Light and Color—Filters

Objective

The student will experiment with color by using a variety of filters.

Science and Mathematics Standards

Science Standards

☑ Science as Inquiry
☑ Physical Science

Mathematics Standards

☐ Problem Solving
☑ Communication
☐ Connection
☐ Computation/Estimation
☐ Measurement

Theory

Light is the only source of color. Color pigments (paints, dyes, or inks) show color by absorbing or subtracting certain parts of the spectrum, and reflecting or transmitting the parts that remain. The visual sensation of all the colors can be created by adding different intensities or amounts of the three primary colors—red, green, and blue. Filters subtract or absorb a band of wavelengths of color and transmit the other wavelengths. A yellow filter transmits yellow and a red filter transmits red.

Materials

- a variety of transparent filters or cellophane of different colors (See List of Catalogs, page 83.)
- light source such as a window
- slide projector or overhead projector

Procedures

Place a filter in front of the light source. Combine two colored filters. Now combine three colors. Experiment with many different combinations.

Observations, Data, and Conclusions

1. What colors can you make with two different filters?
2. What colors can you make with three different filters?
3. How many different colors can you make?
4. What did you learn about color filters?