



ANIMATION

EXHIBIT DESCRIPTION

Enter the exciting and visually rich world of ANIMATION, a highly interactive traveling exhibition that brings together art, math, science, and technology. Visitors will explore the process of animation surrounded by colorful, larger-than-life graphics of popular cartoon and animation characters from Cartoon Network. In this stimulating and fun environment, families and children will delight in bringing their own creations to life as they experiment with storyboarding, character design, drawing techniques, movement, timing, filming, and sound. A variety of animation tools and techniques will be explored, including cartoon drawings, visual effects, cel layering, computer animation, and stop-motion and time-lapse technologies.

This topic is extremely popular and has proven to be a powerful and effective tool for engaging and teaching all ages about such math and science concepts as perception, illusion, apparent motion, geometry, ratios, patterns, and measurement. Which makes ANIMATION also ideal for school groups (grades K-8).

The six thematic areas and exhibit components include:

HISTORY

Learn about early animation, animation principles, and how apparent motion makes animation possible—when many single images flash in front of the eye in quick succession, the brain registers these single images as a moving image.

Apparent Motion

Explore apparent motion and early animation using a praxinoscope. This modern version of an old-fashioned machine consists of a round, rotating platform divided into 12 sections, around a central column of mirrors. Slightly modify the position of several three-dimensional objects and then spin the platform to see all the objects morph into a single animation. (5-adult)

The Early Days of Animation

Check out an updated version of another early animation machine found in the penny arcades of the late-nineteenth century, the mutoscope. While cranking a handle, watch a spool of images flip around, like a Rolodex, creating an animated sequence. (5-adult)

ANIMATION STUDIO

Explore the process of animation and story creation with a variety of Cartoon Network characters.

Animated Animals

Realistic animation must include lifelike character movement. Manipulate a two-dimensional horse and see if you can create an animation that realistically portrays a horse's natural gait. Guided by a backlit template, pose the horse at each key stage of movement and snap a quick picture of each new position. Play back your sequence and see how you did! (8-adult)

Animation Process

Find out how animation is produced in a step-by-step process. Slide a computer monitor along a track and view the different steps of cel animation from start to finish in this simple, interactive computer tutorial. (7-adult)

Cel Animation

Cel animation was developed to save time--by stacking cels, new scenes can be created and objects can be added to a cartoon in layers. Select from a variety of background, character, and effect cels and stack them in your preferred order. As you review your scene on a monitor, you'll see how the cels combine to make a full color scene. (5-adult)

A Moving Background

Panning backgrounds can fool the eye, making it appear that not only is the character moving, but sometimes even moving a long distance. Slide a moving background cel along a track, under a character cel, snapping frames as you go. As you view your finished animation, you'll see it's the stationary characters that appear to be moving. (6-adult)

Scaling Up and Down

Animators use ratios and mathematical tools, such as the pantograph, to enlarge a character while keeping the correct proportions. Trace one of three templates using an oversized pantograph. At the same time you are tracing the object, the pantograph will be drawing a larger version on a giant Magnadoodle. Switch out the template and try all three! (7-adult)

Storyboard

Stories progress in a certain sequence, which ideally should be mapped out very early in the process. Select from a series of 10 picture cards and arrange 8 of them in your preferred order to create a storyboard. Then, press a button and watch an animated sketched version of your storyboard come to life on a monitor. (7-adult)

ART IN MOTION

Discover why art and math are important in the creation of characters, motion, and change with the help of the characters from *Foster's Home for Imaginary Friends*.

Character Construction

Explore the basics of sketching animated figures. Did you know that all animated characters are made up of geometric shapes because that's the easiest way to draw them? View a step-by-step video of a Cartoon Network animator drawing characters from *Foster's Home for Imaginary Friends*. Then, give it a try yourself using the paper and colored pencils provided. Younger children can create simple figures by tracing stencils of several different *Foster's* characters. (3-adult)

Frames Per Second

Most animation uses about 24 frames per second because it produces the perfect apparent motion effect. Fewer frames can seem unrealistic because the animation appears to flicker between frames. Turn a dial to change the frame rate of an LED display, comparing how the same sequence looks different at 18, 24, and 30 frames per second. (6-adult)

Planning the Action

Illusions of movement (even types of movement that are impossible in real life) can be created using still images mapped out on a grid. In this fun, full-body interactive, you can animate yourself! Walk onto a large floor grid, where a camera is positioned to take 14 pictures. You are prompted by an electronic countdown to strike a pose or jump on the first square of your plan of action, where the camera will snap a picture. Move on to your next square and pose, while again an image is recorded, etc. When you're done, you can watch your animation on a large monitor and see yourself magically move around the room. If you jump as each picture is taken, you can even appear to float! (5-adult)

Stop-Motion Animation

Geometric shapes can be combined to create objects or patterns that can be given the appearance of movement through stop-motion technology. At any of these three identical stations, you can create your own stop-motion animation. Manipulate the various geometric objects a little bit at a time and snap a quick picture of each move you make. When you're done, play back your animated sequence. (5-adult)

SCIENCE LABORATORY

Explore the science and technology that make animation possible in *Dexter's Laboratory*.

Animation in Science

Animation is much more than cartoons; it is also a vital tool in many fields of science. At this computer station, you can explore the different applications of animation technology in fields such as genetics, space, paleontology, medicine, and archaeology. (9-adult)

Computer Animation

Find out how computers have become one of the most important tools in animation, freeing the animator from drawing the same thing repeatedly. Select an object and a background on a computer screen and manipulate the character a bit at a time, creating several "key" frames. The computer will take the "key" frames you developed and fill in the "in-between" frames, producing a simple motion sequence that animates your object. (7-adult)

Squash and Stretch

Animators need to understand principles of physics to create a believable animation—an object elongates along its axis of acceleration (stretch) and contracts when it meets resistance (squash). In this computer activity, create a realistic animation of a bouncing ball by clicking and dragging cartoon pictures of a ball into the correct bounce sequence based on their shapes. A nearby video plays a clip of a bouncing ball from *Dexter's Laboratory*, so you can see the principle in action. (6-adult)

Time-Lapse Animation

Time-lapse technology allows us to view an action that occurred over a long period of time in a matter of seconds. Explore this technology as you watch several different time-lapse videos, including flowers blooming, cookies baking, the sun setting, clouds forming, and insects hatching. You can speed up, slow down, or even stop the time-lapse action by spinning a control wheel forward or backward at any speed you choose. (4-adult)

Visual Effects

In this full-body interactive, experiment with the same type of special effects Hollywood uses in movies and television. You can jump or pose, while several digital cameras around a circular screen area take your picture simultaneously. The still images are then played back in rapid succession on a large monitor above, creating an animation in which you are viewed from several angles. (5-adult)

SOUND AND STAGE

Explore the principles of sound and phonetics with characters from *Chowder*, *Ben 10: Alien Force*, and *Kids Next Door*.

Foley Room

The sounds heard in animation are not always what they appear to be. In the Foley "booth", you can become the sound technician and add audio effects to an animation clip. You'll practice precise timing and sequencing skills as you try to synchronize your sounds with the action on screen. When you're finished, play back the clip with the sounds you just recorded and see how you did. (6-adult)

Lip Sync

To generate realistic speech, an animator must study how people's mouths move during speech sounds. Listen to a simple phrase being spoken and see if you can match the correct mouth shapes to the right sounds in the phrase, snapping a picture of each mouth shape selected. You can use a phonetics chart and mirror to help you determine which mouth shape matches each sound in the phrase. Play back your animated sequence with the dialogue and watch the character "saying" the words. (10-adult)

Set the Mood

Explore how music can affect the psychological impact of a film. Watch a short animated clip with background music. Then, select from different soundtrack options designed to create a distinct mood (suspenseful, sad, happy, romantic) and view the scene again. Note how the mood of the scene differs based on the particular soundtrack. (5-adult)

Talking Pictures

Add your own voice to a silent animation! Choose from three animated clips, and then follow the words onscreen, adding your own voice to match the characters' action and mouth movements. After recording, you can play back the sequence--now with your voice speaking through the animated characters. (7-adult)

CARTOON MUSEUM

Check out clips of famous animations, unique artifacts, nostalgic toys, and other fun, pop-culture objects surrounded by beloved, classic Hanna-Barbera characters.

Cartoon Museum

Explore animation's history and see the many different tools used to create animation in this colorful museum featuring art and artifacts from popular cartoons like *The Flintstones*, *The Jetsons*, *Scooby Doo*, *The Powerpuff Girls*, *The Smurfs*, *Yogi Bear* and much more! You can examine cels, drawings, storyboards, maquettes, and backgrounds, as well as vintage toys and games that were used to market the shows. You'll get an idea of just how much time and work has gone into these familiar animations! (8-adult)

Screening Room

Inside the Cartoon Museum, you'll find an intimate theater setting where you can view a series of popular Cartoon Network animations and learn more about basic animation history, concepts, techniques, and the science behind animation. Each 2-3 minute cartoon clip features pop-up fact bubbles about the techniques and inspiration behind the animations, as well as other fun facts. The animations loop automatically and last a total of approximately 15 minutes and include clips from: *Foster's Home for Imaginary Friends*, *The Powerpuff Girls*, *Codename: Kids Next Door*, *Dexter's Laboratory*, and more. The theater can also be used as a demo area or to screen films of the hosting museum's choice. (8-adult)

Classic Hanna-Barbera Video Kiosks

Discover the behind-the-scenes techniques of animation in two Video Kiosks featuring classic Hanna-Barbera cartoons spanning over three decades. At each Video Kiosk, you can choose from a selection of six videos and watch each cartoon clip along with an introduction that presents facts about the history and techniques behind the animation. Cartoons include: *Huckleberry Hound*, *The Flintstones*, *Quick Draw McGraw*, *Yogi Bear*, *The Jetsons*, *Top Cat*, *Jonny Quest*, *Fantastic Four*, *Wacky Races*, *Josie and the Pussycats*, *Scooby Doo*, and *Challenge of the Super Friends*. (8-adult)

Careers in Animation

Scattered throughout the exhibition, are five Careers in Animation profiles, which feature graphic panels or digital slide shows of real animators working in the Cartoon Network studios. Each one focuses on a different artist and area of animation:

- 1). The backside of A Moving Background – a Producer and Director.
- 2). The backside of Storyboard – a Creator and Executive Producer.
- 3). The backside of Foster's Structure – a Producer, Writer, Storyboard Artist.
- 4). The backside of Dexter's Laboratory Structure – a Technical Director.
- 5). The backside of the Foley Room – a Voice Artist.

Numerous skills are needed in the world of animation, creating many career opportunities. (7-adult)

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