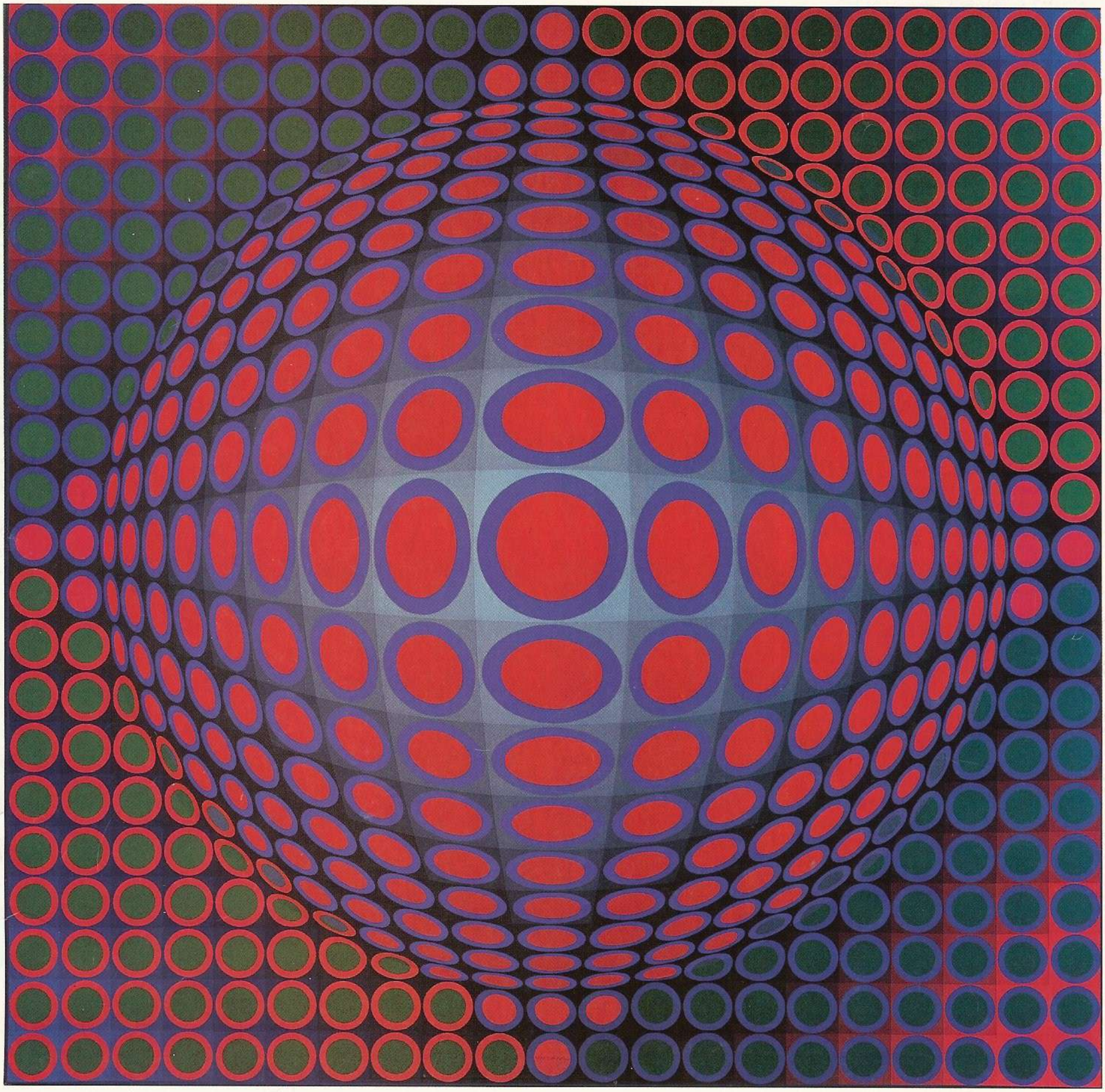
SCHOLASTIC

ART®

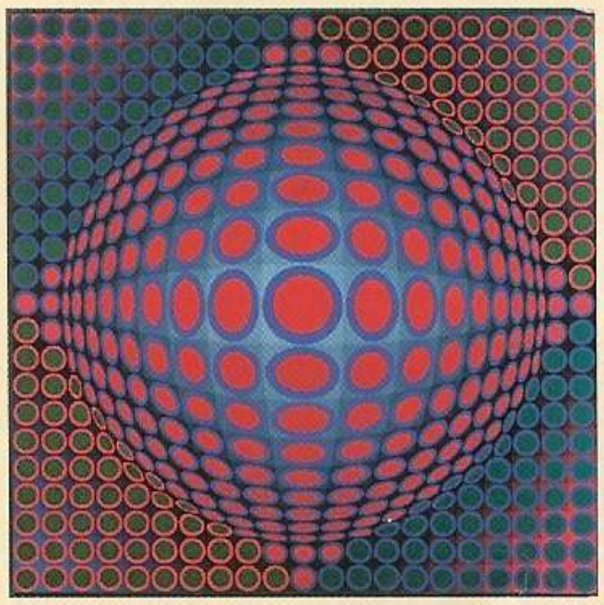
OP ART

Working With Optical Illusion

DECEMBER 2006/JANUARY 2007 Vol. 37 No. 3 ISSN 1060-832X
www.scholastic.com



SCHOLASTIC
ART



The swelling 3-D form in this Op art painting by Victor Vasarely encourages us to question our perception.

COVER: Victor Vasarely (1908–1997), *Vega 200*, 1968. Acrylic on canvas, 78 3/4 x 78 3/4 in. © 2006 Artists Rights Society (ARS), New York / ADAGP, Paris. Photo: © Erich Lessing / Art Resource, New York.

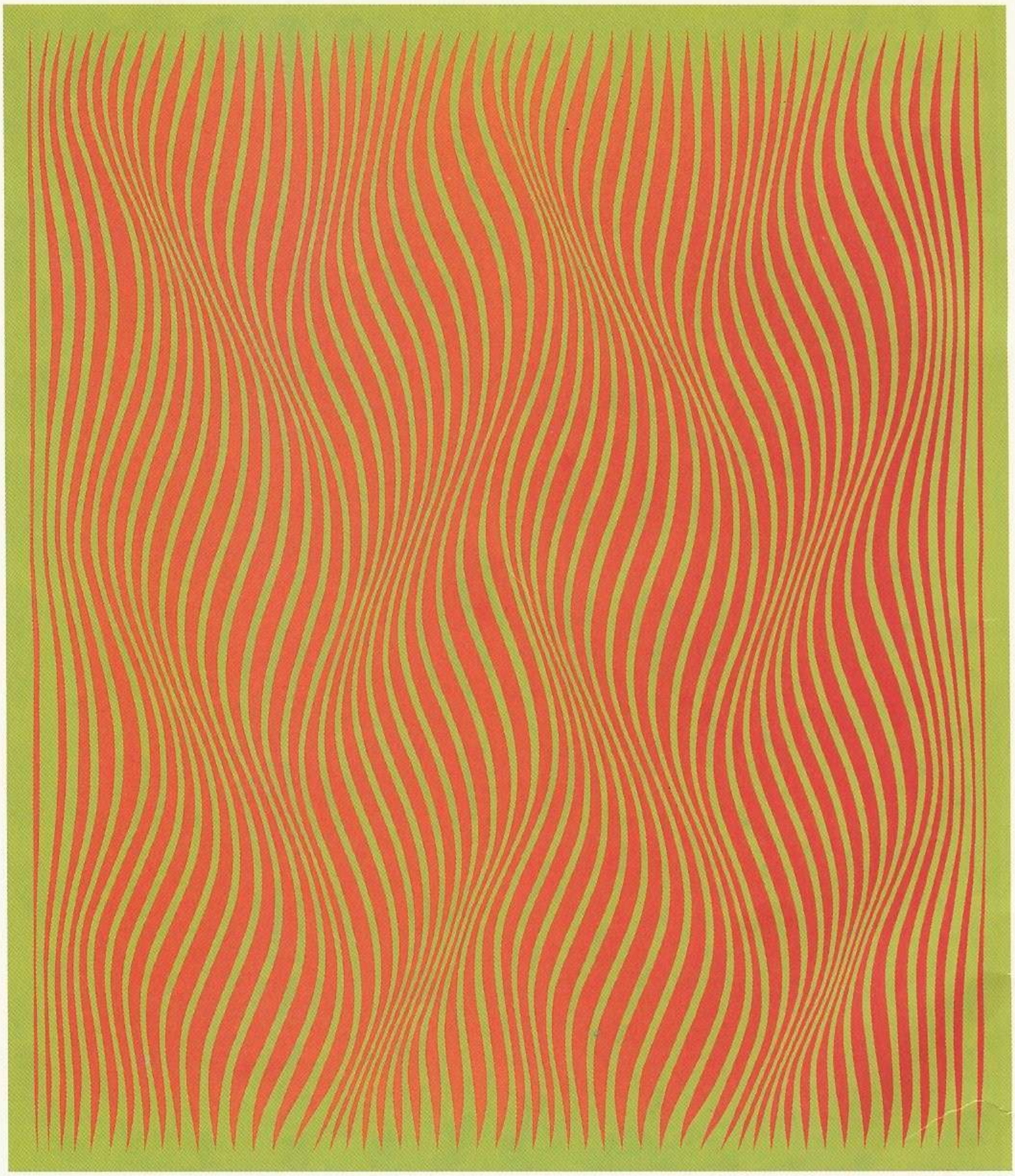
POSTAL INFORMATION
Scholastic Art® (ISSN 1060-832X; in Canada, 2-c no. 55867) is published six times during the school year, Sept./Oct., Nov., Dec./Jan., Feb., Mar., Apr./May, by Scholastic Inc. Office of Publication: 2931 E. McCarty Street, P.O. Box 3710, Jefferson City, MO 65102-3710. Periodical postage paid at Jefferson City, MO 65101 and at additional offices. Postmasters: Send notice of address changes to SCHOLASTIC ART, 2931 East McCarty St., P.O. Box 3710, Jefferson City, MO 65102-3710.

PUBLISHING INFORMATION
U.S. prices: $8.95 each per school year, for 10 or more subscriptions to the same address. 1-9 subscriptions, each: $19.95 student, $34.95 Teacher's Edition, per school year. Single copy: $5.50 student, $6.50 Teacher's. (For Canadian pricing, write our Canadian office, address below.) Subscription communications should be addressed to SCHOLASTIC ART, Scholastic Inc., 333 Randall Rd. Suite 130, St. Charles, IL 60174 or by calling 1-800-387-1437 ext. 99. Communications relating to editorial matter should be addressed to Margaret Howlett, SCHOLASTIC ART, 557 Broadway, New York, NY 10012-3999. Art@Scholastic.com. Canadian address: Scholastic Canada Ltd., 175 Hillmount Rd., Markham, Ontario L6C 1Z7. Canada Customer Service: 1-888-752-4690 Available on microfilm through Xerox University Microfilms, Inc., 300 N. Zeeb Rd., Ann Arbor, MI 48106. Also available on microfiche through Bell & Howell Micro Photo Division, Old Mansfield Rd., Wooster, OH 44691.

Printed in U.S.A.

"The Responsive EYE"

Critics compared the first museum exhibition of Op art to a "roller-coaster ride." One even suggested viewers take motion-sickness pills before seeing the show.

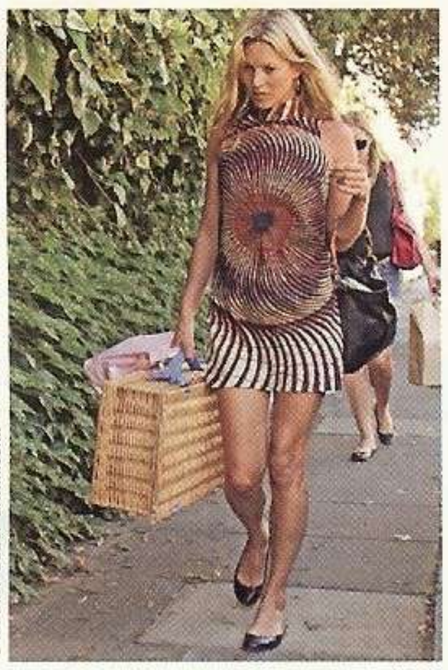


▲"My paintings deal with select visual energy." —Julian Stanczak

Julian Stanczak (b. 1928), *Obsession II*, 1965. 63 x 53 in. The Metropolitan Museum of Art, New York. © Julian Stanczak. Courtesy of the artist.

▶"When I get a 'hunch' about a unit, I put it through its paces. I push it to the fullest extent to see what it will do." —Bridget Riley

Bridget Riley (b. 1931), *Pause*, 1964. Emulsion on board, 44 x 42 in. Private collection. © 2006 Bridget Riley. All rights reserved.



© Matrix / Bauer-Griffin.com.

▲ Op art continues to inspire fashion even today.

When you first looked at the cover of this issue, what did you see? We all know that magazines are printed on flat pieces of paper, but this image seems to bulge off the page in 3-D. This surprising painting, *Vega 200*, created in 1968 by French artist Victor Vasarely, is a striking example of **Optical** or **Op art**. Op artists worked with pattern and color to create eye-catching **illusions of movement and depth**.

The 1960s were an era of great social and political change. Through antiwar protests, the civil rights movement, and the fight for women's rights, teens began influencing the culture for the first time. Shifting politics ushered in an attitude of "anything goes" in all areas of life. This time of overturning traditional values called for an art form that questioned perception as well.

In a way, all painting relies on tricks of perception. Realistic painting uses **perspective** to produce the illusion of 3-D space on a flat canvas, and combinations of colors to suggest light and shadow. Op art is not about what we see, but how we see—a process called **optics**. The way our eyes try to make sense of an **abstract** (or nonrepresentational) image is itself the "subject" of Op art.

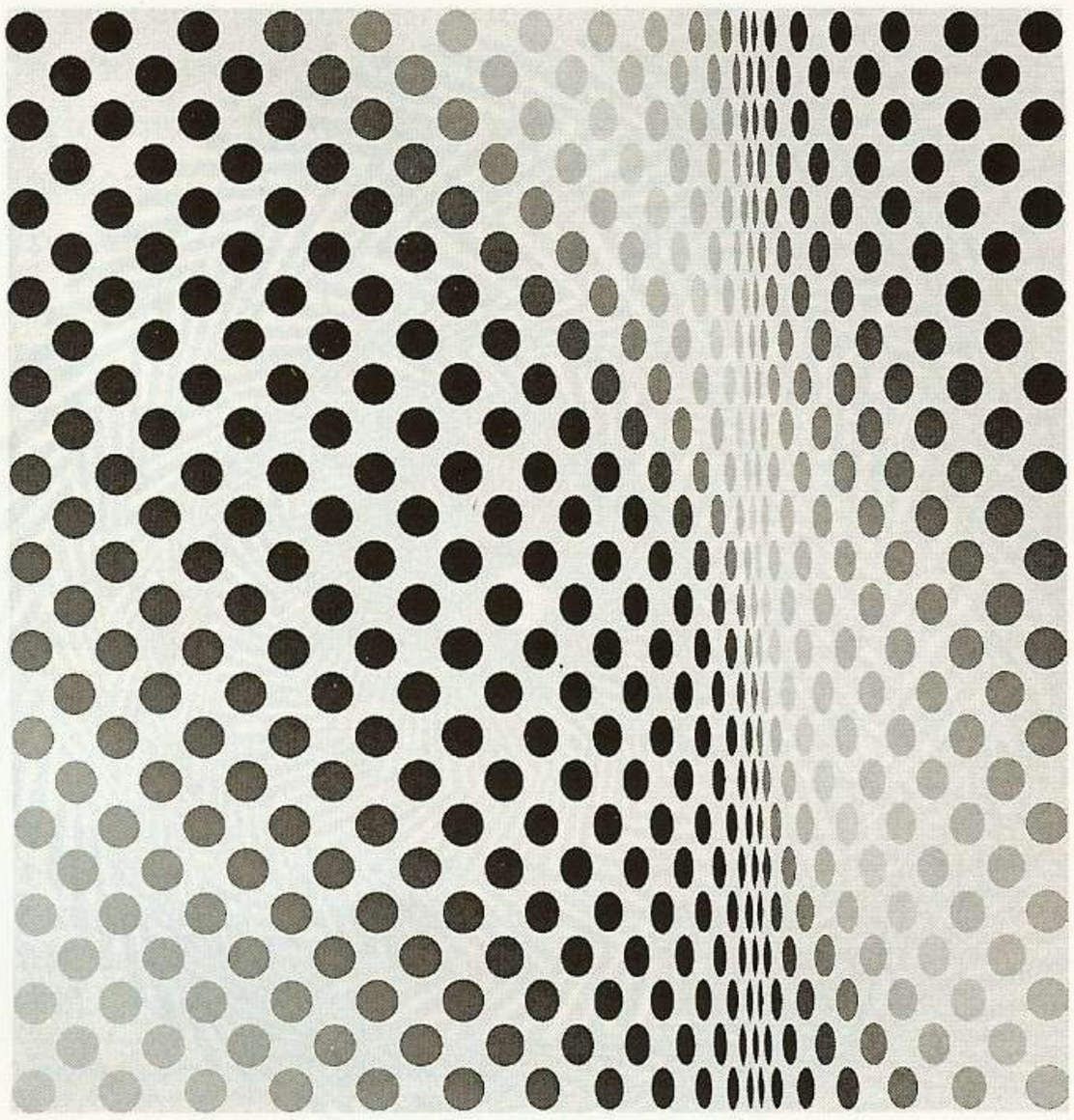
In *Pause* (below), by English painter Bridget Riley, black circles are gradually compressed into grayish ovals, as if they were being sucked into a 3-D warp near the center of the picture plane. To create this illusion, Riley established a **geometric unit**—here a circle—and **repeated** it to build a **pattern**. She then introduced subtle **variations** of form and **gradation** to create **visual tension**.

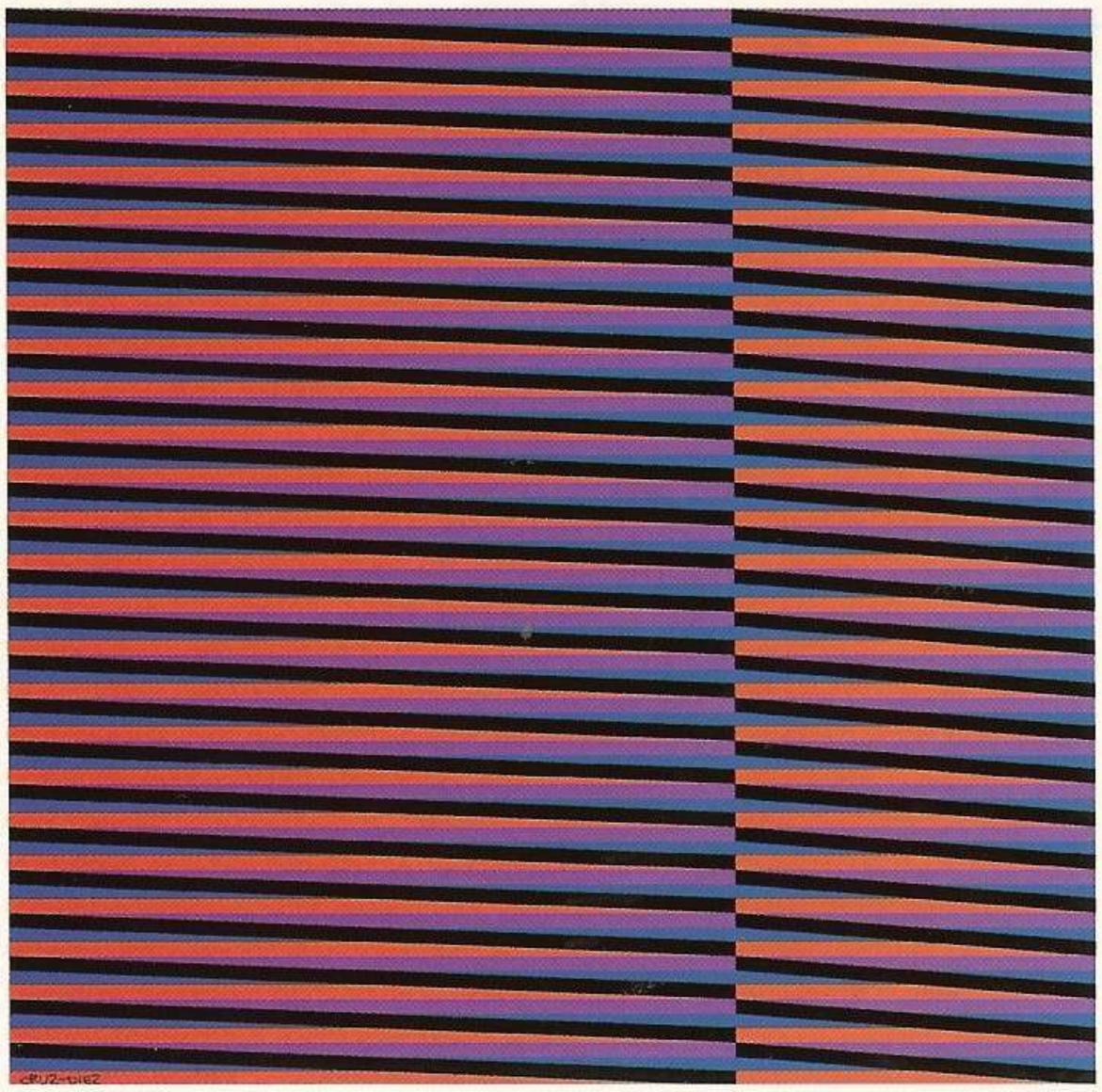
Op artists also produced **chromatic tension** by **juxtaposing** (placing side by side) **contrasting colors**. In *Obsession* (opposite page), American artist Julian Stanczak (STAN-zak) used wavy lines and a **complementary color pair** (red and green) to create a **rhythmic sense of motion**. Venezuelan artist Carlos Cruz-Diez used only three colors and black in his untitled silkscreen (below). But blue reacts differently next to orange than it does next to purple, so our eyes imagine two different shades of blue. Contrasting one color with another affects how we see both colors, due to an optical process called **simultaneous contrast**.

Op art captured the world's attention in 1965, when the Museum of Modern Art in New York organized an important exhibition called "The Responsive Eye." Critics called the show "an optometrist's nightmare," but the public flocked to see these disorienting and fascinating works. Op art became popular with the public in a way that few art movements have been. The craze extended into fashion and design, and Op patterns appeared on everything from dresses to wallpaper. Perhaps Op art's appeal is so wide because it explores and celebrates a basic human experience: sight.

▼ "Color is constantly in the making... it happens in time." —Carlos Cruz-Diez

Carlos Cruz-Diez (b. 1923), *Untitled*, 1975. Silkscreen, 25 x 25 in. © 2006 Artists Rights Society (ARS), New York / ADAGP, Paris. Courtesy of Art & Identity, The Netherlands.





"There are vast reserves of energy in everything, and if you allow them to operate freely... you are nearer to unleashing a truly creative power."
—BRIDGET RILEY

Vibrating Visions


© Adrian Dennis / Rex USA.

▲"My paintings are concerned with generating visual sensations," says Bridget Riley, here seen in a London hospital corridor decorated with her designs.

No other painter has made us more aware of our eyes than Bridget Riley, critics have said. The English artist, who created the images on these pages, was a leading figure of the Op art movement.

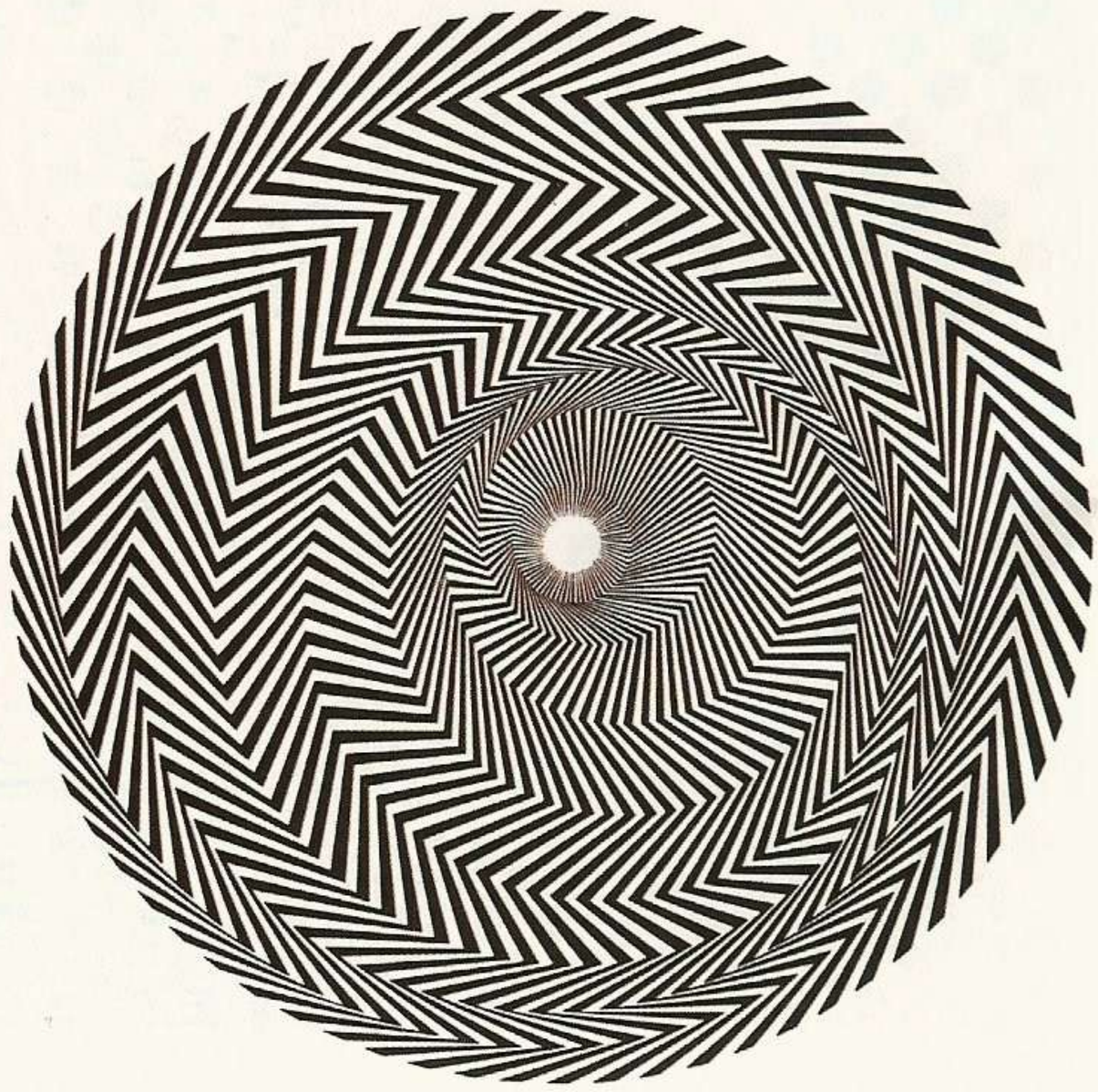
As an art student in London, Riley painted in a traditional style. But in the late 1950s, she became interested in the work of the 19th-century French painter Georges Seurat (zhorzh suh-RAH). Seurat used tiny dabs of pure color to portray landscapes and scenes of city life. Seen from a distance, these dots of color appear to blend together to suggest recognizable forms. This style of painting, called **Pointillism**, inspired Riley to experiment with optical effects.

From 1961 to 1965, Riley created striking geometric patterns in black and white. The **extreme contrast** between black and white causes some works of this period to give off an almost aggressive energy. These paintings produce strong optical sensations in the viewer. They often provoke emotional and physical responses as well.

In *Blaze 1* (right), Riley has designed a spiral structure using **repeated diagonal** black and white lines. By reducing the thickness of the lines toward the center of the image, she has created a dizzying **illusion of depth and movement**. It almost seems as if your eye is boring into the picture like a drill. Try focusing on the white point at the center of the canvas. As your eyes adjust, the spiral seems to **vibrate** with a hypnotic energy.

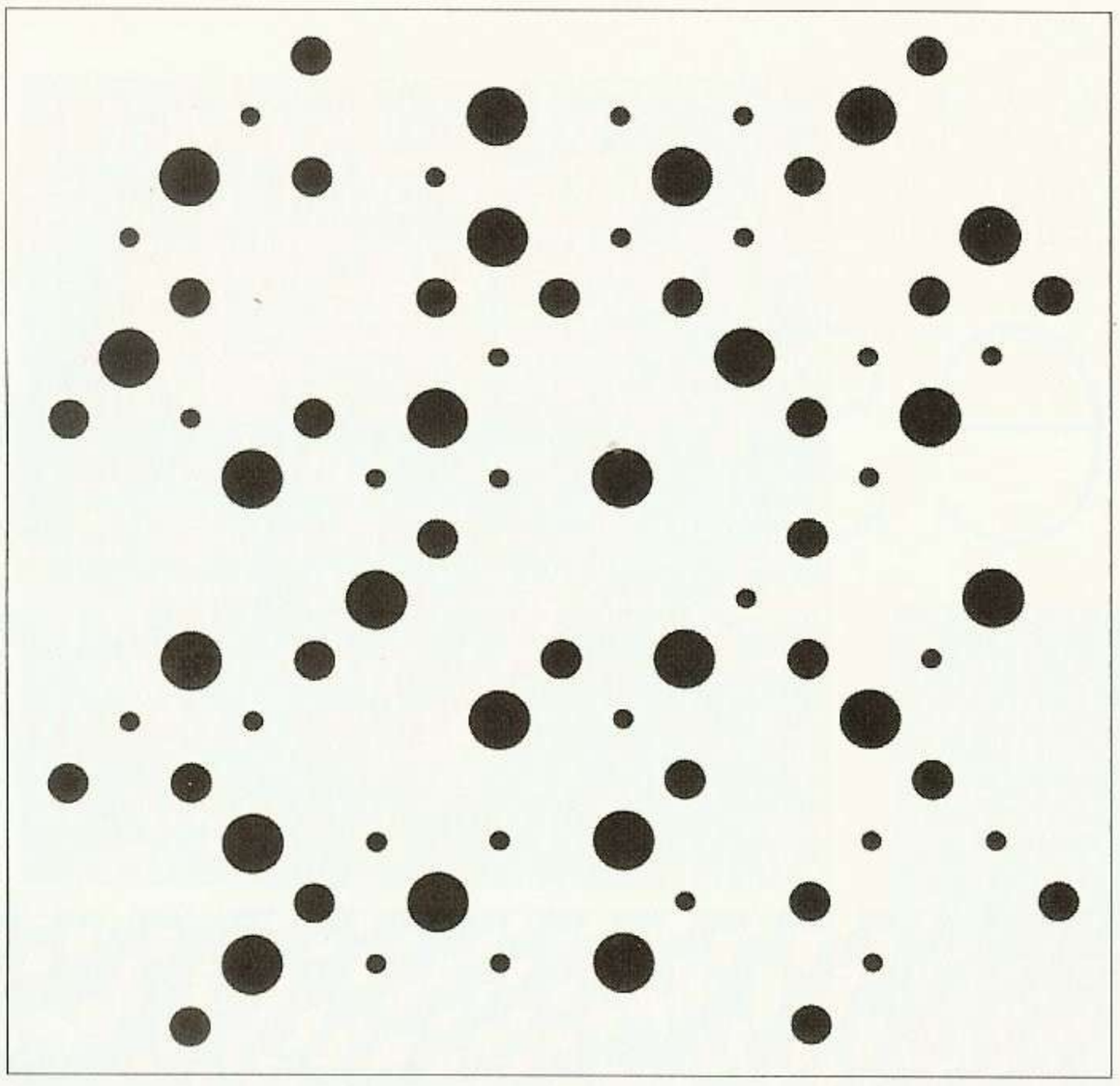
Why did Riley title her painting of black circles on a white background *White Discs 1* (opposite page, top)? If you focus on this image with a steady gaze, after a while your eyes will invent the white discs referred to in the title as **afterimages**, floating above the white background. An afterimage is an optical illusion that happens when the part of your eye that perceives color becomes so tired that it "sees" the opposite of the original color. You may even notice that the white background seems to darken in comparison with the invented bright white spots.

For the first few years of her experiments with optics, Riley worked only in black and white. But in 1966, she began using color to express calmer feelings. Some viewers have compared *Cataract 3* (opposite page, bottom) to a wave rippling across a swimming pool or a flag blowing in the wind. These comparisons do not



▶ "I thought about how I could articulate a circular structure with a diagonal movement."
—Bridget Riley

Bridget Riley, *Blaze 1*, 1962. Emulsion on board, 43 x 43 in. Private collection. © 2006 Bridget Riley. All rights reserved.



◄ **"I wanted the space between the picture plane and the spectator to be active."**
—Bridget Riley

Bridget Riley, *White Discs 1*, 1964. Emulsion on board, 52 x 52 in. Private collection. © 2006 Bridget Riley. All rights reserved.

paintings are carefully planned out by the artist in **diagrams, sketches, and color studies**, and then completed by assistants under her supervision. Riley has said, "I do not want to interfere with the experience of what can be seen. Personal handling, thick or thin paint applications—these are in themselves statements and irrelevant for my purpose."

Rather than worrying about the distance between the artist's hand and the canvas, Riley's attention is focused on the space between the viewer and the picture plane. Her shimmering and vibrating compositions charge this space with energy and tension, actively challenging our perception.

interest Riley. She is more interested in exploring the optical effects she can create by **contrasting** different colors. Our perception of a color's brightness is affected when it is juxtaposed with another color. In *Cataract 3*, wavy gray bands gradually separate into their **warmer and cooler tones.** Toward the center of the canvas, they become a pair of blue and red stripes. The rippling waves of color create a **rhythmic**, restful **sense of motion**, like a television on the blink.

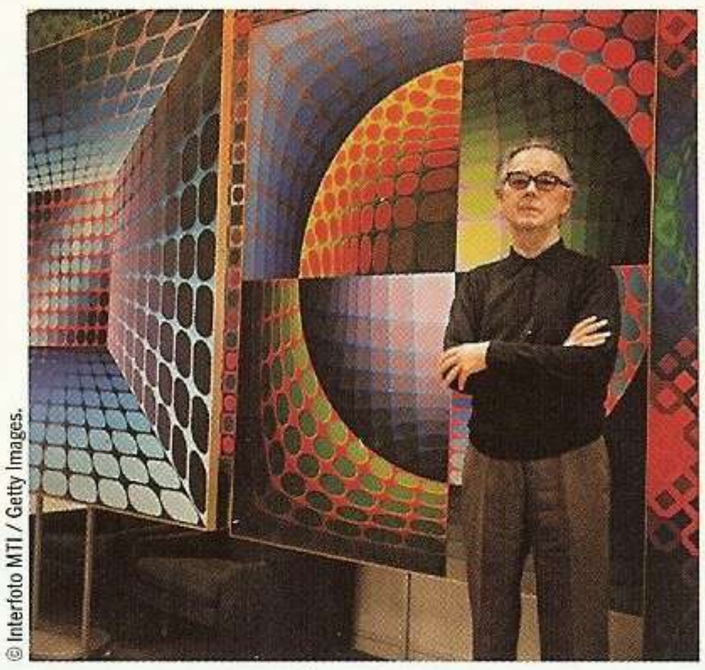
Many abstract painters try to communicate their personalities or emotions through expressive brushstrokes. But Op artists applied paint to the canvas in **flat, clean, hard-edged lines**, paying close attention to detail. In fact, most of Riley's

► **"[The viewer's eye] should feel caressed and soothed, experience frictions and ruptures, glide and drift." —Bridget Riley**

Bridget Riley, *Cataract 3*, 1967. PVA on linen canvas, 88 x 87 ½ in. The British Council. © 2006 Bridget Riley. All rights reserved.

Impossible Volumes

"I subjected every pictorial problem that occurred to me—composition, color, light and shadow, two- and three-dimensionality—to a precise investigation."
—VICTOR VASARELY



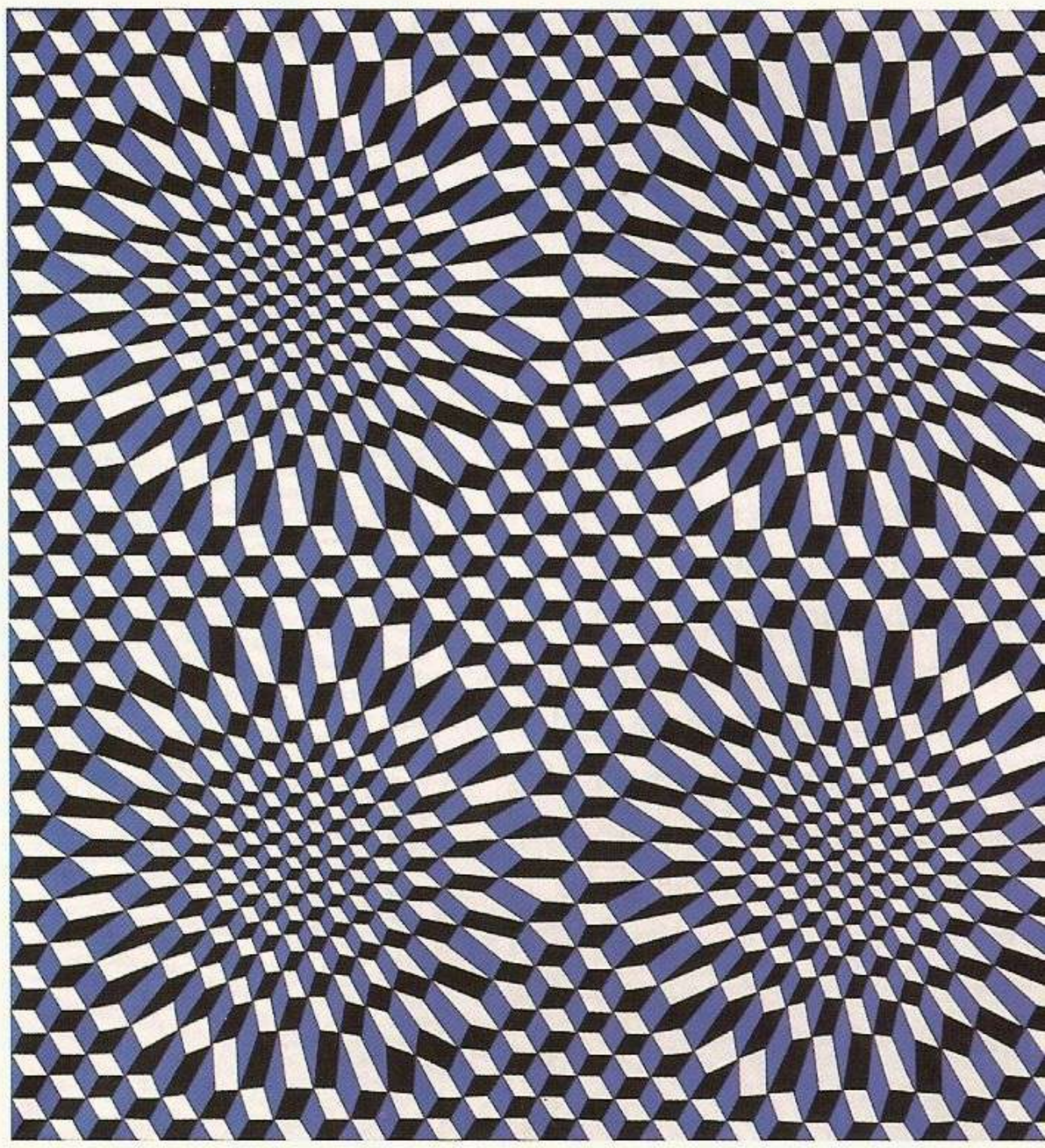
© Interfoto MTI / Getty Images.

▲ Victor Vasarely, pictured in a French museum dedicated to his work, believed that "pure form and pure color can signify the world."

Hungarian-born French artist Victor Vasarely is widely considered the "founding father" of Op art. Trained as an artist in Hungary, Vasarely moved to Paris in his 20s. He spent his days working as a graphic designer at an ad agency, and his nights focused on his goal of developing a new visual language through art.

Vasarely's optical works of the late 1960s tease our perception by presenting surprising **illusions of volume and depth** within the **two-dimensional picture plane**. It is impossible to look at *Vega 200* (cover) without seeing a **convex** (curving outward, like a sphere) form bulging out at you. The **repetition** and **variation** of a simple pattern of circles on a grid produces this convincing optical effect. Vasarely knew that **warm colors** like red tend to advance in space, while **cool colors** seem to recede into the distance. Enlarging the red circles at the center of the image creates the impression that they are closer to us. The part of the image that seems farther away contains smaller forms painted in cool tones. In *Bull* (opposite page, top), a **basic grid structure** has been similarly **distorted** to suggest two convex **spherical volumes** that are almost touching.

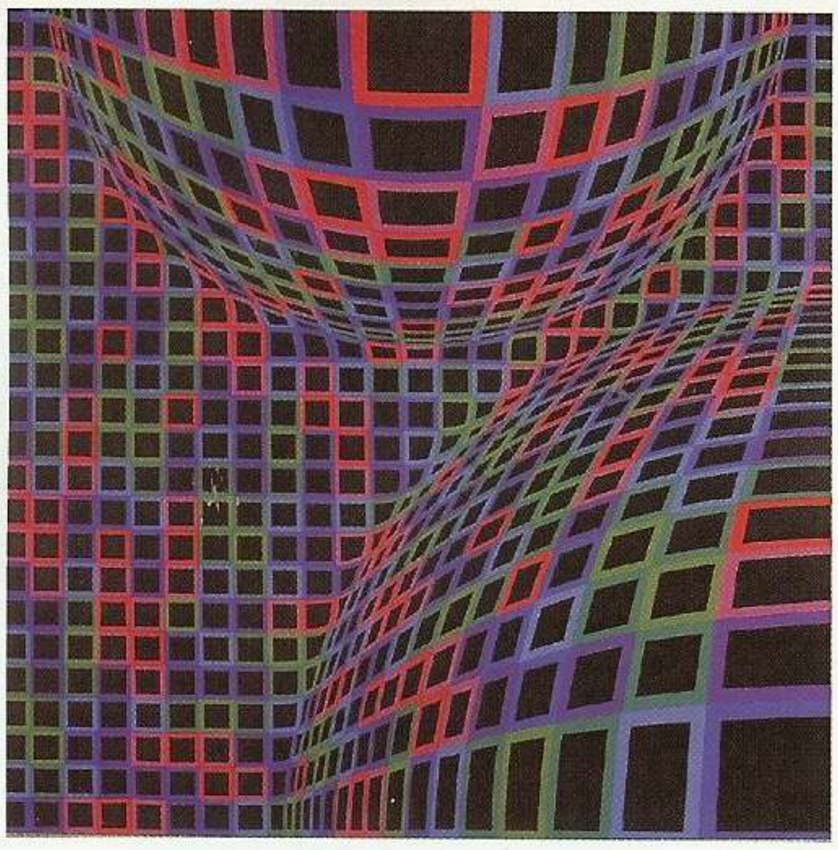
Take a close look at the stacked 3-D forms in *Stri Pauk* (near right). Our brains are programmed to understand white as light and black as shadow, so the first thing you noticed may have been an arrangement of cubes with white tops, black faces on the left, and blue faces on the right. Look again and now the black sides might be on top, the blue sides on the left, and the white ones on the right. The next time you look, the image may shift yet again, depending on which plane your eyes focus on. This uncertainty about what is the **foreground** and what is the **background** is called **figure-ground ambiguity**. By distorting the shapes in certain areas of the composition, Vasarely creates additional zones where the image seems to **flicker**.



▲ The viewer can interpret this unstable image in several ways.

Victor Vasarely, *Stri Pauk*, 1979. Acrylic on canvas, 38 x 38 in. © 2006 Artists Rights Society (ARS), New York / ADAGP, Paris. Courtesy of Sotheby's Picture Library, London.

Visual ambiguity (the ability to understand an image in more than one way) is also a theme of *Ambigu-B* (pp. 8-9). Here Vasarely has created another strong illusion of perspective and depth. However, this "impossible object" could never exist in real space. The rectangular plane in the exact center of the painting can belong to either of



◀ **By enlarging some units in a grid and reducing the size of others, Vasarely has created the illusion of two 3-D spheres.**

Victor Vasarely, *Bull*, 1973–74. Vasarely Museum, Budapest, Hungary. © 2006 Artists Rights Society (ARS), New York / ADAGP, Paris. Photo: Denes Fozsa.

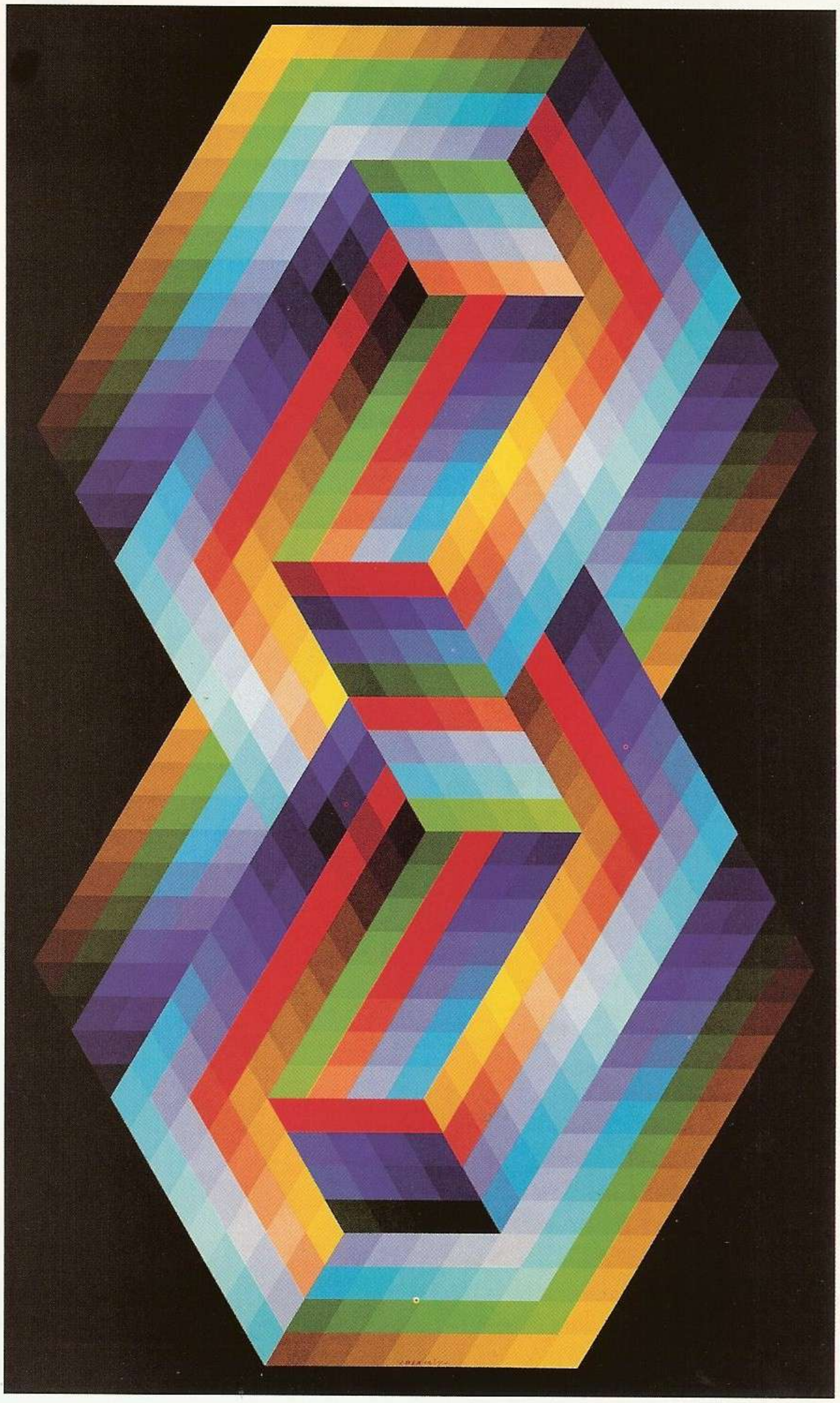
two completely different 3-D forms, but not to both. Vasarely devised this eye-popping illusion by designing separate but overlapping forms and having them share a common side. The compositional elements work against each other to create a feeling of instability.

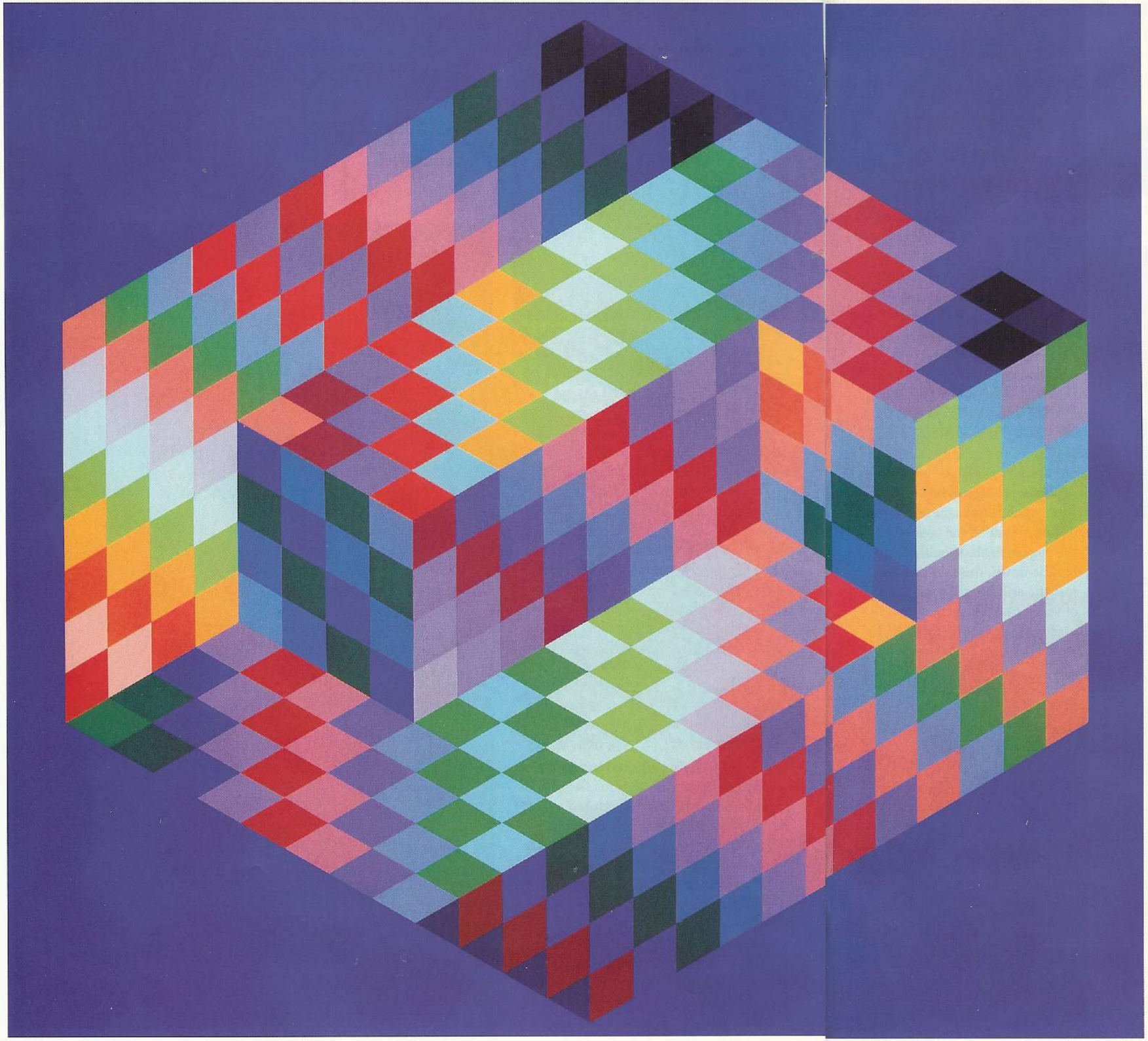
The **gradations of color** in *Gestalt-Rugo* (right) create paths for the eye to follow and make this 3-D form appear to shimmer in the light. This visual puzzle seems to twist and turn in space as our eyes struggle to make sense of what we see. Looking at Vasarely's "impossible objects" for too long can make your head spin. Our brains are not capable of resolving their structural contradictions or—what would be easiest—of seeing these paintings as the two-dimensional surfaces they really are.

Vasarely was interested in more than toying with our perception. He developed a system of working so that his designs could be inexpensively reproduced in virtually unlimited numbers as posters, fabrics, tapestries, and other products. He wanted to create a democratic form of art that would be accessible to everyone, not just viewers with a certain educational background. Op art reflected Vasarely's motto of "art for all." There is no story to tell, history to know, or hidden meaning to understand in these paintings. They generate visual sensations in every pair of eyes that takes the time to look at them.

▼ **This three-dimensional form seems to continually shift positions as our eyes discover different solutions for "reading" the image.**

Victor Vasarely, *Gestalt-Rugo*, 1978. Acrylic on canvas, 111 1/2 x 54 1/3 in. Private collection. © 2006 Artists Rights Society (ARS), New York / ADAGP, Paris. Photo: © Erich Lessing / Art Resource, New York.





SCHOLASTIC ART®

MASTERPIECE OF THE MONTH #3

AMBIGU-B

BY VICTOR VASARELY

"In this picture,
a spatial phenomenon emerges
and vanishes again—
that is, the picture
is in continual motion . . ."

—VICTOR VASARELY

Victor Vasarely (1908–1997). *Ambigu-B*, 1970. Tempera on paper. Vasarely Museum, Pecs, Hungary.

Eye-popping Illusions

Three very different images invite us to take a closer look

▲ Giuseppe Arcimboldo (1527–1593), *The Vegetable Gardener*, c. 1590. Museo Civico, Cremona, Italy. © Scala / Art Resource, New York.

IF YOU OWNED THIS PAINTING, WHICH WAY WOULD YOU HANG IT?

VISUAL PUNS

Can you guess how this one painting might contain two different images? Flip the page over, and you'll see. Upside-down, this painting is a realistic **still life** showing a bowl of vegetables just picked from the garden. Turn it back, and you'll see something else entirely: a portrait of the gardener. In *The Vegetable Gardener*, onions form the gardener's plump cheeks, a large radish is his nose, leafy greens suggest hair and a beard, and the bowl becomes a hat.

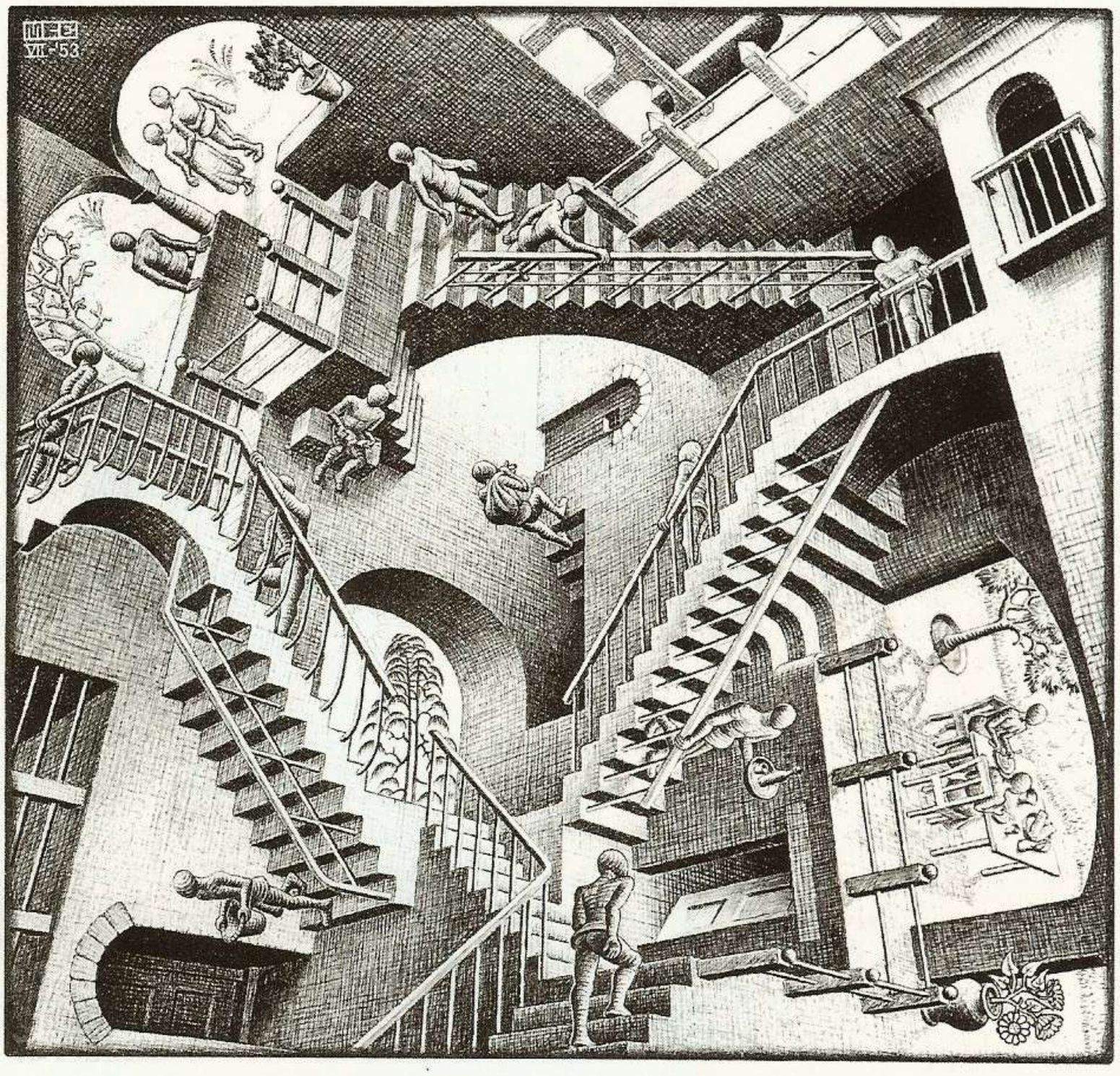
When a single image can be understood to have two different but related meanings, it's called a **visual pun**. This **reversible image** by 16th-century Italian painter Giuseppe Arcimboldo (joo-ZEP-pay ar-cheem-BOL-do) is a good example of how visual puns attract and amuse us. As a court painter, Arcimboldo also designed stage settings for the theater—a job that made him an expert at creating illusionistic imagery. He is best known for his fantastic and humorous paintings of fruits, vegetables, animals, and other objects arranged to resemble human faces.

"MY WORK IS A GAME, A VERY SERIOUS GAME." —M.C. ESCHER

ILLOGICAL IMAGES

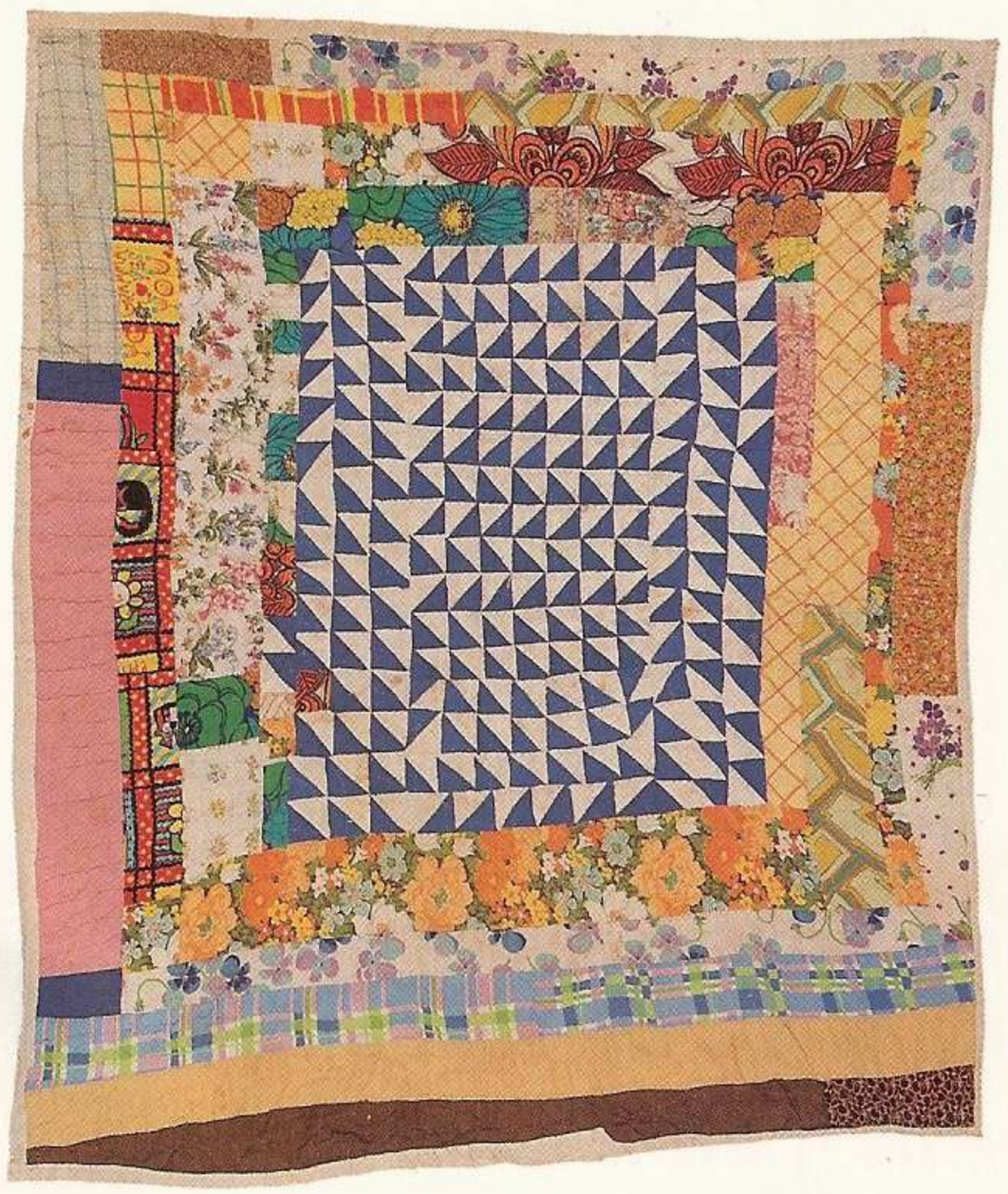
Dutch artist M.C. Escher enjoyed inventing on paper impossible structures that could never exist in reality. Look carefully at *Relativity* (right). Do you notice anything in this picture that doesn't make sense? In the center of the image, a man carrying a bag on his back is climbing up a set of stairs. But the floor he is about to step onto is a wall for the seated figure to his left. And to his right, two people are walking down different sides of the same staircase. Even the trees are all growing in different directions!

Escher created this visual puzzle by playing with the rules of **perspective** (the system that makes it possible to represent depth on a flat surface). One important rule of perspective states that all parallel lines receding into the distance must pass through a single point in the picture plane, called the **vanishing point**. Instead of one vanishing point, this picture has three. *Relativity* makes sense from three different viewpoints, but it is impossible to see the entire scene in a logical way.



▲ Maurits Cornelius Escher (1898–1972), *Relativity*, 1953. Lithograph. © Art Resource, New York.

GEOMETRIC PATTERNS ON A QUILT VIBRATE WITH VISUAL ENERGY



DYNAMIC DESIGNS

This bold, abstract composition (left) may look like a modern painting—but it can also keep you warm at night! This patchwork quilt was created in 1966 by Sally Bennett Jones, an African-American quilt-maker from a small farming community in Alabama called Gee's Bend. Jones used recycled scraps of bed sheets and old clothing to piece together her design.

Gee's Bend was a small and geographically isolated town during the 1960s, so the women living there probably were not familiar with Op art. Yet the quilts they made express the same vibrant visual energy as the paintings you've studied elsewhere in this issue.

The **rhythmic repetition** of blue and white triangles in the central panel of this quilt creates a striking **illusion of movement**. By occasionally varying the direction of the triangles, Jones changes the pattern and introduces **visual tension**. The yellow (blue's **complement**) tones of the quilt's busily patterned border contrast with the blue in the central panel. Small patches of blue throughout the border add **visual accents** and tie the design together into a harmonious whole.

◀ Sally Bennett Jones (1944–88), Center medallion of triangles, surrounded by multiple borders, 1966. Cotton, 86 x 77 in. Photo: Tinwood Media.

An Illusionary Animal

From the moment that Jeremy Baker finished the award-winning drawing on the opposite page, it became his favorite piece of artwork. Jeremy loved how the flat ribbons worked to create a three-dimensional effect, and how they made the bear seem abstract and out of place in nature. "The ribbons throw you off. You just don't expect to see a bear like that," Jeremy says. "It makes you take a closer look to figure out what's going on."

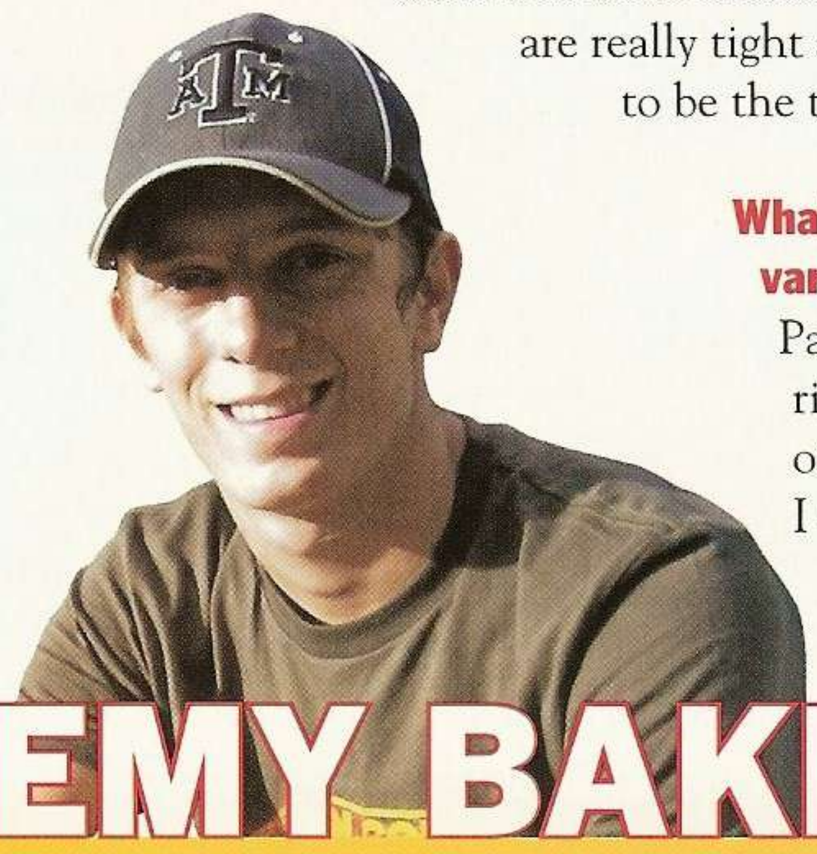
Jeremy, 18, is a senior at Montezuma Cortez High School in Cortez, Colorado. He hopes to enroll next fall in an art program at the University of Colorado in Boulder. Although he's not certain of his career path, Jeremy can't imagine a life where he's not creating art. "Art hasn't just been creatively fulfilling for me, it has also been personally fulfilling," Jeremy says. "I used to be shy. But every time I sent out a piece of me through my artwork for people to judge, I gained confidence. It felt risky, but the results were definitely worth it."

How did you get started making art?

I began drawing cartoons in about fourth grade and took my first art class in sixth grade. I really liked it and knew I'd keep taking art from then on.

How did you come to do this drawing?

We were studying M.C. Escher in art class and our assignment was to create a black-and-white abstract drawing of an animal using a picture as reference. The drawing had to show the animal "wrapped" in something. We also had to create an illusion using a pattern throughout the entire piece.



Where did you get your idea?

I've always been intrigued by bears and how they're so big, muscular, and shaggy. I decided to draw one so I could show a bear's insane power and determination. I found an image of a Kodiak bear standing up and growling that had just the right energy I was seeking. When I was thinking about wrapping the form, the word "mummy" came into my mind. I thought it would be cool to work with that concept. My idea evolved from there.

How did you work with line in this drawing?

I used wavy, sharp lines to create flat ribbons that define the bear's features. I then shaded them to give the image a three-dimensional look and to make it seem as if the animal is alive. Around the mouth and eye, the ribbons are really tight and detailed because I wanted those to be the two focal points.

What role did pattern, repetition, and variation play in your idea?

Pattern was very important. All the ribbons are perpendicular to each other, as if they were woven together. I didn't want the viewer's eye to stray

JEREMY BAKER

"I used wavy, sharp lines to create flat ribbons that define the bear's features. I then shaded them to give the image a three-dimensional look and to make it seem as if the animal is alive."

from the focal point, so I worked carefully to keep the pattern in place. The only variation is around the head, where I had to tighten everything to define the contours of the bear's face. The ribbons change direction and have more of a curve to them there.

What helped give depth and movement to the piece?

The shading of the ribbons adds depth. I shaded the piece so the light source seems at the top left side. The bear is facing the light, but there's a shadow under the chin where its face is blocking the light. The wideness of the mouth and how far back it goes also adds depth. The way the bear is curling back its top lip and lunging toward the open space also creates movement and energy.

How did you go about creating this drawing?

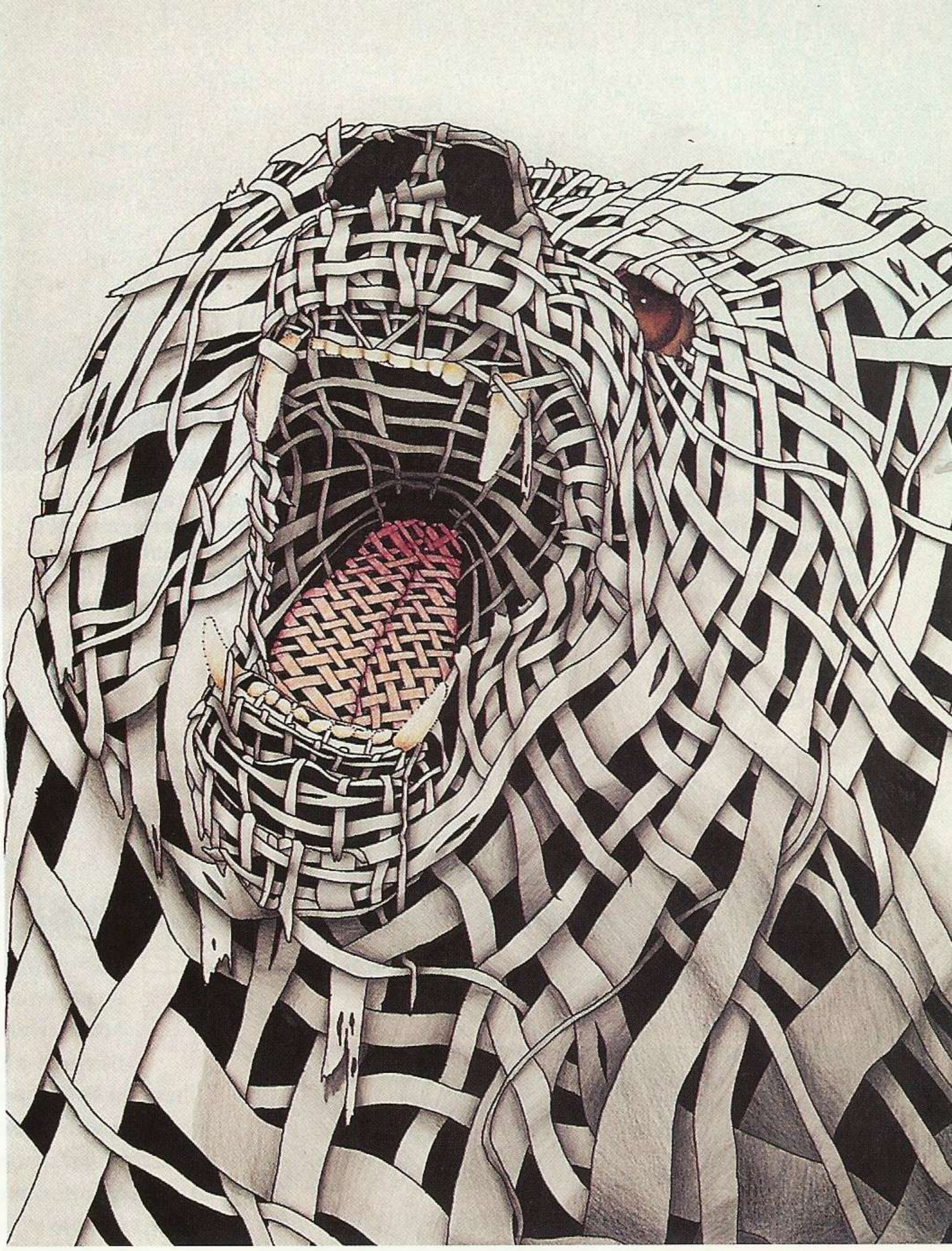
First, I sketched out the mouth and the general form of the bear in pencil. Then I drew the ribbons to define the contours of the form. To make the lines crisp, I retraced them in pen. Next, I worked on the eye. To create a personal connection, I made it so the bear is looking right at the viewer. I also created the illusion of a split down the center of the tongue by making the ribbons go in different directions. Then I added color to the tongue and teeth. I shaded in the ribbons last. I left the background plain because I didn't want it to distract the viewer.

What was the most challenging part of working on this piece?

Drawing the eye was hard. An eye with life in it has a certain glow. Creating an eye that looks alive is tricky.

What makes your bear feel so abstract?

I think it's the wrapping. The stark white and black colors aren't blended or muted like those you'd see in nature. The shredded pieces around the mouth give the bear a gritty, urban feeling totally out of place in nature.



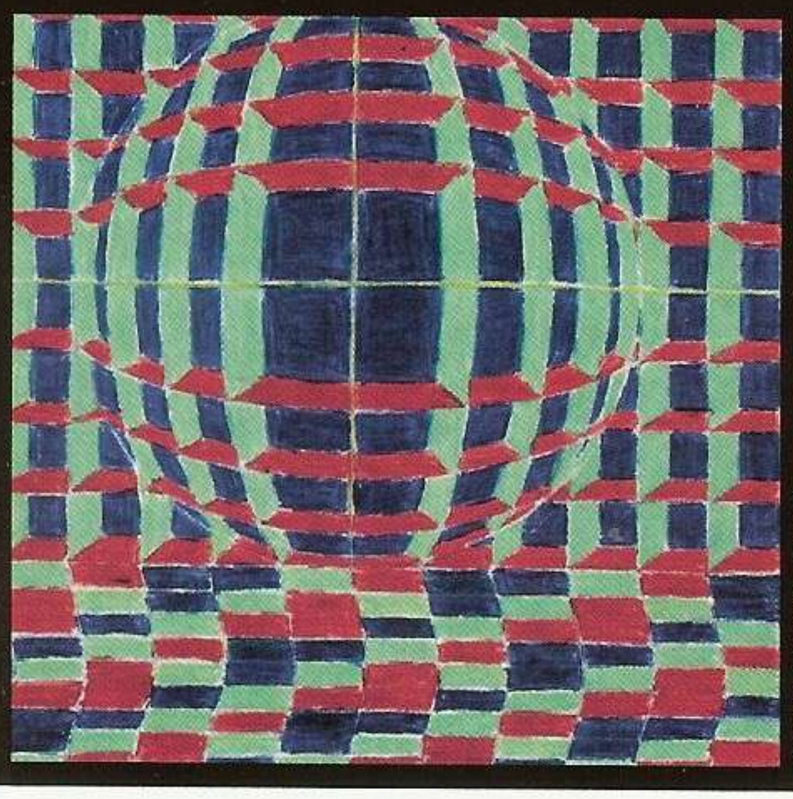
Jeremy Baker (b. 1988), *White Stripe Bear*, 2005.

The blackness beneath the ribbons is also mysterious and unsettling. Is there an actual animal underneath or just a black ghost? I wanted to make the viewer wonder.

Do you have any advice for aspiring artists like yourself?

Knowing that people appreciate your art is the most amazing feeling in the world. Even if you feel you're not the best artist in your school, keep working at it and get your finished pieces out there. I guarantee someone will come to like your art and the risk will be worth it.

To find out more about The Scholastic Art & Writing Awards, ask your teacher to write to The Alliance for Young Artists & Writers, Inc., 557 Broadway, New York, NY 10012-3999, phone 212-343-6892, or go to www.scholastic.com/artandwriting.

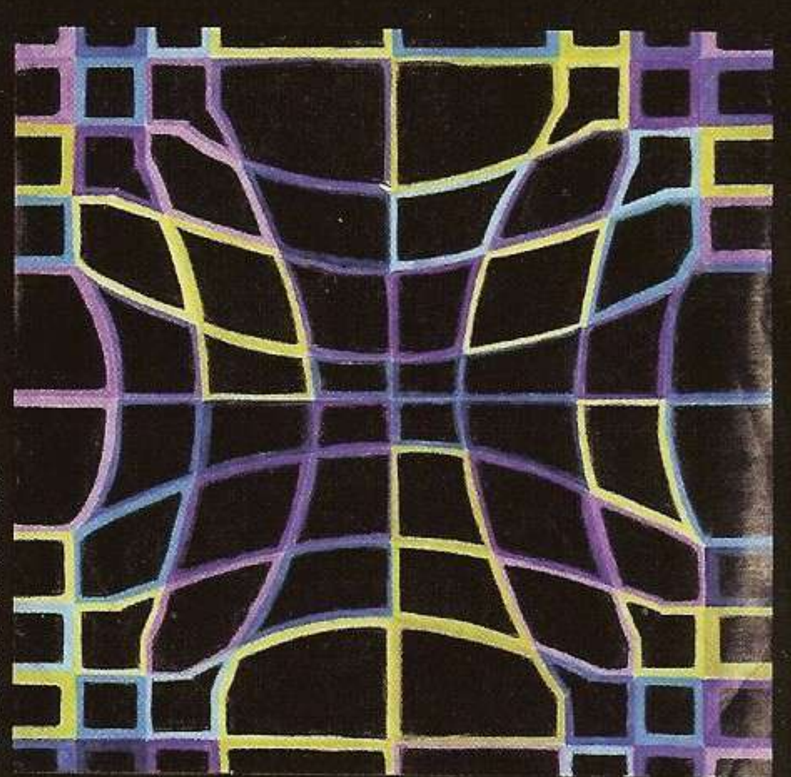


SÁMI DALÁTI

▲ In Sámi's "bubble" illusion, symmetrical curved lines suggest a swelling, convex (curving outward, like a sphere) volume.

CHARLES D. BULL

▲ Charles created this eye-catching form out of four circular segments. Vertical stripes in alternating cool and warm tones contrast with the horizontally striped background.



BETHANY GRAVERT

▲ Symmetrical lines curving inward within a circle create the illusion of a sunken, concave (curving inward, like a bowl) form in Bethany's composition.

SCHOLASTIC ART WORKSHOP

Creating Optical Illusions

Work with perspective and color to create a 3-D Op art design

MATERIALS

- No. 4 (hard) pencil
- Vinyl eraser
- Handheld pencil sharpener
- 9 x 12 in. tracing paper
- Standard graph paper in a variety of sizes (1 in. to ¼ in.) — for Step 1A
- Isometric graph paper in a variety of sizes (1 in. to ¼ in.) — for Step 1B
- 11 x 17 in., 28-lb ultrawhite, ledger color laser paper (cut down to 11 x 11 in.), or 11 x 11 in. oak tag paper
- Ruler, compass, protractor, and a variety of templates (circle, square, triangle, rhombus)
- Masking tape
- Colored pencils

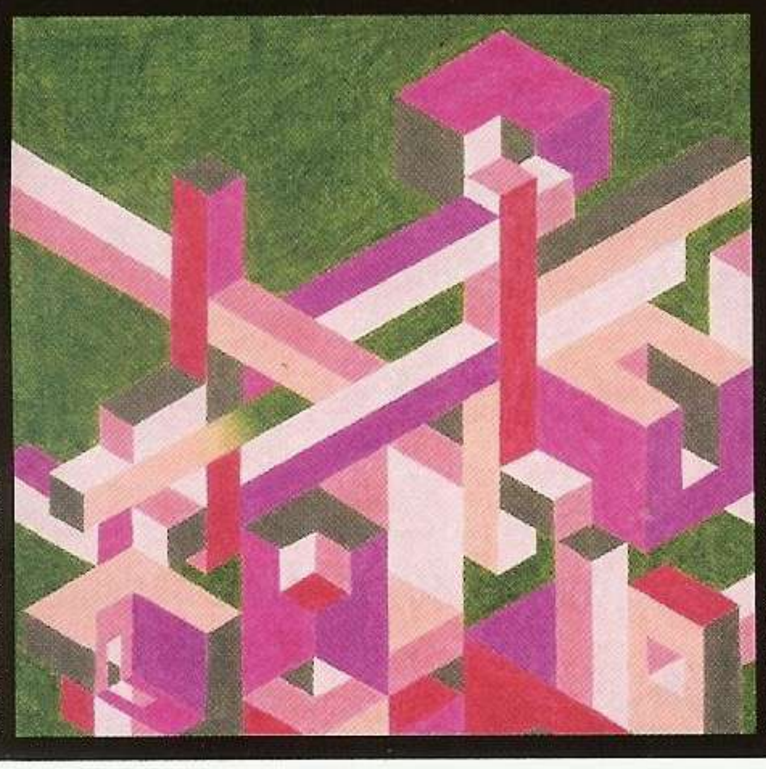
Prepared by Ned J. Nesti Jr., Art Instructor, Morrison Junior High School, Morrison, IL. Assisted by Nicholas R. Bonneur, Art Instructor, A. Vito Martinez Middle School, Romeoville, IL; Charlie Dubnick, Art Instructor, Brooks Middle School, Bolingbrook, IL; Andrew Holt, College of Fine & Applied Arts, School of Art, University of Illinois, Champaign, IL; Eitak Bunt, Illinois Valley Community College, Oglesby, IL. Photographed by Larry Gregory, Associate Professor, School of Art, Northern Illinois University, and Wade Duerkes, Northern Illinois University, DeKalb, IL.

As you've seen from the works in this issue, Op artists were able to create remarkable illusions of three-dimensional space on a flat canvas. They did so by carefully planning out their designs and working with pattern/variation, perspective, and color.

In this workshop, you will use graph paper to help you draw 3-D forms in the Op art style. Follow Step 1A below to create a "bubble" illusion like the examples above left, and on this issue's cover. Follow Step 1B to create an "impossible object" illusion like the examples above right, and on pages 8-9.

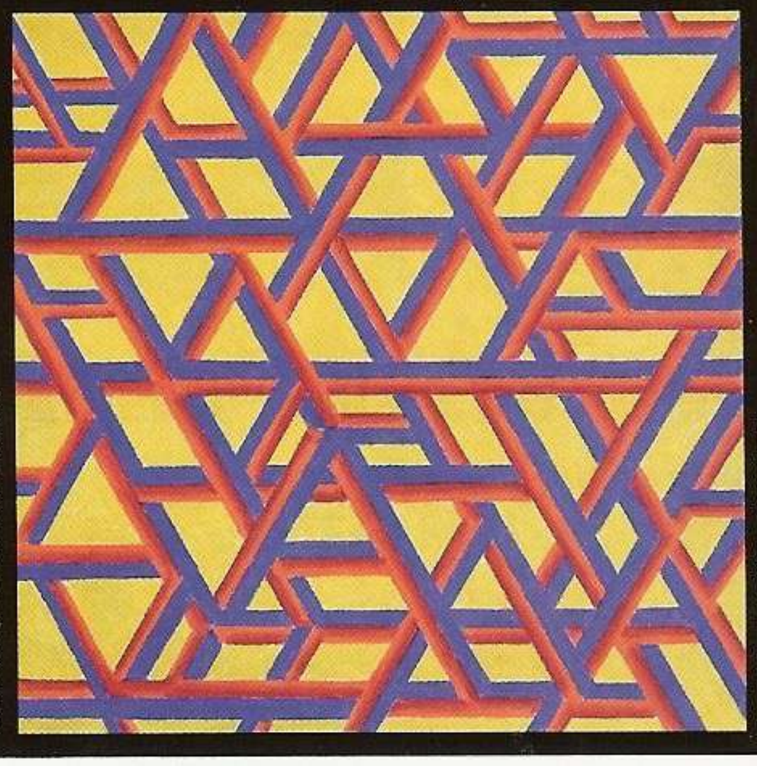
STEP 1A "BUBBLE" ILLUSION

Place a sheet of tracing paper on top of a sheet of standard graph paper. Using a compass and a sharp pencil, draw a circle on the tracing paper. Trace all lines outside the circle exactly as they are on the grid. Inside the circle, starting from where the grid lines meet the circle, draw lines that curve either outward or inward. Go slowly, box by box, to ensure precise, accurate curves. All curved lines must be repeated in reverse on the other side so that the design is symmetrical. Consider using more than one circle, altering the scale, or having circles extend beyond the picture plane to make the illusion more dramatic.



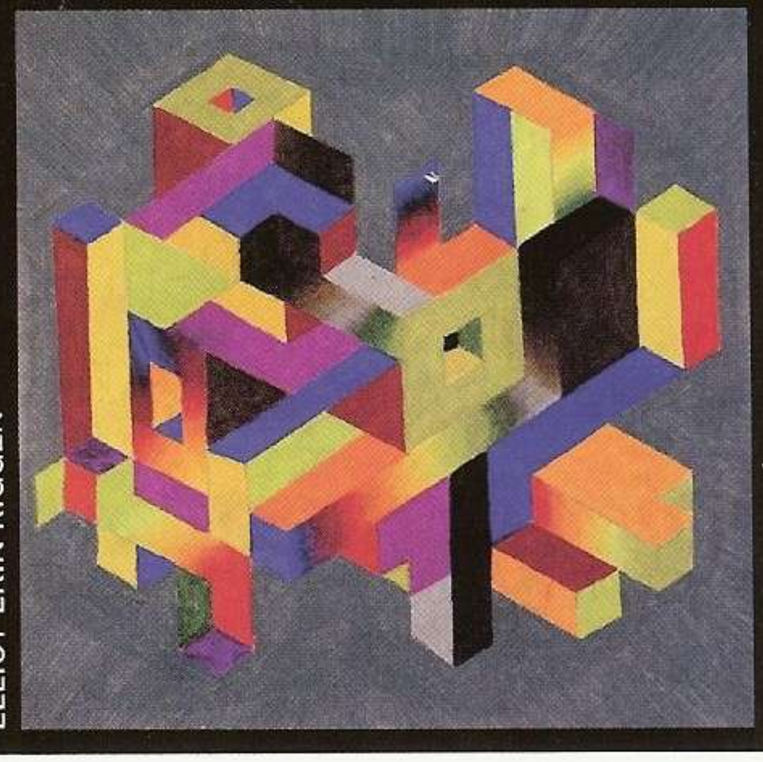
KATHERINE BUNT

▲ By limiting her palette to tints and shades of pink, Katherine has designed an "impossible object" that seems to pop out at the viewer. The positive form contrasts with the darker negative space behind it.



STEVEN S. KARVELIUS

▲ Following a single hue (blue, for example) with your eyes will help you realize that the complicated maze of lines in Steven's drawing could never exist in reality.



ELLIOT ERIN RIGGEN

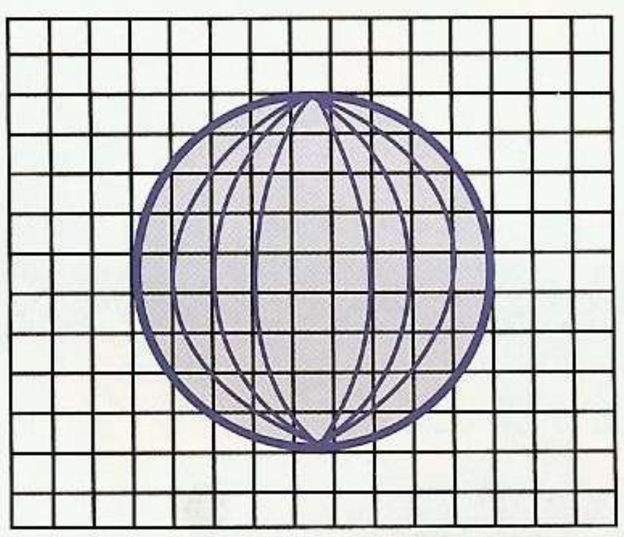
▲ Subtle gradations (moving from green to yellow to orange to red) in Elliot's vibrantly hued composition contrast with the solid blocks of color that define some of the planes.

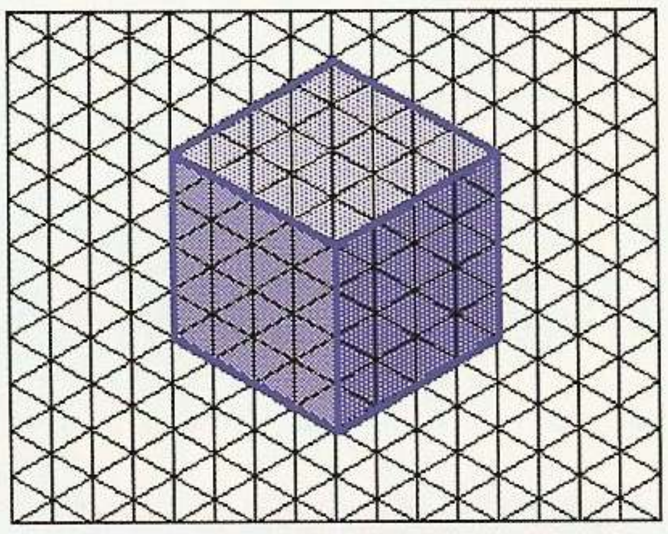
STEP 1B

"IMPOSSIBLE OBJECT" ILLUSION

Place a sheet of tracing paper on top of a sheet of isometric graph paper. Begin lightly sketching your design in pencil, carefully following the grid lines. Use a ruler to draw precise, accurate lines. Your composition may be symmetrically or asymmetrically balanced.

To create a successful illusion, draw separate but overlapping forms and have them share a common plane or side. Include geometric forms such as squares, rectangles, triangles, or rhombuses. Consider using grids of different scales to increase the variety of optical effects and make your drawing more interesting. Change the orientation of your forms by rotating the tracing paper and/or isometric grid to repeat sections of the design.



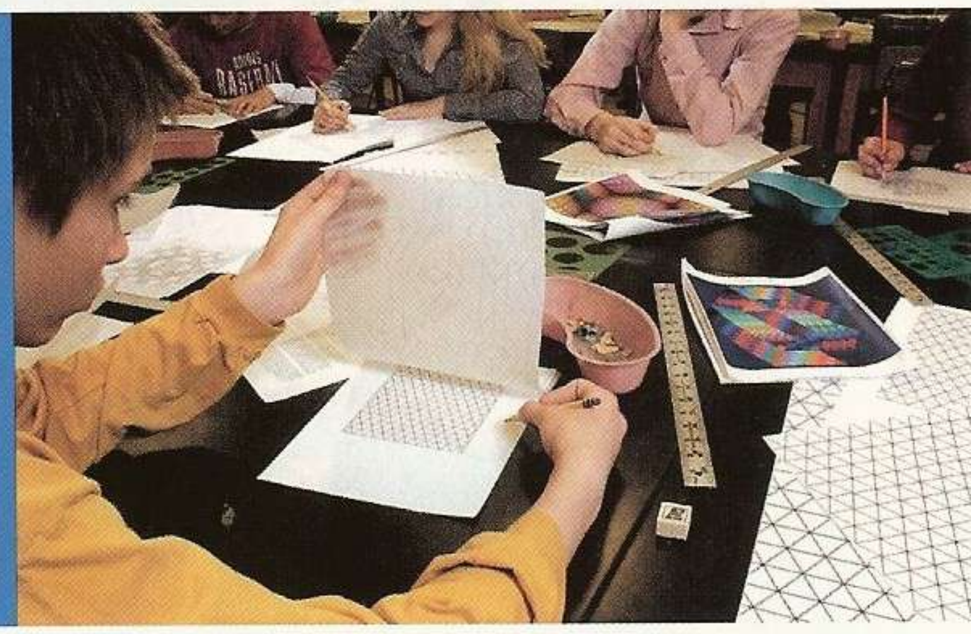


Above left: To create a "bubble" illusion, draw symmetrical circular forms on regular graph paper. Above right: To draw forms that seem to exist in 3-D space, like this cube, use isometric graph paper as a guide.

STEP 2 Once you have completed your design, transfer it to the white paper. Use a ruler to maintain precision and craftsmanship.

STEP 3 Add color to your drawing to create paths for the eye to follow. Avoid strict patterns; by using the same color on different planes, you can make forms appear to change their orientation.

Test possible color combinations on scrap paper. Use a limited color palette. Look for combinations that vibrate or make one color seem to advance or recede in contrast to another. Experiment with **simultaneous contrast** by juxtaposing a color with its **complement** (opposite on the color wheel) in order to change the viewer's perception of both colors. Create a **gradation** by using different **values** of the same color. Use even, heavy pressure to eliminate surface texture and to produce intense, rich colors.



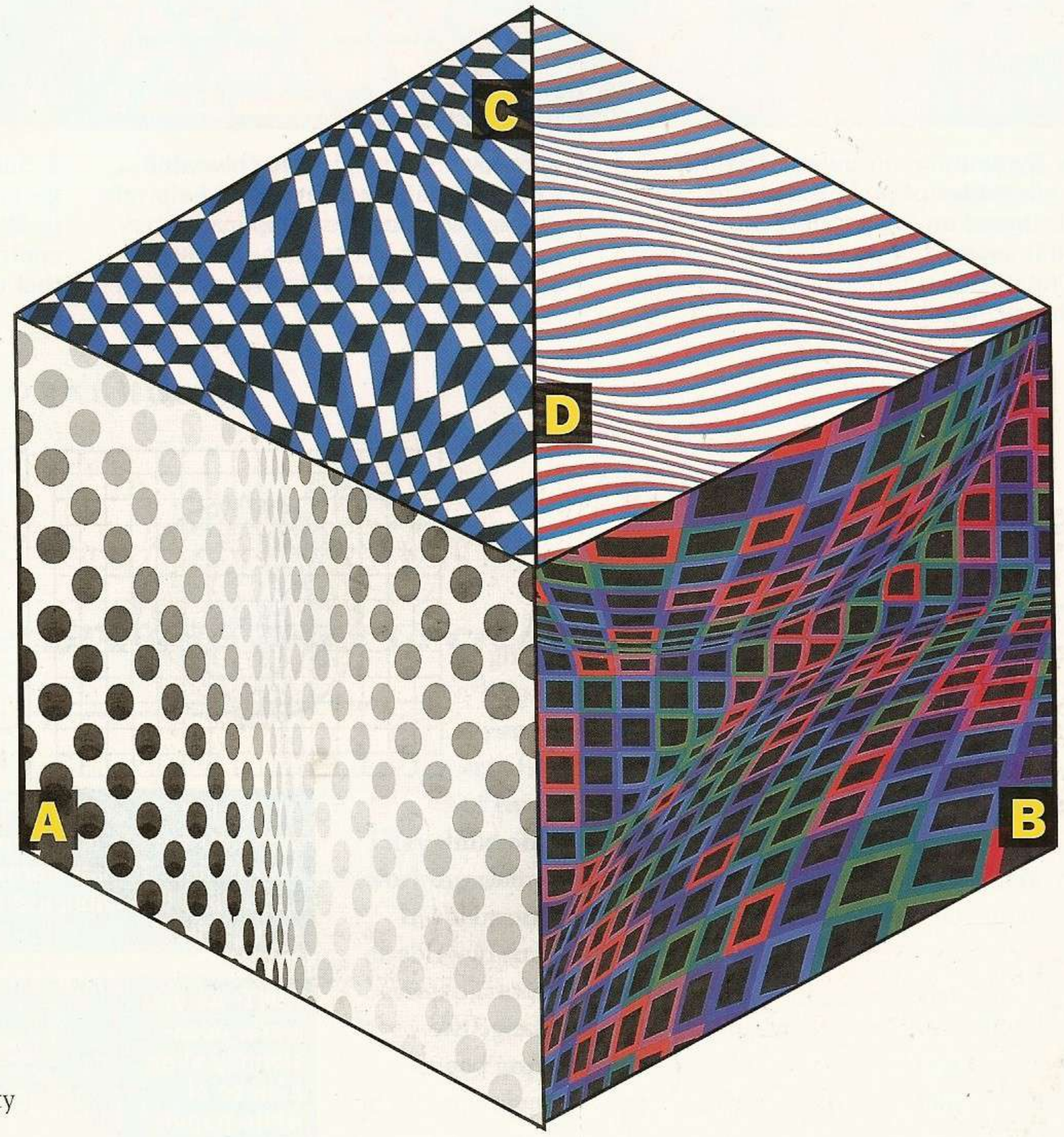
HINT: As you work, occasionally slide a piece of white paper under the tracing paper to see how your design is developing.

Optical Puzzles

How did Op artists create such dazzling illusions of movement and depth?

During the 1960s, traditional values were being challenged in all areas of culture. The convincing illusions of depth and movement that Op artists created within static, 2-D canvases encouraged viewers to question even the simple act of looking at a picture on a wall.

In the cube on the right are details of some of the works featured in this issue and below is a list of terms, titles, artists' names, and descriptions associated with them. Next to each word or phrase, write the letter of the image (or images) that seems most appropriate.



____ **1.** three-dimensional

____ **2.** illusion of movement

____ **3.** geometric unit

____ **4.** figure-ground ambiguity

____ **5.** repetition

____ **6.** variation

____ **7.** Bridget Riley

____ **8.** illusion of depth

____ **9.** pattern

____ **10.** hard-edged lines

____ **11.** spherical volume

____ **12.** gradation

____ **13.** *Cataract 3*

____ **14.** visual tension

____ **15.** distorted grid structure

____ **16.** Victor Vasarely

____ **17.** warm color

____ **18.** *Bull*

____ **19.** flat picture plane

____ **20.** cool color

____ **21.** convex form

Statement of Ownership, Management, and Circulation of Scholastic ART (as required by Title 39, United States Code). Date of Filing: October 1, 2006. Title of Publication: Scholastic ART. Frequency of issue: 6 times during the school year: Monthly, November, February, March; Bimonthly, September/October, December/January, April/May. Location of Known Office of Publication: 2931 East McCarty Street, Cole County, Jefferson City, MO 65101-4464. Location of the Headquarters of the Publishers: 555 Broadway, New York, NY 10012-3999. Publisher: M. Richard Robinson; Editor: Margaret Howlett (both of 555 Broadway, New York, NY 10012-3999). Owners: Scholastic Corp., M. Richard Robinson, Trust under will of Maurice R. Robinson, Trust under will of Florence L. Robinson, all of 555 Broadway, New York, NY 10012-3999. During Preceding 12 Months Average Number of Copies: Printed each issue, 321,643; Paid Circulation, 289,445; Free Distribution, 19,904; Total Number of Copies Distributed, 309,349; Copies Not Distributed, 12,294; Total, 321,643. For Single Issue Nearest to Filing Date: Number of Copies Printed, 408,500; Paid Circulation, 161,659; Free Distribution, 137,851; Number of Copies Distributed, 299,510; Copies Not Distributed, 108,990; Total, 408,500.