# LIGHTIG FOR INTERIORS

- COLORS
- LIGHTING

Interior Design Department
Third grade/ Fall semester

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# COLORS

- SEEING COLORS
- COLOR TERMINOLOGY(VOCABULARY)
- COLOR THEORY AND SYSTEMS

# SEEING COLORS

- The importance of colors
- Colors perception
- Modifiers of light

# SEEING COLORS

- **The importance of colors**

The role of color in interior design space is fundamental to creating a successful interior.

Thus, interior designers must learn the characteristics of color and how it can act as a focusing and organizing agent.

# SEEING COLORS

- **Colors perception:**

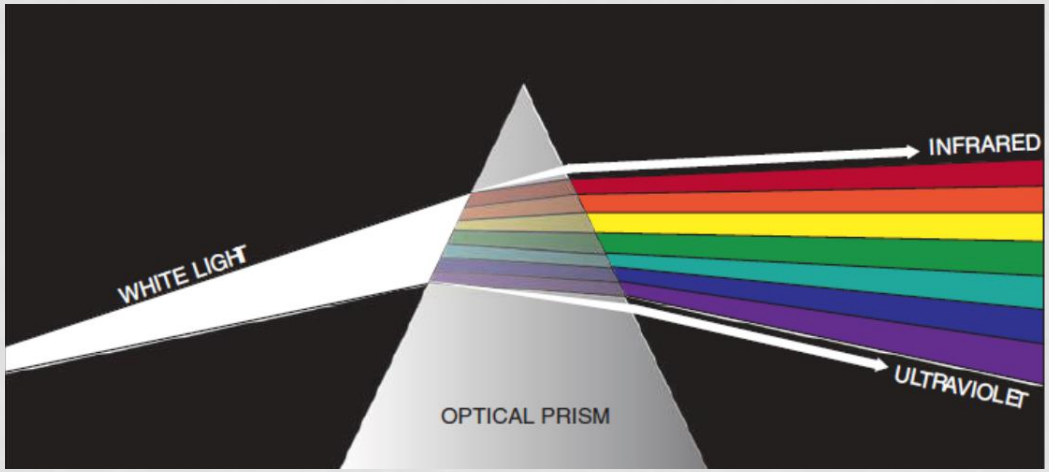
In the 1600s, Sir Isaac Newton (1642–1727) demonstrated that color is a natural part of sunlight or white light.

When he passed a beam of sunlight through a prism of transparent material, he found that as the light emerged from the prism it dispersed, separating the individual wavelengths into different colors

# SEEING COLORS

- **Colors perception:**

These colors arranged themselves according to the colors of a rainbow: red, orange, yellow, green, blue, indigo, and violet.

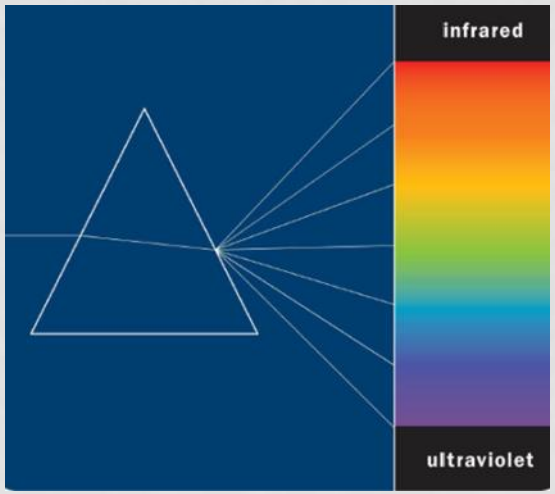


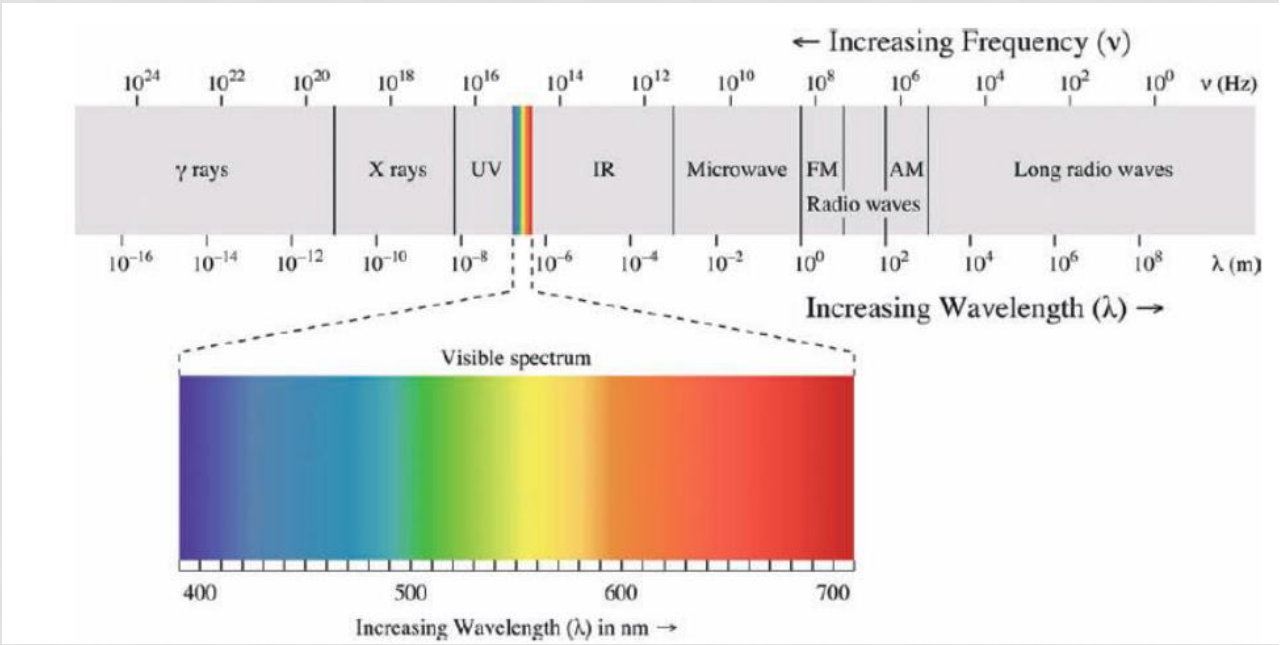

The effect of passing rays of white light through a prism is to bend the shorter wavelengths more than the longer wavelengths.

# SEEING COLORS

- **Colors perception:**

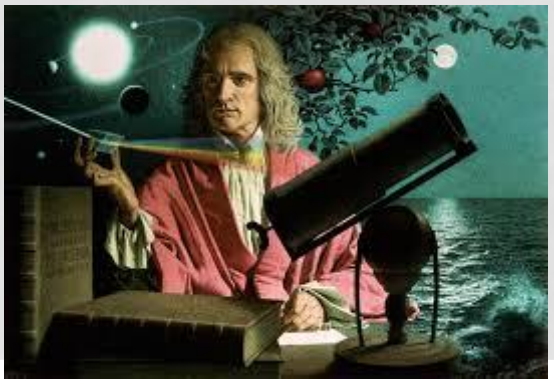
Color is a physical phenomenon, and the range of colors stretches far beyond what the human eye is capable of perceiving. At either end of the visible spectrum of light are the infrared and ultraviolet lights. In between is "human color space."



# SEEING COLORS

- **Colors perception:**
- This model is best observed when light is refracted in a prism and the eye identifies the resultant color wavelengths- whose number is considered to be around 10 million-as a rainbow.
- Newton carried his experiment one step further by utilizing a second prism to mix the waves back into sunlight. This verified the fact that color is basically made up of light and that when "colored" lights are mixed, the result is white light.



# SEEING COLORS

- What is the color that reflects all  colors ?
- What is the color that absorbs all colors?
- What about the other colors like red for example?

# SEEING COLORS

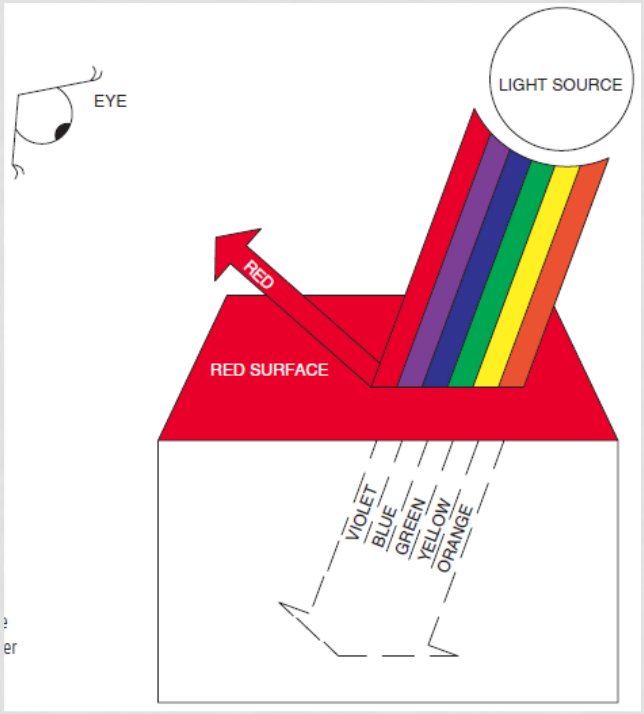
**Modifiers of light:**

The color of an object or surface is determined by its reflected or transmitted light.

- White is often described as the reflection of all colors,
- while black is described as the absorption of all colors.
- An object that the eye perceives as red absorbs every color except red, which it reflects.

# SEEING COLORS

- **Modifiers of light:**
- In other words, the color, or pigmentation, of an object absorbs all colors of light except its own color, which is either reflected or transmitted to the eye.
- For example, if white light falls on a red surface, that surface will absorb all the wavelengths except the red ones, which are reflected back to the eye, allowing us to perceive the color red.




Only red light waves are reflected back to the eye after all other wavelengths are absorbed by the red surface.

# COLOR TERMINOLOGY(VOCABULARY)

- Primary colors
- Secondary colors
- Color Temperature
- Hue
- saturation
- shades
- Tints
- Tones
- schemes

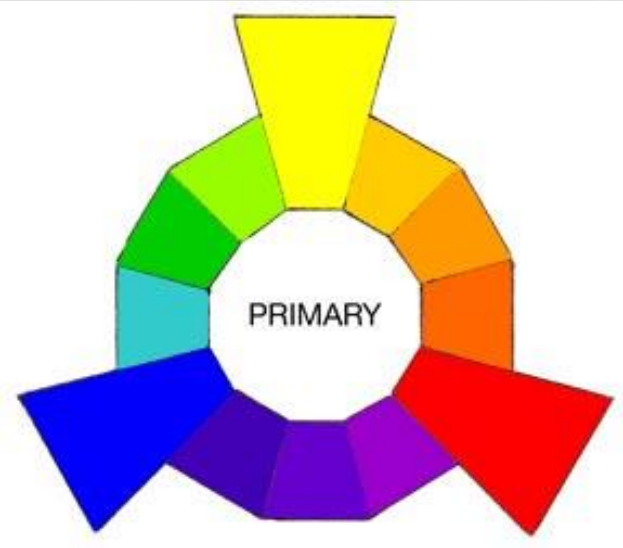
Primary colors?
Secondary colors?
Tertiary colors?

# COLOR TERMINOLOGY(VOCABULARY)

- **Primary Colors:**

Group of colors(yellow, red, blue) that, when mixed, can produce all other colors.

Primary colors cannot be made by other colors.




# COLOR TERMINOLOGY(VOCABULARY)

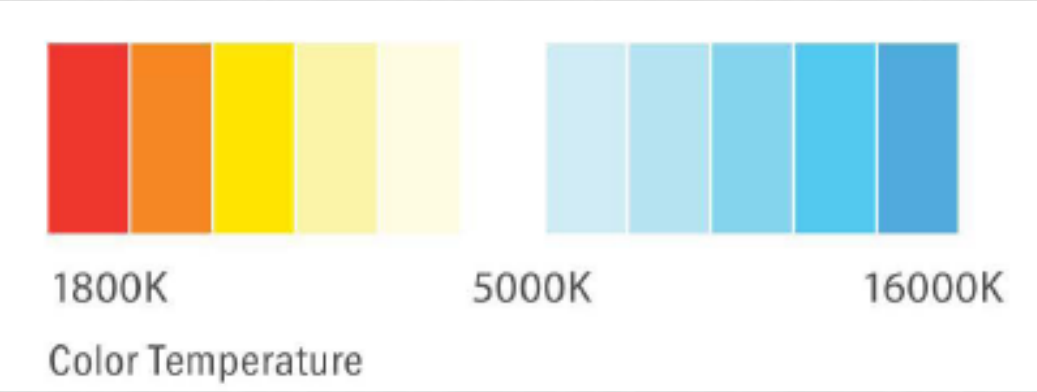
- **Secondary Colors:**

Colors that result from a 50 percent mixing of any two primary colors.

# COLOR TERMINOLOGY(VOCABULARY)

- **Color Temperature:**

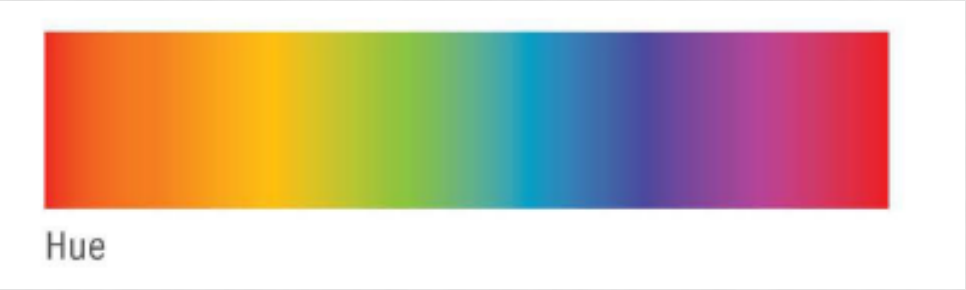
Temperature of a light source, measured in Kelvins. Lower temperatures are considered warmer (adding a yellow cast to objects), while higher temperatures are considered cooler (adding a blue cast to objects).



# COLOR TERMINOLOGY(VOCABULARY)

- **Hue:**

Gradation of color within a visible spectrum.

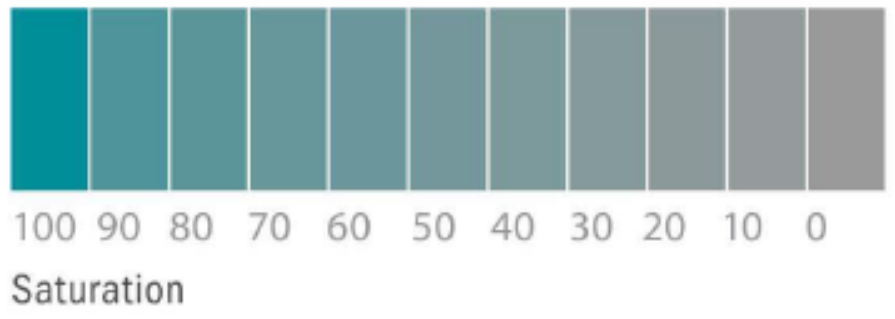


# COLOR TERMINOLOGY(VOCABULARY)

- **Saturation:**

Chroma, Intensity of a color.

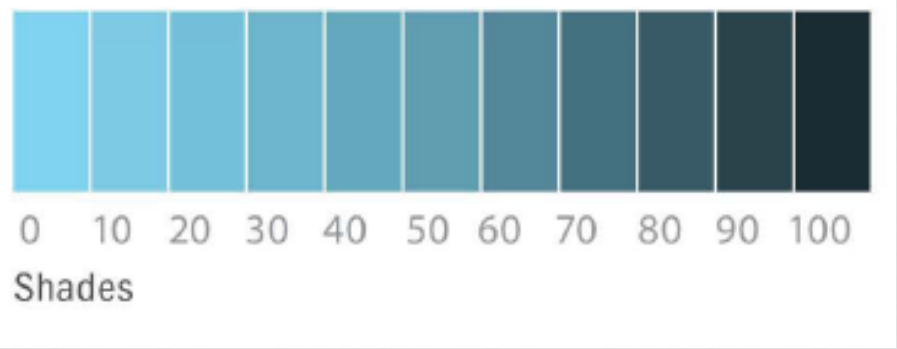
Colors that exhibit a high degree of Chroma are those that are not grayed.



# COLOR TERMINOLOGY(VOCABULARY)

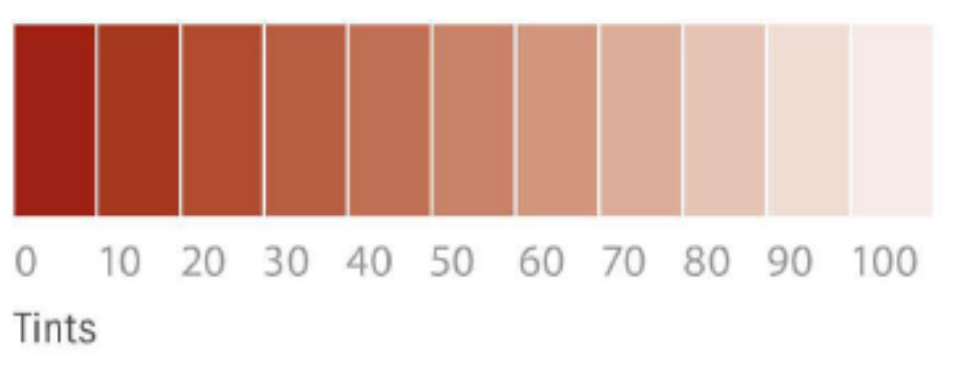
- **Shades:**

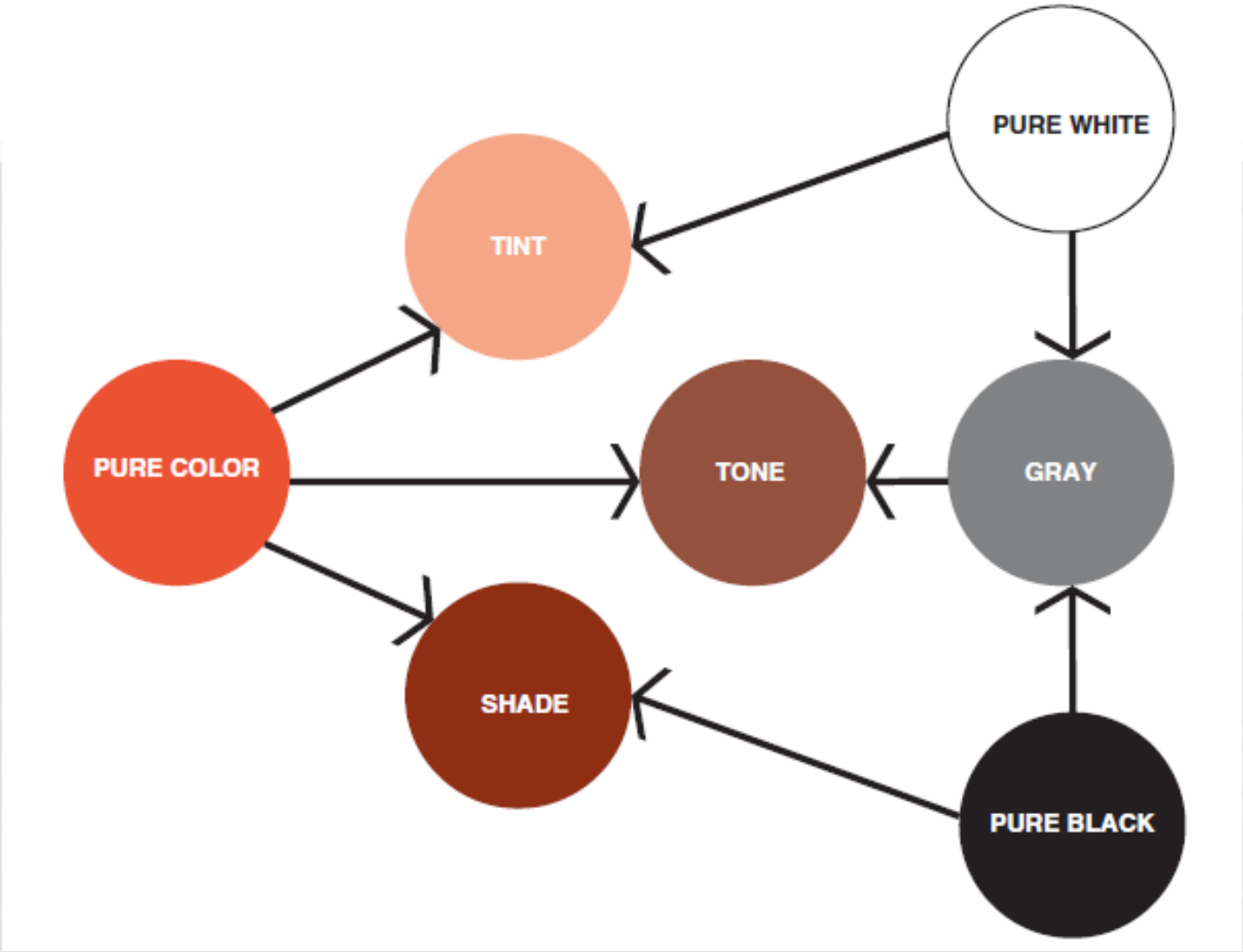
Result of adding more black to an existing color.



# COLOR TERMINOLOGY(VOCABULARY)

- **Tints:** Result of adding more white to an existing color.



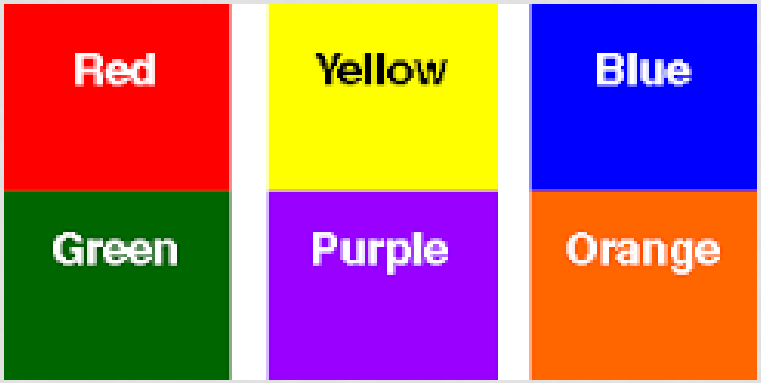


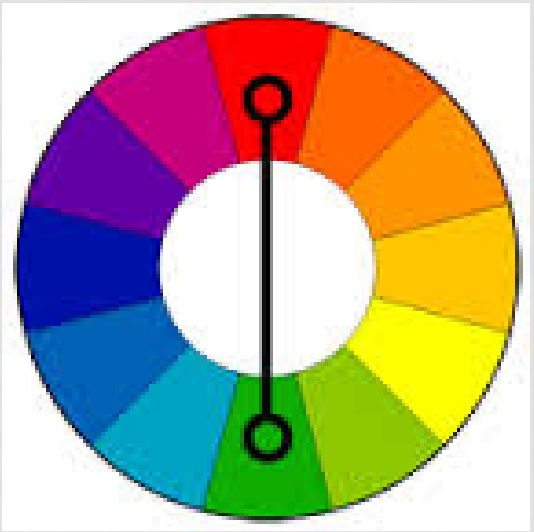

Tints, tones, and shades can be produced by adding white, gray, or black to a pure hue

# COLOR TERMINOLOGY(VOCABULARY)

- **Tones:**

Result of mixing a color with its complement. An equal mix will result in a gray.



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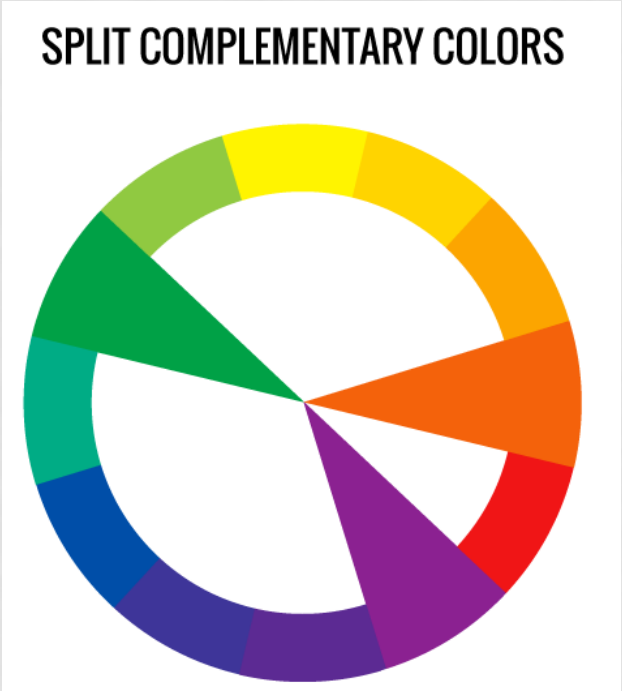
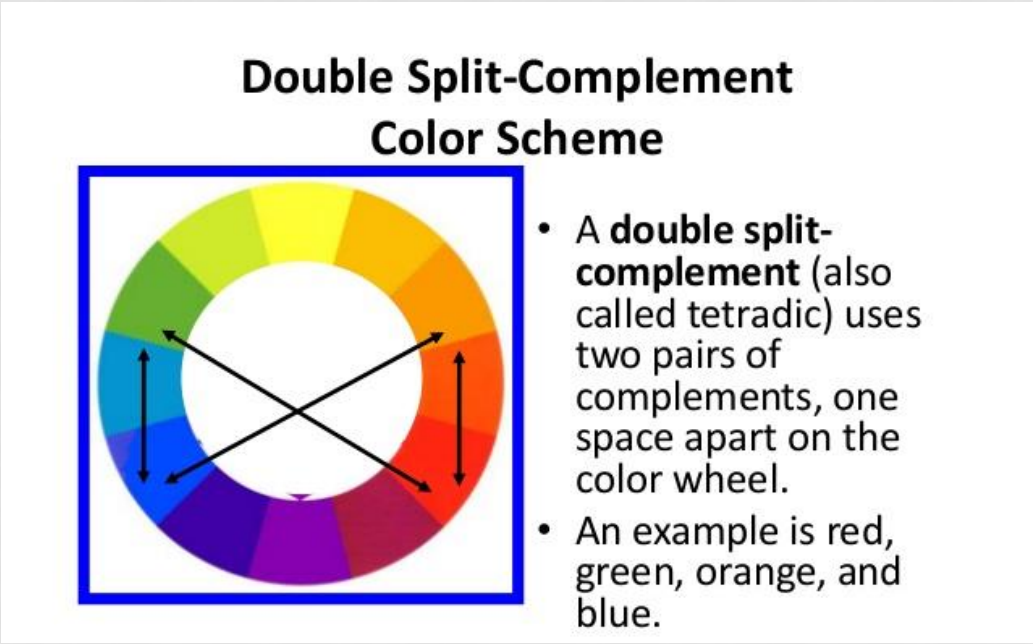
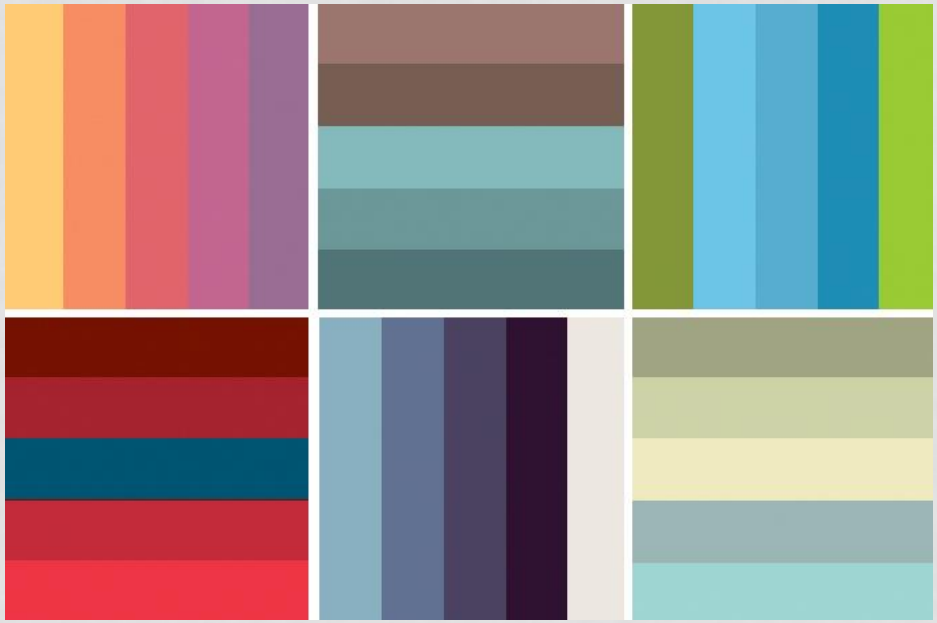


# COLOR TERMINOLOGY(VOCABULARY)

- **Schemes:**

Method of organizing color in harmonious combinations.



# COLOR THEORY AND SYSTEMS

- Additive Method of Mixing Light
- Subtractive Method of Mixing Light
- Paint-Color Mixing

# COLOR THEORY AND SYSTEMS

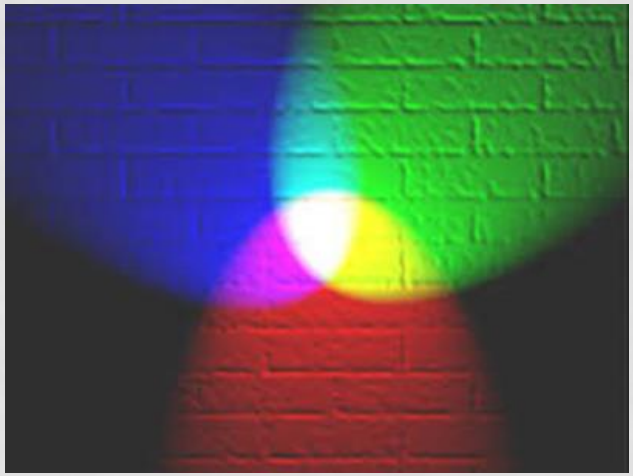
- To understand the effects, relationships, and applications of color, it is helpful to organize color into a systematic classification or theory.
- Before any of the color systems can be described, however, it is essential to understand the relationship between the primary colors of light and the primary colors of pigments, and how these are mixed to produce other colors.
- To think about color relative to light and its effect leads to a discussion of how color mixes, either in additive or subtractive systems

# COLOR THEORY AND SYSTEMS

## 1. Additive Method of Mixing Light(RGB)

The first method of mixing light is called the **RGB** color model and is an additive process dealing with light. The three primary colors of light are red, green, and blue (RGB).

- When two of these are added together, they produce secondary colors of light-magenta (red plus blue), cyan (blue plus green), and yellow (green plus red).



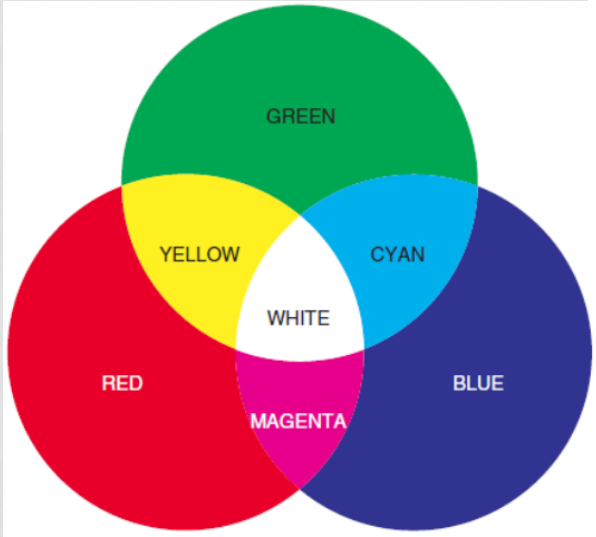
Additive mixtures of the primary colors of light.

# COLOR THEORY AND SYSTEMS

## 1. Additive Method of Mixing Light(RGB)

If a secondary color of light is mixed with its opposite primary, white light will be produced. For example, a mixture of cyan and red light will result in white light.

When all three colors are overlapped, white light is produced from the three additive primaries.



# COLOR THEORY AND SYSTEMS

## 1. Additive Method of Mixing Light(RGB)

- The main purpose of the RGB color model is for the representation of colored images in electronic systems, such as televisions, computers, cell phones, and video projectors.


# COLOR THEORY AND SYSTEMS

## 1. Additive Method of Mixing Light(RGB)

The mixing of colored light is also used in theaters for stage lighting.

However, it has also been used in some interior spaces, such as café and restaurant environments, to create similar stage effects.

Care should be taken in the use of colored lights, especially where color selections are important, because these lights can distort real color and cause eye irritation.

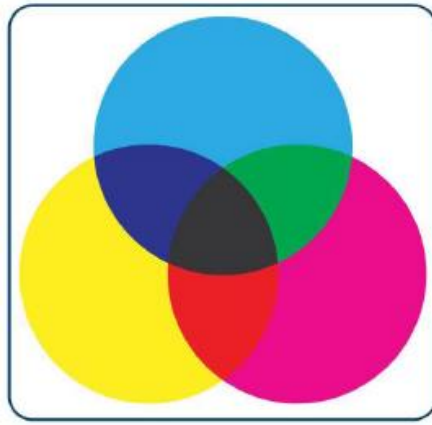
# COLOR THEORY AND SYSTEMS

## 2. Subtractive Method of Mixing Light (CMY)

In the subtractive method, the primary colors are **magenta**, **yellow**, and **cyan** (the secondary colors of light)

**When overlapped**, magenta and yellow produce red, yellow and cyan produce blue , and cyan and magenta produce green.

**When the three subtractive primary colors are overlapped**, all color is absorbed or subtracted from white light, **producing black**



Subtractive mixtures of the secondary colors of light

# COLOR THEORY AND SYSTEMS

## 2. Subtractive Method of Mixing Light (CMY)

The CMY (cyan, magenta, yellow) color model is a subtractive model that is used in color printing.

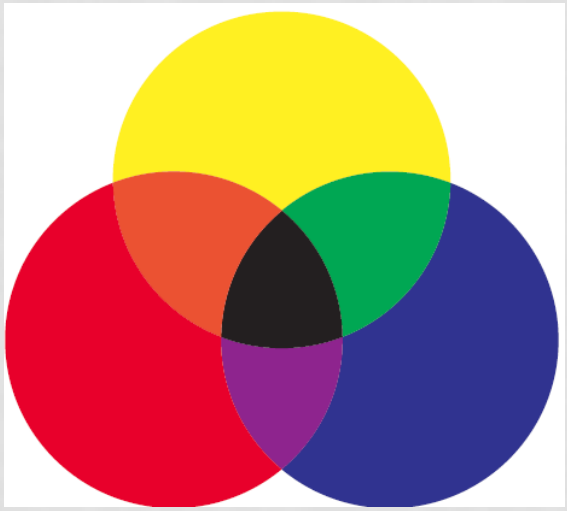
A majority of the world's printed material is produced by this method of color mixing.

# COLOR THEORY AND SYSTEMS

## 3. Paint-Color Mixing (RYB)

When dealing with opaque pigments, such as paint, the theories of mixing light do not apply.

The color of an object or a material absorbs, or subtracts, all the colors of light except the color of the object, which is reflected to the eye.



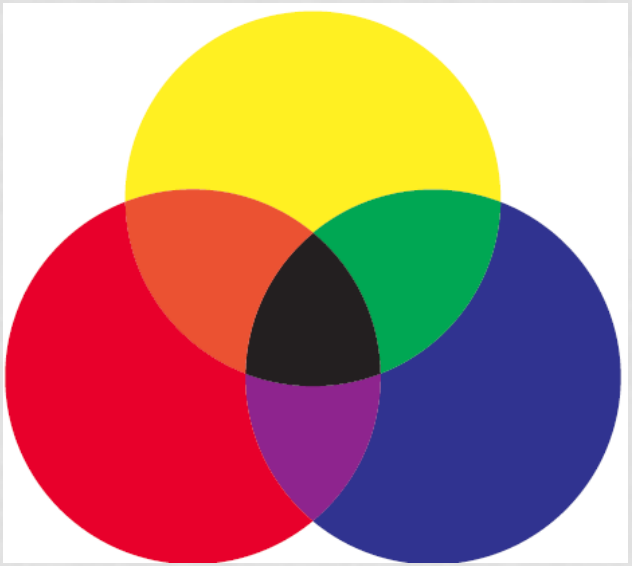
Paint-mixing method of combining primary and secondary colors

# COLOR THEORY AND SYSTEMS

## 3. Paint-Color Mixing (RYB)

The three primary colors of opaque pigments are red, yellow, and blue. When two primaries are mixed—that is, yellow plus blue, red plus blue, and red plus yellow—they produce secondary colors of green, violet, and orange, respectively.

When the three primaries are mixed, they produce black



Paint-mixing method of combining primary and secondary colors

# COLOR THEORY AND SYSTEMS

## 3. Paint-Color Mixing (RYB)

the model is used for both fine art training and color theory.


Thank You!