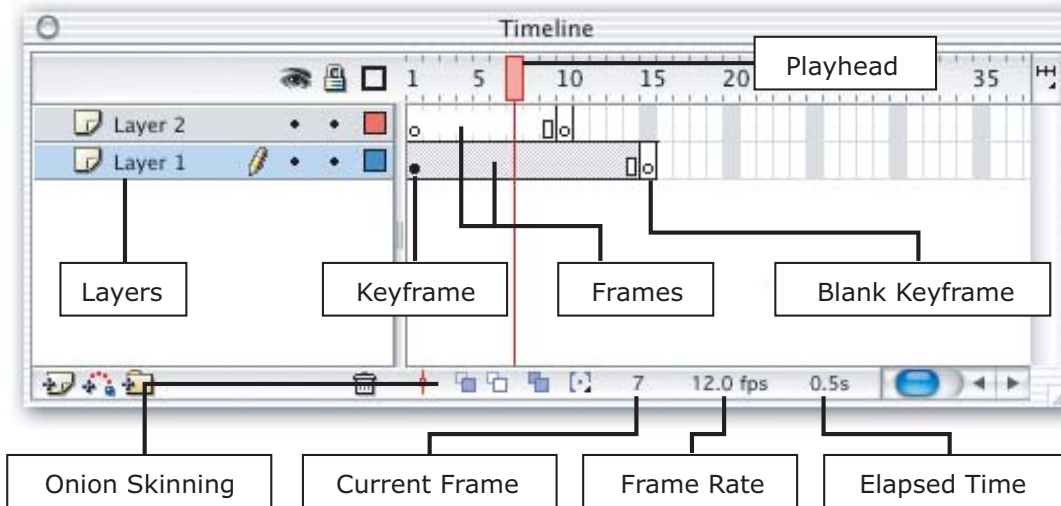# Flash Animation Basics

The Timeline

- o   The Timeline is the heart of all animation activity in Flash.
- o   When creating animations, the Timeline is the panel you'll use most often.

Element	Description
Layer	Similar to layers in Photoshop and Illustrator. Helps keep content separate, and allows ordering of objects front to back. Each layer can be locked, hidden or displayed as outlines.
Keyframe	Defines a moment where animation changes occur. Keyframe content does not change over time until a blank keyframe or another keyframe occurs.
Blank Keyframe	Frames in a timeline that mark a place where changes can occur but are currently empty. These frames have no artwork or action elements.
Playhead	Indicates the frame currently being viewed. You can click and drag (scrub) the Playhead back and forth to quickly preview your animation.
Current Frame	The current frame number of the Playhead.
Frame Rate	Displays the number of frames per second (fps) at which the movie attempts to play at. This can be changed by either double-clicking on the fps display, changing the fps in the Property Inspector, or selecting Modify > Movie… from the menu.
Elapsed Time	Displays the amount of time in seconds from the beginning of the animation to the current location of the Playhead.

Movie Properties

- o Similar to Dreamweaver's Page Properties, Flash has a master document settings box called Movie Properties.
- o In Movie Properties, you can set a number of basic options for your movie:

Property	Description
Dimensions	The width and height in pixels of the project. It is important to set this correctly in the beginning. Changing dimensions later can wreak havoc on the positioning of your objects.
Match	Sets your dimensions to either the size of the current selected paper size (Printer), crops the document to fit current drawing objects (Contents), or the default movie size (Default).
Background Color	Select a color from the Color Box. By default only web-safe colors are available. To use a specific hexadecimal color, enter it in the text field in the Color Box.
Frame rate	The number of frames per second Flash attempts to play when playing the animation. Changing the frame rate at a later time allows you to speed up or slow down an animation.
Ruler Units	Set the unit of measurement for the project. Using pixels as your ruler units is generally the best for most projects.

- o Movie Properties Dialog Box:
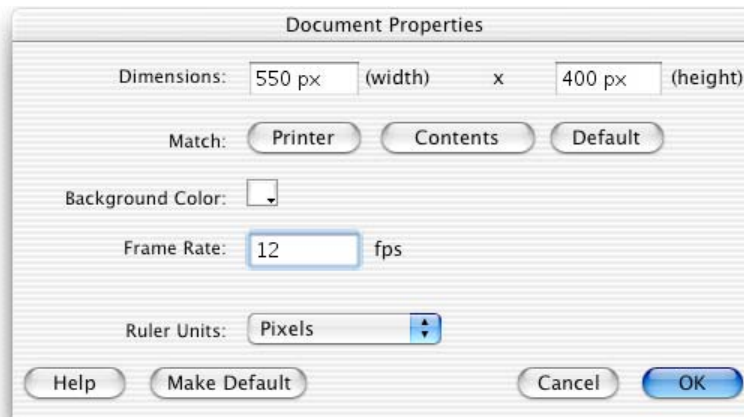
- o Note that some of the options can also be changed using the Property Inspector, specifically the background color and frame rate.
- o Example Frame Rates:
  - Film: 24 fps
  - TV: 30 fps
  - Web video: 8-15 fps
- o Frame Rate Notes:
  - At high frame rates, motion appears smooth and life-like.
  - At lower frame rates, motion appears less-smooth.
  - The human eye perceives frame rates above 20 fps as smooth.
  - Animations with frame rates higher than 30 fps will not look noticeably superior compared with animations set at between 24 and 30 fps.
  - The higher the frame rate, the more difficult it is for a computer to display an animation at the specified frame rate.
  - Slower computers are especially prone to animation slowdowns.

— Animation in Flash —

Introducing Frames and Keyframes
- A difficult concept to learn in Flash is the idea of Frames and Keyframes.
- Flash animations, just like in TV and film animation, use a series of still images displayed in succession to give the illusion of motion.
- Unlike hand-drawn animation, Flash takes care of presenting frames that do not change over time, or frames that change in a mathematically predicable manner.

Keyframes
- Define a moment where animation changes occur.
- Keyframes contain content (unlike Blank Keyframes and Frames).
- Keyframes are represented by a solid circle in the Timeline (▪).
- Keyframe content does not change over time until another keyframe or a blank keyframe occurs.
- Consider each keyframe as a new page on which to draw.
- When inserting a keyframe into a layer that already contains a prior keyframe with content, Flash copies that content into the new keyframe.
  - This makes creating cell-based animations easy and eliminates copy and pasting between frames.

Blank Keyframes
- Blank keyframes are keyframes that contain no content.
- Once content is created in them, they become standard keyframes.
- They are helpful when the next frame in your animation does not contain any artwork from the previous keyframe.
- Blank keyframes are represented by a hollow circle in the Timeline (◌).

Frames
- There are two frame types:
  - White Frames: These frames contain no visual content display nothing, and are simply filler in the Timeline. Generally they act as "spacers" between keyframes.
  - Grey Frames: These frames carry over the display of objects contained in prior keyframes (To the left in Flash). They continue the display of objects over time. To edit the content visually displayed in these frames, the frames must first be converted to keyframes.
- Frames contain no content.
- A series of either frame type ends with a hollow rectangle (▭).

Timeline Shortcuts
- Since the Timeline gets heavy use when creating animations, learning the shortcut keys can save you a great deal of time.
- Flash Timeline shortcut keys:

Type	Shortcut Key
Insert Frame	F5
Remove Frame	Shift-F5
Convert to Keyframe	F6
Clear Keyframe	Shift-F6
Convert to Blank Keyframe	F7

Onion Skinning

- o Allow you to view multiple frames at the same time.
- o Frame content other than the current frame is displayed at varying levels of transparency.
- o By altering the onion skin marker, you can select exactly which frames you want to view.
- o Example: A simple 8-frame animation with onion skinning turned on.
  - ▪ Note the onion skin markers in the Timeline (the left and right brackets)
  - ▪ This screenshot shows that frame 5 is selected, and frames 1 through 8 are being previewed using onion skinning.
  - ▪ The actual fill color of the shape is black, but due to the translucency used in displaying onion skins the fill appears gray.