

## STUDIO CODEX



## Experiments in Color

**Materials Needed:**

construction paper (red, yellow, blue)	cotton string	pencil
cellophane (red, yellow, blue)	pushpin	straw
paper punch	paper clip	rubber band
bulldog clip	scissors	paper brads
		tape

**Objectives (Why you're doing the project):**

1. To explore the properties of pigmental color.
2. To play with the persistence of vision and see its effects on color mixing
3. To experience early movie-making devices



**Useful Vocabulary:** •See *Art Elements* on [studiocodex.com](http://studiocodex.com) website or read Chapter 4 in *Art Decoded* to review these terms.

prismatic color system	pigmental color system	primary colors	secondary colors
tertiary colors	analogous colors	simultaneity	complementary colors

**Use two primary colors for each of the projects.**

**Thaumatrope:** (This was an early toy that created simple animation until the invention of modern movies. Its name means "turning marvel.")

1. Cut two circles from your first set of primary colors
2. Glue the circles together.
3. Punch two holes on opposite sides of the center.
4. Cut two 8" pieces of string and tie them through the holes.
5. Hold the string about 2" from the circle and spin it to see the two primary colors change to a secondary color

**Optical Top:**

1. Cut two circles from another set of primary colors.
2. Slide each one from the edge to the center.
3. Slip them together so that each side is half one color, half the other.
4. Punch a hole in the center and insert a pencil or straw.
5. Spin the pencil or straw to see another secondary color appear.

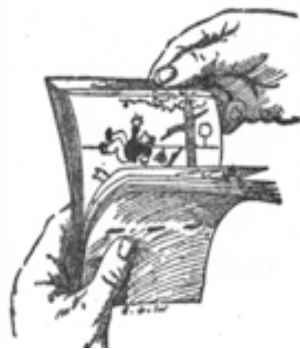


**Spinning Whizzer:** (This optical effect, based on the persistence of vision, is accompanied by a whirring sound created by the vibrations the spinning disk makes in the air around it.)

1. Follow steps 1 – 3 for the Optical Top.
2. Glue a two-hole button to the center. Punch small two holes through in the button and paper circle.
3. Cut 20" of string. Run the string through one center hole, through the button hole, then loop the string and return through the other button and paper hole.
4. Tie the two loose ends of the string together in a know.
5. Loop the two ends of the string around your index fingers, twist the string, and pull outward sharply to begin the circle spinning.
6. Watch for the color change and listen to the whizzing sound.



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Invented in 1868, the kineograph, or "moving picture," used the viewer's persistence of vision to create the illusion of figures in motion.

**A Kineograph:** (This early animation technique is better known as a flipbook.)

1. Use another pair of primary colors and cut 10 pieces of 2" x 8" construction paper (5 of each color).
2. Fold each in half. Arrange them so that 3 are the first primary, 4 are alternating primaries, and the last 3 are the second primary.
3. Clip along the fold and hold the pages together with a bulldog clip.
4. Flip the open edges to see the color change.
5. Turn your flip book into a little animated movie by drawing a simple shape, like a stick man, on the last page of the booklet. On the page above, draw the figure again, slightly shifting one part, the leg, for example. One movement should lead to the next. Move the figure a little each time on each other page.

Some popular commercial flipbooks.



**The Kinematoscope:** (The early kinematoscope was a series of pictures mounted like blades on a spinning paddle wheel.)

1. Cut out the strip pattern on page 3.
2. Unbend a paperclip and tape it over the stars.
3. Glue alternating strips of primary colors on the other side.
4. Fold along dotted lines and apply glue stick on inside to make a paddle wheel.
5. Gently rotate the paddle wheel by holding the ends of the paper clip wire to see the color change
6. When not in use, store the kinematoscope in its holder like the Victorians did.



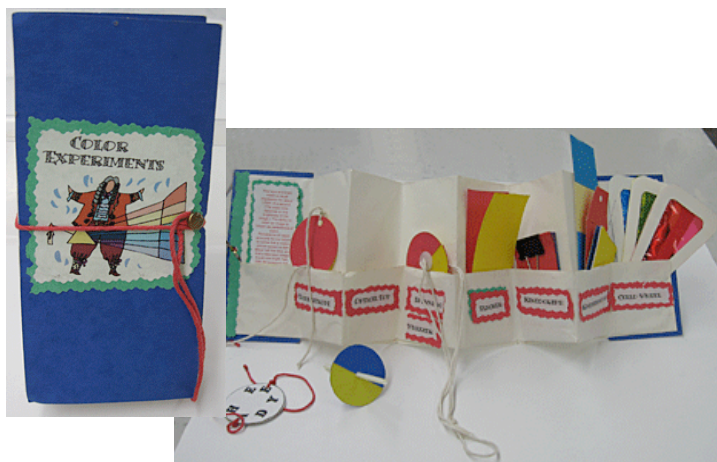
**Cello-wheel:**

1. Trace six wedge patterns onto poster board and cut out the centers.
2. Cut red, yellow and blue cellophane to fit inside the wedge frames.
3. Punch out holes and tie wedges together with string or a paper brad.
4. Overlap wedges to see different secondary colors.



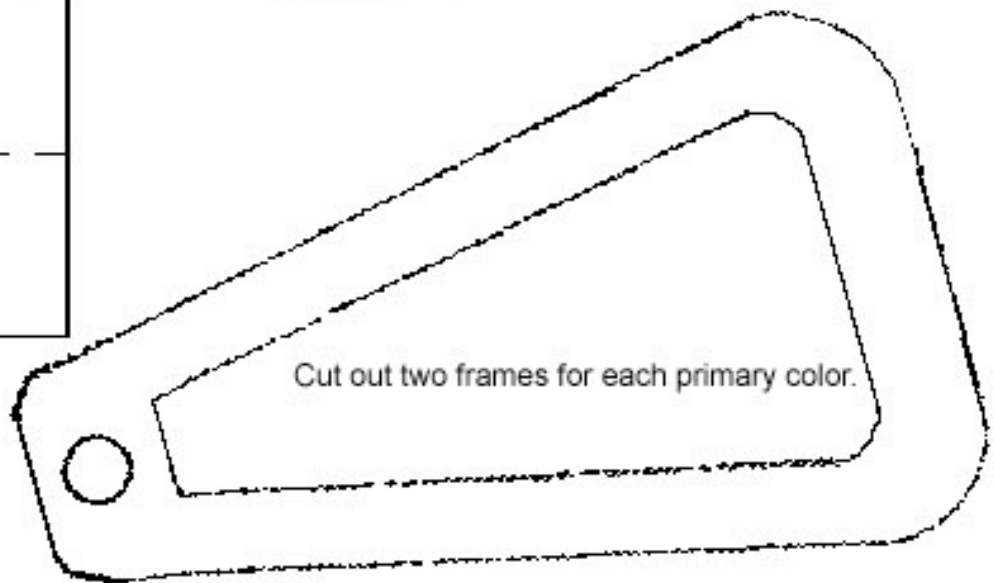
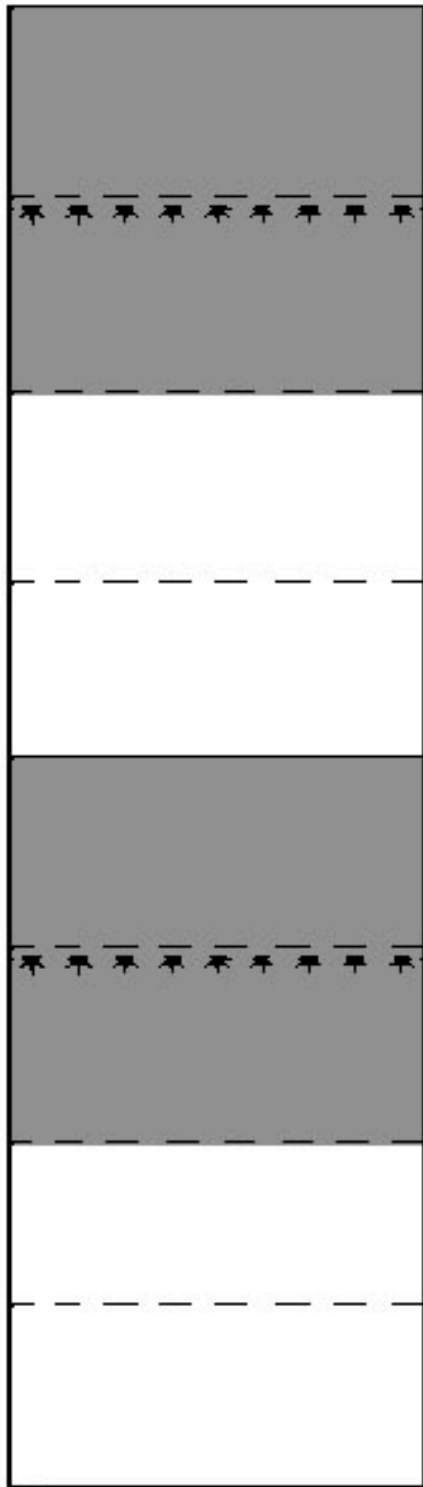
**Finishing Touches:**

1. Keep your color toys together by making a quick folder.
2. Label each of your color experiments.



Go On to Pg. 3 for Project Patterns

Cut out the circles below and use them to make another thaumatrope. Enjoy the message.



For more info,  
see  
*Paper Movie  
Machines* by  
Budd Wentz  
Troubador Press