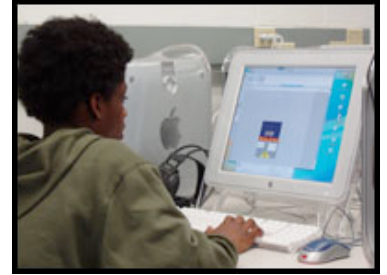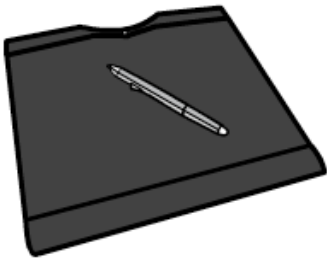# FLASH

Macromedia Flash is a multimedia graphics program especially for creating moving images for use on the Web. Flash has opened up a whole new world for digital animators. You can rotoscope with it, but you can also animate directly in Flash. Learning this program can be very motivating for students because they don't have to be the greatest artists to be successful. The drawing tools in Flash function as a virtual pencil making it easy to create original animated images.

Mac versus PC

- Fortunately, the Flash interface is very similar on both the Mac and the PC. But there are some differences, such as:
- The Command key on the Mac is equivalent to the Ctrl key on the PC.
- The Return key on the Mac is the Enter key on the PC.
- Because Mac mice only have one button, to right-click hold down the Control key and then click.

Wakom Tablets

This pressure-sensitive graphic tablet (as pictured) consists of a pen-like stylus and a drawing surface that make using Flash much simpler. Basically, the stylus replaces your mouse when you're drawing with the computer and does a much better job of emulating a pen or paintbrush than do mice and trackballs. Flash also responds to different pressure levels of a tablet enabling you to vary the width of your strokes by varying the pressure on the stylus.

Pixels versus Vectors

Two kinds of images are in the digital world: bitmaps and vectors:

Bitmaps are images made up from thousands of tiny dots called pixels (picture elements.) Programs such as Photoshop work with bitmaps. Bitmap images are similar to photographs; if you enlarge them too much, the image becomes grainy or pixilated.

Vector files are typically much smaller than bitmap files because these graphics are defined by their geometry, by the curves that make them up. Flash defines an object by a set of curves, allowing you to zoom in or enlarge as far as you like without changing the quality of the image. Vector graphics generated in Flash are great for the Internet because they are small files.

Bitmap image Advantages:

- Flash animation, because of its small file size, downloads quickly and can be available worldwide the minute it's finished.

- Flash is a multimedia platform that allows the embedding of images, sounds, movies, HTML files, and can run consistently on various computer systems.

- According to Flash Magazine, this program is "a great authoring tool for interactive content such as the capability to integrate most features needed for making a game."

- Flash as a format has become widespread. According to Macromedia, 95% of Web users have Flash Player installed.

Disadvantages:

- Flash is not very search engine friendly and chooses not to include support for concepts such as the Back button.

- Not all computers have a recent version of the Flash Player installed, particularly older systems.

- Some critics tend to generalize that "Flash sites are ugly and unusable."
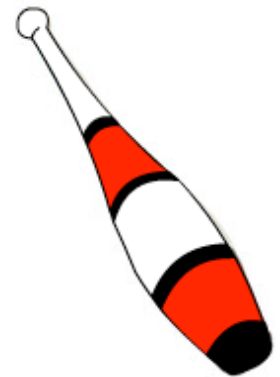
Recommended books on Flash:

- *Cartoon Animation* by Preston Blair
- *Flash 5 Cartooning* by Mark Clarkson
- *Flash 6 Bible* by Robert Reinhardt

LESSON PLAN

Objectives
Students will utilize Flash software to animate a two-image flipbook depicting simple movement. They will be able to explain why Flash is well suited for the Internet.

Introduction
Have students search online for different examples of Flash animation. Set up a computer station with a projector so that each student can share 1 to 3 examples of Flash animation with the rest of the class. While watching these cartoons, have students pay careful attention to what moves and what doesn't. Watch it again and again; play it back and discuss questions such as:

- How often are the characters and objects are actually animated?
- Are the arms and legs moving?
- Are the images just sliding across the screen?
- Is the camera simply zooming in and out?
- Is the face changing shape?
- When characters talk, what moves? Just their mouths? Their eyes?

Creating Two-Image Electronic Flipbook with Flash

This is a high tech version of the first 2-page flipbook lesson in which students learned basic animation concepts. This exercise will help students learn to animate directly in Flash.

Creating First Image
The first step is to decide on an image and a movement that you will animate using Flash.

- Open Flash and make sure you can see the Stage and also the Tools, Timeline, and Properties panels.

- In the Properties panel, select the size (in pixels) of your Flash movie to 180 x 180 pixels. Select a background color. Keep the frame rate at 12 fps for this lesson.

- Use the drawing tools to create an object. Keep in mind that this object will have to be slightly changed in the next frame.

Creating Second Image
After the first image is complete, duplicate your drawing, so that you can slightly change it to create your animation.

- File menu > Save As. Name your file and save it. The file extension for your working Flash file (.fla) will be appended automatically. Like all filenames on the Web, the name you give to a Flash file should have only lowercase letters, no punctuation, and no spaces.

- Select second frame in timeline and from the insert menu/Flash MX, select "keyframe." Depending on your mouse, you can also right click to insert a keyframe.

- Alter your second image slightly, then save it.

Setting the Timing
Now that you have 2 different versions of the same drawings you need to make sure the timing will work.

- In the Properties panel, the frame rate in Flash is 12 fps (frames per second). I suggest having the image change once per second. This means that you will insert 5 extra copies for each of the 2 images.

- To do this, select each keyframe and go to the Insert panel - add frame (5 times) or right click mouse - insert frame.

- Test your animation by Control panel > test movie. Voila! You have just created your first Flash animation! The swf (.swf) file electronically can be uploaded to any website and shown to the world!

FILE TYPES

.fla (pronounced "flaw") files contain source material for the flash application. Flash authoring software can edit .fla files and compile them into .swf files.

.swf (pronounced "swiff") files are completed, published files that cannot be edited.

Flash Tips:

- Open Flash and make sure you can see the Stage and also the Tools, Timeline, and Properties panels. If the Stage area is empty and there's no Timeline (nothing there but gray), open the File menu and select "New."

- If the Stage area is filled with a menu that includes the option "Create New," select "Flash Document" there.

- If you don't recognize the names of the tools, roll your mouse cursor over the Tools panel (far left side of the Flash window) and pause on each tool: A label will pop up and show you the name of that tool.

- To undo, use Cmd-Z/Mac or Ctrl-Z/PC. Whenever you make a mistake, hold the Cmd or Ctrl key and press the letter Z. By default, Flash lets you repeat this 100 steps. You can undo and return objects to an earlier or original state.

Evaluation
Instructors may evaluate this project using the general rubric provided. Select or add criteria depending upon the needs or levels of your students, and/or other curricular concerns. Quiz students on software terminology, tools and their uses. In addition to that formal final assessment I encourage teachers to conduct informal, in-progress assessment thinking about questions like these:

- To what extent is the student able to apply knowledge gained from low-tech animation processes when working with computer animation?

- How effective are students' electronic two-image flipbooks in depicting movement?

Flash Extensions
After students have mastered the fundamentals of Flash challenge them with independent projects.

One of the most efficient ways to use Flash is to use symbols whenever you need more than one occurrence of a graphic, animation or sound. A symbol can be props, titles, characters, or parts of characters that you create once and then can use the same object over and over again in your movie or other movies.

WHAT ARE SYMBOLS IN FLASH?

3 Symbols make Flash animation easier and faster:

Graphic Symbols are pictures that can be animated to create cool special effects and interaction that you can't accomplish without them. If they're animated, graphic symbols keep time with the scene in which they are placed. i.e. if you place a 10-frame animated graphic into a scene that's 30 frames long, that animation repeats three times.

Movie Clips are the same as graphic symbols with one big difference. They play back independent of the main timeline.

Buttons are special graphics that respond to the mouse when the user's mouse passes over them or clicks them.

Why are Symbols Important?
Symbols:

- Are key to managing large projects.

- Limit the size and download time of your Flash animation.

- Are always stored in the library and can be reusable.

CREATING SYMBOLS

- Draw an object and Save.
- Select object making sure you select the entire shape. Check that every part of the shape appears dotted, showing that it has been selected. You can use the (black) Arrow/Selection tool to select your shape (click and drag a selection box around the entire shape.)
- From the Insert menu/Flash MX, select "Convert to Symbol." A dialog box opens. In that dialog box you can, select "Graphic," "Button," or "Movie." Click OK.

- When a shape has been converted to a symbol, it will be surrounded by a "Bounding Box" (a thin blue line). If you don't see the box, select the Arrow/Selection tool and click once on the symbol.

CREATING BUTTONS

- In Flash anything can be a button. Buttons offer the most basic means for making interactive applications in Flash. Flash also includes a library of ready-made buttons for you to use (Window menu > Common Libraries > Buttons).
- Create the shape for your button. Select the Oval tool or the Rectangle tool (depending on what shape you want the button to have), and select a stroke color and a fill color for the shape in the Properties panel.
- When you're satisfied with your button, save and name your file.
- Here's how to make the shape become a real button: Select the Arrow/Selection tool in the Tools panel and drag a box around your entire button, to select it. Press F8 to "Convert to Symbol." In the dialog box, name this symbol and select the behavior "Button." Click OK.
- Editing the button symbol is a special process, because Flash sets up four frames for you inside the button symbol. These frames allow you to easily create a rollover effect and a click effect for your button.
- There are several ways to enter Symbol Editing Mode. One way is to double-click the image on the Stage or in the Library panel. The Symbol Editing window replaces the normal Stage. In the Symbol Editing window, the Timeline is different. Notice that there are now four frame names in the Timeline—named Up, Over, Down, and Hit—but only one frame.
- To make the button change when you roll over it (Over) or click it (Down), you will add a frame for each of these button states and change the appearance of the button within that frame. The contents of the Hit state frame (the fourth frame) determine the area that responds to the user's mouse cursor.
- The first button frame (Up) is probably the button you drew and has the appearance you want when the button is in the normal state and the user has not touched it yet.
- Add three more keyframes to copy the Up state into the other states (press F6 three times).
- Change the appearance of your button in the Up and Down keyframes. For example, change the color, size, add text, etc.