objectives

Understand design as a visual language that is built on fundamental principles and elements.

Learn how the primary principles of unity, variety, hierarchy (dominance), and proportion affect the design composition as a whole.

Learn how the supporting principles of scale, balance, rhythm, repetition, economy, and proximity affect internal relationships of the elements within a design composition.

Discover the uses of the design elements shape, space, line, size, color, texture, and typography as compositional content.

introduction

Design is a visual language that is built on fundamental principles and elements. The principles are the organizational rules used in conjunction with the elements to create order and visual interest. The principles are presented as two related sets. The primary principles are those affecting the design as a whole, and support principles are those that affect the internal relationships of the elements. Principles can be thought of as the unseen forces that create interaction among the elements. The elements of design constitute the content of a graphic design. The elements are seen and exist on the surface or picture plane of a composition.

Each of the principles and elements is defined and discussed with an accompanying analysis using actual designs and illustrated diagrams.
PRINCIPLES AND ELEMENTS OF DESIGN

The human psyche seeks harmony and resolution in everyday life. We use our senses of touch, smell, hearing, taste, and sight to perceive and navigate in the world. When we perceive that our living or work environments have become too disorderly, we are motivated to organize these environments so that we can again function productively in them. We see disorder and act to reorganize or rearrange it. On a basic level, this is a form of visual organization, the activity of designing. The more familiar we are with the environment we want to change, the more manageable is the task of changing it.

Graphic design is the art of arranging pictographic and typographic elements to create effective communication. It is a complex discipline that requires skillful and sensitive use of the eyes for navigating, the hands for crafting, the left brain for analytic reasoning and logic, and the right brain for creative, intuitive thinking. Directing these functions of the mind and body is a very demanding human activity. In fact, research in higher education ranks studying visual arts second behind medical school in its overall demand of the learner. Design is not a collection of formulas that, if followed and applied, ensure effective results. It is a fluid process that is guided by the designer’s sense of intuition, reason, and aesthetic judgment.

To manage the process, successful designers have learned there are fundamental principles that can be used to guide their own creative design decisions. The principles provide a structure for combining the common elements of design in a composition by serving as the relationship between the parts or design elements involved. It can be useful to think of the elements of design using familiar analogies, such as the ingredients in a recipe, the parts of a machine, or the materials needed to build a house. Individually, these components have limited use. But when skillfully combined, they work together to form something useful. When a measure of creativity is added, the result can be not only useful but also pleasing to the senses. Design works in a similar way.

We can understand how by first defining an inventory of principles and elements of design. Then we can see why they work by examining examples of design that emphasize a particular principle or element. There are many lists of principles and elements of visual organization that are widely acknowledged and have been written about in books on art and design theory. Most of these principles and elements are universal to any of the visual arts. The principles are often grouped together, suggesting that they have an equal role or importance. However, some principles have a more dominant function whereas others serve a supporting role. They have been organized here as primary and supporting principles to help you see their function and relationship. It is important to know that in any given design, one principle can be emphasized over another.

The primary principles that affect the design as a whole are unity, variety, hierarchy, and proportion. Support principles that affect internal relationships of the design include scale, balance, rhythm, repetition, and proximity. The elements of design include shape, space, line, size, color, texture, and typography. Typography is included as an element because in addition to having verbal meaning it also functions in design in the same manner as shape and line.
Primary Principles

Through the study and practice of making works of design, you will become more familiar with the processes and strategies that govern it. A working knowledge of the principles and elements of design provides a foundation for managing design decisions. It is important to keep in mind that the principles and elements are interrelated. You will see how in the discussion of each.

Unity and Variety

In the eye and mind of a viewer of any designed image, there is a need to be able to understand what is being seen. An objective of any design plan is to create a sense of unity through the organization of the compositional parts. Unity is an overriding principle that is served by all others (Visual 1-1). Unity is the control of variety. Often the content used in a design varies in kind and can include different typefaces, graphic elements, photographs, or illustrations. A complementary principle to unity, variety is necessary to create visual interest. Managing variety is the art of balancing visual contrasts. It is combining elements that don't appear, on the surface, to have much in common. Unusual combinations of elements directed at the message are often the most inventive and successful design. Too much variety however, or random use of it, can cause confusion (see Visual 1-2a and Visual 1-2b).

![Visual 1-1](image)

In this range of merchandise from the San Francisco Museum of Modern Art, unity is achieved in several ways. The logo's individual letterforms are strong identifiers that are repeated on each item. The consistent use of a distinctive, saturated color palette also unifies each product. Changing the scale of the logo elements to accommodate the changing size of each souvenir is a fresh, bold approach to variety. The horizontal bands on the bags mimic the banding effect of the logo applied to other items, and they create a layering effect that adds depth. The result is a variety of merchandise applications that tie in with each other and make a unified presentation. (Logo and merchandise design by Michael Osborne Design)
At a glance, the design seems colorful and lively. But a closer examination reveals that this design is struggling for its identity and unity. The photograph of a fall landscape captures a rich, delicate patchwork of color that serves as a backdrop for type and graphic elements. Competing with the photo are three different typefaces as well as two different uses of icons. Although the colors in the border frame relate to the photograph, they overpower the delicate quality of the image. Too much variety has created a dysfunctional design.

This solution uses two styles of the same typeface, creating a subtle and more unified statement in keeping with the photograph. The green rule implies the word in and minimizes clutter. Eliminating the graphic icons also gives the photograph more visibility. A full color border has been replaced by a color rule at the top and bottom of the design. This implied border opens up the photo as though it could continue beyond the left and right edges of the design. Finally, the decorative band at the top, which mimics qualities of the petroglyphs that can be found on the island, has been reduced in size. Its color coordinates with that of the type. In this revision, unity is achieved through economy. Economy is the idea of distilling the design to its most essential parts while striving to be sensitive to visual relationships. The type, graphic elements, and photograph are now working in concert to enhance and support each other.
Hierarchy

An important function of unity in design is managing visual hierarchy in composition. Hierarchy refers to an arranged order. Dominance, the prevailing influence of one element over another, and emphasis, stressing the importance of one element over another, are commonly included as principles. But they are really more simplistic, related functions of hierarchy. Hierarchy is the established order, importance, emphasis, and movement given to visual elements, from those that are dominant to those that are subordinate. A designer must manage the size, placement, and balance of the elements used so that the viewer can read the image and extract the intended meaning. Controlling hierarchy determines the path the viewer's eye takes as it first scans and then studies a design composition.

If you look at any work of design or art repeatedly, you can experience an eye-movement path. For the first few seconds of each viewing, the path is the same. Areas of high contrast, faces or unusual shapes can immediately attract the eye. Once you loop a few times around the dominant elements in a work, you become familiar with them and break away from the familiar elements to consider other features and elements that support the main ones (see Visual 1–3).
Lack of clear visual hierarchy is the reason many designs fail to attract and hold a viewer's attention. It is important to practice the art of critical analysis or deconstructing design compositions. A critical analysis begins by examining the parts of a design to see how they function. This activity can help identify the visual hierarchy and the subsequent eye-movement path. Identifying the most dominant elements in a design, as well as secondary and other support elements, reveals the meaning in the message. Sharpening this skill will serve your own design.

It is important to understand there is bias in the way certain cultural groups comprehend visual information. This has an impact on eye-movement tendencies. Designers must be sensitive to viewer partiality with regard to visual orientation, which is primarily influenced by the way written language is read. In Western culture, we read from left to right and top to bottom. Most Arab and Semitic writing is read from right to left but numbers are read left to right. Hieroglyphics, a pictographic writing that precedes alphabets, are read in different directions. Traditional Chinese calligraphy is read top to bottom and right to left, but modern Chinese newspapers and books are read left to right. Depending on the concept, graphic design can be read from middle to top, from bottom to top, up the side or down a side. The designer is in control of how a designed image is read by managing visual hierarchy (see Visual 1-4a, Visual 1-4b, and Visual 1-4c).

**Proportion**

Proportion refers to size relationships in a composition that serve as a transparent, underlying structure to the surface design. The outer dimensions of a two-dimensional design are its most basic proportion. A square, vertical rectangle, and horizontal rectangle all have unique proportions and affect particular qualities of a design. (see Visual 1-5a, Visual 1-5b, and Visual 1-5c). There are also numerous proportional formats with which designers and illustrators must work. The outer proportions or dimensions of a design have an important relationship to the internal divisions and alignments. As discussed in Visual 1-5a, Visual 1-5b, and Visual 1-5c, outer dimensions affect the orientation of the viewer and are often dictated by the nature of the design venue. Books and posters tend to be vertical in orientation, CD covers are square, billboards are horizontal, and three-dimensional surface graphics can assume many forms. Whether the proportions are a given or are determined by the designer, they must be considered as one of the first important considerations in a design plan.

The relationship between outer dimensions and internal divisions can provide a system for managing design decisions. There are proportional systems that have been used for centuries in architecture, art, and design. These systems are based on ratios—a comparison of one set of sizes or quantities with another. Although ratios are commonly expressed in mathematical terms, they can also be expressed as visual relationships. The golden section is a ratio that dates back to ancient Greeks. Its proportional harmony possesses both aesthetic beauty and structural integrity. The ratio of the golden mean (expressed mathematically as 1:1.618) is used to construct
It's sometimes helpful to think of design elements as actors on a stage, with the designer determining which element will lead and which elements will support the lead. The examples are composed of three major players: the primary message or headline, "Surviving the Training Jungle"; a supporting illustration; and a qualifying tagline, "Fall Conference." In visual 1-4a, all three elements are equal. Changing the direction of the tagline adds a directional element and gangs the typographic information. The pockets of space give the visual room to interact with the type and background elements that is easy on the eye. The image in visual 1-4b places emphasis on the illustration. Its size dominates the typographic information, presenting bold curved shape edges that frame the headline. The composition seems balanced by placing the visual just to the right of center, using the rag left shape of the type to mirror the right side of the visual. In visual 1-4c, the headline dominates the communication message. The illustration functions as an accent element. The design employs an expected hierarchy that reads from top down.

The golden rectangle and is the same ratio found in the structure of plants and other life forms. The spiral order of leaves growing from a branch, the seed pattern in the center of a sunflower, and the spiral of a nautilus shell can all be expressed in terms of the golden ratio. Building a golden rectangle using the ratio requires no calculations. It is constructed using a series of extended relationships as described in Visual 1-6a. These relationships possess a strong aesthetic harmony because the internal proportions relate in scale to the proportions of the original square and its extensions. The golden section can be extended to construct the golden rectangle, which was used by the Greeks as the basis for much of their architecture including the Parthenon (see Visual 1-6b). Renaissance artists used it to create overall harmony and balance in
One of the first decisions a designer makes is to determine the overall dimensions. Because the internal relationships of the design composition depend on the proportions of the outer dimensions, this shouldn't be an arbitrary decision. The shape of a design format also possesses associative meaning. (a) A vertical rectangle, in contemporary Western culture, is associated with architectural metaphors such as a building, a window, or a door. It can also relate to the proportions of a standing human form. Magazines, books, print ads and most poster designs use the rising presence that a vertical rectangle offers. (b) A horizontal rectangle (center) has a long-standing association with the landscape. In contemporary culture, movie screens, computer monitors, and television all make use of this panoramic format. (c) A square configuration offers a stable, neutral format that allows the designer, illustrator, or photographer to influence the overall composition by controlling the relationship of internal elements. It can be a difficult format to design in because it doesn't offer the proportional shift of a rectangle. The square has a proportional relationship to the circle and equilateral triangle. These three shapes are considered primary shapes.

works of painting and drawing, and contemporary graphic designers use the rectangle as a format for print and digital media (see Visual 1–6c and Visual 1–6d).

**Support Principles**

As stated, the support principles affect the interaction among elements. They have an equally important role to the primary principles in establishing visual organization in a composition. There are support principles that have a direct relationship to a primary principle. Scale and proportion are a good example. But none of the principles exist alone. In any composition, multiple principles are at work. However, you will see that in the arrangements of graphic elements, successful design tends to stress the use of one or two.

**Scale**

Proportion and scale are related principles. Whereas proportion is the size relationships of the design as a whole, scale refers to size comparisons of the internal parts of a composition—the visible elements that can be seen on the surface. Scale is the relationship of size or a comparison of size from one element to another. We constantly compare size, distance, and configuration in the natural and constructed worlds. Comparisons based on a known constant provide a familiar orientation. The profile of a towering building or the mass of a mountain on the
The Golden Rectangle. The golden rectangle can be constructed by starting with a square. Find the center of the square by drawing intersecting lines through opposite corners, as shown in the gray X. From there, draw a vertical line through the intersecting point of the X. Place the point of a compass where the centerline intersects the base of the square and scribe an arc that intersects the top right corner of the square (Point a) and extends to the square's baseline. Complete the rectangle by extending the square to the point where the arc meets the baseline (Points b and c). A second golden rectangle can be formed by drawing a diagonal line (shown in red) that extends across opposite corners of the rectangle and drawing a horizontal line from the point where that line intersects the original square (Point d). This second rectangle and its parts are proportionate to the original rectangle and corresponding parts.

The ancient Greeks found the proportions of the golden rectangle of great use in architectural design. Its proportions served them in the building of the Parthenon contributing structural integrity in columns used to provide support for the entablature and pediment. It also possesses aesthetic beauty in the overall proportional relationships of all the architectural components. The spacing of the columns related to their height and width, and the relationship of the column height to the distributed number of columns and the supported entablature fit into two golden rectangles that share a common square.

Designers today find the proportions of the golden rectangle useful for organizing and arranging elements in a composition, as in the design of this page from an ad campaign for Growzone.com. The intersecting construction lines used to build the golden rectangle identify critical alignments and placement points in the layout. The random or casual arrangement has actually been carefully planned. (Design by Erbe Design)

The dynamic rectangle, though not as elegant as the golden rectangle, can also serve as a formatting device for organizing design elements. To construct it, begin with a square. Place a compass point in the corner of the square (Point a) and scribe an arc that intersects the opposite corner (Point b) down to the baseline of the rectangle. Draw a vertical line up to Point c and extend the rectangle. Continue by placing the compass point at Point a and scribe an arc through Point c. Extend the rectangle again. When you continue out to three extensions, a new square is constructed. Extend out eight extensions to construct a third square.
In this frame from a Target TV commercial, human scale fills the image area. There is an implied environment that is left to the viewer’s imagination. The diminishing size of the human symbols suggests a distant perspective. (Commercial concept by Peterson Milla Hooks, animation by Fuel)

horizon can be difficult to judge in terms of size. However, being juxtaposed with a human visual, an automobile, or an animal can immediately establish a familiar comparison of size. Scale can be used to create variety and emphasis in a design and help establish a visual hierarchy (see Visual 1–7).

Balance

Balance is the visual distribution of elements in a composition. There are two types of visual balance: symmetric and asymmetric. In symmetric balance, elements are arranged the same or very similar on either side of a central axis. The elements appear to be projecting a mirror image, like a landscape projected in a still lake (see Visual 1–8a and Visual 1–8b). Asymmetric balance, sometimes referred to as dynamic symmetry, is the art of creating balance using uneven numbers, sizes, or kinds of elements. In the visual arts, dynamic symmetry is managing the relationship between negative and positive space and form and counterform (see Visual 1–9).

Physical balance is a functional demand of three-dimensional design. Physical balance can be achieved with a base as in a bottle of cologne, a lamp, or a computer monitor. It can also be designed through the use of legs or pods to support the central form as in a chair, coatrack, or easel.
Two types of symmetrical balance are represented in these compositions. (a) The annual report cover is a bilateral composition where, if an imaginary axis were drawn down the center, one side would mirror the other. (b) The clock design is an example of radial symmetry where elements are arranged and are equally balanced, as though they were spokes on a wheel. (Annual report designed by Cahan Associates; clock designed by Evenson Design Group)

In this poster design, asymmetrical balance is achieved by counterbalancing roughly equivalent amounts of positive and negative space, or form and counter form. In this case, the cloud at the top of the poster is counterbalanced by the negative space of the background beneath it. (Poster design by Stefan Bucher)
**Rhythm and Repetition**

The term rhythm is associated most often with music, defined as an alternating occurrence of sounds and silence. Repetition follows a pattern of related or juxtaposed elements. Rhythm in the visual realm can be described in the same way. Replace sound and silence with form and space and the same description works for graphic design (see Visual 1-10a and Visual 1-10b). Creating a rhythm with visual elements is the choreography of graphic design. In a sense, rhythm and repetition are transparent to the design. They exist as a pattern defined through the arrangement of graphic elements. The pattern takes the form of the arrangement, giving movement and natural flow to related elements in the composition. This can be achieved through the use of linear elements and varying shapes, sizes, and colors. Rhythms can be regular and static (see Visual 1-11) or pulsating and full of exaggerated gesture (see Visual 1-12).

![Visual 1-10a and b]

(a) The rhythmic pattern that is established with the typography in this poster design is echoed in the treatment of the line below it. (b) A diagrammatic breakdown gives a more basic representation of this rhythm. (Poster design by Wolfgang Weingart)
In this turn-of-the-century poster, a regular, rhythmic pattern is established to provide a backdrop for the typographic information. (Poster design by Josef Hoffmann)

In this poster, scale and color shifting creates a pulsating effect. Placing the units on the diagonal results in a dynamic rhythm that moves in and out of space. S and Z configurations were used as compositional devices to create dynamic, diagonal movement and structure. (Poster design by Max Bill)

**Proximity**

One of the most critical decisions a designer makes is where to place design elements. Proximity is the position and space given to the placement of elements in a composition. The placement of elements together and apart from one another is a function of proximity (see Visual 1–13). Controlling the relative size and distance from one element to another based on common increments or shared attributes establishes visual continuity and aesthetic harmony. Designers look for ways to align images, text, and other graphic elements based on these attributes. Grid systems play an important role in determining placement, whether the message calls for regularity or counterpoints to create visual interest (see Visual 1–14).
visual 1-13

With its g placed strategically in the bottom left portion of the circle, the asymmetrically balanced Gymboree logo demonstrates the importance of placement. Centering the g within the circle would have resulted in a static, predictable composition.

visual 1-14

A grid (shown in blue) serves as the underlying placement guide for the graphic elements on the cover and interior pages of this publication. From there, the alignment of common edges such as the number 2 and letter U on the cover as well as other shared attributes guided the designers in their design decisions. (Brochure design by Kinetik Communication Graphics Inc.)
The space between two or more elements affects their relationship. As they move together, a visual tension can result. When they touch, new hybrid shapes can form. And, at some point as they move apart, they can become disassociated with one another (see Visual 1-15). You could think of design as a conversation in which the elements talk to each other. The conversation can be quiet and understated, or it can be loud and chaotic. The
resulting dialogue is affected profoundly by the positioning of the design elements and their number in the composition. Proximity groupings can create patterns, a sense of rhythm, or other relationships that elicit a response from the viewer. Keep in mind that the conversation must be in support of the communication goal or message (see Visual 1-16a, Visual 1-16b, and Visual 1-16c).

As a general rule, creating proportional variations in the proximity of visual elements results in a kinetic tension that brings interest and excitement to a work of art or composition, whereas equal spacing between graphic elements of equal size can result in a static, uniform composition.