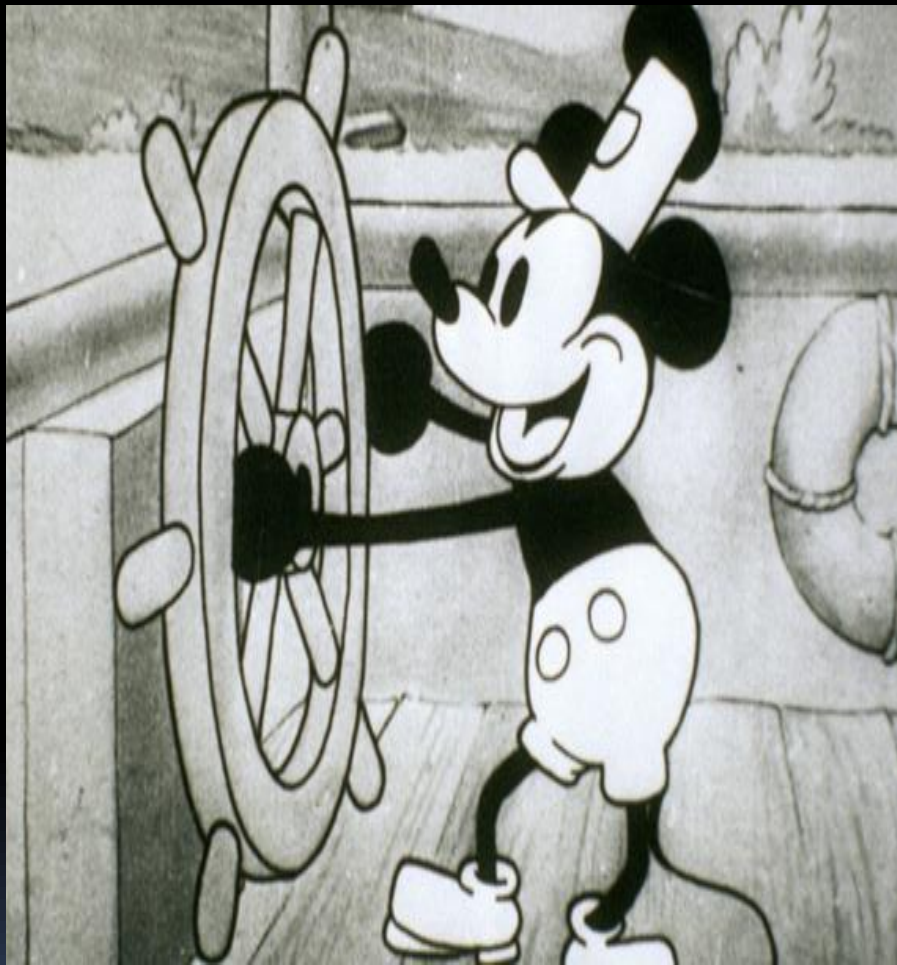# Cartoons & Animation

Types of Cartoons

- Single –Framed Cartoons/Graffiti
  - Caricatures
  - Editorial
  - Humorous

- Multi-framed cartoons
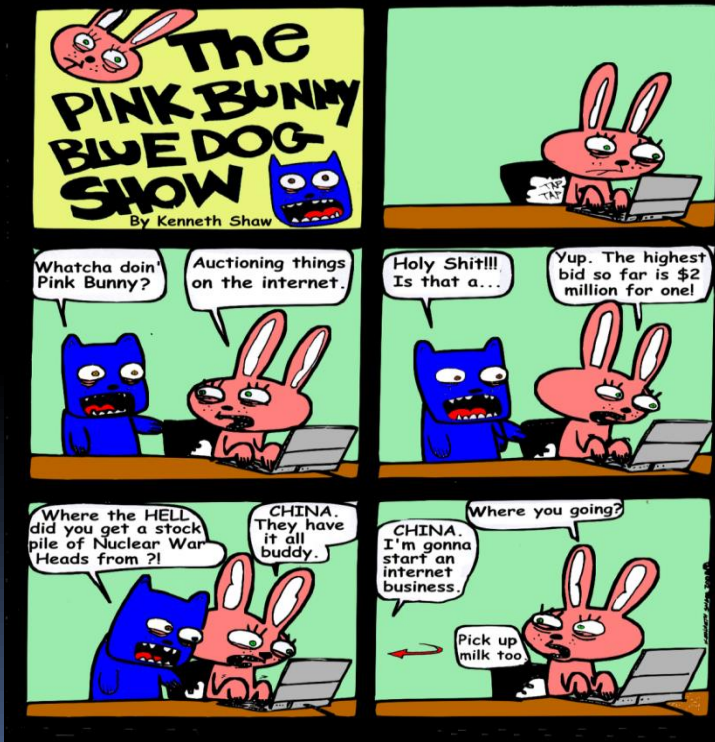- Comic strips
- Comic Books
- Animated Films

Technical Perspectives

- Whether cartoons are intended for print or screen media presentations, the cartoonist uses specific devices to convey information to the viewer.

- **The meaning of these graphic conventions often is not obvious because as symbolic codes, they must be learned.**

- There are at least seven separate technical considerations for cartoonists in media:

- **Frame**
- **Setting**
- **Characters**
- **Motion Lines**
- **Typography**
- **Balloons**
- **Action Sequences**

Frame

- Top and bottom boxes or panels often contain narration and story explanations.

  - **Different sized frames increase visual interest.**

Setting

- The background illustrations might be highly stylized and simple as in a *Peanuts* cartoon or realistic and elaborate as in the *Spider-Man* comic strip.

  - *Often the artist conveys the seriousness of the cartoon by a high or low degree of leveling (detail)*
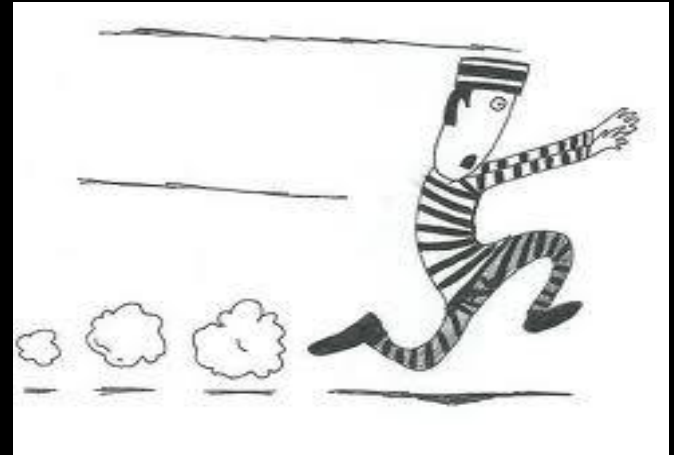
Characters

- As with the setting, the degree of realism with which the characters are drawn often indicates whether the strip is humorous or serious.

- *Assimilation* is the term used to describe the technique of exaggerating features, usually for a stereotypical effect.

  - **Homes Simpson's large belly and Marge's high beehive are examples.**

Motion Lines

- Mort Walker, creator of the popular strip *Beetle Bailey*, gave names to various movement lines:

- hites- horizontal movement
- vites- vertical movement
- dites- diagonal movement,
- agitrons- wavering or repetitive motions
- briffits- little puffs of smoke or dirt
- waftaroms- odors that float in the frame
- plewds- sweat beads that pop up on a characters forehead that indicate nervousness

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Typography

- By recognizing differences in letter size and thickness, the reader becomes the actor,

   - **emphasizing important words either in the mind or out loud.**

Balloons

- The way dialogue of characters in comic strips is encircled is an example of a complicated semiotic structure.

- The reader must learn to interpret the symbolism of the various balloon types:

  - **The three most common speech balloons (top to bottom: speech, thought, scream)**

- unbroken line- normal, unemotional speech, perforated line- a whisper;

- a spiked outline- loud yelling;

- little bubbles instead of lines- thoughts by the character;

- icicles hanging from a balloon- conceited or aloof speech;

- tiny words within a large balloon- astonished or ashamed emotional speech;

- a zigzag line- sound from a telephone, a TV set, or computer;

- the tail of a balloon outside the frame- similar to an off-camera voice.
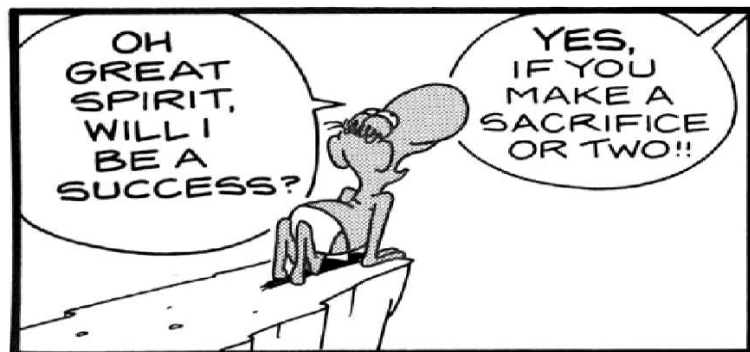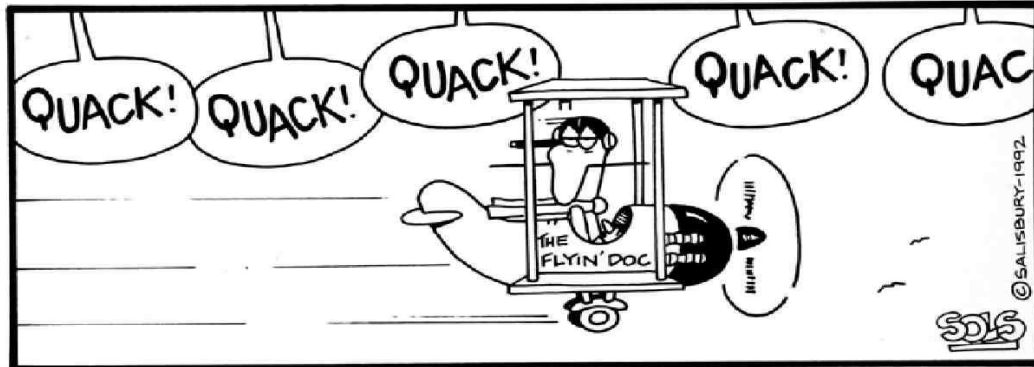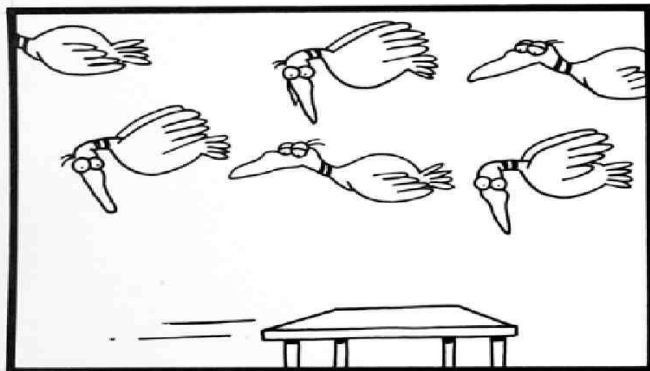
Action Sequences

- **All the techniques utilized by motion picture directors are also used in cartoons.**

- **Artists use close-ups, perspective and framing variations, special lighting effects, montage techniques, and panning and quick-cut editing to help move the action from frame to frame.**

Animation Techniques

- Almost all the cartoons intended for the print medium are created with either traditional pencil, pen, and ink materials or through computer software.

- Animated films, however, are made using three major techniques:
- **cel**
- **stop-motion**
- **computer generated imagery (CGI).**

Cel Animation

- **Also called traditional and hand-drawn animation, this technique is divided into three types:**

□ Full

□ Limited

□ Rotoscoping

Full Animation

- **This technique requires 24 frames per second for realistic movement- or for a 10 minute movie, more than 14,000 drawings.**

- Early Disney classics and newer classics such as: *Beauty and the Beast, the Lion King, Shrek 2, and Kung Fu Panda.*

Snow White (1937)
# A Smile And A Song

The Lion King (1994)

Rotoscoping

- This animation technique was invented by Max Fleischer in 1917. Fleisher's animation company produced such classic movie characters as Betty Boop, Popeye and Superman.

- With this technique, live action movements were traced frame by frame.

  - the technique of manually creating a **matte** for an element on a live-action plate so it may be composited over another background.

    - mattes are used to combine a foreground image (such as actors on a set, or a spaceship) with a background image (a scenic vista, a field of stars and planets). In this case, the matte is the background painting.

Betty Boop - Halloween party

Betty Boop - Halloween party
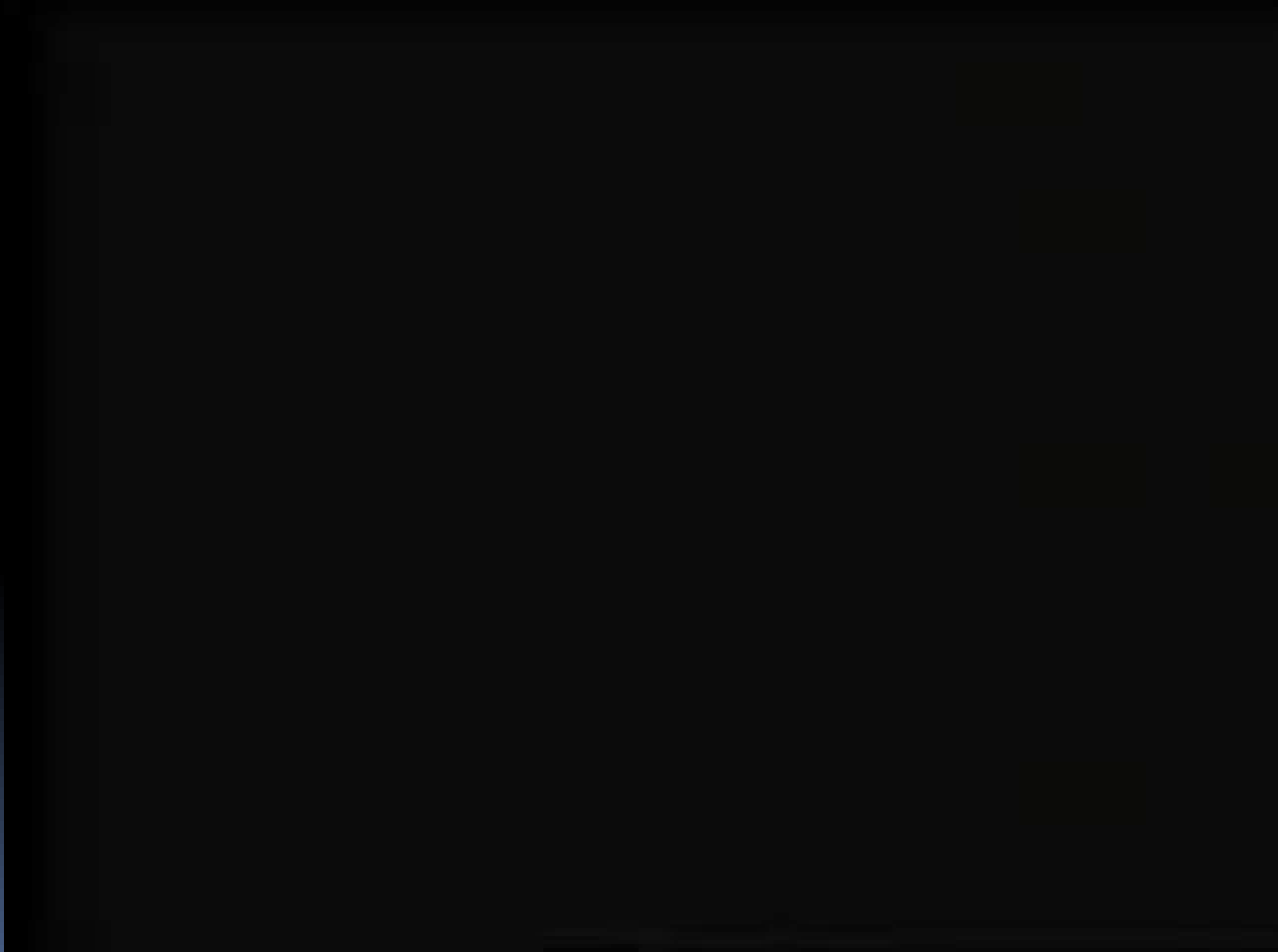
Charles Schwab commercial

Limited Animation

- As the name implies, this technique of cel animation uses fewer frames per second for a more stylistic and jerky appearance and can be seen in movies such as *Yellow Submarine*.

YELLOW SUBMARINE

Stop-motion Animation

- This animation technique describes a wide variety of object manipulations that might include models, clay, and puppets.

- The object is moved in small increments between individually photographed frames, creating the illusion of movement when the series of frames is played as a continuous sequence.

Puppet Animation

- It uses jointed, flat-figure marionettes whose poses are minutely readjusted for each photographic frame.

- Movement is similarly simulated in **puppet animation**, which photographs solid three-dimensional figures in miniature sets.

- Henry Selick worked for Disney where he learned stop-motion techniques. His latest works is the ambitious *Caroline (2009)*.

Other Stop Motion Techniques

- *Clay Animation*
  - In 1953, Art Clokey introduced the popular clay characters Gumby and Pokey in the film *Gumbasia.*

- *Model Animation*
  - Willis O'Brien used this technique in his 1925 classic about angry dinosaurs, *The Lost World.*
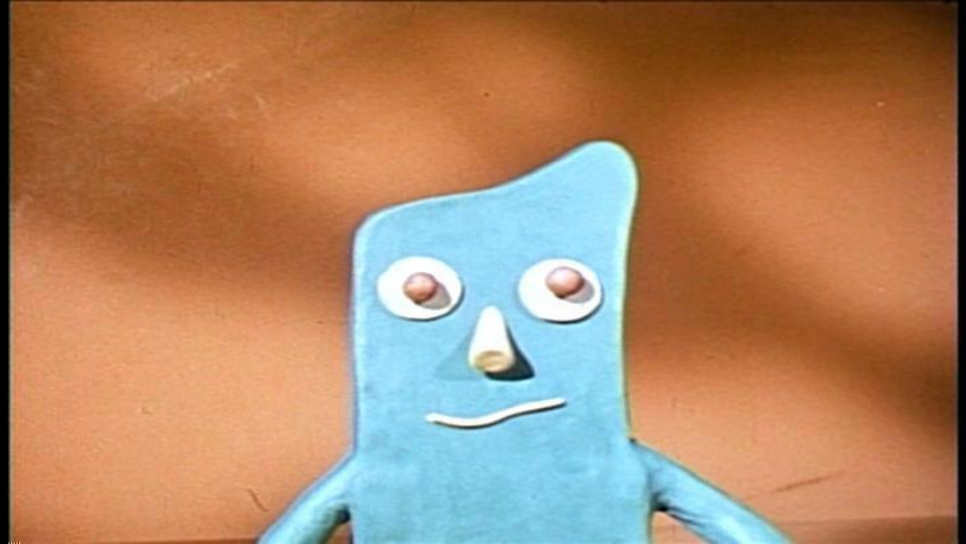
Gumbasia (1953)

Computer-Generated Imagery (CGI)

- Computer imaging has come a long way from its roots as simple lines on a screen for a military purposes and quarter-hungry consoles at a local bar.

- CGI comes in 2-D, 3-D and performance capture variations.

2-D CGI

- With 2-D effects, animation can be accomplished with traditional animation techniques that are transferred to a computer screen, as in the television series, "SpongeBob SquarePants".

Spongebob Squarepants in The Endless Summer

2-D CGI

- In 2009 Walt Disney Animation Studious directors Ron Clements and John Musker introduced their 2-D hit *The Princess and the Frog*
  - which reminded critics and viewers of the richly textured traditional look of Disney classics from the 1950's.

Princess and the Frog - "Almost There"

3D - CGI

- With 3-D animation, lifelike simulations of body movements are possible.

- The films *Toy Story, Shrek, and Monsters, Inc.* have a simulated realism about them that 2-D animation cannot supply.

[the films of Pixar Animation Studios](#)

RenderMan

- "What began as an interesting artistic exercise is now an indispensable tool.

- It's notable that twenty years after putting its first pixels on the screen RenderMan remains the benchmark for all rendering technology."
  - George Lucas
  Chairman of Lucas Film

- "It's exciting to come to work every day and see something you have never seen before in your life.

- In a Bug's Life, the story required a more natural and organic world than we had ever created before. RenderMan made it possible for us to make that world absolutely believable."
  - John Lasseter
  Chief Creative Officer, Pixar and Disney Animation Studios

PIXAR'S ANIMATION PROCESS

MACHINIMA

1 A STORY IDEA IS PITCHED

A Pixar employee pitches his or her idea to other members of the development team in a way that's reminiscent of a sales pitch. The real challenge is to get the audience to believe in the idea and see the possibilities in it.

2 THE TEXT TREATMENT IS WRITTEN

A treatment is a short document that summarizes the main idea of the story. Sometimes, many treatments of the same idea will be developed in order to find the right balance between solid ideas and open possibilities, which will be filled in later by development and storyboard artists.

DISNEY·PIXAR

MONSTERS, INC.

TREATMENT

3 STORYBOARDS ARE DRAWN

Storyboards are like a hand-drawn comic book version of the movie and serve as the blueprint for the action and dialogue. Each storyboard artist receives script pages and/or a "beat outline," a map of the characters' emotional changes that need to be seen through actions. Using these as guidelines, the artists envision their assigned sequences, draw them out and then "pitch" their work to the director.

4 VOICE TALENT BEGINS RECORDING

First, temporary "scratch" voices are recorded by Pixar artists for the storyboard reels (see Step 5). Later, when the story and dialogue are further along, professional actors begin recording the character voices, reading from a script and improvising. Actors must record lines several different ways, and the best reading is eventually animated. Sometimes, scratch voices are so good, they're not replaced, such as Story Supervisor Joe Ranft's voice for Wheezy.

5 EDITORIAL BEGINS MAKING REELS

A reel is a videotape that allows the cleaned-up storyboard sequence to stand alone, without a pitch person to tell the story. A pitch can be successful because the storyteller is strong, so reels are an essential step to validate the sequence and are the first instance that the "timing" of the sequences is understood. Editorial uses the information to fix the length and other elements of each shot in a sequence.

6 THE ART DEPARTMENT CREATES THE LOOK AND FEEL

Based on the initial text treatment, story-boards and their own creative brain-storming and development work, the art department creates inspirational art illustrating the world and the characters. It also designs sets, props, visual looks for surfaces and colors and "color scripts" for lighting, which are impressionistic pastel illustrations that emphasize the light in scenes.

7 MODELS ARE SCULPTED AND ARTICULATED

Using the art department's model packet—a set of informational drawings—the characters, sets and props are either sculpted by hand and then scanned in three-dimensionally or modeled in 3-D directly in the computer. They are then given "avars," or hinges, which the animator will use to make the object or character move. Woody has 100 avars in his face alone.
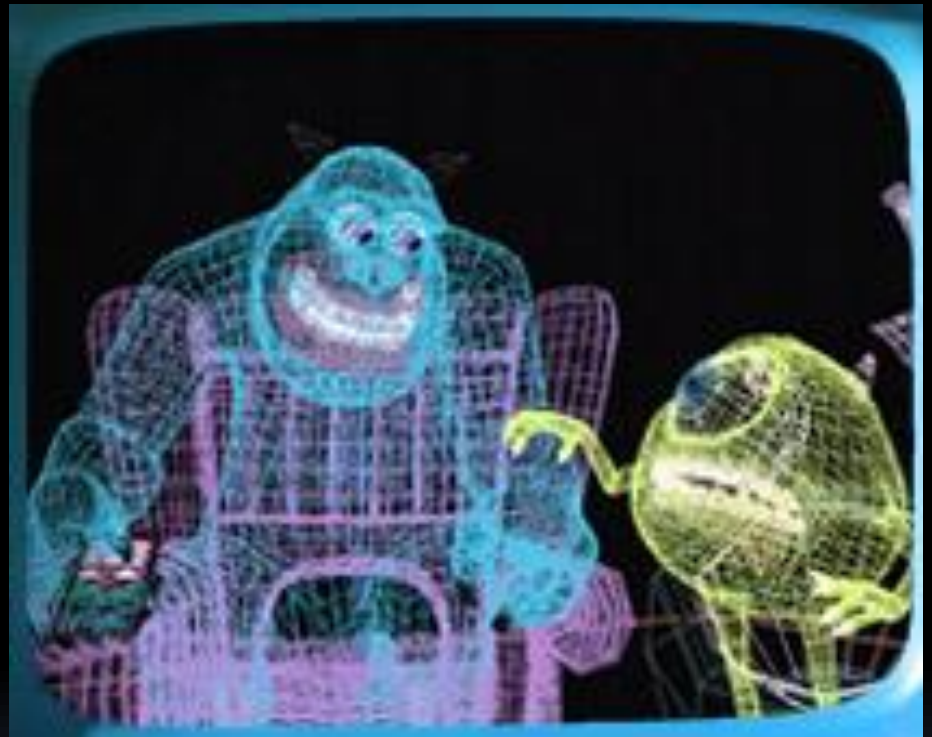
8 THE SETS ARE DRESSED

After the sets are built in 3-D they must be dressed with prop models, such as chairs, curtains and toys, to create a believable world. Set dressers work closely with the director to ensure that the director's vision for the environment is being realized.

9 THE SHOTS ARE LAID OUT

Translating the story into three-dimensional scenes, the layout crew choreographs the characters in the set and uses a virtual camera to create shots that capture the emotion and story point of each scene. Layout often produces multiple versions of shots to provide the editorial department with choices for cutting the scene for maximum storytelling effect. Once the scene has been cut, the final version is released to animation.

10 THE SHOT IS ANIMATED

Pixar's animators neither draw nor paint the shots, as is required in traditional animation. Because the character, models, layout, dialog and sound are already set up, animators are like actors or puppeteers. Using Pixar's animation software, they choreograph the movements and facial expressions in each scene. They do this by using computer controls and the character's avars to define key poses. The computer then creates the "in-between" frames, which the animator adjusts as necessary.

11 SETS AND CHARACTERS ARE SHADED

The shader is separate from the surface to which it is attached. In other words, the shape is determined by the model, while the surface color and texture is determined by the shader. The shading process is done with "shaders," software programs that allow for complex variations in the color or color shaping. For example, this process allows the color to shift in different lighting like the reflections on Woody's polished eyes.

12 LIGHTING COMPLETES THE LOOK

Using "digital light," every scene is lit in much the same manner as stage lighting. Key, fill and bounce lights and room ambience are all defined and used to enhance the mood and emotion of each scene. Lighting takes its inspiration from the moody color scripts created by the art department.

13 THE COMPUTER DATA IS "RENDERED"

Rendering is the act of translating all of the information in the files that make up the shot—sets, colors, character movement, etc.—into a single frame of film. Pixar's Renderfarm is a huge computer system that interprets the data and incorporates motion blur. Each frame represents 1/24 of a second of screen time and takes about six hours to render, though some frames have taken as many as ninety hours.

14 FINAL TOUCHES ARE ADDED

Editorial oversees the completion and addition of the musical score and the other sound effects. Effect animation adds special effects. And the photoscience department records the digital frames to film or to a form appropriate for digital projection.

MACHINIMA