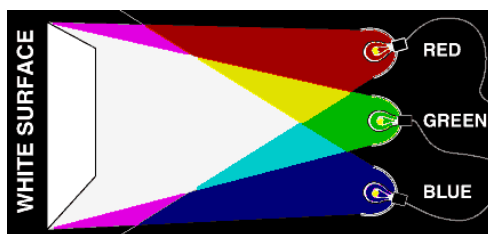


# Colored Shadows



## To Do and Notice:

Notice that the red, green and blue lights together make the screen look white.

Place a narrow opaque object, like a pencil, fairly close to the screen. Adjust the object's distance from the screen until you see three distinct colored shadows. Can you produce seven different colored shadows?

## What's Going On:

The retina of the human eye has three receptors for colored light: One type of receptor is most sensitive to red light, one to green light, and one to blue light. With these three color receptors we are able to perceive more than a million different shades of color.

When a red light, a blue light, and a green light are all shining on the screen, the screen looks white because these three colored lights stimulate all three color receptors on your retinas approximately equally, giving us the sensation of white. Red, green, and blue are therefore called *additive primaries* of light.

With these three lights you can make shadows of six different colors: blue, red, green, cyan (blue-green), magenta (a mixture of blue and red), yellow (a mixture of red and green)....and black. If you block two of the three lights, you get a shadow of the third color: Block the red and green lights, for example, and you get a blue shadow. If you block all three lights, you get a black shadow. And if you block one of the three lights, you get a shadow whose color is a mixture of the two other colors. If the blue and green mix, they make cyan; red and blue make magenta; red and green make yellow.