Technology Training
January-February 2003

Web and Graphics Tools
Flash MX

Presented by Northwest ISD
In conjunction with ESC XI

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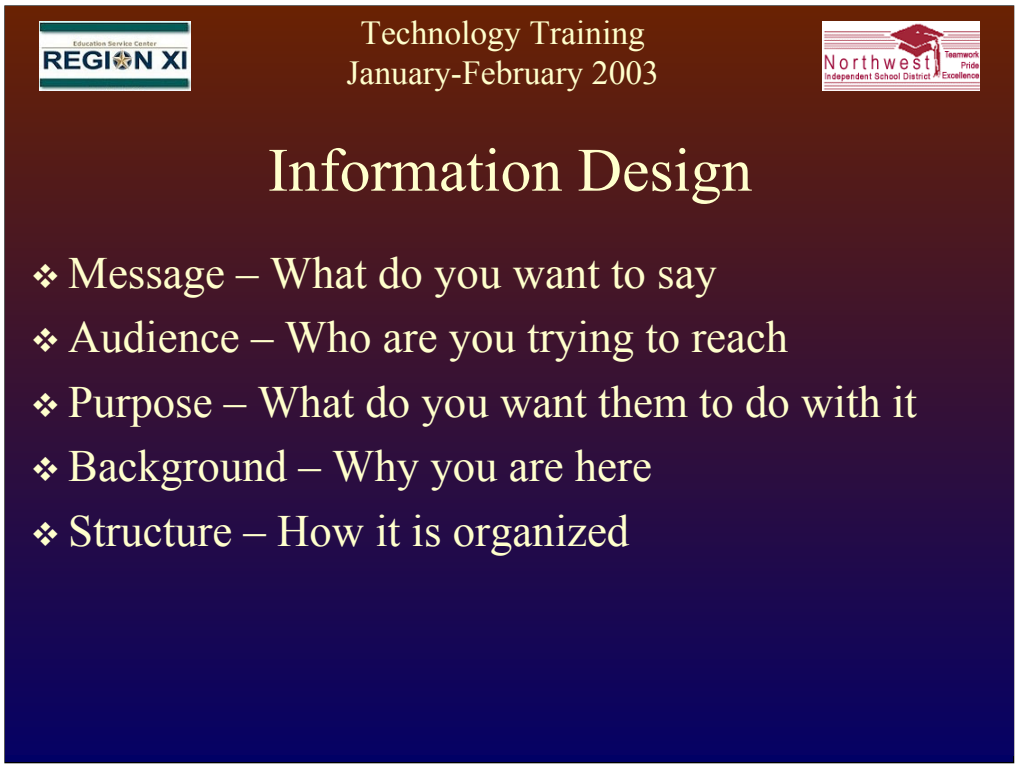
January-February 2003

Schedule

- Pre-Workshop – Story Boards and Site Design
- January 14/15 – Overview and Adobe Photoshop
- **January 28/29 – Macromedia Flash MX**
- February 11/12 – Macromedia Freehand 10
- February 25/26 – Macromedia Dreamweaver MX



Information is defined as the stuff on a page. Usually there is an innate organization to this "stuff".

Does the information to be contained on a site have a hierarchy, I.e. some concepts and ideas are more important or critical than others?

Can the information be organized into equal junks in importance?

Must the information be displayed in a "building block" fashion, I.e. concept #1 must be learned before concept #2 before concept #3?

How the information you intend to display can be organized determines what type of web page or site you will create.

How you want your page to look is partially determined by the information that you are trying to display. However, there are as many ways to create a page as there are people creating pages!

Basic areas to include:

A top logo region

Show the owner/creator and the basic intent of the site

A top or left navigation area

Displays the available information on the site and allows the user a way to access it

A "body" area where most content and information is displayed

Optional parts:

A top navigation area that contains important, but not critical, links to other functions, such as contacts, help, etc.

A bottom bar that contains copyrights and direct contact information

Inspiration 6.0 is one way to develop a visual representation of your page or site. Most people have an easier time working with a visual view of a page than a written narrative.

Pencil and paper still work, even in the 21st century! Create a drawing of your page and site structure. This will be the equivalent of the mental map that you are asking your viewers to build as they click through your site. If you don't understand the structure of your creation, don't expect your site visitors to understand it either

SIMPLIFY, SIMPLIFY, SIMPLIFY!

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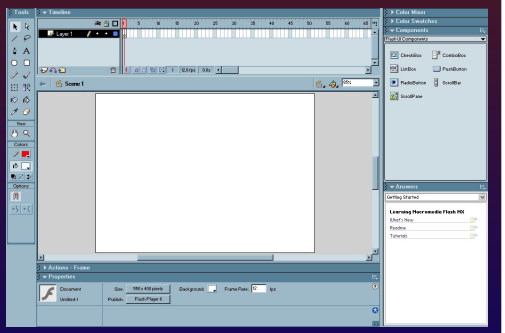
Macromedia Flash MX

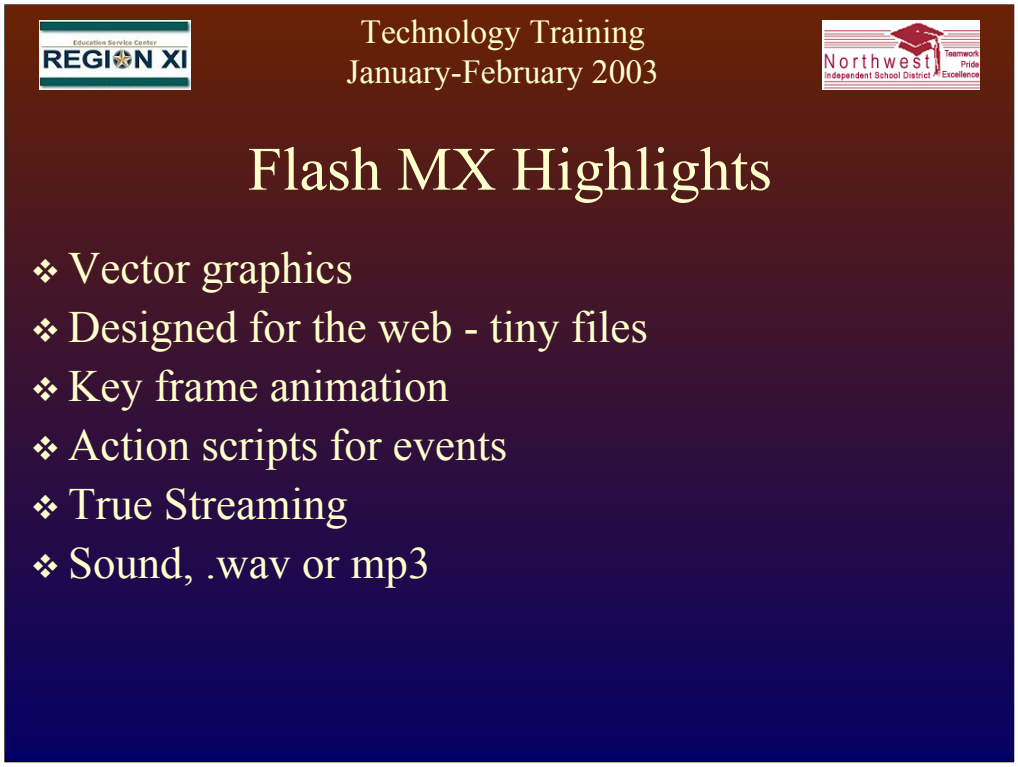
- Tool for creating animated vector graphics and multimedia
- Timeline and object-oriented model
- Very useful feature called **tweening** which can be used to create animations
  - Specify a start and end point and Flash calculates all the in-**between** frames of the animation
- Popular format on websites



Macromedia Flash is one of the primary development tools for animation on the Internet. It is the top-of-the line development environment and can be intimidating. However, knowledge and command of this product virtually insure that employers will demand your skills and development expertise.

Other packages are available that build animations in Shockwave format, but do not contain the full-breadth of development tools available in Flash MX:

- Adobe LiveMotion – easy animation tool, but limited graphics capabilities
- Swish – Limited development and animation tool, but accessible for beginners
- DigiCel – a layered animation tool designed to duplicate clay cel animation
- And many others.



When it first appeared in 1996, Macromedia Flash was an uncomplicated animation app. Since then, the Flash file format has become the standard for interactive Web-based multimedia. Flash MX, the graphics app of the same name, lets you fashion stunning, highly interactive Flash animation.

Flash MX Terms

- Stage
- Media Elements are *Instances* on the stage
- Library of *symbols*
- Timeline
  - Frame – a specific time and content state of a movie
  - Keyframe – a frame that specifies a change in a movie
- Actionscripts to trigger events
- Flash Alpha = Photoshop Opacity

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Flash MX Parts

Use the BIG J!

Select the Desired Tool from the Toolbox

Check Toolbox Options

Set the Property Panel Options

Do your thing on the stage

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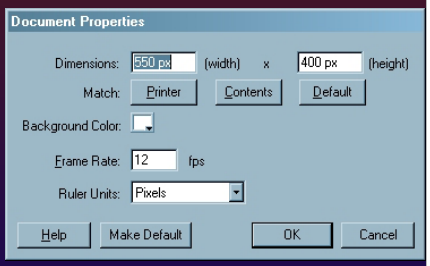
Creating An New Animation

File | New creates a new stage and work area.

Modify | Document controls the properties of document

- Dimensions – H/W in pixels
- Match
  - Printer – max page size of default printer
  - Shape – resizes stage according to the elements placed on it (May modify the spacing of the elements: not desirable)
  - Default – as shown in image
- Background color – affects ALL frames, so select before starting
- Frame Rate – 12 fps is adequate 95% of the time



To create a new document and set its properties:

1 Choose File > New.

2 Choose Modify > Document. The Document Properties dialog box appears.

3 For Frame Rate, enter the number of animation frames to be displayed every second. For most computer-displayed animations, especially those playing from a Web site, 8 fps (frames per second) to 12 fps is sufficient.

4 For Dimensions, do one of the following:

Stage size in pixels, enter Width and Height. Default size is 550 x 400 pixels. Minimum size is 1 x 1 pixels; Maximum is 2880 x 2880 pixels.

To set the Stage size with equal space around the content on all sides, click the Contents button to the right of Match. To minimize movie size, align all elements to the upper left corner of the Stage, and then click Contents.

To set the Stage size to the maximum available print area, click Printer. This area is determined by the paper size minus the current margin selected in the Margins area of the Page Setup dialog box (Windows) or the Print Margins dialog box (Macintosh).

To set the Stage size to the default size, click Default.

5 Click the triangle in the Background Color box and select a color from the palette.

6 To specify the unit of measure for rulers that you can display along the top and side of the application window, select an option from the pop-up menu in the upper right.

7 Do one of the following:

To make the new settings the default properties for your new document only, click OK.

To make these settings the default properties for all new documents, click Make Default.

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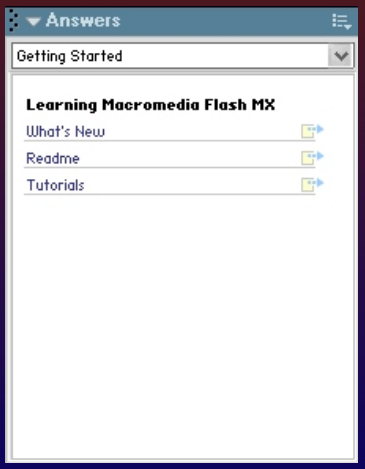
HELP!!!

The Answers panel has everything that is new about Flash.

- Press F1 at any time for HTML-based help file.
- The Flash Lessons (Help | Lessons) are an excellent introduction to Flash MX.



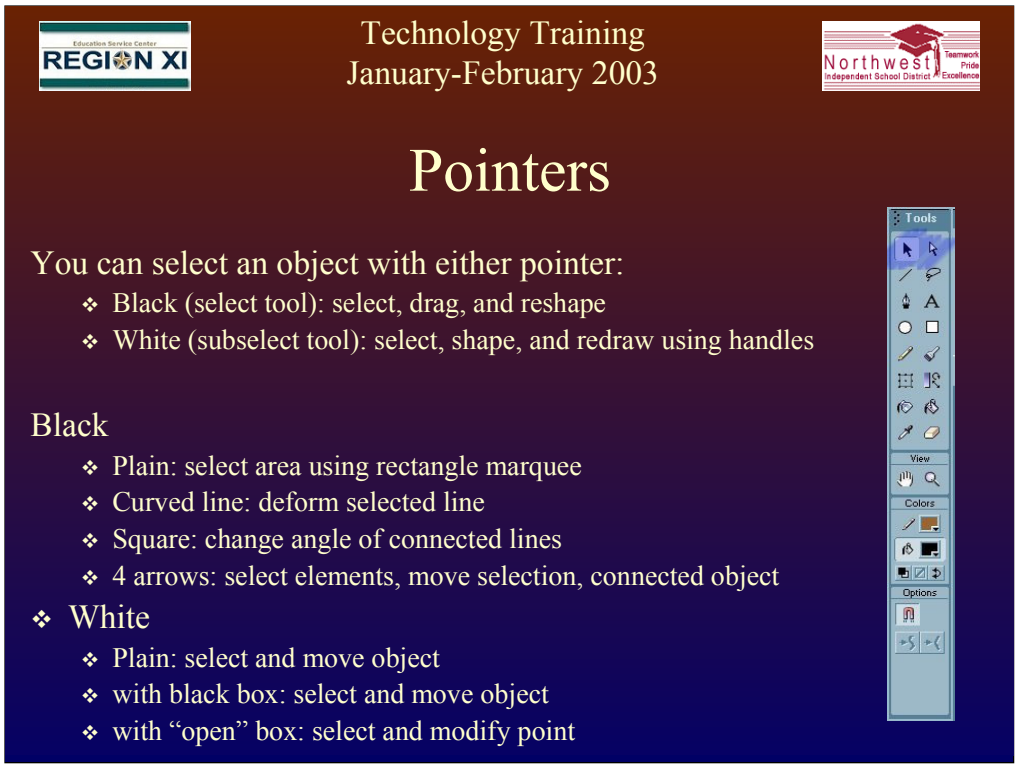
Two types of help are available:

1. Select Help | Using Flash from the menu or press F1.
2. Use the Answers Panel to peruse selected help on more advanced topics supplied by Macromedia (internet connection required)

For learning Flash MX, three other options are available:

1. Select Help | Lessons and go through each of the available sections. Excellent guides for learning (or re-learning) Flash MX basics.
2. Select Help | Tutorials to receive a large list of extended lessons and guides for more advanced techniques.
3. Create an animation using one of the templates available from File | New from template. Once exposed to HOW Macromedia created the templates, you will have ideas of your that can build on the techniques learned from the templates.

For a huge selection of Flash files (FLA), go to http://www.canfieldstudios.com/flash5/ and start downloading.



Remember the differences and life is easier. Each pointer has multiple functions, depending on where the mouse cursor resides and how you click your mouse.

Black Pointer (Arrow Tool)

Select a stroke, fill, group, instance, or text block: single click

Select connected lines: double-click one of the lines

Select a fill and outline: double-click the fill.

Select objects within a rectangular area: drag a marquee around the object or objects that you want to select. Instances, groups, and type blocks must be completely enclosed to be selected.

White Pointer (Subselect Tool)

Display anchor points on line or fill: Click the line/shape outline.

Move an anchor point: Click point and drag the point

Nudge an anchor point/points: Select point or points and use arrow keys to move

To adjust a straight segment: Click on straight segment and drag anchor point on segment to new position.

To adjust a curve segment: drag the segment.

Note: When you click the path, anchor points are revealed. Adjusting a segment with the Subselection tool may add points to the path.

Adjust points or tangent handles on a curve: Select anchor point on a curved segment. A tangent handle appears for the point you selected. Drag the anchor point, or tangent handle. Shift-drag to constrain the curve to multiples of 45° . Alt-drag (Windows) to drag tangent handles individually.

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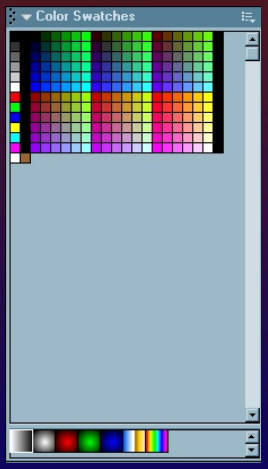
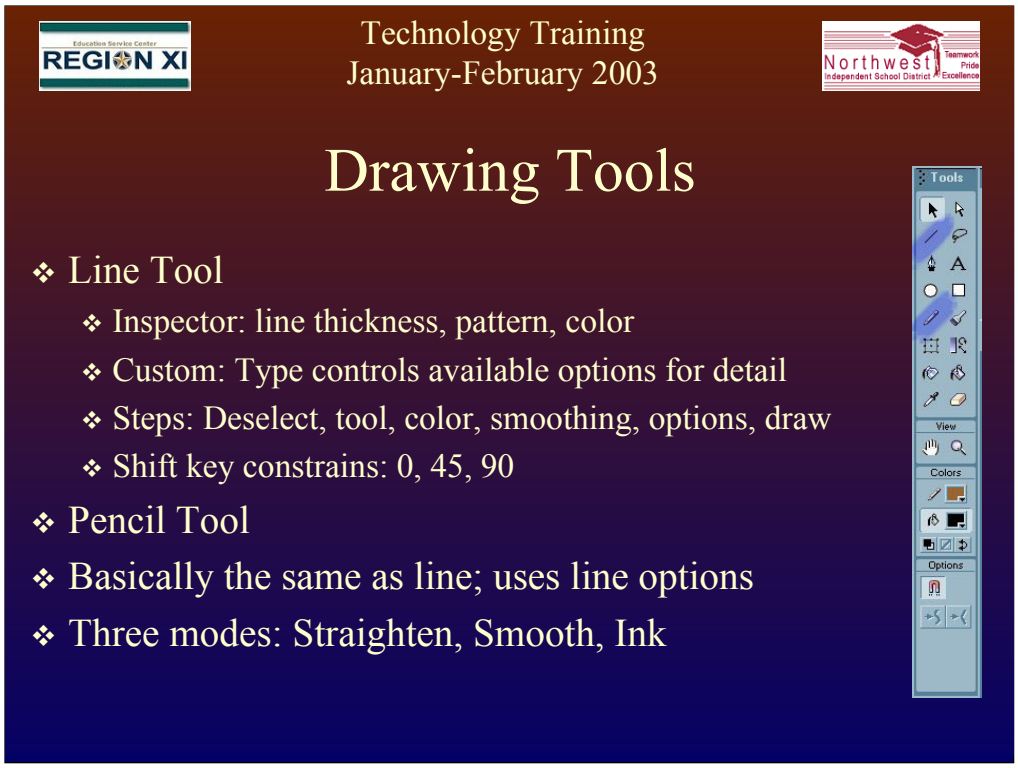
Color Swatches

- As a rule, select a color before touching the stage
- Swatches show available colors
- Bottom panel shows available, preset gradients and color flow models
- Add colors using the select list ( )



Can be used to select colors, but MOST TOOLS HAVE THEIR OWN COLOR OPTIONS!

Use the BIG J!



To draw a straight line, oval, or rectangle:
1 Select the Line, Oval, or Rectangle tool.

2 Select Window > Properties and select stroke and fill attributes in the Property inspector.

3 For the Rectangle tool, specify rounded corners by clicking the Round Rectangle modifier (Options Toolbar) and entering a corner radius value. A value of zero creates square corners.

4 Drag on the Stage. If you are using the Rectangle tool, press the Up and Down Arrow keys while dragging to adjust the radius of rounded corners.

For the Oval and Rectangle tools, Shift-drag to constrain the shapes to circles and squares.

For the Line tool, Shift-drag to constrain lines to multiples of 45° .

To select a stroke color, style, and weight using the Property inspector:
1 Select an object or objects on the Stage.

2 Display the Property panel, choose Window > Properties.

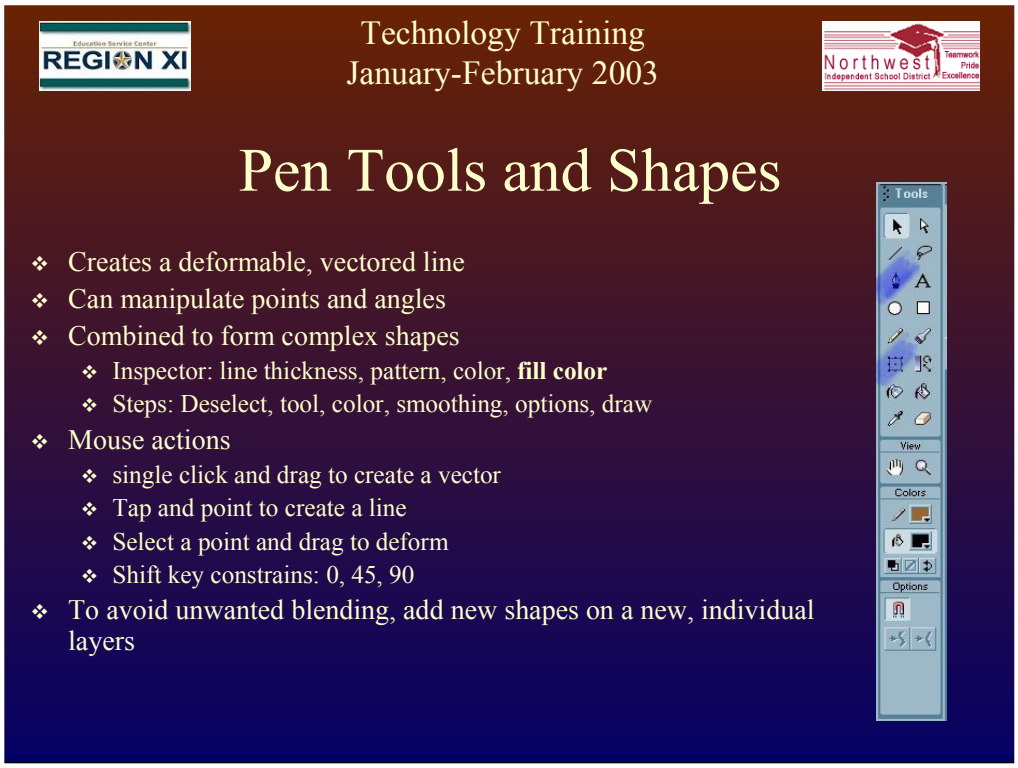
3 Select a color, click triangle next to the Stroke color box and: Choose a color swatch from the palette or type color's hexadecimal value in the text box.

4 Select a stroke style, click triangle next to the Style pop-up menu and choose an option from the menu or choose custom. **5** Select a stroke weight, click triangle next to the Weight pop-up menu and the slider at the desired weight.

To apply a solid color fill using the Property inspector:
1 Select an object or objects on the Stage.

2 Choose Window >Properties.

3 Select a color, click triangle next to Fill color box and do one of the following: Choose a color swatch from the palette or type color's hexadecimal value in the text box.



To draw precise paths as straight lines or smooth, flowing curves, you can use the Pen tool. You can create straight or curved line segments and adjust the angle and length of straight segments and the slope of curved segments.

When you draw with the Pen tool, you click to create points on straight line segments, and click and drag to create points on curved line segments.

You can adjust straight and curved line segments by adjusting points on the line using the White pointer (Subselect Tool). You can convert curves to straight lines and the reverse. You can also display points on lines that you create with other Flash drawing tools, such as the Pencil, Brush, Line, Oval, or Rectangle tools, to adjust those lines.

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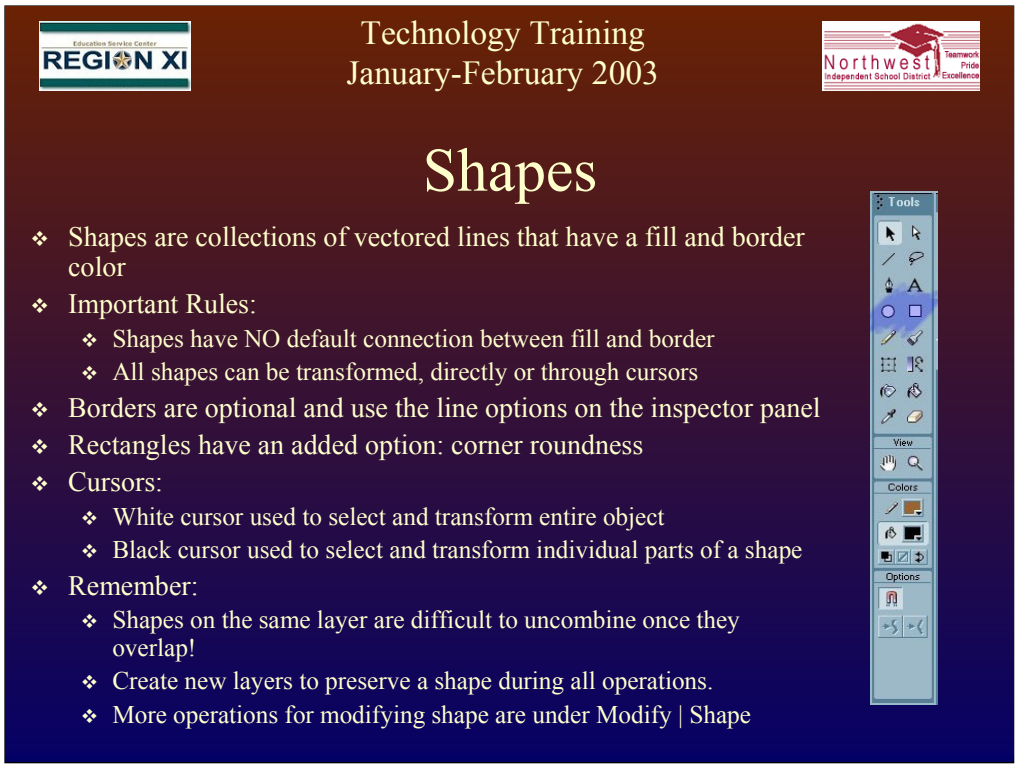
Vector Lines

- Vectors are modifiable lines, controlled by anchor points
- Remember Cursor Tasks!
  - Plain white: select and move object
  - Plain white with black box: select and move object
  - Plain White with box: select and modify point
  - Black with curved line: deform selected line
  - Black with square: change angle of connected lines
  - Black with 4 arrows: move entire, connected object
  - Plain Black: select area using rectangle marquee
- Combinations of colors cancels
- It is a selection modification; think alt-key in Photoshop
- Node selector used after shape "completed"

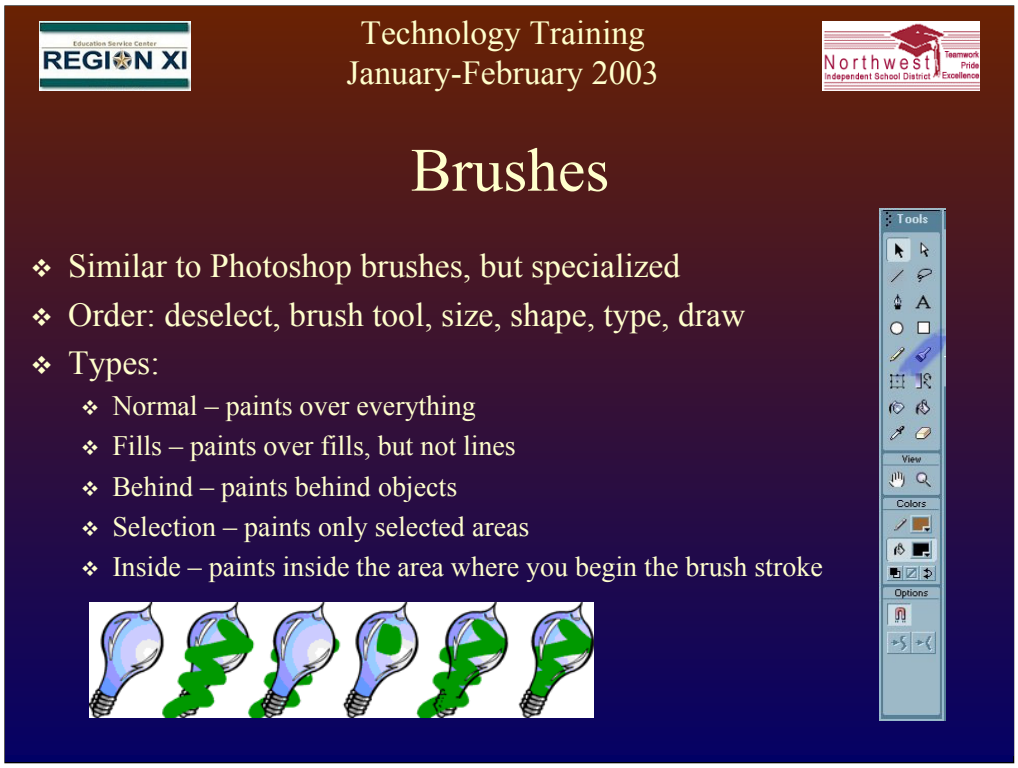
Lines are the key to Flash MX. Their creation, direction, and weight are all controlled by the pen and vector modification tools. The function of these tools has changed as Flash has developed.

Make sure that you practice your mouse control using the white and black pointers to be successful in the management of Flash MX's lines and fills.



Remember that "shapes" in Flash MX are an illusion. Shapes are elements created by the combination of a line and a fill. The line and fill can be modified together or separately. The fill is controlled by how the lines were created and their final relationship to each other.

PLAY, PLAY, PLAY!



To paint with the Brush tool:

1 Select the Brush tool.

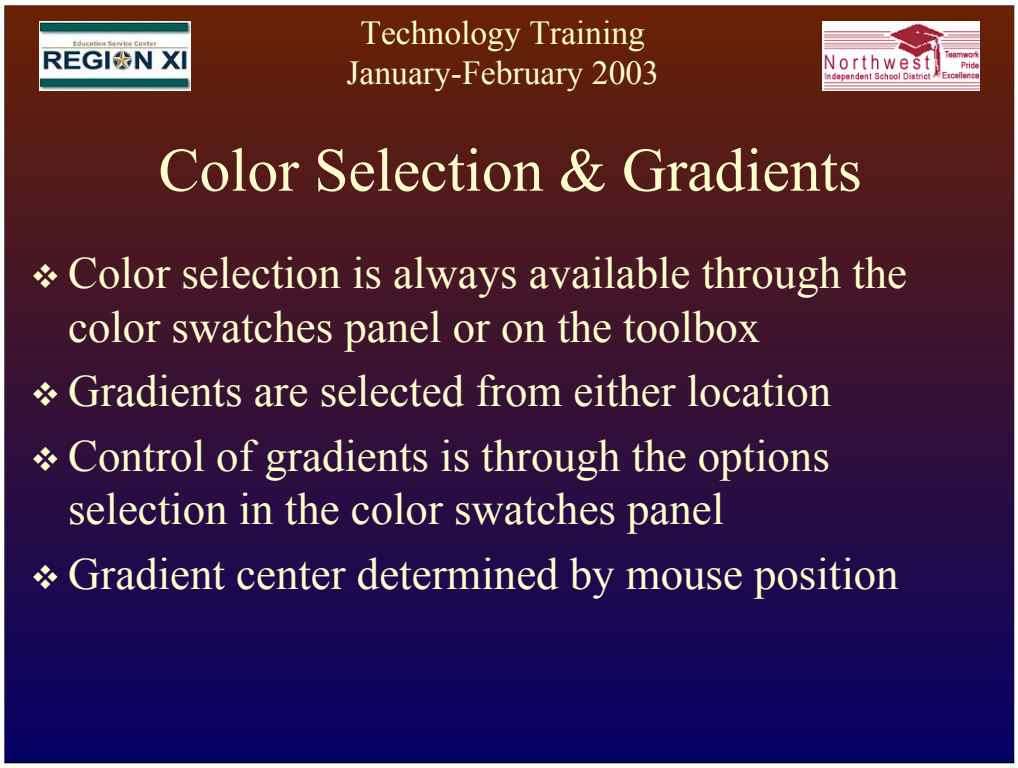
2 Select Window > Properties and select fill color in the Property inspector.

3 Click the Brush Mode modifier and choose a painting mode:

- Paint Normal paints over lines and fills on the same layer.
- Paint Fills paints fills and empty areas, leaving lines unaffected.
- Paint Behind paints in blank areas of the Stage on the same layer, leaving lines and fills unaffected.
- Paint Selection applies a new fill to the selection when you select a fill in the Fill modifier or the Fill box of the Property inspector. (Same as selecting a filled area and applying a new fill.)
- Paint Inside paints the fill in which you start a brush stroke and never paints lines.

4 Choose a brush size and brush shape from the Brush tool modifiers.

5 Drag on the Stage. Shift-drag to constrain brush strokes to horizontal and vertical directions.



To create or edit a solid color with the Color Mixer:

1 To apply the color to existing artwork, select an object or objects on the Stage.

2 Choose Window > Color Mixer.

3 To select a color mode display, choose RGB or HSB from the pop-up menu in the upper right corner of the Color Mixer.

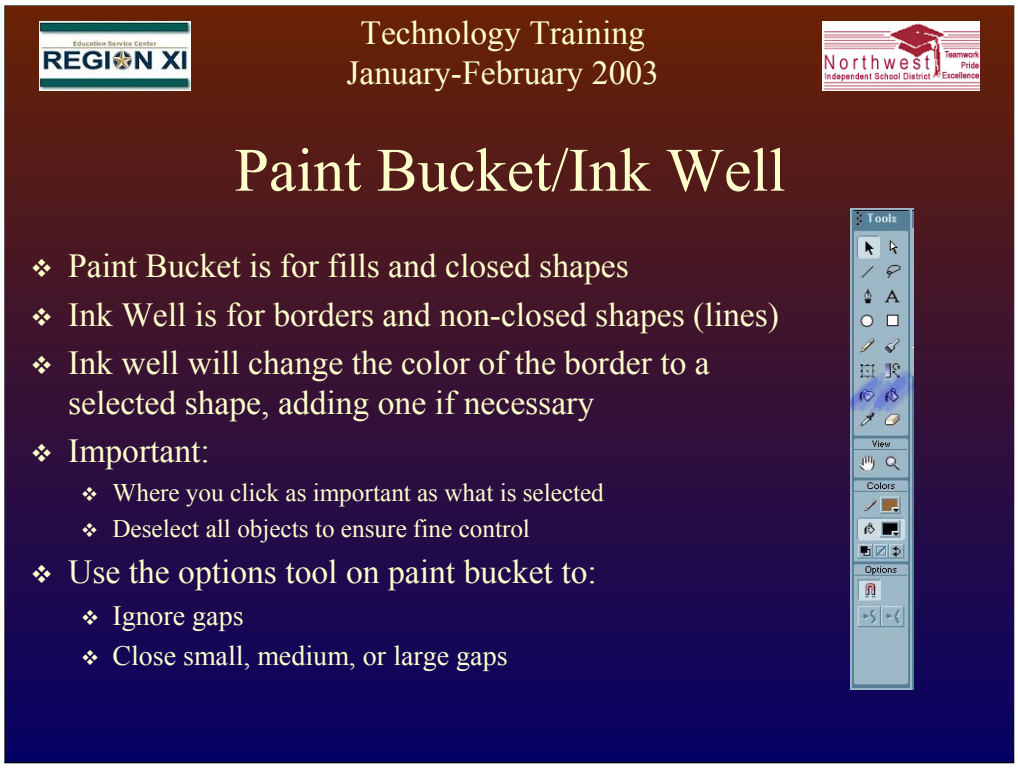
4 Click the Stroke or Fill icon to specify which attribute is to be modified. **Note:** Be sure to click the icon, not the color box, or the color pop-up window will open.

5 If you selected the Fill icon in step 4, verify that Solid is selected in the Fill Style pop-up menu in the center of the Color Mixer.

6 Click the arrow in the lower right corner to expand the Color Mixer.

7 Do one of the following:

- Click in the color space in the Color Mixer to select a color. Drag the Brightness control to adjust the brightness of the color.
- Enter values in the color value boxes. Enter an Alpha value to specify the degree of transparency, from 0 for complete transparency to 100 for complete opacity.
- Click the Default Stroke and Fill button to return to the default color settings, black and white (white fill and black stroke).
- Click the Swap Stroke and Fill button to swap colors between the fill and the stroke.
- Click the No Color button to apply no color to the fill or stroke. **Note:** You cannot apply a stroke or fill of No Color to an existing object. Instead, select the existing stroke or fill and delete it.
- Click the Stroke or Fill color box and choose a color from the pop-up window.



To use the Paint Bucket tool to fill an area:

1 Select the Paint Bucket tool from the toolbox.

2 Choose a fill color and style (Property Inspector)

3 Click the Gap Size modifier and choose a gap size option:

Choose Don't Close Gaps if you want to close gaps manually before filling the shape. Closing gaps manually can be faster for complex drawings.

Choose a Close option to have Flash fill a shape that has gaps.

Note: If gaps are too large, you might have to close them manually.

4 Click the shape or enclosed area that you want to fill.

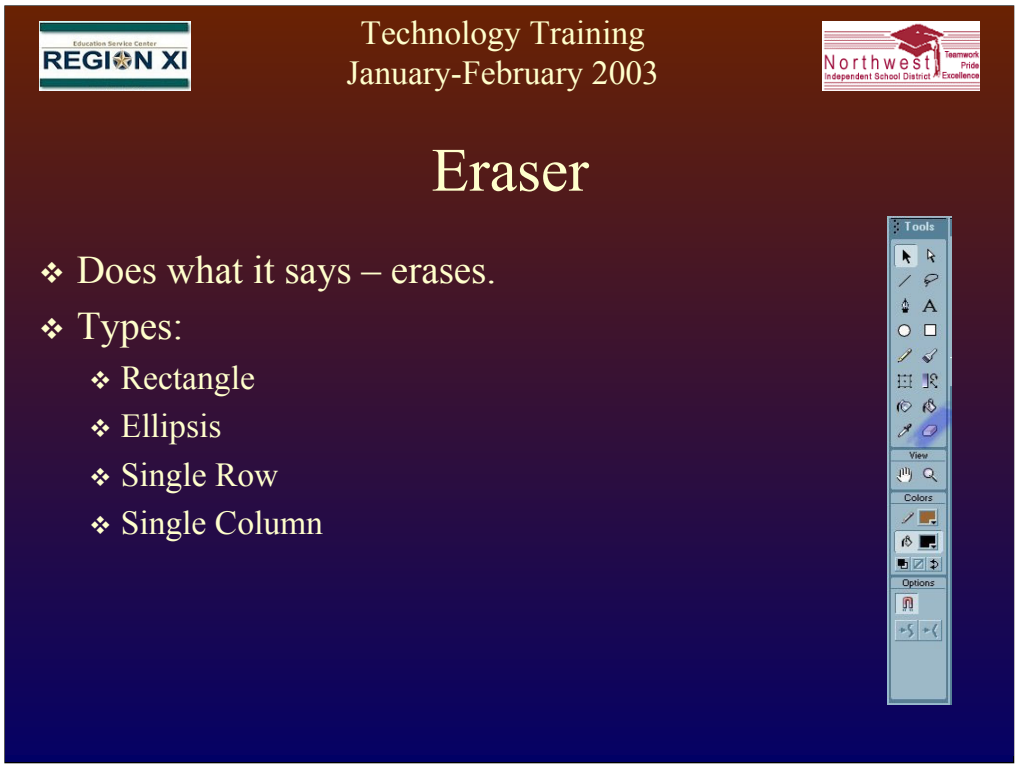
To use the Ink Bottle tool:

1 Select the Ink Bottle tool from the toolbox.

2 Choose a stroke color (Property Inspector)

3 Choose a stroke style and stroke width from the Property inspector.

4 Click an object on the Stage to apply the stroke modifications.



Quickly delete everything on Stage: Double-click the Eraser tool. (I learn something new every day).

To remove stroke segments or filled areas:
1 Select the Eraser tool and then click the Faucet modifier.
2 Click the stroke segment or filled area that you want to delete.

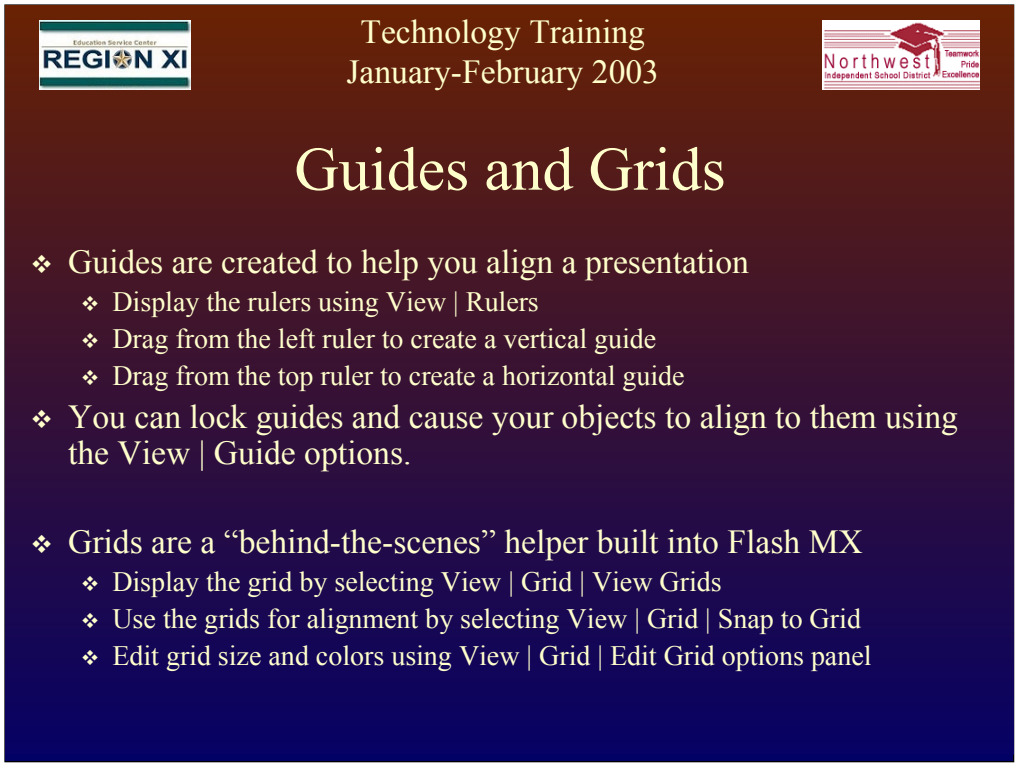
To erase by dragging:
1 Select the Eraser tool.

2 Click the Eraser Mode modifier and choose an erasing mode:

- •Erase Normal erases strokes and fills on the same layer.
- •Erase Fills erases only fills; strokes are not affected.
- •Erase Lines erases only strokes; fills are not affected.
- •Erase Selected Fills erases only the currently selected fills and does not affect strokes, selected or not. (Select the fills you want to erase before using the Eraser tool.)
- •Erase Inside erases only the fill on which you begin the eraser stroke. If you begin erasing from an empty point, nothing will be erased. Strokes are unaffected by the eraser in this mode.

3 Click the Eraser Shape modifier and choose an eraser shape and size. Make sure that the Faucet modifier is not selected.

4 Drag on the Stage.



To turn snapping to guides on or off: Choose View > Guides > Snap to Guides.

Note: Snapping to guides takes precedence over snapping to the grid in places where guides fall between grid lines.

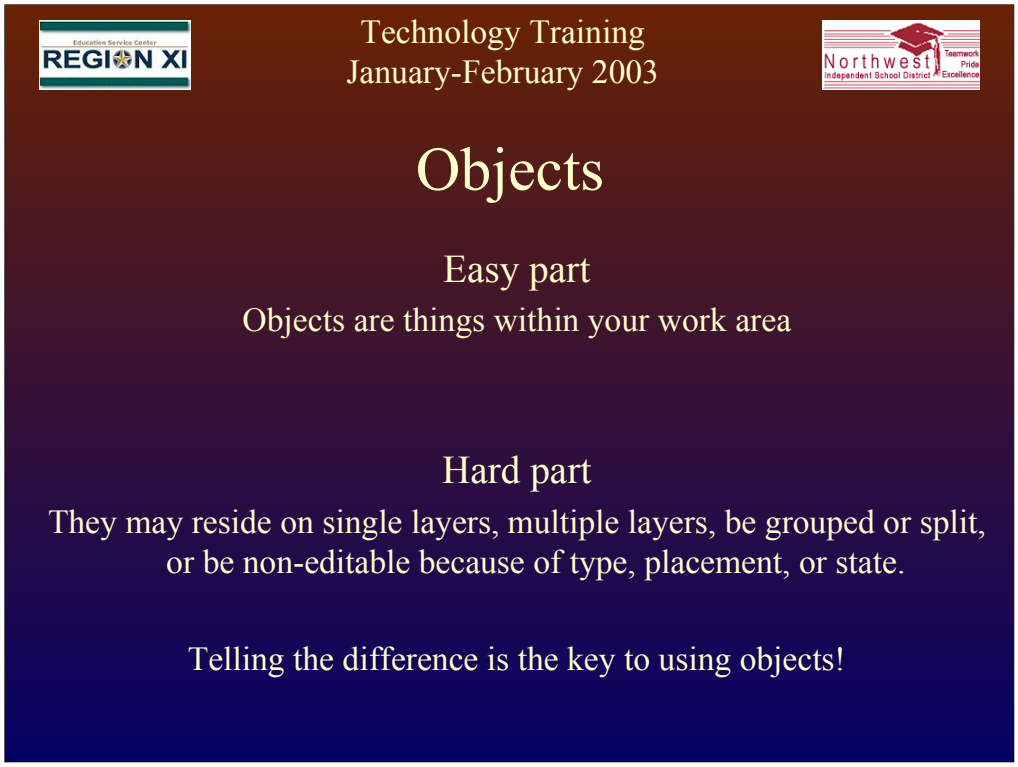
To move a guide: Use the Arrow tool to drag the guide.

To remove a guide: With guides unlocked, use the Arrow tool to drag the guide to the horizontal or vertical ruler. For information on locking and unlocking guides, see the following procedure.

Using rulers

When rulers are displayed, they appear along the top and left sides of the document. You can change the unit of measure used in the rulers from the default of pixels. When you move an element on the Stage with the rulers displayed, lines indicating the element's dimensions appear on the rulers.

To specify the rulers' unit of measure for a document:
Choose Modify > Document, and then select an option from the pop-up menu at the upper right.



In Macromedia Flash MX, graphic objects are items on the Stage. Flash lets you move, copy, delete, transform, stack, align, and group graphic objects. You can also link a graphic object to a URL. Keep in mind that modifying lines and shapes can alter other lines and shapes on the same layer.

Note: Graphic objects in Flash are different from ActionScript objects, which are part of the ActionScript programming language. Be careful not to confuse the two uses of the term.

Working with Objects

Raster Images, such as JPG, GIF, PNG

- Defined as whole elements.
- Can be "split", but results are sometimes unusable

Vector Images, such as Freehand, Illustrator, or CorelDraw images

- Can be split into multiple layers
- Can be imported as keyframes (risky, but neat)
- Can be imported as layers (safe, safe, safe, but not always desirable)

Drawn Shapes and Lines

- Always defined as objects
- Sometimes are not editable because transforms can occur across layers, keyframes, frames, or groups
- Grouping is a way to apply "all-or-none" to common objects

Symbols

- A specific type of repeatable shape with a preset configuration
- Not always editable because of its configuration

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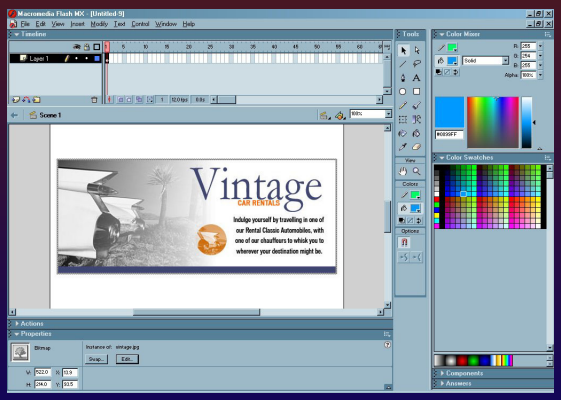
Importing Raster Images

- Use File | Import
- Once an image is within your stage, it will be selected
- Right-click and send it to its own layer

For a Raster image, this creates a single layer that can be moved, colored, manipulated



Using the Property inspector to work with bitmaps

When you select a bitmap on the Stage, the Property inspector displays the bitmap's symbol name and its pixel dimensions and position on the Stage.

To display the Property inspector:

1 Select an instance of a bitmap on the Stage.

2 Choose Window > Properties.

To assign a new name to a bitmap:

1 Select the bitmap in the Library panel.

2 In the Property inspector, enter a new name in the Name text box.

3 Click OK.

To replace an instance of a bitmap with an instance of another bitmap:

1 Select a bitmap instance on the Stage.

2 Choose Window > Properties if the Property inspector is not visible.

3 In the Property inspector, click Swap.

4 In the Swap Bitmap dialog box, select a bitmap to replace the one currently assigned to the instance.

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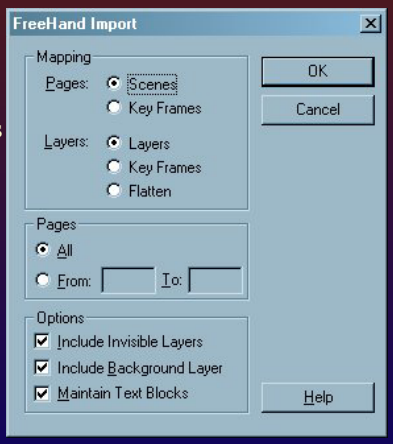
Importing Vector Images

Vector images can be imported with several options:

- Pages = scenes
  - Each page of the vectored graphic becomes its own small movie
- Pages = keyframes
  - Each page is assigned a different time period
  - Allows the image to be built up across time
- Layers = Layers (safe)
- Layers = keyframes
  - Can manipulate each layer of an image across time
- Layers flattened to make a raster image



The following vector/bitmap formats can be imported into Flash MX, regardless of whether QuickTime 4 is installed:

File type	**Extension**
Adobe Illustrator (version 8 or earlier	.eps, .ai
AutoCAD DXF	.dxf
Bitmap	.bmp (Using QuickTime)
Enhanced Windows Metafile	.emf
FreeHand	.fh7, .fh7, .fh8, .fh8, .fh9, .fh9, .fh10
FutureSplash Player	.spl
GIF and animated GIF	.gif
JPEG	.jpg
PICT	.pct, .pic
PNG	.png
Flash Player 6	.swf
Windows Metafile	.wmf

The following vector or bitmap file formats can be imported into Flash MX only if QuickTime 4 or later is installed:

File type	**Extension**
MacPaint	.pntg
Photoshop	.psd
PICT	.pct, .pic (As bitmap)
QuickTime Image	.qtif
Silicon Graphics Image	.sgi
TGA	.tga
TIFF	.tif

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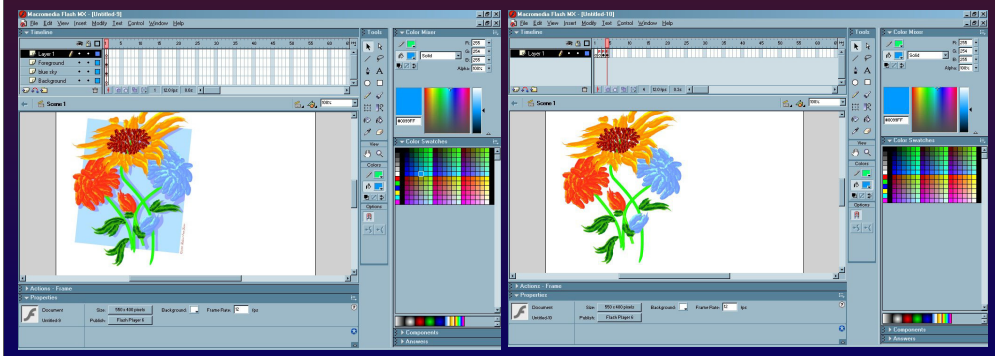
Sample Vector Import

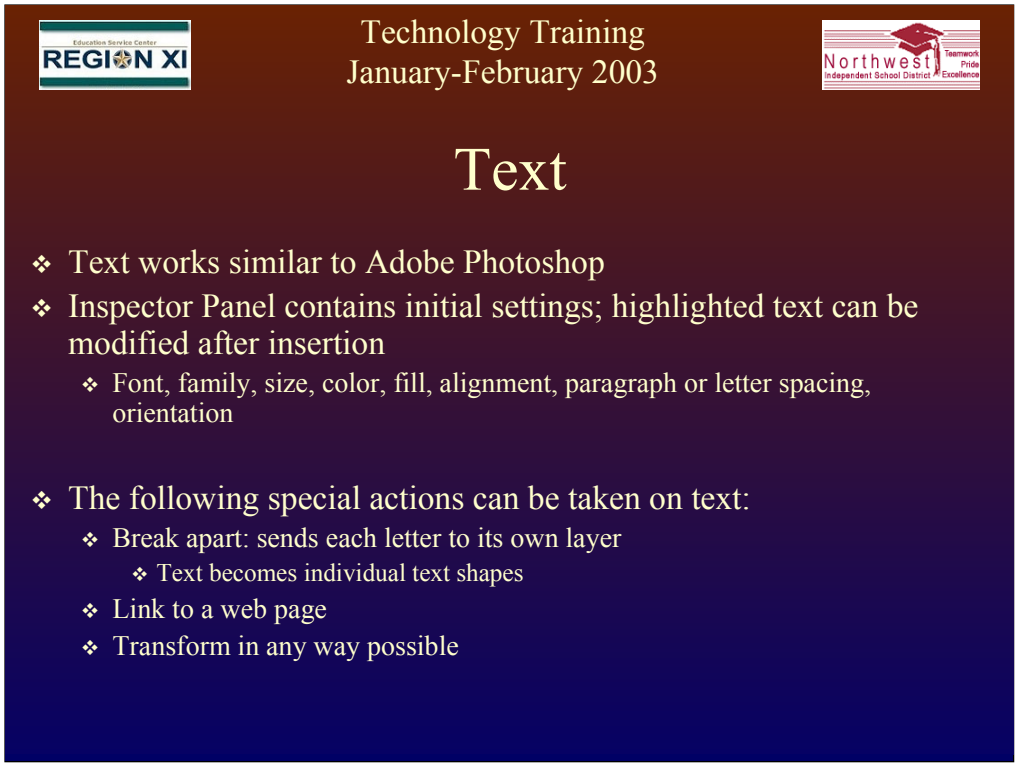
Import as Layers

Import as keyframes



Notice the differences in the timeline.

For practice, import some of the images in the Flash MX/Samples/Images directory using the different options in the import tab.



To create text, you place text blocks on the Stage using the Text tool. When creating static text, you can place text on a single line that expands as you type, or in a fixed-width block (for horizontal text) or fixed-height block (for vertical text) that expands and wraps words automatically. When creating dynamic or input text, you can place text on a single line, or create a text block with a fixed width and height.

A handle is displayed on a corner of text blocks to identify the text block type:

•Static horizontal blocks that extend, round handle at upper right corner of text block.

•Static horizontal blocks with height, square handle at upper right corner of text block.

•Static vertical text with r-to-l orientation that extend, round handle at lower left corner of text block.

•Static vertical text with r-to-l orientation and fixed height, square handle at lower left corner of text block.

•Static vertical text with l-to-r orientation that extends, round handle at lower right corner of text block.

•Static vertical text with l-to-r orientation and fixed height, square handle at lower right corner of text block.

•Dynamic/input text blocks that extend, round handle at lower right corner of text block.

•Dynamic or input text with defined height and width, square handle at lower right corner of text block.

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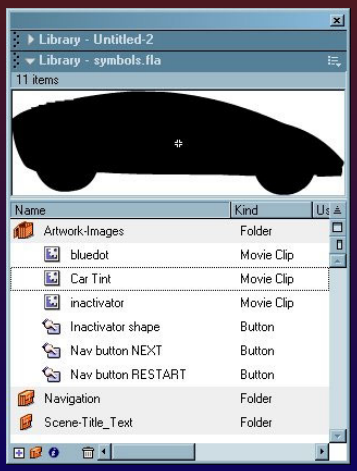
Symbols

Reusable portions of a single Flash file

- F11 – opens the symbol window
- Flash stores action and motion as symbols, as well as shapes or elements of a flash movie.
- Use File | Open as Library
- Caveats:
  - Symbols are difficult to modify once added to the symbol library
  - Place on individual layers
  - Symbol characteristics are managed primarily through the inspector panel and transforms!
  - A crosshair in the middle of the stage denotes symbol editing mode



Each symbol has a unique Timeline and Stage, complete with layers. When you create a symbol you choose the symbol type, depending on how you want to use the symbol in the movie.

•Use graphic symbols for static images and to create reusable pieces of animation that are tied to the Timeline of the main movie. Graphic symbols operate in sync with the movie's Timeline. Interactive controls and sounds won't work in a graphic symbol's animation sequence.

•Use button symbols to create interactive buttons in the movie that respond to mouse clicks, rollovers or other actions. You define the graphics associated with various button states, and then assign actions to a button instance.

•Use movie clip symbols to create reusable pieces of animation. Movie clips have their own multiframe Timeline that plays independent of the main movie's Timeline—think of them as mini-movies inside a main movie that can contain interactive controls, sounds, and even other movie clip instances. You can also place movie clip instances inside the Timeline of a button symbol to create animated buttons.

•Use font symbols to export a font and use it in other Flash movies.

Note: To preview interactivity and animation in movie clip symbols in the Flash authoring environment, you must choose Control > Enable Live Preview.

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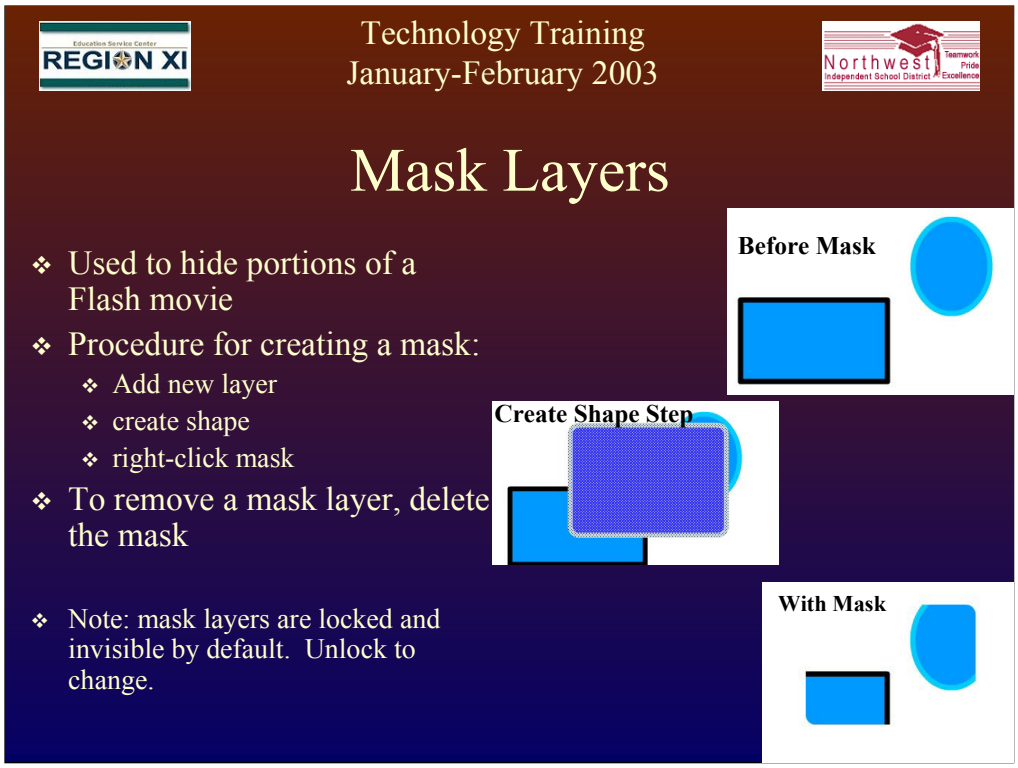
Layer Usage & Management

- Eyeball – now you see it, now you don't
- Lock – can't be changed
- Color box – shows the outline of elements on that layer when layer is selected
- You can create folders to manage like layers.
- Every element – separate layer!



To mask additional layers after creating a mask layer, do one of the following:

•Drag an existing layer directly below the mask layer.

•Create a new layer anywhere below the mask layer.

•Choose Modify > Layer and select Masked in the Layer Properties dialog box.

To unlink layers from a mask layer:

1 Select the layer you want to unlink.

2 Do one of the following:

Drag the layer above the mask layer.

Choose Modify > Layer and select Normal.

Importing Images

- Flash MX supports all standard image types, excluding Adobe-only formats
- EPS/PS are options for importing PDF layouts
- Older versions of PSD are acceptable (pre-version 3.5)

Raster images must be modified to be used successfully.

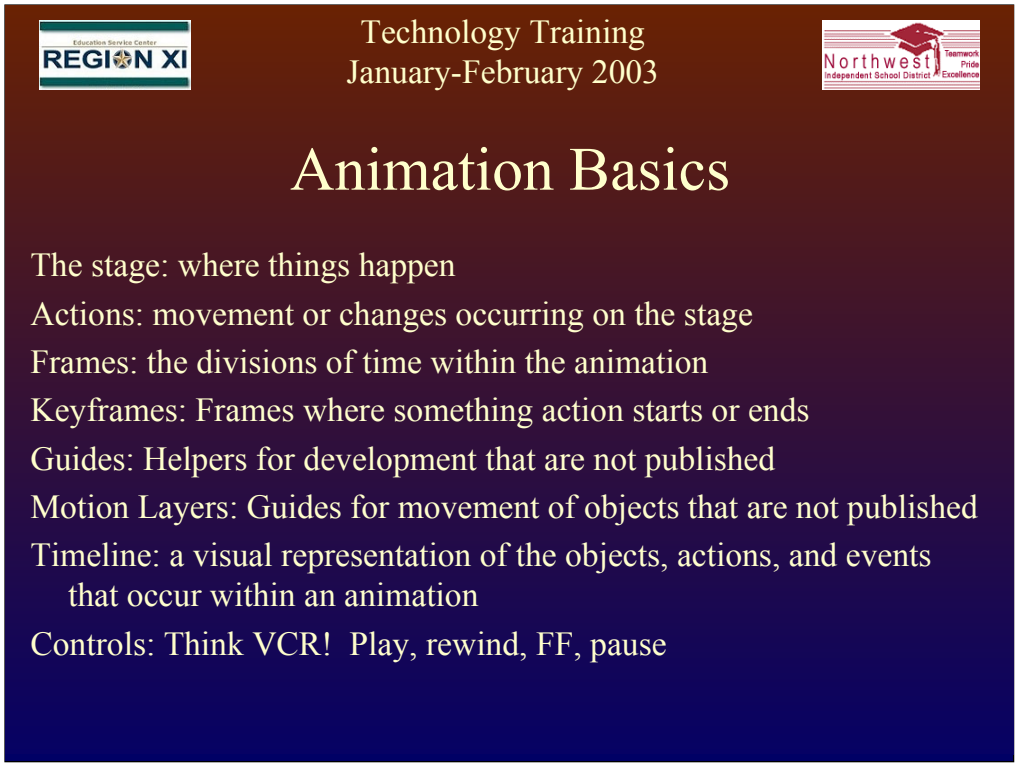
- Break Apart: The image is separated from its pixels and becomes a complete shape
  - Shaded (dimmed) to denote “broken apart” status

Importing Raster Images

Raster images must be modified to be used successfully.

- Break Apart: Modify | Break Apart
  - separated from its pixels to become a shape
  - Shaded (dimmed) to denote “broken apart” status
- Convert to Vector: Modify | Trace Bitmap
  - Uses color, edge, and contour parameters to determine how to create a formula for preserving the image
  - Rough, but needed when individual parts of a raster image are needed in the animation

Note: Raster images can be used as fills. Use the gradient fill tool () to change a raster fill of a shape

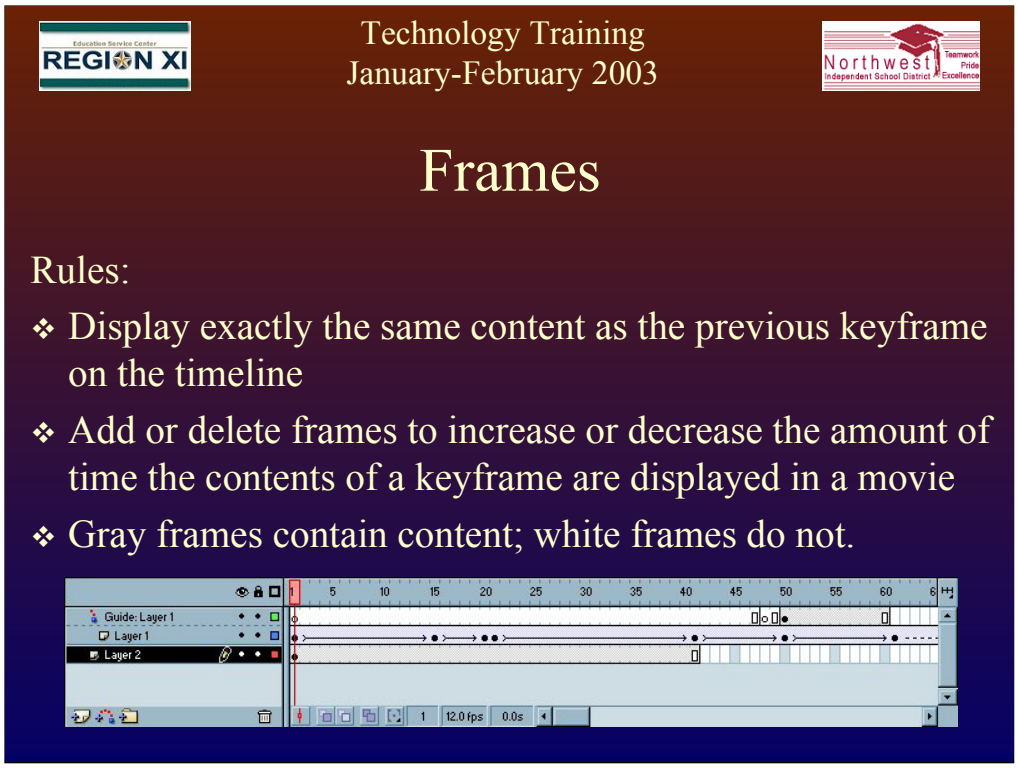


You create animation in a Macromedia Flash MX document by changing the contents of successive frames. You can make an object move across the Stage, increase or decrease its size, rotate, change color, fade in or out, or change shape. Changes can occur independently of, or in concert with, other changes. For example, you can make an object rotate and fade in as it moves across the Stage.

There are two methods for creating an animation sequence in Flash: tweened animation, and frame-by-frame animation. In tweened animation, you create starting and ending frames and let Flash create the frames in between. Flash varies the object's size, rotation, color, or other attributes evenly between the starting and ending frames to create the appearance of movement. In frame-by-frame animation, you create the image in every frame.

To simplify the process of creating tweened animation, you can distribute multiple objects to separate layers. You can use a mask layer to create a hole through which the contents of one or more underlying layers are visible.

Note: You can also create animation programmatically using ActionScript to change the properties of an object, symbol, or instance.



Working with frames in the Timeline

In the Timeline, you work with frames and keyframes, placing them in the order you want the objects in the frames to appear. You can change the length of a tweened animation by dragging a keyframe in the Timeline.

You can perform the following modifications on frames or keyframes:

• Insert, select, delete, and move frames or keyframes

• Drag frames and keyframes to a new location on the same layer or on a different layer

• Copy and paste frames and keyframes

• Convert keyframes to frames

Drag an item from the Library panel onto the Stage to add the item to the current keyframe

The Timeline provides a view of tweened frames in an animation. For information on editing tweened frames, see Creating Animation.

Flash offers two different methods for selecting frames in the Timeline. In frame-based selection (the default) you select individual frames in the Timeline. In span-based selection, the entire frame sequence, from one keyframe to the next, is selected when you click any frame in the sequence.

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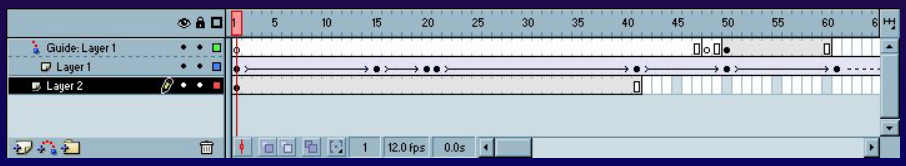
Keyframes

Rules:

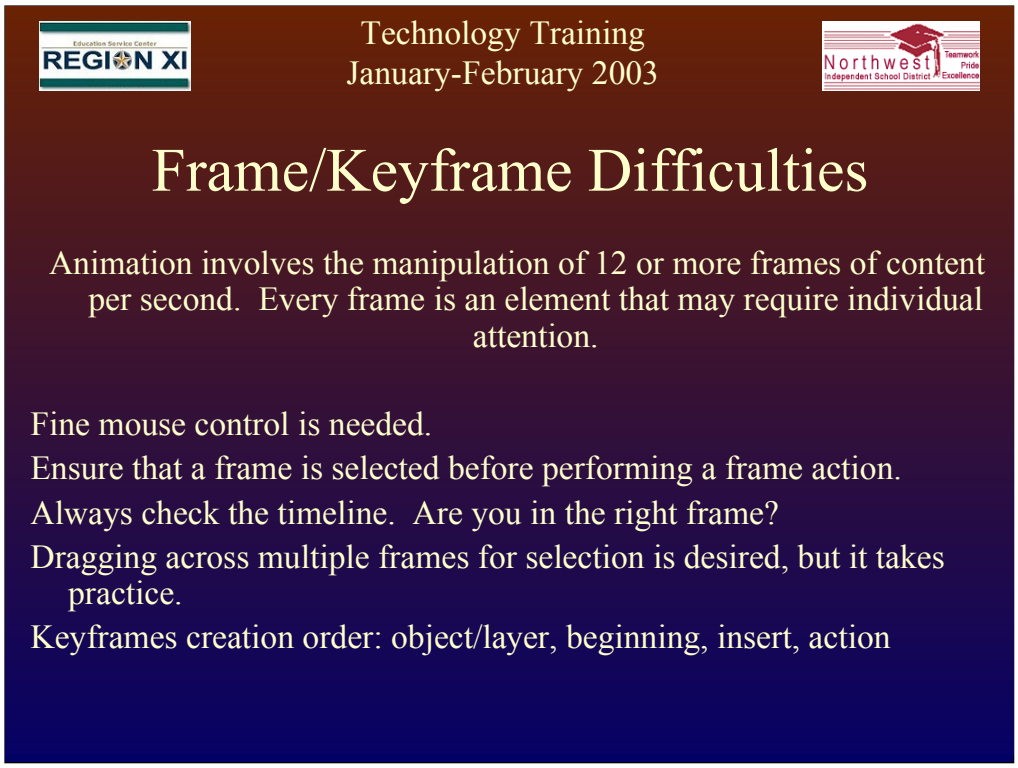
- A special type of frame used to cause a change in a movie.
- It is a copy of the previous keyframe in a movie.
- Controls appearance, position, all free transform elements
- A used keyframe displays a black dot on the Timeline
- An keyframe without content displays an empty dot on the timeline



To insert frames in the Timeline, do one of the following:
To insert a new frame, choose Insert > Frame.

To create a new keyframe, choose Insert > Keyframe, or right-click (Windows) or Control-click (Macintosh) the frame where you want to place a keyframe, and choose Insert Keyframe from the context menu.

To create a new blank keyframe, choose Insert > Blank Keyframe, or right-click (Windows) or Control-click (Macintosh) the frame where you want to place the keyframe, and choose Insert Blank Keyframe from the context menu.



To delete or modify a frame or keyframe, do one of the following:
To delete a frame, keyframe, or frame sequence, select the frame, keyframe, or sequence and choose Insert > Remove Frame, or right-click (Windows) or Control-click (Macintosh) the frame, keyframe, or sequence and choose Remove Frame from the context menu. Surrounding frames remain unchanged.

•To move a keyframe or frame sequence and its contents, drag the keyframe or sequence to the desired location.

•To extend the duration of a keyframe, Alt-drag (Windows) or Option-drag (Macintosh) the keyframe to the final frame of the new sequence duration.

•To copy a keyframe or frame sequence by dragging, Alt-click (Windows) or Option-click (Macintosh) and drag the keyframe to the new location.

•To copy and paste a frame or frame sequence, select the frame or sequence and choose Edit > Copy Frames. Select a frame or sequence that you want to replace, and choose Edit > Paste Frames.

•To convert a keyframe to a frame, select the keyframe and choose Insert > Clear Keyframe, or right-click (Windows) or Control-click (Macintosh) the keyframe and choose Clear Keyframe from the context menu. The cleared keyframe and all frames up to the subsequent keyframe are replaced with the contents of the frame preceding the cleared keyframe.

•To change the length of a tweened sequence, drag the beginning or ending keyframe left or right. To change the length of a frame-by-frame sequence, see Creating frame-by-frame animations.

•To add an item from the library to the current keyframe, drag the item from the Library panel onto the Stage.

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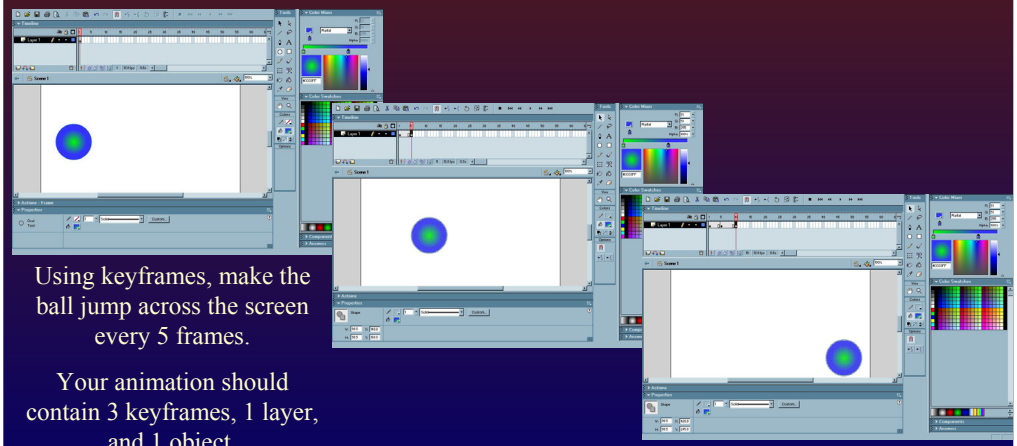
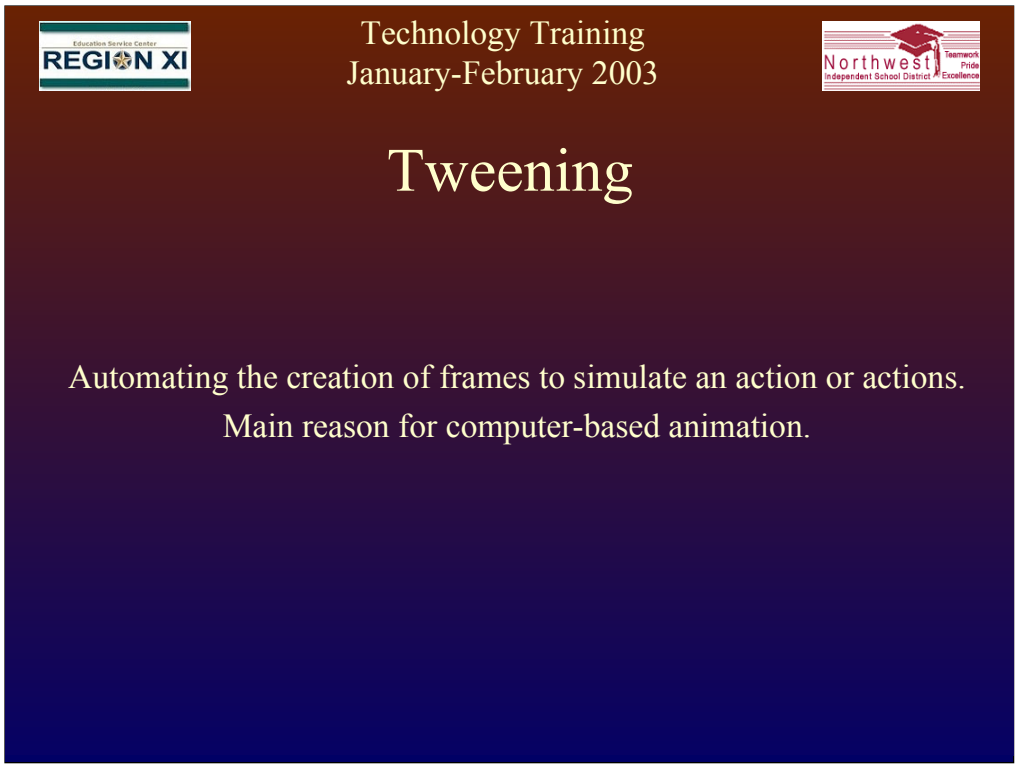
Insert Keyframes Exercise

The Jumping Ball



Using keyframes, make the ball jump across the screen every 5 frames.

Your animation should contain 3 keyframes, 1 layer, and 1 object.



Flash can tween position, size, rotation, and skew of instances, groups, and type. Additionally, Flash can tween the color of instances and type, creating gradual color shifts or making an instance fade in or out. To tween the color of groups or type, you must make them into symbols. To animate individual characters in a block of text separately, you place each character in a separate text block.

If you apply a motion tween and then change the number of frames between the two keyframes, or move the group or symbol in either keyframe, Flash automatically tweens the frames again.

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Motion Tweens

An animation sequence that moves or changes an object.

To create a motion tween:

- Specify two keyframes that each display an object in a different location, rotation, size, or color
  - Select the starting keyframe
  - Shift-Left Mouse Click on the ending keyframe
  - Right Click (or Insert | Motion Tween) and select Create Motion Tween
  - Test your tween by moving the timeline slider between the two points

To remove a motion tween:

Right click on a frame within the tween
Select Remove Tween

Click on a tween line (line w/arrow) to see options for the tween in the Inspector Panel

To create a motion tween using the Create Motion Tween command:

1 Select an empty keyframe and draw an object on Stage, or drag an instance of symbol from Library panel. In order to create a tween, you must have only one item on the layer.

2 Choose Insert > Create Motion Tween. **If you drew an object in step 1, Flash automatically converts the object to a symbol and assigns it the name tween1.**

3 Click inside the frame where you want the animation to end, and choose Insert > Frame.

4 Move the object, instance, or type block on the Stage to the desired position. Adjust size of element to tween its scale. Adjust rotation if you want to tween rotation. Deselect the object when you have completed adjustments. A keyframe is automatically added to the end of the frame range.

5 Drag the arrow next to the Easing value or enter a value to adjust the rate of change between tweened frames: Negative numbers begin the motion tween slowly and accelerate the tween toward the end of the animation. Positive numbers begin the motion tween rapidly and decelerate the tween toward the end of the animation

By default, rate of change between tweened frames is constant.

6 To rotate the selected item while tweening, choose an option from the Rotate menu:

Choose Auto to rotate the object once in the direction requiring the least motion.

Choose Clockwise (CW) or Counterclockwise (CCW) to rotate the object as indicated, and then enter a number to specify the number of rotations.

7 For a motion path, select Orient to Path to orient baseline of tweened element to motion path.

8 Select Synchronize to ensure that the instance loops properly in the main movie.

9 If you're using a motion path, select Snap to attach the tweened element to the motion path by its registration point.

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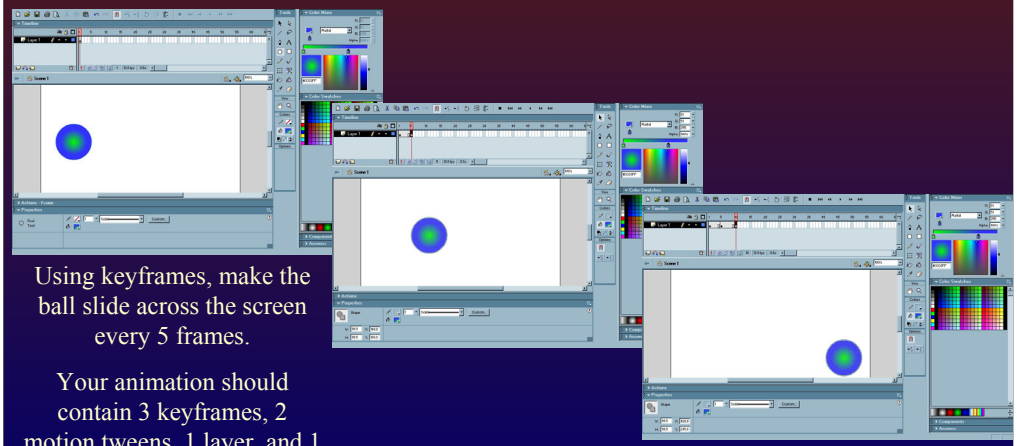
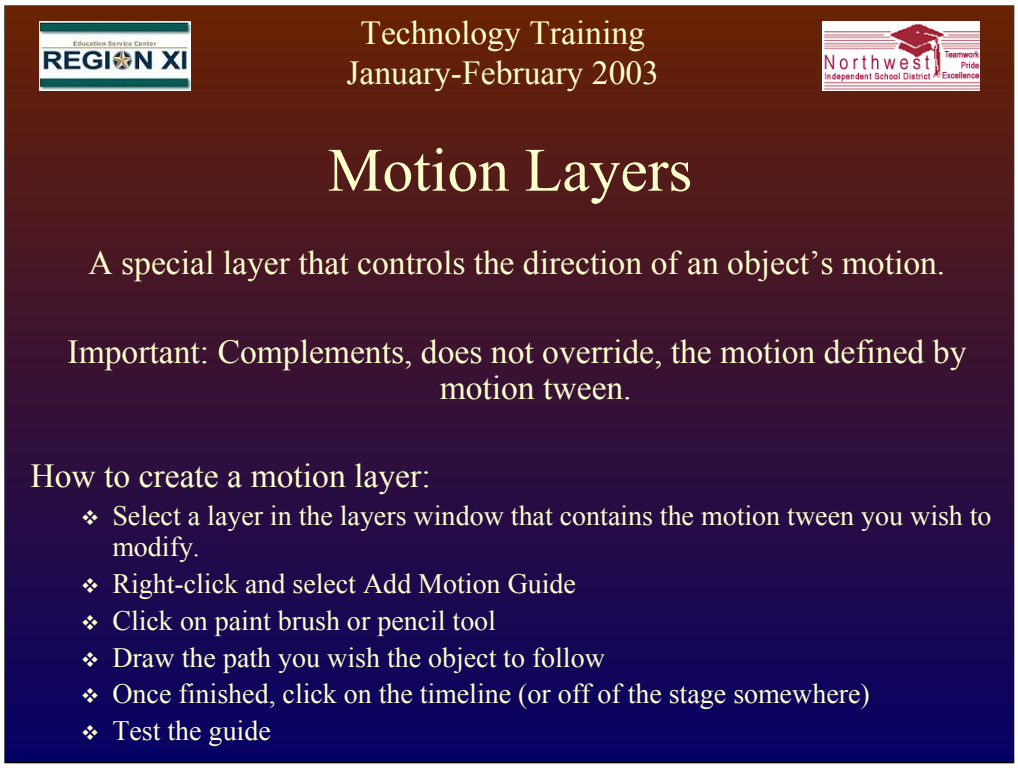
Insert Motion Tween Exercise

The Sliding Ball



Using keyframes, make the ball slide across the screen every 5 frames.

Your animation should contain 3 keyframes, 2 motion tweens, 1 layer, and 1 object.



To link layers to a motion guide layer, do one of the following:

- Drag an existing layer below the motion guide layer. The layer is indented under the motion guide layer. All objects on this layer automatically snap to the motion path.
- Create a new layer under the motion guide layer. Objects you tween on this layer are automatically tweened along the motion path.
- Select a layer below a motion guide layer. Choose Modify > Layer and select Guided in the Layer Properties dialog box.

To unlink layers from a motion guide layer:

1. Select the layer you want to unlink.
2. Do one of the following:
    1. Drag the layer above the motion guide layer.
    2. Choose Modify > Layer and select Normal as the layer type in the Layer Properties dialog box.

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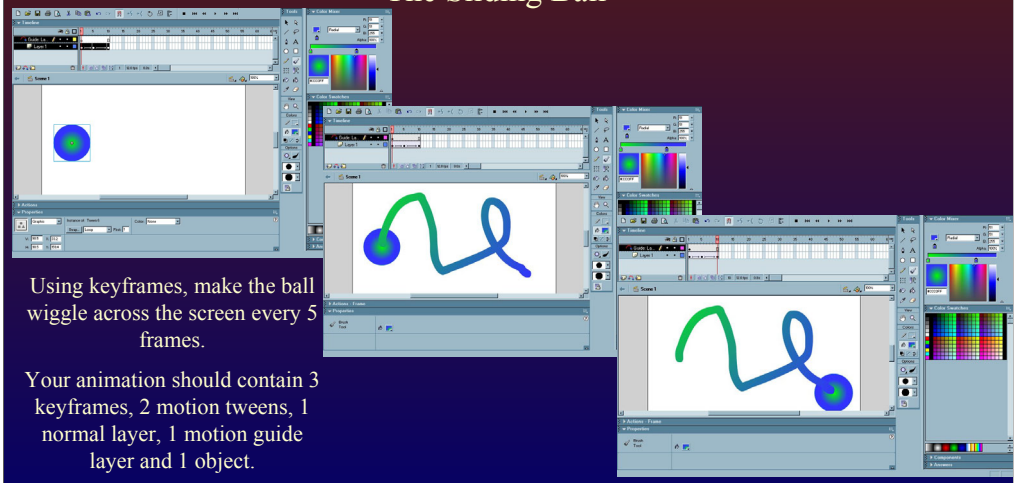
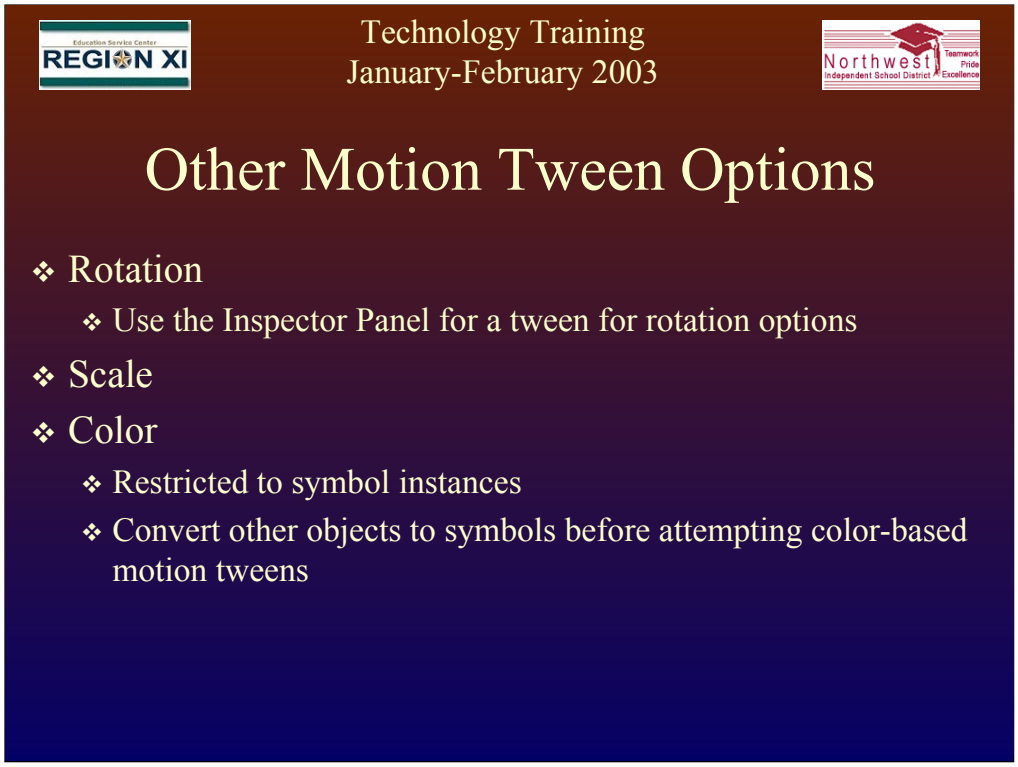
Motion Guide Exercise

The Sliding Ball



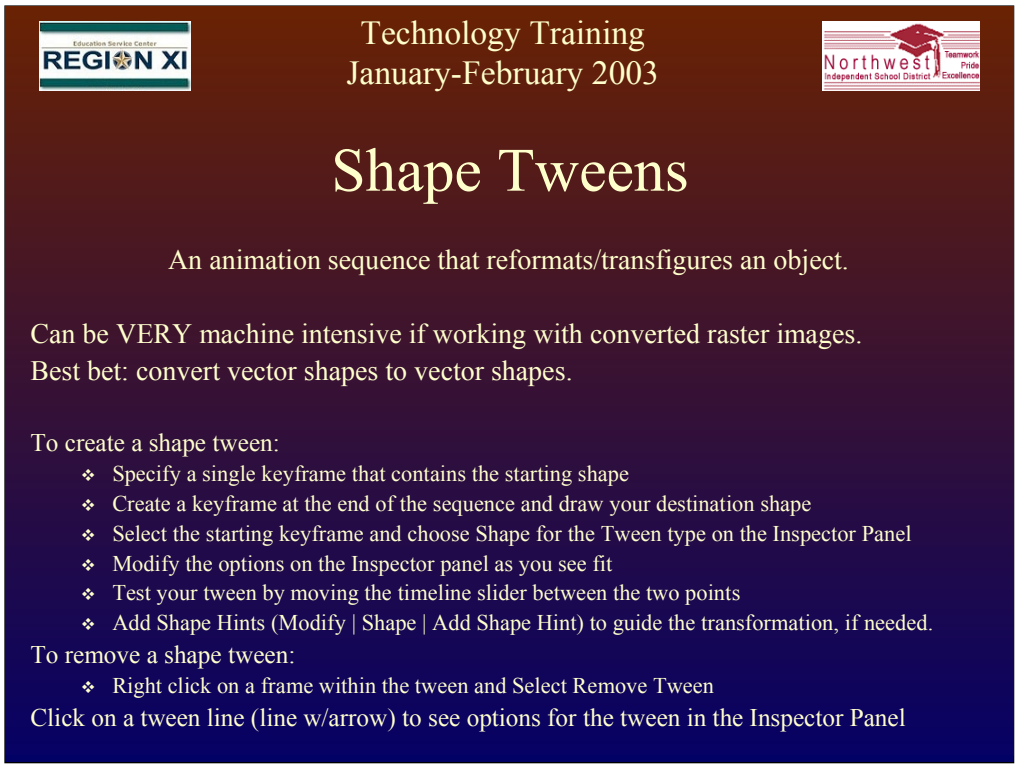
Using keyframes, make the ball wiggle across the screen every 5 frames.

Your animation should contain 3 keyframes, 2 motion tweens, 1 normal layer, 1 motion guide layer and 1 object.



To tween the color of groups or type, you must make them into symbols.

To animate individual characters in a block of text separately, you place each character in a separate text block.



Blending options are available for shape tweens:

- Distributive creates an animation in which the intermediate shapes are smoother and more irregular.
- Angular creates an animation that preserves apparent corners and straight lines in the intermediate shapes.

Note: Angular is appropriate only for blending shapes with sharp corners and straight lines. If the shapes you choose do not have corners, Flash reverts to distributive shape tweening.

Scenes & Clips

A scene is a segment of a movie that has its own timeline and stage. It eases development of long animations by breaking the animation into more manageable pieces.

A movie clip is a reusable animation that acts like a mini-movie in a document. A movie clip has its own timeline.

Both of these elements are critical to advanced Flash animation. See the resources on the last slide for more information.

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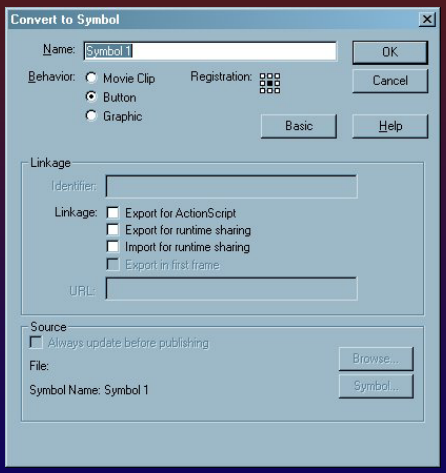
Creating a Button

Buttons are a type of symbol with a pre-defined timeline and keyframe set.

- Create an object that looks like your desired button – INCLUDE TEXT
- Select the object
- Right-click and select Convert to Symbol
- Give the new button a name
- Select “Button” as the behavior type
- Click OK
- Press F11 to view your symbol in the library

- This is the ONE “must-have” within Flash MX!



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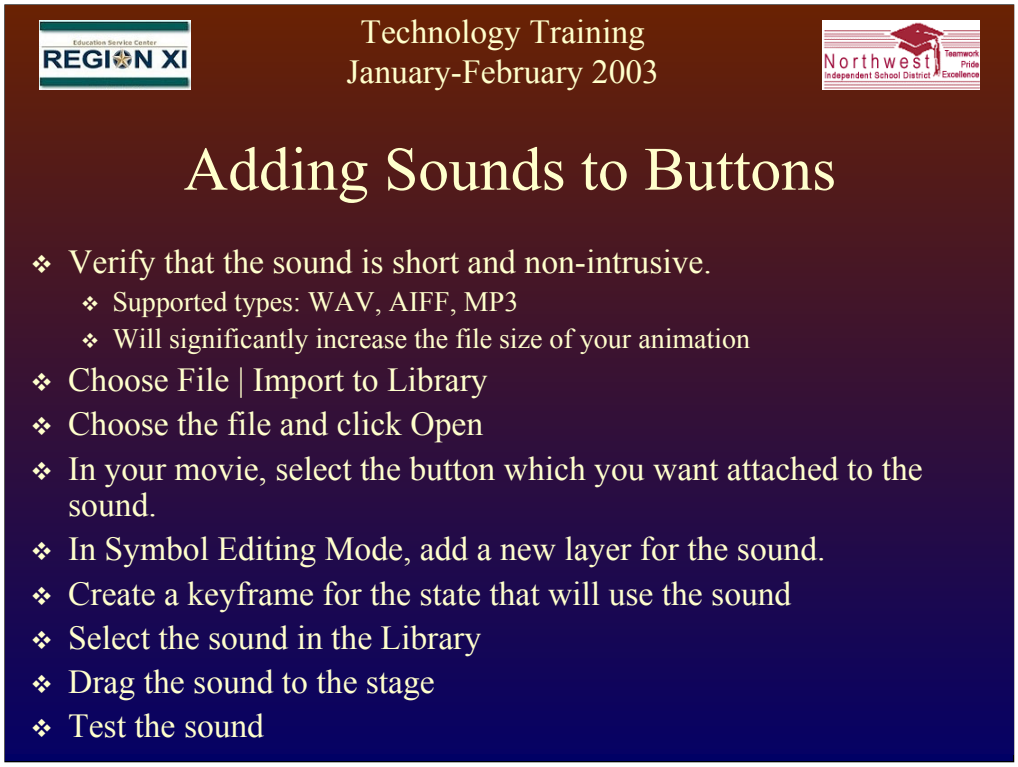
Editing a Button

- Once your button exists in the Library, double-click to edit it in Symbol Editing Mode.
- Make a change to each of the keyframes contained in the button element:
  - Up – how it will look on a web page before any action is taken
  - Over – the mouse enters the edges of the button
  - Down – the mouse is clicked on the button
  - Hit – normally not displayed, but acts like a light switch (on until turned off)

Remember, to edit any object, you must select it first, either with the black or white arrow tool. Also, the paint bucket and ink well tools can be used to modify fills or lines, respectively.



You can associate sounds with the different states of a button symbol. The sounds are stored with the symbol and work for all instances of the symbol.

To add sound to a button:

1. Select the button in the Library panel.
2. Choose Edit from the options menu in the upper right corner.
3. In the button's Timeline, add a layer for sound.
4. In the sound layer, create a regular or blank keyframe to correspond to the button state to which you want to add a sound. For example, to add a sound that plays when the button is clicked, create a keyframe in the Down frame.
5. Click the keyframe you have just created.
6. In the Property inspector, choose a sound file using Sound pop-up menu.
7. Choose Event from the Synchronization pop-up menu.
8. To associate a different sound with each of the button's keyframes, create a blank keyframe and add another sound file for each keyframe.

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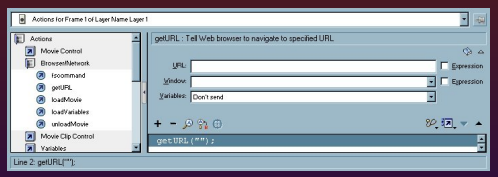
Linking a Button

- Select the button on the stage
- Click on the Actions Panel
- In the Actions Panel
  - Actions | BrowserNetwork
  - Double click on getURL
    - Enter Address in URL
    - Select separate window, if desired
- Close the Action Panel and test your button



Links from buttons are sometimes necessary, but not a good idea. It is easier to maintain and update links by using HTML and Dreamweaver than Flash MX. Only embed a URL in a button when the destination is ALWAYS static or the link is external to your site and will NEVER be moved.

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Using Pre-Built Actions

- Pre-made components
  - Buttons
  - Quiz Templates
  - Sounds
- Photo Templates
- Presentations
- Ads

Thousands of components available at
http://www.macromedia.com/desdev/mx/flash/

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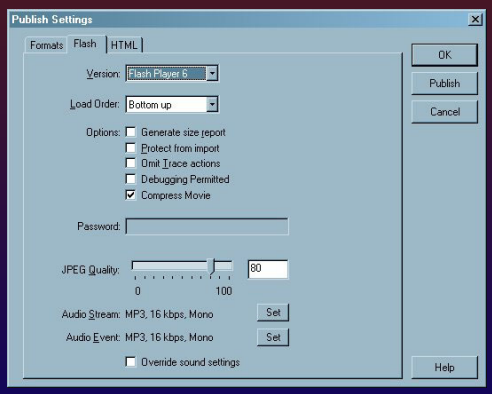
Publishing

- Always check publishing settings before exporting
- JPEG quality settings have a huge affect on file size



- Choose File | Publish Preview to view your finished movie.
- Once satisfied, choose File | Publish to create the final SWF.

- Default save extension: FLA