

Presentation 1

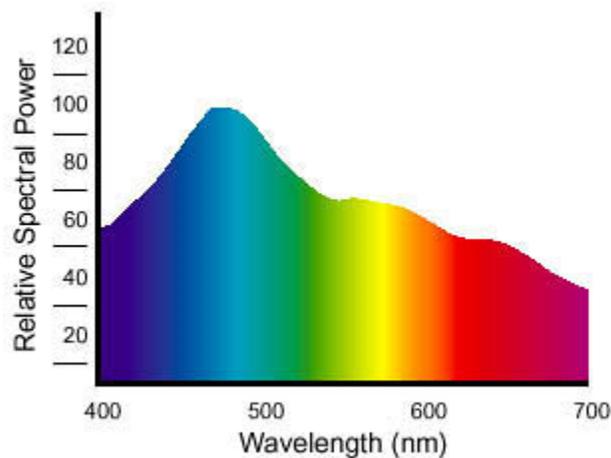
Mysteries of Color

Color Foundation

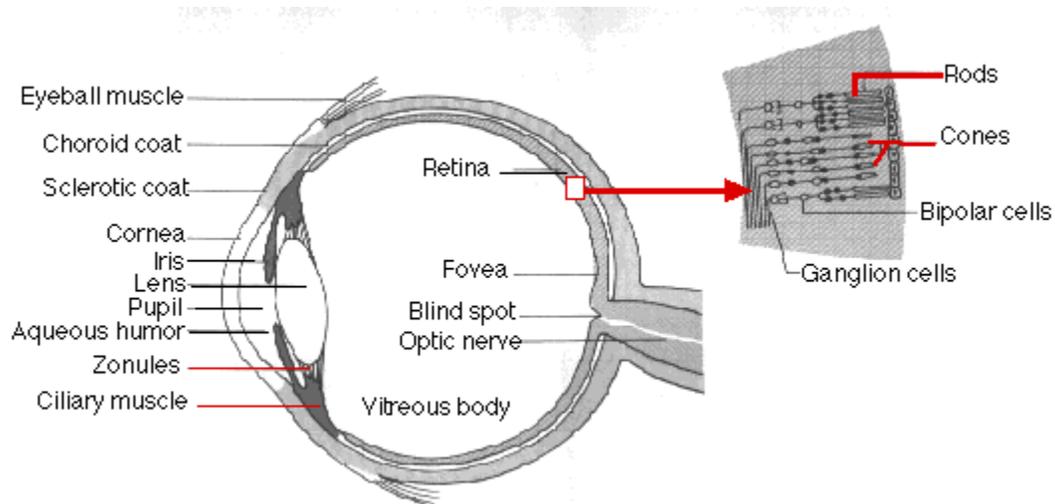
Q: Why is color?

A: Color is a perception that arises from the responses of our visual systems to light in the environment. We probably have evolved with color vision to help us in finding good food and healthy mates.

One of the fundamental truths about color that's important to understand is that color is something we humans impose on the world. The world isn't colored; we just see it that way. A reasonable working definition of color is that it's our human response to different wavelengths of light. The color isn't really in the light: We create the color as a response to that light



Remember: The different wavelengths of light aren't really colored; they're simply waves of electromagnetic energy with a known length and a known amount of energy.

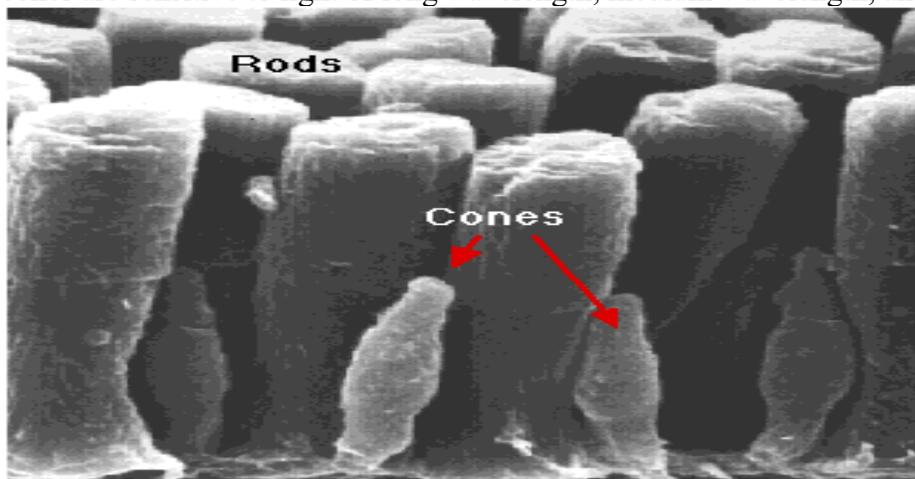


It's our perceptual system that gives them the attribute of color. Our eyes contain two types of sensors -- rods and cones -- that are sensitive to light. The rods are essentially monochromatic, they contribute to peripheral vision and allow us to see in relatively dark conditions, but they don't contribute to color vision. (You've probably noticed that on a dark night, even though you can see shapes and movement, you see very little color.)

The sensation of color comes from the second set of photoreceptors in our eyes -- the cones.

We have 3 different types of cones

cones are sensitive to light of long wavelength, medium wavelength, and short wavelength.



Color defines our world and gives definition to the objects around us. In nature you will find a greater variety of color than man can possibly create. The human reaction to color is based on nature's symbolism but the human psyche is what interprets these colors and gives them meaning.

Q: What is color?

A: Color is a perception that depends on the response of the human visual system to light and the interaction of light with objects (the stimulus, sometimes referred to as the color stimulus).

3 basic elements are required

A light source

An object

A viewer

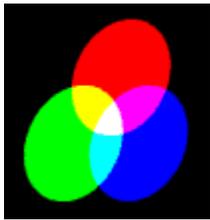
There are many factors affecting our perception of a color, such as the surroundings of the object, its surface texture, and the lighting conditions under which the color/ object is seen. How much of a color is used, whether it is bright, dull, light or dark and where it is placed in relation to another color are also crucial factors in our perception.

Q: Why does light produce color?

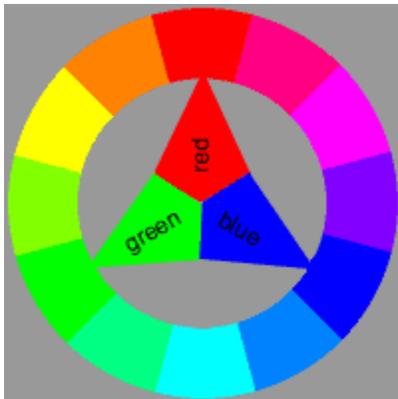
A: Light produces color because of how our visual systems respond to light with different responses to the various colors in the spectrum. Without our visual system, light can't make color on it's own.

Colors are usually divided into three primary colors red, yellow and blue. These are then accented by three secondary colors purple, green, and orange. The secondary colors can be create by combining the primary colors.

Additive color theory (foundations of ID animation)



Sir Newton was researching additive color

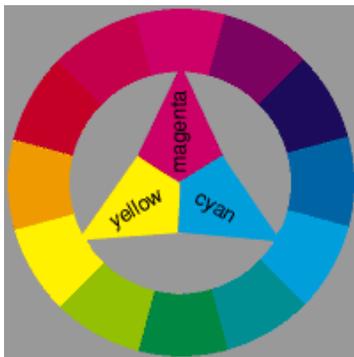


Additive Color. This color wheel displays the additive colors used for projected light. When mixed together the additive primaries form white. The primaries are red, green and blue. These colors are extremely bright because light that is projected can be far more intense than printed color.

Subtractive color theory

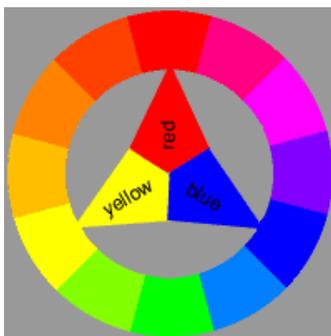


based on 3 primary colors, mixing pigments.



The subtractive color wheel. This color wheel uses the printing inks cyan, magenta, and yellow as primary colors. **Note:** Because cyan, magenta, and yellow inks do not combine to make black, the printing process adds black as a fourth ink.

The artists color wheel



Color Psychology

It becomes accepted within a society to associate certain colors with certain activities (pink for little girls, white wedding dresses, etc.) and the human nature to want to fit in with your society leads many people to follow these customs until something significant (like World War II) causes a change in the ideas everyone at once.

Hue

Hue is what most people think of when we say "color."

Hue is the name of a distinct color of the spectrum—red, green, yellow, orange, blue, and so on. It is the particular wavelength frequency.



This strip shows a range of hues. It is easy to point to "red" or "blue" or "yellow."

Saturation

is the "purity" of the color.

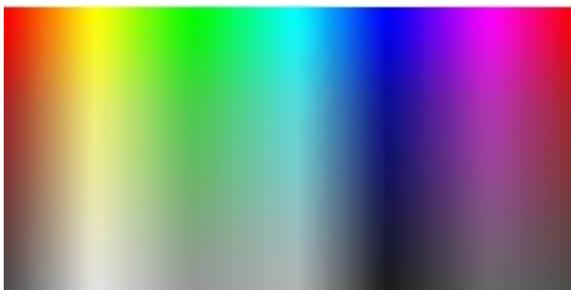
Saturation refers to the amount of white light (or gray paint) mixed with the hue. Pastels are less saturated colors. Both of these samples below have a hue we would call "blue" but their saturation is different.

Fully saturated colors are very rich and bright.

100% blue is a very saturated color

Less saturated colors look muddier, or less pure.

steelblue has gray undertones



High Saturated Colors

As saturation decreases, all colors become a value of gray. You can experience reduced saturation by setting your monitor to gray-scale. Since some pure hues are darker than others, the resulting desaturated grays will also be darker -- for example, compare the blue with the yellow in this chart.

Low Saturation Colors

Value

Value (Intensity, Lightness, Brightness)

The value (sometimes called lightness or intensity or brightness) of a color is the amount of light or white it contains.

Value refers to the intensity of light present. When light is at its fullest intensity, colors will become bright, at its least intensity, colors become dim. Unlike saturation, there isn't necessarily "less" of the color -- it is just not as intense. You might think of value as being a bit like the dimmer switch on your dining room light or the brightness knob on your computer's monitor. Turn up the switch, and the value grows brighter.



A higher value creates a whiter, brighter color.

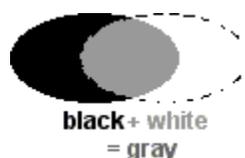
Tint

is the mixture of a [color](#) with [white](#), which increases [lightness](#),



Shade

is the mixture of a color with [black](#), which reduces lightness.



Color Systems

Albert Munsell

Bourges

Color Aid

Pantone

Schemes, Harmony Schemes

Monochromatic color

Analogous color

Constrasting

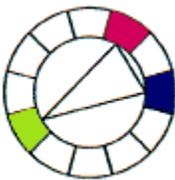
Complimentary



complementary colors opposite each other provide high color contrast. If you stare at a color then look away at a blank wall, you'll see an afterimage in the color's complementary color.

Direct complimentary

Split complimentary

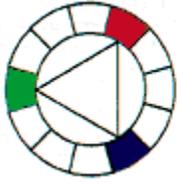


Split-Complementary colors are those on either side of the complementary color. They contrast, but not as strongly as complementary colors.

Double complimentary

Tetrad color

Triadic color



Triad colors equidistant provide a balanced color scheme and can be a good place to start exploring palettes.

Analogous



Analogous colors are those adjacent to each other on the wheel. These colors share enough common attributes that they can work well with each other ... although they provide little contrast.

Achromatic

Accent

Application of the Theory