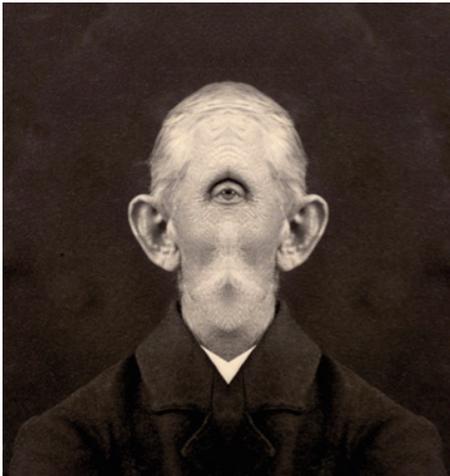


# Mark Mothersbaugh: Kaleidoscope Portraits

EXHIBITION: MARK MOTHERSBAUGH, MYOPIA: BEAUTIFUL MUTANTS



## Objective:

The students will use and explore their knowledge of symmetry to create Kaleidoscope portraits inspired by Mark Mothersbaugh's exhibition, Myopia, and his series, Beautiful Mutants.

## GRADE LEVEL: 4-12

This lesson plan can be adapted for multiple age groups.

## VOCABULARY

- Symmetry
- Reflection
- Kaleidoscope
- Mutation
- Portrait

## MATERIALS

- Clear packaging tape
- Scissors
- Image(s) of students
- Straight edge
- Popsicle sticks
- Dish washing soap
- Tray/Bowl
- Craft glue or glue gun
- Cardboard
- Paper Towels
- Large Pin or Needle
- Pencil
- Old Magazines (optional)
- Hygloss mirrored paper (available at craft stores and Amazon)
- Safety Mirrors or hinged mirrors (available on Amazon)
- Cardboard tubes (with some slightly larger than others in diameter)

## DISCUSSION

Introduce Mark Mothersbaugh's series Beautiful Mutants. Explain how he creates and alters the portraits while experimenting with reflection and symmetry.

Ask students what they think the name Beautiful Mutants means. Discuss what makes something beautiful. Does a photograph or image have to be "perfect" or "beautiful"?

Ask the students if they feel the human face is symmetrical. Have the students explain their thoughts. Have them give examples of symmetry in our daily life.

Explore ideas of symmetry using the app SymSide on an iPad or iPhone, allow students to create their own beautiful mutants

Talk about kaleidoscopes; discuss their history and how they work. The word Kaleidoscope is derived from the Ancient Greek kalos, "beautiful, beauty" eidos, "that which is seen: form, shape" and skopeo, "to look to"

Provide groups of students with two mirrors (or one hinged mirror) to experiment with reflection when mirrors face each other or meet at an edge. What happens to the reflection?

Beforehand:

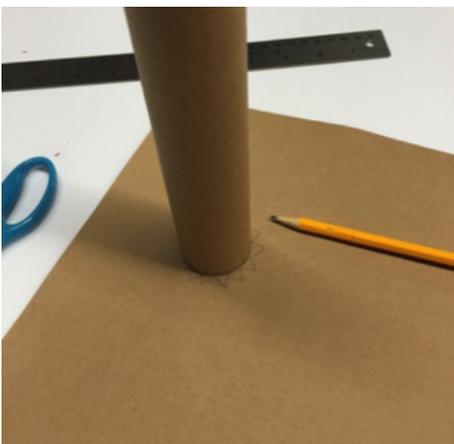
Take digital photos of each student's face or have them bring in photos from home (school pictures would work fine).

Feel free to provide old magazines for students to look through for images rather than using their own picture.

Use a copier to print out each student's picture in color or black and white (thumbnail size)

## PROCEDURE

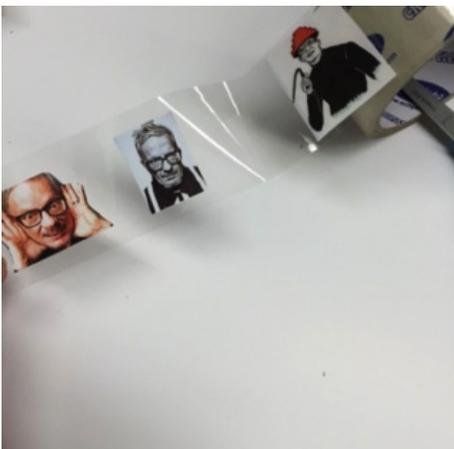
1. Each student should receive two cardboard tubes with one slightly larger in diameter
2. Have students trace the end of their smaller tube onto a piece of cardboard to make the eye piece. Stick a large pin through the middle of the circle and then slowly push a pencil through to enlarge the hole.
3. Trace small triangles around the outer edge of the circle and cut it out. Fold the small triangles around the smaller tube and secure it with packaging tape.



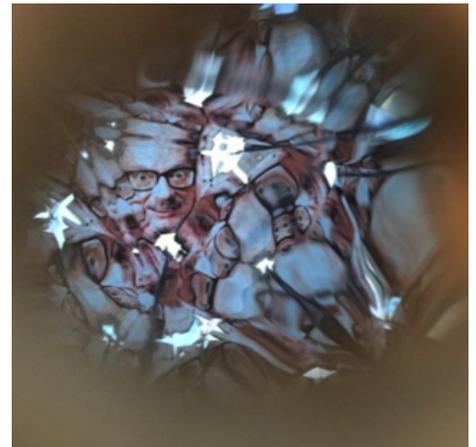
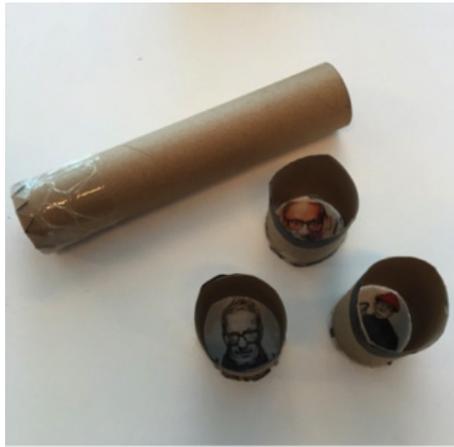
4. Make the prism by cutting out three rectangles from the mirrored paper. All three pieces should have the exact same measurements. The length of each rectangle will be the same as the length of the cardboard tube. The shorter side of each rectangle can be found using a simple formula, square root of  $3 \times$  radius of the tube. For example, a tube with a radius of 2 cm will measure 3.46 cm for each short side of mirror.
5. Once the mirrored boards are measured and cut out, tape them together on the long sides to form a triangle and slide into the tube.



6. To make the lenses, have students cut out copies of their pictures and stick clear packaging tape on top of each image. Rub over each image with a popsicle stick on the tape side. Soak the tape covered images in water with dishwashing soap for at least 3 minutes.
7. Remove the taped images from the water and begin to gently rub the paper backing off with a popsicle stick until all that is left is the tape and the toner from the image.



8. Cut the larger cardboard tube into rings about 1-2 inches tall. To attach the image, put a ring of hot glue or craft glue around one end and place the image on top, tape side down. Once the glue is dry, trim the excess tape around the rim.
9. Students can make multiple interchangeable lenses with different copies of patterns, portraits or images of their choice. Allow them to experiment and encourage them to decorate the outside of their kaleidoscope if time permits.
10. While looking through their kaleidoscope, ask students to find the line of symmetry between the reflections.



## EVALUATION

Have students describe their art work and the different techniques they experimented with during the art making process.

## RESOURCES

Mark Mothersbaugh, *Myopia* Edited by Adam Lerner

Website: [www.mathsisfun.com/geometry/symmetry.html](http://www.mathsisfun.com/geometry/symmetry.html)

I-Pad Apps

SymSide (allows you to alter images to make them perfectly symmetrical).

Symmetry exercises for kids by Alexandria Minard

Symmetry Lab by Luke Bradford

## STANDARDS

Math 4.G.3: Recognize a line of symmetry for a two dimensional figure such that the figure can be folded along the line into matching parts. Identify line symmetric figures and draw lines of symmetry.

Visual Art 4. 1PR: Identify, select and vary art materials, tools and processes to achieve desired results in their artwork.

Visual Art 5. 5PE: Focus attention on selected artworks to identify and pose questions about aesthetic qualities (e.g., sensory, organizational, emotional) in the works.

Visual Art 7. 2PR: Manipulate materials, tools and technology in conventional and unconventional ways to create a work of art.

Visual Art 8. 2PR: Demonstrate increased technical skill and craftsmanship by using more complex processes and materials to design and create two and three-dimensional artworks.

Visual Art 8. 1RE: Examine various qualities in artworks to understand how an artist's choice of media relates to the images and ideas in the work