VIRTUAL INSTRUCTION
VIDEO TRANSCRIPT

Workshop:
Thaumatropes

Learn the history and processes behind animation and pre-film animation machines and how animation works alongside its concepts, such as persistence of vision. You will then construct a thaumatrope.

Teaching Artist:
Mikey Peterson

Workshop duration: 25 - 45 minutes

Hey there, this is Mikey Peterson from Snow City Arts. My pronouns are he, him and his. Thanks for letting me join you today as we make art using different forms of digital media.

Today we will be making **thaumatropes**, early animation machines that predate photography and film.

The thaumatrope is a simple machine or toy that rapidly switches back and forth from two different images. When we watch these images in rapid succession, we experience what is known as **persistence of vision**. An after-image appears where we've seen both images simultaneously. The optical illusion happens because our eyes and brains can't keep up with each image changing because we can only process 10 to 12 images or frames per second. The images on the thaumatrope are moving much faster than this.

The thaumatrope toy was invented in 1825 by English physician J.A. Paris and was a precursor to other animation machines such as authechusticopes and **zoetropes**. The concept for the thaumatrope and other multi-framed animation machines, such as the zoetropes and **phenakistiscopes**, was first developed in China in 180 A.D. where inventor **Ding Huan** created a device which rotated sequential paintings through the rising heat of the lamp.

Here's a digital GIF example of a phenakistiscope. With an analog version, you would need to look through the cut-out slits into a mirror in order to see the images animate. The slits are used in order to break up the images so they do not blur together. This is the same technique used in filmmaking with regards to shutter speed.

Zoetropes use the same technique, but the disc is positioned on its side like a carousel with the slits positioned in front of the viewer. Here's a video example of a zoetrope installation that students created using bicycles for one of Snow City Arts' Gallery Night events.

Unlike zoetropes, thaumatropes only consist of two images as opposed to multiple. But all of these machines pave the way for the films and animations that we watch today. The word "thaumatrope" loosely translates to "wonder turner" from ancient Greek. And you can also look to contemporary digital GIFs as a successor to these animation machines.

Now let's make our own thaumatrope.

For this project, you'll need two pieces of blank white paper, scissors, two pencils, a cylindrical object such as a water glass or a compass in order to draw two circles, tape and a dark marker.

First, use your cylindrical object to trace two circles on the white paper and cut them out.

Second, think about what two images you want to draw for your thaumatrope. For this workshop, we'll illustrate a spider on a web. Use a pencil during the step in case you need to erase your images. The illustrations can be as complex as or as simple as you'd like to make them, but they need to be visible to our eyes when they quickly rotate.

Once you're done drawing your images, use a dark marker to trace over the pencil. Your images need to fully contrast with the white paper in order for them to be visible as they spin rapidly. Remember that these images will be seen at the same time, so draw your illustrations in a simple style, with dark contrasted lines and the appropriate and consistent position so that when you see them together, they lock into the appropriate space.

For instance, if you drew a spider on one side of the circle and a web on the other, make sure that the spider is to scale with the web. Meaning, that you should draw the spider in the middle of the circle and make sure it doesn't overlap over the web on the other side. A nice trick to make sure that your images align is to stack them together with each image on the opposite side. Then, hold them up to the light in order to make sure the images align properly.

Next, grab the tape and the second pencil. We will use the pencil as the thaumatrope's handle. Place your first paper circle image side down and lay the pencil down on top of it, so the top of the pencil falls a little below the edge of the paper circle. Use three strips of tape to tape the pencil and paper circles together. Then create a couple of looped tape pieces and stick them near the edges of the circle.

Next, you will place the second paper circle on the top of the first circle. Gently press down in order for the tape to hold both circles together, but not too hard where you crease the paper. Before you press down, make sure that your images

line up. Again, you can hold them up to the light to make sure.

Congrats! You've made the thaumatrope. Now let's take it for a spin!

If you are interested in receiving school credit for the work you have completed in this workshop, or if you would like to have your work **displayed in a Snow City Arts exhibition space or virtual gallery**:

Visit **https://snowcityarts.org/consent-releases/** to learn more.

Contact us at programs@snowcityarts.org if you have questions, would like to offer feedback, or would like to continue working with us virtually.

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