Two-Dimensional Design

A Dutchess Community College Open Educational Resource

FALL 2023 EDITION

Written, illustrated, designed, and compiled by Holly McCabe
Two-Dimensional Design
A Dutchess Community College Open Educational Resource

Written, illustrated, designed, and compiled by Holly McCabe

Fall 2023
Design: Discussed

**the basics**
- what is design?
- what is composition?
- 2D design vs. 3D design vs. 4D design

**formal analysis**
- describing what you see
- the elements and principles of design and composition
- materials and techniques
- gestalt and the parts vs. the whole

**content analysis**
- subject matter, narrative, concept, context, style
  - (representational, abstraction, non-representational)
- appropriation vs. plagiarism

**critical analysis**
- why do we critique?
- objective vs. subjective critique
- The four elements of critique
  - (describe, analyze, interpret, evaluate)

Design: Elements

**points**
- what is a point?
- points as line and shape
- using points to create value, texture, optical mixing
- using vanishing points in linear perspective
- different ways to create a focal point
**line**
- what is line?
  - actual vs. implied line
- types of line (length, width, direction, curvature, texture)
- using lines to create shape, value, texture, space
- intersecting lines to create linear perspective

**shape**
- what is shape?
  - rectilinear/curvilinear, geometric/organic, amorphous
  - representational, non-representational, abstract
- amorphous shapes
- positive/negative shape
- decorative shapes
- symbolic shapes

**value**
- what is value?
  - the value scale
  - relative value and simultaneous contrast
  - high key, low key / high contrast, low contrast
- using value to create atmospheric perspective
- using value to create the illusion of form

**form**
- what is form?
  - contour/mass/volume
  - positive/negative forms, geometric/organic forms
  - anatomy of light and shadow

**space**
- what is space?
  - actual space vs. virtual space vs. illusional space
  - positive vs. negative space
  - creating the illusion of depth (size, overlapping, vertical location, aerial perspective, linear perspective, isometric perspective, transparency/opacity, exaggerated perspective, multiple perspectives)
### Design: Principles

#### texture
- what is texture?
- actual/tactile, implied/visual, invented
- using texture as value to create form
- using texture to create a sense of space
- pattern vs. texture

#### color
- what is color?
- how we see/perceive color
- properties (hue, value, saturation)
- palettes (additive/light/RGB vs. subtractive/pigment/CMYK)
- hues - color wheel, color mixing (primary, secondary, tertiary)
- values - monochromatic color (tints, shades, tones)
- saturation - neutral colors
- relative color and simultaneous contrast
- color schemes - analogous, complementary, triad, tetrad
- color and the illusion of space
- the psychology of color

#### unity and variety
- what is unity?
- creating unity using gestalt theory (similarity, containment, continuity, proximity, visual systems, closure)
- what is variety?
- harmony vs. discord
- order vs. chaos

#### balance
- what is balance?
- creating balance in a composition using visual weight
- symmetrical balance vs asymmetrical balance
- approximate symmetry
- radial symmetry
- crystallographic balance (allover symmetry, pattern)
**proportion**

- what is proportion?
- proportion vs. size vs. scale
  (grids, golden ratio/rectangle, rule of thirds)
- classical proportions
- unrealistic and exaggerated proportions

**contrast**

- what is contrast?
- visual contrast vs. conceptual contrast
- different types of contrast

**emphasis**

- what is emphasis?
- using emphasis to create a focal point(s) using isolation,
  convergence, contrast, proportion
- creating effective visual hierarchy
- using white space as subordination

**repetition and pattern**

- what is repetition?
- visual repetition vs. conceptual repetition
- what is pattern?
- types of pattern (regular, irregular, seamless, spiral, fractal)
- common pattern grid structures
- tessellating shape grids

**rhythm and movement**

- what is rhythm?
- types of rhythm (regular, irregular, progressive, alternating,
  undulating)
- what is movement?
- directional force and motion blur
- the implied motion of op art
- techniques to create the illusion of motion
  (kinesthetics, blurred motion, narrative sequence,
  multiplication)
Designing step by step

what is the design process?
step 1: entering the mindset
  utilizing the habits of mind
step 2: identifying the problem
  what do these contexts mean?
step 3: generating ideas
  where do ideas come from?
step 4: planning it out
  stages and methods of process planning
step 4: drafts and reworks
  serendipitous “accidents”
step 5: final design and presentation
  presenting at a professional level
DESIGN DISCUS ED
What is design?

Design is generally defined as an outline, drawing, or plan that is the form and structure of a work of art or functioning object. In the visual arts field, it is defined as the organization or structure of formal elements in a work of art; also referred to as composition.

What is composition?

Composition is more specifically defined as the arrangement of elements in a work of art or design. These elements of design include: point, line, shape, space, value, texture, and color. The particular way they are placed in the composition are the function of the principles of design, which include: unity, variety, balance, contrast, emphasis, proportion, repetition, pattern, rhythm, and movement.

What’s the difference between art and design?

Art . . .

is defined as the expression and application of creative skill and imagination. It is by its very nature not limited by any type of functional constraint. Its aims are to communicate through beauty, concept, and/or emotional power. The viewer is able to ponder and project a number of personal and theoretical interpretations and/or layers of meaning upon the work, which may or may not align with the artist’s original intentions.

Design . . .

is conversely, and by its own nature, is created to fulfill a specific purpose or intent, which is often accompanied by set of rules, constraints, and/or limitations inherent in its creation. Design relies upon the clear and effective communication of a specific idea, concept, or piece of information. When it comes to design, the viewer should not need to ponder what the design is communicating, but rather know the purpose and meaning of the design immediately upon viewing.
**2D design**  
Dimensions include: length and width

A two-dimensional (2D) design includes a composition that is created to exist on a flat surface, where the media and materials used to construct the design do not contribute any measurable physical depth to the work.

*This can include, drawings, paintings, photographs, digital and print graphic designs, etc.*

**3D design**  
Dimensions include: length, width, and depth

A three-dimensional (3D) design includes an object or form in which the media and materials used to construct the design contribute measurable length, width, and also physical or virtual depth to the work, either on one side, two sides, or all sides.

*This can include architecture, furniture, sculpture, ceramics, glassblowing, 3D computer rendering, etc.*

**4D design**  
Dimensions include: length, width, depth, time

A four-dimensional (4D) design includes any still flat or sculptural composition (either physical or virtual) that also exists within or through a span of time, where the media and materials used to construct the design contribute to either a change or transformation over the course of that span that is integral to the meaning or purpose of the work.

*This can include 2D animation, 3D animation, kinetic art, kinetic sculpture, film, video, sound design, music, etc.*
Critiquing formal elements in a composition

A formal analysis considers the physical components and organizational aspects of a work of art or design. It includes both the elements and principles of design and composition, as well as the physical components that comprise the work, including the materials and techniques used to create it. A good rule of thumb in formal analysis is to approach the work as if you are describing it to someone who has never seen it. To do this, begin by talking about the elements of design, listed below:

POINT, LINE, SHAPE, SPACE, VALUE, TEXTURE, COLOR

It is important to consider the following: What specific elements are used? What do they look like? How many are there? Where are they located? How are they used? These last few questions begin to dig into the principles of design, listed below:

UNITY, VARIETY, BALANCE, PROPORTION, CONTRAST, EMPHASIS, REPEATITION, PATTERN, RHYTHM, MOVEMENT

Here’s a HINT:

A good way to think about how the elements and principles of design relate to and complement each other is as follows:

The ELEMENTS OF DESIGN are like letters of the alphabet. They symbolize individual units of information with the potential for communication, but remain fairly meaningless on their own.

The PRINCIPLES OF DESIGN are like the words, sentences, and paragraphs that make up a piece of writing. They take the individual letters of the alphabet and arrange them in ways that create meaning, communicate ideas, convey information, and/or tell a story.

Now, let’s step back and look at the work itself as a whole: What is the overall shape, size, and scale of the work? What media and techniques were used to create it? How is it presented? How does it all come together?
Medium

is defined as the material(s) used to create the work.

- Drawing: graphite, charcoal, ink, digital pixels, mixed media
- Painting: oil, acrylic, watercolor, fresco, digital pixels
- Printmaking: lithography, wood cut, etching, intaglio, monoprint
- Photography: digital pixels, digital prints, wet processes, darkroom
- Graphic Design: digital pixels, vectors, digital prints, letterpress, screen printing
- Illustration: pen, ink, watercolor, digital pixels, vectors, digital prints
- Animation: film, digital pixels, vectors
- Ceramics: clay, glazing, kiln firing

Technique

is defined as the method by which the artist or designer applies the medium in their work.

GESTALT

Works under the premise that visual information is understood holistically before it can be examined separately. This theory includes the following applications:

Similarity: The human brain is hard-wired to create order and make connections. In a composition, this is done by visually categorizing elements by location, orientation, shape, and color.

Containment: Another way to create grouping is to place elements within a container. This can be done through a compositional frame, or by creating boundaries within a composition.

Continuity: This involves creating fluid connections between different parts of a composition through repetition, rhythm and transformation. This also serves to add visual movement.

Proximity: The absolute and/or relative distance between visual elements. Close proximity increases a sense of unity, while distant elements tend to read as separate.

Visual systems: An underlying and/or implied pattern or grid is often utilized to create connections between otherwise unrelated visual elements. Often utilized by graphic designers.

Closure: The mind has the ability to create a completed form from otherwise fragmentory information. This allows for communication through suggestion instead of the need to spell everything out.
Critiquing the content of a composition

The content of a composition goes beyond a formal analysis to include the subject matter, idea/concept, and narrative, that contributes to the overall meaning of the work. Artistic style, the artist’s background, and surrounding context are also descriptors of its content.

SUBJECT MATTER
What the work portrays and/or what the work is about.

- Representational: includes realistic/recognizable imagery
  - Portraiture - representations of people
  - Landscape - representations of environments
  - Still Life - representations of often arranged objects

- Abstraction: includes recognizable imagery that does not reflect its actual naturalistic appearance

- Non-Representational: does not in any way represent the physical depiction of people, places, or objects

CONCEPT
The underlying thought or idea that drives the work and its meaning. This may include a specific emotion, theme, subject, or narrative. Use of specific materials, techniques, and visual style can also contribute to the concept of the work.

CONTEXT
The circumstances or situations surrounding the work. Context can add another layer of meaning the work as a product of a particular time period, place, culture, or space. This can also include when, where, and how the artist or designer chooses to display or present the work.
NARRATIVE

A work of art or design in which the main purpose is to tell a story or depict an event, either inspired by history, personal experiences, imagined fiction, or a combination of each.

VISUAL STYLE

The specific methods and materials by which an artist or designer chooses to make their work, which often identifies them as a part of a larger group of similar artists (either historical, contemporary, stylistic, or materials-based), but can also serve to set them apart from other, similar artists or designers. Below are just a few examples:

- **Realism** - portrayed in an idealized and/or naturalistic way.
- **Surrealism** - fantastical and beyond the limits of reality.
- **Photorealism** - drawn or painted to look like a photograph.
- **Hyperrealism** - captures heightened reality with more vivid colors and textures.
- **Cubism** - naturalistic subjects fragmented using geometry.
- **Impressionism** - painting using daubs of paint to capture the light and color of the subject.
- **Pointilism** - drawing, inking, or painting using tiny dots that comprise the imagery.
- **Expressionism** - created using vast and visible brushstroke and/or texture.
- **Dadaism** - collage-based absurdist narratives and subjects.
- **Futurism** - focused on innovative and technology-based subject matter.

APPROPRIATION VS. PLAGIARISM

An artist or designer can sometimes be directly inspired by the style, materials, and/or particular imagery of another creator, though it is important to remember that APPROPRIATION takes those materials and intentionally transforms and/or recontextualizes these borrowed and/or “quoted” elements.

PLAGIARISM on the other hand, takes those materials and reproduces them verbatim, often without artist attribution or permission (which can lead to serious consequences and/or legal repercussions).
CRITICAL ANALYSIS

Why do we critique?

Whether we are looking at, or creating our own works of art and design, it is important to be able to recognize and discuss every aspect of the work in order to assess whether it is successfully communicating the artist’s or designer’s intentions to the viewer.

Critique can also help us to gain additional layers of insight into the work that were not initially apparent from the outset. This allows us to cultivate even more depth of meaning from the work (whether it be formal, content-based, or contextual), and an even richer visual, emotional, and/or intellectual experience.

Objective vs. Subjective Critique

There are two categories of critique. It is important to recognize and utilize both at appropriate times, as works of art and design communicate to the masses, but also communicate in different ways to each individual as well.

OBJECTIVE CRITIQUE

Based upon unbiased observation and statement of facts. This type of critique includes a formal analysis based upon use of the elements and principles of design and composition present in the work, as well as research into the artist’s intent through a content analysis of the subject matter, concept, context, and style of the work.

SUBJECTIVE CRITIQUE

Based on one person’s opinions, individual experiences, biases, and influences in lieu of facts. This type of critique is more personal and individualistic, where the work acts more like a conduit or mirror that may help the viewer gain more insight into their own emotions, personality, and preferences, rather than concentrating on the work itself as it stands on its own.
The four categories of the critique process

The holistic method of critique below allows for a step by step method of objective criticism that is both thoughtful and thorough.

PART 1: DESCRIBE

What do we see at first glance? What specific elements of design are present (point, line, shape, space, value, texture, and color)? What do each of these elements look like? Where are they placed in the composition? How prevalent are they? What art and/or design materials were used to create the work? What is the subject matter of the work (is it representational, abstract, or non-representational)?

PART 2: ANALYZE

Now that we have established what we see, we will continue our formal analysis by asking how these elements are related and arranged. How are the principles of design utilized (unity, variety, balance, proportion, contrast, emphasis, repetition, pattern, rhythm, and movement)? What techniques do you think were used to create the work? What is the overall visual style of the work and what is its surrounding context?

PART 3: INTERPRET

This portion of critique can be objective and subjective. Considering the context of the work, and the artist’s background... what ideas, concepts, and/or narratives were they attempting to communicate to the masses, and what does the work communicate to you as an individual?

PART 4: EVALUATE

Considering the description, analysis, and interpretations you have now made regarding this work, what is your own opinion on it? Do you think the work is successful in what it is trying to communicate? Do you find it valuable? Do you find the work aesthetically pleasing, emotionally engaging, or intellectually stimulating? Why or why not? Do you think others may hold the same opinions you do? Why or why not?
**POINTS**

**What is a point?**

A point is defined as the most basic unit of visual design. It is a non-dimensional element that has no physical measurement, and its location is known only by the coordinates of the point itself. It is the first step to breaking up the otherwise blank expanse of space on a page to begin the process of designing a composition. The point as a practical design element does have (albeit negligible) dimensions, and can be used as a starting point for the other elements of design.

**Points as the building blocks of line and shape**

Points often come together as the building blocks of other elements, including line and shape. The examples below and on the next page illustrate these concepts.

**Point as line**

- Implied line
- Dotted line
- Solid line
- Line terminal points
- Line intersection points
Points used to create texture, value, and color

A point can also produce the illusion of texture, value, and optical color mixing, as is the case with art movements like Pointilism. The examples below illustrate these concepts:

Point as TEXTURE/ VALUE/ COLOR MIXING

- Irregular texture (light)
- Irregular texture (dark)
- Regular texture
- Texture gradient
- Optical color mixing
Vanishing points and the illusion of space

Specific points of convergence and/or divergence in a composition can lead the viewer to a convincing illusion of three-dimensional geometry or architectural space within an otherwise two-dimensional design through the application of 1, 2 or 3 point linear perspective. These are called vanishing points. They are not always visible in the final composition, and thus are often implied rather than actual (visible) points.

ONE-POINT PERSPECTIVE

In one-point perspective, each side of these 3D forms (except for their front facing side) travel back in space by converging towards the single vanishing point located on the horizon line.

TWO-POINT PERSPECTIVE

In two-point perspective, each side of these 3D forms (except for their front vertical edge) travel back in space by converging towards both vanishing points located on the horizon line.
THREE-POINT PERSPECTIVE

In three-point perspective, each side of these 3D forms (except for the front corner point) travel back in space by converging towards all three vanishing points (two of which are located on the horizon line, and the third of which is located elsewhere).

Focal points to draw viewer attention

Points that are either actual or implied, visible or non-visible, can also be utilized by the artist or designer to bring the viewer’s attention to a specific area of a composition. This is called a FOCAL POINT.
What is line?

A line is a series of infinite points. It is a record of action that manifests visibly through the combination of a medium and the artist or designer’s physical actions (body, arm, and/or wrist movements). These actions can be highly calculated or extremely expressive, depending upon the style. Lines also serve as the building blocks to shapes, textures, and help to delineate the separation between the spaces in a composition as well.

The properties of line

Variations in the characteristics and qualities of line can be created by adjusting the properties of line. These line properties can be used in any combination to create a myriad of line types that contribute to an artist’s and/or designer’s unique visual style.

Length

The length of a line is defined by the measurement of the longest dimension of a line. Longer lines lead the eye continuously across or around a composition, while shorter lines cause the eye to start and stop with greater frequency.

Width

The width of a line is defined by the measurement of the shortest dimension of a line. Wider lines appear more bold, thick, strong, and often hold greater emphasis than narrower lines, which appear more precise and/or delicate.

Direction

The direction of a line follows three main categories that each hold their own symbolism and expression. VERTICAL LINES are strong, HORIZONTAL LINES are serene, and DIAGONAL LINES indicate action.
Using lines to create shape, form, and space

When lines are arranged in specific ways, they can be utilized to construct a number of other basic elements of design.

LINES AS SHAPE
Lines that create closed areas become shapes. Through the gestalt theory of closure, not all shapes created from lines need to be fully enclosed.

Curvature
The curvature of a line is an indication of its deviation from a straight path. Straight lines often indicate geometry, architecture, and man made elements, while curved lines often indicate organic, living forms, and natural elements.

Texture
The texture of a line is the regularity/irregularity of its internal structure. It is the direct result of the medium, materials, and/or techniques used to create the line. Smooth lines feel more calm, while textured lines feel more frenetic.

Continuity
The continuity of a line directly affects movement and visual rhythm. Fully continuous lines create a consistent sense of motion through a composition, while lines that start/stop at various intervals cause a change in tempo within the work.
LINES AS FORM
The use of cross contour curved and angled lines can create an illusory sense of 3D forms rendered on a 2D surface.

LINEAR PERSPECTIVE
As we discussed at length in the previous section, both points and lines contribute to creating the illusion of space using 1, 2, and 3 point linear perspective.

Using lines to create texture and value
When it comes to line, the creation of texture and value are closely related. Each technique involves a series of markmaking using lines with similar properties repeated over and over across a surface. A higher density of marks create darker values, while a lower density of marks create lighter values. We can also create a gradation of values by slowly changing the mark density as we move across the area.
COMMONLY USED TEXTURES and VALUES

Values from light to dark (low density to high density)

- **Hatching**
  - Continuous lines in a single direction
- **Cross-Hatching**
  - Two sets of continuous lines in opposing directions
- **Stippling/Scumbling**
  - Scribbled lines in similar directions

Other categories of line

**IMPLIED**

Invisible (psychic) lines that lead the viewer in a very specific way.

**ORGANIZATIONAL**

Lines that lay out basic forms, often used in preliminary sketches.
**contour AND CROSS CONtouR**
Lines that delineate the external and internal boundaries of a form.

**gestural**
Lines that actively flow with the subject’s form and the artist’s hand.

**decorative**
Lines that are not necessary to the subject but serve to embellish it.

**calligraphic**
Lines that appear hand made, varying width to create visual interest.
What is shape?

A shape is, at its most basic form, a line that encloses itself. It is a two-dimensional form, an area with length and width, but no depth. Shapes can also be delineated using differences in texture, value, and/or color. A CONTOUR refers to the outer edge of the shape, and is also referred to as a SILHOUETTE.

There are a number of different categories and sub-categories of shape, which include the following:

**RECTILINEAR SHAPES**
Created using only straight lines and angular corners, feels manmade, rigid, and engineered.

**CURVELINEAR SHAPES**
Comprised of only curves and circles, with feelings of movement, fluidity, diversity, and finesse.

**GEOMETRIC SHAPES**
Mathematical shapes calculated via formulas, that often have names (triangle, circle, square, etc).

**ORGANIC/BIOMORPHIC SHAPES**
Irregular “freeform” shapes that are often inspired by animals, plants, and/or other natural forms.
AMORPHOUS SHAPES
These types of shapes lack specificity, distinctive edges, and have indeterminate dimensions. They are useful in conveying ambiguous (blurred, obscured, cryptic, vague) subject matter.

REPRESENTATIONAL SHAPES
Also known as OBJECTIVE or NATURALISTIC, these shapes are immediately recognizable as the real world subjects they are meant to represent.

NON-REPRESENTATIONAL SHAPES
Also known as NON-OBJECTIVE, these shapes are not meant to represent anything found in the real world, but rather exist merely as visual elements of design.

ABSTRACT SHAPES
These kinds of shapes straddle the line between representational and non-representational. Though their roots are held firmly in the natural world, they have instead been altered, refined, stylized, or synthesized by the artist or designer.
Positive/ Negative Shapes

Positive shapes refer to the shape of an object in a composition, while negative shapes refers to the areas around the objects. This can also be referred to as FIGURE/GROUND relationships, where the “figure” is the positive shape, and the “ground” is the negative shape.

![Figure/Ground Reversal](image)

**Figure/Ground REVERSAL occurs when the positive and negative shapes alternate (in this case, the faces/vase).**

DECORATIVE SHAPES

These shapes exist purely for embellishment, and are often utilized in graphic designs, but can also exist in tandem with representational elements in fine art to enhance meaning.

SYMBOLIC SHAPES

These abstract shapes attached to specific meanings (globally, culturally, historically), are incredibly useful in conveying visual shorthand for universal concepts and communication. (hearts stand for love, circular motifs indicate cyclical processes, etc). Symbolic shapes are incredibly useful as elements in logo designs, signage, and game design.
What is value?

Value is the degree of lightness or darkness of a surface. It is dependent upon not only to the value inherent in the surface medium and ground, but also the nature of the light reflecting off that surface as well. Values can be either CHROMATIC (with color) or ACHROMATIC (without color).

**CREATING AN ACHROMATIC VALUE SCALE**

The **achromatic** value scale ranges from WHITE (full light) to BLACK (no light) with grays in between, and is arranged in either a stepped or continuous gradient scale.

![8-step value scale](image)

![Continuous (gradient) value scale](image)

Relative value and simultaneous contrast

Often, the perception of absolute (local) values is reliant upon their surrounding values. See below, as an identical middle gray (centered) appears lighter on dark backgrounds and darker on light backgrounds.
LIMITING USE OF VALUES IN A COMPOSITION

The values present in a composition can often affect how that work is perceived and what it communicates. In addition to using the usual full range of values, sometimes the artist or designer chooses to limit the values to either HIGH KEY or LOW KEY value ranges.

High key value ranges are airy, with a sense of quietness or optimism. Middle key value ranges are subtle, earthy, with a sense of comfort. Low key value ranges are heavier, with a sense of mystery or dread.

HIGH CONTRAST VS. LOW CONTRAST COMPOSITIONS

Compositions that contain high contrast values are eye-catching, dynamic, and hold a sense of drama. Conversely, low contrast values in a composition are calming, subtle, and quiet.

Using value to create atmospheric perspective

The positioning of light and dark in a composition can also be utilized to create a sense of vast, expansive space. This is called atmospheric (aerial) perspective. As objects recede into the background and get farther from the viewer, they tend to lose contrast, detail, and appear to have a lighter value than foreground objects closer to the viewer.
What is form?

A form is defined as a three-dimensional object with length, width, and depth. This includes ACTUAL FORMS, which exist as real world three-dimensional elements (sculptures, ceramics, furniture, architecture, etc.), including the sub-categories:

- **FREESTANDING**: Forms that are meant to be viewed from all sides
- **RELIEF**: Forms that are meant to be viewed from only one side

And IMPLIED FORMS, which give the illusion of a three-dimensional object on a two-dimensional surface, and can be rendered using contour lines, cross contour lines, and value shading (chiaroscuro).

<table>
<thead>
<tr>
<th>Contour</th>
<th>Mass</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Contour" /></td>
<td><img src="image2.png" alt="Mass" /></td>
<td><img src="image3.png" alt="Volume" /></td>
</tr>
<tr>
<td><img src="image4.png" alt="Contour" /></td>
<td><img src="image5.png" alt="Mass" /></td>
<td><img src="image6.png" alt="Volume" /></td>
</tr>
<tr>
<td><img src="image7.png" alt="Contour" /></td>
<td><img src="image8.png" alt="Mass" /></td>
<td><img src="image9.png" alt="Volume" /></td>
</tr>
</tbody>
</table>

**CONTOUR** reveals the outer edges, surfaces, and boundaries of a form. **MASS** is defined as the actual or implied bulk of material that fills a volume. **VOLUME** is the measurable area that object occupies.
DESIGN: ELEMENTS

The anatomy of light and shadow:

**POSITIVE FORMS**

Objects that are solid and tangible (illusory versions rendered through visible planes and value changes).

**NEGATIVE FORMS**

(Non)objects that are created through the absence of form, and are instead defined by the positive forms that surround them.

**GEOMETRIC FORMS**

Also known as “platonic solids” in mathematics, these forms are predictable and often planar.

**ORGANIC/BIOLOGICAL FORMS**

These irregular, often bulbous forms, are inspired by animals, plants, and elements found in the natural world.
SPACE

What is space?

Space is defined as both the distance between and around objects, as well as the area those objects occupy. This can include actual objects in the real world, virtual objects in simulated space in the digital world, and illusionistic objects on a flat surface.

ACTUAL SPACE

This type of space is expansive and includes physical measurements of length, width, and depth. These are the types of spaces we are meant to interact with directly.

Architectural space: includes any and all buildings, houses, and structures that are designed for human living, working, and/or recreation. These spaces remain in context, reacting and interacting visually and physically with the surrounding environment, ranging from rural to urban.

Interior space: includes the inner spaces of architectural forms, and specialize in design based upon human navigation, utility, comfort, and psychology.

Objects in space: includes any and all artist or designer installations, created specifically for concept, aesthetic, viewer reaction, and response.

VIRTUAL SPACE

This type of space includes measurable length, width, and depth, but only in the virtual world, produced by computer, and accessible only through video monitor, VR goggles, and/or projector. These SIMULATED SPACES can include video games, training simulations, and other kinds of virtual educational and entertainment spaces.
ILLUSIONAL SPACE

This type of space includes measurable length and width, but only the implication of depth, as the artist or designer strives to create the illusion of three-dimensional space on a two-dimensional surface.

Positive and negative space

Similar in nature to positive and negative shapes, the space that is occupied by an object in a composition is called the positive space (also called the FIGURE), while the area around that object (where that object is not) is called the negative space (also called the GROUND).

Creating the illusion of depth

There are multiple methods by which the illusion of depth can be created. The following techniques can be used in combination with one another to complete the full effect of deep and/or layered space within a composition.

- Overlapping
- Vertical Placement
- Relative size & proximity
- Detail
- Transparency
- Atmospheric perspective
- Linear perspective
- Isometric perspective
- Multiple perspectives
- Amplified perspective (foreshortening)
In a composition that utilizes representational space, one of the main indicators of illusional space is the presence of the following three distinctive layers of depth:

- **FOREGROUND**: what appears closest to the viewer
- **MIDDLE GROUND**: the space between foreground & background
- **BACKGROUND**: what appears farthest from the viewer

**OVERLAPPING**

Placing one shape on top of another creates a sense of depth by layering elements that visually push the top shape forward and bottom shape backward in space.

**VERTICAL PLACEMENT**

Based off real world visual cues, shapes placed higher up in a composition are perceived as farther away than shapes placed towards the bottom.
RELATIVE SIZE & PROXIMITY

When placed near each other, larger shapes are perceived as closer, to the viewer, while smaller shapes are perceived as farther away.

DETAIL

Edges, smaller elements and textures within an object have a higher contrast and visibility up close, and begin to fade as they get farther from the viewer.

TRANSPARENCY

This creates a more ambiguous sense of space, as objects overlap but show through one another to create the illusion that either could be in front or back.

ATMOSPHERIC PERSPECTIVE

This phenomena, also known as aerial perspective, is created by the amount of air or atmosphere between the viewer and object. As we travel back in space, values become lighter, placement is higher, size and details reduce, and colors lose their saturation.
LINEAR PERSPECTIVE
Includes 1, 2, and 3 point varieties, and creates the illusion of depth through the use of converging lines meeting at one or more vanishing point(s) along the horizon line.

ISOMETRIC PERSPECTIVE
Unlike linear perspective, this type deals with parallel lines instead of converging lines. It is often utilized for infographics and technical illustrations.

MULTIPLE PERSPECTIVES
A composition that features multiple views of a single subject simultaneously. Commonly used in art movements like Cubism to create a sense of movement.

AMPLIFIED PERSPECTIVE
The exaggeration of size difference and layering of elements either toward or away from the viewer’s direction. Also referred to as FORESHORTENING. Often used in comics to enhance action.
What is texture?

Texture is the real or illusional tactile quality of a surface. In two-dimensional design, there are two main categories of texture: actual and implied.

Actual (PHYSICAL) texture

Actual textures include all physically tactile surfaces where a texture is present. This can include both NATURAL TEXTURES like the grainy texture of sand and the uneven roughness of tree bark, or MAN MADE TEXTURES like thick impasto brushstrokes in an oil painting, or the linear corrugations present in a ripped piece of cardboard.

Implied (VISUAL) texture

Implied textures include the imitation of textures that are not inherently tactile. The surface is made to appear textured, but there is no actual physical variation. Rather, it is the illusion of a 3D texture on a 2D surface. This includes both SIMULATED TEXTURES like scumbling with ink pen on paper to create the illusion of animal fur, and INVENTED TEXTURES like stippling with brush on canvas to create the illusion of color changes in a pointilist figure painting.

Creating implied textures in 2D design

As we have seen in the previous sections, implied textures in art and design can be created using all forms of markmaking, including an integral use of the elements of POINT, LINE, and SHAPE. Each of these elements combines in repetition to produce textures. These textures are often the direct result of the specific MEDIUMS and SUPPORT SURFACES used to create them, which can range from materials like fineliner marker on smooth vellum paper, to a charcoal drawing on rough canvas.
Creating implied simulated textures

The following are a range of examples of simulated textures that seek to emulate naturalistic surfaces:

Creating implied invented textures

The following are a range of examples of invented textures that seek to embellish more decorative surfaces:
Using textures as values to create form

Here we see that value can be created through texture (higher density marks create darker areas, lower density marks create lighter areas), to create the illusion of form.

Textures to create a sense of space

The three characteristics of texture, which include SIZE, DENSITY and ORIENTATION, can be used to create a sense of depth and space in a composition. Larger, more dense, divergent textures jump forward, while smaller, less dense, convergent textures recede into the background.

The difference between pattern and texture

The basic difference lies in the fact that textures display a more organic form of repetitive markmaking (with naturalistic irregularities built in), while patterns tend to be more precise, complex, and engineered in their repetitive motifs.
What is color?

Color is defined as the portion of the electromagnetic spectrum that can be detected as visible wavelengths of light by the human eye. Color can be mixed by using either light or pigment. As a design component, color is one of the most dynamic elements that can be used in the communication of ideas, information, and emotion.

Additive and subtractive color systems

Light and pigment are two different mediums by which colors are created by artists and designers.

**RGB**

This is an ADDITIVE color system based upon radiated and filtered light, where RED, GREEN, and BLUE are the primary colors that all combine to create pure white light, while the absence of light creates black. This system is used in computer monitors, projectors, theatre lighting, television, and video production.

**CMYK**

This is a SUBTRACTIVE color system based upon pigments (that absorb light and reflect only the frequency of the pigment color), where CYAN, MAGENTA, and YELLOW are the primary colors that all combine to create pure black pigment, while the absence of pigment creates white. This system is used in drawing, painting, and printing.

*** In CMYK printing, black is represented by K, which stands for “key” color, so as not to be confused with the B representing blue in the RGB color system.
PROPERTIES OF COLOR

The three properties that work together to comprise a specific color include HUE, VALUE, and SATURATION. They are defined as follows:

- **HUE**: The proper name for the color (red, green, blue, etc). Hues are organized into what we recognize as the color wheel.

- **VALUE**: The lightness or darkness of a color, created by adding white to create tints or black to create shades.

- **SATURATION**: The intensity or purity of a color. Pure hues have a higher color saturation, while tones (created by mixing a gray or complementary color to the hue) have lower color saturation.

The traditional color wheel

Additive color systems are arranged with HUES in a continuous circle on the color wheel, and include primary, secondary, and tertiary colors.

**PRIMARY COLORS**

*(magenta, yellow, cyan) (formerly red, yellow, blue)*

Pigments that cannot be created by color mixing.

**SECONDARY COLORS**

*(orange, green, violet)*

Pigments that are created by mixing two primary colors.

**TERTIARY COLORS**

*(red, red-orange, orange, yellow-orange, yellow, yellow-green, green, blue-green, blue, blue-violet, violet, red-violet)*

Pigments that are created by mixing an adjacent primary and secondary color.
Monochromatic color schemes
A composition that includes a single color, with light and dark values and/or various tones of that color.

- **TINTS** are created by adding white to shift colors to HIGH KEY VALUES
- **SHADES** are created by adding black to shift colors to LOW KEY VALUES
- **TONES** are created by adding grays and are a way to shift color SATURATION.

**NEUTRAL color schemes**
A composition that includes neutral tones like grays, browns, and beiges, are created by mixing complementary colors that cancel out color saturation.

COLOR RELATIVITY
Also called simultaneous contrast, a color appears differently next to other colors.

COLOR TEMPERATURE
Every hue has the potential for warm or cool color temperatures, dividing the color wheel in half.

- **WARM COLORS**
  range from magenta-violet to yellow

- **COOL COLORS**
  range from yellow-green to violet
ANALOGOUS color schemes
Analogous color schemes include compositions that utilize colors next to each other on the color wheel. They inherently have a stronger sense of unity. Related to color temperature, warm and cool color schemes handle a broad range of analogous colors.

COMPLEMENTARY color schemes
Complementary color schemes include compositions that utilize colors opposite each other on the color wheel. They inherently have a stronger sense of variety and movement.

TRIADIC AND TETRADIC color schemes
These types of color schemes are created by selecting three or four colors that are all evenly spaced from each other on the color wheel.
### Optical mixing

Color mixing can happen when two pigments are mixed into each other, but can also occur with the overlapping of distinctive colored brushstrokes (as in the art movement known as POINTILISM).

In addition, small dots of primary colors (cyan, magenta, yellow, black) to create new colors. This occurs in CMYK color printing, to create HALFTONE PATTERNS.

### Psychology of color

Color has an emotinoal component that hits us at our deepest biological and instinctual levels. In general, the longer wavelengths of warm colors require more energy to be processed by the eye and brain that translates to an arousal of the metabolic system. Conversely, the shorter wavelengths of cool colors require less energy to process, and thus feel more calming and relaxing.

<table>
<thead>
<tr>
<th>Color</th>
<th>Emotions/Associations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adrenaline, Hunger, Passion, Arousal</td>
<td>Mysterious, Elusive, Dreamy, Magical, Creative</td>
</tr>
<tr>
<td>Vitality, Outgoing, Adventurous, Strength</td>
<td>Earthy, Comfort, Timelessness, Rugged, Durable</td>
</tr>
<tr>
<td>Warmth, Happiness, Friendliness, Clarity</td>
<td>Formal, Mysterious, Nothingness, Strength, Death</td>
</tr>
<tr>
<td>Relaxation, Safety, Energy, Eco-Friendly, Financial Growth, Illness</td>
<td>Dignified, Authoritative, Technology, Precision, Control</td>
</tr>
<tr>
<td>Calm, Protection, Safety, Dependability</td>
<td>Purity, Spiritual Wholeness, Power, Restful, Stately</td>
</tr>
</tbody>
</table>
DESIGN PRINCIPLES
UNITY

What is unity?

Unity is the implication of oneness or harmony within a work of art or design. This can be achieved by ensuring the elements in a composition work together both visually and conceptually. In a nutshell, it ensures that the entire design feels like a singular “whole” and not simply a jumble of individual “parts.”

The theory of GESTALT (looking at a composition in its entirety before discerning its parts), finds itself right at home here. Let’s revisit the methods that are utilized by artists and designers to unify a composition through gestalt theory:

Using similarity to create unity

The similarity theory of gestalt creates unity through the use of elements that are the same or analogous in nature. This can be in the form of utilizing the same types of lines, shapes, textures, and/or colors spread throughout the composition. It can also take the form of objects that may be closely related conceptually to create a sense of grouping.

Location

Orientation

Shape
Using proximity to create unity

The proximity theory of gestalt includes a series of elements arranged so close to each other (and/or overlap) that they essentially become a collective. This allows for a group of smaller elements to be perceived as one larger element, which aids in compositional balance, emphasis, and visual hierarchy. In the realm of graphic design, it allows for a strong visual relationship between disparate elements that are then able to act as a single informational unit.

Using containment to create unity

The containment theory of gestalt is produced through the proportion, size, and scale of the container around the composition (and does not include the elements within the composition itself). Containment holds a great deal of power as the viewer can perceive the same work differently through variations in the frame by which it is encased.
Using continuity to create unity

The continuity theory of gestalt utilizes either a smooth or staccato change that the viewer is able to follow seamlessly through the composition. This can be done with the use of implied lines leading to a series of focal points, or a gradation of line, shape, form, value, texture, and/or color. It is also utilized in multipanel narrative art to keep the story cohesive and easy to understand.

Using visual systems to create unity

The visual systems theory of gestalt uses position, directionality, and alignment to provide continuity. This usually comes in the form of a grid, where the same horizontal, vertical, and/or diagonal vectors run through multiple elements which create a sense of underlying organization, balance, and visual movement through the composition.
Using closure to create unity

The closure theory of gestalt allows for more ambiguous or obscured elements or subject matter to be understood by the viewer as complete. Any portion of imagery that is left hidden from the eye, the brain instinctively reconstructs and comprehends. This may come in the form of overlapping elements, open shapes, or breaks in the continuity of visual space, and can be a very useful tool for use in chiaroscuro techniques, abstraction, and/or logo design.

What is variety?

Variety is the introduction of visual diversity and dissimilarity in a design. It provides a check against an overabundance of unity, which could possibly result in too much visual monotony and an overly boring or predictable design. In this way, variety imbues a sense of excitement that keeps the viewer engaged. Too much variety however, can result in overt CHAOS and DISCORD, and so unity and variety must work together to create a balance that provides ORDER and HARMONY, but at the same time maintains visual interest throughout the composition.

Variety can be expressed through any one of the elements of design in a composition, and often utilizes some degree of contrast between lines, shapes, forms, values, textures, colors, and spaces.
Balancing unity and variety

It is important to play the balance between unity and variety within a composition well for that composition to be successful.

**HARMONY VS. DISCORD**

Harmony indicates all parts of a composition are working together to create a unified and visually pleasing whole. This can be in the form of repetition, pattern, and visual rhythm. However, too much harmony can begin to feel too familiar, monotonous or bland.

Discord creates visual excitement by introducing a variety of elements that may add emphasis to visually unique elements in the composition. This creates visual interest that keeps the viewer engaged, though too much discord can potentially cause the design to fall apart.

**ORDER VS. CHAOS**

Order indicates the strong underlying structure of a composition, that gives a sense of calm and predictability to the design, usually utilizing grids, patterns, and visual alignment to do so. An overabundance of order however, can cause boredom for the viewer.

Chaos creates a more randomized and organic feel to a composition, giving a sense of unpredictability to more wildly chosen and/or placed elements, drawing attention to those areas. If chaos completely takes over however, the composition becomes muddled and confusing.
What is balance?

Balance is defined as the physical or visual equilibrium across a composition. This can be accomplished through equal weight, size, and/or dynamic forces at work within the composition. Balance can be symmetrical, asymmetrical, approximate, radial, or even crystallographic in its application to a design.

Asymmetrical balance and visual weight

Without symmetry, disparate elements need to carry the same visual weight across the composition in order to balance out. This can be accomplished through proportion, contrast, directionality and position.
Symmetrical balance

Vertical, horizontal, and diagonal symmetry create a perfect mirror image, and thus perfect balance across the directional axis upon which they extend. This creates a sense of aesthetic beauty, comfort, and balance across the composition.

**VERTICAL SYMMETRY**
The line of symmetry extends vertically down the composition.

**HORIZONTAL SYMMETRY**
The line of symmetry extends horizontally across the composition.

**DIAGONAL SYMMETRY**
The line of symmetry extends diagonally crossing the composition.

**APPROXIMATE SYMMETRY**
This manifests when elements across a composition are arranged with imperfect symmetry (some elements across the axis of symmetry are not quite the same, but are still very similar in visual appearance).
Radial symmetry

This type of symmetry does not reflect along a directional axis, but instead repeats by radiating outward from a singular point, usually placed in the center of a composition. The geometric configuration of symbols that comprise Mandalas (meaning “circle” in Sanskrit) are a classic example of radial symmetry.

Crystallographic symmetry

This type of symmetry has no focal point. Here, all symmetrical elements hold equal weight and are spread evenly across the composition. In this way, this type of symmetry has many characteristics in common with regular patterns and motifs.
Proportion

What is proportion?

Proportion is defined as the relative size of visual elements within a composition (relative to themselves, as well as to each other). In two-dimensional design, this refers to the measurements of length (horizontal) relative to width (vertical), often expressed in terms of ratios (1:1 for squares, 1:3 for rule of thirds, 1.618:1 for the golden section, etc.)

Size
refers to the fixed physical dimensions (measurements) of an object or element of art.

Scale
refers to the size of an image relative to human size.
Classical proportions

These include idealized ratios that emulate harmonies found in nature (like the 1.618:1 ratio of the golden section, as in sunflowers, snailshells, even galaxies), and contribute to works that seek aesthetic perfection (Leonardo Da Vinci’s Vitruvian Man of idealized human proportion), and the rule of thirds, used by photographers to best compose their subjects.

Exaggerated and unrealistic proportions

These include stretching or ignoring naturalistic and idealized proportions, to further a particular idea or vision. Fashion illustrators stretch human proportion from eight to nine+ heads tall to heighten fabric movement and gestural silhouette, while Surrealists utilizes unrealistic proportions among their subjects to provide a more dreamlike feel to their compositions.
CONTRAST

What is contrast?
Contrast is defined as the degree of opposition between elements in a composition. This can edge towards extreme or subtle, depending upon the intention of the artist or designer. Categorically, these elements can manifest as either visual or conceptual differences, and when placed in proximity to each other, are able to create aesthetic excitement and/or generate new contextual meanings.

Visual contrast
This type of contrast is all about the visible and aesthetic differences between the elements of design in a composition. Here, we can stretch the limits of the principle of VARIETY to extremes:

Examples of explorations in visual contrast while utilizing the elements of design include: RECTILINEAR vs. CURVELINEAR lines, THICK vs. THIN lines, GEOMETRIC vs. ORGANIC shapes, LARGE vs. SMALL shapes, ROUGH vs. SMOOTH textures, LIGHT vs. DARK values, CHROMATIC vs. ACHROMATIC colors, WARM vs. COOL colors, FLAT vs. DEEP space, and POSITIVE vs. NEGATIVE space.

Conceptual contrast
This type of contrast focuses on the generation of new ideas, thoughts, and concepts through the juxtaposition of familiar subjects that, when put together in context, showcase unexpected differences. This new visual and cerebral experience prompts the viewer to think about each subject in completely new and different ways.

Conceptual contrast can also make full use of SIMILE, ANALOGY, and METAPHOR (the language of making comparisons between unrelated concepts). Here, we take subjects that are visually similar, but utilize their conceptual differences to create and/or highlight hidden relationships between them. Examples include the similarity of orbital forms between atoms and solar systems, or the branching forms of trees and the blood vessels in the circulatory system to highlight the juxtaposition of microscopic, macroscopic, and monumental scale.
EXAMPLES OF VISUAL CONTRAST

The following examples feature the main categories of contrast between pairs of disparate elements.

VALUE CONTRAST

COLOR CONTRAST

SIMULTANEOUS CONTRAST

PROPORTIONAL CONTRAST

POSITIONAL CONTRAST
What is emphasis?

Emphasis is defined as the arrangement of the various elements in a composition to make a particular area (or areas) the primary focus of viewer attention. Conversely, the term subordination refers to the arrangement of the remaining elements in order to support the larger visual theme, idea or design. The balance between these two concepts creates a sense of VISUAL HIERARCHY, allowing for a tiered system of focal points that lead the viewer through the work in the specific order that the artist or designer intends to communicate the information.
Creating effective visual hierarchy

Visual hierarchy is a system where the elements of a composition are ordered by set levels of EMPHASIS (achieved through isolation, convergence, contrast, proportion, and color). This is most often utilized in the realm of graphic design, where information needs to be presented to the viewer in a very specific order. In graphic design, this is expressed through the combination of text and image within a layout.

Using white space as subordination

White space is most often utilized in graphic design as a kind of negative space that acts in SUBORDINATION of the physical content, and serves to balance, support, and buffer the visual elements of the design.

When information is presented in a commercial format, it is important to allow the viewer to scan the composition at a reasonable pace in order to absorb the information effectively. This also includes the idea of ECONOMY (include only what you need, and take out everything else). A crowded design is confusing and overwhelming. In a visually hierarchical structure, white space allows the eye to breathe in between the informational elements.
### Repetition

**What is repetition?**

Repetition is defined as the use of a particular element or object used more than once in a composition. Repetition directly contributes to unity, and is a major principle that contributes to pattern, rhythm, and movement.

**Visual repetition**

This type includes all visible elements in a composition, and includes the following varieties:

- **Regular**
- **Irregular**
- **Progressive**

**Conceptual repetition**

This type includes a similarity in the content, idea and/or theme of the subject, while the visual elements themselves remain different.
What is a pattern?

Pattern is defined as a systematic repetition of elements (points, lines, shapes) over an extended area within a composition. They are most notably employed on fabric in fashion design.

**REGULAR**
Highly structural and predictable, with repeating elements that do not deviate from one another.

**IRREGULAR**
Naturalistic and active, with a hint of unpredictability through the imperfect repetition of elements.

**SEAMLESS**
Repeating elements that flow with no indication of where one unit ends and another begins.

**SPIRAL**
Repeating elements that converge to a singular focal point, carrying a strong sense of motion.

**FRACTAL**
Mathematical repetitions of elements that progress in size and scale, and are commonly found in nature.
Common pattern grid structures

The following are a series of grid structures upon which elements and more complex motifs can be applied, in order to repeat indefinitely across a two-dimensional space.

Tessellating shape grids

When elements repeat but leave no negative space between them, a tessellating pattern is created. These patterns may utilize either one or multiple shapes interlocked, and can also be used as a basic grid structure upon which to create even more complex contour lines, shapes, and/or objects. Below are just a few examples:
What is rhythm?

Rhythm is defined as the systemic organization of recurring elements that move, fluctuate, and/or vary utilizing the ACCENT, METER and TEMPO of music, but utilized in the visual art and design. Because of this, the principle of rhythm is directly associated with movement.

### REGULAR
 Structural and predictable, expressing unity (like a marching band)

### IRREGULAR
 Looser and more unpredictable, expressing variety and a higher degree of interest (like jazz)

### PROGRESSIVE
 Changes occur over the course of the rhythm travelling across the composition

### ALTERNATING
 Moves back and forth between two motifs as the composition progresses

### UNDULATING
 A cross between progressive and alternating rhythms, gradually alternating between two motifs
Movement

What is movement?

Movement is defined as both the path the viewer’s eye takes around a composition, but also the motion created by the elements within the composition as well. This is aided in large part by repetition, pattern, and rhythm.

Directional force and motion blur

This is defined as an arrangement of elements in a way that moves the viewer’s eye in, around, and through a composition in one or more directions. The force is created when emphasis is put on this movement.

- **VERTICAL** expresses height, power, stability, grandeur
- **HORIZONTAL** expresses peacefulness, calm, tranquility
- **DIAGONAL** expresses intense energy, activity, vigor
- **CIRCULAR** expresses fullness, joy, harmony, inner stability
- **TRIANGULAR** expresses stability, action, economy
- **MULTIDIRECTIONAL** expresses complexity of movement, combinations
The implied motion of Op Art

The science of optics and visual perception can predict how the human eye reacts to specific design elements, which can be utilized to create the illusion of implied motion. This phenomenon is best known through OP ART (also known as Optical Art), which utilizes intense concentrations of high contrast rhythmic elements (points, lines, shapes and/or colors) that tend to include the use of either high contrast achromatic color schemes and/or complementary color schemes.

Op art, black and white variations

Op art, complementary color variations
Creating the illusion of motion with narrative

Unlike film, video, animation, or kinetic sculpture, two-dimensional design does not have the luxury of frame rates or actual movement. Instead, a range of techniques can be used to create the illusion of motion.

**Kinesthetics**
Utilizing a sense of active and/or extreme imbalance by an often figurative subject, thereby expressing a sense of anticipated movement (as the action is expected to continue).

**Blurred Motion**
An implied record of previous movement by the subject in the form of an amorphous smear in the direction of the line of action (often seen in long exposure photography).

**Narrative Sequence**
Often utilized in comics and graphic novels, a story told in two or more sequential parts (text/image). The viewer follows the continuity between panels and closure to fill in the gaps.

**Multiplication**
Time-based motion recorded within a single composition, implying movement through repetition of the subject across the space. This is exemplified in multiple exposure photography and Cubist art.
DESIGN PROCES
What is the design process?

This is the method artists and designers use to create a composition from start to finish. It involves a multistep process that includes identifying the problem, developing a mindset upon which to then effectively generate ideas, plan out design possibilities, and then to subsequently execute the finished design.

What does this really look like?

Although the design process itself is indeed methodical in nature, in reality, the individual steps may very well eventually blur together and/or overlap as the artist or designer will often spiral back during each step to reassess, regroup, gather more information, shift materials or methods, and possibly find a new and even better way to approach the initial problem and establish a more effective solution. This in turn, directly contributes to the further editing and refinement of the final, completed design that the viewer or client eventually gets to see, utilize and experience.

STEP 1: ENTERING THE MINDSET

 Artists and designers consistently need to cultivate a series of thought processes that will keep them sharp, poised, and ready for any visual problem that comes their way. This makes it possible to then best address and solve that problem when it is presented. At a glance, this includes:

• cultivating curiosity, observational skills, and receptivity
• nurturing creativity, innovation, and lifelong learning
• setting aside time, space, and resources
• listening and communicating effectively with others
Utilizing the seven “habits of mind”

How an artist or designer works is just as important as what they are working on. The below “seven habits of mind” are as directly related to the success of the work as they are to the artist or designer behind it:

Persist in spite of difficulty, frustration or failure.
Have you found the best possible solution?
Have you seen the problem through to completion?
Are you proud of what you are doing?

Gather your data and your resources.
Have you used all of your senses in observing the situation?
What do you need to be successful?

Manage your time, your impulsivity and your resources.
Have you thought things through?
Have you planned for the unexpected?

Communicate Effectively, with clarity and precision.
Who is your audience?
How will they connect to your work?

Listen with understanding and empathy.
Have you been open and responsive to the ideas of others?
Have you considered a different viewpoint?

Learn Continuously from each other and each experience.
What past knowledge can be applied to the new problem?

Innovate. Be creative and flexible.
Have you considered an alternative approach?
What makes your work inventive?
Did you take risks and push yourself?
STEP 2: IDENTIFYING THE PROBLEM

As the visual problem is introduced, the artist or designer will need to establish both the parameters (limitations) and context (situation) within which they are able to solve that problem. This requires asking the following questions:

- **what timeframe, resources, and materials are available?**
- **what are the size and/or aesthetic specifications?**
- **what tone should be set, and who is the target audience?**
- **what is the intended use and/or purpose of this design?**

What do these contexts mean?

**TIMEFRAME**
How much time is needed to complete the project? Minutes, hours, days, weeks, months, years? Is there an immovable deadline, a soft deadline, or none at all? How can proper time management be set up in light of this?

**RESOURCES AND MATERIALS**
How much money and/or humanpower is available to complete the project? What materials are needed and/or specified for it? These factors often affect both the execution and outcome of the final design.

**SIZE**
What are the size specifications/limitations of the project? Does it need to fit into a specific physical space? On a particular page size and proportion? How will that space in turn be affected by the design?

**VISUAL AESTHETIC AND TONE**
What types of elements and principles of design are required? Can color be utilized? What types of shapes and lines can be used? How should this project look and feel to the viewer? What type of visual style is preferred/required? Is the design meant to be cute, dramatic, humorous, political, etc.?

**TARGET AUDIENCE**
Who is this project meant for? Is it for adults, children, and/or individuals with particular interests, cultures, backgrounds? Or, is it meant for the public at large and requires more universal semiotics (visual language)?

**USE AND PURPOSE**
What is this project meant to say or do? What is its function? Does it have a single level or multiple levels of function? What is the balance between its utilitarian and aesthetic aspects?
STEP 3: GENERATING IDEAS

Once the stage has been set, the artist and/or designer begins to generate ideas to solve the problem. Here are a few approaches:

• free association and mind maps
• brainstorming and collaboration
• role playing and “what if?” games
• doodling and “free draw”
• research “deep dive”

Where do ideas come from?

FREE ASSOCIATION AND MIND MAPS
Emptying the mind and allowing a continuous flow of thoughts to come with no limitations, that allows for random “free associations” that lead to new and unexpected ideas. Mind mapping is more formal and extensive, writing a prompt on a piece of paper, then adding associations from each that diverge indefinitely until an extensive and exploratory web of ideas emerge.

BRAINSTORMING AND COLLABORATION
A set of groupthink activities, where the meeting of multiple minds feed off each other, leading to progressively diverse, resonant, and refined thoughts and ideas as they are collectively examined and considered.

ROLE PLAYING and WHAT IFs?
Approaching a problem from a perspective or angle outside of one’s own experience in order to find new ways of thinking and coming to different conclusions. Imagining what it’s like to walk in someone else’s shoes, and/or imagining unfamiliar scenarios.

DOODLING and FREE DRAWING
Sometimes simply putting pencil to paper and physically working out ideas as they come creates a momentum of visualization unmatched by other methods. Drawing without a specific goal in mind is a free association of visuals that lead to both a divergence of ideas, as well as a convergence of thought as they are worked out.

RESEARCH
This often involves going to a library, hopping on the internet, and/or talking to an expert with the sole purpose of taking a deep dive into a particular subject. As new knowledge is gained, it can often lead to even more interesting questions that can manifest in a convergence of complex, unexpected, and relevant ideas.
The difference between artists and designers

Although both artists and designers deal with visual problems and how to solve them, there are some fundamental differences between the problems they are presented with, and the best methods by which each can employ to get to the best solution.

ARTISTS (painters, printmakers, sculptors, etc.) often invent their own internal aesthetic problems, and in turn often tend to bring in methods of DIVERGENT THINKING in order to more deeply explore a vast number of possible solutions. At their core, these ideas are often quite personally and intimately connected to the artist themselves, which in turn, can eventually be translated to more universal semiotics (visual language) in order to communicate to a wider range of viewers.

DESIGNERS (graphic artists, animators, illustrators, architects, etc.) on the other hand, are often following direction from an external client, and are therefore most often presented with a specific need that is usually accompanied by a series of limitations (timeframe, size, visual aesthetic, and application). Because of this, designers often tend to utilize CONVERGENT THINKING, taking multiple possibilities and narrowing them down quickly in order to hone in on a solution more efficiently, and one that will communicate immediately and effectively to a more target audience.

Convergent thinking focuses on more linear thought, reaching a single, well-defined solution to a problem.

Divergent thinking encourages more exploration and creativity, accepting multiple solutions to a problem.
STEP 4: PLANNING IT OUT

With an idea settled upon, the artist and/or designer now begins to visualize that idea through a series of quick studies, to arrive at a final composition that most successfully communicates the idea. These visualizations can take a few different forms:

- roughs and thumbnails
- models and maquettes
- mockups and comps
- prototypes

Stages and methods of process planning:

ROUGH AND THUMBNAIL SKETCHES
Both include a series of small drawings that allow for the quick rendering of multiple design possibilities. Unlike roughs, thumbnails are specifically proportional to the final design.

MODELS AND MAQUETTES
Small scale 3D design “sketches”, often made of easily manipulated materials (like clay, wax, wire, cardboard), utilized by sculptors, architects, automotive designers, etc.

MOCKUPS AND COMPS (COMPREHENSIVES)
More detailed and nearer to the final design stage, these working designs are often utilized by graphic artists and web designers to obtain client feedback.

PROTOTYPES
Full scale originals, upon which the final design will often be patterned for large scale reproduction. Often utilized in product or toy design.

STEP 5: DRAFTS AND REWORKS

As the artist or designer creates, it may become necessary to rework and/or go through a series of drafts (versions) of the design prior to settling on the final composition. Questions to address at this point include:

- does the composition need to be adjusted at all?
- are the materials and techniques working well?
- are the concepts communicating properly?
Happy “accidents”

While working on your composition, unexpected things can, and most likely will happen. Perhaps a miscalculation was made when laying out the composition, a material or technique did not work quite the way you hoped, or perhaps showing your work to viewers communicated something very different than what you intended.

If this occurs, don’t despair! Instead, try to run with it. Take a step back and look for new possibilities that may have arisen from this issue. In essence, framing this “mistake” as an opportunity instead and using it to your advantage. The work may even turn out better than expected!

STEP 6: FINAL PRESENTATION

When the work is finally completed, it is important to ask the following to determine whether it is ready for final presentation to the client, viewer, and/or the public at large:

- is the final composition successful?
- are the materials and techniques applied well?
- is the final concept for the work clear and intentional?
- is the final work presented in a professional manner?

Presenting at a professional level:

The presentation of your final composition can make or break how a client or viewer perceives the work. An otherwise stellar design presented unprofessionally can ruin it. Here are some tips to ensure that you are showing your work in the best light possible:

- ALL edges should be clean and straight with squared corners
- works on paper should NEVER contain folds or crumples
- works using adhesives should NEVER show glue or smudges
- works using drawing materials should NEVER contain stray marks
- your name should be located only on the BACK of the work
- digital works should have correct file size, name, and format
As an open educational resource, we strive for constant improvement. Please let us know of any suggestions that will make this resource even better in future publications.

Thank you
and happy designing!

Attribution-NonCommercial 4.0 International (CC BY-NC 4.0)