

Color

Color preferences are personal/cultural. The symbolic meanings and psycho/physiological effects often assigned to color are cultural in origin and not universal. There is no consistent symbolic meaning for color in world art. Although some symbolism may carry through time or across cultures, there is no guarantee for predictable, consistent symbolic meaning.

Light/Dark values are more important visual cues and have more impact on overall design than color choice. Warm/cool color contrast IS basic to color psychology. It is universal in human color concepts collected by anthropologists or tested by cognitive psychologists. The existence of this contrast pair has a great deal to do with the spectral qualities of these colors.



Color is not essential to "functioning" in the world. It is this "trivial" and non-practical aspect of color that has made it so malleable to meaning in different cultures. Color provides beauty, color is a "sensual" experience. A world without "color" would be spiritually devastating. (Persons with visual impairment often find this need for "color" nuance and beauty in other senses/mediums.)

Color Attributes

There are 3 qualities that we can use to describe unique colors.

Hue- the quality we identify with a common color name such as red, green, yellow or blue.



Value- the light or dark of a color as a source of emitted or reflected light.



Chroma- the intensity or purity of hue, regardless of how light or dark it is.



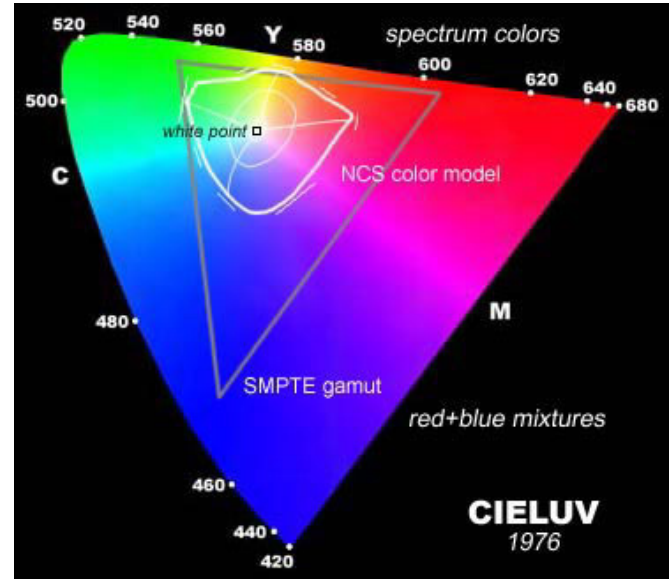
Color Theory

Spectral color (what we see) is a narrow segment of the wavelengths of light that our eyes respond to. The visual light spectrum is linear and in "rainbow" order. The color wheel or circle is an invention originating with Isaac Newton, who bent the linear spectrum into a circle. (Red-Violet does not exist in the spectrum of light.)

Color theories are a flawed attempt to impose simple rules on a complex experience. BauHaus Color theory, the theory taught in most design courses and books, is confusing and scientifically inaccurate. Some information is myth and some utterly unreliable. Most artists and designers "work around" the inconsistencies and develop their abilities to work with color through experience (trial and error).

Circular "color calculators" or abstract design patterns such as "split complementary palette" are unpredictable design tools because color "space" is not symmetrical like a circle nor homogenous.

- different hues reach their maximum chroma at different values — an intense yellow is much lighter valued than an intense blue or violet.
- lightness and chroma are the most powerful contrast stimuli, as judged by the amount of apparent color shift they can produce (most "simultaneous contrast" effects are caused by this, not hue).



Complementary Color Contrasts

Contrast adds interest to designs and allows us to perceive patterns.

Warm/Cool - "the mother of all complementaries" — between the "warm" hues (from red to yellow) as a group and the "cool" hues (from blue green to blue violet) as a group.

- The most common choice for the warmest color is usually a red orange or scarlet.
- The coolest color is whatever provides the best visual contrast to the warm hue.

Warm colored paints have a higher chroma and lighter value (they are more saturated) than their complementary cool colors. This makes them seem to "advance" or stand out in a design. Cool colors being darker and less intense, tend to "recede". The advancing and receding are relative to each other. The key attributes are chroma and lightness.

What does this mean in the real world?

Colors appear differently under different lighting conditions.

Adjacent colors affect how colors appear.

Color perception differs among individuals. (Our corneas grow yellow with age.)

Color interpretation differs among individuals. (One person's "green", may be another's "blue")

The eye sees light/dark patterns first, before hue or color.

Warm/light colors "advance" when placed on a cool/dark background.

Colors of similar chroma, placed side by side, may seem to "vibrate"- this depends a great deal on their relative lightness. The intensity of this vibration can be adjusted by changing the value or chroma of one of the colors.

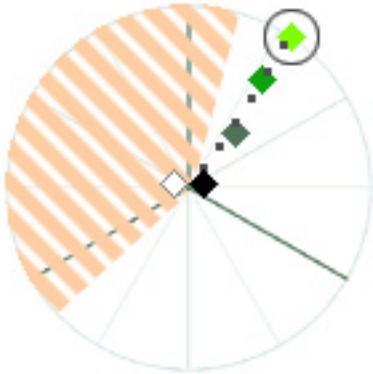
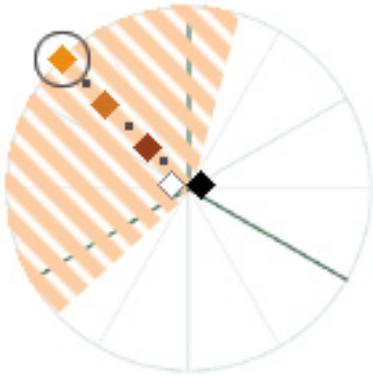
Hue Harmonies

Monochromatic

One hue and its tints or tones. Reliable harmonies, but can get dull if there isn't enough value contrast between colors.

(1) choose a key color at the edge of the color wheel

(2) use any color on a straight line between this key color and the center of the wheel, including black and white



Analogous

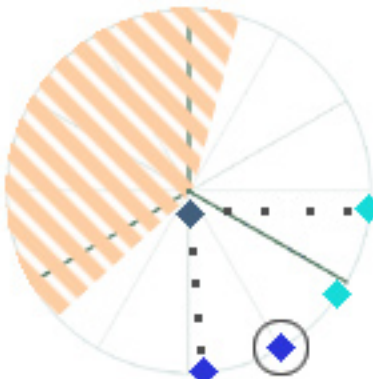
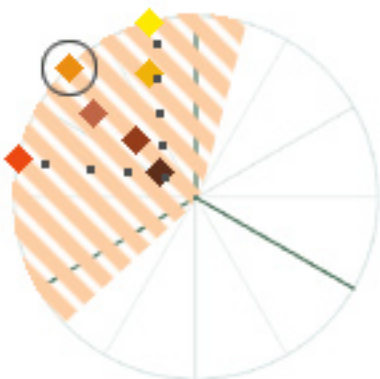
Colors that are next to each other on the color wheel. They usually match well and create serene and comfortable designs. Analogous color schemes are often found in nature and are harmonious and pleasing to the eye. Make sure you have enough contrast when choosing an analogous color scheme.

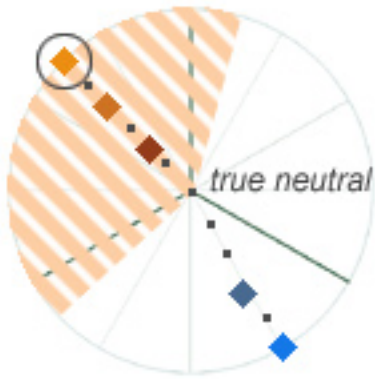
Choose one color to dominate, a second to support. The third color is used (along with black, white or gray) as an accent.

(1) choose a key color at the edge of the color wheel

(2) choose two colors close by on either side of the key color

(3) use any color within the wedge of the color wheel defined by lines drawn from the outer colors you have selected to the center of the wheel, including black, white or a dark neutral.





Complementary

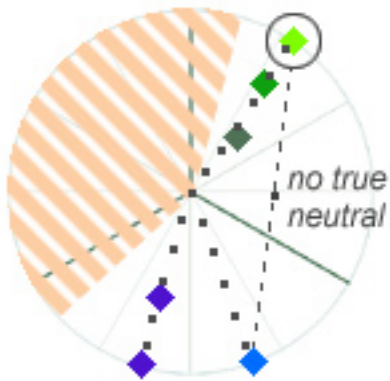
Colors that are opposite each other on the color wheel are considered to be complementary colors (example: red and green). Complementary colors at similar chroma may vibrate. This color scheme must be managed well so it is not jarring.

Choose only one color at full saturation and use tones or tints of the other.

(1) choose a key color at the edge of the color wheel

(2) choose a color opposite to it on the color wheel

(3) choose any other colors along a line between these two, including black, white or a dark neutral.



Split complementary

The split-complementary color scheme is a variation of the complementary color scheme. In addition to the base color, it uses the two colors adjacent to its complement. This color scheme has the same strong visual contrast as the complementary color scheme, but has less tension.

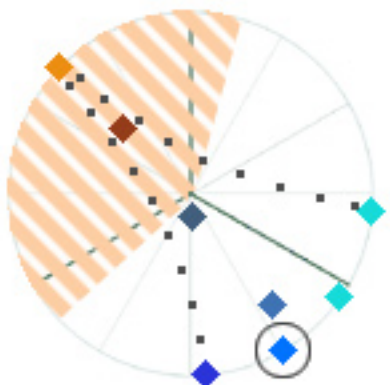
The split-complementary color scheme is often a good choice for beginners, because it is difficult to mess up.

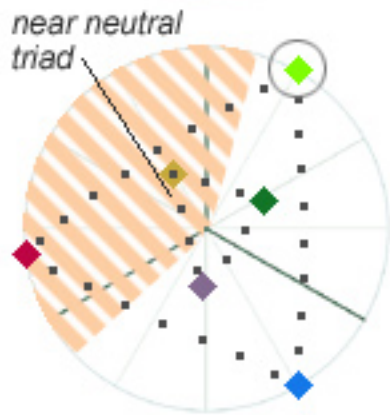
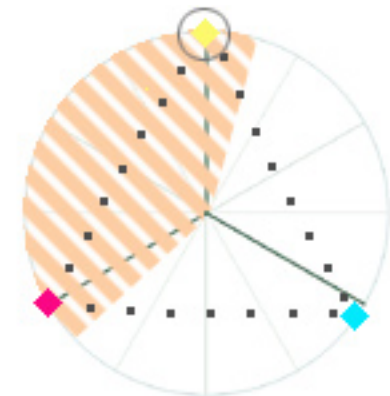
(1) choose a key color at the edge of the color wheel

(2) choose a color opposite to it on the color wheel

(3) choose colors on either side of the key color

(4) use any color within the wedge between these outer colors and the complementary color to the key color, including black, white or a dark neutral.





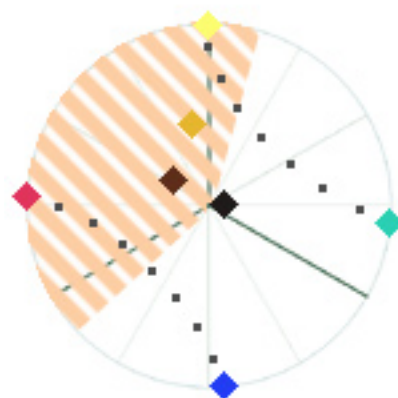
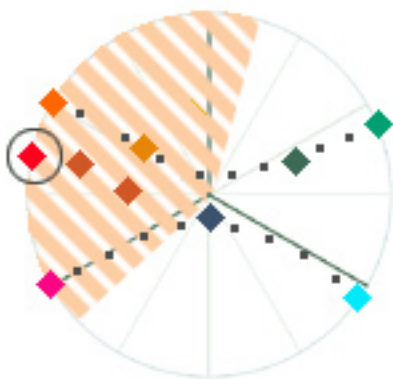
Triadic

A triadic color scheme uses colors that are evenly spaced around the color wheel. Triadic color harmonies tend to be quite vibrant, even if you use pale or unsaturated versions of your hues.

To use a triadic harmony successfully, the colors should be carefully balanced - let one color dominate and use the two others for accent.

(1) choose any three colors that are approximately equally spaced around the color wheel. There is no key color necessarily, and the spacing between the colors does not have to be exactly equal.

(2) choose any additional colors within the triangle created by the three colors, including black, white or a dark neutral.



Tetradic

The rectangle or tetradic color scheme uses four colors arranged into two complementary pairs. This rich color scheme offers plenty of possibilities for variation. The tetradic color scheme works best if you let one color be dominant.

You should also be conscious about the balance of warm and cool colors in your design.

(1) choose a key color at the edge of the color wheel

(2) choose a complementary color opposite it on the color wheel

(3) choose a second color on either side of the key color

(4) choose a complementary color for this second color. You are permitted to use any color within the four sided area created by the four colors, including black or white, or a dark neutral.