

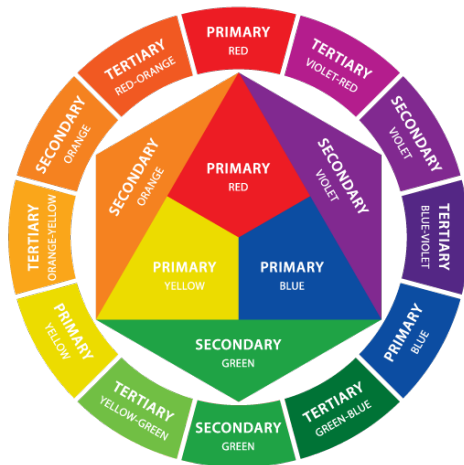
## Color

Color contributes to the overall tone of a graphic work. It can be used to differentiate elements from each other, can impart specific meanings, and is perceptually subjective as well as culturally conditioned. The art and study of color combinations is long and rigorous. In general, your color selections for graphic elements such as backgrounds, text, text boxes, headlines, and rules should be appropriate to the content, applied consistently, and make a meaningful contribution to the overall work. In the context of a book, website, or presentation, the number of colors should generally be limited to just three to six. Every value should be a conscious choice, not decided by default settings.

### Color terminology

Every color is distinguished by three qualities. **Hue** is synonymous with a color's name (e.g. red), and is determined by wavelength. **Saturation**, sometimes called **purity**, describes the proportion of chroma in the color, much like the amount of pigment in a paint. **Brightness**, sometimes referred to as **value**, is the perceived lightness or darkness of the color, whether dependent on the color itself (yellow vs. purple) or the surrounding context (ambient light, adjacent colors, etc.).

Color is described spatially in a number of ways; the simplest is a wheel:



The primary colors are the minimal set of wavelengths that when combined can match all possible colors, namely, red, yellow, and blue. Secondary colors are created when two neighboring primaries are mixed; the secondary colors are orange, green, and purple. Tertiary colors are created by mixing a primary color with its adjacent secondary color, and are often referred to by both their name and their color combinations: vermilion (red-orange), amber (yellow-orange), chartreuse (yellow-green), teal (blue-green), violet (blue-purple), and magenta (red-purple).

### Establishing a Color Palette

Your color choices should follow the lead of your content and concept. Avoid relying on personal perceptions of and preferences for certain colors as they are not necessarily universal. Limit communication pieces that are intended to be modern and bold to just a few selections. It may help to ration your color choices as well, for example allotting 60% of your color opportunities to primary colors, 30% to secondary colors, and 10% to a highlight. Another strategy is to create a palette based on the color(s) in your source photography and to tie that color in with the design elements and typography. Finally, don't underestimate the power of gray as a way of harmonizing black, white, and the rest of your palette.

## Color Associations

Keeping in mind that colors hold different meanings in different cultures, here are some associations:

- Red: passion, alertness, excitement, drama, anger
- Orange: action and energy, without the negative associations of red
- Yellow: active, energetic, happy, but also cautionary, extreme visibility
- Green: soothing, natural, freshness, hope
- Blue: openness, stability, calm, but also emotionally depressed
- Purple: wealth, power, nature

Some of these associations may factor into your selection process, but a successful color scheme depends most on the relationship (harmony or discord) between the colors you choose and the proportions you use them in.

## Technical Considerations

Color choices are also determined by technical production capacities. The color on your computer that is made by red, green, and blue (RGB) light is additive. Printed color is made by mixing inks, typically cyan, magenta, yellow, and black (CMYK), that absorb light waves—it is subtractive. Stay conscious of these differences especially as you are working on screen for printed output. With certain exceptions, such as a printer's explicitly stated preference, if your final output is printed, your document setting should be CMYK. It is always good practice to get printer preferences in advance as well as to test print early in your production process.

## Resources

Josef Albers, *Interaction of Color* (New Haven, CT: Yale University Press, 1975).

John Gage, *Color and Culture: Practice and Meaning from Antiquity to Abstraction* (Berkeley: University of California Press, 1993).

Johannes Itten, *The Elements of Color* (New York: John Wiley & Sons, Inc. 1970).

Wucius Wong, *Principles of Color Design: Designing with Electronic Color* (New York: John Wiley & Sons, Inc. 1997).

Rocket Design, *Color Template* <http://www.rocket-design.fr/color-template>; Pictaculous <http://www.pictaculous.com>; Kuler <https://kuler.adobe.com/>; Paletton <http://paletton.com>.