PIXAR’S ANIMATION PROCESS

TIN TOY
There is a scene in *Toy Story 2* when the old man repairing Woody tells the impatient toy collector Al, “You can’t rush art.” This is especially true at Pixar, where films go through four stages: development, creating the storyline; pre-production, addressing technical challenges; production, making the film; and post-production, “polishing” the final product. Use the lever to the left to learn about the specific steps of each stage.
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.
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.
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.
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.
THE ART DEPARTMENT CREATES THE LOOK AND FEEL

Based on the initial text treatment, storyboards and their own creative brainstorming 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.
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.
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.
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.
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.
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.
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.