

Your Illusionary World > Frame it! >Relative Shapes and Sizes > Illusion of Depth > **Vision & Light** > Overview

Light! Without which human vision would be very different and **our representational paintings would likely be unrecognizable**. Anyone know why? Light allows the rods in our eyes to sense the darkness and lightness of our world; light is also the governor of color information received by our cones. A simple example is the fact that your painting will look different under incandescent lighting, fluorescent lighting, and sun light (full spectrum lighting). Try it! In short, having at least a rudimentary understanding of light and vision is necessary to progress as a visual artist.

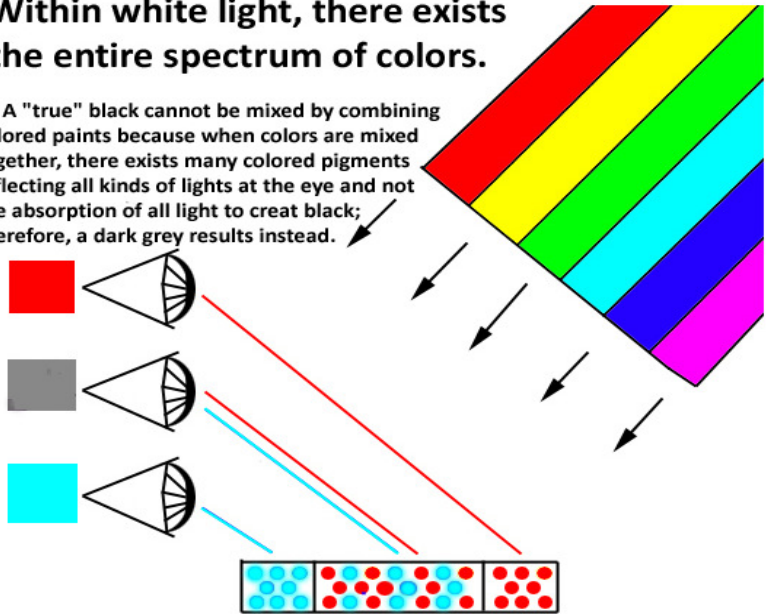
Isaac Newton is the father of our scientific understanding of light.

It is from his investigations and that of subsequent SCIENTISTS that I developed this text and not from the "psychological" viewpoints of artists; therefore, what you learned about color from other ART teachers should be set aside for the time being.

Basic Description of Light and Vision

Within white light, there exists the entire spectrum of colors.

**** A "true" black cannot be mixed by combining colored paints because when colors are mixed together, there exists many colored pigments reflecting all kinds of lights at the eye and not the absorption of all light to create black; therefore, a dark grey results instead.**



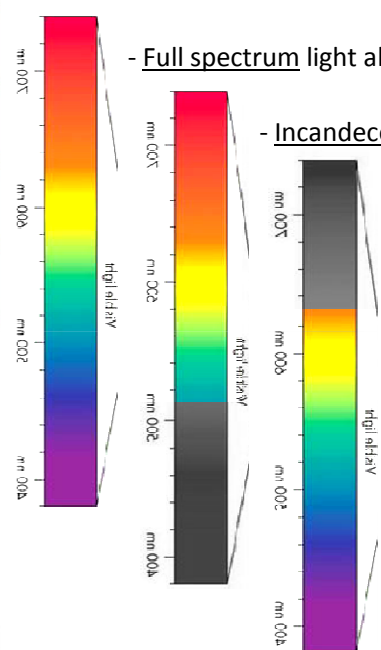
When white light shines on paint, the pigments within paint absorb all colors except the one that it reflects, ergo red paint is red... Red and cyan combined will result in a grey color optically but red and cyan pigments remain intact and does not change in color.**

What does that stuff mean to us painters?

It means that I will teach you how to mix **colors based on the understanding of the printing and paint making industries** rather than that of artists.

Cyan (C), Magenta (M), Yellow (Y), and White (W) will be engrained into your color vocabulary using the Omega hemispheres (above).

So why is it CMYW rather than CMYK? We will get to that next week... First, let's look at **Value**.

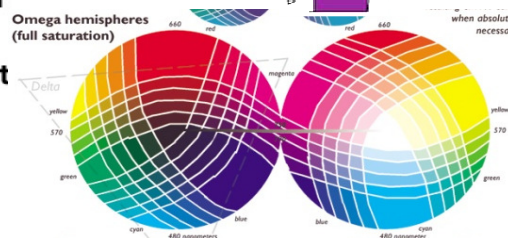


- Full spectrum light allows the full range of colors to be seen.

- Incandescent light* allows the red end to show better than the blue.

- Flourescent light* allows the blue end to show up more.

Have you ever taken a picture with a camera without the aid of the "white balance" function? Your photos indoors with incandescent light has a tint of yellow while a haze of blue would be casted over your shots under flourescent lighting. Set your white balance to sunlight and try a few shots indoors under those lights to see for yourself.



***When the light source does not have the color reflected by an object that you normally recognize as having a color in sunlight, the object will look rather greyed out, almost achromatic!**

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The eye compares everything... gauging their RELATIVE shapes, sizes, values, and colors; the mind links them with memory.

Painting illusions of light, space, and form with value contrast

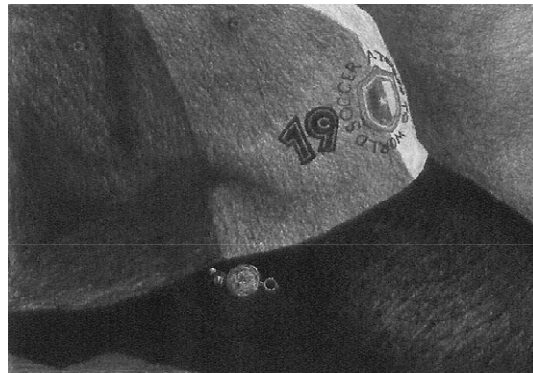
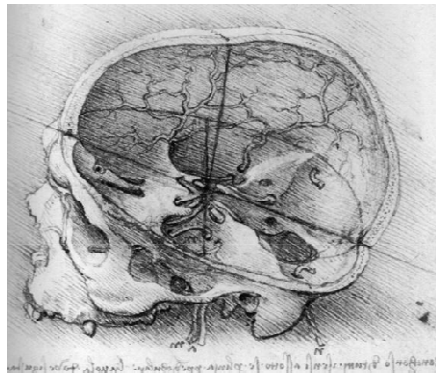
Value: Darkness and lightness of what you see in terms of grayscale (below). First, establish the highest and lowest values on your canvas then fill in the rest!



The darkest mark on your canvas is the lowest value

The lightest mark (including the white of paper) is the highest value

With only achromatic, no color, dark marks and the "white" of the canvas, paper, or cave wall, artists have created many illusions. We call them "drawings" or "value drawing" (including monochromatic, one color, paintings). These works place darker marks in relation to lighter ones. See the skull by Leonardo da Vinci (left), the hat by yours truly (center), and Rembrandt's etching (right). Value can be used to create a sense of light, volume of space, 3-dimensionality of forms; etc. Squint to aid in seeing value. Create illusions by juxtaposing dark areas next to the light ones or by gradually gradating them.

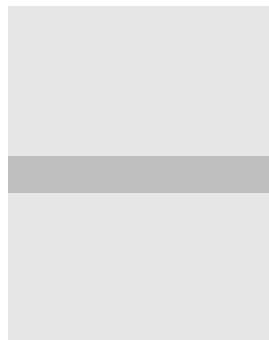


Important: Juxtaposing highly contrasting light and dark marks, shapes, and areas will make the darks SEEM darker and the lights appear lighter (see examples below).

Example 1:



Example 2:



Most of you are already aware of "example 2" to the left. It is an optical example of how our eyes and mind can be fooled by tricks employed by Leonardo, Rembrandt, and other artists. To those who are not aware of this example, would you believe me if I disclosed that the grey line cutting through the dark grey rectangle is the same value as that crossing the light grey shape? It is indeed!

Constructing the same type of illusions in a less obvious manor, Leonardo made the face of his skull (above, left) seem more white than the paper he drew it on, and Rembrandt created a glow of light in his etching (above, right) by exaggerating the lighter parts and darker ones. Next week, Color Vision: Information of color is added to the juxtaposition of dark and light.