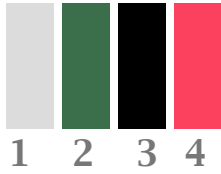
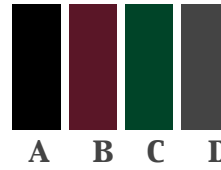


Light & Color



Match the colored strips on the left with the strip on the right which is the same color seen in room without any light.



Answer: All four colors on the left would appear as "a", for without light there would be no color.

LIGHT IS ADDITIVE

Light may be white or colored. Light is *additive*. When two or more colored lights are mixed, a lighter mixture results. White light results from combining all three primary colors of light at high intensity. Light primaries are the secondary colors of pigment. A rainbow is white light refracted by rain drops.

PIGMENT IS SUBTRACTIVE

Mixing the primary pigments in equal amounts produces black. Pigment is considered *subtractive*, for as more pigments are mixed together (excluding white), darker hues result. Black is the presence of all colors in pigment.

CREATING THE ILLUSION OF LIGHT AND SHADE

In order to create the illusion of light falling across different colors and values, artists must recognize how light modifies color. When we say that an apple is red, we refer to its *local color* of redness.

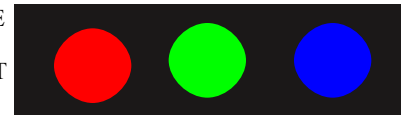
This local color red exists only in our minds, for this red will change with every change in lighting. The red we perceive in candlelight, varies considerably from the same red seen under florescent light, daylight, etc. The reason we perceive it as the same red is that all of the surrounding colors change as well. We refer to such recognition as *color constancy*.

COLOR PERCEPTION

We perceive color in objects because those objects have a pigment which absorbs some light rays and reflects those we see. A yellow ball, for example, is perceived as yellow because its pigmentation reflects that color. Darker colors will absorb more light, because they have more pigmentation with which to absorb light.

LIGHT PRIMARIES

RED ORANGE
GREEN
BLUE/VIOLET



PIGMENT PRIMARIES

CYAN
MAGENTA
YELLOW



Refer to the illustration below which shows what happens when a white light illuminates a portion of a color. Unlike a white veil which tints only the color it covers, a white light will produce a shade or gray film over those portions of the color which are not in the light. Generally, the lighted surface will move from a shade to more chroma as illumination increases. If the white light is bright enough, it could even tint the color it illuminates.

LOCAL COLOR (These colors exist only in the mind. We only see them as they are modified by light and shade.)



WHITE LIGHT



— The local color under a brilliant white light may produce a tinted hue.

— 50% BLACK SHADING: *The percentage is arbitrary. It depends on light intensity.*