The 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



Colors can be categorized in different ways using the color wheel.



**Primary Colors**: Red, yellow and blue
In traditional color theory (used in paint and pigments), primary colors are the 3 pigment colors that cannot be mixed or formed by any combination of other colors. All other colors are derived from these 3 hues.

**Secondary Colors**: Green, orange and purple
These are the colors formed by mixing the primary colors.

**Tertiary Colors:** Yellow-orange, red-orange, red-purple, blue-purple, blue-green & yellow-green. These are the colors formed by mixing a primary and a secondary color. That's why the hue is a two word name, such as blue-green, red-violet, and yellow-orange.



The color wheel also visually illustrates color "temperature"--**warm** vs. **cool**--as vital psychological components in delivering a specific color's message:

* **Warm Colors** (Red, Orange and Yellow) are associated with the warmth of fire and sun.
* **Cool Colors** (Blue, Green, and Violet) connect in the mind's eye with the coolness of sea, sky, and foliage.

### Color Harmony

In visual experiences, harmony is something that is pleasing to the eye. When something is not in harmony, it's either boring or chaotic. At one extreme is a visual experience that is so bland that the viewer is not engaged or interested. 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 cannot organize, what it cannot understand. The visual task requires that we present a logical structure. Color harmony delivers visual interest and a sense of order.

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

**1. A color scheme based on analogous colors**



Analogous colors are any three colors which are side by side on a 12-part color wheel, such as yellow-green, yellow, and yellow-orange. Usually one of the three colors predominates.

**2. A color scheme based on complementary colors**



Complementary colors are any two colors which are directly opposite each other, such as red and green or orange and blue. In the illustration above, there are several variations of yellow-green in the leaves and several variations of red-purple in the orchid. The complementary scheme is intrinsically high-contrast and draws maximum attention.

**3. A color scheme based on nature**



Nature provides a perfect departure point for color harmony. In the illustration above, red yellow and green create a harmonious design, regardless of whether this combination fits into a technical formula for color harmony.

**4. A Monochromatic color scheme**

Monochromatic (or mono) is a color scheme based on only one, single color. Monochromatic schemes use different tones from the same angle on the color wheel and are guaranteed to look clean and elegant. Monochromatic colors go well together, producing a soothing effect.





Psychological Properties of Colours

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| The eleven basic colors have fundamental psychological properties that are universal,regardless of which particular shade, tone or tint of it you are using. Each of them haspotentially positive or negative psychological effects and which of these effects is createddepends on the relationships within color combinations. |
| **RED.** PhysicalBeing the longest wavelength, red is a powerful colour. Although not technically the most visible, it has the property of appearing to be nearer than it is and therefore it grabs our attention first. Hence its effectiveness in traffic lights the world over. Its effect is physical; it stimulates us and raises the pulse rate, giving the impression that time is passing faster than it is. It relates to the masculine principle and can activate the "fight or flight" instinct. Red is strong, and very basic. Pure red is the simplest colour, with no subtlety. It is stimulating and lively, very friendly. At the same time, it can be perceived as demanding and aggressive. | http://www.colour-affects.co.uk/images/red_ex.jpg |
| **BLUE.** Intellectual.Blue is the colour of the mind and is essentially soothing; it affects us mentally, rather than the physical reaction we have to red. Strong blues will stimulate clear thought and lighter, soft blues will calm the mind and aid concentration. Consequently it is serene and mentally calming. It is the colour of clear communication. Blue objects do not appear to be as close to us as red ones. Time and again in research, blue is the world's favourite colour. However, it can be perceived as cold, unemotional and unfriendly. | http://www.colour-affects.co.uk/images/blue_ex.jpg |
| **YELLOW.** EmotionalThe yellow wavelength is relatively long and essentially stimulating. In this case the stimulus is emotional, therefore yellow is the strongest colour, psychologically. The right yellow will lift our spirits and our self-esteem; it is the colour of confidence and optimism. Too much of it, or the wrong tone in relation to the other tones in a colour scheme, can cause self-esteem to plummet, giving rise to fear and anxiety. Our "yellow streak" can surface. | http://www.colour-affects.co.uk/images/yellow_ex.jpg |
| **GREEN.** Balance.Green strikes the eye in such a way as to require no adjustment whatever and is, therefore, restful. Being in the centre of the spectrum, it is the colour of balance - a more important concept than many people realise. When the world about us contains plenty of green, this indicates the presence of water, and little danger of famine, so we are reassured by green, on a primitive level. Negatively, it can indicate stagnation and, incorrectly used, will be perceived as being too bland. | http://www.colour-affects.co.uk/images/green_ex.jpg |
| **VIOLET.** SpiritualThe shortest wavelength is violet, often described as purple. It takes awareness to a higher level of thought, even into the realms of spiritual values. It is highly introvertive and encourages deep contemplation, or meditation. It has associations with royalty and usually communicates the finest possible quality. Being the last visible wavelength before the ultra-violet ray, it has associations with time and space and the cosmos. Excessive use of purple can bring about too much introspection and the wrong tone of it communicates something cheap and nasty, faster than any other colour. | http://www.colour-affects.co.uk/images/violet_ex.jpg |
| **ORANGE.**Since it is a combination of red and yellow, orange is stimulating and reaction to it is a combination of the physical and the emotional. It focuses our minds on issues of physical comfort - food, warmth, shelter etc. - and sensuality. It is a 'fun' colour. Negatively, it might focus on the exact opposite - deprivation. This is particularly likely when warm orange is used with black. Equally, too much orange suggests frivolity and a lack of serious intellectual values. | http://www.colour-affects.co.uk/images/orange_ex.jpg |
| **PINK.**Being a tint of red, pink also affects us physically, but it soothes, rather than stimulates. (Interestingly, red is the only colour that has an entirely separate name for its tints. Tints of blue, green, yellow, etc. are simply called light blue, light greenetc.) Pink is a powerful colour, psychologically. It represents the feminine principle, and survival of the species; it is nurturing and physically soothing. Too much pink is physically draining and can be somewhat emasculating. | http://www.colour-affects.co.uk/images/pink_ex.jpg |
| **GREY.**Pure grey is the only colour that has no direct psychological properties. It is, however, quite suppressive. A virtual absence of colour is depressing and when the world turns grey we are instinctively conditioned to draw in and prepare for hibernation. Unless the precise tone is right, grey has a dampening effect on other colours used with it. Heavy use of grey usually indicates a lack of confidence and fear of exposure. | http://www.colour-affects.co.uk/images/grey_ex.jpg |
| **BLACK.**Black is all colours, totally absorbed. The psychological implications of that are considerable. It creates protective barriers, as it absorbs all the energy coming towards you, and it enshrouds the personality. Black is essentially an absence of light, since no wavelengths are reflected and it can, therefore be menacing; many people are afraid of the dark. Positively, it communicates absolute clarity, with no fine nuances. It communicates sophistication and uncompromising excellence and it works particularly well with white. Black creates a perception of weight and seriousness. | http://www.colour-affects.co.uk/images/black_ex.jpg |
| **WHITE.**Just as black is total absorption, so white is total reflection. In effect, it reflects the full force of the spectrum into our eyes. Thus it also creates barriers, but differently from black, and it is often a strain to look at. It communicates, "Touch me not!" White is purity and, like black, uncompromising; it is clean, hygienic, and sterile. The concept of sterility can also be negative. Visually, white gives a heightened perception of space. The negative effect of white on warm colours is to make them look and feel garish. | http://www.colour-affects.co.uk/images/white_ex.jpg |
| **BROWN.**Brown usually consists of red and yellow, with a large percentage of black. Consequently, it has much of the same seriousness as black, but is warmer and softer. It has elements of the red and yellow properties. Brown has associations with the earth and the natural world. It is a solid, reliable colour and most people find it quietly supportive - more positively than the ever-popular black, which is suppressive, rather than supportive. | http://www.colour-affects.co.uk/images/brown_ex.jpg |