

# COLOR THEORY

**A guide to mixing, complementing and  
comparing tones, hues and shades**





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# What is Color Theory?

*The practice of how colors interact, compete, contrast and compare with each other!*



**C**olor Theory can be described as a fundamental guide to how *color can be manipulated to attract the eye* and focus on specific subjects.

It is an important tool that **artists, designers and creatives** utilize so that they can clearly illustrate the feelings and emotions of their subject.<sup>1</sup>

While it can be divided between the *modern Science of Color Theory* and *Traditional Color Theory*, Color Theory, in general, poses an important role in determining how we view our environment- *from what we wear, to even what we eat!*

*“Color helps to express light, not the physical phenomenon, but the only light that really exists, that in the artist’s brain.”*

**- Henri Matisse**



# A History of Color Theory

The basis of Color theory has beginnings as early as the philosopher **Aristotle**.

However the ideas of how color interact with each other had not been formally documented until the creative mind of **Leonardo DaVinci** posed the concept of **complementary** and **contrasting colors** in the mid-1400s.

Sometime between the 1600s and 1700s, **Sir Isaac Newton** had used a crystal prism to split white light into **7** visible spectrums: **Red, Orange, Yellow, Green, Blue, Indigo** and **Violet**- clearly defining the rainbow. From there, connecting **Violet** back to **Red**, Newton created the first **identifiable color wheel**.



*Pictured:  
Leonardo DaVinci's Mona Lisa  
(1503-1517)*

The visible colors were further defined by Playwright **Johann Wolfgang Von Goethe**, who, in the 1800s, pared down the colors to an even **six**, with **three warm colors; Red, Orange** and **Yellow**- and **three cool colors: Green, Blue** and **Purple**. While this used the color wheel as its base, Johann disagreed with Newton in how we perceive color- While Newton looked at color from *the viewpoint of light*, Johann said that *human perception of color* is important to understand contrasts and tones.



*“Yellow is a light which has been dampened by darkness; Blue is a darkness weakened by light.”*

**-Johann Wolfgang Van Goethe**

By the end of the 18th Century, **Louis Prang**, using the color wheel theory, formally defined the *Primary Colors* (Red, Yellow and Blue) as a standard taught in the American Education system.

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Dividing the color wheel created an easily identifiable way of determining which colors *complement* or *contrast* each other, which is also known as **Color Harmony**, a term coined by Russian-German Chemist, **Wilhelm Ostwald**.

The Bauhaus Art school graduate and Swiss Art Theorist, **Johannes Itten** coined the **Color Chords Theory**- a system that compartmentalizes color groupings based on their *position on the color wheel*.

**Albert Munsell**, an American Artist, studied how color can be viewed in a *three-dimensional form*, creating a **spherical view of the color spectrum**, which contributed to the usage of hues, tints and shades in digital art today.

# The Color Wheel

The original **color wheel** contained a spectrum of 7 identifiable colors; **Red**, **Orange**, **Yellow**, **Green**, **Blue**, **Indigo** and **Violet**, however many modern color wheels divide the spectrum into a variety of values, with a **12-color** wheel as the most commonly taught.



Since the conception of the **color wheel**, there have been many ways that artists and designers have modified it to suit their needs.



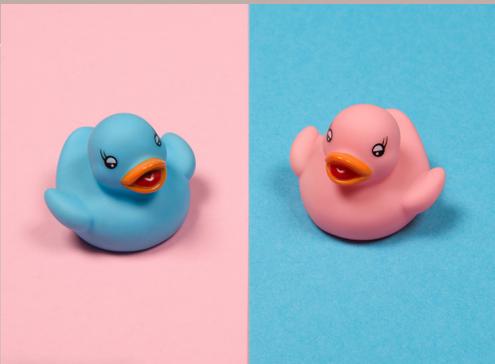
These modifications make it easier to identify *complementary colors* which help determine **Color Harmony**.

# Color & Feelings

## Color how we see it

As humans, we *connect color to our feelings and emotions.*

We see the color **Yellow** as an **energetic color**, reminiscent of the *sun*, or *lightning*. The color **Magenta** is typically seen as a **feminine** color, normally found in *spring flowers*. Artists and designers have used these qualities of colors to **convey different feelings by using color harmony.**



*Pictured:  
Pink and blue has been used to show gender as a dichotomy; representing girls and boys respectively.*

## Emotion of color

*Color can evoke many different emotions from within us.* The association of color and emotion has been a great tool for creatives to express their **feelings** within their medium. Many artists use the color **Red** to signify *heat* or *anger*, while **Blue** may be used for *sadness*.

## Colors in-depth

A multitude of feelings can be expressed within the **hues** of one color. **Green shades** can represent feelings of *nature* or feelings of *jealousy*. Playing around with colors and shades can **change how a subject is viewed**. Adding **complementary colors, tints** or **shades** will add *depth to your subject*.

## Lighting

Lighting can change the mood of a subject or even how we **view the original color**. Below, a **Cyan** and **Black** butterfly appears as **Yellow** and **White** when a yellow lighting tint is **layered over top**.



# Color Harmony

## What is Color Harmony?

**Color Harmony** is the concept of composing *specific colors* to create a visually appealing **balance** based off of their position within the **color wheel**.

**Warm**

## Applying Color Harmony

As you explore the **color wheel**, you will find it can be divided in many ways that will help hone and perfect your own unique techniques.

Using these techniques, you will be able to *invoke feelings and emotions* that will improve how you convey your media.

*"Colors, like features, follow the changes of the emotions."*

**- Pablo Picasso**

# Color Harmony

## Color Relationship vs Color Schemes

### Color Relationship

**Color relationship** is the way that colors *intereact with eachother* and what feelings they evoke. In example; choosing 3 of any of the cool tones to the left will express *relaxing and natural feelings*.



### Color Schemes

**Color Schemes** are sets of colors that are *specifically chosen to appeal theeye*, based on their position on the color wheel. An example would be choosing every **Third color** on the wheel. (right)



### Swatch

A small sample of a *solid color* is called a **Swatch**. A Color Scheme consists of **two or more Swatches**.



Cool

# Color Scheme

## Using the color wheel with purpose

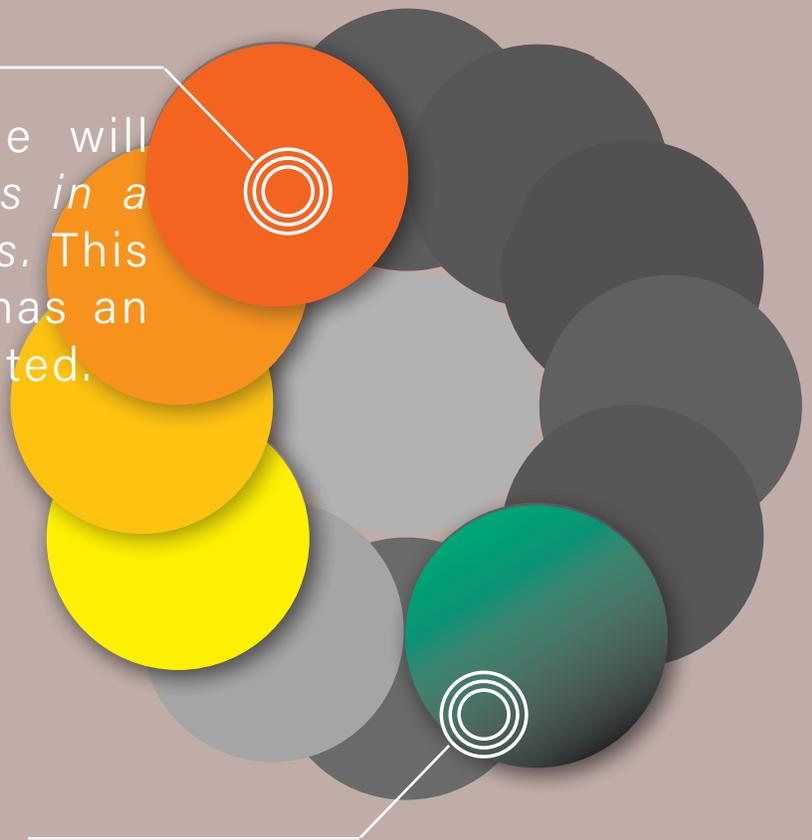
### Analogous

An **Analogous color** scheme will consist of *two or more colors in a row within similar wavelengths*. This follows the color wheel and has an **easing effect** when implemented.

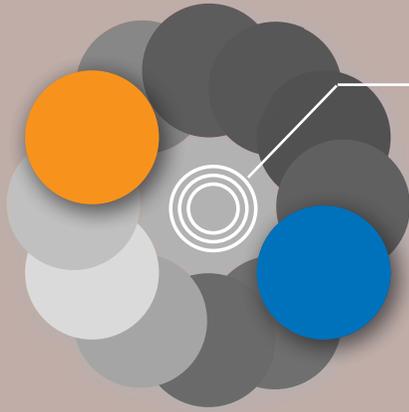
The **placement** of colors on the color wheel can **change the way your designs are viewed!**

### Monochrome

**Monochromatic** color schemes use only *one color*, but delve into the **tints** and **shades** of the color. This can be used to *express feelings in a clear way*.

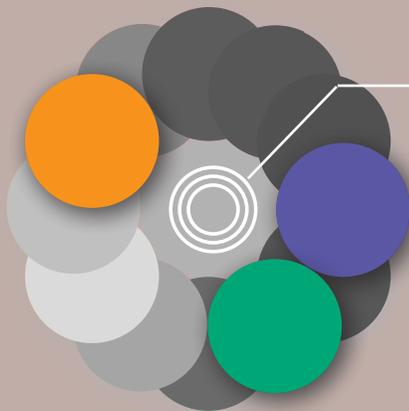


*Pictured:  
A 17th Century  
Persian Mural  
using Double  
Complementary  
colors for the  
main subjects*



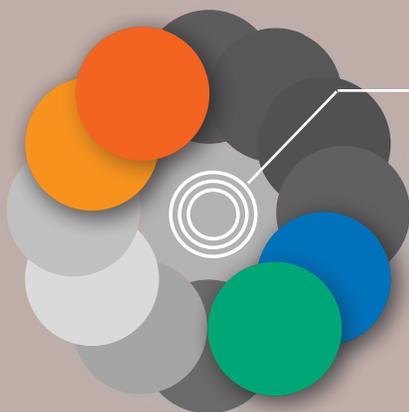
## **Complementary**

**Complementary colors** are colors that are on opposite side of the color wheel. These colors are considered contrasting, and create a visually appealing design.



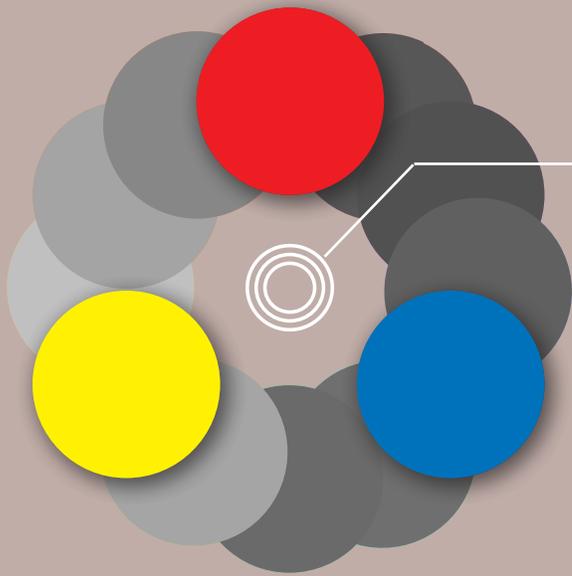
## **Split Complementary**

**Split Complementary** consists of 3 colors, where the main subject color is matched with two other colors whose placement are evenly apart from the subject color. Using these color schemes create a subtle but impactful effect.

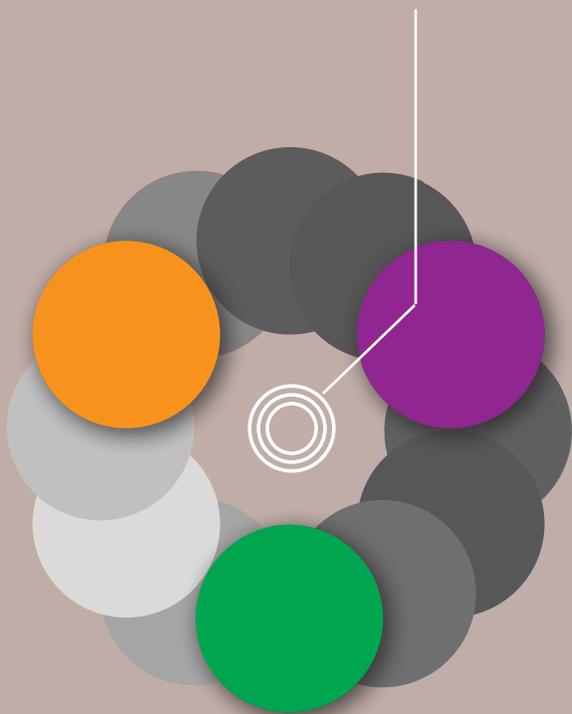


## **Double Complementary**

**Double Complementary** schemes will use two pairs of complementary colors, usually within the same wavelength. This color scheme creates a full bodied, bold statement.



**Triadic**  
**Triadic color** sets are  
*3 colors that are evenly  
separated between each other.*  
This can create an impactful  
and strong statement as *each  
color acts as the subject color.*



## Primary Colors & Secondary Colors

An example of a **Triadic color scheme** are the **primary colors**; **Red**, **Yellow** and **Blue**. The **secondary colors** are created by evenly mixing **two of the primary colors**. However, there are many other primary colors used. For instance, in print, **YMCK**, or **Yellow**, **Magenta**, **Cyan** and **Black** use the YMC as the primary colors. Lights use **Red**, **Blue** and **Green** as the Primary colors. Adding *shadow* and *light* to colors changes the **shade** while adjusting the opacity or how visible the color is, is called the **tint**.



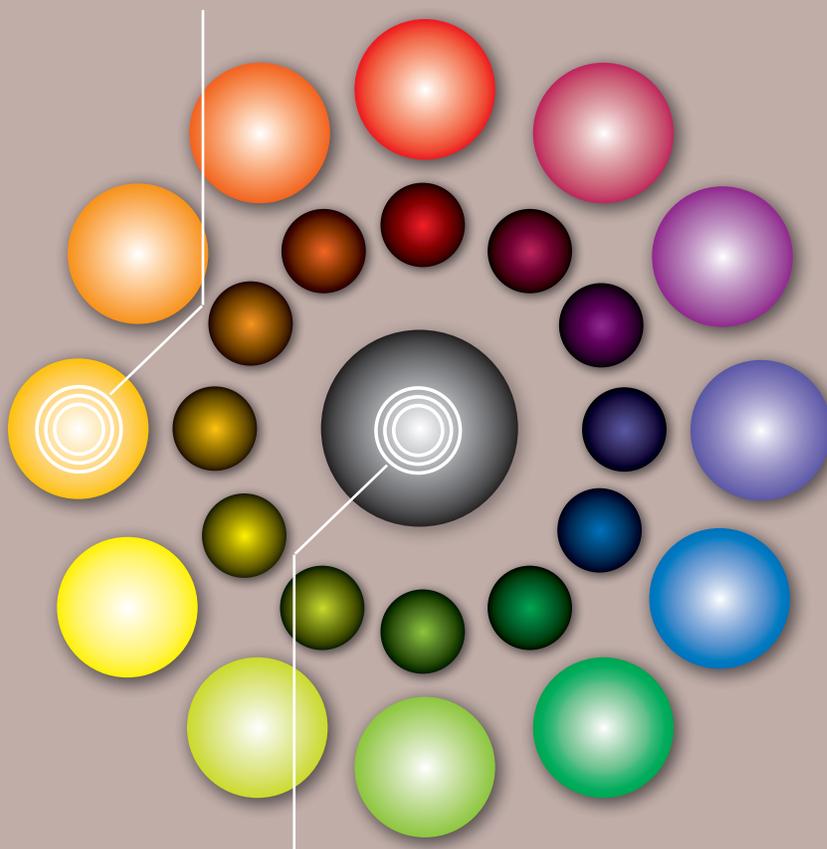
# Tint & Shade

## Tint

**Tint** is in reference to the *opacity* amount of how a *color* is layered on another color or shade.



In example, the **black dot** and **red dot** above are both at **100% opacity**. The **yellow dot** is at **50% opacity** and when layered on the black dot, it gives the dot a **yellow tint**. The **blue dot** is at **25% opacity**, and when layered on the red dot, it gives the dot a **purple tint**.



## Shade

**Shade** is how **light** or **dark** a color is. This is traditionally done by *layering black* on colors to *darken them*, or *layering white* on colors to *lighten them*.

*"Light is a thing that cannot be reproduced, but must be represented by something else-Color."*

**-Paul Cezanne**



# So what is Color Theory?

*Color Theory is how colors interact and impact our visual lives day to day!*

Humans have studied and applied **Color Theory** since discovering the arts and it plays an integral role in how subjects are represented in the world.

Color Theory is one of the most important tools for an Artist or Designer, as it helps accurately express the **feelings** of their subject.

**Complementary colors** on the color wheel- if utilized correctly, will create a balanced visual impact; while delving into the shades and hues of the colors will bring out *depth* and *interest*.

Within Color Theory are **Color Schemes**, which consist of **swatches** that are grouped together to create a **Color Harmony** and consistent flow within the subject.



*With Practice, anyone can perfectly execute the usage of color theory in their daily tasks; Whether its organizing nail polish bottles to match your decor, or deciding what protein to plate for your special dinner- Color Theory will help you produce harmonious results!*

*"Art teaches you the **philosophy of life**, and if you can't learn it from art, you **can't learn it at all**. It shows you that there is no **perfection**. There is **light**, and there is **shadow**. **Everything is in half tint.**"*

***-William Morris Hunt***



# Glossary

**Color:** *A viewable attribute of an object that is produced when exposed to light*

**Color Harmony:** *Colors that are grouped together and form an appealing visual color theme.*

**Color Theme:** *Swatches of multiple colors, chosen to convey a feeling of a subject.*

**Color Theory:** *The practice of using color to convey a message or feeling.*

**Complementary:** *Colors that are evenly spaced from each other on the Color Wheel.*

**Opacity:** *The percentage of how see-through a color is.*

**Swatch:** *A sampling of a solid color.*

**Shade:** *The impact of light and shadow and how it interacts with color.*

**Tint:** *How the opacity of a color is layered on top of and effects another color.*

