

## Animation

Animation is art in movement. More precisely, it is the “art of movement.” Whether it is a drawing or a lump of clay, a puppet or paper-cut collage, the animator infuses life and meaning into his or her idea by making it move.

The illusion of movement in animation is created by a physiological phenomenon called *persistence of vision*. When a single image is flashed before a human eye, the brain retains that image longer than it is actually registered on the retina. So when a series of images with slight variations or changes are flashed in rapid succession before our eyes, the effect is one of movement.

### A Brief History of Animation

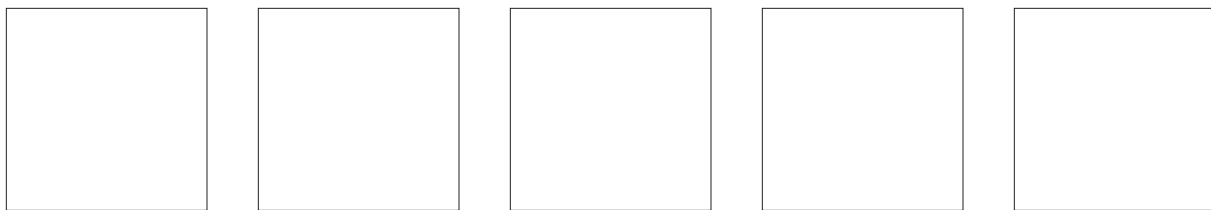
The element of motion has intrigued artists for thousands of years. From cave paintings created over 25,000 years ago to Eadward Muybridge’s photographic studies of human and animal locomotion during the late 1800s, we can trace efforts to depict movement that foreshadowed contemporary animation techniques.

Film animation burst on the scene in the early 1900s. J. Steward Blackton produced the first stop-frame animated cartoon, titled *Humorous Phases of a Funny Face*, in 1906. Another early landmark was Winsor McCay’s *Gertie the Dinosaur* (1914), a popular animated feature consisting of 10,000 illustrations hand-drawn on rice paper by the McCay and an assistant.

The best known of these pioneering film animators was Walt Disney, who in 1928 produced *Steamboat Willie* starring Mickey Mouse, and who in 1937 brought to the American movie screen the first full-length animated film, *Snow White and the Seven Dwarfs*. Disney introduced numerous technical refinements and innovations into his animated features in order to provide greater realism and to heighten the illusion of depth.

Since the early days, animators have used new technologies to their advantage. Some of the techniques used by animators nowadays include cel animation, clay animation, pixelation, rotoscoping, photo montage, puppetry, cut-paper animation, and computer animation. Although the artist remains a dominant figure in the animation process, the introduction of computers has brought about a major transformation in the animation industry. Not only is computer automation cutting production time and costs, it is also producing startling new effects and unprecedented results in the animation features and programs being shown on our television screens, computer monitors, and movie screens.

**An Animation Exercise:** Make a ball appear to bounce over these five frames.



### Animation Techniques

Animators often employ one or more of the following techniques to enhance the power of their animation:

- **Squash and Stretch**—exaggeration or distortion of a gesture, movement, or reaction to make it more forceful, e.g., as in a bouncing ball.
- **Anticipation**—a small, preliminary action that leads to a major animated motion, e.g., a wind-up in pitching a baseball or a golf swing.
- **Overlapping Action**—the movement of different parts of an animated character’s body or object’s parts at different rates of speed, all relating to the main activity.