PROJECT:

* Thaumatrope

CONCEPT:

* learn about apparent motion using the thaumatrope as an example

GOALS:

* Students will learn about the thaumatrope as a popular optical toy
* Students will understand and discuss the scientific basis for the thaumatrope (apparent motion and Phi motion).
* To learn that the term “persistence of vision,” although used extensively in the film industry to explain motion pictures and animation. is inaccurate and insufficient to fully explain visual movement on the screen.
* Students will create their own thaumatrope

PREPARATION:

* Punch holes in index cards and tie strings to them
* Prepare examples

MATERIALS:

* Pencils (one for each student)
* Colored Pencils
* Blank index cards (at least one for each student)
* string or yarn
* several single hole punches

SUBJECT CONNECTIONS:

* Motion Perception
* Thaumatropes can be used to illustrate fine grain and short range Apparent Motion as well as Phi motion.

LEAD IN:

* Begin by discussing the Victorian interest in optical toys and the use of the thaumatrope as a theoretical device (the now debunked theory of persistence of vision).
* discuss how the device relates to/serves as an example of apparent motion.
* provide examples of apparent motion

PROCEDURES:

* Hand out string and index cards and set pencils and colored pencils out at each table 2 min
* Introduce the project, briefly discuss its history and purpose.
* Show several examples of thaumatropes and describe how they operate. Describe some tips for making them. 5min
* have students draw the two images to be combined on their index cards. 10 min
* Test out thaumatropes 5 min
* Give students the opportunity to improve their thaumatropes or create new ones 10 min

CLOSURE:

* have students demonstrate their thaumatropes to the class. 5 min

DIRECTIONS:

1. Plan your drawing on a separate sheet of paper and decide how you will split it.
2. Draw the first part of your image on one side of the index card. be careful to Place it so the final image will end up in the middle.
3. Draw the second half of your image on the other side of the index card so it fits perfectly onto the first hold the card up to the light to see how it lines up with the first drawing If you can't see the drawing on the bottom side so you can draw on the top one, set your card over a light source such as a light table, a window, or computer monitor. Draw your second picture so it fits perfectly and completes the image.
4. Hang onto the handles between your thumb and index finger, Roll them back and forth to spin your thaumatrope and see what happens. The handles are removable so you can edit your drawings if necessary. You can add color or darken pencil lines to create more impact in your drawings.