Part Two

DESIGNING WITH COLOR

Chapter 7

The Elements of Design

INTRODUCTION

Design elements, alternately called *art elements*, are the basic building blocks of art. *Design elements* are the visual tools that are utilized to create two-dimensional and three dimensional art. Color is the most complex and variable of the all the design elements, as demonstrated in Part I. Each design element has its own distinct visual characteristics. A list of design elements includes line, shape, space, value, scale, and texture. Design elements provide us with a series of choices in the visual components of art. Design elements are a portion of the *form* component of art, the purely visual characteristics of art. The artist's challenge is to appropriately select formal design elements to address 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 list of abstract components of art and design that are the basis for all art 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 a location in space. A point may be visible or invisible, of any size, and refers to a specific location in a composition. A *line* is a connection between two points, and can be thought of as a point or dot moving through space. A *plane* is a shape with height and width, but no breadth or depth. A plane is two-dimensional and flat, having any type of outer edge or contour. 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. In the following discussion of design elements, parallel concepts to point, line, plane, and volume will emerge.

THE PICTURE PLANE

The *picture plane* is a formal rectangular or square unit used to contain a two-dimensional composition. Not all art is presented within a traditional picture plane, but the format of the picture plane is a given entity of art and design. The picture plane format aids in structuring 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 into 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. We identify objects by innately scanning the contour of each object. 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 infinite and ever-changing. We tend to think of line as straight, so special attention must be put into variety of line direction. Line directions 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 begins with simple word associations. The following list contains linear objects along with descriptive adjectives for the character of each line:
A similar descriptive list suggests appropriate 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

**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 forms 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 being filled 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]
Since geometric shapes form the archetypal shape vocabulary, they also serve as the building blocks for other types 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 free-hand curves. [7.7] Curvilinear shapes have 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. There are several categories of shapes that 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. Everyday objects are potent sources of ideas for shape invention.

*Symbolic shapes* are those with cultural associations. A symbolic shape stands for an idea, such as a cross, a heart, a stop sign. Symbols should be used with care in art because of their strong associations with specific ideas. The viewer receives a thematic message from symbolic shapes in an artwork.

Shapes can be invented and individualized with infinite variety. An *invented shape* is a unique shape formulated by an artist. Any category of shapes can be a source for shape invention. Some students find it easy to develop invented shapes, but others have a difficult time with shape invention. There are several strategies that aid the process of shape invention. *Addition* is a process of overlapping multiple shapes in order to synthesize composite shapes. The process of *subtraction* also utilizes shape overlaps as a guide. Shapes are then sheared or subtracted in order to make new shapes. By the process of *intersection*, shapes are overlapped, and a common residual area is extracted to produce a shape. These strategies streamline the process of shape invention.

When a shape is placed in a picture space it takes up more mass or physical area than a line. This factor gives shapes an interdependent relationship with the picture plane. The area that a shape occupies is called the *positive space* or *figure* in a

![Figure 7-10](image1.png) Symbolic shapes are associated with cultural meanings.

![Figure 7-9](image2.png) Man-made or mechanical shapes are those inspired by man-made objects.

![Figure 7-11](image3.png) Invented shapes can be made from any of the shape creations 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.

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 it is uncertain which compositional areas are positive and which are negative, this is called positive/negative ambiguity. [7.16] Positive/negative ambiguity is sometimes also called figure/ground reversal. Compositions with figure/ground reversal cause our eye to shift to the positive and then to the negative and back again. Positive and negative ambiguity sensitizes us to the manipulation of space in a picture plane.

Space and Form

Two main formats of art are either a two-dimensional or a three-dimensional structure. Three-dimensional work, such as sculpture or relief uses actual or real space and form. On a two-dimensional plane, however, space and form are created as illusions. Space in two-dimensional art hearkens back to the Renaissance notion of the picture

Figure 7-16  Figure ground reversal occurs in this pattern. Student work by Mimi Fierle.
A shape is a plane with only two dimensions; a form is a volume with three-dimensions or the illusion of three dimensions.

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 may be changed into a three-dimensional form or volume by the addition of the third dimension of depth. A flat rectangular shape, for example, 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]

Space
Actual or true space is used only in three-dimensional art such as sculpture and architecture. Illusionistic space is an art element with a high degree of complexity. To create an illusion of space on a two-dimensional plane, we must emulate the principles and distortions that the human eye sees in reality. Methods to create space range from simple to complex as follows: overlapping, diminishing size, vertical location, form and modeling, linear perspective, and atmospheric perspective.

The three levels of space are called foreground, middle ground, and background. The foreground contains the objects and space closest to the viewer. The middle ground contains objects and space that appear to be a medium distance away from the viewer. The background contains the objects that appear to be farthest away in space along with the distant space itself. Spatial levels can be thought of as three parallel planes of glass in layers that recede from the viewer. [7.18]

Ways to Create Space
The simplest method to create space on a two-dimensional plane is overlapping, that is, the visual placement of one object in front of another. Overlapping 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. Because of our sense of size permanence, we instinctively know that objects are not actually smaller, but that the scale change is an illusion. The illusion of depth or scale in a picture plane can, therefore, be fashioned by diminishing size, by which objects become smaller as they recede into a larger surrounding space. When overlapping is combined with diminishing size, a stronger spatial illusion occurs. [7.20]

A large open space 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 suggests ground and the area above the horizon line suggests sky. Objects placed in this imaginary space can imply gravity by resting them on the ground plane. Objects with gravity have to be correctly placed to form a spatial illusion. Placement in the “ground” area of the picture plane give an object a sense of gravity and location in space. Higher or lower vertical placement in relationship to spatial depth is called vertical location. [7.21] Vertical location means each object has a base line, which is located closer to the horizon line as the object recedes in the “space” of the picture. Vertical location emulates what we see in reality; objects placed closer to us are lower in our field of vision. Objects in the middle ground are thus located sequentially nearer to the horizon line as they recede. Objects in the background are placed higher in the picture plane, in relation to the horizon line, the farthest point in illusionistic space. Objects in the sky plane also must be correctly placed to enhance a spatial illusion. Objects in the sky area

Figure 7-17

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

Figure 7-19
Overlapping is the simplest way to imply a three-dimensional space.
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. An interior viewed diagonally is also represented by two-point perspective. Objects in two-point perspective are delineated with two sets of lines receding toward two vanishing points, which are located on the eye-level or horizon line.

Atmospheric perspective Atmospheric perspective is yet another way of creating space on a two-dimensional plane. The concept of atmospheric or aerial perspective identifies distinct differences that can be discerned among foreground, middle ground, and background objects in space. In reality, objects that are in the foreground have more detail, stronger light/dark value contrast, and brighter colors than distant objects. As objects 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 atmosphere between the distant object and the viewer causes this illusion. For the artist, contrasting color, value, and detail is an effective way to depict space.

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

Scale

Scale is alternately referred to as either an art element or a design principle. Scale is the relative size of objects in an artwork. Scale can either represent depth or serve to organize dissimilar objects. Objects with similar scale will appear to visually unify.

Figure 7–24 Objects in the extreme foreground enhance a spatial illusion. Student work by Simone Theriault.

Value

Value is the range of light to dark steps of achromatic or chromatic colors. Value is a powerful tool for the compositional depiction of space, light, and form. Contrasting values can be controlled to impart volume to a flat shape by using light and dark areas or by using gradations of light and dark. A round, curved, or nonplanar form is given form by a smooth, even value change, called a gradation. A gradation bestows a curved object with volume by emulating the play of light across it. In contrast, an illuminated planar, flat-sided form has abrupt value changes defined by the edges of planes. [7.17]

Spatial depth illusion is most effective when represented by volumetric, modeled forms. Spatial illusion can be further enhanced by an overall value gradation. A value system that depicts space is simple and operates as follows: When a background space is predominantly light (in daylight) the foreground objects should be dark in value, gradually becoming lighter as they recede into space. [7.25] An alternate method is for foreground items to have strong value contrast, gradually becoming lighter and less contrasting as they recede into space. A similarly powerful illusion can also be established in an opposite value system. If the background is very dark (as at nighttime), the foreground objects should be light and gradually become darker as they recede into space. [7.26] The alternate method is to give the foreground objects strong light/dark value contrast, gradually letting them become darker and less contrasting as they recede into space.
of the picture plane are larger at the top of the sky, becoming systematically smaller in scale as they are placed lower toward the horizon line. Vertical location in ground and sky planes 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 placed anywhere in the picture plane.

Linear Perspective

Linear perspective is a system formulated during the Renaissance for accurate depiction of space. Perspective demonstrates how volumes appear to become smaller as they recede spatially, emulating the illusion formed by our eye. *Linear perspective* employs lines and vanishing points to represent diminishing sizes and recession of objects in space. Linear perspective defies logic. For example, we know that a box’s dimensions are consistent in height, width, and depth, and are independent of its location in space. Objects, however, do appear to recede in scale toward points, which are called *vanishing points*. In one or two-point perspective, a vanishing point is placed on the horizon or eye-level line, which represents the farthest point in space. The *eye-level line* represents the viewer’s height in reference to the objects. As objects recede into the background they also 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 placed 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 or a wall larger than its rear dimension.

Linear perspective can be generalized into two areas, 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.
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.

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 something will feel solely by visual perception.

Actual or physical texture is real texture used in a work of art. Chiseled stone, polished metal, or sand added to paint are all examples of actual textures. Simulated textures are accurately rendered textures that create the 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 help us create them: rough, smooth, fuzzy, glossy, and so forth.

Textures can be invented by media experimentation, applying media in unusual ways. Paints or dyes can be applied with sponges, toothbrushes, or 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 crumbled 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. [7.16]

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 cray-
on, 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.

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 formal study as well as a starting point for the comprehension of compositional forces.

**Activities**

*Note:* All these studies are executed in the achromatic colors of black, white, and gray, so the student can focus solely on the design elements.

1. **Line Experiments and Continuity Study**

   **Objective:** The student will explore the design elements of line through experimentation with line direction, width, quality, and media.

   **Media:** Black, white, and gray media. Cut papers on 15" x 20" illustration board. Leave 2" to 3" border, and center the composition.

   - Make various line experiments with black, white, and gray media (such as ink, graphite pencil, charcoal, gray and white chalks, and black markers) on white paper.
   - The experiments should vary widely in direction, line quality, width, and media.
   - Using the line experimentation examples that you have made, put together a variety of types of line into a collage.
   - The lines should be connected, forming a collaged composition that has single or multiple pathways, using the principle of continuity (see Chapter 8) for unity.
   - Try to connect all lines and make smooth transitions between thick and thin lines. The lines should seem to be drawn onto the board. Lines may go "off" the picture plane area. [7.28, 7.4]

2. **Invented Shapes**

   **Objective:** The student will make a variety of shapes: rectilinear, curvilinear, organic, and invented.

   **Media:** Ink or marker on board.

   - Make at least five examples of rectilinear and curvilinear shapes; for a vocabulary of shapes to be used in subsequent studies.
   - Next, make at least five shapes of your own invention. These shapes can be reminiscent of organic or man-made forms or simply individualized invented shapes. Fill the shapes in with black marker or ink. [7.11]

3. **Positive/Negative Reversal Pattern**

   - Using the concept of positive/negative ambiguity, design about ten shapes in 2" square units. Each unit should have a shape that easily reverses between figure and ground. To increase your success, design these units next to each other. [7.29].
   - The shapes can be invented or be additive or subtractive combinations of several shapes. The units can have equal or unequal amounts of positive and negative space.
   - Choose two units to make a pattern, alternating each unit in a grid system. The overall effect should be a unified repetitive structure.
   - The pattern may use simple alternation of units, or the units may be mirrored, reversed, or changed in direction. Use tracing paper to aid in this process.
   - Use a tracing of the pattern to transfer it onto a board. The final pattern should have figure/ground reversal. Overall image size should be 8" x 10" to 10" x 12" on a larger board, leaving at least a 2" border. Choose size based on what works best for the pattern. [7.30] [7.16].

4. **Value Spatial Study**

   **Objective:** To sensitize the student to spatial issues. The student will use value and spatial rules to create a spatial illusion.

   **Media:** Black and white and mixed gray acrylic paint on illustration board. Picture area: approx. 8' x 11" to 10" x 14", with 2" border.

   - Make an abstract design to demonstrate the illusion of depth, using linear perspective, overlapping, size contrast, value contrast, and/or atmosphere perspective.
5. Recovered Design (Project originated by Brian Duffy)

Objective: To develop the picture plane through the use of chance and intuition. To examine the effects of actual and implied texture.

- This project will have an almost urban archaeological quality about it. It is reminiscent of old billboards along the highways, which have been neglected and weathered. Layers have been torn away from these billboards, making an interesting abstract composition.
- On a 15" x 20" board center and rule a 6" x 9" picture plane. In this area randomly glue 10 to 20 layers of color magazine images with a glue stick. Each layer can have one or several images. Areas of large type with images can also be used. Let the images overlap the edges.
- After several layers are applied, trim the edges, and then continue layering. Avoid too many representational areas.
- When all the layers are completed use a hand sander, an electric sanders, rasps, files, and knives to scrape, tear, sand, and gouge sections of the surface to reveal portions of the layers below.
- As you remove layers look for relationships which appear and affect the overall composition. You may add collage areas to aid the continuity of the composition.
- Trim composition and mat with white board. [7.31]

Note: A ten-step gray scale must be completed previous to executing this painting. Use the gray scale as a reference for your final painting.

- Use one of the shapes you have invented. Make it into a form by modeling, giving it depth and making it appear to be a solid volume.
- Set your forms in an illusionary space: an imaginary interior, an open space with a ground and sky, or as floating shapes in space.
- Use several grays, black, and white to emphasize the volume of forms and depth. As forms recede into space, make the values gradually less contrasting and closer to the value of the background. Values may be light in foreground and dark in background or vice versa.
- Plan your composition with value drawings before executing. [7.24, 7.25, 7.26]