Modeling Complex Form

Learn to draw a value sphere by using a controlled graphite shading technique to render light shining on a three-dimensional object.

UNDERSTANDING HOW light falls on an object is fundamental to creating believable illusion. Drawing an imaginary sphere is a great exercise for learning how light and shadow behave on a simple object before you attempt more complex subjects. This lesson is also an opportunity to master pencil control and a light touch. Even if you draw and paint with a different style, developing refined pencil control and mastering a thorough understanding of light will help develop sensitivity in both your hand and eye, applicable to all subjects, styles, and media.

ABOVE: For ***Study of Female Hand Cast*** (cropped image; graphite, 8x10), I used my controlled pencil shading technique to model the form of knuckles, fingers, and hand, and to capture the way light behaves on a complex, three-dimensional form.

1. Block In the Contour

The first step is to **draw a circle,** following this easy method. Lightly sketch a square, and then slice off the corners to make a sketchy octagon.

Next, **indicate a direct light source** that's angled 45 degrees slightly toward the sphere by drawing a three-dimensional conical arrow from the upper left. Think of this as a wall of white light angled as though it's shining from a high, north-lit window.

Note: Use a 2H pencil to draw light, soft lines that you can erase easily—without damaging the paper! I like to draw three to four very light lines per stroke so the graphite is dark enough that I can see my lines. Unless otherwise indicated, use a 2H pencil for this exercise.

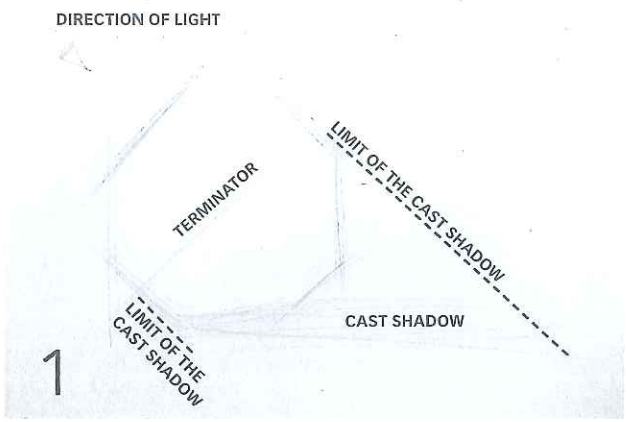
Draw the terminator. The direct light hits the half of the sphere closer to the light source, but the light can't reach the half turned away from the light source because light rays don't bend. The distinct, conceptual line between the two halves marks the ending of the light, so we call the line the *terminator* and draw it perpendicular to the light source. Later we'll make this line blurry and soft, but for now it's one distinct line.

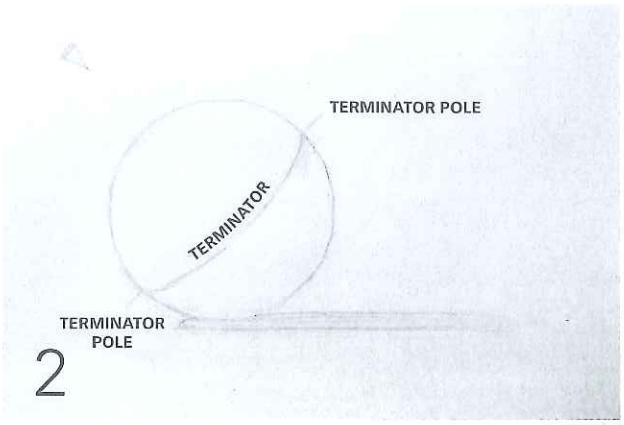
Sketch the cast shadow. The limits of the cast shadow are determined by lines, parallel to the light source, which are also tangent to the circle at both visible ends of the terminator and extend down to the right to define the edges of the shadow "cast" on the ground. Envision these lines and sketch in a horizontal ellipse for the cast shadow within these limits.

2. Refine the Contour

Smooth out the circle contour, continuing to slice off corners of the evolving polygon shape in progressive steps—carefully and methodically proceeding until a smooth circular form emerges. This is a slow, gradual process, so be patient. If your circle gets flat or lopsided, think of filling it up with air and pushing out the "dents" from the inside. Your lines should all still be soft, light, and easy to erase. Use a pen-style retractable eraser (see Materials, page 20) to clean up the lines so they're very thin.

Pencil in the two "poles" of the terminator and sketch an ellipse to represent the terminator between these two poles. Erase the back half of the ellipse so the terminator





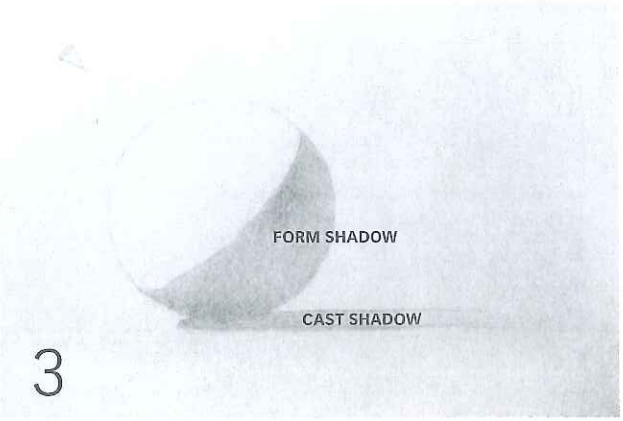
appears to be half an ellipse on the visible side of the sphere.

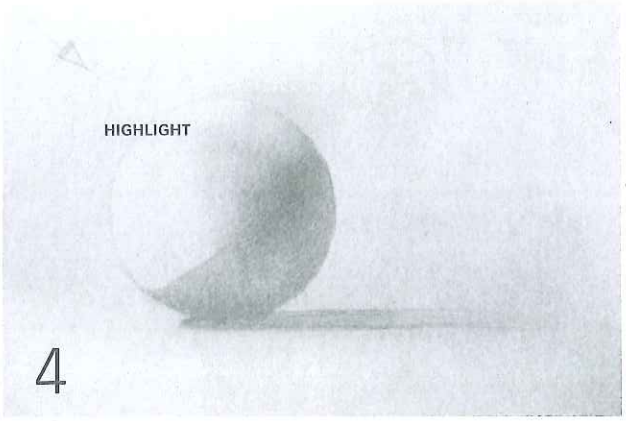
The terminator is an ellipse because the light source is three-dimensional and angled slightly from the front. If the light source were directly from the side, the terminator would be a flat line. Many portrait paintings show a light source angled from the left upper corner and tilted slightly from the front because that angle reveals a more sculptural form.

3. Fill in the Shadows

Using the softer H pencil, **fill in the form shadow** (the shadow side of the sphere) **and the cast shadow** with one even, medium tone. Make short strokes with a very light touch, and angle your marks in a variety of directions. If all your shading strokes go in the same direction, your sphere will look "hairy," so change directions often. At this point your sphere should look flat and graphical.

Don't press hard on the pencil as you fill in the shadow areas;





just hover your pencil softly in one area to build up a medium value without damaging the paper. You might notice tiny dots of darker graphite building up on the paper. You can use your kneaded putty eraser, twisted into a sharp point, to "tap out" the black dots and texture.

Materials

Paper: **Strathmore** 400 Series drawing paper pad, medium surface, 14x17 (Please be careful to buy the exact paper pad listed; look carefully for the "400." Don't buy "sketch" or "recycled" paper; they're both much lower quality and will create problems. The correct pad has a brown cover, spiral binding along its short edge; and it shows a drawing of a woman's face.)

Pencils: **Staedtler** Mars Lumograph 100 (blue wood) 2H and H—at least five of each

Erasers: kneaded rubber eraser; **PaperMate** Tuff Stuff retractable eraser stick (This small white eraser has a black plastic pen-style case and is found with the drafting supplies; other brands are too wide.)

Drawing board: **Helix** lightweight, metal-edge, 16x21

Other: sandpaper—220-grit placed flat on a table or mounted on a block or handheld detail sander; **X-Acto** snap-off blade cutter (small utility knife—retractable snap-off style—not a large blade box-cutter and not a scalpel knife); white "artist's tape" (low-stick masking tape called "artist's tape," found in art supply stores)

4. Turn the Form

Use shading to make the sphere appear round. Making an object look three-dimensional is called *turning the form*. Starting at the terminator, with a 2H pencil, shade a mist of light marks up toward the highlight, the area where the light on the object is brightest. Keep darkening the values nearest the terminator until its sharp edge begins to soften and the form starts to look round.

Think about the surface three-dimensionally as you work: imagine you're a small ant walking over the surface as it turns up towards the light. The more you think sculpturally, the deeper will be your understanding of the form, and that knowledge will improve your drawing.

Don't blend! One goal of this exercise is to develop a light touch and an even shading technique—without relying on blending. If you rub the graphite, it will look greasy and sometimes the pigment will shift toward an unpleasant brown hue.

5. Refine Shading

Finesse your modeling on the sphere. Layer H and 2H pencil shadings one over the other. An H (softer) pencil will make a darker value, but you will also see more grain and texture. Using the 2H pencil over the H pencil shading will even out the texture by filling in all the little white speckles that are left by the deeper crevices of the paper.

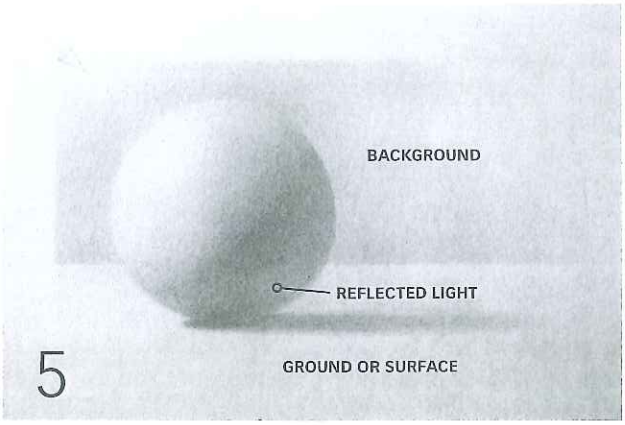
Refine the cast shadow. The place where the sphere sits on the ground and touches the cast shadow should be very dark since no direct light can reach there. Allow the edges of the sphere and the cast shadow to merge at that spot.

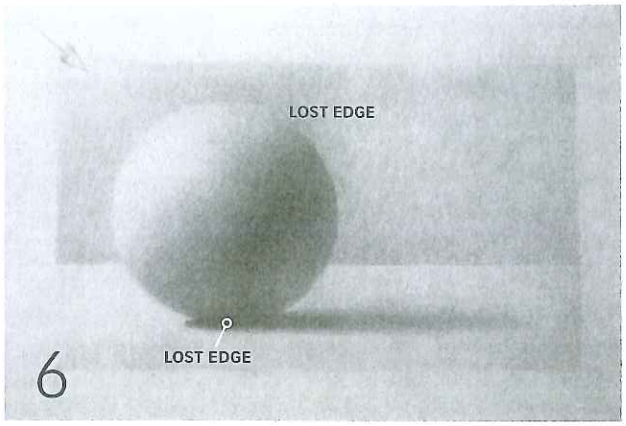
Develop the reflected light as you refine the shading. So far we've only discussed the direct light source and the shadow. Reflected light is caused by ambient light in the room or light bouncing off the ground and onto the shadow side of the sphere.

Pencil Grades

Graphite pencils are graded by hardness: harder pencils (H, 2H, 3H, 5H, etc.) make lighter, finer marks, and soft pencils (HB, B, 2B, 4B, 6B) make darker, broader marks. (Some brands have an "F" grade between the hard and soft pencils.)

I encourage you to begin with just two pencils (H and 2H) to learn how to get the widest possible range of value just by way of controlling the pencil. After you master this, you can try a wider range of hard and soft pencils.





Don't erase to create reflected light or the area will be too light and will ruin the sense of three-dimensional form. Instead, continue to darken the area just behind the terminator, and the reflected light will naturally emerge.

Keep the area of reflected light subtle; you may find you even need to darken it. If it's the correct value, it should disappear completely when you squint hard at your drawing.

6. Do the Final Shading

Shade in the background and surface. If your goal is a completed drawing, filling in an even tone for the background and a lighter tone for the ground the sphere rests on will result in a nice, finished look. Be careful, though, that you don't create a dark little cloud "hugging" your sphere. It can be tempting to make the background dark right around the edge of the sphere, but that will cause the background to jump forward. To make the background

sit back visually, keep it one even tone and fill in the rectangle of the picture edge.

Sharpening Pencils

A very sharp pencil gets its point down into the texture of the paper, which creates a smoother tone, even when you use a light touch. Sharpen your pencil first by whittling away the wood with an X-Acto snap-off blade cutter (the large box cutters and scalpels don't work as well). Expose an inch of graphite lead, then rub the side of the graphite on sandpaper, turning the pencil constantly, to create a very sharp point.

Refine all values, continuing to adjust them across the entire drawing, layering H and 2H pencils as necessary. In some places the background will be the same value as the sphere. Allow these edges to disappear; these lost edges create a feeling of atmosphere and depth.

When your drawing is successful, your sphere will look as though it could roll right off the page, or as though you could pick it up. That's when you know you've captured the illusion of three-dimensional form.

Once you've mastered the value sphere, you can use this shading technique to draw any subject. You will be thinking sculpturally, and the successful illusion of solid, three-dimensional form, along with your refined pencil technique, will strengthen all your drawings.

Learn More **ONLINE**

See larger images of Valeri's demonstration, plus download her free value sphere worksheet in PDF format, at www.artistsnetwork.com/learnmore2013.

SADIE VALERI, who has taught graduate students at the Academy of Art University in San Francisco, currently conducts workshops and classes at Sadie Valeri Atelier in San Francisco. Known for her meticulously crafted still life oil paintings, she was judge for the still life category of *The Artist's Magazine*'s 2012 Annual Art Competition and has created a video demonstration of how to draw the value sphere, available to download. To watch a preview and purchase the video, go to www.sadievaleri.com/videos. Visit her website at www.sadievaleri.com.