CGT 353: Principles of Interactive and Dynamic Media
Animation in Flash

Introduction:

- At its most basic, **animation** is very simple in Flash.

- Only control a few variables such as size, position, color, and shape.

- Additional elements such as layer, masks, and guides help…., but these are still very simple components….

- It is the <u>infinite combinations and creative applications</u> that allow the enormous number of ideas to present themselves….

- When you use ActionScript to control and add interactivity to these movies, the number of possibilities increases even more…

- Although most of you won't become **character animators**…we use examples of character animation in this discussion because it is the most complex category of animation.

Bit O' Flash Animation History:

- First prominent use was by *Ren & Stimpy* creator **John Kricfalusi** in the creation of **The Goddamn George Liquor Program in 1997**

- 1999 – **WhirlGirl** - first regularly scheduled Flash animated web series on Showtime

- 1999 – **The VonGhouls**

- Dot-com era - **Icebox, MondoMedia, CampChaos, MediaTrip, Bogbeast and AtomFilms**

- **Adult Cartoons** - Queer Duck, Gary the Rat, Happy Tree Friends, JibJab Homestar Runner.

Flash Animated TV Series:

- 2003 *Chilly Beach* - Launched on CBC Television, this became one of the first Flash productions to make the move from online "webisodes" to national TV.

- 2004 *Foster's Home for Imaginary Friends* Launched on Cartoon Network.

- 2004 *Atomic Betty* Launched on Cartoon Network in the US.

- 2005 *The Buzz on Maggie* Canceled Disney Channel series that ran for only one season. 2005 *Disney's Little Einsteins* Multimedia pre-school show, used Flash for all principal character animation in conjunction with video, photo collage, Maya 3-D animation and After Effects.

- 2006 *Yin Yang Yo* The Second Disney series made entirely in Flash.

- 2006 *Metalocalypse* Series on Adult Swim.

- 2006 *Pucca* A Flash series based on a series of online shorts produced by VOOZ in South Korea. The TV series is produced by Studio B in Canada.

- 2006 *Chaotic* A Flash series based on the story of the original Chaotic Trading Card Game.

- 2006 *Happy Tree Friends* A very popular flash animated cartoon that started out as an internet cartoon around 1999 and it quickly became an internet phenomenon. In 2006, it became a full half-hour TV series on the channel G4.

- 2007 *Total Drama Island* Launched on Teletoon in Canada and on Cartoon Network in the US.

- 2008 *Crime Time* A popular flash cartoon by Future Thought Productions that is broadcast to television in Japan, Australia, Brazil, Russia, Turkey, Bulgaria, Malaysia, Indonesia, Brunei, Ukraine.

- 2008 *Making Fiends*
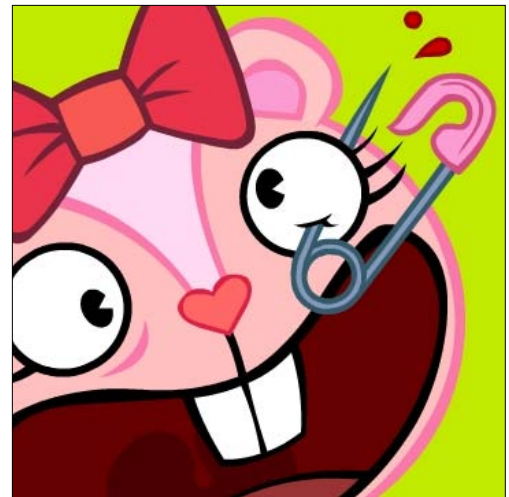
Flash Feature Films:

- 2005 *The Golden Blaze* Directed by Bryon E. Carson, starring the voices of Blair Underwood and Michael Clarke Duncan, had a limited theatrical run making it the first flash animated film to be released on the big screen.

- 2005 *Xuxinha e Guto Contra os Monstros do Espaço* Directed by Clewerson Saremba e André Passos, produced at Labocine, in Rio de Janeiro, released in 2005 Christmas, was a big success in Brazil.

- 2006 *Romeo & Juliet: Sealed with a Kiss* Former Disney animator Phil Nibbelink took 4 1/2 years to make it and he drew 112,000 frames with a Wacom tablet directly into Flash 4, in combination with Moho.

- 2006 *That Darn Jesus* An animated segment of nineteen minutes produced at an aspect ratio of 1.85:1 and HD 1080 (1920 px X 1080 px) for the movie Universal Remote by Future Thought Productions.

- 2007 *Turma da Mônica: Uma Aventura* no Tempo Directed by Mauricio de Sousa, produced at Labocine, in Rio de Janeiro, is biggest box office in Brazilian animation history 2008 *El sol* First Argentinian animated movie done integrally with Adobe Flash. Directed by Ayar Blasco.

- 2007 *Chilly Beach: The World is Hot Enough"* A spin off from the televised animated series Chilly Beach, as featured by http://www.ilaugh.com Produced by March Entertainment. 2008 *Mickey the Squirrel* Directed by Chaz Bottoms, a 76 minute feature animated on a Wacom Graphire Tablet with 6,500 frames. This film was screened at the 29th Cleveland International Film Festival.

- 2008 *Sita Sings the Blues* Directed and Produced by Nina Paley. An 83 minute feature film created independently and entirely in Flash 2008 *Waltz with Bashir*
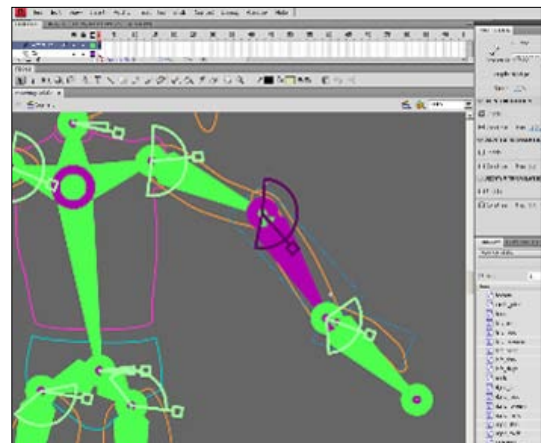
Source: Wikipedia

Basic Flash Animation:

1. Frame-to-frame
2. Motion tween
3. Shape tween

Creating these animations depends heavily on the use of the following aspects, which students should know soon:

- Layers
- Frames
- Keyframes
- Onion Skinning
- Editing Multiple Frames
- Masking Layers
- Motion Editor

- Inverse Kinematics
- Bones and Binding Bones
- Filters
- Reversing Frames
- Motion Guides
- Shape Hints

Basic Things to Remember With Tweening:

- Classic motion tweening only works on grouped items….

- Default motion tweening only works on symbols….

- Motion tweening has no effect on stage objects, but shape tweening does….

**Basic Things to Remember With Inverse Kinematics:**

- *Inverse kinematics* **(IK)** is a method for animating an object or set of objects in relation to each other using an articulated structure of *bones*.

- **Bones** allow symbol instances and shape objects to move in complex and naturalistic ways with a minimum of design effort.

- Chains of bones are called **armatures.**

- You can add bones to separate symbol instances or to the interior of a single shape.

- Cannot edit the shapes/ images after bones have been attached.

- You can **constrain** the joints of the bones and limit their speed, motion, and rotation….

- When you add bones to symbol instances or shapes, Flash moves the instance or shape and the associated armature to a new layer in the Timeline.
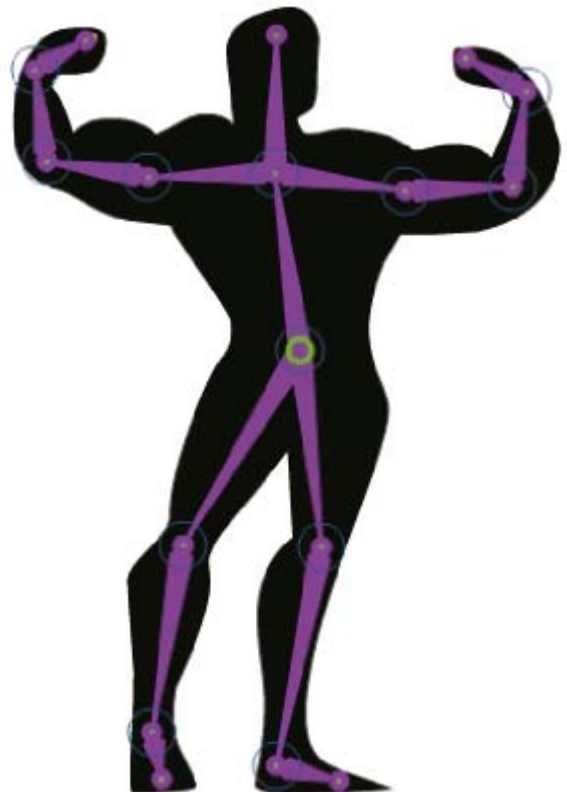
- This new layer is called a *pose layer*. Each pose layer can contain only one armature and its associated instances or shape.

Another Rule of Thumb….

- Know how to make a wheel, but don't reinvent it….

- Look at complementary programs like **Swift 3D….**
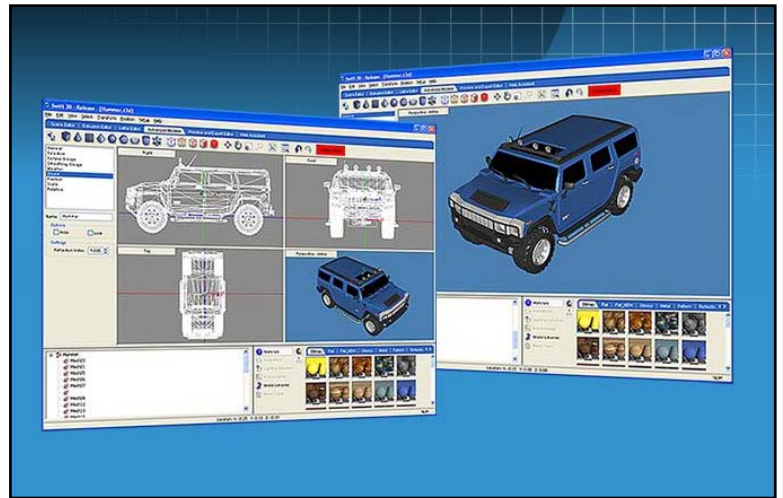
Introduction to 2D Animation Techniques:

- Flash is a powerful tool capable of making broadcast-quality cartoons and animations…

- Most basic principles of animation apply…

- Unfortunately, there are not many Flash developers with the traditional animation skills and vice versa…

Working with Large File Sizes:

- Flash Web animations are small, but for broadcast output in Quicktime or .avi the files are quite large…

- This means to create broadcast quality Flash animations you need the right gear…

- Extensive use of **bitmaps and full-fidelity 16-bit 44 kHz stereo audio tracks** takes up a lot of space…

- Render time for such large files can take a while, and often make you think your computer has crashed….
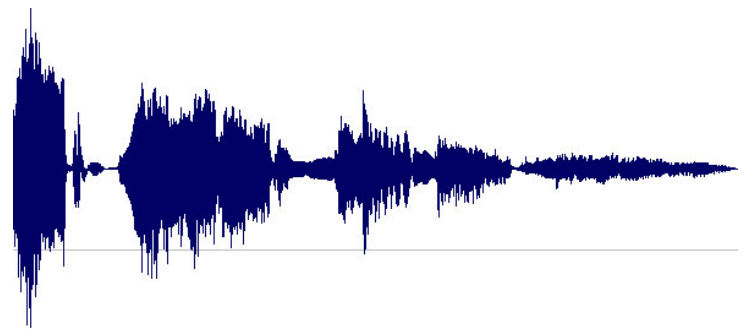
Storyboarding the Animation:

Although storyboarding is essential for any animation, for Flash it should be done a bit differently:

1. Break the story into workable cartoon scenes (not Flash scenes.)

2. Break each scene into camera shots.

3. Assign each scene to a separate Flash movie.

4. Assign each shot to a separate Flash scene.
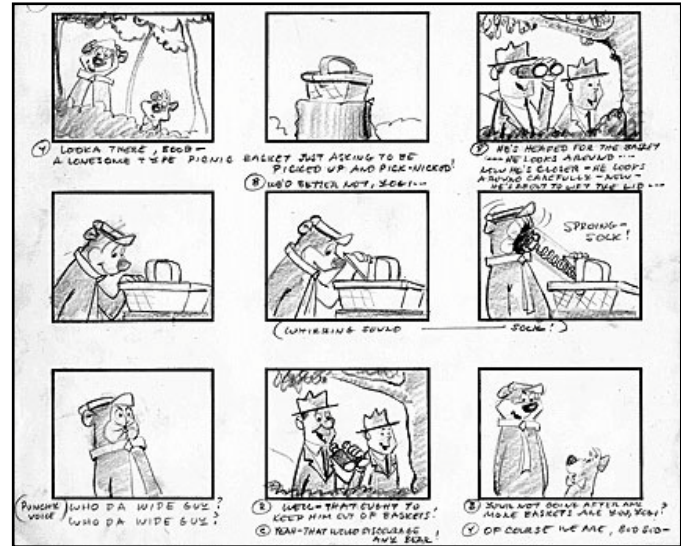
What Takes the Most Work?

Collecting your audio assets is the most difficult:

- Music tracks
- Sounds effects
- Voice overs

- There are a number of methods for obtaining sounds, but be aware of **copyright, patent, and royalty laws.**

- Your PC microphone may be sufficient for this class, but the sound quality is generally poor.

- We will be doing basic demos and exercises in lab with audio editing programs.

Frame Rate Basics:

- Movies are shot at **24 fps…**

- For video and 3D animation, usually runs at **30 fps…**

- Can get away with **12-15 fps** for Flash cartooning..but only in select circumstances.

- Primary reason using a low frame rate is to get the animation done in your lifetime.

- Many scenes where you can get away with **3 drawings per second.**

- Rule of motion here is that **faster moving objects require fewer frames, while things that move slowly require more frames.**

- For this reason you hardly ever see slow motion sequences in broadcast cartoons.

- Remember that knowledge of Flash is no substitute for knowledge of motion.

Concepts Critical to an Effective Animation:

1. **Motion and Emotion**

2. **Anticipation -** actions characters take BEFORE they do something

3. **Weight -** makes animation believable

4. **Overlapping or Opposing Actions**

5. **Motion Blurs**

Walk Cycles:

- Vital to character animation…

- Hard to animate because computers are too perfect whereas a walking creature is not…

- Need to add variations (head bobs, jiggles, etc…) in a walk to make it look effective…
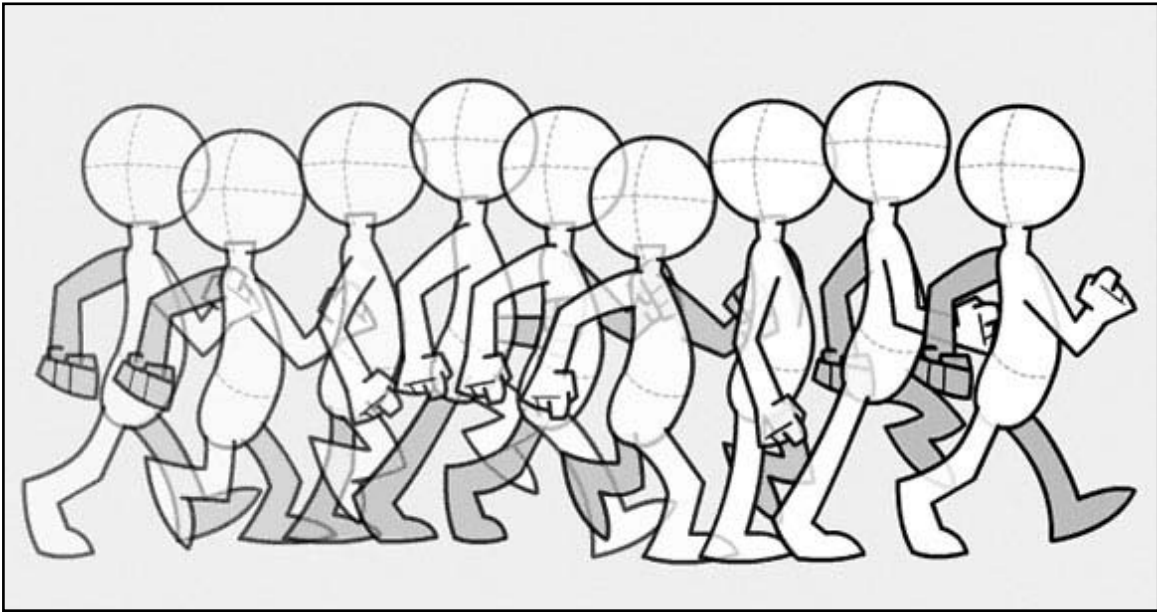
- Pre-built walk cycles in programs like Poser help this problem.

- If you need to slow down a walk, use **repeaters,** which are duplicated frames added for each existing walk keyframe.

- Flash **onion-skinning** helps you to create in-between shots if the animation isn't smooth.

Tip: A timesaver to walk cycles is to isolate various components and animate them separately on separate layers. This prevents undesirable quivering movements in your animation.

Other Design Strategies - Limited Animation:

- **Limited animation** is the process of putting animated objects and non-animated objects on separate layers.

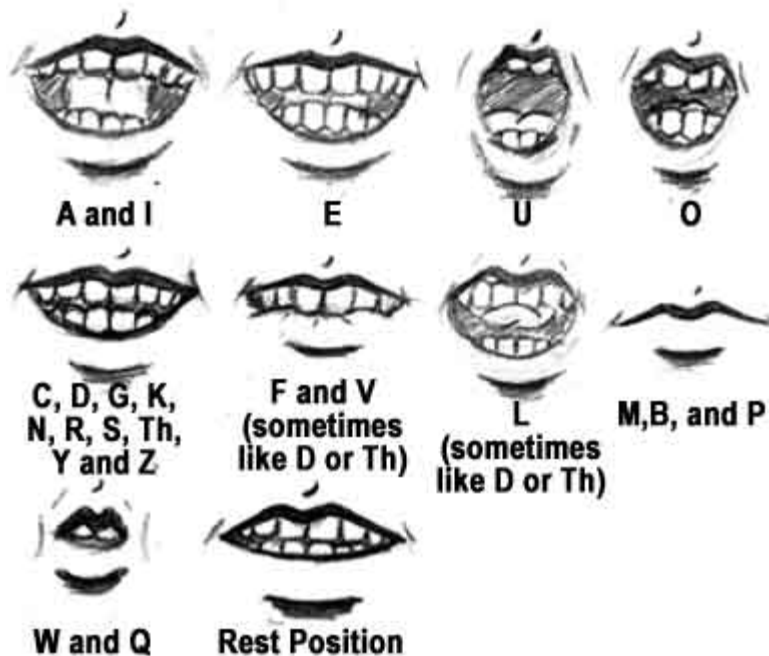- Allows for maximum animation with minimal artwork.

- See Hanna Barbera cartoons…

Flash Concepts Vital to Efficient Animation:

1. Instance swapping
2. Tweens for pan and zoom
3. Motion guides

Lip-Syncing:

- For effective lip syncing, you should draw **phonemes** for your characters

- **Phonemes (fo-neems)** are basic units of sound that make up spoken words

A and I

E

U

O

C, D, G, K, N, R, S, Th, Y and Z

F and V (sometimes like D or Th)

L (sometimes like D or Th)

M, B, and P

W and Q

Rest Position

- Phonemes are melded together to create **morphemes,** which are distinct units of words, like syllables

- Most languages are only made up of **30 to 60 phonemes**

- For animation these can be reduced to about **10 basic mouth positions**

- Make sure you use synced sound so that you can match up the sound to the particular phoneme

- Don't try to shape morph the phonemes as its usually not worth the effort

- Talking profiles are more difficult to draw than head-on "talks" so keep them to a minimum

Backgrounds and Scenery:

- Try to keep as few as possible in your cartoon

- To simulate motion, pans, zooms, and other camera effects, you will have to change the background

- Can layer background or scene elements to give a 3D appearance

- Remember that objects in the distance move slower than objects in the foreground

- Distant objects are also more blurred and washed-out