

Part Two

Designing with Color

Chapter 7

The Elements of Design

INTRODUCTION

Design elements, which are also referred to as art elements, are the basic visual building blocks of art. *Form* is defined as the purely visual component of art. Within the form realm of art, design elements offer a series of alternatives. *Design elements* are visual tools that are utilized to generate two-dimensional and three-dimensional art. Each design element has its own distinct visual characteristics. The design elements are line, shape, form/volume, space, value, scale, texture, and color. Color is by far the most complex and variable of all the design elements. The artist makes suitable choices from this design element “toolbox” to convey the subject, theme, and function of an artwork.

THE ABSTRACT CONCEPTS OF DESIGN

Wassily Kandinsky, in his book on art and design entitled *Point and Line to Plane* (1947), compiled a working list of the abstract components of art that are the basis for all design elements. Kandinsky identified the four major ingredients of art as point, line, plane, and volume. [7.1] A *point* is defined as either a dot or simply a location in space. A point may also be visible or invisible, of any size; it refers to a specific position in a composition. A *line* is a connection between two points and can be thought of as a point's or dot's movement through space. A *plane* is a shape with height and width, but no breadth or depth. A *plane* is two-dimensional and flat, but may have any configuration of outer edge or contour.

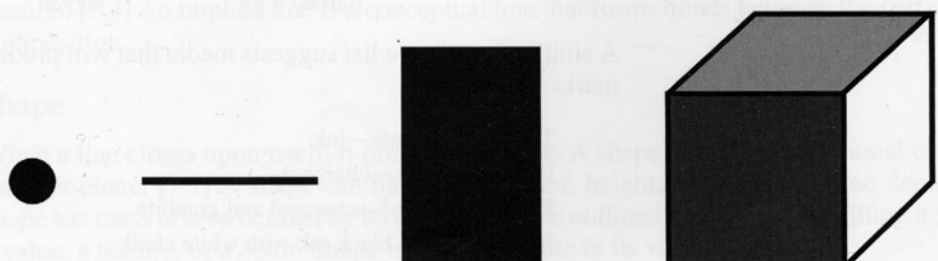


Figure 7-1 The abstract components of design: point, line plane, and volume.

A volume is a plane that has been pushed back into or advances forward in space. A *volume* has three dimensions, height, width, and depth. Parallel concepts to point, line, plane, and volume will emerge in the following discussion of design elements.

THE PICTURE PLANE

The *picture plane* is a formal rectangular or square unit that contains a two-dimensional composition. The format of the picture plane is a given entity of art and design, even though there are many pieces of art that do not use this format. In the understanding of two-dimensional design theory, the picture plane is a useful structure to aid our study of composition. By working within the confines of a picture plane, we learn to master compositional forces. A picture plane is the compositional window through which we see an artist's vision.

DESIGN ELEMENTS

Line

A *line* is a pathway, the closest distance between two points, the elemental mark, and a moving point. Lines and edges define our visual sense, because we identify an object by innately scanning its contour. Line represents the edge of a form, distance, a continuum, and a connector. Line is the trail left by pulling the point of a pencil or pen. Line is strictly defined as a mark whose length is greater than its width. The term *linear* refers to line or line quality.

The variables of line are its width, direction, quality, position, and expression. As defined, a line's length must be greater than its width, but its width can range anywhere from slight to massive. The direction of a line is an infinite and ever-changing path. We tend to think of line as straight, so special attention must be put into variety of line directions. Descriptive words for a line's direction include straight, curved, zigzag, meandering, squiggled, angular, massed, spiraling, and overlapping. Line quality refers to the texture, media, weight, hand pressure, personality, and speed of a line. [7.2] An exploration of line quality can originate in simple word associations. The following list includes linear objects paired with descriptive adjectives for the character of each line:

Object	Adjective
Tree branches	gnarled
Wire	taut
Leaf veins	branching
Highway lines	straight, curved, dotted
Circuitry	angular
Facial lines	fine, spreading
Wrinkles in fabric	undulating, smooth
Yarn	fuzzy
Barbed wire	jagged

A similar descriptive list suggests media that will produce a large range of distinctive line marks:

- Tight and delicate—ink
- Bold and heavy—charcoal
- Fast and blended—charcoal and graphite
- High contrast—black ink with white chalk
- Blurred and bled—ink into water wash
- Personal lines—made from words, letters, shapes, images



Figure 7-2 Line Direction. Line can vary in any directional path: straight, curved, squiggle, zigzag, scribble, etc. Line quality varies with hand pressure and media handling.

Line position refers to a line's direction in relationship to the picture plane. Horizontal, vertical, and diagonal are the three major line positions. [7.3] *Vertical* direction suggests height, up and down, north and south. *Horizontal* direction suggests flatness, east and west, the ground, and the horizon. *Diagonal* lines can be in any direction, varying by 360 degrees. A diagonal can be an angle of any degree, radiating any direction, or be a stationary 45° angle. Diagonals form a compositional dynamic that suggests movement, speed, rotation, and convergence.

A line can also move through space three-dimensionally, either receding or advancing into the picture space, by convergence or gradation of width. An *actual line* is a physical line in three-dimensional space, for example, a wire or thin piece of wood in a sculpture. An *implied line* points to another line as its logical continuum, creating an invisible connection. [7.4] An implied line is a conceptual line that forms bonds between the parts of a composition.

Shape

When a line closes upon itself, it produces a shape. A shape is a two-dimensional closed form or plane. [7.1] A shape can have any contour, height, and width, but no depth. A shape has mass or area defined by its edges. It can be outlined or solidified by filling it with a value, a texture, or a color. Shape is almost infinite in its variations.

There are several categories of shape. Geometric shapes are our standard shape vocabulary: circle, square, rectangle, ellipse, triangle, diamond, and pentagon. [7.5] Geometric

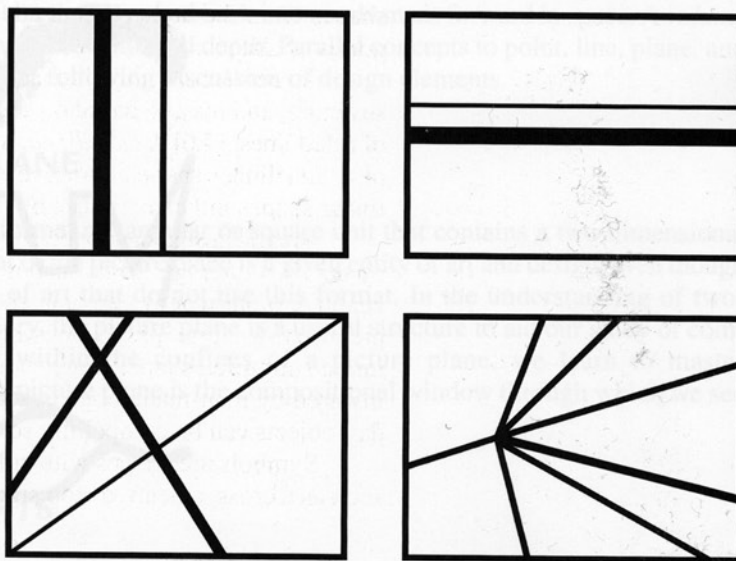


Figure 7-3 Line position refers to its direction in relationship to the picture plane. The main line positions are vertical, horizontal, and diagonal (also shown as “radiating” diagonals).

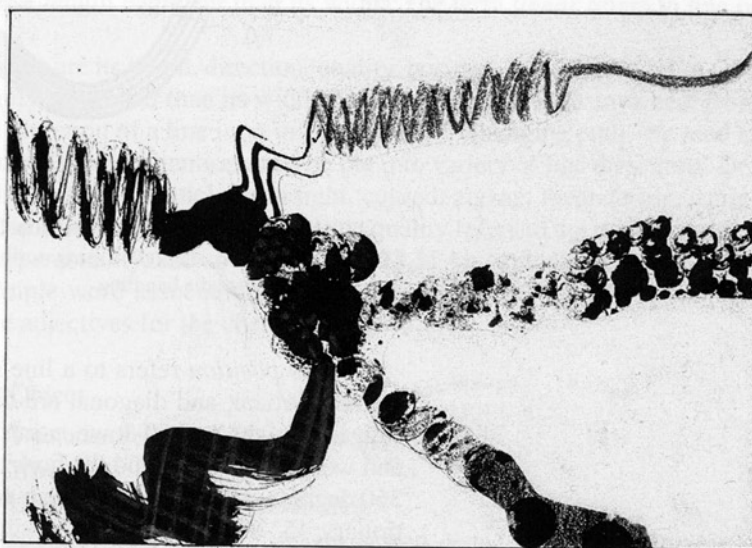
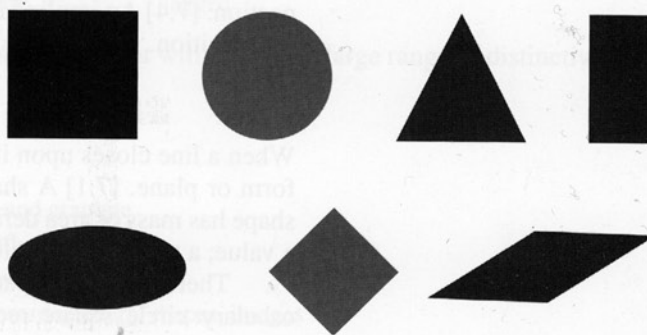


Figure 7-4 Line Continuity Study, student work by Alicia King. Implied line forms a mental and visual connection between the parts of the composition.

Figure 7-5 Geometric shapes are the standard shape vocabulary: circle, square, triangle, rectangle, oval, diamond, and trapezoid.



shapes form the archetypal shape language and serve as building blocks for other categories of shapes.

A *rectilinear shape* is made up of straight edges. Rectilinear shapes are angular in structure, and may be based on sections of squares, rectangles, triangles, or a combination of ruled lines. [7.6] A *curvilinear shape* is built primarily from curved edges. The contours of a curvilinear shape are derived from circles, ellipses, or freehand curves. [7.7] Curvilinear shapes indicate a sense of movement or continuity.

Art and design cannot be created in a vacuum. Art is always derived from and inspired by our surroundings. Some shapes are reality based: namely organic (nature made) and mechanical (man-made). *Organic shapes* are those that are inspired by—but not a direct depiction of—nature. [7.8] For example, an organic shape could be derived and synthesized into a simplified shape from a flower, shell, or leaf. *Mechanical or man-made shapes* are inspired by man-made objects, technology, architecture, tools, and so forth. [7.9] Everyday objects can be compelling sources for the invention of shapes.

Symbols are shapes with cultural associations. A *symbolic shape* stands for an idea, such as a cross, a heart, a stop sign. [7.10] Symbols should be used with the awareness of



Figure 7-6 A rectilinear shape is formed from straight edges or contours.

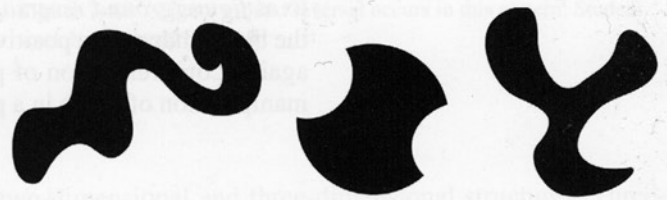


Figure 7-7 Curvilinear shapes are formed from curved edges.

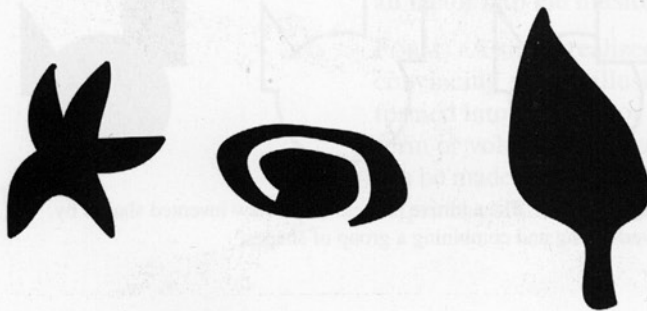


Figure 7-8 Organic shapes are those reminiscent of natural forms.

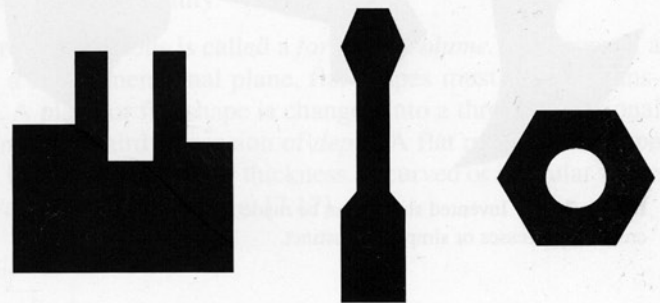


Figure 7-9 Man-made or mechanical shapes are those inspired by man-made objects.



Figure 7-10 Symbolic shapes are associated with cultural meanings.

their strong associations with specific ideas. The viewer can often perceive a thematic message when symbolic shapes are presented in an artwork.

Shapes can be invented and individualized with infinite variety. An *invented shape* is a unique shape formulated by an artist. [7.11] Any category of shapes can be an inspiration for shape invention. Some students easily develop invented shapes, but others have problems with shape invention. Several strategies facilitate the process of shape invention. *Addition* is a process of overlapping multiple shapes in order to synthesize composite shapes. [7.12] The process of *subtraction* also utilizes overlapping shapes, which are then sheared or subtracted in order to make new shapes. [7.13] In the process of *intersection*, shapes are overlapped, and a common residual area is extracted to produce a shape. [7.14]

When a shape is positioned in a picture space, it occupies a larger physical area than a line. The innate mass of shapes gives them an interdependent relationship with the space of the picture plane. The area that a shape occupies is called the *positive space* or *figure* in a composition. The area that surrounds the shape is called the *negative space* or *ground*. [7.15] When designing with shape, we need to be sensitive to both positive and negative spaces. The negative space, in some instances, can itself become a shape. When we are uncertain which compositional areas are positive and which are negative, this is called *positive/negative ambiguity*. [7.16] Positive/negative ambiguity is sometimes also referred to as *figure/ground reversal*. As shown, in figure/ground reversal, our eye shifts between the black shapes as a positive space, then to the white areas as the positive space, and back again. Comprehension of positive and negative ambiguity serves to sensitize us to the manipulation of space in a picture plane.

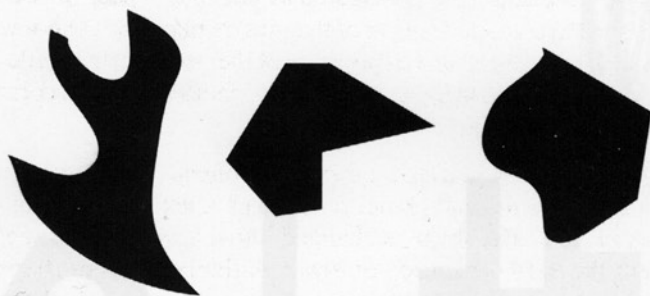


Figure 7-11 Invented shapes can be made from any of the shape creation processes or simply by instinct.

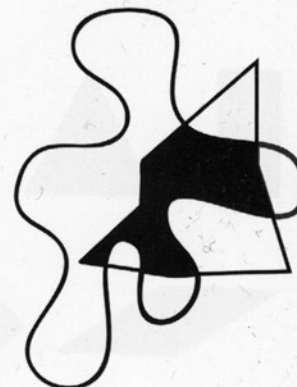


Figure 7-12 The additive process forms new invented shapes by overlapping and combining a group of shapes.



Figure 7-13 The subtractive process uses overlapping to create new shapes. In this case, the overlaps cut away to form a new shape.

Figure 7-14 The process of intersection uses only the area where two or more shapes intersect, which is sometimes called a residual shape.



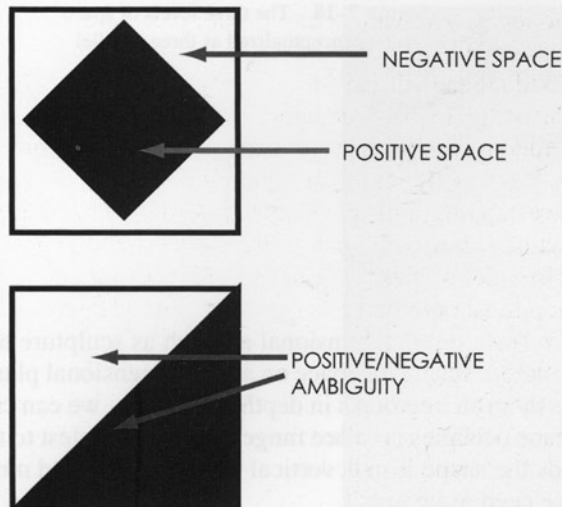


Figure 7-15 The relationship of shape to background. The shape is referred to as the positive space or figure and the background is called the negative space or ground. When this relationship is unclear, this creates positive/negative ambiguity or figure ground reversal.

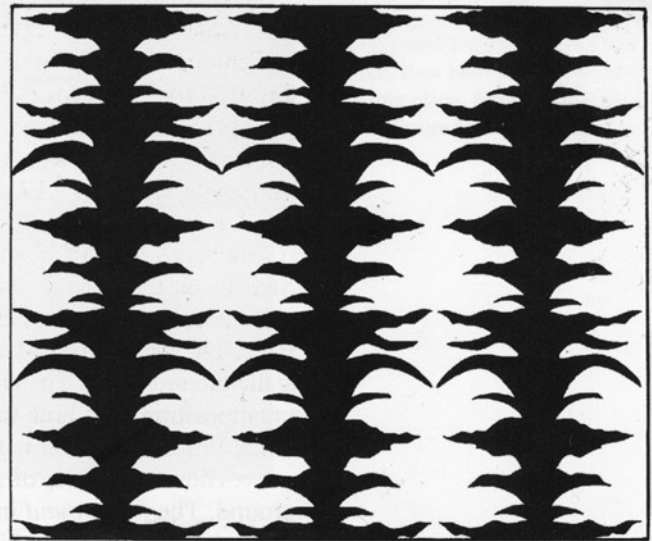


Figure 7-16 Figure ground reversal occurs in this pattern. Student work by Amberly Strykza.

Space and Form

Two main formats of art are two-dimensional and three-dimensional structures. Three-dimensional work, such as sculpture or relief, is comprised of *actual* space and form. On a two-dimensional plane, however, space and form are created as *illusions*. Space in two-dimensional art harkens back to the Renaissance notion of the picture plane as a window that represents a three-dimensional world. Our visual experience of the world forms guidelines for generating illusionary space. Gravity, weight, scale, value, perspective, and color all factor into the illusion of three-dimensionality.

FORM A shape realized in three dimensions is called a *form* or a *volume*. To represent a convincing spatial illusion on a two-dimensional plane, flat shapes must first be transformed into volumes or forms. A plane or flat shape is changed into a three-dimensional form or volume by the addition of the third dimension of *depth*. A flat rectangular shape can be made into a planar form by adding breadth or thickness. A curved or irregular shape acquires volume by gradated values called *modeling*. [7.17]

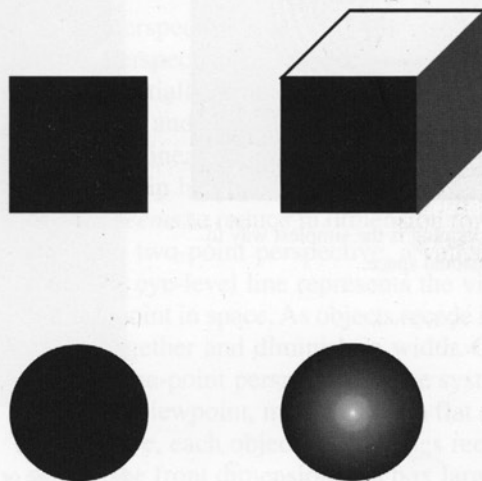


Figure 7-17 A shape is a plane with only two dimensions; a form is a volume with three dimensions or the illusion of three dimensions.

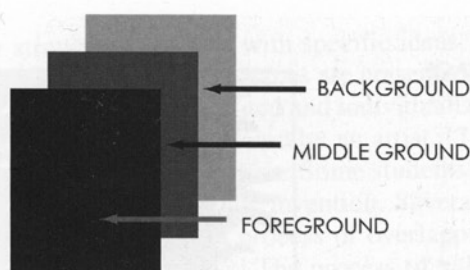


Figure 7-18 The three levels of space can be conceptualized as three parallel planes.

SPACE Actual or true space is used only in three-dimensional art such as sculpture and architecture. It is quite complex to create an illusion of space on a two-dimensional plane. By application of the distortions that the human eye sees in depth perception, we can create an illusion of space. Methods to create illusionary space range from the simplest to the most complex as follows: overlapping, diminishing size, vertical location, form and modeling, linear perspective, and atmospheric perspective.

The three levels of space are identified as foreground, middle ground, and background. The *foreground* includes the objects and space closest to the viewer. The *middle ground* is comprised of objects and space that are a medium distance away from the viewer. The *background* consists of the objects that are farthest away in space along with the distant space itself. These spatial levels can be thought of as three parallel planes of glass in layers successively receding from the viewer. [7.18]

Ways to Create Space

The simplest method to create space on a two-dimensional plane is *overlapping*, which is the visual placement of one object in front of another. Overlapping or superimposition is a simple but extremely effective mode of constructing spatial depth. [7.19]

Objects that are further away from us in space seem to recede in size/scale. Because of our sense of size permanence, we instinctively recognize that objects are not actually smaller and that the perception of scale change is an illusion. The illusion of depth in a picture plane can be produced by *diminishing size*; objects becoming sequentially smaller as they recede into a larger surrounding space. When overlapping is combined with diminishing size, a stronger spatial illusion occurs. [7.20]

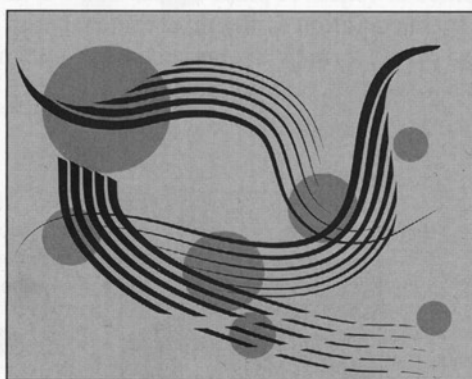


Figure 7-19 Overlapping is the simplest way to imply a three-dimensional space.

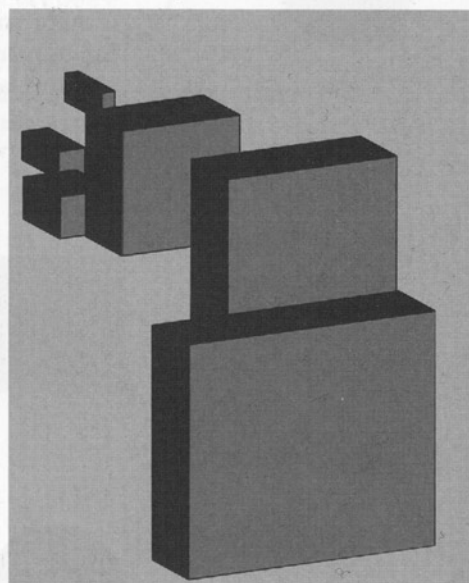


Figure 7-20 Overlapping combined with diminishing scale or size creates a stronger spatial illusion.

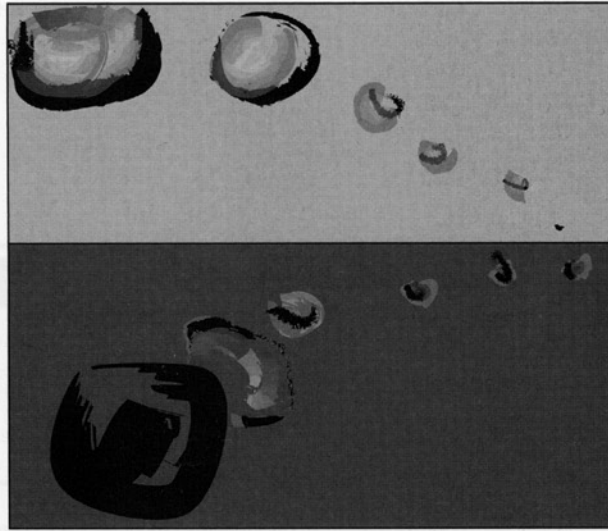


Figure 7-21 Vertical location refers to the placement of objects in a life-like spatial situation. The objects in the foreground are lower in our field of vision; their base lines are lower in the picture plane. Note that this placement is mirrored in the sky area.

An open space that is defined by a horizon line instantly implies a space with both gravity and depth. By adding a horizon line to a picture plane, the bottom section of the composition implies a ground plane and the area above the horizon line suggests sky. Objects placed in the “ground” area of the imaginary space in the picture plane give it a sense of gravity and location in space. Higher or lower vertical placement that determines spatial depth is called *vertical location*. [7.21] In vertical location each object has a *base line*, which is the base of each object in an illusionary space in relationship to the horizon line. Vertical location emulates what we see in reality; the base lines of objects closer to us are lower in our field of vision. Objects in the middle ground are positioned successively closer to the horizon line as they recede. Objects in the background are located highest in the picture plane and closest to the horizon line, the farthest point in illusionary space. Objects in the sky plane also must be correctly placed to enhance a spatial illusion. Objects in the sky area of the picture plane are larger at the top of the sky, becoming systematically smaller in scale as they are situated lower toward the horizon line. An identical vertical location strategy is used in either the ground or sky plane. This strategy is mirrored above and below the horizon line, which represents the farthest point in space. Objects meant to be weightless or floating are not subject to vertical location and can be located anywhere in the picture plane.

Linear Perspective

Linear perspective is a system devised during the Renaissance for accurate depiction of space. Perspective constructs the mode in which volumes seem to become smaller as they recede spatially, emulating a visual illusion formed by our eye. Linear perspective employs lines and vanishing points to demonstrate diminishing sizes and recession of objects in space. Linear perspective defies logic. Logically, we know that a box’s dimensions are consistent in height, width, and depth, independent of its location in space. The scale of objects *seems* to reduce in dimension toward points, which are called *vanishing points*. In one- and two-point perspective, a vanishing point is placed on the horizon or eye-level line. The eye-level line represents the viewer’s height in reference to the objects and the farthest point in space. As objects recede into the background, their edges appear to become closer together and diminish in width. Guidelines for each object converge at vanishing points. One-point perspective is the system used for objects that are located perpendicular to our viewpoint, meaning that a flat surface of the object faces us. [7.22] In one-point perspective, each object’s guidelines recede to a single vanishing point, to make, for instance, the front dimension of a box larger than its rear dimension.

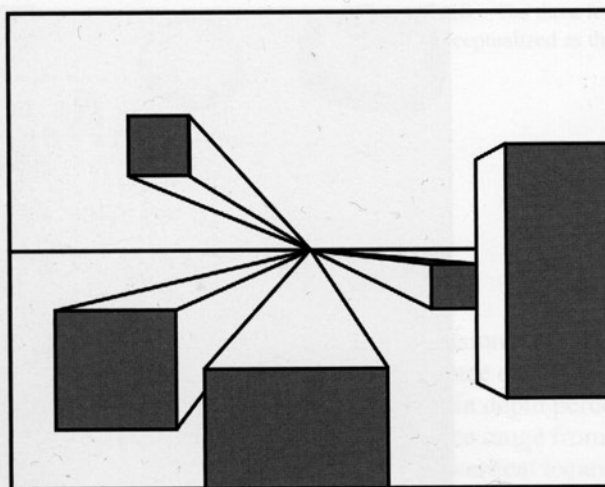


Figure 7-22 In one-point perspective, each object recedes to a single vanishing point that is always located on the horizon/eye level line.

Two-point perspective represents a view of objects or interiors that are located at an angle to our vision. For example, a box or building with its corner closest to us is depicted by two-point perspective. [7.23] An interior viewed diagonally is also represented by two-point perspective. Objects in two-point perspective are delineated as two sets of lines receding toward two vanishing points, which are located on the eye-level or horizon line.

Linear perspective can be generalized into two concepts, exterior and interior perspective. Exterior perspective guides the depiction of objects in an open space. Exterior views depict either objects seen in a landscape setting or the outside surfaces of architectural objects. Interior perspective guides the depiction of interior spaces. Inside or interior perspective depicts an interior view of buildings or rooms in an architectural space.

ATMOSPHERIC PERSPECTIVE An alternate means of creating space on a two-dimensional plane is atmospheric perspective. The concept of *atmospheric* or *aerial perspective* differentiates distinct characteristics between foreground, middle ground, and background objects in space. In our observation of real space, objects in the foreground have more detail, stronger light/dark value contrast, and brighter colors than distant objects. As objects

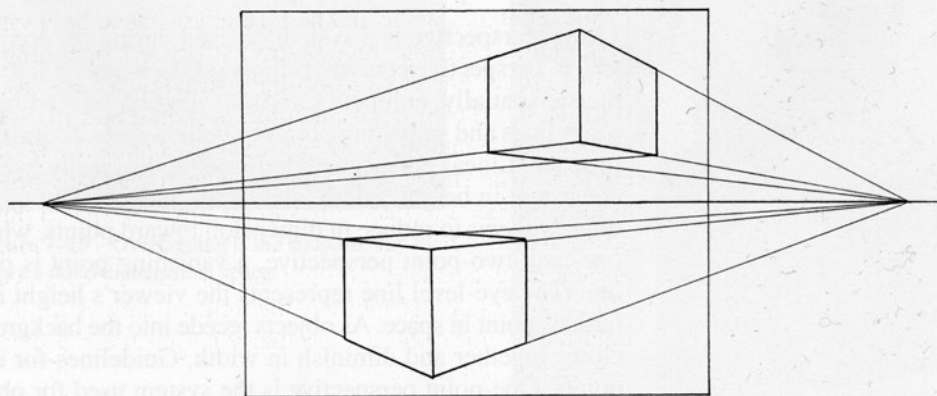


Figure 7-23 In two-point perspective, each object recedes to two vanishing points located on the horizon line.

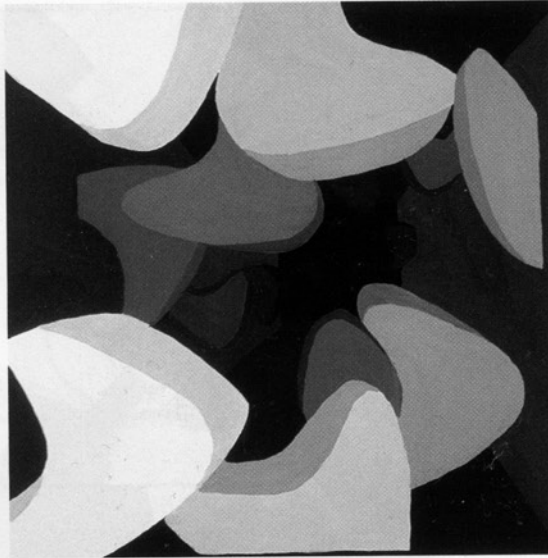


Figure 7-24 Objects in the extreme foreground enhance a spatial illusion. Student work by Donna Briceland.

recede spatially, they lose detail and become less distinct. Objects also tend to lose value contrast and color saturation as they recede into space. [10.16] When we view distant mountain ranges, for example, they tend to be lighter, grayer, or bluer than closer mountains. The amount of atmosphere between the distant object and the viewer causes this illusion. For the artist, contrasting color, value, and detail are effective tools for the depiction of space.

The artist may enhance a three-dimensional illusion by “placing” objects in the extreme foreground. Large-scale objects in the foreground, which seem to obstruct our view, dramatize a spatial illusion. [7.24]

Value

Value is the series of gradual light to dark steps in achromatic or chromatic colors. The compositional depiction of space, light, and form is powerfully expressed by value. Contrasting values can be controlled to impart a flat shape with volume by light and dark areas or gradations. A round, curved, nonplanar form is given volume by an evenly stepped value change, called a gradation. By gradation, a curved object seems to be a volume with a play of light across it. In contrast, an illuminated planar, flat-sided form has abrupt value changes, with light and dark areas defined by the edges of planes. [7.17]

An illusion of spatial depth is most effective when depicted by volumetric, modeled forms. Spatial illusion can be further enhanced by a systematic value gradation. A value system that suggests space is straightforward, operating in two strategies: dark to light or light to dark. For the dark-to-light strategy, a background space is predominantly light (like daylight) the foreground objects should be dark in value, gradually becoming lighter as they recede into space. [7.25] An alternate practice of this strategy is to supply foreground elements with strong value contrast, which gradually become lighter and have less contrast as they recede into space. An equally powerful spatial illusion can be established in the opposite light-to-dark value system. If the background is very dark (like nighttime), foreground objects should be light and gradually become darker as they recede into space. [7.26] The alternate method for light to dark is to give the foreground objects strong light/dark value contrast, gradually letting them become darker and less contrasting as they recede into space.

Value can also be placed in an arbitrary fashion for variety, balance, or to highlight an area of interest in a composition. Placing values arbitrarily will help us understand which values recede, advance, or draw our attention in a compositional context.

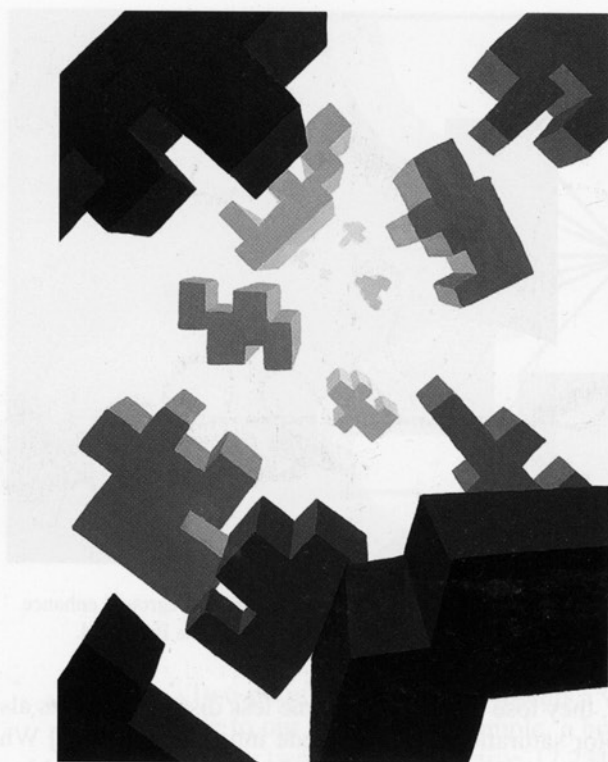


Figure 7-25 A spatial value study. Note that the objects seem to recede into space as their values become lighter and have less contrast. Student work by Mimi Fierle.

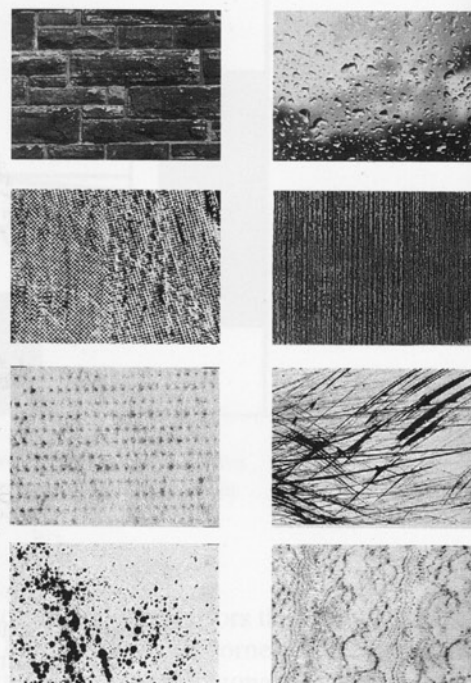


Figure 7-26 Texture experiments are ways to either depict or invent textures. Student work by Simone Theriault.

Texture

Texture is the characteristic surface quality of an object. Rough, fuzzy, gooey, and velvety are all words that describe texture. Texture is based on our tactile sense of touch, but we also experience texture visually. The everyday visual environment informs our sense of texture; we usually know how the surface of an object will feel solely by visual perception.

Actual or *physical texture* is real texture that is part of a work of art. Chiseled stone, polished metal, or sand added to paint are all examples of actual textures. *Simulated textures* are accurately portrayed textures that create an illusion of being real textured surfaces. Illusionary texture makes use of an artist's rendering skills to exactly duplicate a texture visually on a two-dimensional plane.

Like line and shape, textures can also be individually invented. Invented textures are derived from visual ideas or descriptive words. [7.27] Adjectives that describe textures can suggest creation of them: rough, smooth, fuzzy, glossy, and so forth.

Textures can also be invented by media experimentation, which is application of media in unexpected ways. Paints or dyes can be applied with sponges, toothbrushes, pieces of board, or by using drybrush, impasto, or imprinted objects. Combinations of media can be used. Scraping off or erasing can be used to make visual textures. Actual textures can be made by building up surfaces with crumpled paper, pieces of board, tape, or modeling paste. Additions can be made to paint, such as sand. Patterning also gives the illusion of texture because of the repeated images, marks and motifs. [7.26]

Transferred texture is texture that is rubbed and assimilated from a surface. A thin paper stock is laid over a textured surface, and then rubbed with a wax crayon, conte crayon, or graphite, which picks up the texture from underneath the paper. A similar effect can be obtained with paint by scraping; this method is called *frottage*. Textures are a wonderful tool for adding visual variety, physicality, and interest to a composition.

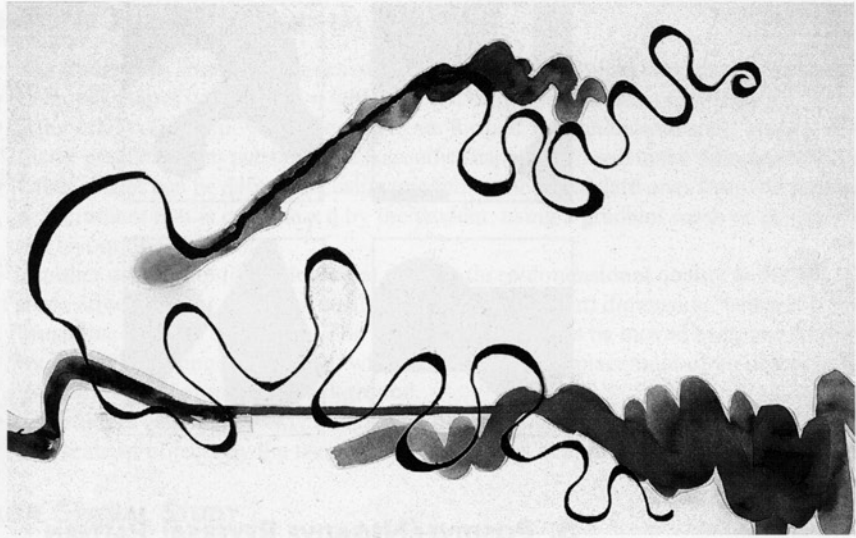


Figure 7-27 Student line continuity study by Priya Patel.

The design or art elements are the basic visual tools used to create art. Each visual element has its own characteristics and complexity. Art elements are part of formal study as well as a basis for the knowledge of compositional forces.