



Figure 18

The combination of the additive primary colors in any two circles produces the complementary color of the third additive primary color.



Figure 19

The brightness of the red, green, and blue pixels of a color television screen are adjusted such that, from a distance, all of the colors in a single picture appear.

When light passed through a red filter is combined with green light produced with a green filter, a patch of yellow light appears. If this yellow light is combined with blue light, the resulting light will be colorless, or “white,” as shown in **Figure 18**. Because yellow is the color added to the primary additive color blue to produce white light, yellow is called the *complementary* color of blue. Two primary colors combine to produce the complement of the third primary color, as indicated in **Table 6**.

One application of additive primary colors is the use of certain chemical compounds to give color to glass. Iron compounds give glass a green color. Manganese compounds give glass a magenta, or reddish blue, color. Green and magenta are complementary colors, so the right proportion of these compounds produces an equal combination of green and magenta light, and the resulting glass appears colorless.

Another example of additive colors is the image produced on a color television screen. A television screen consists of small, luminous dots, or *pixels*, that glow either red, green, or blue when they are struck by electrons (see **Figure 19**).

Varying the brightness of different pixels in different parts of the picture produces a picture that appears to have many colors present at the same time.

Humans can see in color because there are three kinds of color receptors in the eye. Each receptor, called a *cone cell*, is sensitive to either red, green, or blue light. Light of different wavelengths stimulates a combination of these receptors so that a wide range of colors can be perceived.

Table 6 Additive and Subtractive Primary Colors

Colors	Additive (mixing light)	Subtractive (mixing pigments)
red	primary	complementary to cyan
green	primary	complementary to magenta
blue	primary	complementary to yellow
cyan (blue green)	complementary to red	primary
magenta (red blue)	complementary to green	primary
yellow	complementary to blue	primary