ACTIVITY 1

REPRODUCIBLE MASTER

VISUAL EFFECTS BEGINNINGS

When the script calls for creatures that do not exist, activities that defy nature or locations that are too expensive or impossible to shoot, visual and physical effects artists step in. Visual effects have been around as long as the movies. After the invention of the movie camera, filmmakers like French magician Georges Méliès and American Edwin S. Porter discovered that they could fool the eye by manipulating the film frame. Early filmmakers turned objects into people or into different objects, substituted scenic landscapes for soundstage walls, or created imaginary worlds by building miniatures and animating models. Different techniques like rotoscoping, the Shuftan Process, traveling mattes, and matte paintings improved the realism of visual effects.

These stills from the silent film version of BEN-HUR (1925) illustrate the image as seen on screen and the distinction between the lower part of the frame, which was live-action actors and full-sized set pieces, and the upper part of the frame, which was a hanging minature placed in front of the camera. The miniature was built to scale so that it completed the look of the Coliseum without the cost of building it full size. Small dowels on each end were attached to pegs that, when raised and lowered, created movement in the "upper balconies," reinforcing the illusion. A similar dividing of the image used paintings on glass known as matte paintings. The development of the optical printer in the early 30s allowed the "real" and "created" images to be married in the film laboratory rather than in the camera. Photos courtesy of Warner Bros.

Because of "persistence of vision," when watching a quickly moving sequence of still images, the human eye retains each picture for just a moment after it disappears. This overlap lets the mind blend the images together into continuous movement. Persistence of vision makes visual effects possible.

A toy called a thaumatrope illustrates the way persistence of vision works. Begin by drawing a simple image on one side of a cardboard disk. On the other side, draw an image that goes with it. The most common thaumatrope has a bird on one side and a cage (upside down in relation to the bird) on the other, but you can use any combination of pictures. Next, punch a small hole on opposite edges of the disk. Attach one piece of string about eight inches long to each hole. Pull the strings tight and twirl them between your thumb and forefinger. As the disk spins, persistence of vision causes the two images to blend into one. In this case, the bird appears to be inside the cage.

What other pairs of images would be good choices for a thaumatrope?

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Try making a thaumatrope using abstract shapes or words instead of representational images. How did you make the shapes or words on one side blend in with or contrast with the other side?

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List the ways a thaumatrope is like a movie.

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What do thaumatropes tell you about the way visual effects work?

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VISUAL EFFECTS TERMS

Forced perspective: An illusion that makes larger objects appear to be closer to the viewer than smaller objects.

Matte: A mask that prevents light from reaching and exposing a portion of the film.

Matte painting: A painting, traditionally done on glass, of a landscape or other background that is combined with other images in the finished film.

Persistence of vision: The illusion of movement created when a series of still pictures flashes by in rapid succession.

Rear projection: A way of combining previously filmed backgrounds with live-action foregrounds.

Rotoscoping: A process that enables filmmakers to trace live-action footage frame by frame.

Shuftan Process: A method of using mirrors to combine full-scale live action and miniatures.

Split screen: A process that combines two or more different actions, filmed separately, in the same film frame.

Traveling matte: Mattes used to combine two separately filmed scenes when the foreground element changes shape or position from frame to frame.