Week 5: Perspective

Contents:

There is no take home, because these mini lessons can work as "take home" exercises. Encourage your students to find the shapes in the every day objects around them!

THIS TUTORIAL DIFFERS FROM ALL THE OTHERS

Perspective (n)

Perspective can mean many things.

First found ca. 1590's in Middle English "Perspectyf", derived from the Old French term "Perspective" and Medieval Latin[1] "Perspectivum" which derives from the form "Perspectivus" which means "of sight, optical" and the past participle form "Prospectus" meaning "clearly perceived" and the past participle "Perspicere" or "to inspect, to look through"

The alternate definition of perspective, meaning one's personal view of a topic, was recorded later, ca 1762.[2]

However, in the art world, "perspective" generally means the technique(s) of drawing objects so as to give the appearance of distance or depth.

It is also, frequently a college-level drawing course.

The beginnings of Perspective Drawing are found in Three-Dimensional Form Drawing, and it is this drawing that seems to be described in the Foundations Guide. You have to be able to understand how to draw the cubes, columns, ect. described in the Foundations Guide in order to be able to draw objects in perspective, but some (I know my main drawing instructors would be among them) would not consider that "perspective".

[1] I love how Latin just keeps popping up, now that I'm looking for it.
[2] Source: Webster-Merriam Online Dictionary and online Etymology Dictionary

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From the Classical ideas of the Trivium, Three Dimensional Form Drawing could be part of the grammar of the techniques of Perspective. And there are LOTS of Perspective techniques-zero/informal, one, two, three, four, five, and six point perspective, plus others like curvilinear and oblique. I’m not going to take you deep into perspective, and for my own sanity, I try to stay away from anything more difficult that two-point. (Six Point perspective is akin to drawing something reflected on the back side of a crystal ball…makes your eyes cross trying to do it.)

So, if your class is younger and/or new to CC’s drawing section, start with the Three Dimensional Form Drawing section, and complete as many, or as few of the mini lessons as you can. Any “leftovers” can be saved for the week at home with parents if they want.

Three Dimensional Form Drawing will cover using OiLS to make cubes, cones, columns, pyramids and spheres, which many artists combine to make everything from still life compositions to the human figure. If you have time, or you have older kids, check out the Additional Resources: Shading pgs. 32-39

If your class if older and/or has been through CC’s drawing section multiple times and/or can demonstrate that they already know how to draw cubes, cones, columns, ect. And can combine them to “build” on paper, you may want to try the classic step-by-step house in one-point perspective.

The classic One-Point Perspective with a house and a road exercise might take the whole half-hour. The others might be combinable.

But if you have questions, or I screwed up and didn’t explain something clearly, please, please please, contact me at rebekah@drawingdemystified.com, or ask questions on my Facebook page, Drawing Demystified (https://www.facebook.com/drawingdemystified/) or the tutors and Subs page. I want to help, because I love this world, and I cannot improve these scripts without your feedback!

Subset 1: Three Dimensional Form Drawing

Mini Lesson 1: Drawing Cubes, Cones, Columns and More

Materials Needed:

- Paper
- Pencils
- Erasers
- Rulers

"…any object, no matter how complicated…is made up of a sphere, a cube, a cone, a cylinder, or some combination of these forms." -The Famous Artists Course, Chapter 2: Form-the Basis of Drawing[3]

Tutor: Thus far, we've learned how to use OiLS to draw objects we are looking at--like Eleanor of Aquitaine, or a castle, or an animal. What are OiLS again?

Today, we're going to look at how to draw things from imagination that look three-dimensional, but they're still on a flat sheet of paper.

So, quick review: what are OiLS again?

<Class should be able to rattle this off by now, feel free to re-show or post the OiLS diagram where they can see it.>

Tutor: Very good! So now let's look at a cube

<Draw a cube on the board or a piece of paper. If you need help drawing a cube, a step-by-step tutorial is included.>

Tutor: Can we break this cube down into OiLS?

<See what they say-they should be able to find angled lines and straight lines.>

Tutor: Great! How about a cone?

<Draw a cone on the board or paper-again, if you need them, step-by-step guide is provided..>

Tutor: Can we break this down into OiLS?

<class should be able to find ovals and angled/straight lines>

Tutor: Fantastic! Now, there are four or five basic shapes in art. With these shapes, you can "build" a scene in your pictures just like you build with blocks. These shapes are;

- Cubes
- Columns
- Spheres
- Cones
- And sometimes, Pyramids[4]

[3] In case you were curious, this was a course my grandmother in law took when she took up painting seriously—in her fifties, after her children were grown and gone. She's now an accomplished oil and acrylic portraitist. If you can find it, it is a great course to read through.

[4] Some artists claim pyramids are just cubes balanced on the point and sliced through, which makes them a sub-set of cubes, or they are just cones on a square base, making them a sub-set of cones.
Other artists claim all cones are just part of the column family, leaving only three basic shapes: Spheres, Columns, and Cones.

Take a look at these shapes, and lets see if we can break them down into their OiLS

<spend a few minutes doing this, and show the OiLS of Form poster.>

Tutor: So let’s practice drawing these “building blocks”.

Activity:

Using the included step-by-step instructions for drawing each of these items, (or your own technique, if you use a different one!) practice drawing cubes, cones, ect., walk your class through drawing these items. Using the “variations” you may like to tackle drawing a long or thin box, or a cone seen from below rather than the side.

For more challenge, tackle shading some of these objects. For shading tips and how-to, see Additional Information: Shading Pgs. 31-38.

To-may-to, to-mah-to, at this level, that’s up to you. No one will be hurt by adding or ignoring it.

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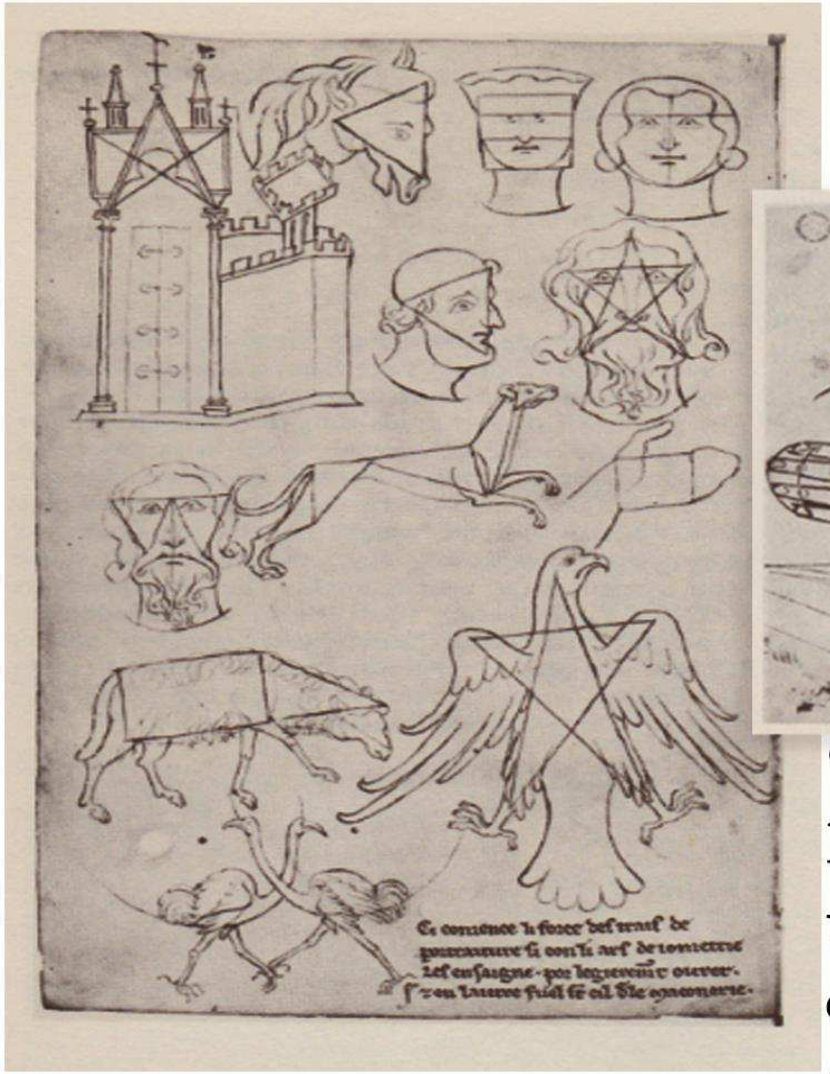

Above: Sketches by Villard de Honnecourt (active c. 1230 - 1240) The inscription in the lower right allegedly says, "[Drawing,] as it is taught by the discipline of geometry...is easy to practice."

Below: Sketchbook from Hans Holbein the Younger (c. 1497 - 1543), court painter to King Henry VIII of England

"...any object, no matter how complicated...is made up of a sphere, a cube, a cone, a cylinder, or some combinations of these forms." -The Famous Artists Course, Chapter 2 "Form-the Basis of Drawing"

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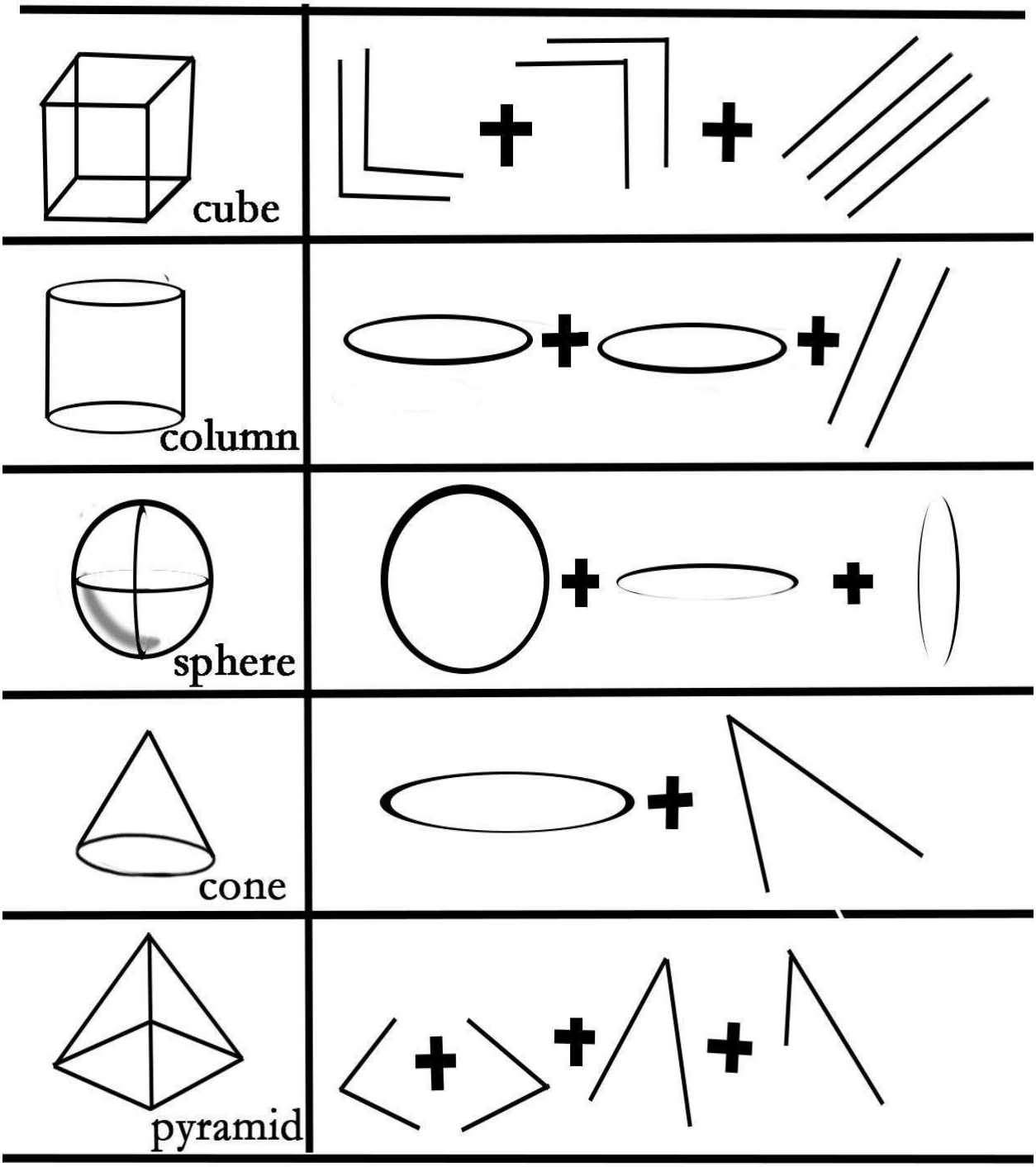
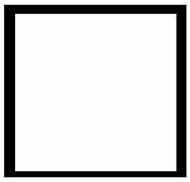
The OiLS of Three Dimensional Form

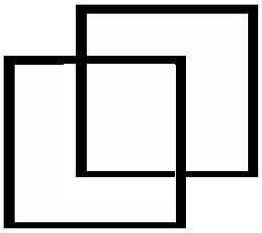


Drawing a Cube

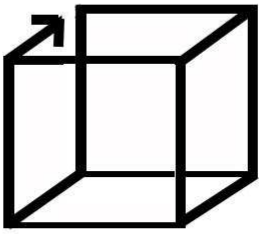
Base Model



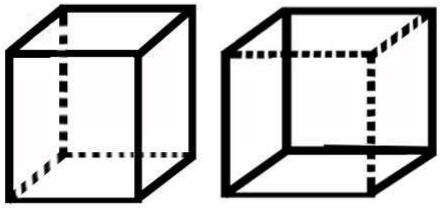
1. Draw a square (or rectangle)

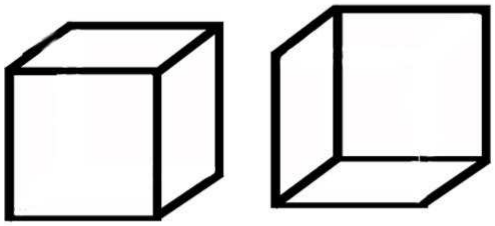


2. Draw a similar square just behind the first square



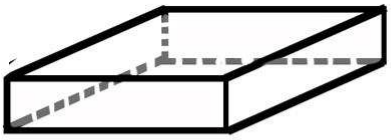
3. Connect four corners of both squares with straight lines



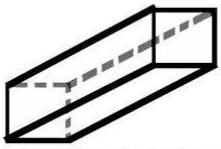


4. (Optional) Half-erase or erase the "back" lines to reveal your completed box. Practice erasing different lines to find out how to make one part of your box the "front" and another the "back".

Variations

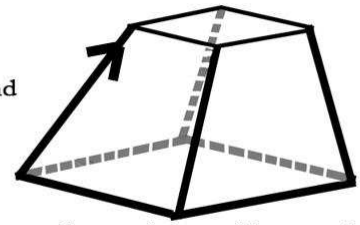


Draw the first two boxes narrow and so far apart, they don't overlap.

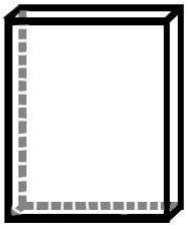


Draw long boxes

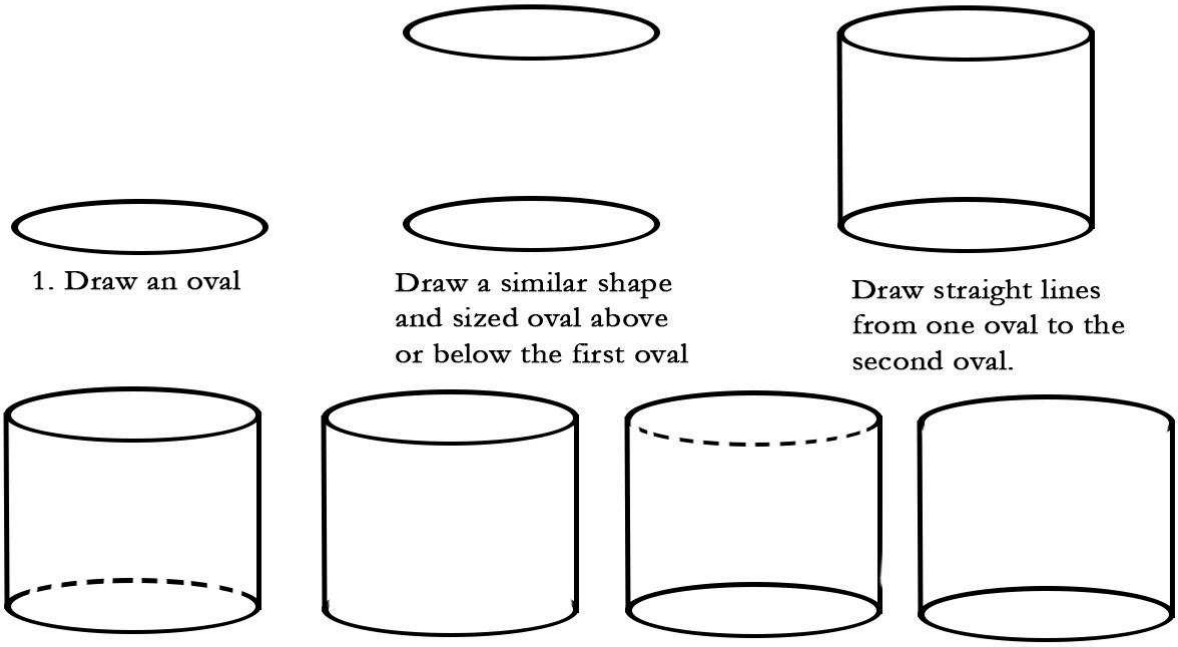
...or flat ones



Draw a truncated Pyramid: Draw a diamond-shaped box on the "ground' and another one above it, then connect the corners!



Drawing a Column



1. Draw an oval

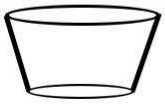
Draw a similar shape and sized oval above or below the first oval

Draw straight lines from one oval to the second oval.

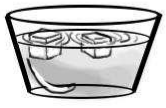
Dot or erase half of one oval to indicate the "back" of the column. Practice erasing various parts to see how you can "turn" the column one way or another.

Variations

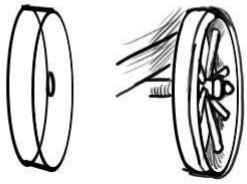
Like a cone, a column's ovals will look rounder the higher you view the column from, and the straight lines will get shorter. At the top, you'll see one circle directly stacked within another.



Two different sized ovals will make a tapered cylinder.



Draw your cone from the side like the box instructions. (Great for making wheels!)



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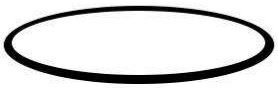
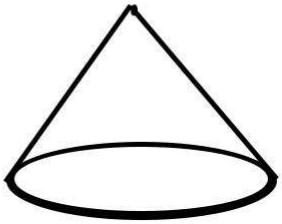
Drawing a Cone

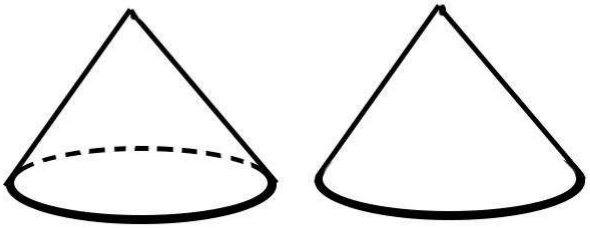
1. Draw an oval



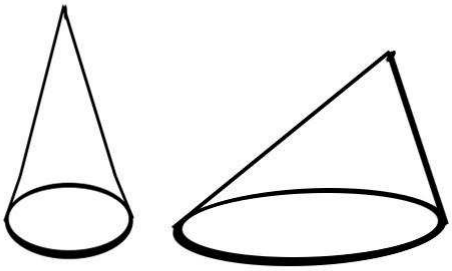
2. Draw a point above, (or below) the oval.



3. Connect the point to the edges of the oval with two straight lines.

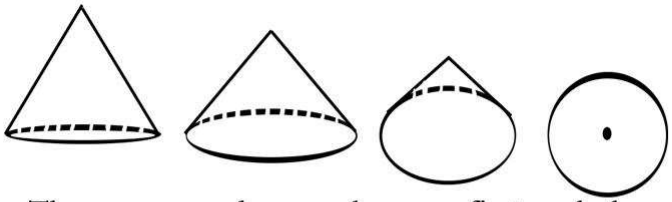


5. (Optional) erase or dot the "behind" line.

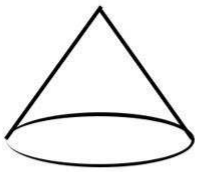


Practice different heights or moving the "point" to one side or another!

Variations



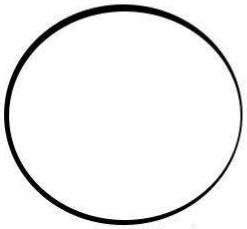
The more round you make your first oval, the higher you're viewing it from, and the shorter the "straight lines" will appear in relation. If you're directly over a cone, you'd see a circle with a dot in the center.



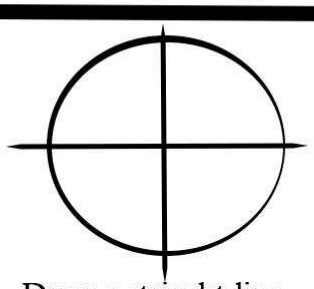
If you leave the oval intact, it can look like you're viewing the cone from the bottom!

Using a cone as a "skeleton", add details to make something like a mountain, or a pine tree.

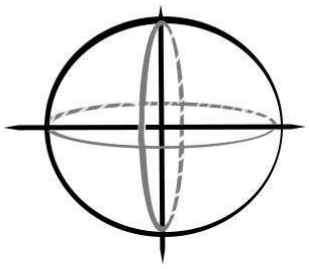
Drawing a Sphere



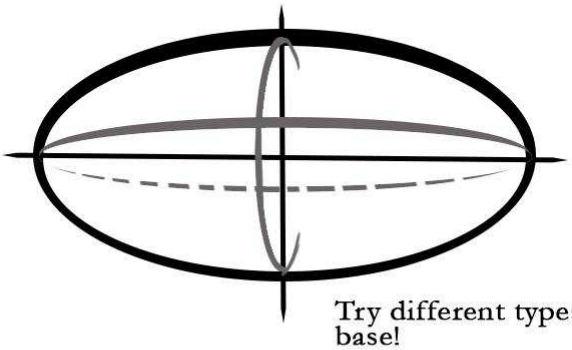
Draw a circle

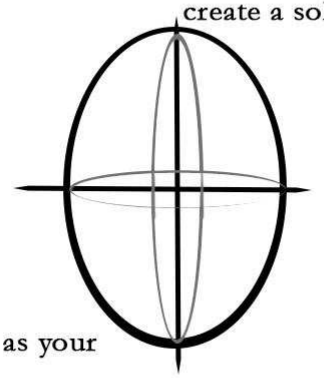


Draw a striaght line from top to bottom of the circle (the axis) and side to side through the equator of the circle



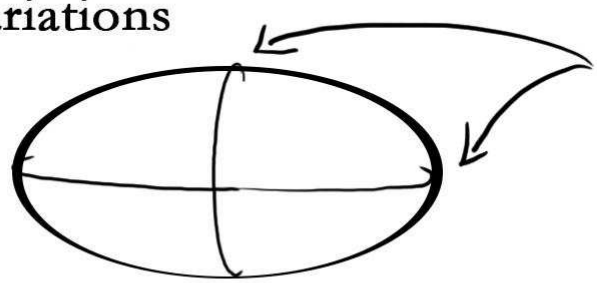
Using these as guides, draw cross-sections of the sphere to show fullness. You can erase the "back" lines to create a solid sphere.





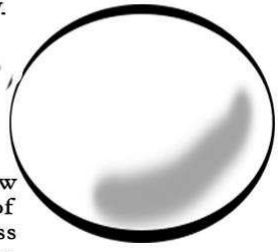
Try different types of ovals as your base!

Variations



This gives me just enough direction and sense of fullness to continue. A finished work of art almost never has these registration marks showing, because they've been covered by the finishing work. But these type of division marks are used frequently.

Most artists practice spheres to the point where they don't have to follow all these steps. To be honest, spheres are easiest to show through shadow. Here's another way to draw spheres.



A simple shadow indicates a sense of solid roundness instead of a flat circle.

Mini-Lesson 2:

Making things out of shape to create more complex shapes-even humans!

Materials:

- Paper
- Pencils
- Erasers!!!!
- Ruler
- Printables (included)

How do we build things on paper?

Much like a set of blocks, you can build people, animals, buildings and things using shapes and OiLS on you paper.

Take a look at this picture. The artist was demonstrating how he used blocks to "block" out humans in various poses. This sketch was from Italian artist Luca Cambiasi who lived from 1527 – 1585.

<Show the "Tumbling Men" (Robots) by Cambiasi>

Here's another work of his demonstrating how the shapes can be softened and you see the beginning of a human-not robot-looking form.

<Cambiasi's sketches featuring two parent/child pairs>

Even Albrecht Durer, whom we met in Cycle 1[5] broke his human subjects down into shapes.

<Show the Durer cube-man>

Even today, artists almost instinctively break things down in their heads to simpler shapes. When they draw, the lightly draw these simple shapes, then build upon them. By the time a sketch is finished, most of these shapes are hidden beneath the layers of details.

Look at some of these:

<Here you can show any, some, or none of the samples I provided. There are three: an elephant, a peacock, and Joan of Arc. All three show original images and a breakdown, plus some supplemental information. If you don't need it, don't use it. But sometimes, it's difficult for people to see how an artist "sees" the world, and I hope these helped..>

So I have a few ways we can draw some objects. Let's try them, step-by-step together.

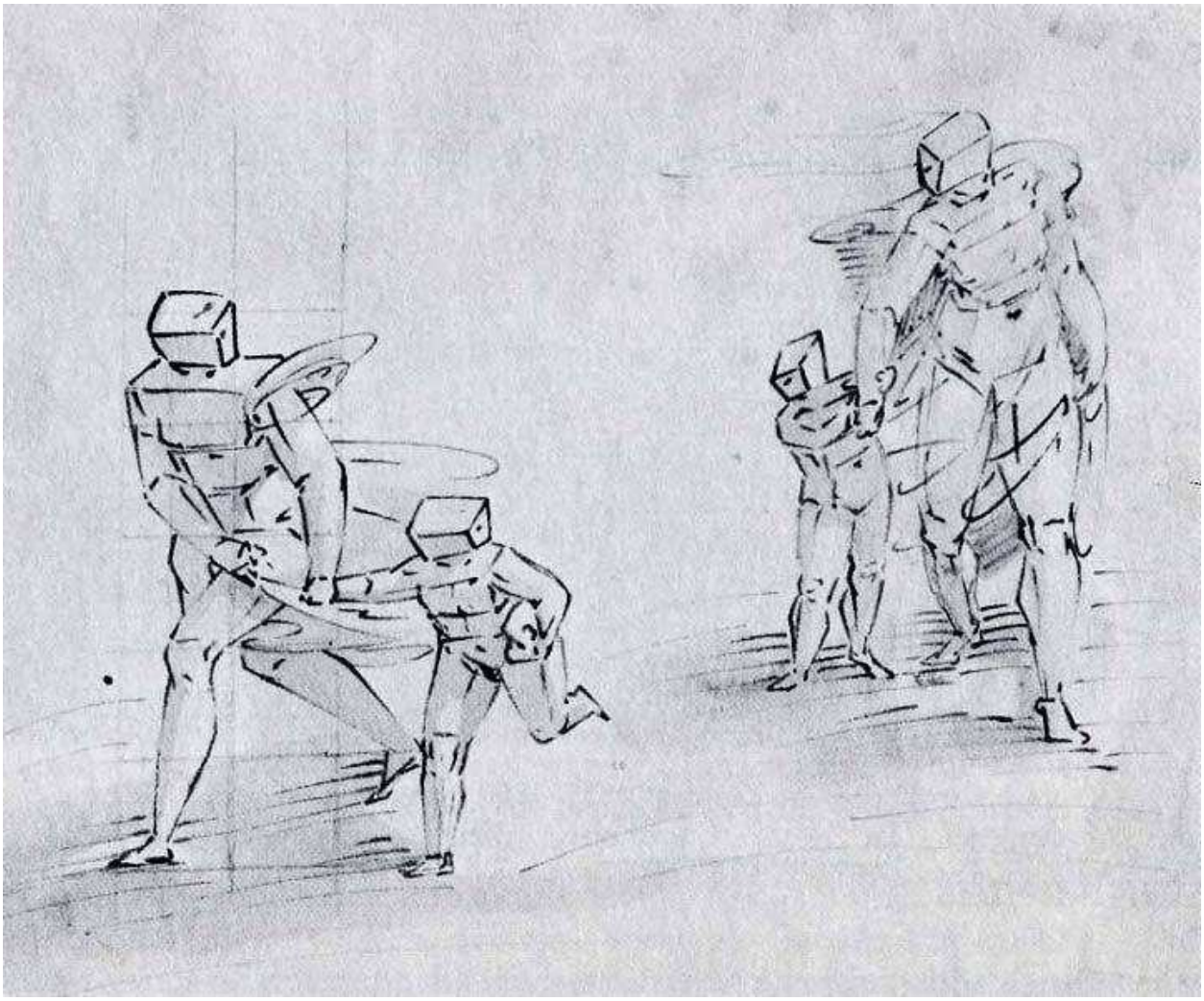
[5] If you did Cycle 1, otherwise, you might substitute "whom we'll meet in two years during Cycle 1,". Up to you.

<There are three tutorials here: turning a cube into a book, and turning a column and sphere into a tree, and turning one truncated cone plus two different cylinders into a lamp. If you finish those, challenge the students to the final drawing, combining all three objects.>

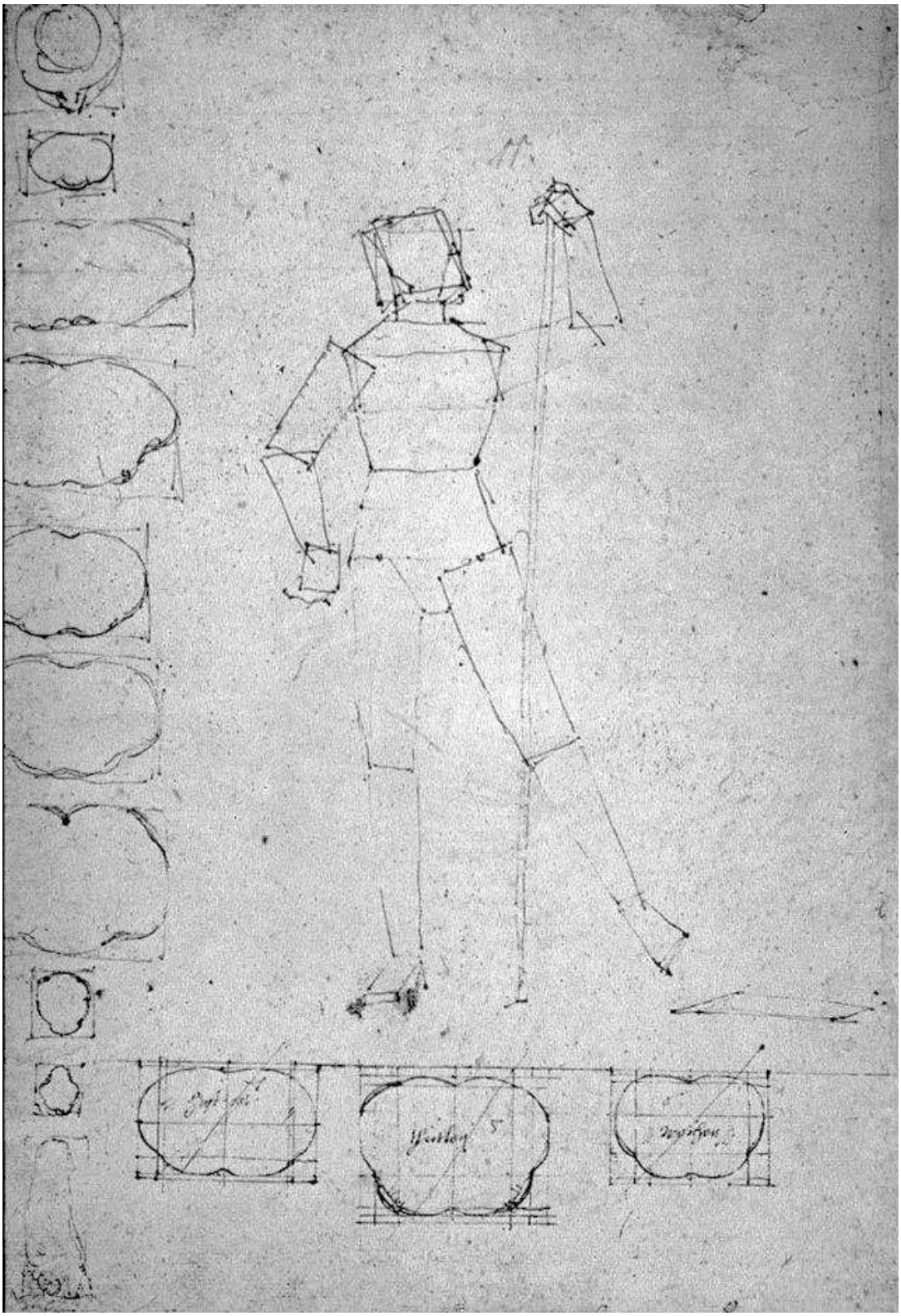
Activity: Use the step-by-step guides to draw books and trees, or any other objects you’d like to draw using three-dimensional forms. The Foundations guide also suggests using these forms to draw:

- A Television
- A Top Hat (column plus oval perhaps?)
- Birthday Cake
- Christmas Present


Luca Cangiasio



Cambiasi, Luca., Parent-Child Pairings



Sketch by Albrecht Durer, showing how he divided the human form into shapes.

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Elephant broken down to 3-D forms.

From the artist: Note the seeming reversal of a “knee joint” in the hind legs. When observationally breaking down a subject, I noted where a joint might be; but since I don’t know how the elephant skeleton is put together, I inserted the joint-ball to indicate where I saw some roundness that may be a joint. Since this is observational drawing, the ball acts as a reminder that there is a roundness there when I start to add details. Knowing anatomy is a key to good drawing, but observation can help before you learn each individual animal or subject.

Elephant photo from a public domain library.

Peacock

Broken down into simple forms.

Many natural forms are build on spheres and columns. Some columns, like the peacock’s next, can be curved, while others, like the leg segments, can be largely straight.

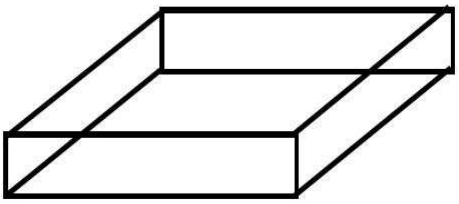
http://www.publicdomainpictures.net/view-image.php?image=124571&picture=peacock

Joan of Arc
1505 manuscript illustration

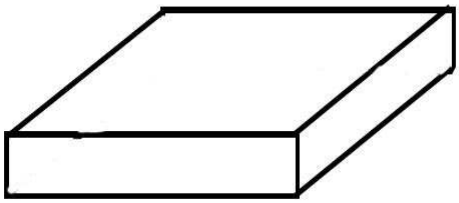
Here is Joan of Arc and one way to break her horse, and her, down to their three-dimensional forms. Each artist breaks the world down slightly differently: some start with stick figures and build from there, while others combine shapes from the beginning (like envisioning the horse’s leg as a single, bent cylinder, rather than two broken by a joint). As you practice and work at seeing shapes, you will find what works best for your style and needs.

But once you’ve broken your image down and built a “skeleton” of the drawing, then you can most easily add details, knowing your proportions are what you want them to be.

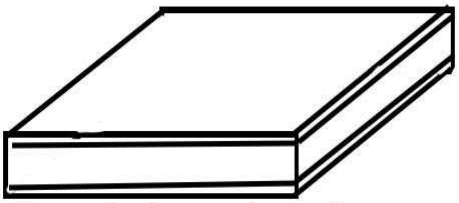
Draw a Book from a Box



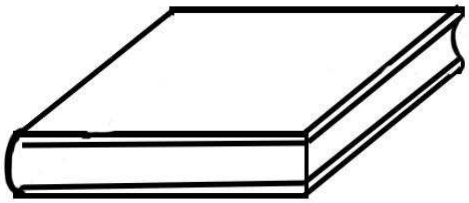
Start with a box



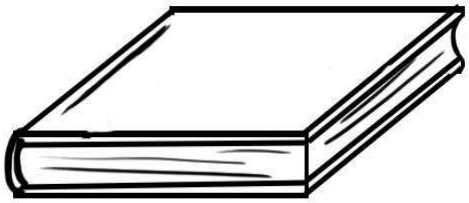
Erase the "back" lines as shown



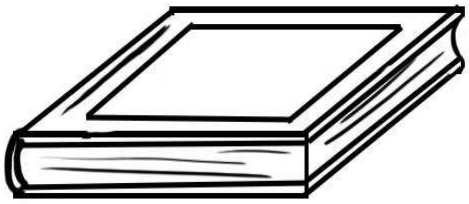
Draw the inner edges of the book cover



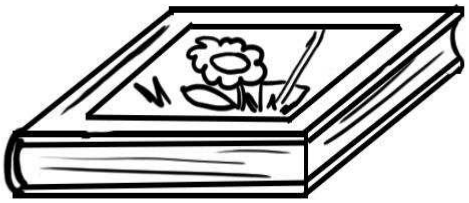
Round the spine, and the far edges of the page. Erase the old lines



Add an inner edge of the cover at the spine, a line along the spine on the front cover, and lines for pages.



Draw a cover picture border on the front cover.



Decorate and color book cover and pages!
A box becomes a book!

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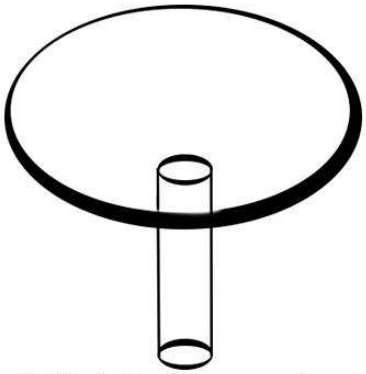
Drawing a Tree

1. Lightly draw a tall, thin column. Make the base and top a squashed oval.

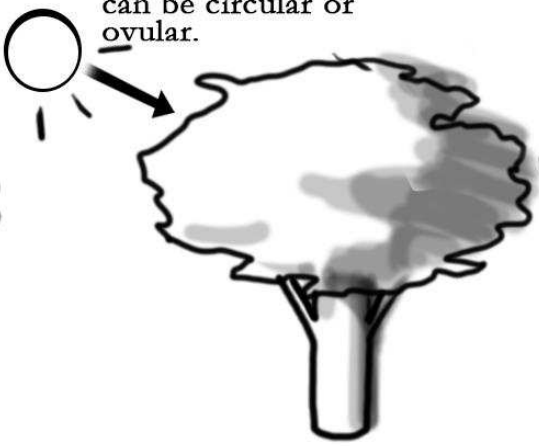


2. Lightly draw a sphere on top of the column. It can be circular or ovular.

3. Begin adding details: irregular leaf outlines.

4. Trace over the trunk, and add a couple of branches.

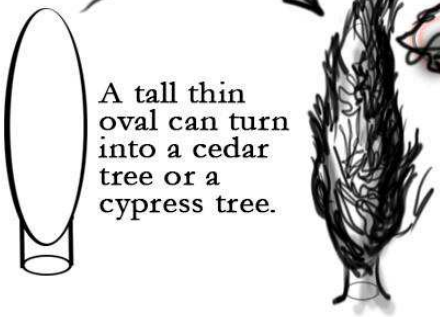
Erase the column and sphere.



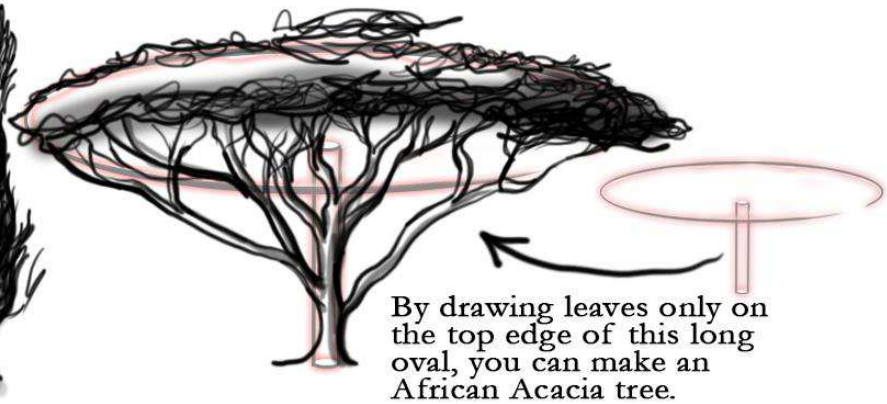
5. Decide where the light is coming from, and shade the opposide side.

6. Add some detail for bark and leaves, and you're done!

Variations

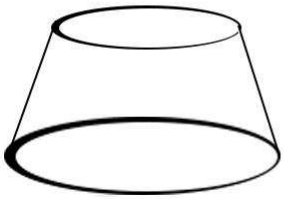


A tall thin oval can turn into a cedar tree or a cypress tree.

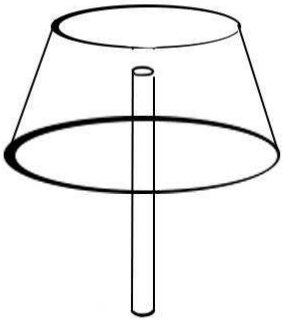


By drawing leaves only on the top edge of this long oval, you can make an African Acacia tree.

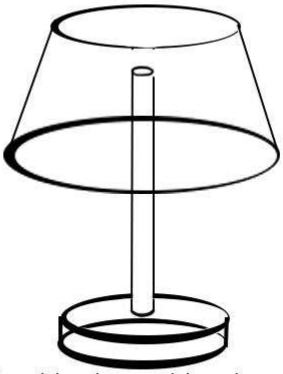
Draw a Lamp



1.) First, draw a truncated cone. This will be the lampshade.



2.) Draw a tall, skinny column through the center of the cone, and out the bottom of the shade.



3.) Add a short, wide column under the tall one as the lamp stand.

4.) Erase the lines which are grayed out here. These are the back or interior edges of the lamp, and can't be seen. (Add a cord!)

5(a). Decide if you lamp is on or off. If it is off, figure out where the light is coming from (in this case, the left side) and shade the opposite side. (See shading tips for more details.)

5(b): If your lamp is on, it creates its own light, and the shadows are vastly different. Follow the shade lines down to the "table" and draw a continuation of this "shade cone" on the table. Lightly shade outside this line. Follow your light source (the round dot in the center of the shade-you don't need to draw it in, I just did for reference) down to the table. Shade the side of the stand and the shadow around it. Finally, lightly shade the edges of the lampshade, as seen here. Your lamp is lit!

Variations:

Give some of these a try

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With your tree, lamp
and book instructions,
can you figure out how
to make tthis drawing?

Mini-Lesson 3: *Drawing One-Point Perspective*

Materials

- Pencils
- Paper
- Ruler
- ERASERS!!!!

There are three aspects to perspective. The first has to do with how the size of objects seems to diminish according to distance: the second, the manner in which colors change the farther away they are from the eye; the third defines how objects ought to be finished less carefully the farther away they are.

Leonardo da Vinci [6]

Tutor: Today, we're going to work with "perspective". Have you ever seen photos like this?

<Show the Train track photo.>

Or have you ever seen a road like this?

<show the road photograph> [7]

Both of these photos show how objects get smaller and closer together until they seem to "vanish" at the "vanishing Point" on the "horizon". These are some of the art vocabulary for the drawing technique of perspective, and both the photographs depict "One-Point Perspective"—where the object all seem to head for a single point in the picture.

We are going to do something similar today.

This type of art is very step-by-step process, so we're going to work on this together.

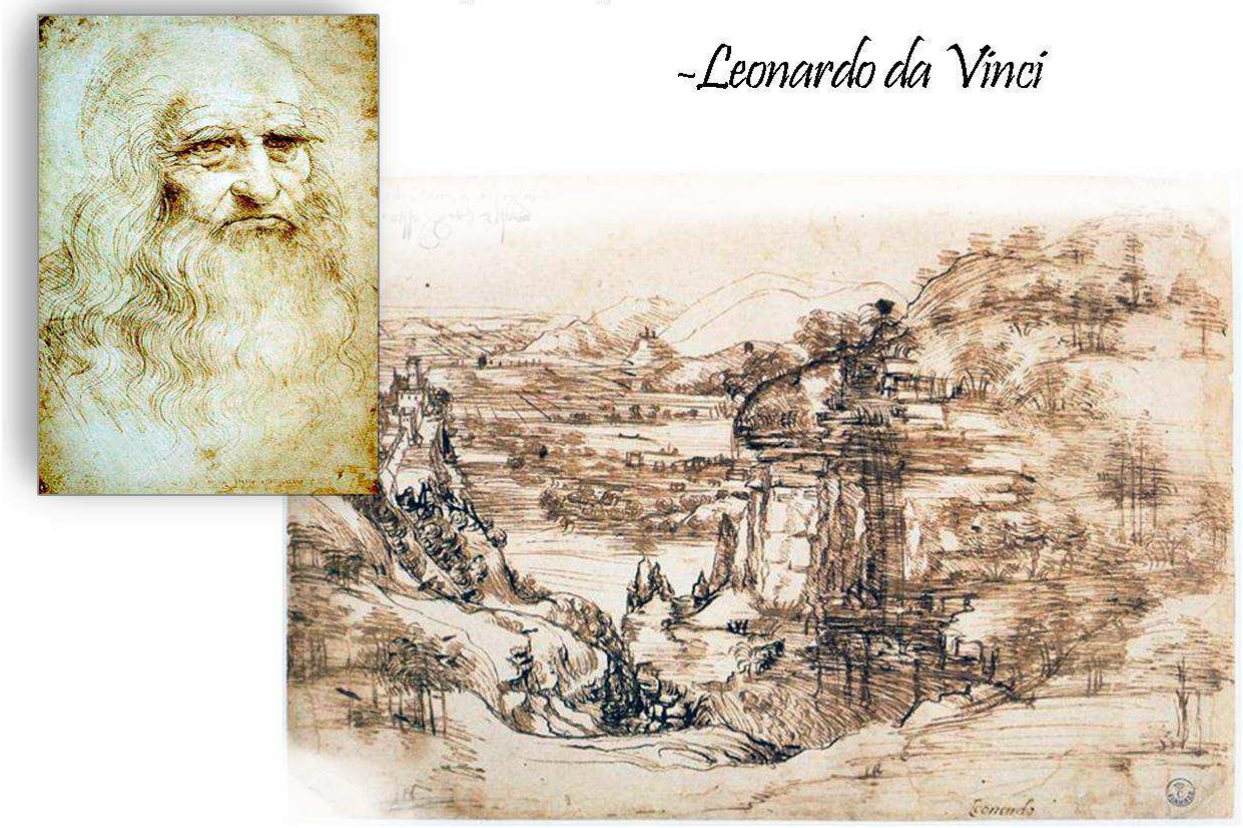
[6] A note about the drawing you see paired with this quotation. The portrait is from Leonardo's later career, but the landscape is his FIRST surviving drawing of his that we know of. Dated August 5, 1473, Leonardo completed it when he was 21. It depicts that Arno river valley, and the castle on the left is the Montelupo Castle. This drawing is an example of informal/zero-point perspective.

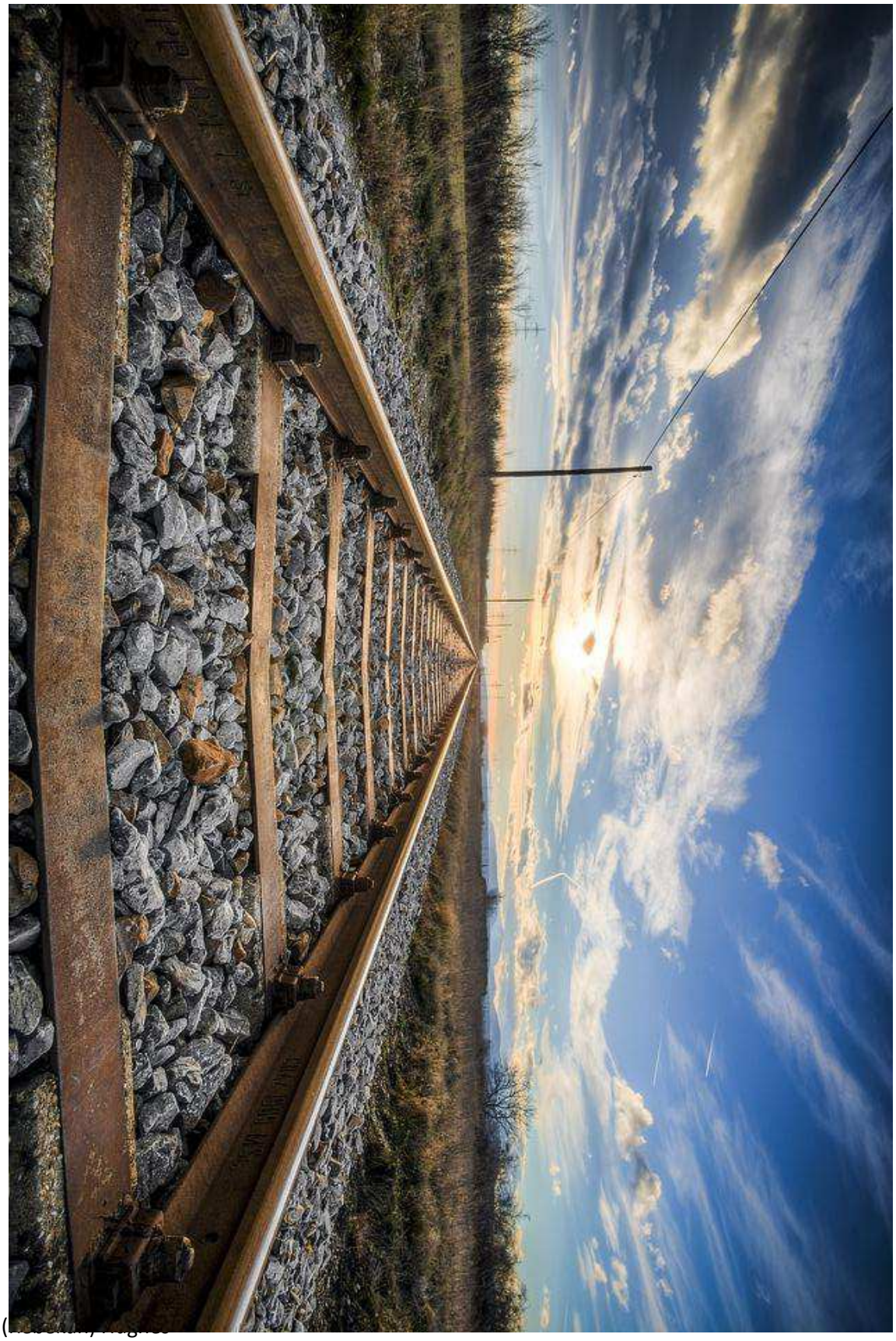
[7] Both of these photos are listed as being in the public domain on the website pixabay.com.

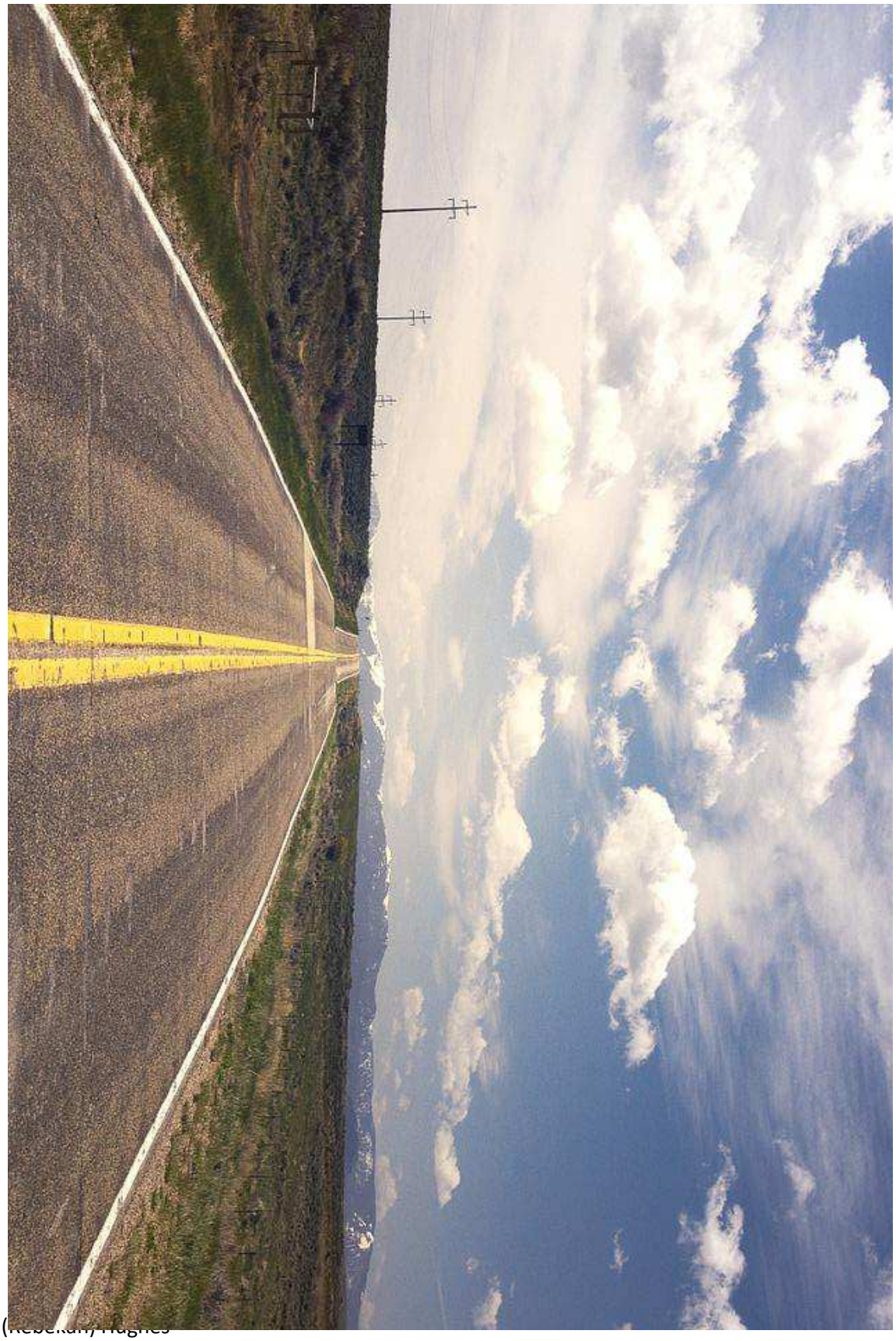
<I tried to make the tutorial easy to follow. That being said, I do encourage practicing the tutorial step-by-step before demonstrating it!>

"There are three aspects to perspective. The first has to do with how the size of objects seems to diminish according to distance: the second, the manner in which colors change the farther away they are from the eye; the third defines how objects ought to be finished less carefully the farther away they are."

~Leonardo da Vinci

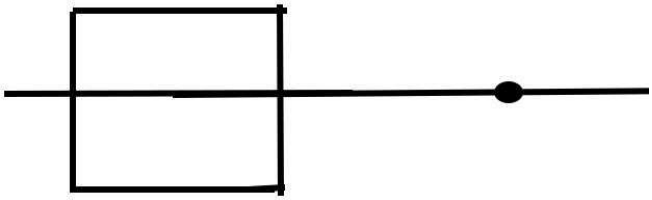




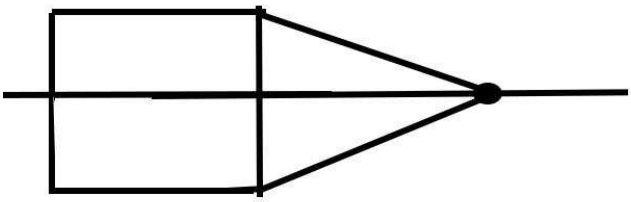


Drawing One Point Perspective.

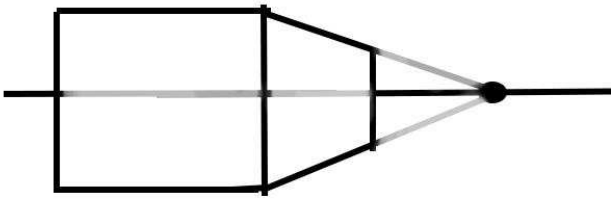
1. Draw a horizon line and a vanishing point off-center.



2. Draw a rectangle that extends above and below the horizon line. This is the side of the house facing you.

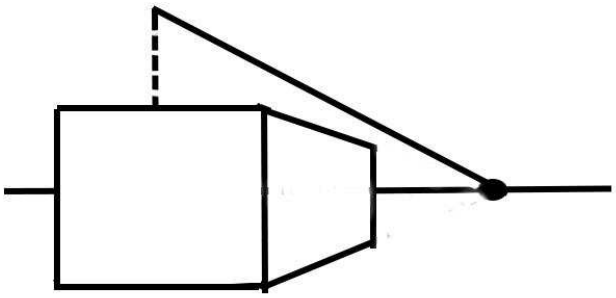


3. Connect the two corners of the rectangle closest to the vanishing point to the vanishing point. (you can connect all four, but the other two lines will be behind the house and completely erased.)

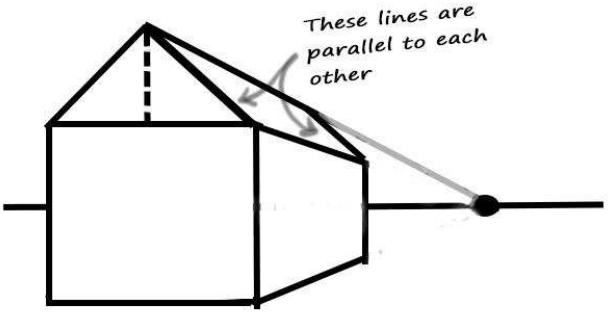


4. Decide how long your house will be, then drop a vertical line between the two vanishing lines of step #3. Erase the horizon line inside the house and the vanishing lines between the house and th vanishing point (greyed out in the example.)

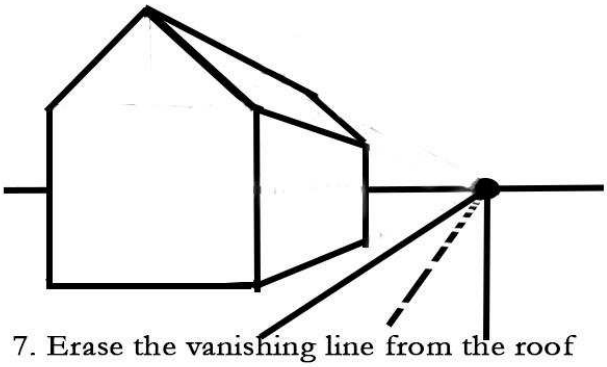
Drawing One Point Perspective



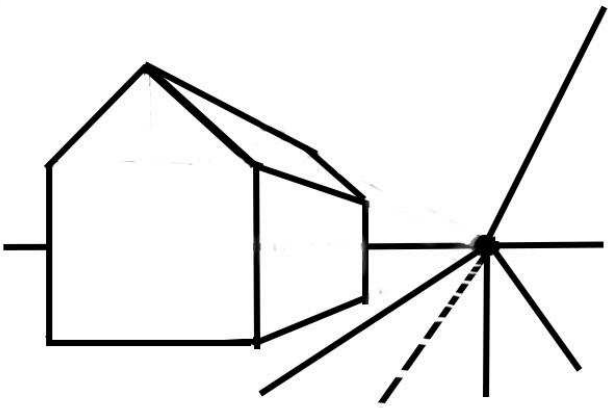
5. In the center of the front rectangle, draw a line straight up. This will be the peak of the roof ridge (dashed line). Then, connect the vanishing point and the dashed line.



6. Connect the corners of the front rectangle and the conjunction of the dashed line and the roof ridge. Connect the back corner of the base block to the ridge line with a line parallel to the forward roof line.

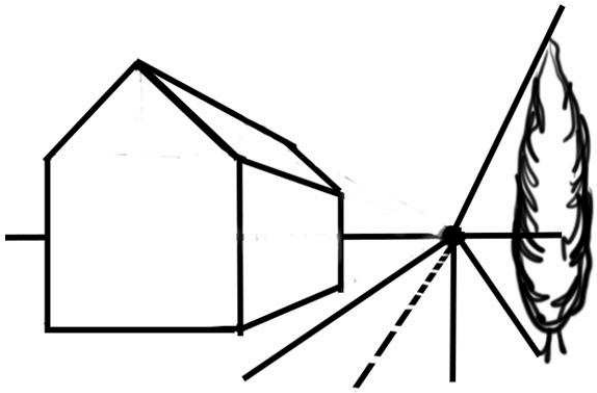


7. Erase the vanishing line from the roof ridge to the vanishing point, as well as the interior lines on the front rectangle (now a pentagram). Draw two lines as shown; this is the road. (You can add a centerline as well.)

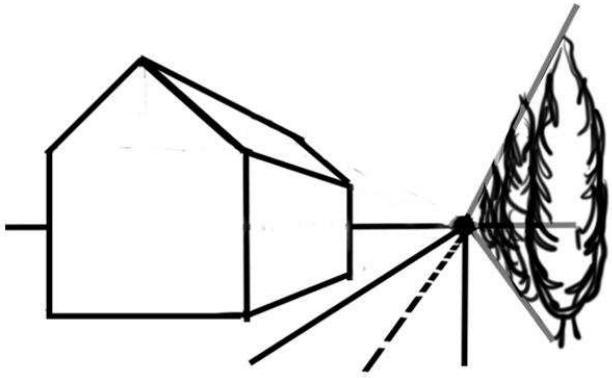


8. Draw two more lines converging on the vanishing point on the right side of the road one below and the other above the horizon. This will be a row of trees.

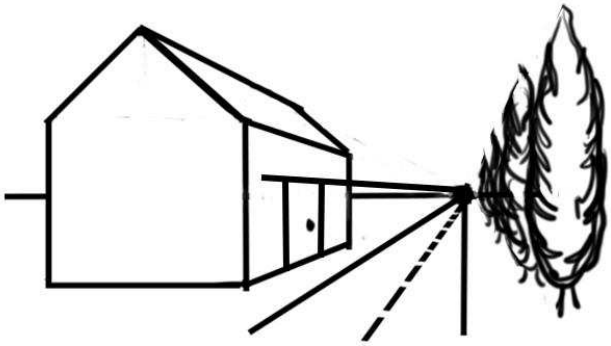
Drawing One Point Perspective



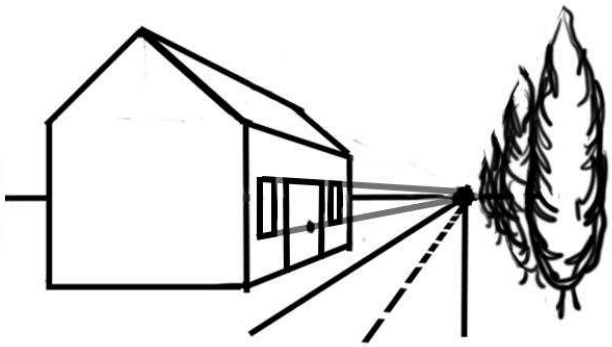
9. Draw one tree close up, across from the house.



10. Draw a second and third tree behind the third one. As long as the top of the tree touches the guideline, it will appear to be a row of the same-size trees getting smaller in the distance. Erase the guidelines and horizon lines behind the trees.

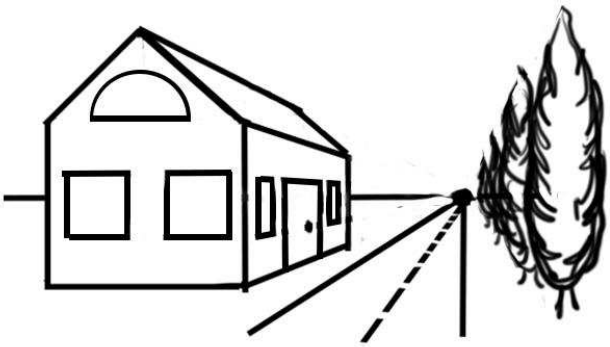


11. Add a door to the house facing the road. The top of the door will recede to the vanishing point, while the vertical lines are vertical (and parallel to the vertical sides of the house.)

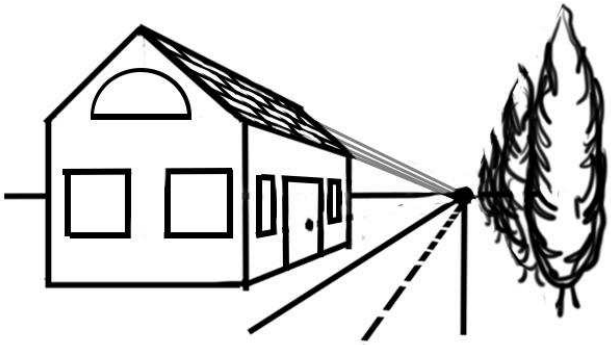


12. Draw a second, lower line, out from the vanishing point. Draw a pair of vertical lines between these two vanishing lines to create windows. Erase any part of the vanishing line that isn't part of the windows or doors.

Drawing One Point Perspective



13. You can add some windows to the front rectangle. Because this rectangle is all right angles, any windows, doors or details would be at right angles as well.



14. Of you want to add shingles to the roof, the bottom edges of the shingles would all align with the vanishing point. The sides of the shingles would be parallel to the edge of the roof. Once drawn in, erase any vanishing lines that are between the roof and the vanishing point.

15. If you want to add siding or bricks, similar to the shingles, the "road side" of the house will have lines vanishing to the vanishing point, while on the front rectangle, the lines will be horizontal and vertical.

16. Add a background or some clouds and you have a picture completed in one-point perspective!

Shading

One key to help make objects in any drawing look three dimensional and having depth and distance to them, is to use shading.

In the real world, objects have highlights and shadows, and cast shadows behind and under them. Our brain uses this information to tell us how a form feels, looks, even the distance between us and them. When we add shadows to our drawings, it helps with the illusion of real space. (This is even true for cartoon-like drawings, including animation, graphic novels, and comic books)

Some things can only be seen through shadows-the nose of a face seen straight on is usually only seen from the shadows and highlights they cause as the light bends around the form. The curve of a glass is only seen through the shadows as it bends.

Knowing how to shade the basic forms (cube, pyramid, sphere, cone, column) will help you think through how you will shade and highlight more complex forms you make from them.

Shadows will also differ depending on the strength and direction of the light source. A tree during a sunny day will have very bright highlights where the light hits the leaves, and very dark shadows cast on the ground. During a cloudy day, or with indirect light, the shadows and highlights both will be softer and lighter, with less defined edges.

But everything, if it has volume (and nearly everything visible in the real world does) will have some sort of shade and highlight to it. Adding these to your drawing helps add a sense of realism.

Like most things, shading has grammar. Some of that is on the next page, but here's a few other terms you may run across:

Value-how light or dark something is, particularly in a black and white image. When you shade something, you are darkening the value of that portion of the object. When you highlight something, you're lightening the value of that portion.

Cast Shadow-this this the shadow on walls, ground, or floors which the object "casts" onto another object. (Peter Pan's shadow would have been his "cast" shadow which was captured, but Peter would not appear flat, if his form shadowing had been captured).

Shape/Form-A shape is something that appears two-dimensional. Using shading, you can often create the illusion of form-an object that has, or appears to have, depth. A sphere is a form, a circle is a shape. A box is a form, a square is a shape.

Highlight-This is the area where light is bouncing almost perfectly from the light source to the viewer's vision. Regardless of the color of the object, the highlight is often perceived as white. (think of a polished car. Where the light seems to leap off the car's body and strike the eye as white spots, streaks or sparkles, that's the highlight.)

Shade- This is an area where little light is bouncing off an object back to the viewer's vision. In art, it's darkening a color or object to add the illusion of depth. In drawing, it's done by adding more and darker pencil marks. In painting, it's done by adding darker, blue or black paint to the base color.

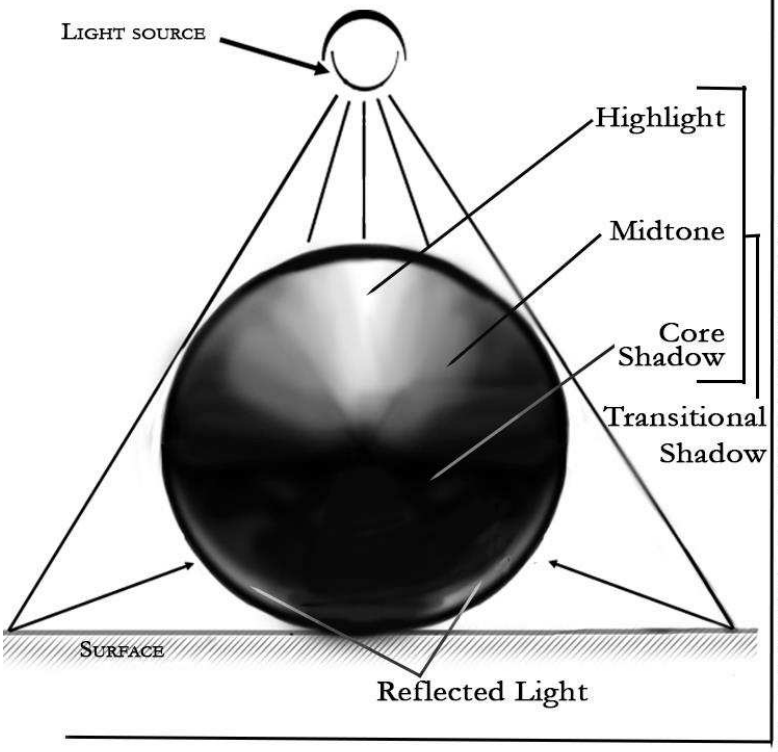
Shading

Highlight, midtone, core shadow, reflected light

One of the keys to realistic drawing is shading. Shading gives the illusion of something having depth and volume.

Shadow is not something that is either on or off, it has gradations from light to dark.

If a light source strikes a curved surface, less and less light is reflected to the viewer's eye, so shadows grow darker the more the surface curves away from the light.



Highlight: Where the light strikes an object directly, that's the highlight. In a pencil or pen drawing, the highlight is usually the bare paper, or a white pencil. When using color, the color in a highlight is usually a paler tint of the "normal" color.

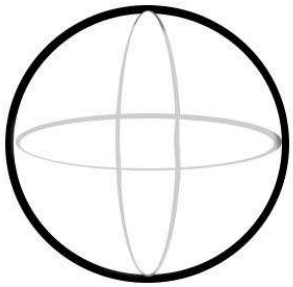
Midtone: where the light strikes the object other than at a direct angle, the shadows grow darker. Midtone is almost exactly between highlight and core shadow. In a pencil drawing, this is an area that's lightly shaded. In a color image, this area is frequently close to the "normal" color.

Transitional Shadow: this is the area that gradiates from highlight, to midtone, to core shadow. Depending on the texture of the item, it can be smooth, rough, or abrupt.

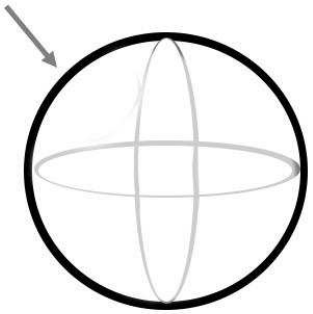
Core Shadow: Where the light reflects little or no light back, because the surface is curved away from, or hidden from the light source. This is usually the darkest shadow. In a pencil drawing, this is the darkest part of the drawing. When using color, this is the darkest shade of the "normal" color.

Reflected Light: Light bounces off of all objects, so frequently it lightens some shadows. In this example, light is bouncing off of the "floor" (or wall) and reflecting back onto the ball. Since reflected light is less strong than the light source (just as the moon's light, a reflection of the sun, is paler and less bright than the sun) the reflected light isn't as bright as the highlight, but brighter than the core shadow.

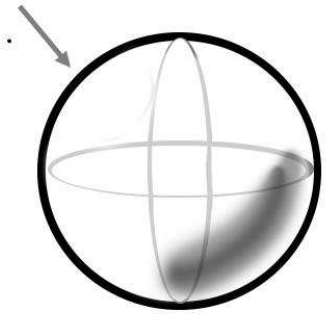
Shading a Sphere, Simple



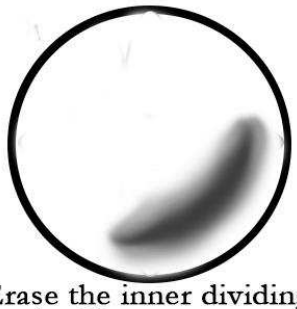
Draw a sphere or oval (you can add the inner divisions if you choose).



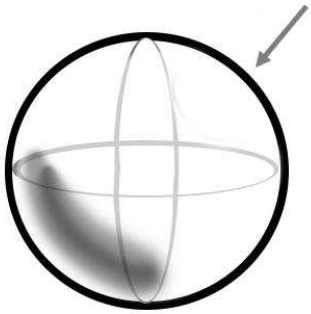
Decide where your light will come from (in this example, it comes from the left upper corner)

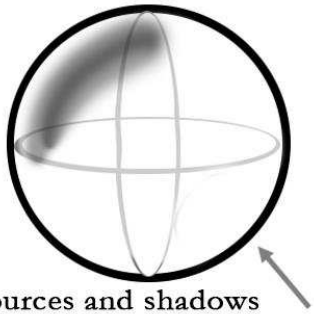


Shade a crescent in the quarter opposite the light source.



Erase the inner dividing marks, if necessary.



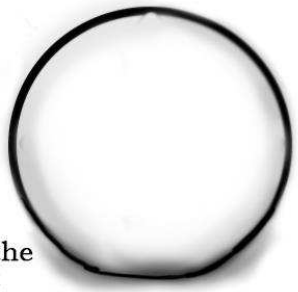


Practice different light sources and shadows

Different Shadows and Light Sources

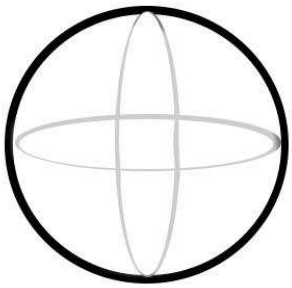
The shadow is really circular, but light bouncing around the sides of the sphere makes it look crescent shaped from the side. If the light is mostly from the back...

The shadow is deep and round leaving just a thing crescent highlight on the edge-exactly the way a thin crescent moon is illuminated. It also projects the cast shadow forward, towards the viewer.

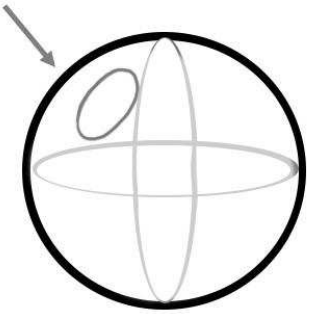


If the light is mostly from the front, only the very edges has a faint shadow, as the light doesn’t hit the sides as directly as the front.

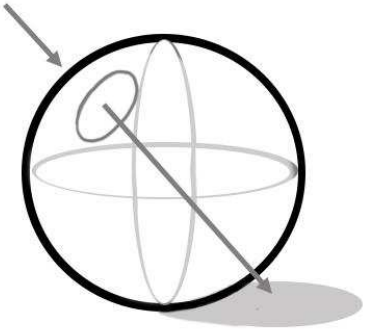
Shading a Sphere, Advanced



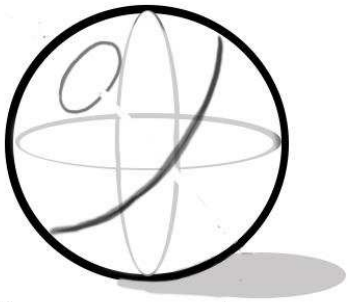
Start with a circle, or sphere with dividing marks (the interior marks will need to be very light)



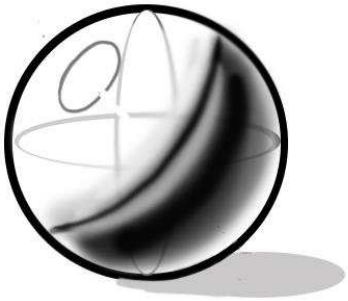
Decide where your light source will come from; draw a light small circle from that direction.This is the highlight.



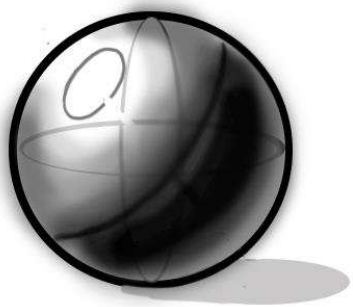
Follow the line of light through the sphere, and draw an oval roughly the same size and shape of the equator oval in the sphere. This is the cast chadow.



Draw a new equator using the highlight as "north" and the shadow as "south". (the light line would be the axis.)



Darkest shadow, or "core of the shadow" will be crescent-moon shadow just below equator in "south hemisphere"



Half shadow (or mid-tone shadow)will be rest of "south hemisphere" and "north hemisphere" currounding the highlight.

Using fingers or blend stick, blend shadows until they are fairly smooth in gradation. Try different balls with different light sources, you'll learn a lot.

Highlight

Mid-Tone Shadow

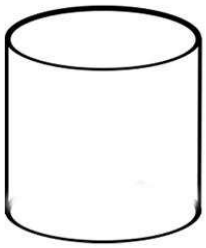
Core Shadow

Reflected Light

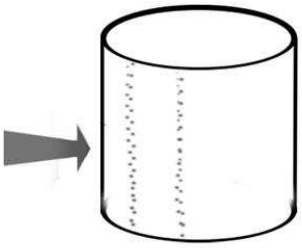
Cast Shadow

Shading a Cylinder

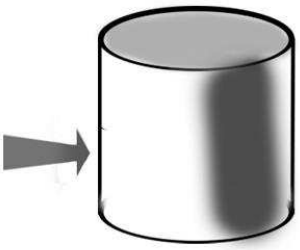
The cylinder, combinding the flat faces of the block with the curves of a sphere, requires shading techniques of both.



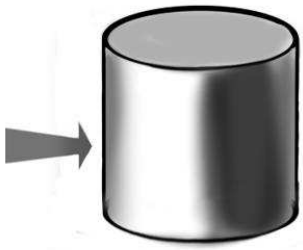
Start with a cylinder. For ease, you can erase the back lines so the cylinder appears solid.



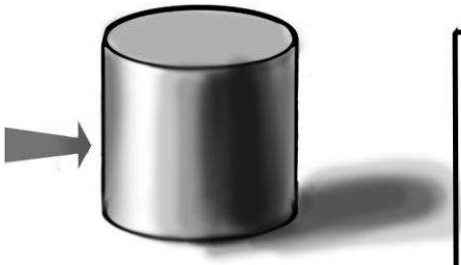
Decide where the light source will come from. In this example, the light comes from the front and left of the cylinder. the highlight will go where the light will strike. (marked here for example)



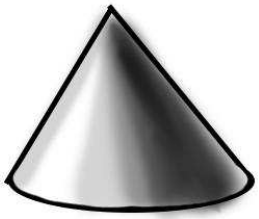
The light comes from the left, so the core shadow will be mostly on the right. Since the light is not coming from above, the top will be shaded a flat midtone.



Because light will reflect off of the surroundings onto the back edge of the cylinder,a light shadow goes on the far edge. Between the highlight, and the near edge, another light shadow goes, becasue the light is not direcly hitting that edge.

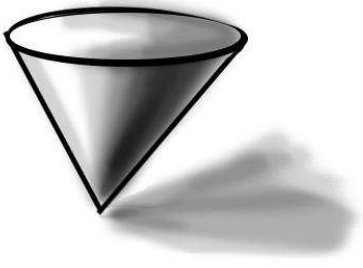


Between the planned highlight and the main shadow, the shadow gradiates from pale to the dark core shadow. Don’t forget the shadow behind the column.



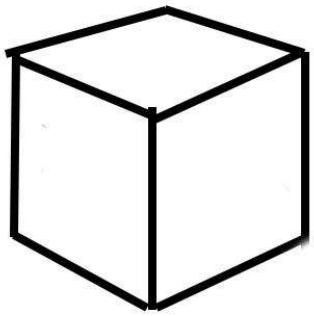
Shading a cone is similar to a column, but the shadow will form a triangular shape, following the curve and edges of the cone.

When rhe light hits a column or cone from the upper edge and strikes the flat face, the edge closest to the light source remains in highlight. Since the rest of the face will catch some light, it will gradiet to mid-tone shadow, not core shadow.

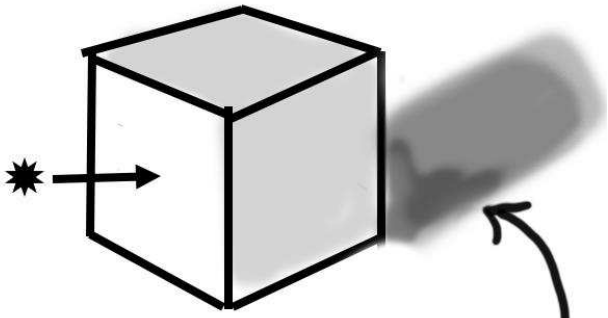


Shading a Cube

Shading a cube depends on where the light strikes it.



If light strikes the center of one face at a 90 degree angle, one side will be in highlight, the four adjacent faces (which we can see two here) will be midtone.

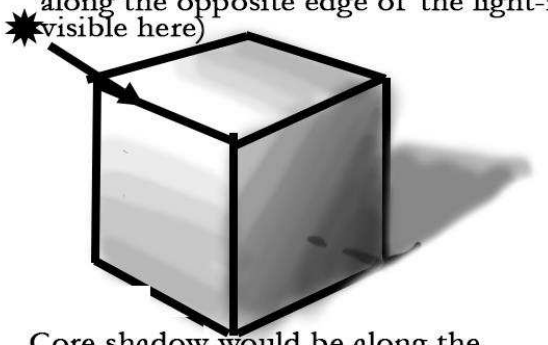


Core shadow, if we could see it, would be on the face opposite the highlight face.

You can throw the cast shadow that same direction, opposite the light source.

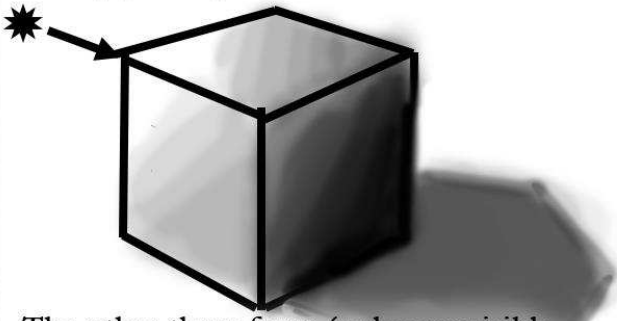
Light falling on an edge will cause the highlight to bleed across the two adjacent faces, which graduate into midtone shadow.

The face away from the highlight will graduate from midtone to deep shadows (but not core shadow which will be along the opposite edge of the light-not visible here)



Core shadow would be along the opposite edge to the highlight, (invisible here). The cast shadow projects from the core shadow edge, opposite the highlight.

When the light hits a corner, the adjacent three faces (only two of which are visible here) graduate from highlight to light midtone shadow from the light point to the opposite point.



The other three faces (only one visible here) gradiate from dark mid-tone to core shadow. Cast Shadow runs parallel from the angle of the light on the corner of the core shadow. Because of the flat and angular nature of cubes and pyramids, reflected light, if any, is very subtle to non-existant along the core shadow corner.

Types of Shading

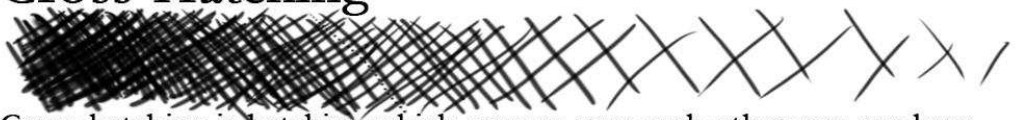
Tonal /Blending

Tonal or blended shading is a smooth shading which nearly appears to smoothly transition from one value to the next value.

Hatching

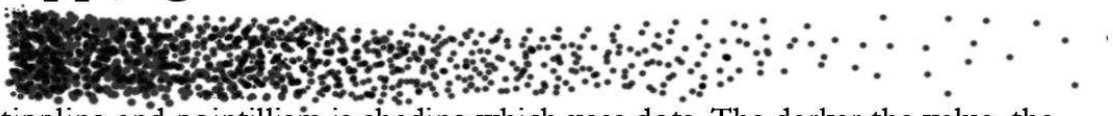
Hatching are parallel lines which get closer together the darker the value of the object.

Cross-Hatching



Cross-hatching is hatching which crosses over each other-you can have multi-directional cross-hatching, where hatches cross over each other vertically, horizontally, or on a diagonal.

Stippling



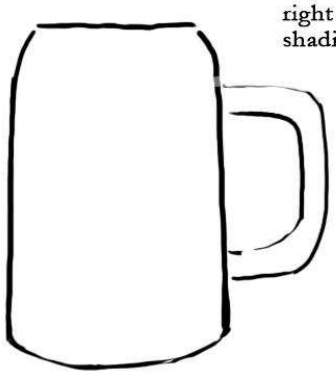
Stippling and pointillism is shading which uses dots. The darker the value, the more and closer together the dots come to each other. Botanical and scientific illustrations rely heavily on stippling.

Scribble/Scrumble

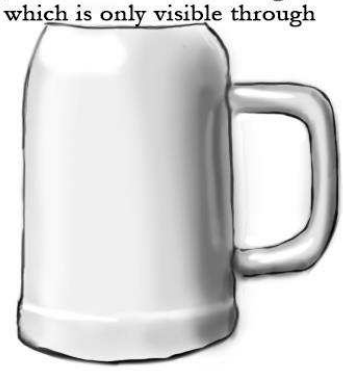
Scribble or circular (scrumble) shading is when you shade using non-directional pencil movements. Scrumble is a sub-set of scribble shading, when you use small circular modtions to shade,. Darker values are created by placing scribbles/ circles closer together.

From Object to Shape to Shaded Form

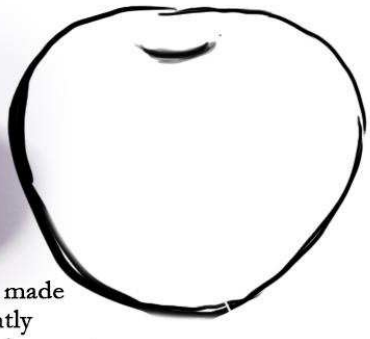
This mug is made of two cylinders, one large vertical one, and a second, thinner curved one.

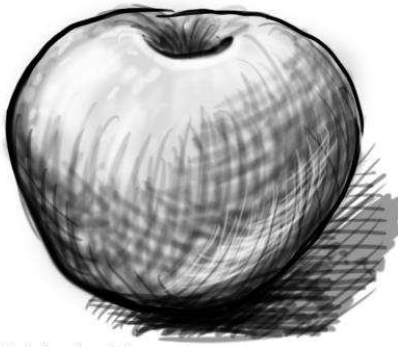


The mug was finished with “tonal” shading. Note the ridge near the bottom of the cup, and the reflections along the right side, which is only visible through shading.



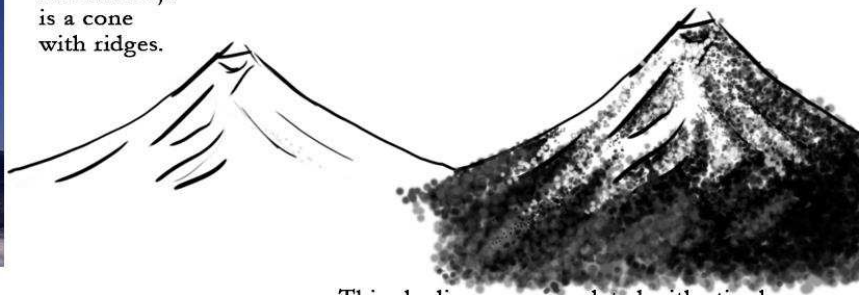
An apple is made from a slightly squashed sphere.





Finished with contour cross-hatching, the hatches help suggest the roundness of the apple to the viewer.

A volcano like Mt. Fuji is a cone with ridges.



This shading was completed with stipples or pointillism, which allows for gradients of grey by placing the dots closer or farther apart.

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Color in Perspective:

Leonardo Da Vinci, living and working during the time when formal linear perspective was a new and developing math problem and art form, said this about drawing in perspective:

> *There are three aspects to perspective. The first has to do with how the size of objects seems to diminish according to distance: the second, the manner in which colors change the farther away they are from the eye; the third defines how objects ought to be finished less carefully the farther away they are.*
> *(Leonardo da Vinci)*

So the first and third parts are easy: objects get smaller and less detailed the farther away they are. That’s simple enough. Close up, we can see a tree’s individual leaves, their shape, the shape of the branches. You might be able to identify the tree species.

A couple hundred feet away you can still see some details, but not all the individual leaves, the branches are probably hidden, and you see more clumps of leaves. Unless you have a practiced eye for such things, you probably can’t guess the specific species of tree.

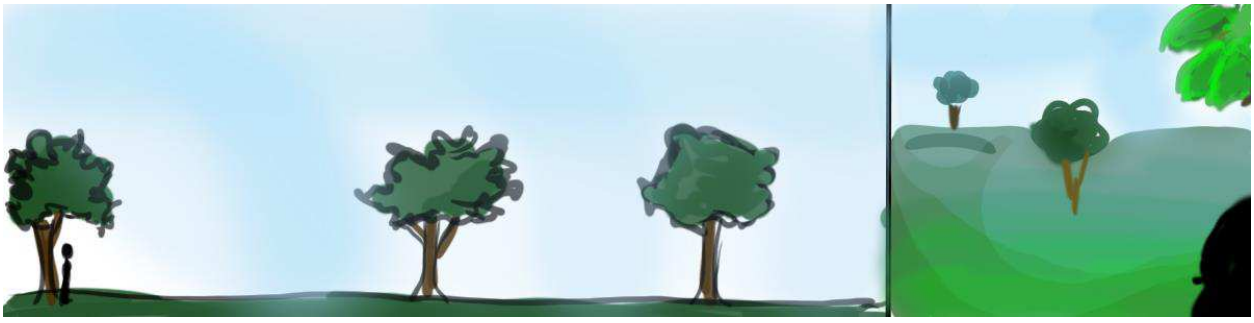
If you ever take a drive across farm country, or somewhere you can see several miles across flat land, you’ll notice the trees two and three miles away are just rough dark lines in the distance. It’s difficult to distinguish branch configuration or slumps of leaves and no hope of identifying individual trees, let alone species.

But how does the color change?

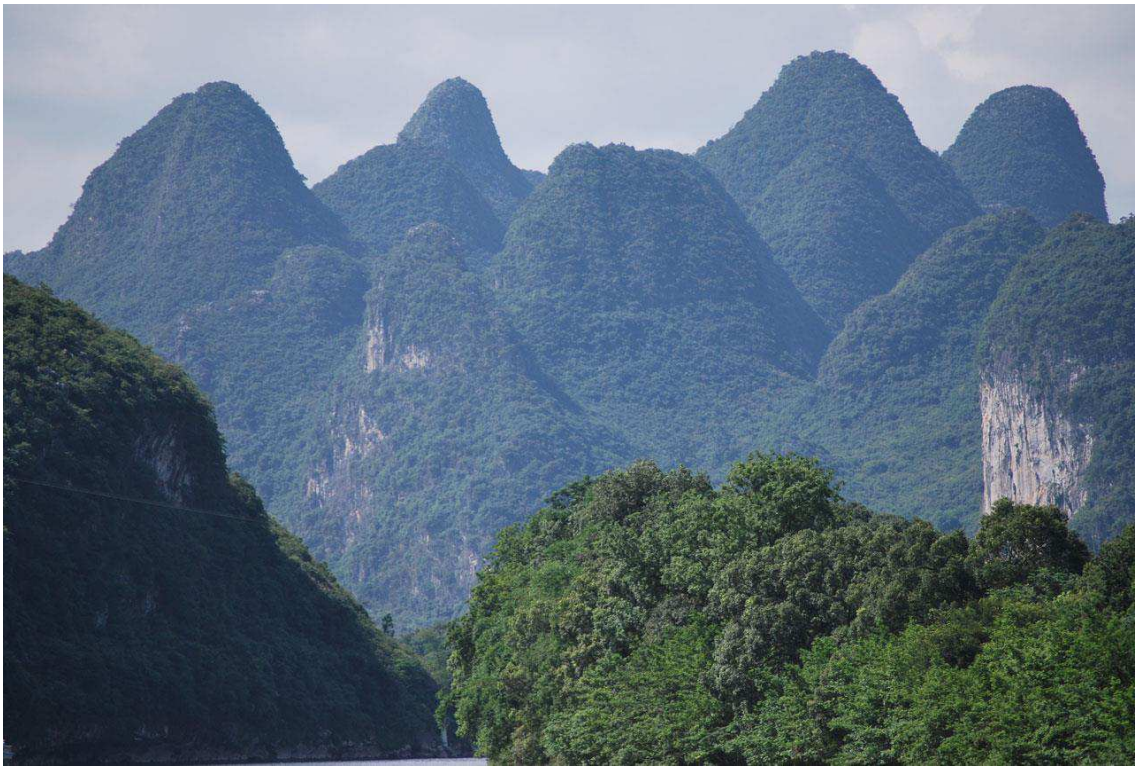
Did you know the blue sky impacts the color of a landscape?

The color blue in our sky is caused when the sunlight bounces off particles in our atmosphere and scatter the light into its component colors. The shorter, (blue) wavelengths are scattered more than the longer (yellow and red) wavelengths, so our eyes see more of the blue and therefore see a blue sky.

Did you know that the same blue-scattering effect is happening around us, as well as over our heads?



The same atmosphere which scatters blue light, scatters it at ground level too. It’s a very subtle effect, but if you can see a far enough distance, the same colors will look bluer the farther away you are from your object. Look at these photos.



Scenic Mountain Tops by Peter Griffin. Publicdomainphotos.com

“Mountain and a River” by Larisa Koshkina

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“Beautiful Mountain View” by George Hodan

Mount McKinley by Robert Glusic.

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Notice how the farther the backdrop gets from the camera lens, the more blue it appears? The green turns a blue-green and the flowers in front of Mt. McKinley (Denali) look more purplish the farther away from the camera lens it is.

It also looks slightly veiled, doesn’t it? As though the color change isn’t merely blue, it’s also seems to lighten, or turns slightly pale grey or white in addition to blue. Like there’s something there between you and the distant background.

There is: air.

> *In an atmosphere of uniform density, the most distant things seen through it, such as the mountains, in consequence of the great quantity of atmosphere which is between your eye and them, will appear blue. Therefore, you should make the building…wall which is more distant less defined and bluer…[if it is] five times as far away, make it five time times as blue. -Leonardo DaVinci*

Over long distances, air isn’t invisible, it actually interferes with your sight ever so slightly. Think of looking at someone half-hidden behind a veil or a sheer curtain. No matter the color of their skin, hair, and clothes, the veil or curtain will cause their semi-hidden parts to look paler than the parts of them which are not behind the veil.

In a vacuum of space, you can see millions of miles because there’s no atmosphere to interfere with the light coming from millions of miles away to hit your eye. (the light of stars only have to work through a few miles of atmospheric interference before they hit our eyes, and even then, we lose a lot of starlight- that’s why the Hubble telescope brings us the best photos of space) But on earth, even if you can get high enough to see for miles (like through the windows of an airplane or hot-air balloon or from the side of a mountain) you will see this same sort of paling effect happening to the landscape as you look farther and farther away (in addition to the blue-light shift). What you are seeing is the interference of our atmosphere. You are, quite literally, seeing air.

In addition, the more moisture in the atmosphere, the more white and less blue the light-shift will appear. Think of a foggy or misty morning. When it’s really thick, you won’t notice any blue-light shift at all, because the water droplets close off your vision before it can happen. (Polluted air works the same way as mist, however, the color shift will be the color of the pollutant. So smoke or coal dust will color the air a darker gray, sand or sulfur fumes will color the air yellow, and so on.)

So, to create the feeling of depth in a painting, artists make background colors paler and more blue-toned than colors in the foregrounds. This blue shift in the backgrounds causes reds and oranges to look more burgundy and purple, yellows to fade to a pale green, and greens to cast more blue. If they want to make an image look more foggy, humid, or misty, they add far more white to background colors than foreground colors.

In fact, if you get to watch Bob Ross, watch his color selections when he paints forests and fields. Since he paints from the background to the foreground, he will add brighter colors with more red and yellow to his paint blends for the foreground, than he will for the background. J.W. Turner, a British artist and late contemporary of Gainsborough (one of our artists in Cycle 2) was a master at painting atmospheric effects. Take a look at some of his paintings to spot the blue-shift and the water vapor mists.

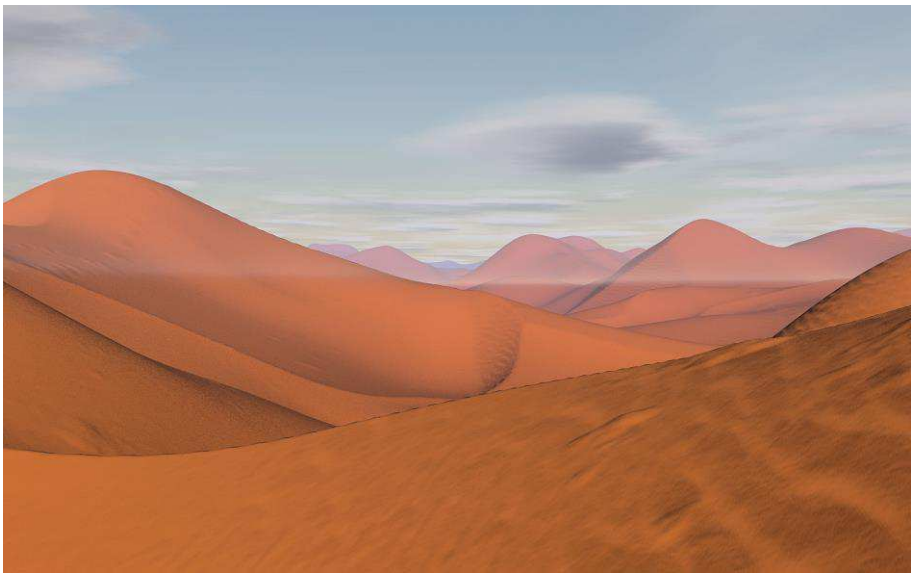
When you replicate these effects in a piece of art, your brain (and the brains of your viewers) also more easily accept the illusion of depth on your flat paper. If you put bright, vivid, non-blued colors in your “background” your brain will have trouble “seeing” distance in your drawing. They may not know what’s wrong, but they will know something feels “off”.

All these techniques, rules, and guidelines are part of the goal of “Trompe l’oeil” in art. Pronounced “Tomp-LOY” is means “Tricking the eye”. Perspective is all about tricking the eye into seeing three dimensional objects on what will always be an essentially two-dimensional paper.

Zebras on a misty morning by Lila Frerichs. Notice the zebra in the background and the rapidly disappearing vegetation below. There’s too much mist to see much blue-light shift.

What if you’re working in Black and White?

Look at these two photos-one is the original color, one is converted to black and white. I really love this photo because you can see the veil of mist clearly hanging in the middle of the dunes, and see how water vapor adds a further dimension.



‘Background Wallpaper”; photo by Kai Stachowiak. Image Source: publicdomainpictures.net

The top photo, you can see the blue-shift of color as the dunes take on a more reddish, then blueish cast to them. (The red is combined by the addition of blue-perceived light to the reddish-gold colored sand. The yellow hue scatters more the farther back it goes and blends with the blue-scattered atmosphere, resulting in a red-purple appearing dune turns more purple and finally blue in the farthest dune.

But in the black and white photo, you see how the dunes lighten and smooth out as they recede into the background. The blue dune is so pale, it is barely distinguishable from the sky at the horizon.

That is how color perception works in black and white. Assuming the same color, items get smaller, less detailed, and paler in color as they recede into the background of your black-and-white drawing.