Special Effects

A Reading A–Z Level T Leveled Book
Word Count: 1,238

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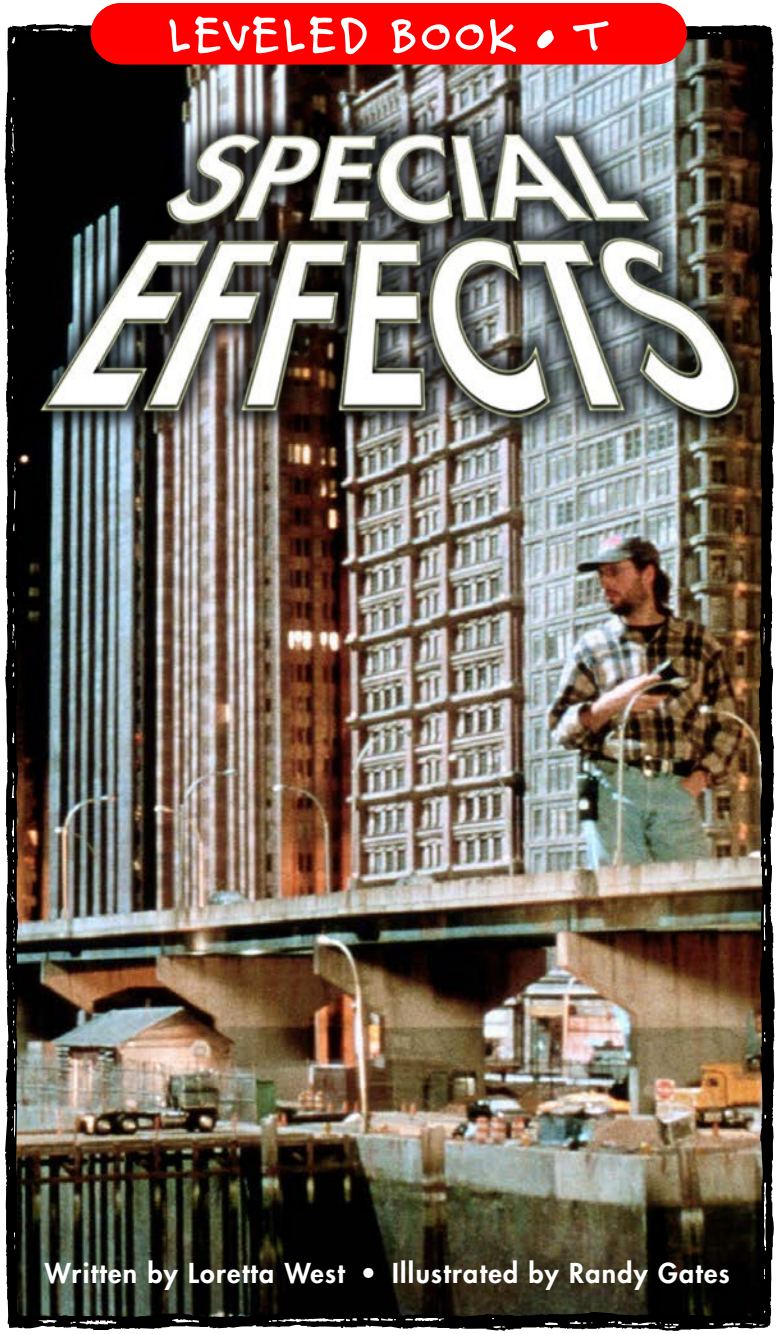

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movements *(n.)* the way that something moves in doing certain actions (p. 7)

process *(n.)* the order of work done to complete a project (p. 8)

projected *(v.)* to be shown on a theater or television screen (p. 8)

props *(n.)* movable objects used on the set of a play or movie (p. 15)

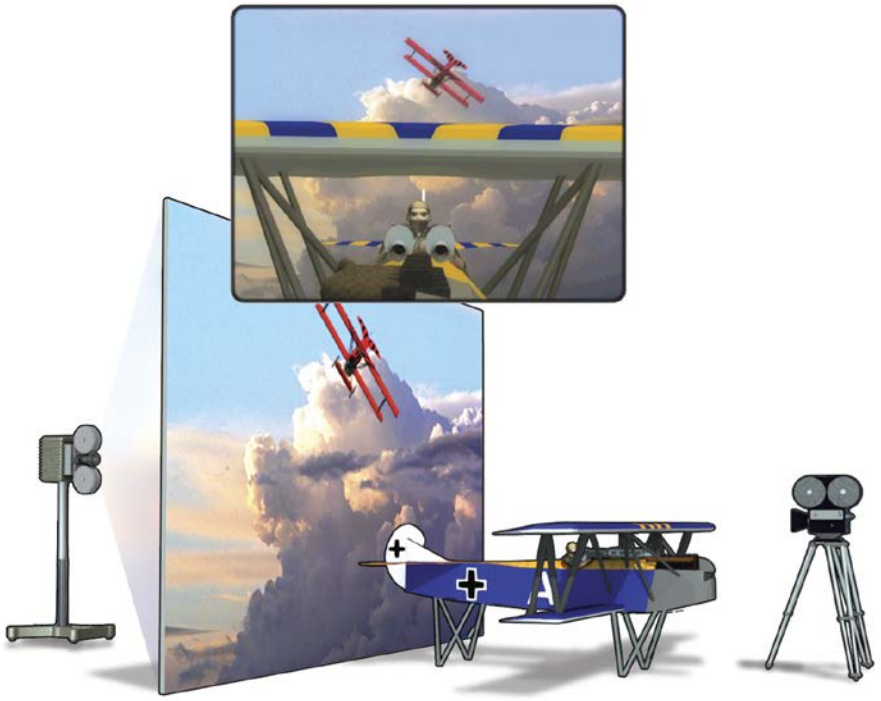
rear projection *(n.)* a special effect that adds a background scene behind an actor in a studio (p. 10)

scenery *(n.)* the painted walls or objects that make up the set of a play or movie (p. 10)

special effects *(n.)* illusions created for movies or television using computers, cameras, or props (p. 5)

stop-motion animation *(n.)* taking a few photos of a model each time it is moved slightly so that it looks as if the model is moving on its own (p. 8)

SPECIAL EFFECTS



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Correlation

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Glossary

animatronics *(n.)* the electronics that make models of creatures move as if they were alive (p. 13)

backdrop *(n.)* the scenery behind characters during a certain part of the movie (p. 8)

color-replacement photography *(n.)* photography erasing a color from the front picture so that a background picture shows through (p. 11)

computer-generated images *(n.)* images made by using a computer (p. 17)

developed *(adj.)* processed to be usable (p. 8)

illusion *(n.)* something false that tricks you into thinking that it is real or really happened (p. 8)

imaginable *(adj.)* able to be seen in your mind (p. 17)

miniature *(adj.)* very small (p. 8)

models *(n.)* representations of objects made-up to look like the real things they resemble (p. 7)

Conclusion

Audiences seventy-five years ago were awestruck by the special effects used in *King Kong*. And audiences of today are equally awestruck as they watch volcanoes erupt in cities, spaceships engage in dogfights, and huge ocean liners crack in half and sink to the bottom of the ocean. But today's audiences know a little more about special effects than audiences of years ago. Does this mean that today's audiences are bored with today's movies? Not a chance! They still enjoy the "magic" they see on the screen. They love being frightened, amazed, and entertained.

So, what's left for movie special effects? Computer special-effects artists want to perfect a way to make a computer-generated human being look completely real. Will they achieve their goal? They probably will, because with special effects anything can happen, right?

CGI-rendered human character

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Introduction

The gigantic ape stands high above New York City on the very top of the Empire State Building. He has carried with him a blonde woman—he holds her in one of his massive paws. The ape gently puts the woman inside the building, thumps his chest, and roars menacingly at the squadron of planes circling just outside his reach.

He strikes out at one of the planes, sending it spiraling to the ground in a ball of fire. The other planes attack, firing bullets at the huge creature. Some of the bullets hit and the ape is badly wounded. He lets out one last roar and lets go of the building, falling to the street.

Everyone's favorite ogre from the CGI animated film *Shrek* (2001).

Computer-Generated Images (CGI)

Computer-generated images can be used to create almost any **imaginable** effect in a movie—blazing fires, giant waves, or talking dinosaurs. Once the images are created on the computer, they can be changed, moved, copied, and combined with other images for the movie. Computers helped revolutionize the world of special effects in movies. With computers, special-effects artists can create movie scenes never thought possible. Now, computer-generated images can actually be used to create an entire movie like *The Polar Express*.

Weather Special Effects

Special effects are often used in movies to create weather conditions and natural disasters. For example, to film a violent storm at sea, actors do not need to go out in a real storm—that would be very dangerous. Instead, they can sit safely in a boat in a large pool or pond. A machine creates crashing waves in the water, huge fans produce powerful winds, and giant overhead sprinklers send down pouring rain.

Filmmakers used computers to add a wild tornado to this shot from *The Day After Tomorrow* (2004).

The scene is filmed in front of a blue screen, which can later be replaced with film of an actual storm. When snowstorms are needed in a movie, snowflakes can be made from bleached potato flakes, plastic flakes, or powdered laundry detergent.

The scene we've described is from the movie *King Kong* and was made more than seventy-five years ago! The movie would never have been possible if it hadn't been for Willis O'Brien. A master of movie **special effects** in the 1920s and the 1930s, he helped create the special-effects spectaculars that audiences still love.

A close-up of the gorilla model used in the 1933 film *King Kong*.

So, what are special effects? Special effects are the part of moviemaking that creates, or makes, pictures and sounds that can make movies seem real. Special effects allow a superhero to rescue anyone, anywhere, at any time. Special effects can create alien spacecraft soaring toward Earth at an alarming speed. Special effects can make buildings crumble, tornadoes twist, and dinosaurs, long extinct, come alive.

Movies, or moving pictures, work by capturing a series of still images and replaying them quickly one after the other.

Dinosaurs appear to come to life in this special-effects scene from *Jurassic Park III* (2001).

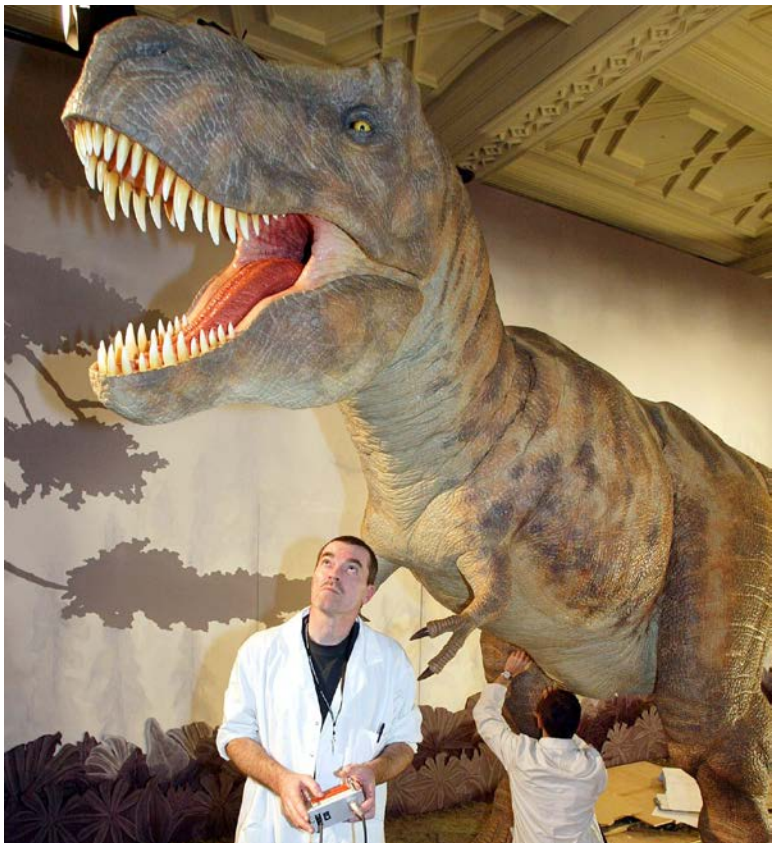
Oversized props make actors seem tiny in *The Borrowers* (1997).

Miniature Models

Rather than filming a real building, or other object, miniature models are often used as special effects. On film, the models look life-size.

Sets and **props** can be made extra large or small to make people seem tiny, or large. Sets include such things as houses, cities, or jungles—anywhere the acting takes place. Props are objects like chairs or swords that actors use.

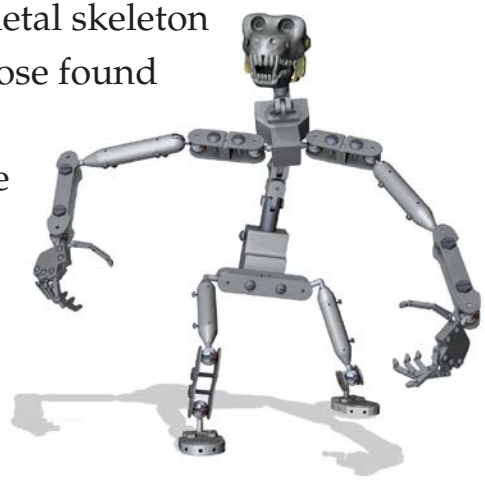
Animators study the movements of real animals and people and try to copy the movements electronically. Because animatronic creatures appear to move like living creatures, they can be filmed interacting with the actors and real animals. The dinosaurs in *Jurassic Park* were just as scary as E.T. was endearing, due in large part to the capabilities of animatronics.



An example of a mechanical dinosaur model

Stop-Motion Animation

So, how did O'Brien make *King Kong* possible? First, he constructed several gorilla **models** using a metal skeleton with joints like those found in human knees and shoulders. He padded the joints with cotton and foam rubber, and then covered them with rabbit skins to resemble the beast's fur. Next, O'Brien studied the **movements** of gorillas in zoos. He also attended professional wrestling matches looking for ideas of how to make his creature battle the dinosaurs and other huge animals on Skull Island, King Kong's home.



O'Brien's special-effects team then constructed detailed **miniature** sets, like a New York City street, to provide the **backdrop** for the animated models. Now it was time for O'Brien to use the **process** he invented: **stop-motion animation**. With stop-motion animation, the miniature models were photographed one frame at a time and put into different positions for each frame. When each frame of the **developed** film was **projected** in sequence, the models appeared to move with the **illusion** of being alive.

1933: Willis O'Brien's models of a giant ape and a dinosaur battle it out in a scene from the classic monster movie *King Kong*.

The blockbuster film *Jaws* (1975) used a mechanical shark model.

Animatronics

The huge shark crunching Quint's boat in *Jaws* or the endearing creepiness of E.T. are unforgettable images. The process known as **animatronics** was used to create E.T. as well as the shark in *Jaws*. Animatronics is a type of special effect that creates characters using electronic robots. A special-effects crew controls the robots' movements through remote control.

This technique is used every day on most weather portions of the news on TV. The weather anchor stands in front of a color screen while a technician puts the image of a map behind the anchor. The image brought into the picture shows up on any area that is the same color as the screen. You will never see a weather anchor on TV dressed in the screen's color, as you might see a weather map where their body should be!

A girl shows how to do a weather report using a green screen.

Award-winning special effects

The following movies won the Academy of Motion Picture Arts and Sciences award for Visual Effects. Have you seen any of these movies?

2003 *The Lord of the Rings: The Return of the King*

2004 *Spider Man 2*

2005 *King Kong*

2006 *Pirates of the Caribbean: Dead Man's Chest*

2007 *The Golden Compass*

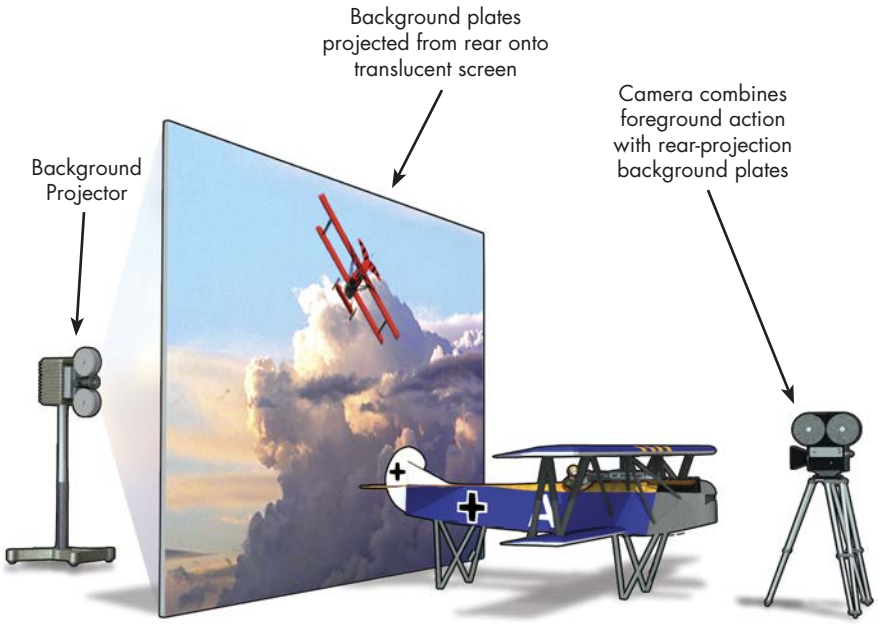
2008 *The Curious Case of Benjamin Button*

2009 *Avatar*

Special effects have been used in movies for more than 100 years. Georges Méliès, a French magician, invented some of the earliest special effects. In 1899 he directed a movie called *The Conjurer* and used special effects to make himself disappear. Some members of his audience were so terrified by what they saw that they actually fainted! Since then, many types of special-effects tricks have been created.

Rear Projection

Rear projection is a type of special effect that creates fake **scenery** behind an actor. For example: to make it look like a person is driving a car on a beach, the beach scene is filmed first. Then the beach scene is projected onto a screen. A car and a driver are placed in front of the screen and filmed.



An actor flies through the air in front of a green screen. In the final shot, the background will be replaced with images of a busy market.

Color-Replacement Photography

With **color-replacement photography**, the movement of an actor or an animal, such as someone falling, is filmed in front of a chroma blue screen or a green screen. The background is shot at a different time. Then the action of an actor pretending to fall is layered on top of the colored screen. The color is then erased and the background becomes visible wherever the color was. This special effect is like cutting out the shape of an animal or an actor from a sheet of paper and pasting it onto different scenery, except the image is moving and so is the scenery!