

**Ronda Sternhagen
Grundy Center
High School**

Bridget Riley-Inspired Op Art Drawings

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Learning Objective(s)...

Students will identify works by Op Artist Bridget Riley and create their own Riley-inspired Op Art drawing.



Materials & Supplies...

3x5" blank index cards
rulers with 1/8" marks
5x15" illustration board
10x15" illustration board
fine-tipped markers

scissors
pencils
fine sand paper
white correction fluid

National Standards & Benchmarks...

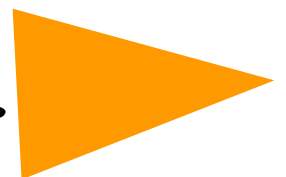
1. Understanding and applying media, techniques, and processes
 - a. Students select media, techniques, and processes; analyze what makes them effective or not effective in communicating ideas; and reflect upon the effectiveness of their choices.
 - b. Students intentionally take advantage of the qualities and characteristics of art media, techniques, and processes to enhance communication of their experiences and ideas.
2. Using knowledge of structures and functions
 - b. Students employ organizational structures and analyze what makes them effective or not in the communication of ideas.
3. Choosing and evaluating a range of subject matter, symbols, and ideas.
 - b. Students use subjects, themes, and symbols that demonstrate knowledge of contexts, values, and aesthetics that communicate intended meaning in artworks.
4. Understanding the visual arts in relation to history and cultures.
 - b. Students describe and place a variety of art objects in historical and cultural contexts.

Website Resources...

<http://www.artcyclopedia.com/history/optical.html>
<http://www.tate.org.uk/servlet/ArtistBio?id=1957&group=general&name=>
<http://www.crayola.com/>

Other Resources...

Round Table reading strategy
Vocab Quad reading strategy



Project How To...

Introduce the Key Characteristics of Op Art, look at some work by Bridget Riley and complete the Round Table reading strategy and artist information card.

Do some practicing by cutting a 3x5" index card with hills and valleys of varying width and height along the 5" side. Hills and valleys must not angle back in or the design won't work.

Mark every 1/8" along the 3" side of another 3x5" index card. Line up the edge of your hills and valleys template with the first 1/8" mark and trace with pencil across the edge of your template wherever possible. It is VERY important that you make sure the edge of your template exactly matches up to the edge of your card for an accurate drawing.

Continue moving down the card tracing your template.

Once you have completed a practice design, you're ready to begin the "real" one.

Cut another hills and valleys template from a 4x12" piece of illustration board, using the same rules as for the practice. Coat the edge of the cut template with "White Out" to seal it. Make marks every 1/8" down the 9" side of a piece of 9x12" illustration board. Line up your template with the first 1/8" mark, making sure the edges are perfectly even, and use a thin marker to trace your template. You may choose to do more than one color in an alternating pattern. Continue down the edge of your illustration board.

Sign in a creative way that complements your design.

Round Table Reading Strategy...

Read the following excerpts aloud as the kids are in groups of two...students should number themselves as either #1 or #2.

Optical Art is a mathematically-oriented form of (usually) Abstract art, which uses repetition of simple forms and colors to create vibrating effects, moiré patterns, an exaggerated sense of depth, foreground-background confusion, and other visual effects.

In a sense all painting is based on tricks of visual perception: using rules of perspective to give the illusion of three-dimensional space, mixing colors to give the impression of light and shadow, and so on. With Optical Art, the rules that the eye applies to makes sense of a visual image are themselves the "subject" of the artwork.

BREAK-Number 1s record everything you just heard me read.

In the mid-20th century, artists such as Josef Albers, Victor Vasarely, and M.C. Escher experimented with Optical Art. Escher's work, although not abstract, also deals extensively with various forms of visual tricks and paradoxes.

In the 1960's, the term "Op Art" was coined to describe the work of a growing group of abstract painters. This movement was led by Vasarely and Bridget Riley. Other Op Artists included Richard Anuszkiewicz, Jesús-Rafael Soto, Kenneth Noland, François Morellet, and Lawrence Poon.

BREAK-Number 2s record everything you just heard me read.

Riley was born at Norwood, London, the daughter of a

businessman. Her childhood was spent in Cornwall and Lincolnshire. She studied at Goldsmiths' College from 1949 to 1952, and at the Royal College of Art from 1952 to 1955. She began painting figure subjects in a semi-impressionist manner, then changed to pointillism around 1958, mainly producing landscapes. In 1960 she evolved a style in which she explored the dynamic potentialities of optical phenomena. These so-called 'Op-art' pieces, such as *Fall*, 1963 (Tate Gallery T00616), produce a disorienting physical effect on the eye.

BREAK-Number 1s record everything you just heard me read.

Riley taught children for two years before joining the Loughborough School of Art, where she initiated a basic design course in 1959. She then taught at Hornsey School of Art, and from 1962 at Croydon School of Art. She worked for the J. Walter Thompson Group advertising agency from 1960, but gave up teaching and advertising agency work in 1963-4.

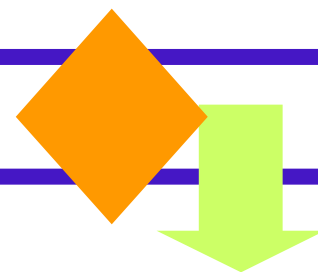
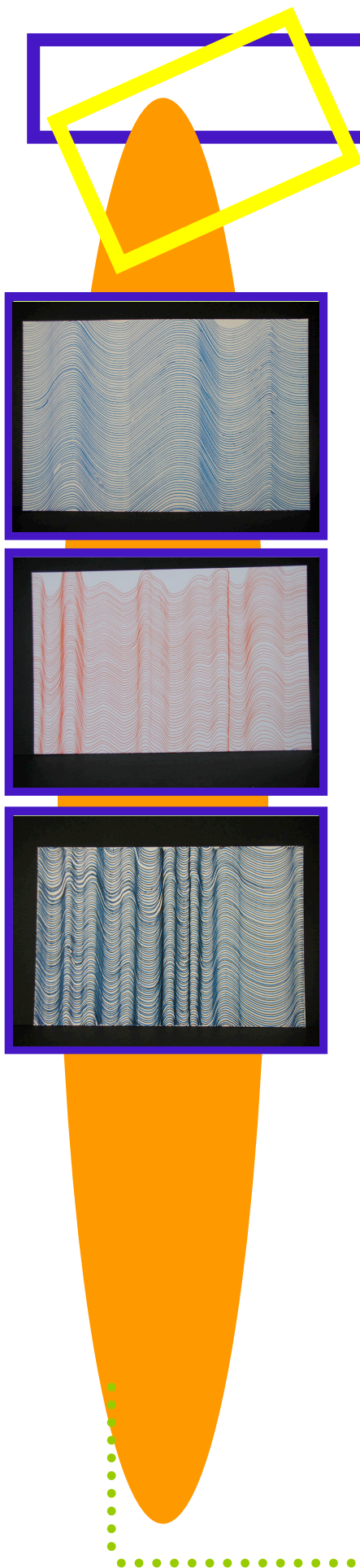
BREAK-Number 2s record everything you just heard me read.

Give one minute following each break for either #1s or #2s (alternately) to write down as many facts about Bridget Riley as possible until all readings are complete.

Following the final reading, teams count the number of items they remembered.

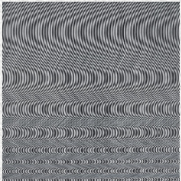
As students share their recalled facts, record them on the overhead until all facts are shared.

Complete an Artist Information card based on this information.





Artist Information Card

Where From: England	Facts About the Artist's Life: Taught children for 2 years before joining the Loughborough School of Art Worked in advertising
Time Period/Style: Op Art	
Artist: Bridget Riley	
Characteristics of Artist's Work: Optical illusions Visual tricks Use of perspective	Thumbnail(s) of Artist's Work: 

Key Characteristics of Op Art...

•First and foremost, Op Art exists to fool the eye. Op compositions create a sort of visual tension, in the viewer's mind, that gives works the *illusion* of movement. Realistically, you *know* any Op Art piece is flat, static and two-dimensional. Your eye, however, begins sending your brain the message that what it's seeing has begun to move.

•Because of its geometrically-based nature, Op Art is, almost without exception, **non-representational**.

•The **elements** employed (color, line and shape) are carefully chosen to achieve maximum effect.

•The critical **techniques** used in Op Art are perspective and careful juxtaposition of color (whether chromatic [identifiable hues] or achromatic [black, white or gray]).

•In Op Art, as in perhaps no other artistic school, **positive** and **negative** spaces in a composition are of equal importance. Op Art could not be created without both.

Project Evaluation...

Name _____

Op Art Drawing Evaluation

Peaks/valleys vary in width

0 1 2 3 4 5

Peaks/valleys vary in height

0 1 2 3 4 5

Lines are drawn evenly

0 1 2 3 4 5

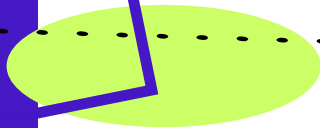
Color(s) chosen create an effective illusion

0 1 2 3

Art work is signed in an appropriate manner

0 1 2

_____/20



Project Extensions...

Crayola.com Lesson Plans Geometric Optic Spinner

Crayola Supplies

- Gel FX Markers
- Scissors

Other Supplies

- acetate sheet
- brass paper fasteners
- construction paper
- straight edge

Suggested Curriculum

	ECE	Grades 1 - 3	Grades 4 - 6	Grades 7 - 12	Special Needs
Language Arts					
Math			•	•	
Science			•	•	
Social Studies					
Visual Arts			•	•	

Why

Investigate how the eyes and brain work together then create your own optical illusions.

Benefits

- Students gather information about the parts of the human eye and explain how the sense of sight works.
- Students explain the role of the brain in viewing optical illusions.
- Students extend their understanding of vision by creating a geometric, graphic expression of their knowledge about how the eye and brain work when look at optical illusions.

Directions

1. Our brain is always trying to make sense of what we see. Research the process of sight. Examine the path that light rays travel as they are reflected from an object and reach the lens in your eyes. Learn more about the flexibility of the eye's lens that enables you to focus on things near and far, as well as to see things that you are not focusing on. Study how light hits the screen-like retina, and how that message is sent to the brain via the optic nerve.
2. This elaborate system of seeing can be tricked and manipulated by optical illusions. Find information about the role of the brain in optical illusions. One interesting source is www.opticalres.com/kidoptx.html.
3. To create your own optical illusion, cut a plate-size circle from a sheet of acetate with Crayola® Scissors. Trace the circle on construction paper.
4. Using Crayola® Gel FX Markers, draw a geometric pattern on one side of the acetate. Use a straight edge to draw precise lines. The lines may be filled in or thicker, curved or straight, but they must all be part of a set pattern.
5. Within the traced circle on the construction paper, draw a different geometric, repeating pattern with the same precision.
6. Align the two circles, with the acetate on top. Poke a brass paper fastener through the middle of both sheets. Twist the acetate and watch the optical distortions happen before your eyes.

Adaptations

- Exchange Geometric Optic Spinners with classmates. Which designs are most effective? Which are less dazzling? Why?
- Study more about the scientific principles underlying optical distortion. Determine which effect your artwork is employing--the Zollner or Moiré. The Zollner Effect makes straight lines appear to bend if they intersect with or are seen against a background of curved lines or lines drawn at a different angle. The Moiré Effect happens when two patterns are superimposed.
- Study the artwork of M.C. Escher. Identify the many optical tricks he used in his woodblock prints.

Safety Guidelines

ATTENTION: The cutting edges of scissors are sharp and care should be taken whenever cutting or handling. Adult supervision is recommended with all children. Safety guidelines recommend this art project is suitable for children age 4 years and older. Close adult supervision is required to ensure children's safety.

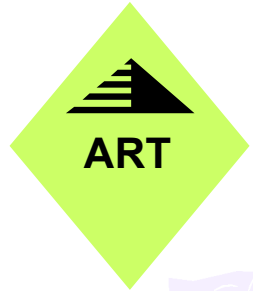
Related Resources

Books:

Arithmetic by Carl Sandburg; *Hidden Pictures* by Linda Bolton; *Pop-up Book of M.C. Escher*; *The Art of Optical Illusion* by Art Seckel; *Upside-Downers: Pictures to Stretch the Imagination* by Mitsumasa Anno; *Visual Intelligence: How We Create What We See* by Donald D. Hoffman.

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Crayola.com Lesson Plans Optical Delusion

Crayola Supplies

- Erasable Colored Pencils
- Fine Line Markers
- Glue Sticks
- Scissors (pointed tip)

Other Supplies

- measuring tool
- pencil
- poster board
- straight edge

Suggested Curriculum

	ECE			Special Needs		
	1 - 3	4 - 6	7 - 12			
Language Arts						
Math		•	•			
Science		•	•			
Social Studies						
Visual Arts		•	•			

Why

Design your own optical illusion! Discover a scientific principle called the Moiré Effect. Trick your eyes and brain with lines.

Benefits

- Students implement precision mathematical accuracy and cutting skills within an artistic context.
- Students create a tool that enables them to gain a hands-on understanding of the complex scientific principle called the Moiré Effect.

Directions

1. Fool your brain into thinking you're seeing an oscillating pattern. By superimposing one grid of lines over another pattern of lines, you can create an optical puzzle. The scientific principle behind this optical manipulation is called the Moiré Effect. Now you can see for yourself how this optical illusion is created.
2. On white posterboard, mark two 8-inch long (20.32 cm) strips, one 2 inches (5.08 cm) wide and the other 4 1/2 inches (11.43 cm) wide using a Crayola Erasable Colored Pencil. Cut out the strips with Crayola Scissors.
3. **Slotted sleeve:** Mark the edges of the wider piece at 2 inches (A) on one long side and 1/2 inch (1.27 cm) (B) on the other. Fold the edges toward each other. The narrower edge folds over the wider edge to make a sleeve.
4. Using a straight edge, starting from the (A) edge, draw narrow, even slits. Draw the slits from within one-half inch of the fold to the edge of the paper. Leave an inch of uncut paper on either end of the sleeve. Cut out **every other slit**, so you have what looks like a stiff grille or fringe. Erase any pencil marks that were not cut away. Air-dry the sleeve.
5. With a Crayola Glue Stick, carefully glue the (B) edge over the (A) edge to hold the fringe in place. The 2-inch strip will slide through this sleeve.
6. **Parallel-line pattern strip:** Using Crayola Fine Tip Markers and a straight edge, draw a pattern of parallel lines on the 2-inch strip of paper. For added interest, draw a line down the center of the strip and have the lines radiate out. Create a different pattern on the other side of the strip.
7. Carefully insert the decorated strip into the sleeve. Slowly move the design inside it. Watch the patterns appear to move and distort. Flip over the decorated strip to see your second Optical Delusion. Trade strips with your classmates to see more puzzles.

Adaptations

- Experiment with various colors and combinations of colors. Use different types of lines (straight, wavy, zigzag, diagonal) to see what happens.
- Visit a contemporary art museum to find artists who use optical tricks in their art. Op Artists are known for their optical experimentation.
- Research the scientific principles found in other optical illusions such as the Zollner Effect. Match these principles with the examples you find in optical illusion books. Draw your own optical illusions.

Safety Guidelines

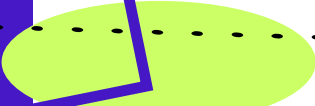
ATTENTION: The cutting edges of scissors are sharp and care should be taken whenever cutting or handling. Adult supervision is recommended with all children. Safety guidelines recommend this art project is suitable for children ages 6 years and older. Adult supervision is required to ensure children's safety.

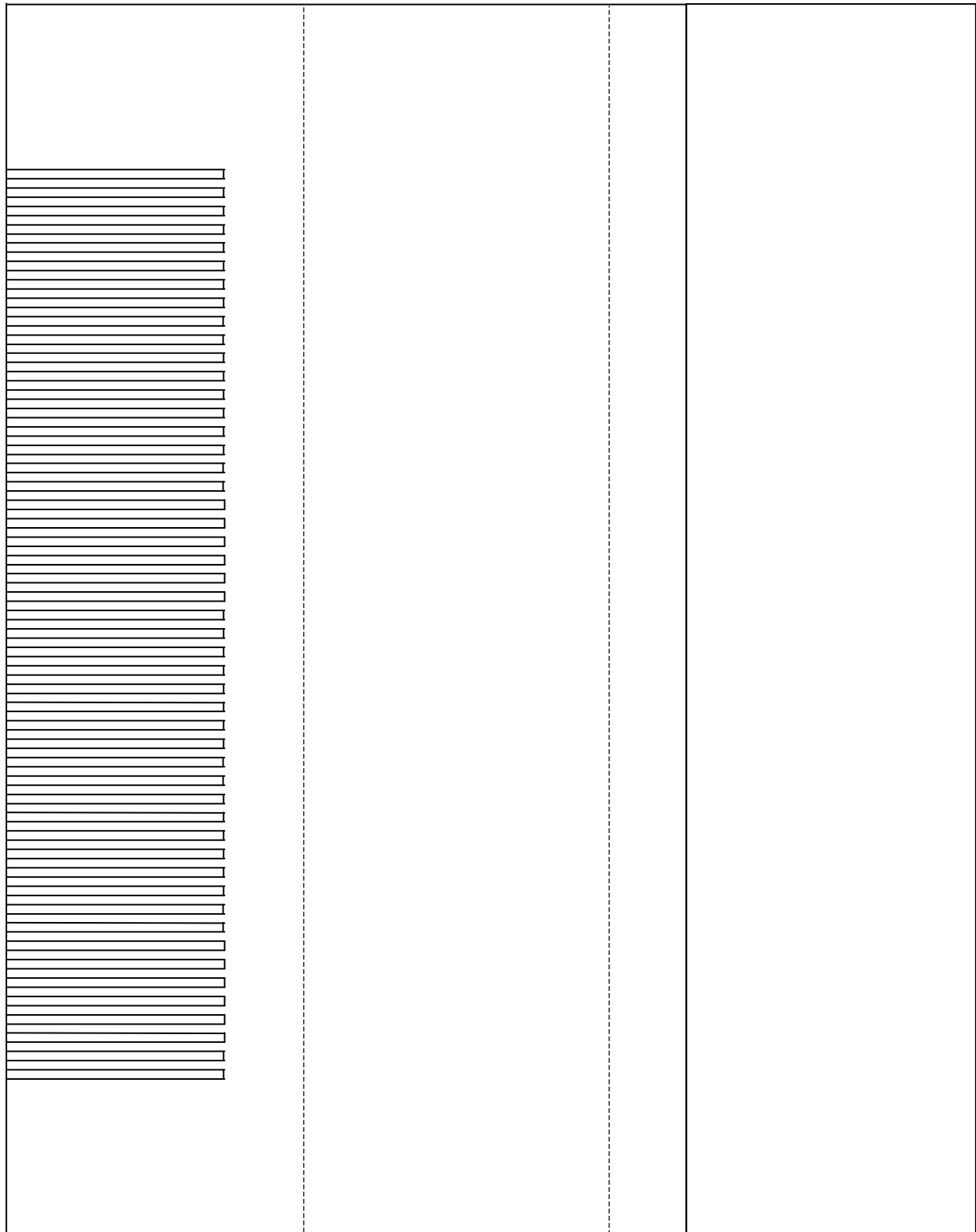
Related Resources

Books: *101 Amazing Optical Illusions: Fantastic Visual Tricks* by Terry Jennings; *Elements of Pop-up: A Pop-up Book for Aspiring Paper Engineers* by David Carter; *Graphic and Op-Art Mazes* by Dave Phillips; *Optical Illusion Magic: Visual Tricks and Amusements* by Michael DiSpezio; *The Art of Optical Illusions* by Art Seckel
Games: Optical Illusions Lab: Ultimate Optical Illusion Pack

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To make the slotted sleeve carefully cut on all solid lines of rectangle to the left. Score the dashed lines using a ruler and tracing over them with ink pen using heavy pressure then fold. Use glue stick to secure the short folded edge over the cut slots, making sure that the slots are evenly spaced. Now make another wavy line Op Art drawing template that is 2" wide. Then use a thin black marker to trace your design in the rectangle to the right. When you are done designing, cut on the outside solid line. Slide the card into your slotted sleeve and watch the magical illusion!

Crayola.com Lesson Plans Eye-Popping Op Art

Crayola Supplies

- Colored Pencils
- Paint Brushes
- Tempera Paint

Other Supplies

- paper towels
- poster board
- recycled newspaper
- water containers
- white paper

Suggested Curriculum

	ECE	Grades 1 - 3	Grades 4 - 6	Grades 7 - 12	Special Needs
Language Arts					
Math					
Science					
Social Studies					
Visual Arts					

Why

Create the illusion of 3-dimensional space in the Op Art style of Victor Vasarely.

Benefits

- Students study the work of Hungarian artist Victor Vasarely and recognize the visual components of Op Art.
- Children compare traditional Renaissance perspective with Op Art's illusion of three-dimensional space.
- Students create an original painting that creates the illusion of three dimensions.

Directions

1. Artist Victor Vasarely, born on April 9, 1908 in Pecs, Hungary, is best known as creator of Op Art, a style that uses geometric forms and color contrast to create the illusion of 3-D space. Another European artist, Josef Albers, experimented with the visual effects of placing one color next to another. Vasarely further uses color and shape to make his paintings seem to leap from the canvas.
2. Compare Raphael's School of Athens to Vasarely's Tokyo. Raphael's work, creates a sense of deep space by using linear perspective, an artistic device that creates the illusion of depth on a flat surface by using a vanishing point as a point of reference. Objects seem smaller in the distance, and one object placed in front of another seems larger. Compare this work to Vasarely's work. There is still an illusion of space, but different visual clues are given, and the subject matter is primarily non-objective, containing only geometric shapes.
3. Look at Vasarely's Oetvoes or Rivotril. These are 2-D paintings, but the impression is of a 3-D form. Vasarely uses contrast and curved lines to fool the eye. Human beings are used to the effects of light and shadow to inform them of an object's shape. By carefully placing colors, Vasarely creates the optical illusion of 3-D.
4. To create a painting in the manner of Vasarely, cover a table with recycled newspaper. Begin by sketching a geometric pattern on a small sheet of paper with Crayola® Colored Pencils. Transfer your sketch in a larger size to poster board.
5. To create an optical illusion, use contrasting colors of Crayola® Tempera Paints. Choose only three or four colors, and place very bright colors next to very dark colors. Use lighter values (mix white paint with the color to create a tint) to make parts of your painting seem to come forward, and darker values (mix the color with a small amount of black to create a shade) to make parts of your painting recede. Apply the paint with a Crayola® Paint Brush using even, hard-edged strokes. Your painting should be very crisp and even when you are finished, as were Vasarely's. Dry.

Adaptations

- Identify the shapes that Vasarely used in his paintings. Explore the possibilities of using your own mosaic pieces of these shapes to create similar illusions of depth.
- Experiment with color. Draw a square surrounded by a larger square. Repeat this exact drawing on a second sheet of paper. Mix a small amount of a single color of paint. Paint both inner squares with this color. Paint the first outer square with a warm color (red, yellow, orange, or any tint, shade, or mixture of these colors). Paint the second painting's outer square with a cool color (green, blue, violet, or any tint, shade, or mixture of these colors). Dry, then glue paintings next to each other on white paper. Compare the inner squares. Do these squares seem to be the same color? Why or why not? See Albers' The Interaction of Color.
- Do further research on how the human eye perceives color and dimension. Check out the visual illusions and other optical wonders of vision in Hoffman's Visual Intelligence.
- Younger children and special needs students may benefit from short practice sessions using markers to experiment with color choices and geometric patterns before participating in this activity.

Safety Guidelines

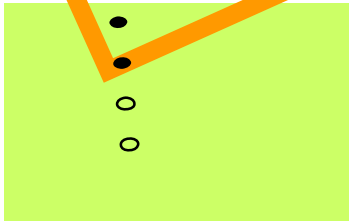
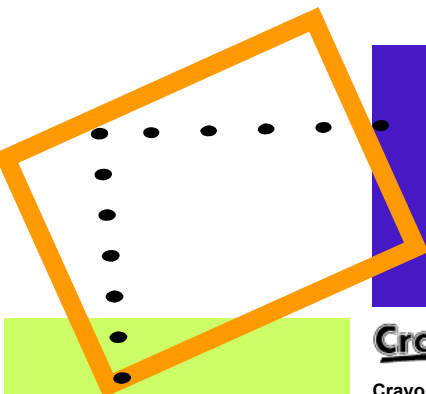
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Related Resources

Books:

Graphic and Op-Art Mazes by Dave Phillips; *Interaction of Color* by Josef Albers; *Vasarely* by Raymond Van Over; *Visual Intelligence: How We Create What We See* by Donald D. Hoffman

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