

DRAW BETTER

Learn to Draw with Confidence

Dominique Audette

Draw Better

by Dominique Audette



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ABOUT THIS BOOK

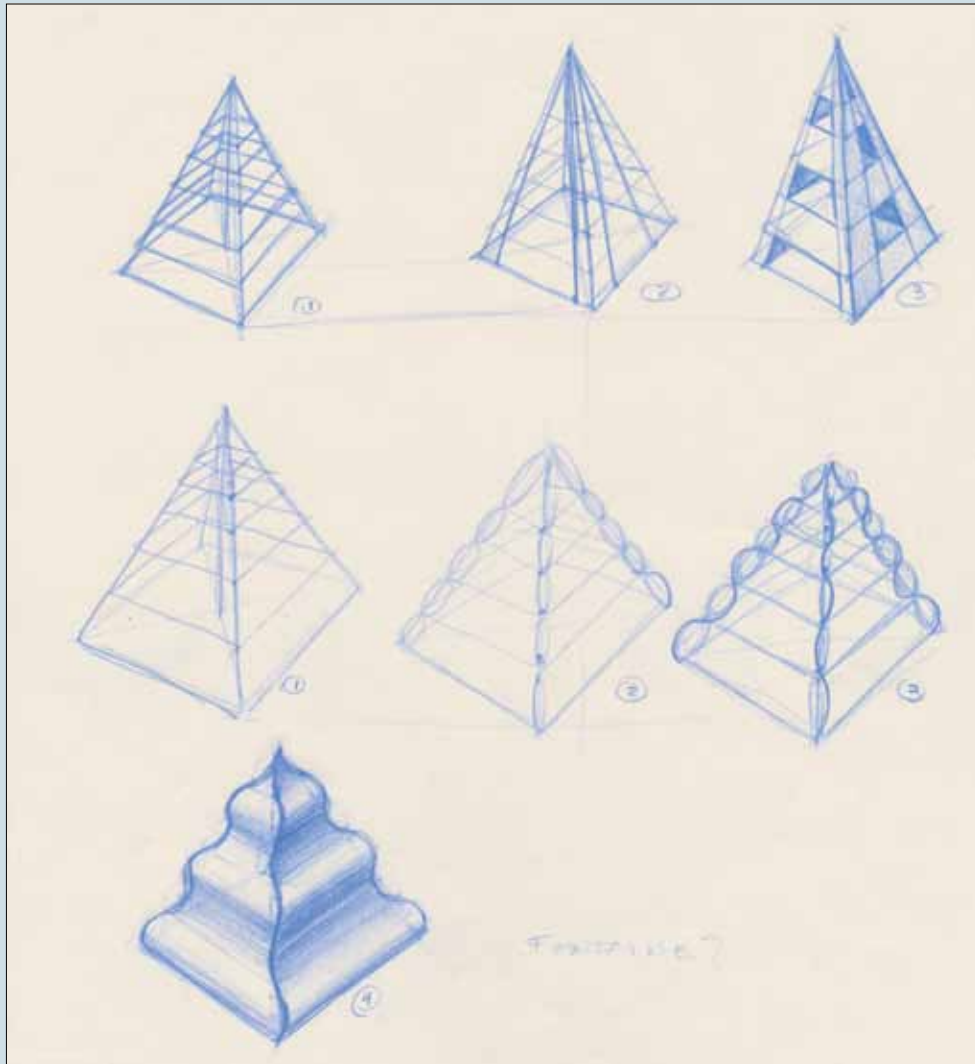
INTRODUCTION

The goal of this book is to allow anyone to improve their skills in drawing. Beginners will learn the basic concepts of drawing and then be able to apply these ideas to simple projects. Intermediate draftspeople will find new challenges with some projects. Throughout I have chosen to demonstrate with everyday objects. Part One presents basic concepts of drawing, while Part Two suggests some drawing projects based on these concepts. Every project is presented with step-by-step drawings that demonstrate the construction of the object. Understanding that the people who use this book are visual learners, images are the primary component here, with text kept to a minimum.

CONCEPTS

Draw Better systematically presents fundamental concepts, starting with the idea that even complicated shapes can be reduced to basic geometric forms such as spheres, boxes, and cones. I also demonstrate how to visualize an object in space through the use of orthographic projection. This standardized technique allows us to imagine an object from all angles, and quickly provides a summary of the information we will use to make a finished drawing. From there we move on to perspective, a trick that allows us to make a two-dimensional image mimic a three-dimensional reality. The final concept is the addition of shading to enhance contrast and increase the sense of volume within a drawing.

CONCEPTS



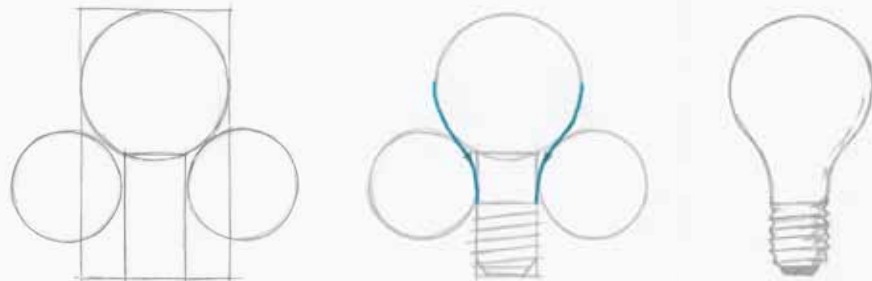
GEOMETRIC SOLIDS: BASICS

Basics:

Any object can be reduced to a geometric shape, as illustrated with these common objects.

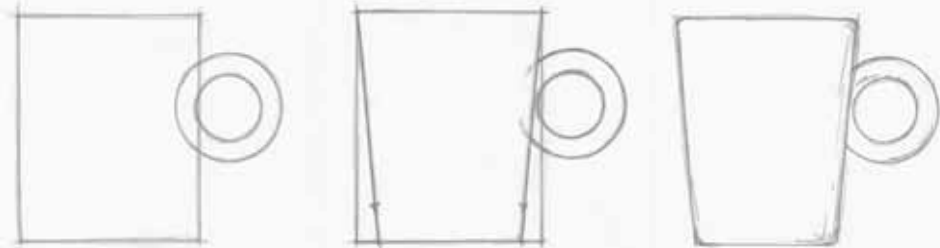
Light bulb

- Draw two curves following the circles.
- Add the screw as shown, using diagonals in the small rectangle.



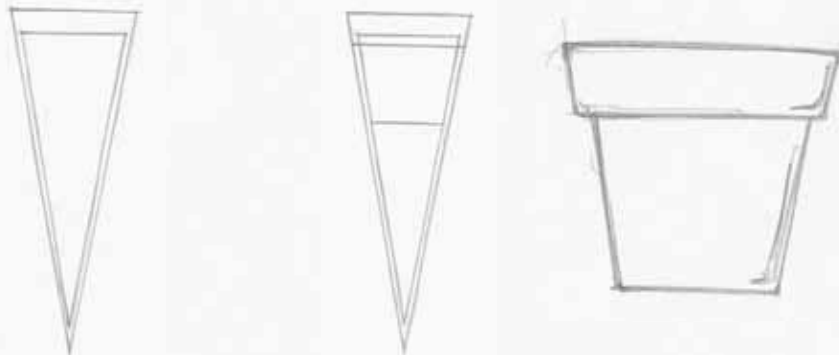
Cup

- Draw a rectangle and two concentric circles as shown.
- Taper the base of the cup.
- Round the corners and hide a part of the outer circle.



Earthenware pot

- Draw two long triangles, one inside the other.
- Cut the triangle as shown.
- Take off the tips of the triangles.



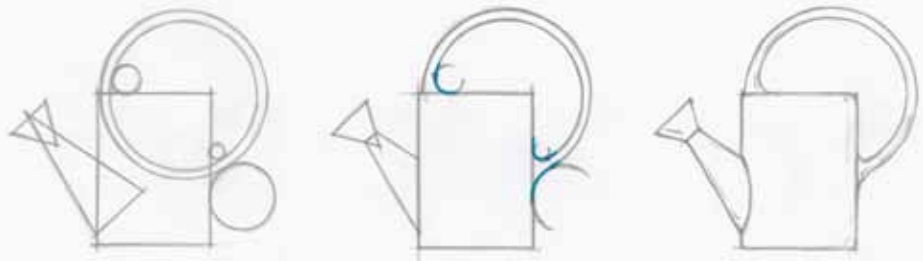
Top

- Draw a circle with a rectangle on the top and a triangle at the base.
- Connect the circle to the triangle where the two shapes meet.
- Round the edges of the rectangle and add ornamentation.



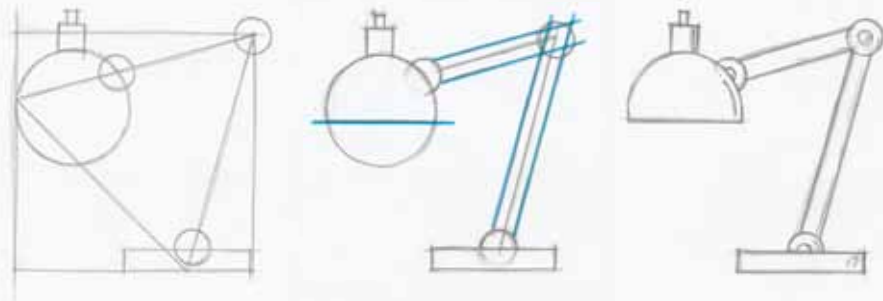
Watering can

- Complex objects can be constructed with a group of geometric forms. Here circles, rectangles, and triangles are needed.
- Use the small circles for sharpening the handle. ...
- ...and the triangles for the spout.



Lamp

- Several geometric forms are included in a large square for this lamp.
- Cut the large circle horizontally. Draw lines on both sides of the initial triangle lines to give mass to the arm of the lamp.
- Add some details.



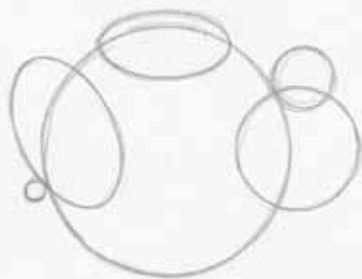
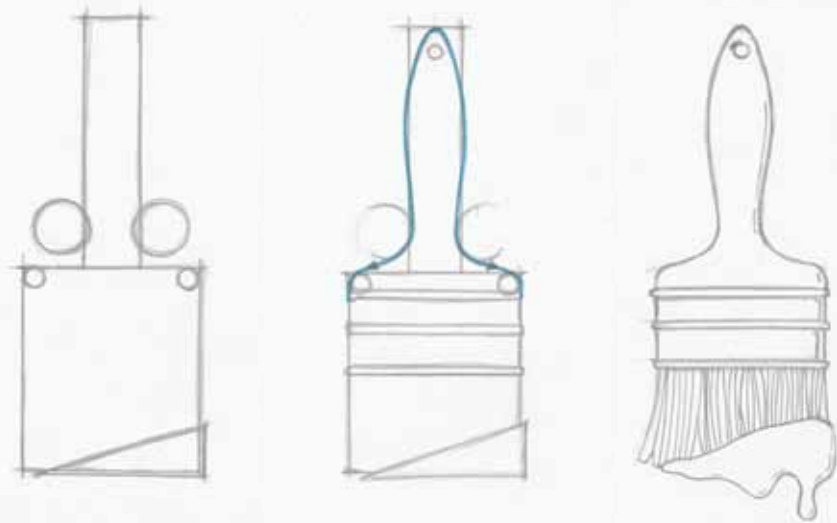
GEOMETRIC SOLIDS: ADVANCED

Advanced:

The concept is the same for more complex forms, which might require more shapes to construct.

Brush

- Draw two rectangles, two circles, and a triangle, as shown.
- Draw the shape of the handle and use the circles to connect the handle to the brush. Horizontal lines represent the detail of the metal part of the brush.
- Draw the hair of the brush using vertical lines and stretch the triangle with random curves to indicate the fluid paint.



Teapot

Draw a main circle with smaller circles and ovals around it. These will be used to guide the location and shape of the handle and spout.



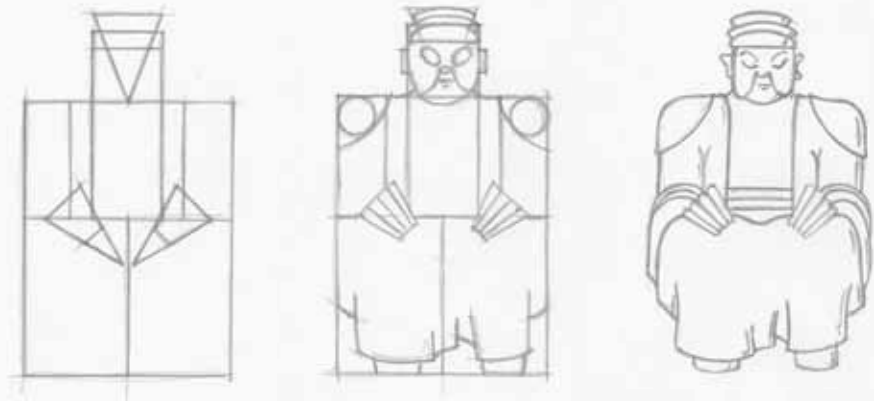
Use all these small geometric forms to sharpen the details, as shown in blue.



Connect the spout to the body of the teapot and add details..

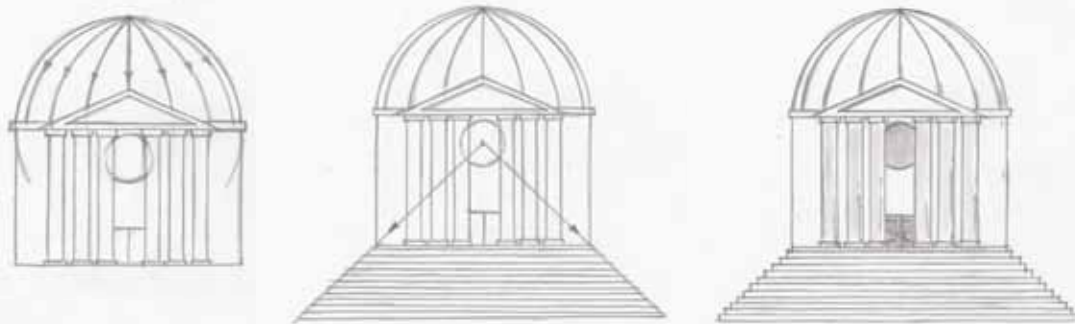
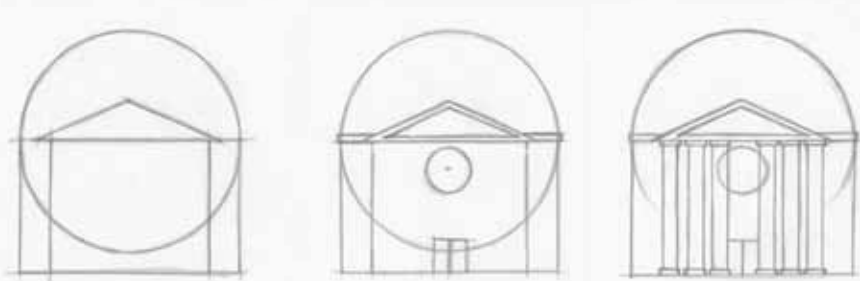
Chinese Figurine

- Draw rectangles and triangles to start the form.
- Add other geometric shapes and curves to locate details like the hat, face, shoulders, hands, and robe.
- ...complete the drawing by adding details and indications of shading.



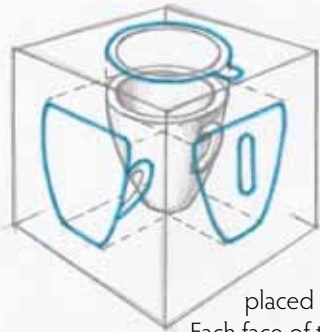
Antique Building

- Draw geometric solids as shown—a circle, a triangle, and rectangles.
- Duplicate additional lines along the roof, a small circle and rectangles to indicate a door.
- Draw vertical lines for the columns and curves on the dome.
- Use the center of the small circle and the corners of the large square to define the outlines of a staircase.
- Complete the drawing with shading.



ORTHOGRAPHIC PROJECTION

Orthographic projection refers to a single drawing that shows several views of a single object—typically the top, front, and side views. In addition to providing detailed information about the object, it also helps us understand where to place lights and shadows.



Imagine an object placed inside a transparent box. Each face of the object is parallel to the surfaces of the box, and visible through it. Now imagine the outlines of the object drawn on the faces of the box, each face showing what is directly in front of it.



This box can be unfolded to show all the sides of the box at the same time—a two-dimensional view showing six views of the object.



This is called the Orthographic Projection. The word orthographic comes from the Greek *orthos*, meaning straight and *graphia*, meaning writing.

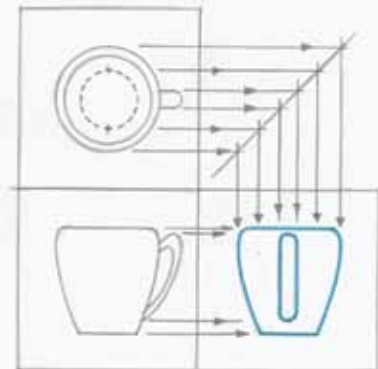


Front view: Draw the outlines of the cup.

Top view: Project all dimensions up from the front view, using dashed lines to depict hidden features. The lines used for projection are called projectors.

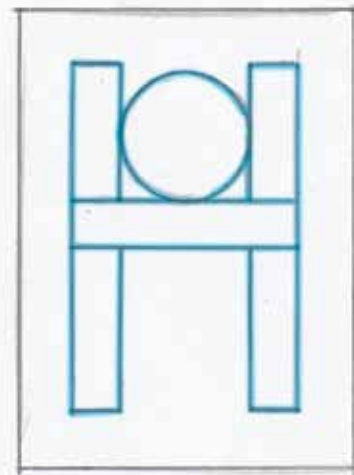
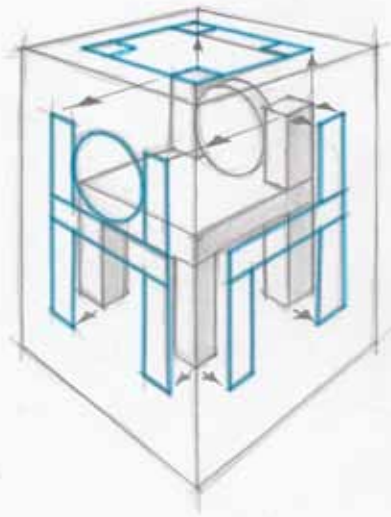


Side view: Project all dimensions horizontally from the front view. From the top view project all information horizontally, and then redirect the projectors vertically using the 45° segment. These projectors intersect those from the front view to define the outline of the cup. Usually, three views are enough to depict an object.

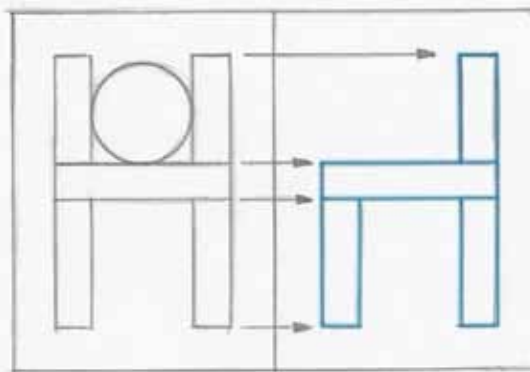


Chair

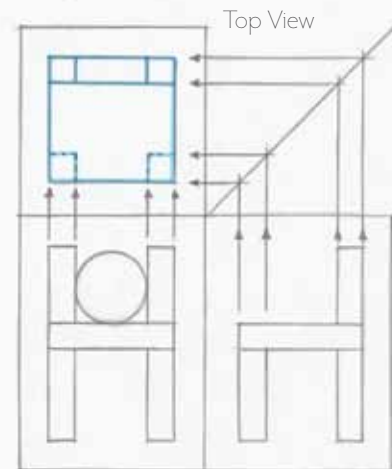
- With a chair inside the glass box, the views are projected against the planes of the box as shown here in blue.
- Front view: Draw the outlines of the chair, front legs, thickness of the seat and the back.
- Side view: In this case, the side view as been drawn before the top view. Draw projectors from the front view, including the thickness of the seat.
- Top view: Project all dimensions up from the front and side views. As shown, the side view dimensions need to be "bent" at 45° to complete the top view.



Front View



Side View

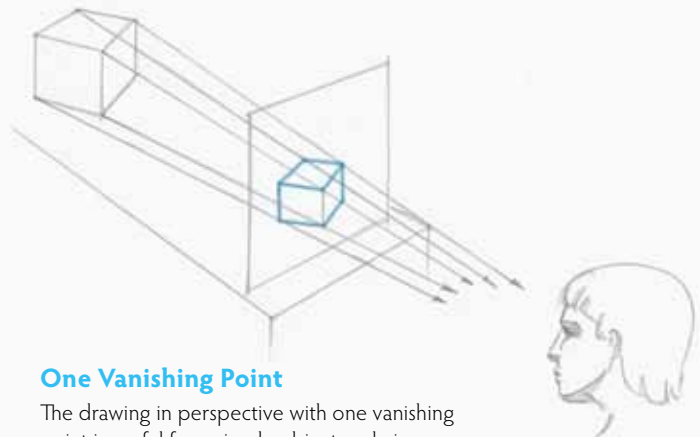


Top View

PERSPECTIVE: INTRODUCTION

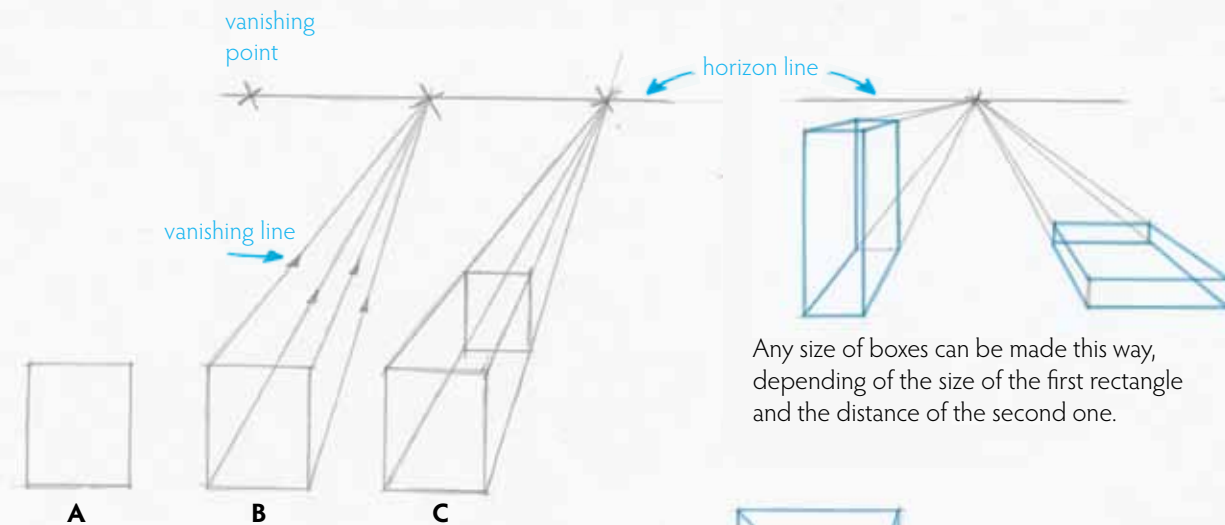
Basics

Perspective is a method of drawing that allows a three-dimensional object to be reproduced on paper as the observer sees it in space, with a life-like appearance. To say it another way, the top, front, and side views (orthographic projection), can all be seen in the same image. The concepts underlying perspective provide an understanding of the mechanisms that make it work. We will begin with a series of exercises that illustrate these concepts, creating drawings of surfaces and volumes that will then be subjected to some subdivisions and partitions.



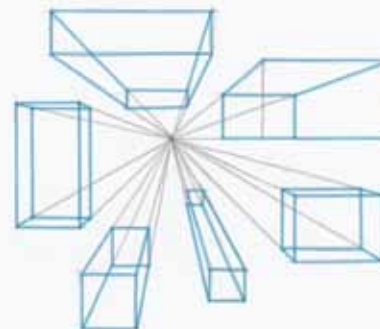
One Vanishing Point

The drawing in perspective with one vanishing point is useful for a simple object and gives the appearance of distance.



Any size of boxes can be made this way, depending of the size of the first rectangle and the distance of the second one.

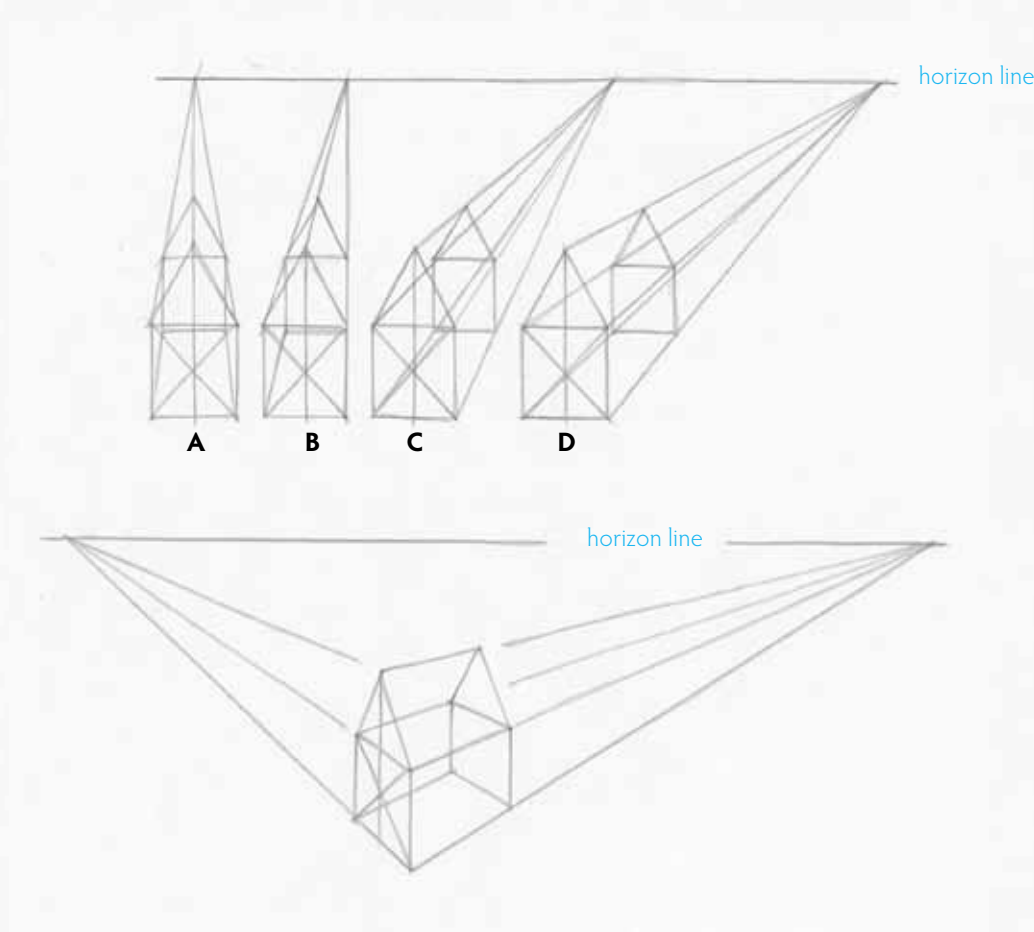
- Start with a rectangle, (A).
- Trace a **horizon line** at the top of the page. It represents the eye-level of the observer. Place a **vanishing point** on this line. For now, the location of this point can be random
- Draw a vanishing line, from each corner to the vanishing point, (B).
- Draw a second square, further along, touching each of the vanishing line (C).



The vanishing point can be in the middle of the page. When the boxes are above the vanishing point it appears that the observer is below the box.

One or Two Vanishing Points?

- Use one vanishing point when an object presents a plane facing the front. One point perspective is a good way to get started in perspective drawing, but it can't be used for every object in any position.
- In drawings A and B below, the houses seem to be represented correctly because the front of the house is facing the observer. In the drawing labeled C we start to see some distortion. In D, the distortion is clearly visible because it is impossible to see the front face of the house, represented with angles at 90° , and the side of the house on the same drawing. The drawing at the bottom looks more natural. In this view, which uses two vanishing points, a front corner is facing the viewer, with the front and the side presented at an angle.

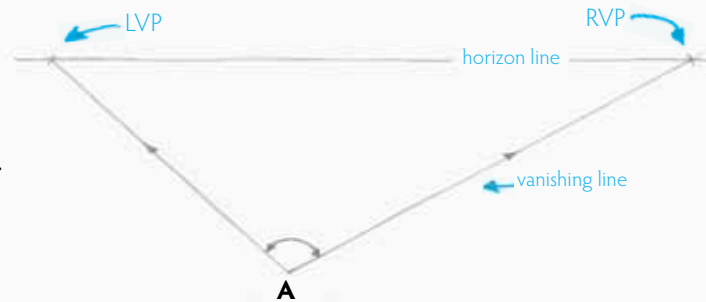


PERSPECTIVE BASICS

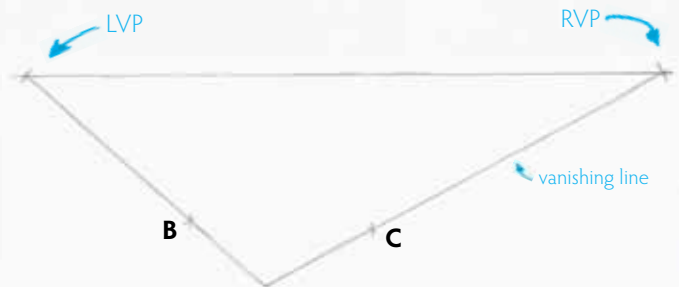
Basics: Quadrilateral

The most basic form drawn in perspective is a rectangle as seen from a front edge.

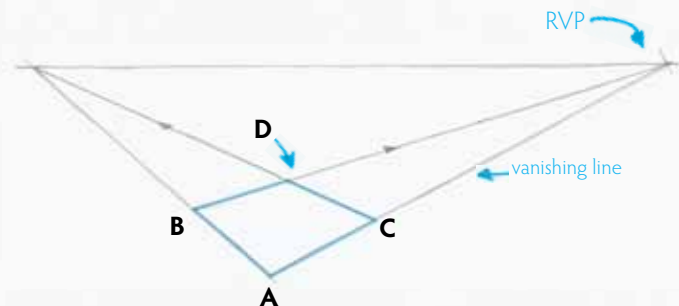
- Draw the horizon line at the top of the page and place the vanishing points at the ends of it. The left vanishing point will be called **LVP** and the right one **RVP**.
- Place the point **A** below the horizon line. This point represents the bottom corner of the quadrilateral.
- From this point, run a vanishing line toward **LVP** and another toward **RVP**. To depict the object realistically, the angle **A** of the corner formed by the first two vanishing lines should be greater than 90° .

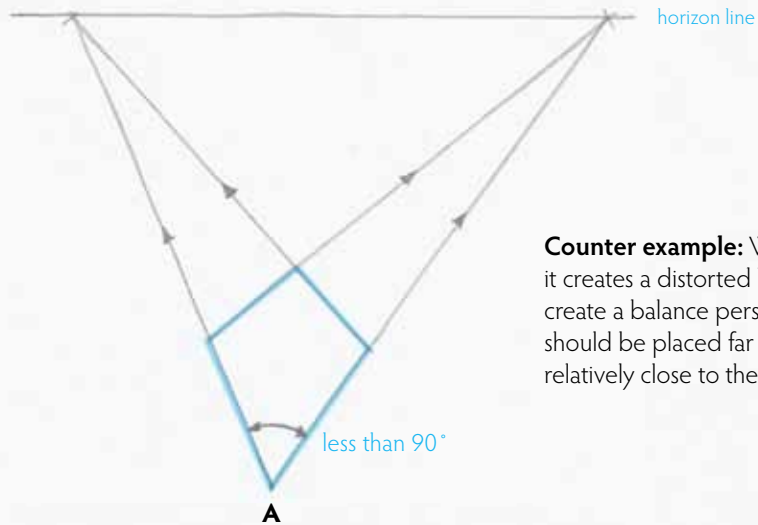


- Make two marks on the angled lines, shown here as **B** and **C**. The dimensions are arbitrary. These will become the outside corners of the resulting square (technically called a quadrilateral).



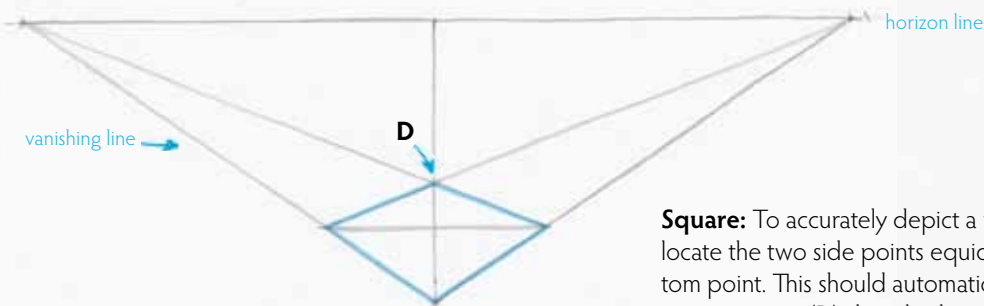
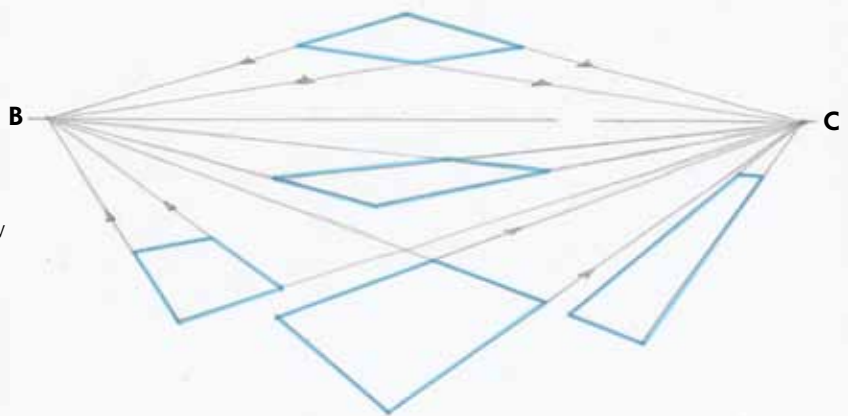
- Using a ruler, draw two vanishing lines that cross from the right side to the left point and vice versa. They meet at the point **D** to complete the surface **ABCD**.
- Highlight these lines (or erase the no longer needed vanishing lines) and the result is a square or rectangular plane shown in perspective.





Counter example: When the angle A is too narrow it creates a distorted look that should be avoided. To create a balance perspective, the two vanishing points should be placed far apart and point A should be relatively close to the horizon line.

Point of View: To create different shapes, change the location of the two side points (B & C). To change the angle of viewing, place the bottom point of any quadrilateral closer or further from the horizon line. To change the view as if seen from below, place quadrilateral above the horizon line.

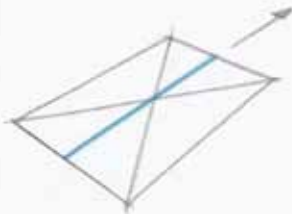


Square: To accurately depict a perfect square, locate the two side points equidistant from the bottom point. This should automatically place the upper crossing point (D) directly above the bottom point.

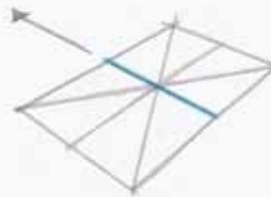
PERSPECTIVE: QUADRILATERALS

Perspective drawings, by definition, play games with measurement. Parts that in reality are of equal length, for instance, are drawn as unequal, which is what makes them appear to exist in space. To create measurements that relate to the perspective drawing, we use diagonals.

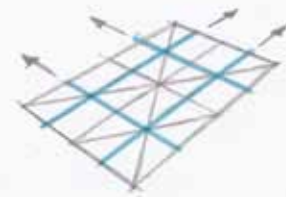
Finding Centerlines



Create a quadrilateral then draw the diagonals corner to corner. Draw a line that connects the intersection of the diagonals with the right vanishing point.



The figure can also be divided in the other direction, creating four equal parts.

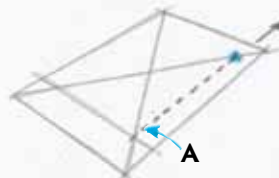


Each part can also be divided. There is no limit to the number of subdivisions.

Dividing Asymmetrically



Choose any point on the quadrilateral and draw a line from there to the left vanishing point.



At the intersection of the vanishing line with a diagonal (A), draw another line toward the right vanishing point.



From the intersection with the diagonal, draw a line toward the left vanishing point. The two interior lines are now equidistant from the center.

Quadrilaterals within Quadrilaterals



Choose a location of the first corner of the smaller quadrilateral, and run two vanishing lines until they meet the diagonals...



...and redirect these vanishing lines until they meet the diagonals.



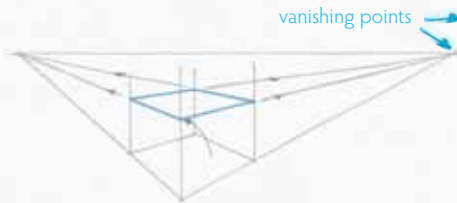
Using this technique, any number of smaller quadrilaterals can be created within the original.

PERSPECTIVE: BOXES

From Planes to Boxes

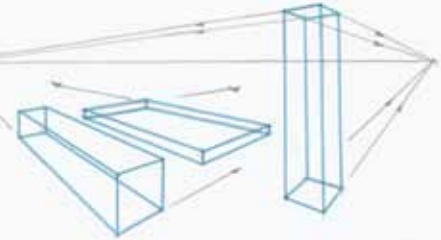


To draw a volume from a surface, draw verticals from each corner.



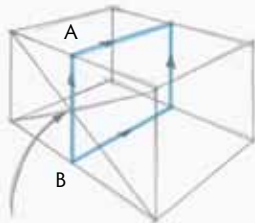
Determine the height of the box by marking a point on the front edge (arrow). Draw lines from this point (A) to left and right vanishing points to establish the top of the box.

vanishing points

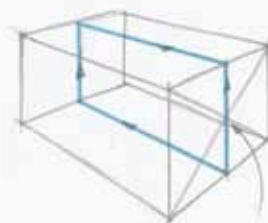


Boxes can be created in other shapes and dimensions by changing the proportions of the quadrilateral and the length of the verticals.

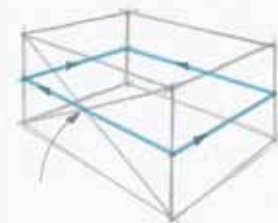
Bisecting Boxes



Draw the diagonals on the left side of a box to determine the center point. Using this point, draw vertical (AB), and from the top and bottom of this line, connect to the vanishing points.

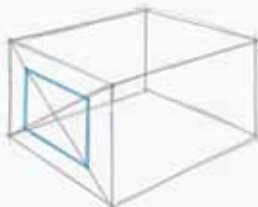


Draw diagonals on the right side of the box and proceed the same way, using the left vanishing point.

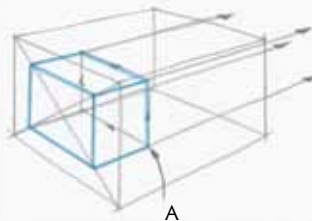


Using the diagonals of the previous exercise, draw lines to both vanishing points.

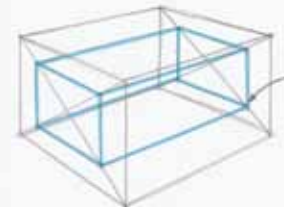
Internal Boxes



To draw a box within a box, create diagonals as above, locate verticals, and from the top and bottom, draw lines to the appropriate right and left vanishing point.



Draw lines from each corner to the other vanishing point. Determine the depth of the interior box with a vertical (A) then draw a line to the left vanishing point.

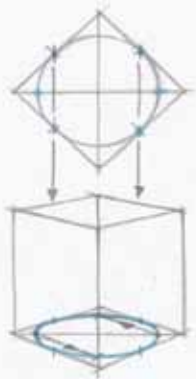


To make the interior box slice all the way through the larger box, draw a diagonals on the opposite face (arrow).

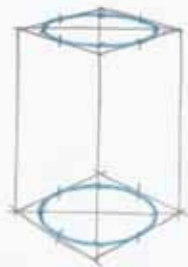
PERSPECTIVE: CYLINDERS & CONES

Boxes are important because they provide a structure for other forms.

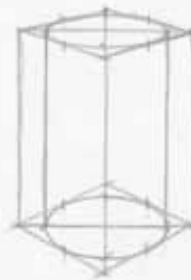
Cylinders & Cones



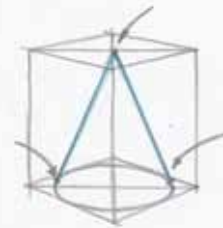
A square box seen from the top would contain a circle that touches the midpoint of each of the four sides.



Draw diagonals on the top and bottom of the box then connect the points with smooth curves.

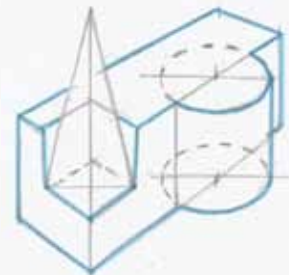
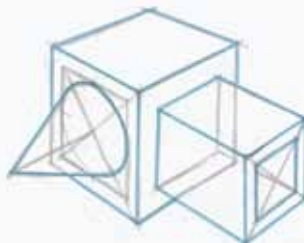


Draw vertical lines to connect the outer points of the two ellipses to form a cylinder.



To make a cone, create an ellipse on the base of a box, then connect the outer points to the intersection of the top diagonals.

Complex Forms



In each of these forms, the upper preliminary drawing shows how familiar geometric forms are created in boxes to instruct complex forms.

LIGHT & SHADOW: INTRODUCTION

Adding light and shadow to the outline of an object helps to give it volume. This makes the drawing more lifelike and therefore more effective. Light and shadow go hand in hand—each one exists through its contrast with the other.



Light and shadow are so important in a drawing that they can almost depict an object even without outlines. In this example for instance, the shadow is sufficient to recognize the object.



In the same way, light alone can often describe an object. Light is rendered here with white pencil on colored paper.



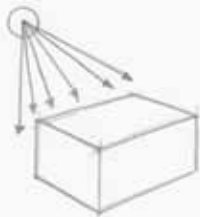
When both light and shadow are represented, the object comes life. This effect is so powerful that for simple objects, outlines are not absolutely necessary.

Tip:

When we start including shadows, it is helpful to use pencils of different hardness. Draw the outlines with a hard graphite pencil (e.g. 4H) and depict the shadows with a softer graphite, (e.g. HB or 2B). The 4H graphite is hard so it will not blend when the stump is used to spread the bold HB or 2B graphite in a gradation. This means that the outlines will stay in place.

LIGHT & SHADOW BASICS

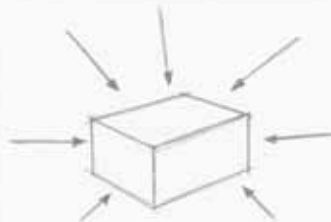
The source and quality of light affects objects and should be considered in every drawing.



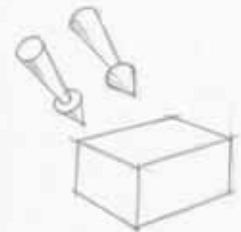
An artificial light source, a light bulb for instance, projects divergent rays toward an object.



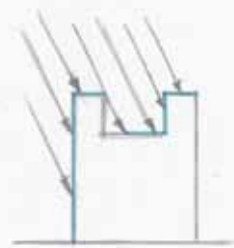
Natural light of the sun is projected in parallel rays toward an object. This natural source will be used in this book. It is easier to pinpoint areas of light and shadow on objects with natural light rather than with artificial light.



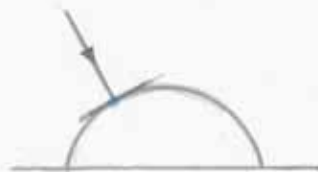
Drawings require that we choose a direction from which the light is coming. In general, it is accepted practice to place the light source above and to the left of the object, but the rays can come from any direction, as shown here.



The placement of the source must create sufficient light/dark contrast to emphasize the object. Placing the source behind the object usually creates the best environment for this light/dark dynamic to occur.



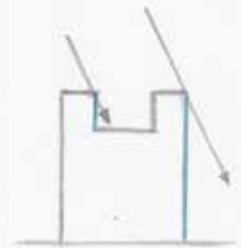
Light zones are surfaces that are struck directly by the light rays. The rays strike the object at precise locations to create these zones. Elsewhere, the rays miss the object, leaving shadow.



The **highlight** is the precise location of a light zone where the light strikes the object directly, that is, at a 90° angle to the surface. This is the most brightly lit area of an object.



Reflected light is light reflected from neighboring surfaces onto the shadow side of the object.



Form shadow occurs on the surfaces away from the light source, that is, in areas the light rays cannot reach. More on page 22.