Design Fundamentals

Key Definitions:

- **Balance**: Visual weighting of objects on a field (*See Composition Theory*)
- **Tension**: This is the opposite of balance in which the eyes generally want to avoid, you can use this to direct the viewer's attention
- **Hierarchy**: The control of visual information in an arrangement or presentation, also used to guide reader's eye to the most important parts
- **Proximity**: The grouping and shaping of objects on a page (*See Gestalt Theory*)
- **Alignment**: Keeping objects in line with one another
- **Minimalism**: This occurs when you only use the essential elements, this does not mean your design must have lots of white space
- **Contrast**: Creating distinction by differences in order to add emphasis and attract attention. It can also establish boundaries within a composition (*See Composition Theory*). Use Contrast Sparingly or nothing will stand out!
- **White Space or Negative Space**: The art of nothing, is the idea that not everything on the page needs to be filled up. White space has no visual weight and any object placed within the space will seem heavier (*See Composition Theory*)
- **Dominance**: When one element exerts its dominance over another one. The more dominant element tends to attract the eye due to its greater visual weight than the lesser dominant object (*See Composition Theory*)
- **Line**: A line is a shape that connects two or more points, it can fat or thin, wavy or jagged
- **Shape**: A shape is any two-dimensional area with a recognizable boundary (*See Shape Theory*)
- **Form**: When a shape becomes 3D, and exist in the real world or they can be implied using techniques like light, shadow and perspective, creating the illusion of depth
- **Texture**: This is physical quality of a surface, it can be 3D or can be implied (*See Composition Theory*)
- **Rule of Thirds**: This imagines your work area divided into a 3 by 3 grid
- **Leading**: The space between lines of text, you could also call it line spacing. This makes the lines of text readable instead of a jumbled mess (*See Typography*)
- **Tracking**: The space between characters also know as character spacing (*See Typography*)
- **Kerning**: The space between certain characters which varies (*See Typography*)

What is Graphic Design?

"The art of visual communication and problem solving using text, images and symbols or typography, photography and illustration in order to create visual compositions"

Three aspects to graphic design

1. Layout

"Every project should have a consistent look and feel"

"How text, images and photographs are arranged on a page. It gives your work structure and making it easier to navigate around your project"

Grid Theory

The Purpose of a Grid
- It establishes a guideline for the positioning of the elements within a layout.
- It ensures that the content is easy to understand and can help draw a viewer in by breaking certain elements out of the grid in order to highlight specific content.
- You can manipulate the proportion of a layout depending on the size and shapes within a layout.

- **The Golden Ratio:** A perfect symmetrical relationship of two proportions. Its ratio is equal to 1:1.61 and this has been used since ancient times such as greek architecture, famous artists and is even found in nature.
- **Rule of Thirds**: *See Key Definitions*

Composition Theory

A composition must be balanced, tidy and clean instead of chaotic, messy however rules are meant to be broken depending on the look and feel your going with but you must understand the importance of balance first before bending some rules. You can combine symmetry and asymmetry to create more interesting and eye catching compositions.

1. **Visual Weight:** This refers to an element that draws in the viewer's eyes and to understand the weight of a perceived object You can measure visual weight through by determining:
- ***The size of an object:*** Self-explanatory, larger elements are much heavier than smaller ones.

- ***The color of an object:*** Darker colors feel visually heavier than paler colors. For example red is heavier than pink.
- ***The Value and saturation:*** Like colors, darker elements or saturated colors are heavier.
- ***The Position and orientation:*** Elements positioned on the higher area of a composition is heavier than elements lower in the composition this coincides with the orientation of an object as well, vertical objects are heavier than horizontal. Diagonal is the heaviest.
- ***The texture and shape of said object:*** Regular shapes are heavier than irregular as they feel incomplete. Textures are heavier than non textured.

2. **Visual Direction:** This one refers to the perceived force of an object instead of a perceived weight, it must obey the laws of physics if the force is applied if the object is real. The characteristics include:
- ***The shape if each element***: The shape of an element could create an axis which suggests visual direction
- ***The subject matter of an element***: Objects such as arrows can direct the viewer to certain areas of a composition
- ***Movement***: Self explanatory, movements of an element have direction.
- ***Structural Skeleton***: This is the idea that every artboard or canvas has a type of structural network, our eyes will be drawn to certain areas of the structural network especially the center and each of the four corners even if no element is in the composition.

Balanced Composition:
- It is subconsciously very pleasing to the eye, it doesn't feel cluttered or messy
- There are no elements overpowering other elements in the composition, all the elements are equal or balanced and also makes use of all the positive and negative space effectively
- It can convey a sense of correctness or basically balanced in a literal sense

Unbalanced Composition:
- It can convey that some elements may be more important than others, this leads the viewer's eyes to the most important details of your design
- It can be difficult getting a unbalanced composition to look aesthetically pleasing, if too unbalanced it could get too chaotic for the viewer's and if too balanced, it could ruin the message you have for your design.
- Your design may end up feeling unsettling which is not bad depending on how you want to convey your design

Visual Balance

1. **Symmetrical Balance**: When two or more elements are equally weighted on a dividing line or a axis. For example think of a balanced seesaw with two equally weighted toddlers on either side. This could create a boring design as nothing stands out, however it could also create a sense of formality or elegance. The three types of symmetry include:
- **Reflection**: Self explanatory, when an element is mirrored on a axis or dividing line, like a literal reflection on the water. It can also be mirrored on multiple axis or dividing lines, a good example would be snowflakes.
- **Rotational**: The elements will rotate around a center or focal point which can occur in any type of angle as long as the focal point remains. A perfect example are the petals of certain flowers, especially the sun flowers.
- **Translational**: When the elements are repeated over and over. For example multiple pencils in a row in repetition.

2. **Asymmetrical Balance**: When a group of smaller, lighter elements have the same equivalent weight to one larger object. For example, 5 small lighter cubes are in equivalent to one large ball in weight, it still creates a balanced seesaw but the objects are different on either side hence "asymmetrical." This type of balance can evoke a sense of modernity and energy.
3. **Radial Balance**: When the elements radiate from a center or a main focal point It can lead your eye to the center of a composition naturally it is due to its strong focal point. For example nautilus shells and spiral staircases exhibits this type of balance.
4. **Mosaic Balance**: When elements are in a chaotic type of balance, this type of composition lacks any type of focal point however the elements are uniformed and it is all about the repetition. It creates a type of visual noise and in someway or another, this oddly works

2. Color
"Every color sends a message"

"Color sets the overall tone and mood of a project or composition"
1. **Primary Colors**: These colors are known as pure "hues, you can't mix or form any of the primary colors" Red, yellow and blue
2. **Secondary Colors**: These colors can be produced when combining two primary colors. Red + Yellow = Orange, Yellow + Blue = Green, Blue + Red = Violet

3. **Tertiary Colors**: A secondary color mixed with a primary color result into the following colors:
   - Yellow + Orange = Yellow/Orange
   - Red + Orange = Red/Orange
   - Red + Purple = Red/Purple
   - Blue + Purple = Blue/Purple
   - Blue + Green = Blue/Green
   - Yellow + Green = Yellow/Green

The Characteristics of Color

1. **Hue**: A Shade or Tint of different colors. There are six major hues and these include magenta, red, yellow, green, cyan and lastly blue. There are an unlimited number of hues from these six colors.
2. **Chroma**: This refers to the purity of a color and is closely related to hue. High chroma hues have no white, black or gray in them while adding these three colors decrease chroma
3. **Saturation**: Refers to intensity of a color in others whether the color feels subtler or more vibrant. As saturation gets higher, the colors look much more rich and full. Lower saturation makes the color grey and dull.
4. **Value**: Refers to how light or dark the color is ranging from black to white. Lighter colors will have a higher value compared to darker colors.
5. **Tones**: This type of hue will have gray add to the mix which creates mor duller or softer look hues compared to the pure hues.
6. **Shades**: Instead of gray being added to a hue, it is black that is being added to the hue which makes darker hues.
7. **Tints**: The final color added to a hue is white which makes the colors lighter compared to shades. This is used to create feminine or much lighter designs.
8. **Warm Colors**: These colors are lively and are usually associated to the sun or fire and it is due to this, that these colors are seen as more cozy. Orange, Red or Yellow are seen as warm colors. They convey a sense of happiness, energy or excitedness.
9. **Cool Colors**: These type of colors are seem more distant compared to its more lively warm counterpart and are usually associated with water, nature and the sky. Blue, green and purple are typically seen as cool colors. They convey a sense of harmony and are used for businesses.
10. **Neutral Colors**: These colors are used as a backdrop in your composition and their meanings or mood can be affected by cool or warm colors surrounding them. Colors include black, white, gray, brown, beige, tan, ivory and cream.

Color Harmony or Schemes:
   - **Monochromatic**: using one color and use your knowledge of saturation

and value to create variations of one color

- **Analogous**: uses any three colors that are next to each other on a color wheel. For example orange, yellow-orange and yellow respectively.
- **Complementary**: colors that are opposite each other on a color wheel. For example red and green.
- **Split Complementary**: The scheme takes one color and matches it with the two colors and matches it with the two colors adjacent to its complementary color. i.e. blue, yellow-orange and red orange
- **Triadic Colors**: any three colors apart on the color wheel. i.e. red, yellow and blue. This scheme has high contrast, but it is more balanced than complementary colors. A trick is to use one color as the dominant color and accent with the other two colors.
- **Tetradic or double complementary colors**: uses four colors together, double sets of complementary colors. i.e. blue and orange with yellow and violet

Color Psychology

Red:
- Associated with passion, love, energy or excitement
- Could also mean adventure, action, danger or anger
- Known as the most eye-catching color which means it makes big sales more eye catching to the customers as red is commonly used
- It is used in the KFC or Lego logos

Orange:
- It means vitality, joy or happiness and is associated with creativity and youth
- Common examples include FedEx or The Home Depot

Yellow:
- This is the color if the sun, so it means that it is associated to warmth, light and positivity
- Could also mean young and optimistic
- Famously used in the Mcdonalds logo

Green:
- It is obviously related to nature and the environment or health
- This also has a negative meaning associated with money or envy
- An example would be money or Starbucks

Pink:
- This is known as the "girls color"

- It conveys is gentle, soft and romantic
- Baskin Robbins uses pink in their logo

Blue:
- This can convey trust, reliability or secure and responsible
- Can also be associated with dignity and freedom, also spiritually
- Ironic example is Facebook

Purple:
- This conveys a sense of creativity or uniqueness
- It is also the color of royalty, romanticism or sensual
- Cadbury would be a delicious example

White:
- It is innocent and pure
- It can be related to peace and protection
- In India, it is associated with mourning or death
- It is used in the Tesla logo

Brown:
- It the representation of autumn, wood or the rustic Earth
- It provides a sense of stability and comfort
- Beige, which combines brown which is a warm color with white which is a cool color is seen as dull or a sense a piety
- Cream and ivory which are similar to beige but with more whiteness evokes silence or calm
- It is commonly used on the ups logo and not many brands or logos use this color

Gray:
- It is related to timelessness, respect and humility
- It has a negative meaning as well relating to sadness or depression
- This color was used on the Apple and Wikipedia logos

Black:
- Black is tradition and authoritative, could also be traditional
- It can be seen as powerful and serious or luxurious
- It is the representation of elegance and modernity
- Negative connotations are evil or death
- Famous examples include Puma, DC and Nike

3. Typography

"Less is more it is best to use one or two fonts making full use of text size, style and weight to add contrast."

"Typography refers to the style or appearance text or the art of working with text"

- **Fonts**: is a style within a typeface family. For example Helvetica Black is a font within the Helvetica family.
- **Typeface:** is a family of fonts. For example Helvetica has many fonts in the typeface family such as Helvetica Regular
- **Serif**: fonts that have little strokes which is called a serif attached to the main part of a letter. They have a more traditional look and often seen in publications such as newspapers and magazines.
- **Sans Serif**: fonts that have no serifs attached to the main part of letter hence the name "Sans." This is used for captions, credits or text in charts and graphs.

Fun fact: Did you know sans is a French word translated as "without serif" in English? These fonts are typically seen as more modern and clean and is easier on the eyes on smartphones and tablets

- **Display fonts**: fonts that come in many different styles such as script, blackletter, all caps or just fancy. It is due to the decorative style of these fonts, that it is best suited for small amounts of text. For example titles and headers or more graphic projects (posters)

Anatomy of Typographic Characters

- **Glyphs:** It is all the possible characters available in a font from the numbers to the letters to all the special characters.
- **Kerning and Tracking:** *See Key Definitions*
- **Alignment**: *See Key Definitions*
- **Measure**: The length of lines of text in a column or paragraph. Another name for measure is column width. Depending on the width (too wide or too marrow), your will have a tough time reading as your eyes will get tired..
- **Ligature:** It combines two or multiples characters into a single character. It is used to solve characters clashing with each other. Most commonly used for fi or fl.
- **Rags**: An uneven vertical edge of a block of type or paragraph, usually on the right hand edge of a paragraph. A rag can be distracting on the eye if it is bad placed.

- **Widows** and **Orphans**: If a single word/short is at the end of a column it is a widow. Orphans are a single word/line at the top of a column instead of the end.

Useful Tips

Things to keep in mind:
- Know your audience and the goal of the piece
- A designer must be a great communicator
- Order and clarity make information easy to understand
- Build intuition through practice!
- Drawing skills aren't necessary to be a designer but it can help you visualize your ideas

Keep it Simple!
- Avoid an overwhelming amount of colors or objects
- Always ask yourself: what am I representing? How am I representing it?
- Widow away superfluous information and details

Digital Workflows

Color Handling
- Two main color profiles in projects: CMYK and RGB
- CMYK is generally used for print, RGB is for on screen media
- Keep your profiles consistent to avoid any nasty surprises!

CMYK (*See Print Production*)
- **C**yan, **M**agenta, **Y**ellow, **B**lack
- Used in print projects
- Subtractive process to generate color (cyan + yellow = green)

RGB
- **R**ed, **G**reen, **B**lue
- Used in screen projects
- Additive process to generate color (green – red = yellow)

HSL
- **H**ue, **S**aturation, **L**ightness
- You can switch saturation with chroma or lightness with value

PMS
Pantone **M**atching **S**ystem
These colors have a special type of ink in them
Pantone colors are used in logos and other types of branding with in a company
   Hex Code

- Also known as a hexadecimal code or 24 bit color is how a computer sees colors
- There are over sixteen million unique color combinations made of six characters fr om ten numerals or six letters which also has a hashtag (#) in front of it.
- The higher the numbers become, the more brighter that primary color is, for example 60 is more brighter than say a 7

Types of Digital Artwork

1. **Vector:**
- Image consists of points and paths that have a proportional relationship
- Infinitely scalable
- Primarily used in Illustrator
- Recommended for illustrations

1. **Raster (Bitmap Image):**
- Flattened image consisting of many pixels
- Not scalable and loses its resolution when zoomed in
- Primarily used in Photoshop, any print program
- Recommended for photos

Image Resolution
- Resolution must be crisp and clear
- 270 dpi (dots per inch) for print, 72 dpi for screen
- Possible size of final image will be dictated by the number of pixels in the image

Shape Theory

"In the same way color that has meaning, shapes also have their own meaning, their own connotations."

Circles: They convey positive messages such as friendship, love or community
Rings: Convey a sense of longevity or marriage as a ring have no edges, it loops infinitely
Triangles: They are strong shapes that conveys power, law & order, they also have similar meanings to squares due to their hard edges. A famous example would be the Triforce from The Legend Of Zelda.
Squares: Their hard edges convey a sense of stability, strength or professionalism. However if you use cool colors, your design may end up to intimidating to the people

who view it

Vertical Lines: This type of line conveys a sense of masculinity or aggression

Horizontal lines: It is the opposite of vertical lines and it gives a sense of calm or tranquility instead of aggression

Diagonal Lines: This suggest movement or action.

Gestalt Theory

What is it?

"Gestalt means "Unified Whole" which is the theme behind Gestalt Principles. This refers to the visual perception of how we perceive visual objects."

The Key Principles of Gestalt Psychology

1. **Emergence:** We identify whole before we identify its parts. The human brain will identify a smiley face before it identified the individual parts.
2. **Reification:** Our mind will fill in the missing gaps of information involuntarily. A famous example is the logo of the WWF (World Wildlife Foundation) which is a panda bear.
3. **Multistability**: the minds wants to avoid uncertainty. For example when presented by an image or form with two possible meanings the mind switches between the two of them as the mind will get confused. A famous example is the rabbit or a duck optical illusion.
4. **Invariance**: Our minds can recognize differences or similarities very well.

Principles Of Gestalt

- **Law Of Prägnanz or The Law Of Simplicity:**
Our brain naturally prefer things that are simple and ordered, so it reorganizes complex shapes into simple parts or components. Simple shapes take much less time to properly process compared to bigger, more complex shapes.
- **Similarity:**
When two or more objects look similar, we perceive the elements as a pattern or group rather than its individual parts. When one element is different, it breaks the similarity and becomes a anomaly. Elements in similar weight (*See Composition*

Theory) will also convey similarity.
- **Continuation:**

The eye is drawn to lines, paths and curves. This can be used to lead the eyes towards a element in a composition.
- **Closure:**

This principle manipulates our eye's tendency to see closed shapes. This gives the illusion of being closed when in reality the space of the element is not fully closed but we perceive a closed shape.
- **Proximity:**

When the elements are in close arrangement, this will create a group association between the objects. If the individual elements are similar, we perceive it as a whole object when in reality they are separate elements.
- **Figure/Ground:**

Our eyes have a tendency to see and separate objects from our surrounding background. You see this effect in many logos and it works as our eyes see the figure and ground as different planes of focus. Visual weights (*See Composition Theory*) can further separate objects from our surrounding background by making the figure or object heavier than the background or "ground." The figure and ground must contrast (*See Key Definitions*)!
- **Symmetry and Order:**

This principles states that a composition must provide order and balance as disorder and imbalance causes, us the viewer to waste time locating a element rather than focusing on the message.
- **Uniform Connectedness:**

Connecting two or more pairs of elements through, lines, arrows and they don't need to be connected to the shape, making full use of closure which leads us to a sense that these connected elements are relatable.

Print Production

The Print Process

1. **Digital Printing**: The modern print methods for digital print are commonly laser and inkjet printing. The image of a digital files are sent directly to the printer which effectively eliminates to use of printing plates which saves money and time immensely. This has created printing on demand. It doesn't have the quality of offset printing however as technology improves so will the quality and speed.
2. **Offset Lithography or Offset Printing:** This is the most common way to print ink on paper and unlike digital printing, this requires the use of printing plates

which is usually made up of a thin sheet of metal which is much more expensive than other plates but offer accurate, high quality images and are made to last longer and they also use plastic, paper or rubber plates which are cheaper alternatives. Then it is on to pre-press! The images is placed on the print plates through the use of a photochemical/mechanical process. The plates are attached to plate cylinders then ink and water get applied which is then transferred to a intermediary cylinder which then transfers the ink in paper. This method uses CMYK.

Layout Document for printing
- **Trim Marks**: These show the printer where the paper should be cut, the marks show up on paper as small line located vertically and horizontally at the same time
- **Trimmed Page Size**: This is the final size of the pages after the step above (*Trim Marks*).
- **Bleed**: These are images that extend beyond the trim marks and this guarantees clean edges instead of a sliver of white space depending on what needs to be printed
- **Margin or Safety:** This is the opposite of bleed that doesn't go beyond trim marks instead it is within a margin or "safety."