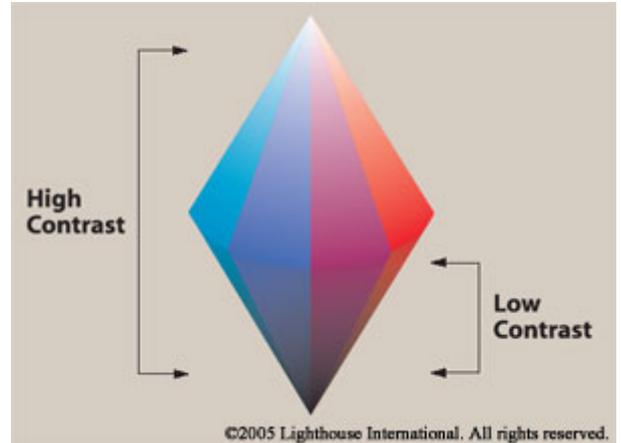


Effective Colour Contrast

From original material written by Aries Arditi, PhD; courtesy of Lighthouse International

How does impaired vision affect colour perception?

Partial sight, aging and congenital colour deficits all produce changes in perception that reduce the visual effectiveness of certain colour combinations. Two colours that contrast sharply to someone with normal vision may be far less distinguishable to someone with a visual disorder. It is important to appreciate that it is the contrast of colours one against another that makes them more or less discernible rather than the individual colours themselves.



Here are three simple rules for making effective colour choices:

1. Exaggerate lightness differences between foreground and background colours, and avoid using colours of similar lightness adjacent to one another, even if they differ in saturation or hue.

Don't assume that the lightness you perceive will be the same as the lightness perceived by people with colour deficits. They will generally see less contrast between colours than you will. If you lighten the light colours and darken the dark colours in your design, you will increase its visual accessibility.

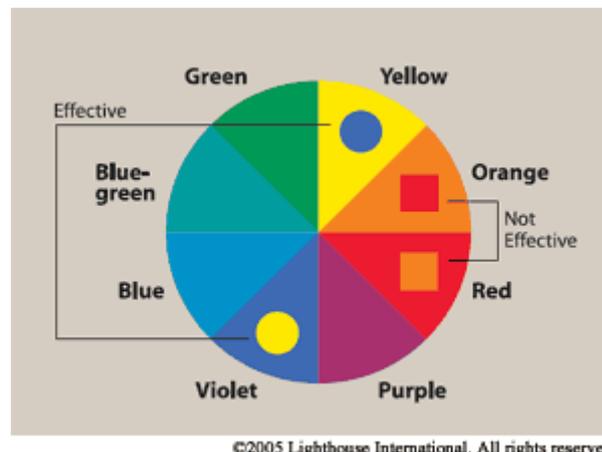


2. Choose dark colours with hues from the bottom half of this hue circle against light colours from the top half of the circle.

For most people with partial sight and/or congenital colour deficiencies, the lightness values of colours in the bottom half of the hue circle tend to be reduced.

3. Avoid contrasting hues from adjacent parts of the hue circle, especially if the colours do not contrast sharply in lightness.

Colour deficiencies associated with partial sight and congenital deficiencies make it difficult to discriminate between colours of similar hue.



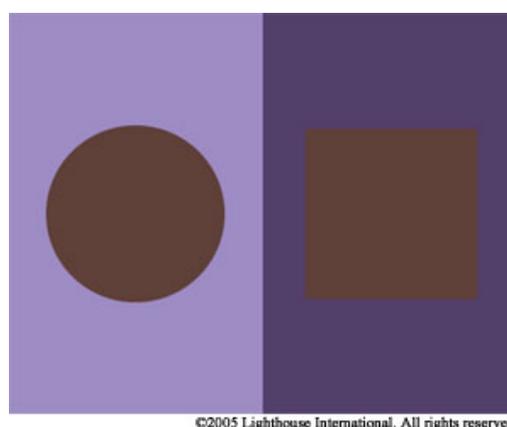
Hue is the perceptual attribute associated with elementary colour names.

Hue enables us to identify basic colour categories such as blue, green, yellow, red and purple. People with normal colour vision report that hues follow a natural sequence based on their similarity to one another. With most colour deficits, the ability to discriminate between colours on the basis of hue is diminished.



Lightness corresponds to how much light appears to be reflected from a coloured surface in relation to nearby surfaces.

Lightness, like hue, is a perceptual attribute that cannot be computed from physical measurements alone. It is the most important attribute in making contrast more effective. With colour deficits, the ability to discriminate colours on the basis of lightness is reduced.



To a person with colour-deficient partial sight, the left-hand panel might appear like the right-hand panel appears to a person with normal colour vision.

(Aries Arditi, PhD, is Senior Fellow in Vision Science, Lighthouse International; this leaflet is based on work with Kenneth Knoblauch)