COLLEGE OF AGRICULTURAL, CONSUMER AND ENVIRONMENTAL SCIENCES

A Guide to Color

Revised by Jennah McKinley[1]

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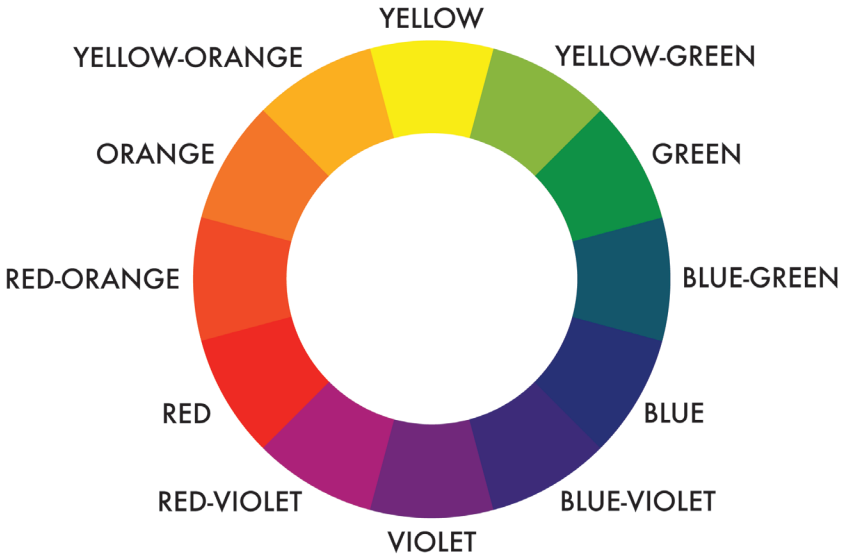

Figure 1. **Sample color wheel.**

Color is one of the most important stimuli in the world. It affects our moods and personal characteristics. We speak of blue Mondays, being in the pink, seeing red, and everything coming up roses. Webster defines color as the sensation resulting from stimulating the eye's retina with light waves of certain wavelengths. Those sensations have been given names such as red, green, and purple.

Color communicates. It tells others about you. What determines your choice of colors in your clothing? In your home? In your office? In your car? Your selection of color is influenced by age, personality, experiences, the occasion, the effect of light, size, texture, and a variety of other factors.

Some people have misconceptions about color. They may feel certain colors should never be used together, certain colors are always unflattering, or certain colors indicate a person's character. These ideas will limit their enjoyment of color and can cause them a great deal of frustration in life. To get a better understanding of color, look at nature. Consider these facts:

- The prettiest gardens have a wide variety of reds, oranges, pinks, violets, purples, and yellows all mixed together.

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- There are countless shades of greens in a forest, in the desert, and in the ocean.
- The sky can change its blue from moment to moment, and what begins as blue becomes pink and violet or orange and crimson as the sun sets.
- Even the soil boasts a variety of colors, from whitest white to coal black, with numerous colors in between.

Color makes life interesting. To use color effectively, you must understand some basic color facts. There are three dimensions of color:

- **Hue** is another word for color. It usually indicates a modification of basic color. Red is a color; orange is a reddish hue.
- **Value** refers to the lightness or darkness of a color. A light color is a tint. For example, pink is a tint of red. A dark color is called a shade. Forest green is a shade of green.
- **Intensity** refers to the brightness or dullness of a color, such as a bright yellow or a dull yellow.

QUALITIES OF COLOR

Hue

A widely accepted theory of color is based on the idea that all colors, or hues, are derived from the three primary colors: red, yellow, and blue. All other colors or hues come from mixtures of these primary colors. Thinking about colors around you and where they might be placed on a color wheel (Figure 1) will help you see color relationships.

Primary colors: red, yellow, and blue

Secondary colors: green, orange, and purple

Intermediate colors: yellow-orange, red-orange, red-purple, blue-green, and yellow-green

Gray: combination of all pigments

Figure 2. **Changes in the value of a hue can be made by adding pure white or pure black.**

Further mixing of neighboring colors produces many other colors and color gradations. Mixed colors can be considered relatives because they have common ancestors. Any mixed color fits into the color wheel according to the amount of red, yellow, or blue it contains.

There are three neutrals: black, white, and gray. These are not true colors or hues, but are achromatic colors. Black results from the complete absorption of light rays. White is a reflection of all the rays that produce color. Gray is an imperfect absorption of the light rays or a mixture of black and white.

A pure color is generally referred to as "hue." The value of a hue is adjusted by the addition of either pure black or pure white. Value is the measurement of the amount of black or white mixed into a pure hue.

By adding black to the color, the value is made darker, resulting in what is referred to as a "shade." When white is added to a color, the result is a lighter value, which is referred to as a "tint."

An example can be seen with the color red. The hue is red. A tint of red is what is commonly referred to as the color "pink" (red + white). A darker value, or shade of red, may be a color that we commonly refer to as "Burgundy" (red + black) (Figure 2).

Other colors can be added to a hue, resulting in an adjustment of value. But because the addition of these colors also changes the hue, white and black are commonly used as the measurement. Since these colors are neutral colors, they only affect the value and do not change the hue.

Value

Value, the second dimension of color, describes the lightness or darkness of a hue. Colors follow a natural order. You have a choice within each color

family from light to dark colors. As mentioned previously, you can obtain different values by adding black or white to a color.

All values can be measured using a value scale, which theoretically has an infinite number of values. Most value scales are sufficient when they show 7 to 9 values (Figure 3).

All colors have an inherent value associated with them. For example, purely pigmented yellows are generally lighter in value when compared to purely pigmented blues, which are darker (Figure 4).

Intensity

The third characteristic of color is intensity. Intensity is the dimension of color that tells the brightness or dullness, its strength or its weakness. Intensity describes the distance of the color from gray on the color wheel.

Colors in the color wheel are full intensity because they are as bright as each color can be. As colors go down in brightness, toward neutral gray or no color, they are said to be dulled or low intensity.

It is easy to see the difference between vivid red and dull maroon, or between bright orange and dull brown or beige. It is sometimes more difficult to recognize that a dusty pink is duller than a clear, fresh pink.

Intensity is adjusted by adding additional colors to the pure hue. A color can be made less intense by adding gray to the color (Figure 5). In some ways, intensity can be measured by the amount of gray in the hue.

Hues can only degrade in intensity. In other words, additional colors cannot be added to a hue to make them "more intense." Each color that is added to a pure hue decreases its intensity.

Warm or Cool Colors

Colors are considered warm if they contain enough yellow or yellow-red. They are considered cool if they contain a noticeable quantity of blue (Figure 6).

There are warm and cool versions in each color family. Purple-red or bluish-red is the cool version of red. Aqua is an example of a warm version of a cool color because some yellow had to be mixed with the predominately blue color.

Figure 3. **Example of a value scale with seven tones.**

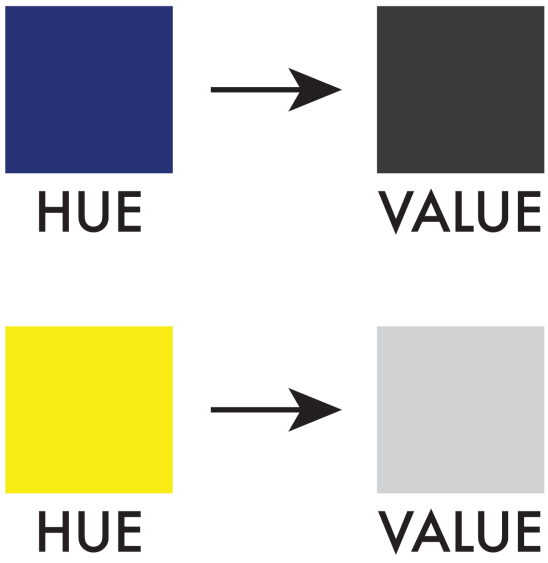

Figure 4. **Example of inherent values in two hues.**

Figure 5. **Colors can be made less intense by adding gray to the hue.**

In summary, the three qualities of color are hue, value, and intensity. There can be both light and dark colors in a bright or vivid group of colors, and light and dark colors in a dull or subdued group of colors.

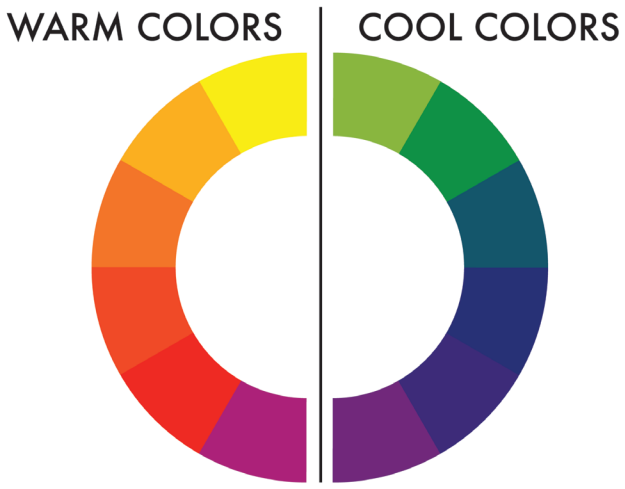

Figure 6. **Colors can be divided into warm colors and cool colors.**

TIPS FOR COMBINING HUES, VALUES, AND INTENSITIES

Combine Warm and Cool Colors

Contrasting colors make each other seem more intense when used together. Warm colors make cool ones seem cooler, and cool colors make warm ones seem warmer.

The duller a color becomes, however, the less power it has to make its compliment look brighter. A dull color is more likely to emphasize, through repetition, other colors related to it. For example, a camel coat (orange hue) would emphasize blond hair and creamy skin more that it would blue eyes (complementary color).

Usually, unequal amounts of warm and cool colors are most pleasing because the color combination will create a unified idea of either warmness or coolness.

Combine Light and Dark Colors

Some contrast of light and dark is needed in a color scheme. Try combinations using only light colors, then try combinations using only dark colors. Some variation in value is needed for interest.

Strong light and dark contrasts are the most striking. For example, light cream with dark brown is more striking than dark tan with medium brown. Make pleasing combinations by keeping the natural color in mind and combining a lighter warm color with a darker cool color.

Combine Bright and Dull Colors

Colors go together well when the quality of brightness is nearly the same. Brighter color combinations look cheerful, and duller ones look soft and restful. Some of the dull color combinations may appear even somber or drab. A small amount of bright color used with subdued color can improve a color scheme. Combine a bright accent color with a dull-colored outfit. If too much bright color is used, dull colors look even duller.

STANDARD COLOR HARMONIES

Color combinations can be contrasting or related, according to their placement on the color wheel. Contrasting colors are those that lie some distance apart on the color wheel. Related colors are those that lie side by side, or near one another on the color wheel. Standard color harmonies are outlined below, but many other variations are possible.

Related Harmonies

Related color harmonies are those in which the colors are similar. They include the monochromatic (one hue) harmony (Figure 7) and the analogous harmony (Figure 8).

Contrasting Harmonies

Contrasting harmonies are classified as complementary (Figure 9), split complementary (Figure 10), double complementary (Figure 11), and triad (Figure 12). Combinations of opposite colors on the color wheel are more difficult to use than those of neighboring colors. Special care must be taken when using contrasting harmonies in clothing. However, when done properly they are richer than related harmonies, and more satisfying to the eyes.

Monochrome (one hue)

- Simplest scheme
- Uses differences in value and intensity (such as pink, red, and rose together)
- Texture contrasts help
- Beware of tiresome, boring effect

Figure 7. **A one-hue or monochromatic color harmony uses different values and intensities of a single hue.**

Analogous (neighbors)

- Shows one color running throughout the entire group of colors
- Uses different values and intensities
- Quiet, restful effect
- Warm and cool related schemes are possible

Figure 8. **An analogous color harmony uses several colors that sit next to each other on the color wheel.**

Complementary

- Two colors lie opposite each other on the color wheel
- Reddish hues are hardest to handle
- One of the complements used should be dull, light, or dark, or in small amounts

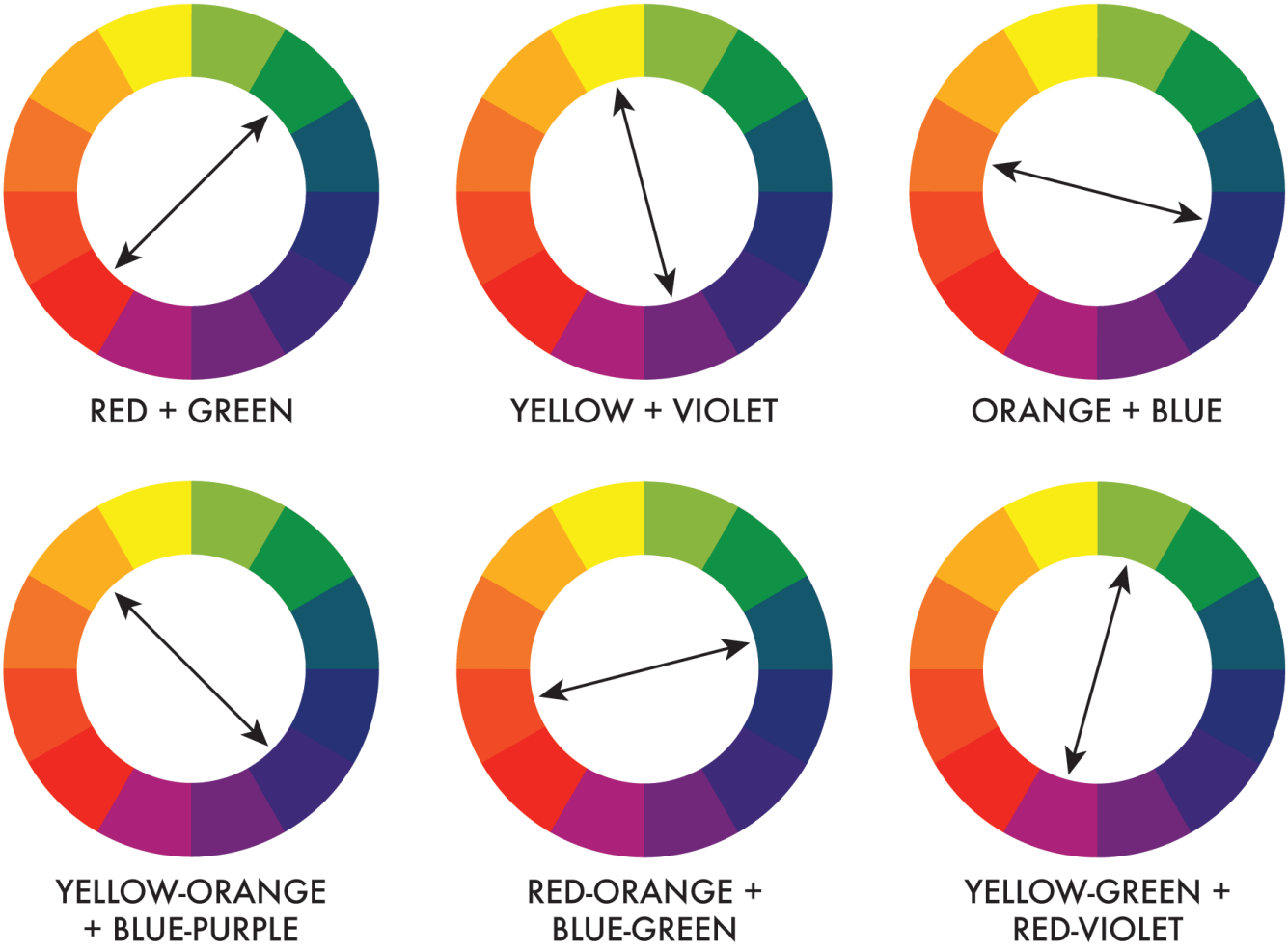

Figure 9. **A complementary contrasting harmony uses two colors that lie directly opposite each other on the color wheel.**

Split Complementary

- Combines a primary color with colors on either side of its complement
- Cannot start with a secondary color because its complement—a primary—cannot be split
- Adjust amounts of different values and intensities

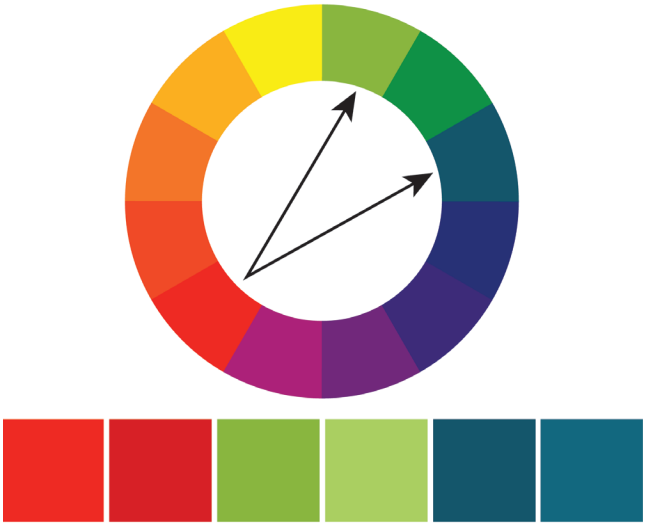

Figure 10. **A split complementary contrasting harmony combines a primary color with colors on either side of its complement on the color wheel.**

Double Complementary

- Two directly adjacent colors and their complements used together
- Pick only one hue to be outstanding and used in the largest account (dulled)
- Vary intensities and values of other hues, as well as amounts

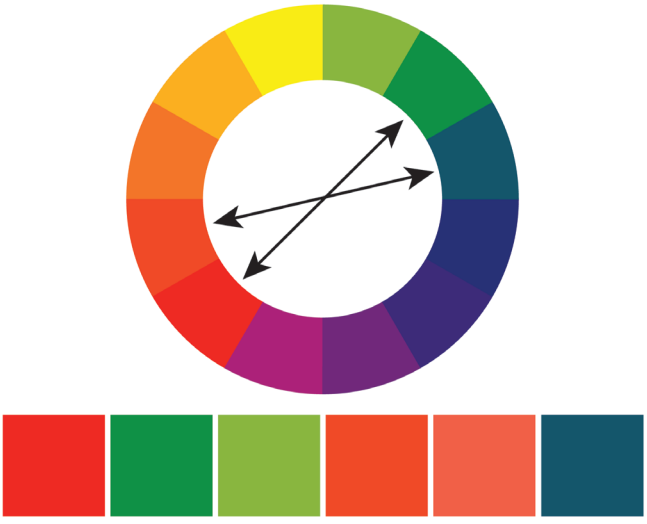

Figure 11. **A double complementary contrasting harmony uses two adjacent colors and their complements.**

Triad

- Richest harmony if used well
- Equilateral triangles create triads such as red, blue, yellow; green, orange, purple; yellow-purple, blue-green, red-purple; and yellow-green, blue-purple, red-orange

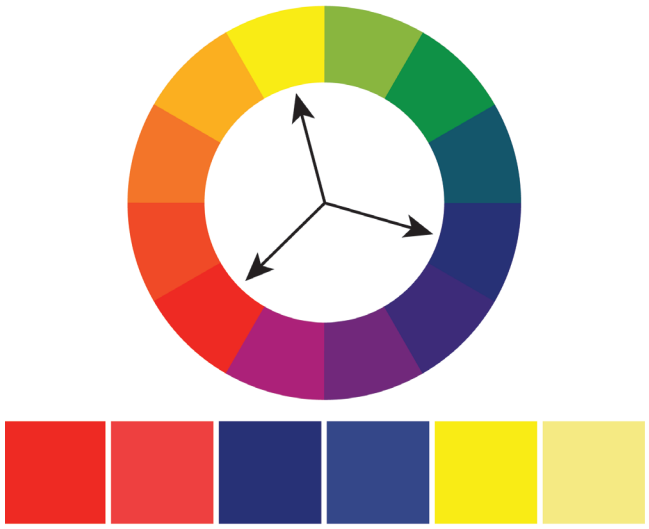

Figure 12. **A triad contrasting harmony uses equilateral triangles placed on the color wheel to generate trios of contrasting colors.**

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