



What makes color?

Light and Sound Concepts:

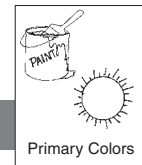
- The primary colors of light are red, blue, and green.
- The amplitude of its wavelengths determines the brightness of a color.
- Higher wave amplitudes result in brighter colors.
- Lower amplitudes of a wave result in duller colors.
- The primary colors of paint are red, yellow, and blue.

Teacher's Note: An alternative assessment suggestion for this lesson is found on pages 86-88. If Graphic Pages are being consumed, first photocopy assessment graphics that are needed.

Vocabulary: brighter duller absorb primary *amplitude *pigment

Activities:

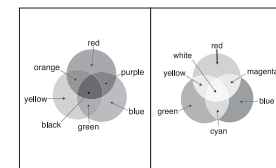
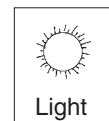
Primary Colors of Light and Paint - Graphic Organizer



Focus Skill: compare and contrast

Paper Handouts: 8.5" x 11" sheet of paper a copy of Graphics 7A-E

Graphic Organizer: Make a Large Question and Answer Book. Glue/draw Graphic 7A on the cover and title it *Primary Colors*. Open the Large Question and Answer Book. On the left tab, glue/draw Graphic 7B and on the right tab, glue/draw Graphic 7C. Color the Graphics accordingly. Open the *Paint* tab. Glue/draw Graphic 7D on the bottom tab.



- ✎ Color the primary colors in the color wheel. Combine primary colors to make the other colors.
- ✎✎ Complete ✎. Write the names of the primary colors in black.
- ✎✎✎ Complete ✎. Define the primary colors of paint and explain how other colors are made with them.

Open the *Light* tab. Glue/draw Graphic 7E on the bottom tab.

- ✎ Color the sections accordingly.
- ✎✎ Complete ✎. Write the name of the primary colors of light in black.
- ✎✎✎ Complete ✎. Define the primary colors of light and explain how other colors are made.

What Color is White Light?

Focus Skill: demonstrating a concept

Activity Materials: 3 feet of string

crayons or markers

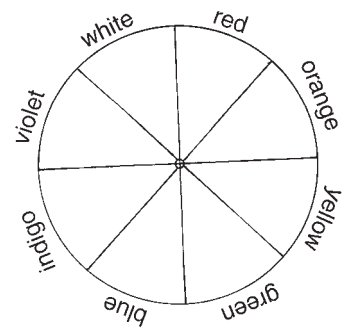
hole puncher



Paper Handouts: a copy of Graphic 7F

sheet of white paper

Activity: Cut out Graphic 7F. Using markers or crayons, color the segments each color of the rainbow. Trace the disk on a sheet of white paper and cut it out. Glue the white disk to the Graphic to strengthen it. After the glue has dried, punch two holes near the center. Hold the disk with the colored side up. From the underside, push the string through one hole and then down the second hole. Hold the ends of the string in each hand and make the disk spin by relaxing and stretching the string. Look at the disk as it spins. What do you see?



Spinning Colors

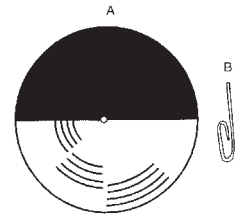
Focus Skill: observing

Activity Materials: paper clip

Paper Handouts: a copy of Graphic 7G

sheet of white paper

Activity: Cut out Graphic 7G. Trace the disk on a piece of white paper and cut it out. Glue the white disk to the Graphic to strengthen it. Make a small hole in the middle of the disk. Take a paper clip and straighten one end. Hold the paper clip with the end sticking up. Place the hole of the disk on the paper clip. Now, spin the disk. What do you see? Spin it in the opposite direction. What do you see?



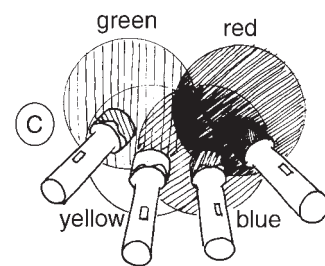
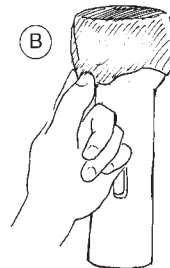
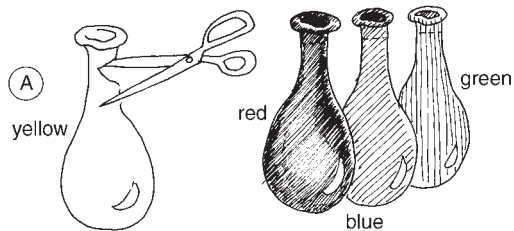
Colored Lights

Activity Materials: red, yellow, green, and blue balloons

4 flashlights

white wall or ceiling

Activity: Cut off the necks of the balloons. Stretch a balloon over each flashlight. Shine the colored flashlight on the wall. Observe the light as you move the flashlight closer to the wall and then move it farther away. Repeat with all colors. With a partner, try blending two or more colors.



Colorful Comics

Activity Materials: magnifying glass

newspaper

colored comics

Activity: Use the magnifying glass to observe the colors in the comics. What color dots make green, orange, and purple?



Who's Who? - Graphic Organizer




Focus Skill: researching and reporting

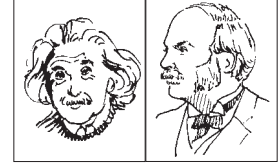
Paper Handouts: a copy of Graphic 7H

Who's Who Graphic Organizer

Graphic Organizer: Glue/draw Graphic 7H on the right tab of the *Who's Who Graphic*







Organizer. Write *Lord John Rayleigh* and his birth and death dates. Open the tab.

-  Draw a picture of the scientist or something that relates to his achievements in the study of light.
-  Write clue words about the scientist: Rayleigh: *English physicist, explained why the sky looks blue, Nobel Prize 1904.*
-  Research the scientist and write a paragraph about key points in his life.

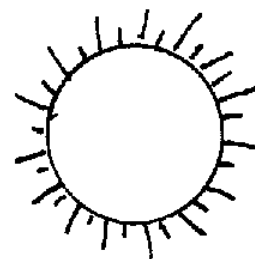


Experiences, Investigations, and Research

Select one or more of the following activities for individual or group enrichment projects. Allow your students to determine the format in which they would like to report, share, or graphically present what they have discovered. This should be a creative investigation that utilizes your students' strengths.

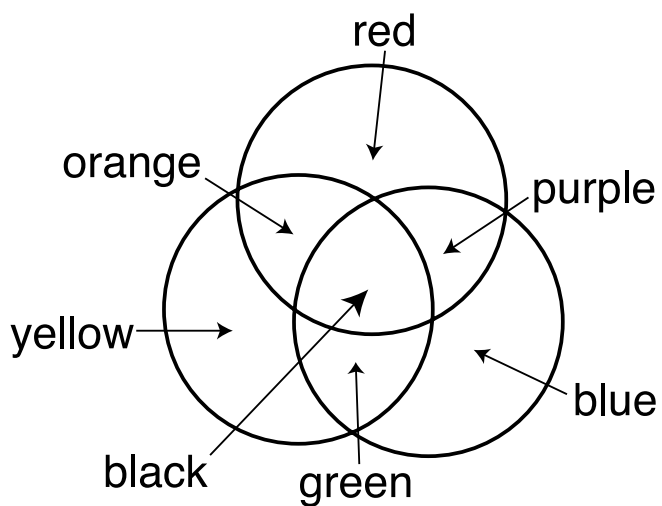
-  1. Choose a color and write a poem about it. How does the color make you feel? What smells does it make you think of? How would it feel to the touch?
-  2. Experiment with paint colors in their pure form and in different mixtures. Compare and contrast paint colors to light colors.
-  3. List examples of white and black objects, and explain why they appear white and black.
Use what you know about light and color to explain why white objects reflect light and black objects absorb it, and explain the importance of this to your daily life.
-  4. Select five objects of different colors, and write descriptively about the color of each. Explain their colors in terms of reflecting and absorbing wavelengths of light.
-  5. Interview 25 people to determine their favorite color. Graph your overall results. Graph your results by male and female favorites.
-  6. <http://observe.ivv.nasa.gov/nasa/education/reference/false/fascol.html> - false colors

7A

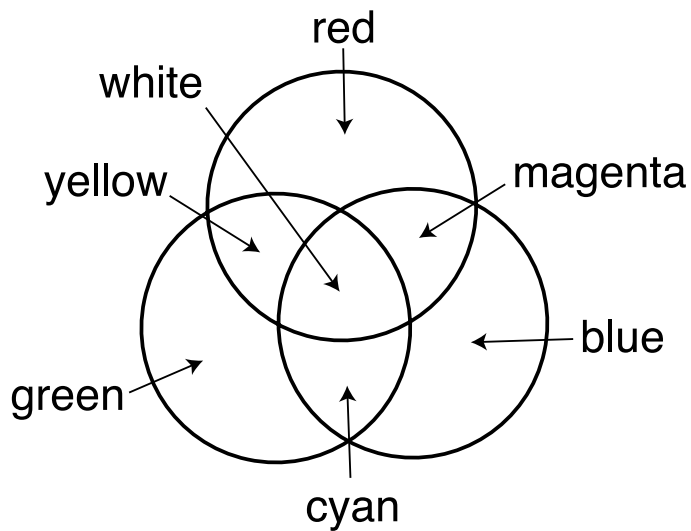


Primary Colors

7D



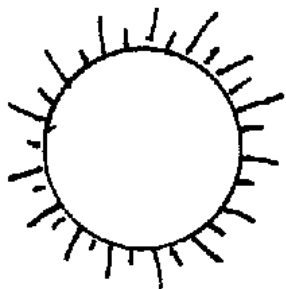
7E



7B



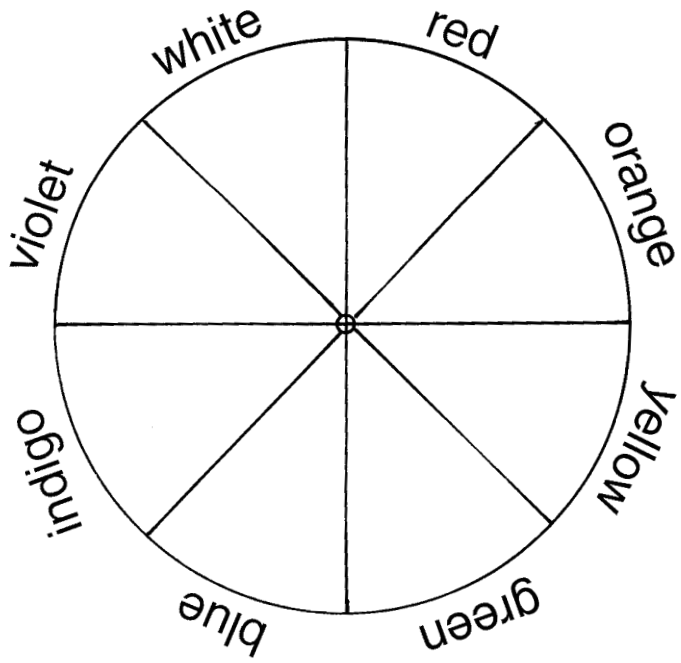
Paint



Light

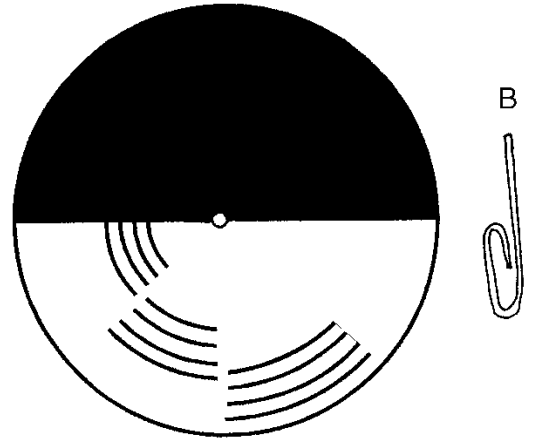
7C

7F



A

7G



7H

