

## Color Theory

Color theory encompasses a multitude of definitions, concepts and design applications. All the information would fill several encyclopedias. As an introduction, here are a few basic concepts.

## Color Wheel

A color circle, based on red, yellow and blue, is traditional in the field of art. Sir Isaac Newton developed the first circular diagram of colors in 1666. Since then scientists and artists have studied and designed numerous variations of this concept. Differences of opinion about the validity of one format over another continue to provoke debate. In reality, any color circle or color wheel which presents a logically arranged sequence of pure hues has merit.



COLOR WHEEL

## Primary Colors

In traditional color theory, these are the 3 pigment colors that can not be mixed or formed by any combination of other colors. All other colors are derived from these 3 hues



PRIMARY COLORS  
Red, yellow and blue

## Secondary Colors

These are the colors formed by mixing the primary colors.



SECONDARY COLORS  
Green, orange and purple

Tertiary Colors

These are the colors formed by mixing the secondary colors.



**TERTIARY COLORS**  
 Yellow-orange, red-orange, red-purple, blue-purple, blue-green and yellow-green.

Color Harmony

Harmony can be defined as a pleasing arrangement of parts, whether it be music, poetry, color, or even an ice cream sundae.

In visual experiences, harmony is something that is pleasing to the eye. It engages the viewer and it creates an inner sense of order, a balance in the visual experience. When something is not harmonious, it's either boring or chaotic. At one extreme is a visual experience that is so bland that the viewer is not engaged. The human brain will reject under-stimulating information. At the other extreme is a visual experience that is so overdone, so chaotic that the viewer can't stand to look at it. The human brain rejects what it can not organize, what it can not understand. The visual task requires that we present a logical structure. Color harmony delivers visual interest and a sense of order.

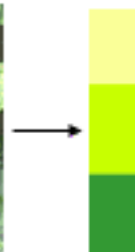
In summary, extreme unity leads to under-stimulation, extreme complexity leads to over-stimulation. Harmony is a dynamic equilibrium.

Formulas

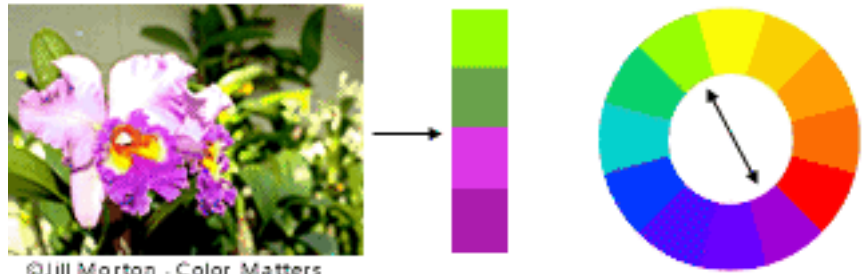
There are many theories for harmony. The following illustrations and descriptions present some basic formulas .



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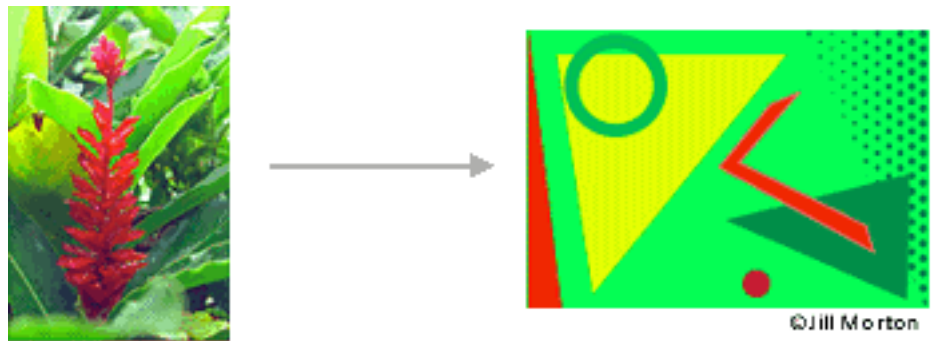


A color scheme based on analogous colors



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A color scheme based on complementary colors



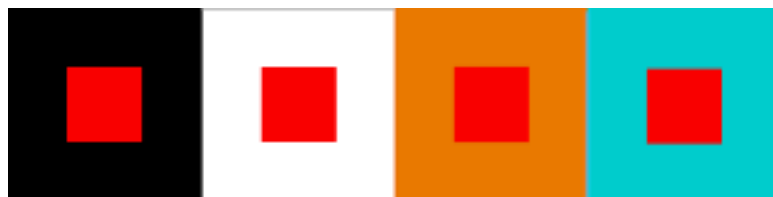
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A color scheme based on nature

### Colors Context

How color behaves in relation to other colors and shapes is a complex area of color theory.

Compare the contrast effects of different color backgrounds for the same red square.



Red appears more brilliant against a black background and somewhat duller against the white background. In contrast with orange, the red appears lifeless; in contrast with blue-green, it exhibits brilliance. Notice that the red square appears larger on black than on other background colors.

Different

If your computer has sufficient color stability and gamma correction, you will see that the small purple rectangle on the left appears to have a red-purple tinge when compared to the small purple rectangle on the right. They are both the same color as seen in the illustration below. This demonstrates how three colors can be perceived as four colors.



Observing the effects colors have on each other is the starting point for understanding the relativity of color. The relationship of values, saturations and the warmth or coolness of respective hues can cause noticeable differences in our perception of color.



Color schemes

Harmonious color schemes could convey meanings matched to specific symbolic meanings such as dynamic, expensive, high quality, intelligent, joyous, dependable, spiritual, festive, healthy, etc. Here's a preview of three color schemes:



Each color combination presents two sets of colors. Use the colors in the large background squares for the main areas of your design. Use the colors in the narrow horizontal stripes for smaller areas or accents.

E-Commerce

Here are four formulas for success:

1. Convert images to the correct file format.  
This not only delivers the best colors and the best images possible but it also lowers file sizes and shortens the download time.
2. Select the most appropriate colors by analyzing the store's products or services and the target market. It is essential that colors bear some relationship either symbolic or literal to the product or service. Don't try to reinvent the color wheel by using unusual colors.
3. Use color to create the most functional user-interface design. For example, use color to direct the eye to the most important areas on the page. The web designer must identify what ideal and normal sequences might entail: what the viewer should see first, where the eye should move next, and how much time the viewer's attention should be held by each area. Keep colors to minimum. "Signal detection" theory means that the brain is able to understand and organize information when a minimum of colors and shapes exists within the visual field. Too many colors and shapes make it impossible to focus and find anything.
4. Use color harmony principles to create a pleasant visual experience. In other words, all the colors of the components the navigation system, banners, buttons, and text as well as the images of the merchandise (if they exist), must all work well together. Some common attribute must unify them.

Symbolism



Navigation



Organization



website

Color :  
<http://www.pantone.com/>  
<http://www.colorwheelco.com/>  
<http://www.tayloredmktg.com/rgb/>