

 SCHOLASTIC

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art

Featuring:

- Leonardo da Vinci
 - Pietro Perugino
 - Raphael
 - Edward Hopper
 - Richard Estes
- and more!



Perspective

The Renaissance to Richard Estes

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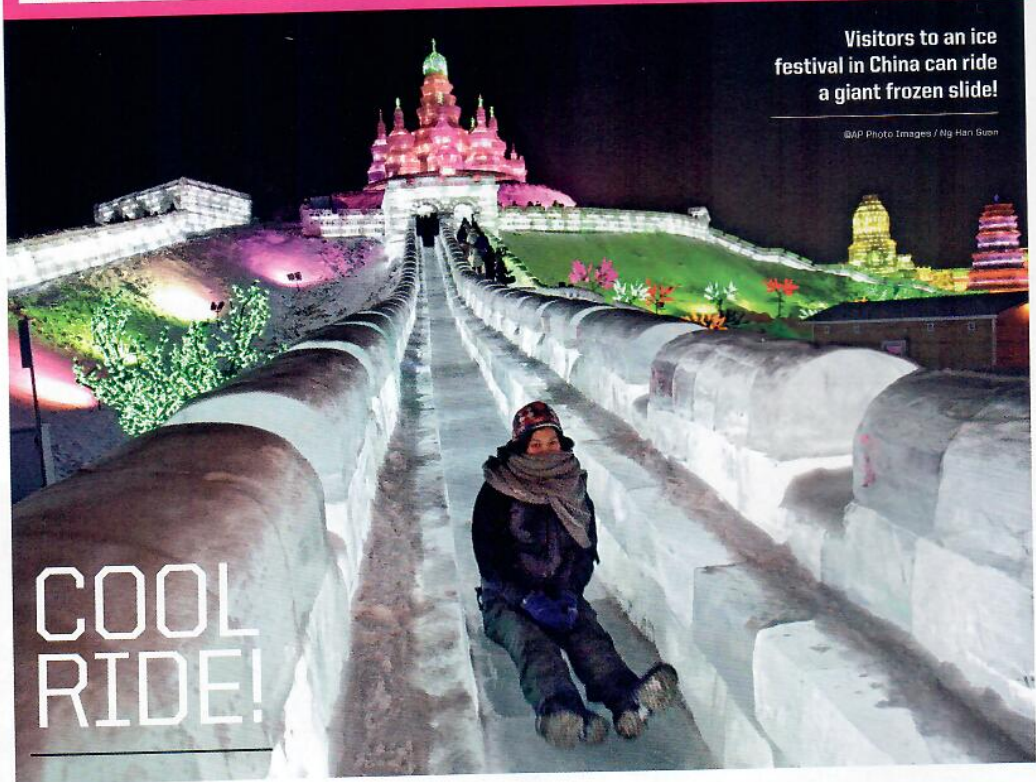
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Cover: Richard Estes (b. 1936), *Subway*, 1969. Oil on canvas, 42 x 66 in. ©Richard Estes, courtesy Marlborough Gallery, New York

ART NEWS + NOTES



Visitors to an ice festival in China can ride a giant frozen slide!

©AP Photo Images / Ng Han Sun

COOL RIDE!

Wheel! If you want a turn going down a slide like this, you'll have to travel to the far-northeast corner of China. It is one of many sculptures on display at the Harbin International Ice and Snow Sculpture Festival. During the day, the snowy structures are white, but at night they're lit up with brightly colored lights.

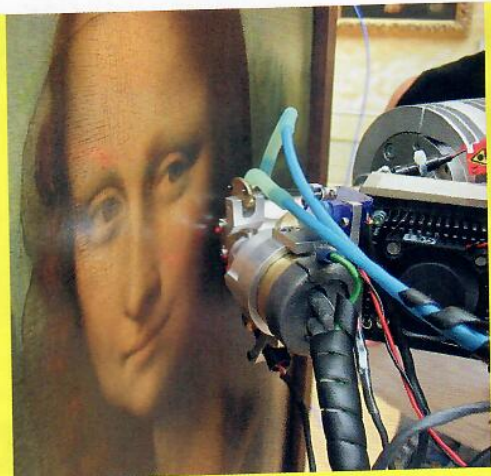
The photograph is an example of *one-point linear perspective*, a way of making flat surfaces appear three-dimensional. You'll learn all about it in this issue. Turn to page 5 to see a diagram of one-point perspective. Then turn back to this image and see if you can identify the *horizon line*, the *vanishing point*, and the *converging lines*.

Secret Smile Deciphered

Leonardo da Vinci's *Mona Lisa* is perhaps the most famous painting in all of art history. For nearly 500 years, viewers have wondered how the artist managed to paint such a mysterious smile.

A group of scientists believe they have the answer. They recently analyzed the painting using a special X-ray machine and discovered that da Vinci

put up to 40 layers of glaze on the smile. Layering clear glaze subtly softens outlines and blends shadows. Da Vinci created even more-complicated shading by adding lighter or darker pigments to some of the layers. This painstaking detail may explain why it took the master four years to complete the work. To learn more about the techniques used to create *Mona Lisa*, turn to page 6!



Scientists used high-tech X-ray machines to help unlock the mystery of *Mona Lisa's* smile.

©V.A. Sole / ESRF



Don't Look Down!

The man balancing on Spider-Man's web in the picture won't need the superhero to save him if he falls. That's because he's walking on flat pavement! Sidewalk artist Kurt Wenner painted this scene using linear perspective.

Wenner traveled to Italy to learn how to make such realistic 3-D illusions using a kind of perspective called *anamorphism*. Italian Renaissance artists used it to make ceiling frescoes appear to have columns floating upward to the sky. Wenner uses the same effect to create scenes that seem to sink into or rise from the pavement.

To learn more about how Renaissance artists used perspective, turn the page!

Kurt Wenner created this high-flying scene on flat pavement!

©Kurt Wenner / Rex USA

Art History in Perspective

Renaissance artists forever changed the way we depict the world around us

Why do the figures in this scene appear unnatural and unrealistic?

Giovanni di Paolo (c.1403-c.1492), *Paradise*, predella panel, Ca. 1445. Tempera and gold on canvas, transferred from wood. 17 1/2 x 15 1/8 in. Rogers Fund, 1906 (06.1046). The Metropolitan Museum of Art, New York, NY. Image copyright ©The Metropolitan Museum of Art. Source: Art Resource, NY.

During the **Renaissance** (1400-1600), the air in Europe seemed charged with ideas. Artists, writers, musicians, architects, scientists, and mathematicians clamored for knowledge and new ways of looking at the world. It was one of the most exciting times in history.



Flat Figures

Before the Renaissance, most art in Europe centered around Christianity. The most important figures were placed centrally and painted larger than the others. It wasn't important for them to be in realistic-looking settings.

At the start of the Renaissance, artists became interested in painting more of the world around them. However, they did not have the visual tools to create depth on a two-dimensional **picture plane**. In Giovanni di Paolo's (joh-VAHN-ni DEE-pow-loh) 1445 *Paradise* (below left), the figures look flat and appear to be floating in space. They're all the same size and are stacked on top of one another in rows. The **horizon line** (the line dividing the earth from the sky) is placed near the top rather than at eye level, as we see Earth's horizon in real life.

Art Meets Math

Renaissance artists experimented with ways to create the **illusion of deep space** on a flat surface. They figured out that in real life, parallel lines (for example, a road) appear to **converge**, or meet, as they **recede** into the horizon. Additionally, objects that are close appear to be larger and in better focus than those farther away. By applying these concepts to their canvases, artists could mimic the way we see the world. This mathematical system of using lines to create realistic-looking depth is called **linear perspective**.

School of Greats

By the 1500s, many artists had mastered the new system of using perspective. When a young artist named Raphael was hired to paint a fresco on a wall of the library at St. Peter's Church in Rome, he was excited to show off this technique.

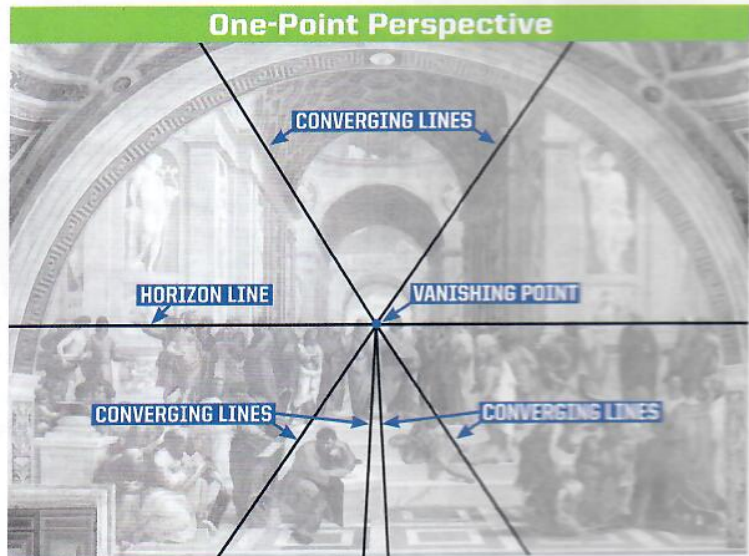
From our **point of view**, when we look at *School of Athens* (above, right) it is hard to tell where the real architecture ends and the painted arches begin. It is as if we are looking through the wall it is painted on and into the next room. In that room are some of



the great thinkers of history who inspired Raphael, including the Greek philosophers Plato and Aristotle in the center.

Raphael used **one-point perspective** to compose this work. The lines on the floor tiles and the pillars converge at a single **vanishing point** on the horizon line. It is between Plato's and Aristotle's heads (see diagram). The converging lines also draw our attention to the two figures. Even though they are painted smaller and with less detail than the figures in the **foreground** (the closest area to the viewer), we can still tell they are the most important.

School of Athens is considered one of the best examples of linear perspective. For more than 500 years, artists have continued to use the techniques developed during the Renaissance. Today artists like Richard Estes play with these techniques to create even more realistic scenes than thought possible in Raphael's time.



Study the diagram showing one-point perspective. Then look for additional converging lines in *School of Athens*.

Raphael (1483-1520), *The School of Athens*, ca. 1510-1512. Fresco, Stanza della Segnatura, Stanze di Raffaello, Vatican Palace, Vatican State. Photo: Scala / Art Resource, NY.



Pietro Perugino's *The Delivery of the Keys* inspired Raphael's *School of Athens*.

Pietro Perugino (c.1445-1529), *Giving of the Keys to St. Peter*, 1481. The Sistine Chapel, Vatican City. Photo: ©The Bridgeman Art Library, London



5 Things to Know About Perspective

1 ONE-POINT

Raphael, who painted *School of Athens* on page 5, was a great Renaissance master, but he didn't invent perspective. His teacher, Pietro Perugino (Pee-EH-troh Pehr-ooH-JEEN-oh), taught him. In Perugino's painting above, done 30 years before Raphael's, large detailed figures stand in the foreground and the figures in the background are smaller and harder to see. As in Raphael's painting, all of the architectural lines recede to a single vanishing point.



2 TWO-POINT

Early Renaissance artist Masaccio (mah-SAH-choh) used the new system of perspective to set his solid, three-dimensional figures in very real-looking settings. In this detail from his fresco *The Tribute Money*, two men stand in front of a building painted using **two-point perspective**. The corner is closest to us, allowing us to see two sides of the building at once. One wall recedes toward one vanishing point, and the other recedes toward a second vanishing point located outside the frame of the picture. For a diagram showing two-point perspective, turn the page!

Using two-point perspective, Masaccio shows two sides of one building.

Masaccio (1401-1428), *The Tribute Money* (detail). Fresco. The Brancacci Chapel, S. Maria del Carmine, Florence, Italy. Photo: Scala / Art Resource, NY.

3 AERIAL

Not all perspective is linear. Renaissance artists also made their paintings—especially their landscapes—look more real using **aerial perspective**. You can see an example of this in Leonardo da Vinci's masterpiece *Mona Lisa*. In the background, the closest mountains are darker and clearer. Farther away, the forms are smaller and hazier. On the horizon, the colors of the forms blend in with the blue of the sky. The winding roads and mountain peaks draw attention to the **focal point**—the figure's face and her famous smile.



***Mona Lisa's* smile gets the most attention, but the mountains also add mystery to Leonardo da Vinci's masterpiece.**

Leonardo da Vinci (1452-1519), *Mona Lisa*. Oil on wood, 77 x 53 cm. The Louvre, Paris, France. Photo: Réunion des Musées Nationaux / Art Resource, NY.



4 FORESHORTENING

Some Renaissance artists said that Paolo Uccello (POW-loh oo-CHEL-oh) was obsessed with perspective. He'd stay up all night making mathematical diagrams for his paintings. In his famous *Battle of San Romano* (detail at left), the foreground is filled with **foreshortened** objects like the back legs of the brown horse on the right. The hooves are enlarged so they seem to be coming toward the viewer. Can you spot other foreshortened objects in this scene?

How does Paolo Uccello use perspective in this battle scene?

Paolo Uccello (1397-1475), *The Battle of San Romano*, (detail), 1429, 1456. The Uffizi Gallery, Florence, Italy. Photo: Eric Lessing / Art Resource, NY.

5 DISTORTION

By the 20th century, photography had taken the place of most realistic painting. Artists began using perspective to comment on the anxiety of modern life. Surrealist Giorgio de Chirico (JOR-joh duh-KEER-ih-koh) painted the scene at right using one-point perspective. But he exaggerated the angle of the converging lines, so the buildings seem to rush at the viewer. The diagonal shadows clash with the lines, creating confusion. A ship's sail rising above the horizon line gives the work a dream-like quality.

What elements make Giorgio de Chirico's painting seem unnatural and surreal?

Giorgio de Chirico (1898-1978), *The Anxiety of Waiting*, Fondazione Magnani Rocca, Corte di Mamiano, Italy. Photo: Scala / Art Resource, NY. © 2012 Artists Rights Society (ARS), New York / SIAE, Rome.





New Views of America

American realist painter Edward Hopper used perspective to show different aspects of American life

What is the point of view in this painting by Edward Hopper? Where would you have to stand to get this perspective?

Edward Hopper (1882-1967), *Office in a Small City*, 1953. Oil on canvas, 28 x 40 in. The Metropolitan Museum of Art, NY. George A. Hearn Fund 1953 (53.183). Image copyright © The Metropolitan Museum of Art. Photo: Art Resource, NY.

Artists of the Renaissance used the then-new system of linear perspective with mathematical precision. They carefully placed each line to achieve the greatest illusion of depth on the picture plané. Artists continued to work this way for hundreds of years.

Modern Ideas

By the 20th century, photography had replaced drawing and painting as the main tool for depicting the real world. Some artists experimented with abstract art that did not feature linear perspective. Others, such as mid-20th-century American painter Edward Hopper, preferred to work in a realistic style, even when it was considered "unmodern."

Haunting House

Hopper is famous for painting scenes of urban and rural American life. Many of his paintings have a lonely or isolated mood. The artist thought of these emotions as features of fast-paced modern life.

The 1925 painting *House by the Railroad* (right) is a "portrait" of a Victorian-era home in Hopper's hometown, Nyack, New York. There are no people or other houses, which lends the composition an eerie stillness. The house looks so creepy, the movie director Alfred Hitchcock used it as inspiration for the house in his classic thriller *Psycho*.

The artist once said, "I wanted to paint sunlight on the side of a house." The sun illuminates the house on the left and casts a dark shadow on the right, adding to the

mysterious mood. Hopper painted the house using **two-point perspective**. The house is set diagonally to the viewer; we see two sides at once. The **vertical edge lines** of the structure intersect the horizon line at 90 degrees. The horizontal converging lines recede to two vanishing points outside the frame (see diagram).

Hopper hid the horizon line behind a set of railroad tracks in the foreground. He placed the tracks at a slight inward angle, adding more depth to the painting. The tracks also act as a barrier to separate the house from the viewer.

Scenes of City Life

In Hopper's 1953 *Office in a Small City* (left), a man sits alone in an office on an upper story of a tall building. He stares out a large window; across the street, there is an older building. Even though he works in the city, the man appears to be completely alone.

In this painting, Hopper uses perspective to try to disorient the viewer. He does it by showing both the inside and the outside of the building. He said, "I wanted to achieve the sensation of showing the interior and exterior of a building simultaneously." How do you feel when you look at this work?



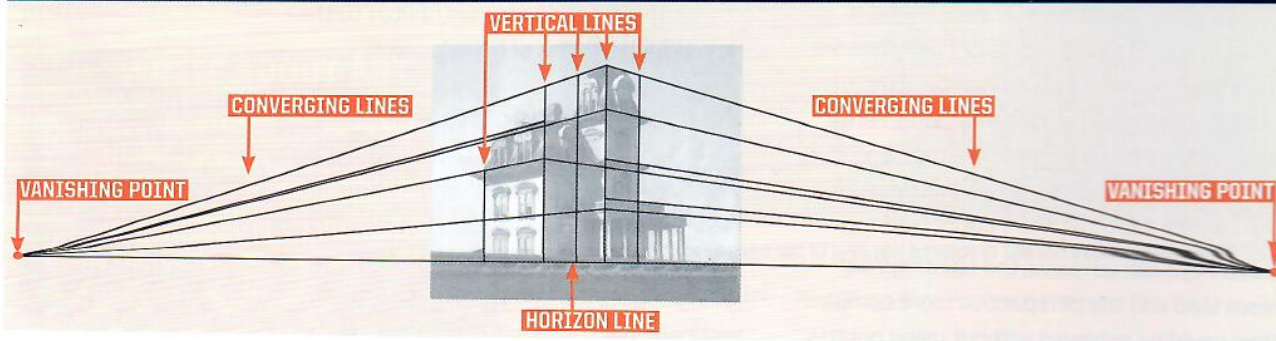
“If you could say it in words, there would be no reason to paint.”

—Edward Hopper

How did Hopper use perspective to show two sides of the house at once? Study the diagram to find out!

Edward Hopper, *House by the Railroad*, 1925. Oil on canvas, 24 x 29 in. The Museum of Modern Art, NY. Given anonymously. Digital Image ©The Museum of Modern Art / Licensed by SCALA / Art Resource, NY.

Two-Point Perspective



Playing With Perspective

American contemporary painter Richard Estes shatters expectations about perspective



After the invention of photography in the 1800s, artists began to question their role in the world. After all, the camera efficiently translates the three-dimensional world into two dimensions. That was a job that previously only artists could do. In the 1960s, a group of artists, known as the **photorealists**, embraced the camera as an artistic tool. They began photographing their subjects, then creating extremely realistic drawings and paintings based on the photos.

Scenes of City Life

American contemporary artist Richard Estes is one of the founders of photorealism. He is best known for his cityscape paintings of New York City. To create a painting, Estes photographs a scene, then develops a composition based on the photos. Because the camera captures more detail than the human eye can perceive, the paintings are more vivid and the perspective more complex than could be achieved without using photos.

Traditional Perspectives

Cities are full of angles, lines, and geometry, which makes them the perfect subject for exploring perspective. In *Subway* (above and on the cover), painted in 1960, Estes depicts the inside of a subway car using one-point perspective. The **symmetrical** composition is divided in half by the vertical pole in the center. The left and right sides mirror each other, except for details like the advertisements along the ceiling and the newspaper on the bench. The lines created by the floor tiles, the benches, the windows, and the ceiling **converge** at the center door behind the pole. This level of geometric specificity contributes to the **hyperrealistic** look of Estes's painting.

Altered Perspectives

Recently, Estes has been experimenting with perspective and how reflections can alter the way we see space. In 2000's *Spring Afternoon, Madison Square, New York* (above, right), the composition is divided vertically, but the result is different than in

Can you create a diagram showing the one-point perspective in this painting?

Richard Estes (b. 1936), *Subway*, 1966. Oil on canvas, 42 x 69 in. @Richard Estes, courtesy Marlborough Gallery, New York.



"Photographs make it possible to capture reflections that are only there for a moment when the light hits." –Richard Estes

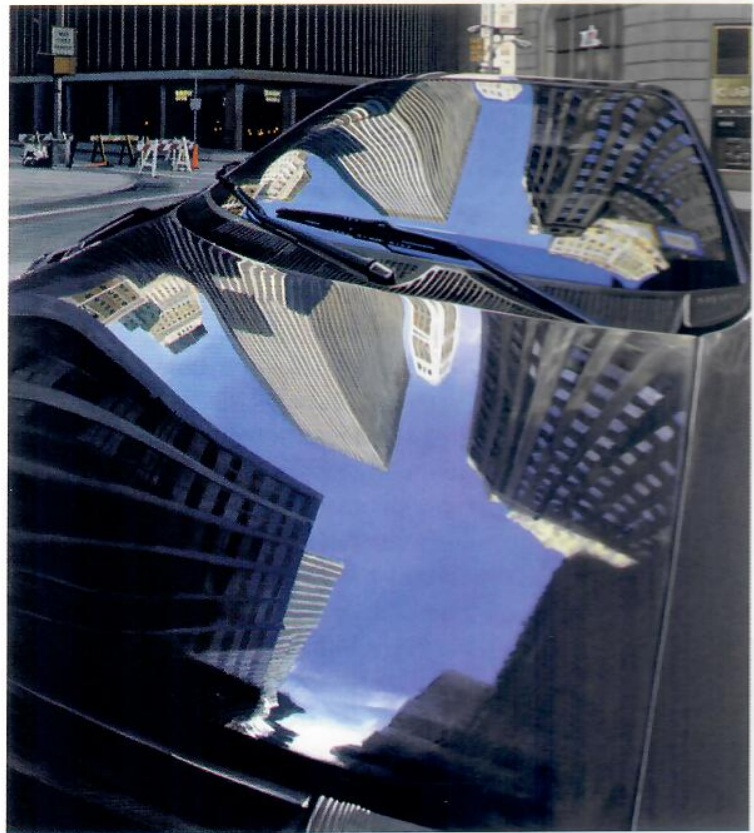
Richard Estes, *Spring Afternoon, Madison Square, New York*, 2000. Oil on canvas, 34 x 64 in. ©Richard Estes, courtesy Marlborough Gallery, New York.

Subway. On the right side of the canvas, Estes depicts the sidewalk, the street and the buildings. On the left, he shows the reflection of the scene in the window of a building. The reflection is not an exact **mirror image** because Estes included the objects just inside the window in addition to those reflected in the glass.

In 2003's *Broad Street* (right), Estes distorts perspective even further. The viewer looks down on a **tightly cropped** and foreshortened car that fills almost the entire picture plane. We understand from the reflections Estes has painted on the hood and windshield that the car is surrounded by skyscrapers. This point of view makes us feel as though we are looking down at a car and up at the sky at the same time. The **juxtaposition** can make you dizzy!

WRITE ABOUT ART

Renaissance artists used perspective to apply orderliness and a sense of calm to their world. Write a paragraph about how Richard Estes uses the same techniques to show the disorder and chaos of modern city life.



How does Estes use the car to give you a sense of the tall buildings in a large city?

Richard Estes, *Broad Street*, 2003. Oil on board, 22 x 20 in. ©Richard Estes, courtesy Marlborough Gallery, New York.



Joker or Genius?

This artist recently hung all of his work from the ceiling of a famous museum. Was it a big prank?

The Guggenheim Museum's famous atrium has never been used like this!



Maurizio Cattelan

Artist Maurizio Cattelan is famous for his elaborate pranks on the contemporary art world. For example, in 1998 he made an oversized mask of Pablo Picasso and hired an actor to wear it in the lobby of the Museum of Modern Art in New York City. The Italian artist may have just pulled off his biggest prank yet—on one of the world's most famous art museums.

The Solomon R. Guggenheim Museum in New York City offered Cattelan a major **retrospective** of his work. The artist agreed under one condition: None of his artworks could be hung on the museum's walls. Instead, they were to be suspended from the ceiling—filling the atrium's central space.

Retrospective shows are usually organized with a theme, like chronology, geography, or color. But Cattelan's pieces were all jumbled up. Some were even hung upside down! Some critics saw the show as another gimmick from a notorious prankster. What do you think? Was this an innovative way to use the famous space?

Tell us what you think!
scholastic.com/art

YES

It was an innovative way to display art!

- ▶ Art doesn't always have to make sense—and this exhibit fit with Cattelan's strange and silly style.
- ▶ Viewers chose which pieces to focus on. They made their own connections between pieces.
- ▶ The Guggenheim Museum's atrium had never been used this way before.

NO

Cattelan didn't take the show seriously!

- ▶ It is an honor to have a show at the Guggenheim, and the artist treated it like a big joke.
- ▶ It was hard to view the works of art because they were haphazardly strung up in the atrium.
- ▶ Visitors didn't get to see how Cattelan has evolved as an artist or how his ideas have developed.

STUDENT OF THE MONTH

Reflecting on Herself

Min Jeong Cho drew on personal experiences to create her award-winning artwork.

This award-winning artist's self portrait is also a reflection of her personality.



Min Jeong Cho is a risk-taker. At 15 she moved to the U.S. from South Korea to study art, and is currently a senior at Interlochen Arts Academy in Interlochen, Michigan.

Min, 18, took a chance with her award-winning self-portrait, above, as well.

"I'd never done a piece where I showed myself emotionally in this way before," says the artist. "I thought people would judge me, but they didn't. The risk was definitely worth it."

When did you first get serious about art?

I got serious when I was accepted at 15 into a highly competitive art school in South Korea. The school was very traditional and not a good fit for me. I wanted more creative freedom, so I came to the U.S. to study.

What inspired this award-winning piece?

I wanted to create a self-portrait, something I'd never done before. I'm a perfectionist and wanted to express how—no matter how hard I work—I'm never satisfied. I portrayed myself pushing against a glass door that I can't get

through. I added the lights behind me, and the reflection on the glass door to represent my desire to succeed, which burns brightly.

How did you create your self-portrait?

First, I brainstormed my idea. When I had a concept, I started to sketch. Next, I took photographs for reference. I got pictures of myself in this pose, the store window at night, buildings across the street, and reflections. I drew dozens of sketches of each element. Finally, I created my final drawing. I drew the contours in pencil. Then I added details using pastels.

What was the most challenging part?

Drawing the textures of the piece. I was wearing a white-knit sweater with flowers in my photographs. I had to work hard to create the detail I needed for the sweater to look real. It was very difficult.

Do you have any advice for aspiring artists like yourself? If you have an idea, stick with it. Take the risk to make it happen. Every time I take a risk, I become a better artist.

Scholastic
Art & Writing
Awards

Min's drawing won a Gold Medal in the 2011 Scholastic Art & Writing Awards. To find out more about this program, visit artandwriting.org.



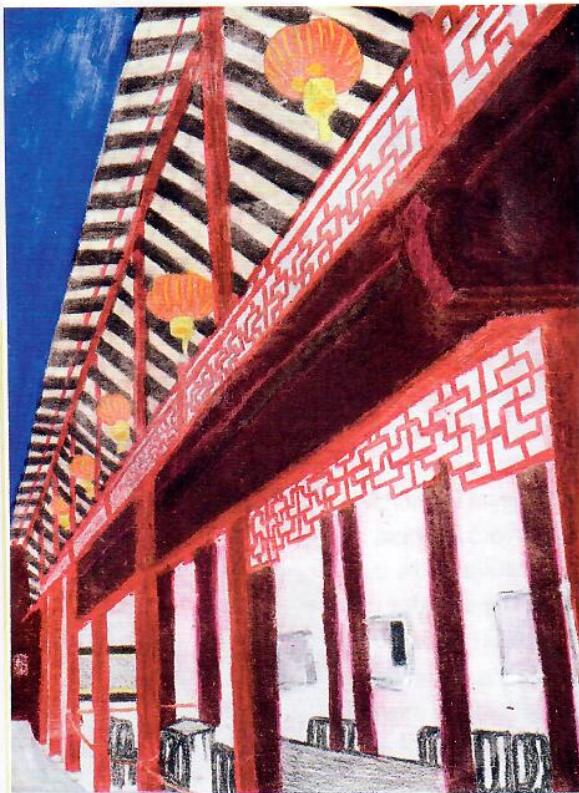
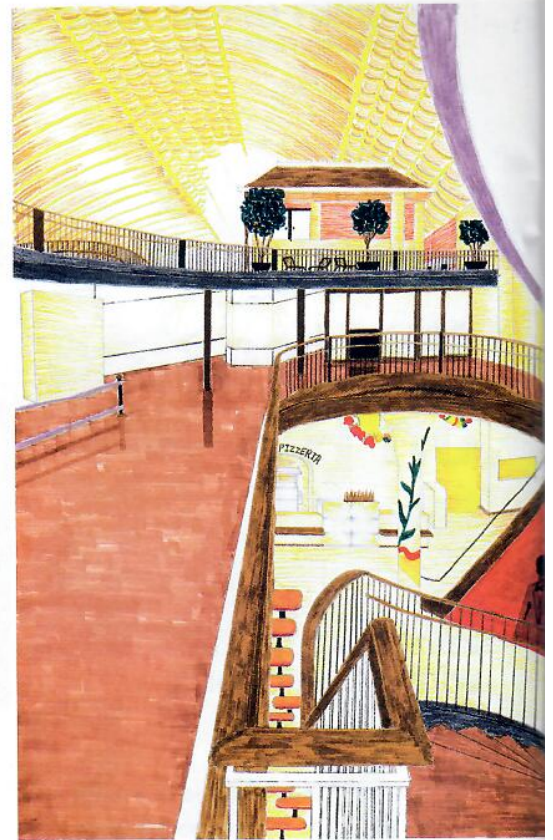
Min
Jeong
Cho

HANDS-ON PROJECT DRAWING

BELOW: Juzo drew this building in two-point perspective. Where did he stand to get this point of view?



RIGHT: Rudra included multiple vanishing points, depicting different levels of a building's interior.



ABOVE: Lian's single vanishing point is to the far left, so the building is shown at an extreme angle.

Make a Perspective Drawing

Use what you've learned about perspective to draw a building

You've seen how artists from the Renaissance to today have used perspective to realistically depict their world. In this project, you'll create a photorealistic drawing of a building in your city or town using one- or two-point perspective.

Prepared by Barbara Nueske-Perez, Tesseract School, Phoenix, Arizona.
Artwork by Juzo Nogami, Rudra Chauhan, and Lian Engelman.

MATERIALS

- camera
- computer/printer access
- 9"X12" heavyweight drawing paper
- No. 2 pencil
- ruler
- markers, colored pencils, or oil pastels

STEP 1 Photograph Your Subject

Like Richard Estes, you'll work from a photograph. Think about the interesting structures where you live and decide which one you'd like to draw. Some ideas are malls with escalators, construction sites with scaffolding, grocery stores, college campuses, or even your own school. As homework, photograph your subject. **TIP: Shoot from several points of view, such as from the ground looking up and at an angle.**

STEP 2 Draw in Pencil

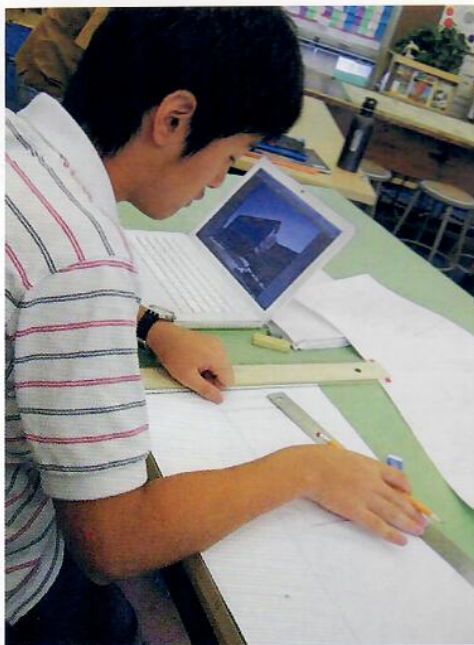
Choose the photograph you'll base your drawing on—those showing clear one- or two-point perspective work best. You may wish to crop it to create a more interesting composition. Start by drawing your horizon line and setting your vanishing point(s). If you're using two-point perspective, they may be out of the frame. Be sure your vertical-edge lines are 90 degrees to the horizon line. Using a ruler and pencil, create your drawing.

TIP: Enlarge your photo on a computer to see even more detail.

STEP 3 Color It

Decide what media you would like to use to color your image. Consider using colored pencils, markers, or oil pastels. Use brighter color and more detail in the foreground and less detail in the middle and background. If reflective surfaces are in your image, try including them in the style of Richard Estes. When you're finished, hold a class review.

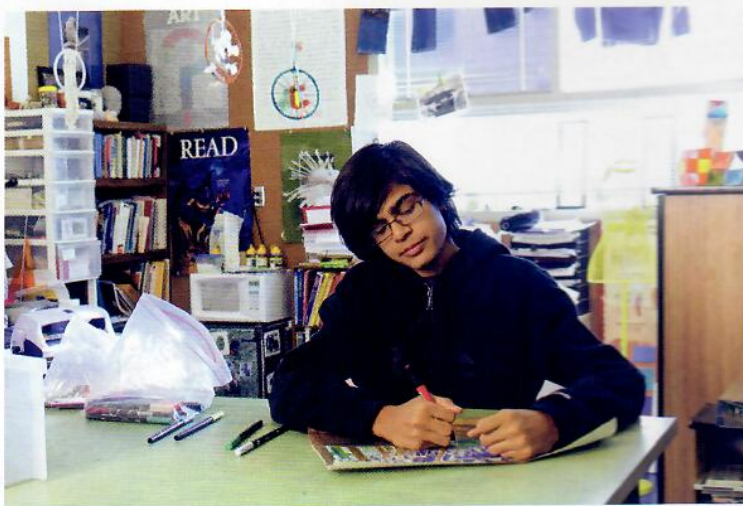
TIP: Use your photo for inspiration, but don't forget to use your imagination!



Watch a Video!
scholastic.com/art

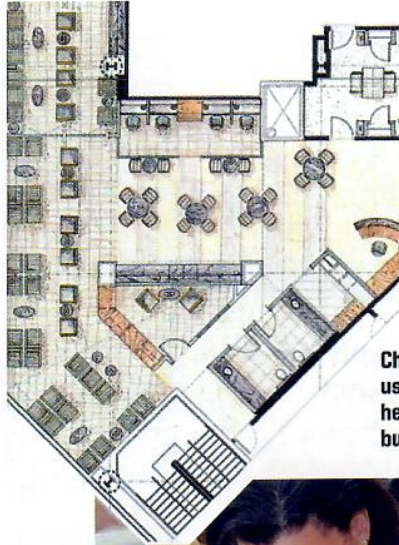
LEFT: Print out your photo or upload it to your computer to reference as you sketch.

BELOW: Use markers, colored pencils, or oil pastels to add color to your image.



ABOVE: Once you have finished, discuss the perspective in each drawing as a class.

GREAT ART JOBS ARCHITECT



Charyl McAfee-Duncan uses perspective in her career designing buildings.

Building a Great Career

Charyl McAfee-Duncan talks about her work as an architect



SCHOLASTIC ART: What is your job?

CHARYL MCAFEE-DUNCAN: I am an architect and president of our family business, an architecture firm based in Dallas, Texas. We work mostly on commercial projects, such as light-rail and bus stations, airport lounges, and schools. We're working on a fire station right now.

SA: What does an architecture firm do?

CMD: We work with clients to create design plans and pick out materials for the building or space we're creating. Then we meet with government agencies to work out zoning issues and code requirements, and to obtain all necessary permits. We also hire and manage the construction company to build the project. We are there every step of the way, from start to finish!

SA: How do you use math and science?

CMD: Architects create spaces that people live and work in. That's what makes us artists. But we also need to make sure our buildings are safe and structurally sound. That's where math and science come into it.

SA: What kinds of plans do you create for each project?

CMD: Our firm creates two types of plans. The presentation document is what I call the "Oh, I see!" document. It shows what the finished project will look like from one perspective. We also create the plans that the construction crew uses to actually build the project. They used to be called blueprints, but they aren't blue anymore.

SA: What is challenging about your job?

CMD: Some clients know exactly what they want, down to every material they want to use. Others just want to see what we can come up with. Even so, there will be things they like and things they don't like. It's my job to figure out what they really like. But that's a good challenge!

SA: What do you love about your job?

CMD: I love having a creative job. I love to sit down and draw, and come up with different ideas, concepts, and images. And when I'm finally standing back and looking at the finished project, it feels great!

CAREER PROFILE

ARCHITECT

Salary: First-year architects make an average of \$37,000, depending on education, location, and size of firm.

Education: Many architects have both a bachelor's degree and a master's degree in architecture. They must also complete an apprenticeship and be licensed in their state.

Getting Started:

- ▶ Sketch! Draw buildings in your city from different perspectives.
- ▶ Take extra math and science classes. Develop a deep understanding of calculus and physics.
- ▶ Job-shadow. Follow an architect for a day. Ask lots of questions.