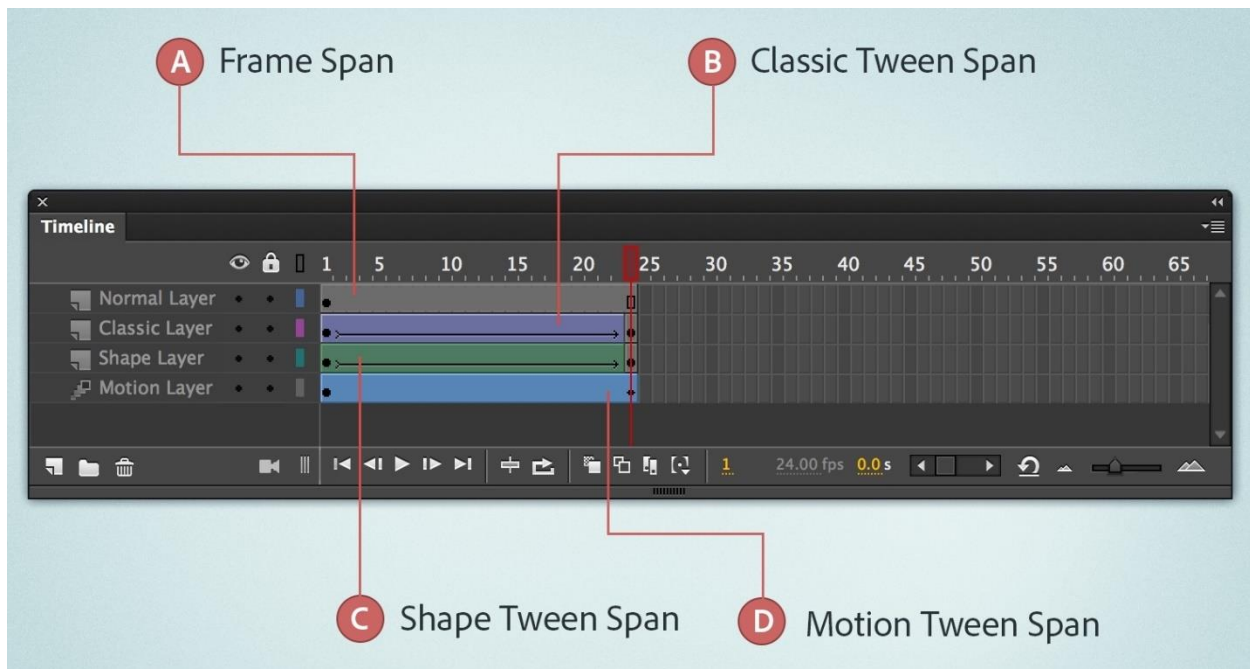
If you want to discard any changes in the configuration panel and revert timeline toolbar to the default state, click **Reset Timeline Controls**.

## Frames

Frames are at the core of any animation, dictating each segment of time and movement. The total number of frames in your movie, and the speed at which they're played back, together determine your movie's overall length.

### Frame Span

A keyframe and the span of regular frames that follow it are known as a keyframe sequence. The timeline can contain any number of keyframe sequences. If the keyframe in a sequence contains graphical content that is visible on the stage, the regular frames that follow it will appear gray. If the keyframe in a sequence contains no graphical content, the regular frames that follow it appear white.

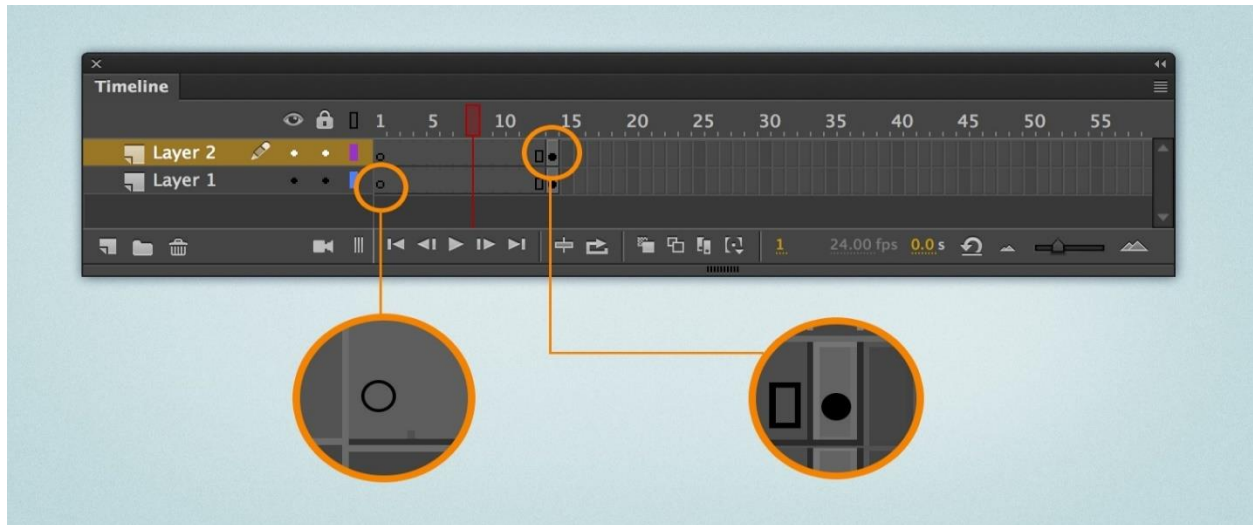


*Figure 30 Frame's span*

Like films, Adobe Animate documents divide lengths of time into frames. In the Timeline, you work with these frames to organize and control the content of your document. You place frames in the Timeline in the order you want the objects in the frames to appear in your finished content.

### Keyframes

A keyframe is a frame in Adobe Animate where a new symbol instance appears in the Timeline. A keyframe can also be a frame that includes ActionScript code to control some aspect of your document.



*Figure 31 keyframes*

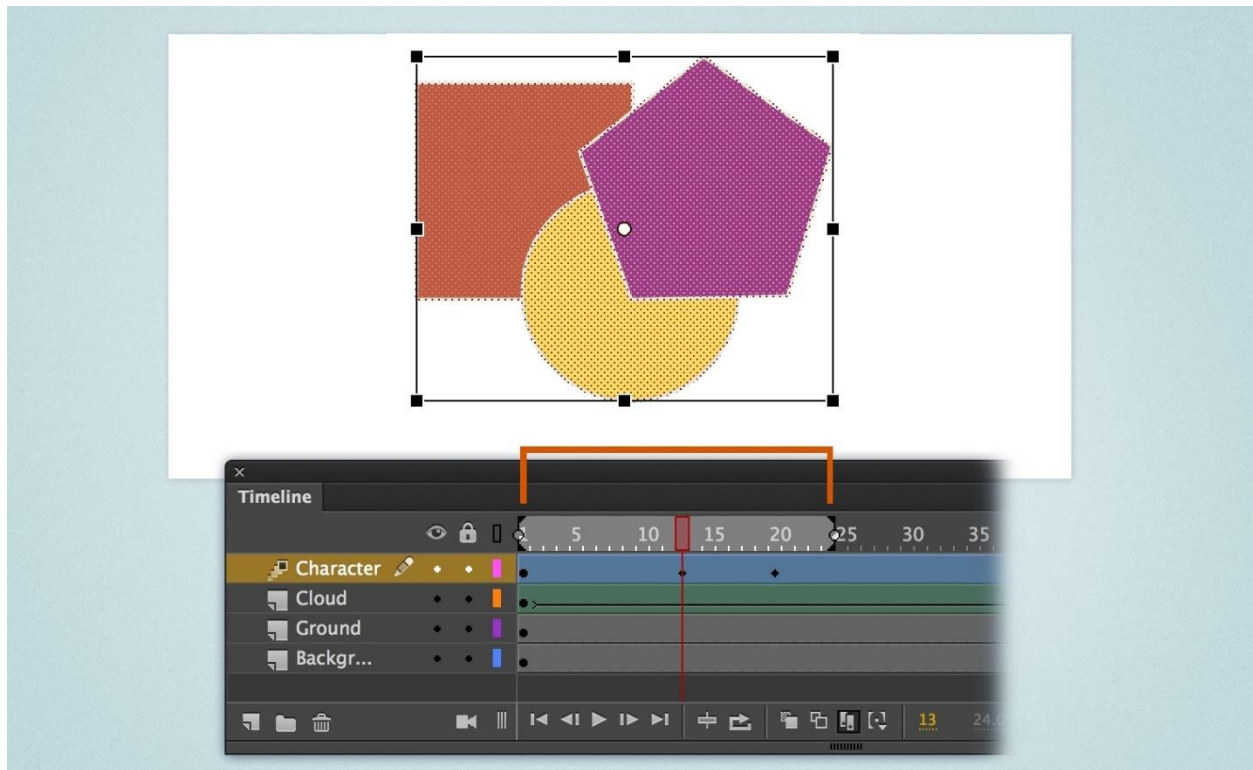
You can also add a blank keyframe to the Timeline as a placeholder for symbols you plan to add later or to explicitly leave the frame blank. A black dot in the Timeline indicates a single keyframe. Light gray frames after a single keyframe contain the same content with no changes.

These frames have a vertical black line and a hollow rectangle at the last frame of the span. A black dot at the beginning keyframe with a black arrow and blue background indicates a classic tween.

Do not confuse keyframes with property keyframes; the Timeline icon for a property keyframe is a solid diamond, whereas a standard keyframe icon is an empty or filled circle.

### Multiframe editing

It allows you to view and edit contents in multiple frames within the selected range.



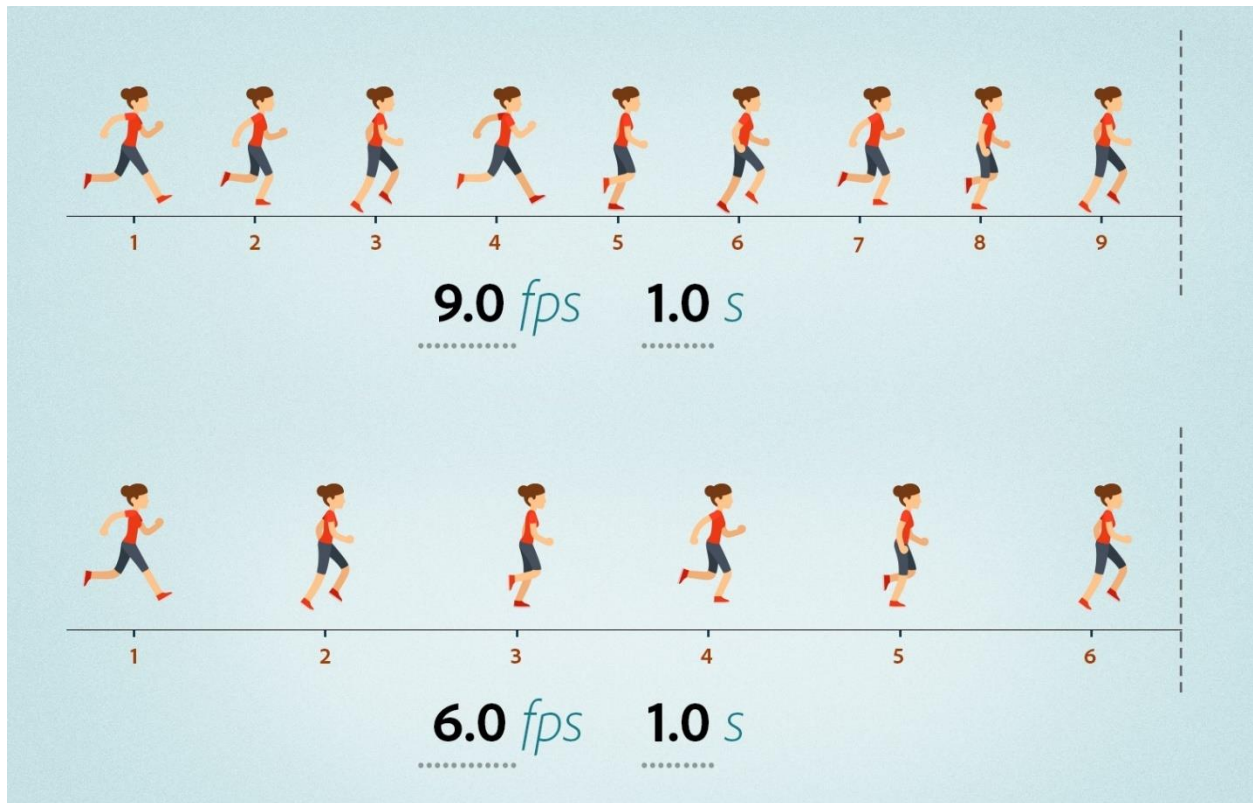
*Figure 32 Edit multiple frames.*

## Frames per second

The frame rate (the speed at which the animation in Adobe Animate is played) is measured by the number of frames per second (FPS). A frame rate that is too slow makes the animation appear to stutter (stop and start), while a frame rate that is too fast blurs the details of the animation. A frame rate of 24 fps is the default setting for new Animate documents and usually gives the best results on the web. (The standard rate for motion pictures is also 24 fps.)

The complexity of the animation and the speed of the computer playing the animation affect the playback's smoothness. To determine optimum frame rates, test your animations on a variety of computers with different processing capabilities. Because you specify only one frame rate for the entire Animate document, be sure to set the desired frame rate before creating your animations. The frame rate essentially determines the rate at which the playhead moves across the Timeline.

fps low -> giat lag, high -> blur



*Figure 33 Frame Per Second*

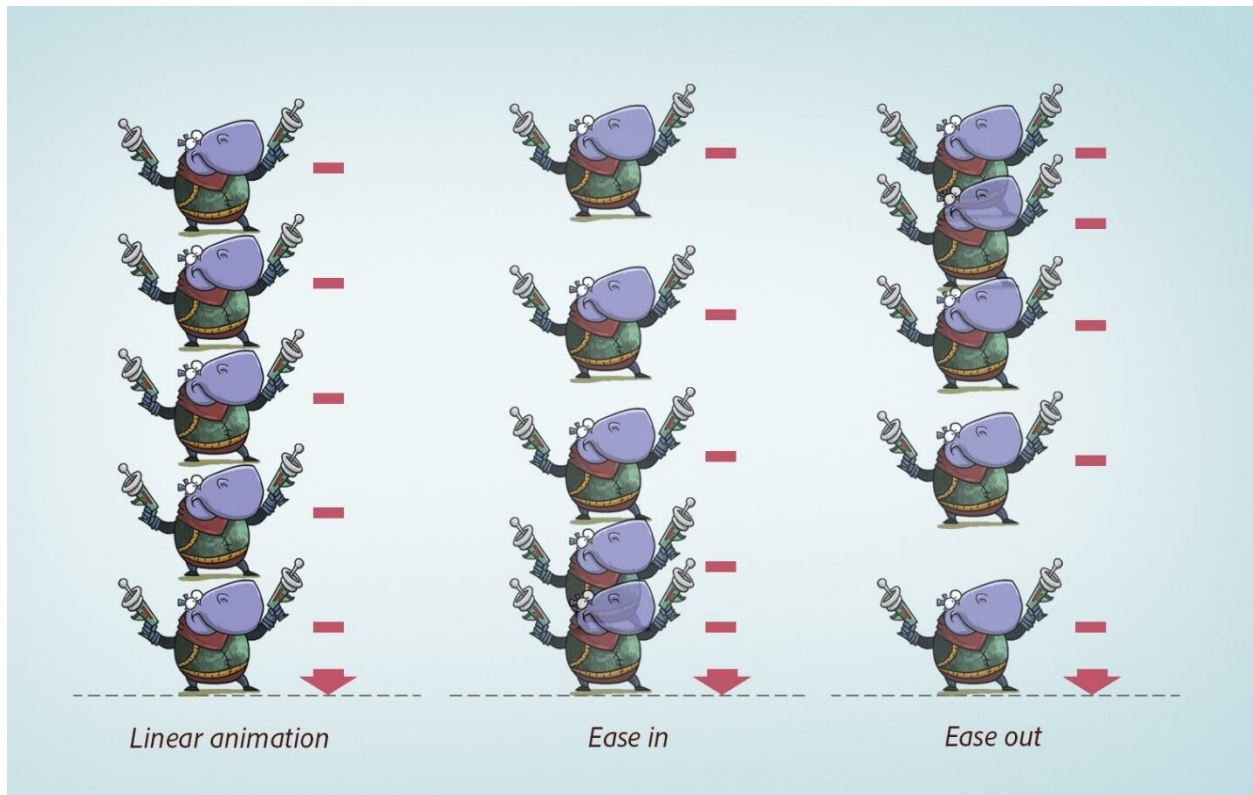
## Easing

Easing is a technique for modifying the way that Adobe Animate calculates the property values in between property keyframes in a tween. Without easing set, Animate moves tweened objects at the same speed on each frame of the animation. With easing, you can adjust the speed of tweened objects to make movements appear more natural and to create complex animations. An ease is a mathematical curve that is applied to the property values of a tween.

The final effect of the tween is the result of the combination of the range of property values in the tween and the ease curve that makes the tweened objects start slow and speed up, start fast and slow down, or some combination of these effects.

For example, if you animate a picture of a car across the Stage, the motion is more realistic if the car starts slowly from a stopped position and gradually gains speed as the acceleration builds momentum. Eases applied in the Property inspector affect all of the properties that are included in a tween. Eases applied in the Motion Editor can affect a single property, a group of properties, or all of the properties of a tween.





*Figure 34 Easing demonstration*

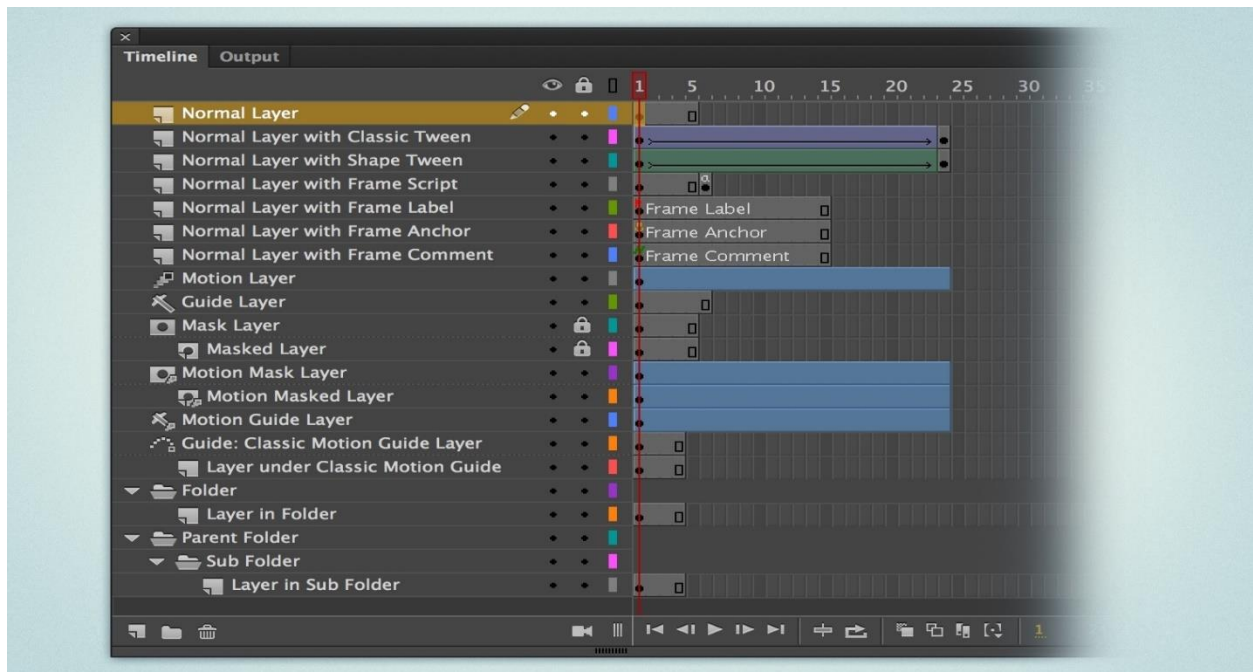
## Onion Skinning

Use Onion skinning to compare the previous and next frames and adjust the objects in the current frame. When onion skinning is turned off (the default setting), one frame of the animation sequence appears on the Stage at a time.

The frame displayed corresponds to the location of the playhead in the Timeline. When Onion skinning is enabled, the frame under the playhead appears in full color, while surrounding frames are dimmed, as though each frame is drawn on a sheet of translucent onionskin paper and the sheets were stacked on top of each other.

Dimmed frames cannot be edited; they are merely displayed as a visual reference.

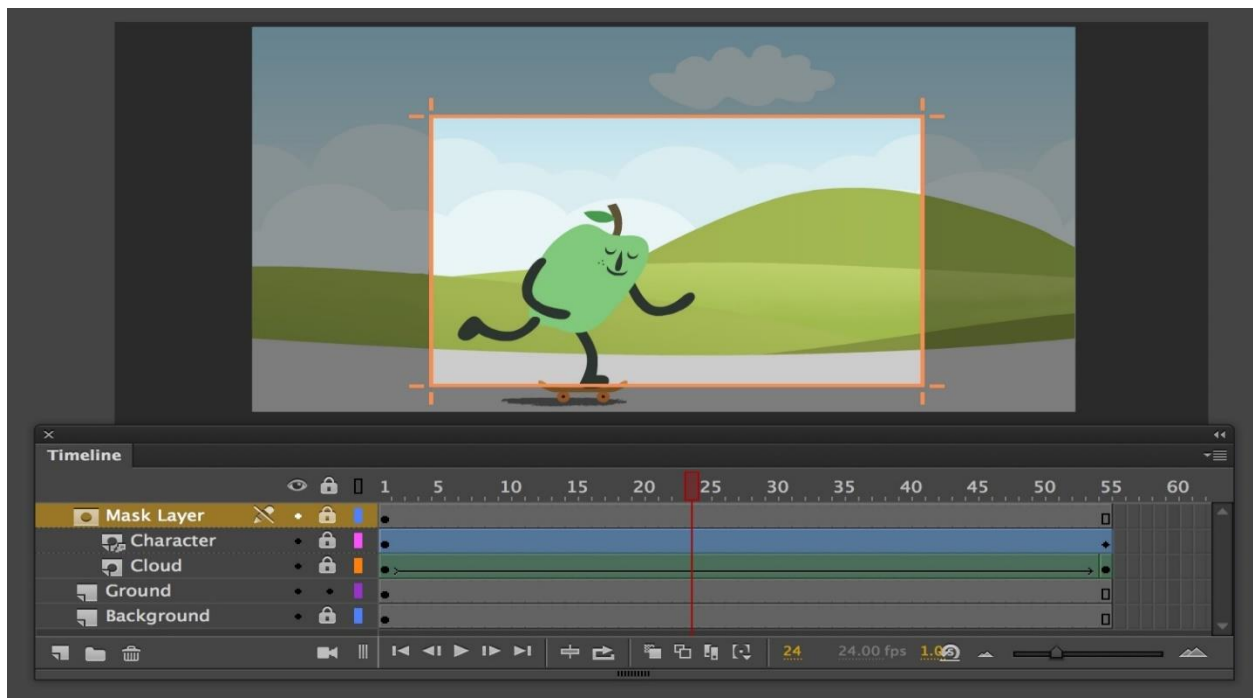




*Figure 36 Layers*

## Mask layer

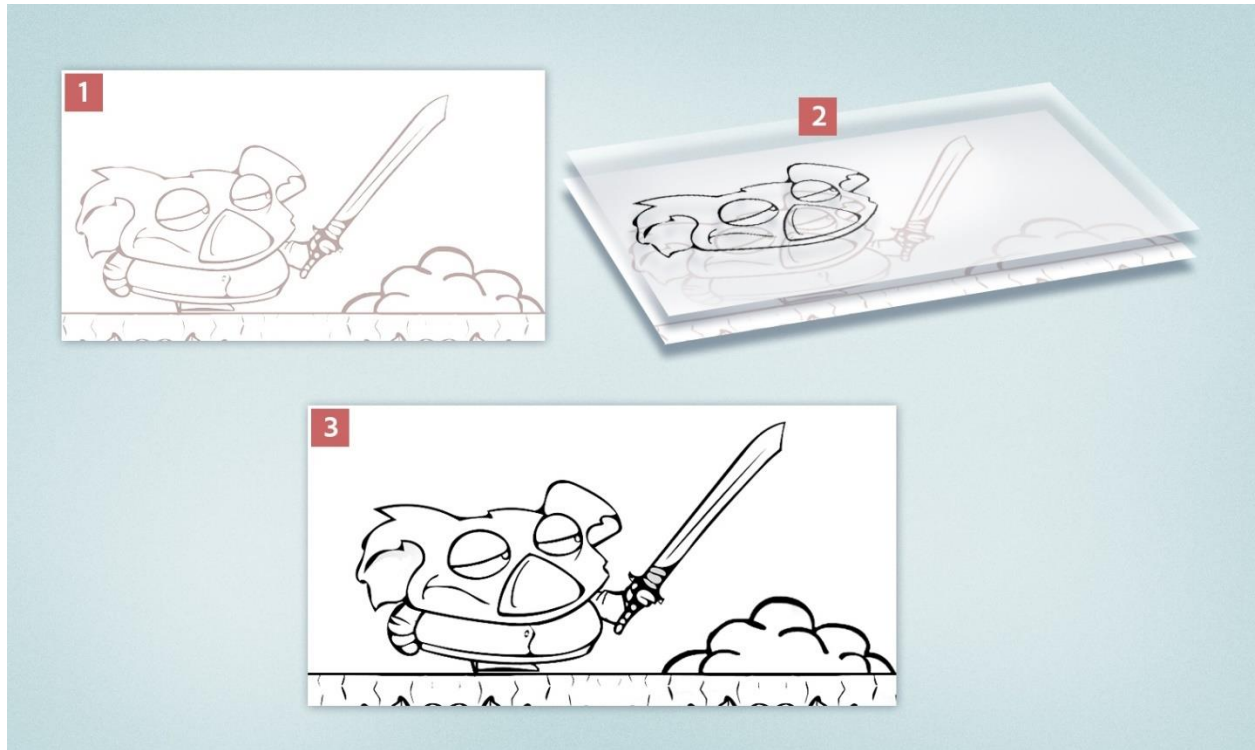
Mask layers contain objects used as masks to hide selected portions of layers below them. Only the portion of the mask layer not covered by the mask is visible.



*Figure 37 Mask layer*

## Guide layer

To align objects when drawing in Adobe Animate, create guide layers and align objects on other layers to the objects you create on the guide layers. Any layer can be a guide layer. Guide layers display a guide icon to the left of the layer's name. Guide layers are not exported and do not appear in a published SWF file.



*Figure 38 Guide layer*

Although you cannot drag a motion tween layer or inverse kinematics pose layer onto a guide layer, you can drag a normal layer onto a guide layer. This converts the guide layer to a motion guide layer and links the normal layer to the new motion guide layer.