

LIGHT AND COLOR

WORD BANK

Translucent primary opaque black transmits colors
White cone absorbs transparent reflect filter

1. To see an object, it must _____ light.
2. A material through which nearly all light passes is a _____.
3. A material in which visible light will not pass through is said to be _____.
4. A material in which visible light will pass but detail can not be seen clearly is said to be _____.
5. _____ light is a mixture of all visible wavelengths of the spectrum.
6. _____ objects absorb all colors and reflect very little light.
7. Red, green, and blue are the _____ colors of visible light. Mixed together produce the other colors.
8. The retina of the eye contains _____ cells that detect certain wavelengths of light.
9. When the brain responds to the signals, we see _____.
10. One way of producing color is by the use of a _____, a transparent object that _____ some colors and allows others to pass through.
11. The color of the filter is the same as the color of light it _____.

WORD BANK

CYAN FILTER PIGMENT ADDITIVE
SUBTRACTIVE BLACK REFLECTED

12. A Colored material that absorbs certain colors and reflects others is a _____.
13. To mix and make any color, it is necessary to have only three primary pigment colors—magenta, yellow, and _____.
14. Light color is determined by the wavelength of light transmitted through a _____.
15. Pigment color is determined by the wavelength of light _____ from the pigment particles.
16. Because primary light colors combine to produce white light, they are called _____ colors.
17. If all primary pigments are added equally, the result will be _____.
18. Because black results from the absence of reflected light, the primary pigment colors are called _____ colors.

Light and the Electromagnetic Spectrum

Objective 4

PRACTICE SET: Colors of Objects

1. List the colors of light in order according to wavelength, with the longest wavelength, lowest frequency first.

2. Label each of these pairs of colors according to wavelength by writing the words "shorter" or "longer" in each blank.
 - a. _____ Red
_____ Blue
 - b. _____ Yellow
_____ Green
 - c. _____ Indigo
_____ Orange

3. Assuming pure colors of light, filters that allow only one color to pass, and paints that reflect only one color, write in the blank what colors would be seen under the following conditions:
 - a. Blue paint is illuminated by red light. _____
 - b. White light is viewed through a green filter. _____
 - c. A red painted barn is viewed through a blue filter. _____
 - d. Black paint is illuminated by white light that passes through a yellow filter. _____
 - e. A city is viewed through emerald green glasses. _____
 - f. Green paint illuminated by blue light is viewed through a red filter. _____