

▲ FIGURE 6.1 Notice the variety of colors used in this painting. Where in your environment do you find colors like these? Are these calming colors? If not, how would you describe them?

Wassily Kandinsky. *Tension in Red.* 1926. Oil on board. 66×53.7 cm $(26 \times 21^1/s'')$. The Solomon R. Guggenheim Museum, New York, New York. Gift, Solomon R. Guggenheim, 1938. © 2003 Artists Rights Society (ARS), New York/ADAGP, Paris.

Color

Color is everywhere. We see it in the blue of the sky and in the yellows, reds, and oranges of the changing autumn leaves. The expressive qualities of color are so powerful that they can create instant emotional reactions. The color green can be soothing; the color red, exciting.

In this chapter, you will:

- Identify hue, value, and intensity as the properties of color.
- Compare and contrast the use of color and value in different artworks.
- Demonstrate effective use of color art media in drawing, painting, and design.
- Analyze the use of color in the artworks of others to express meaning.

Focus on Art History

Figure 6.1 was painted by the Russian artist

Wassily Kandinsky (1866–1944). Kandinsky was a founder of the "Der Blaue Reiter" (The Blue Rider) movement. The group followed the art style known as Expressionism. Its goal was to express raw emotion, mainly through composition. Kandinsky, an innovator, created abstract compositions at a time when most artists were producing lifelike subjects. He also stood out by using bold, brash colors as a unifying element.

Interpret. Study the bright colors and sharp, angular lines of Figure 6.1. Read the title. Do you think the title captures the mood of this work? Do you experience tension and unrest in this work, or do you find it peaceful and calm?

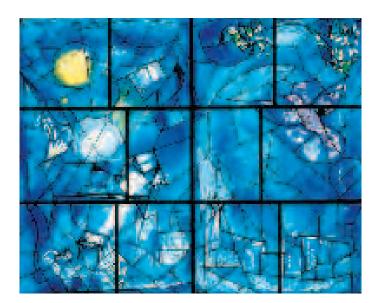
Vocabulary

color
color spectrum
hue
color wheel
value
tint
shade
intensity
complementary colors

Hue, Value, and Intensity

Color is the most expressive element of art. It shares a powerful connection with emotion. That relationship is why we hear people say, "I'm feeling blue," or, "She was green with envy." The connection of color to emotion is also illustrated in a question we often ask friends—"What's your favorite color?" Almost everyone has a favorite color. It might remind us of a favorite childhood toy or a piece of clothing that we love to wear. Our appreciation of color affects many of the choices we make.

In this lesson you will learn what color is and how you see it. You will learn the properties of color. You will also learn how to mix colors to create shades you might use in your artwork.



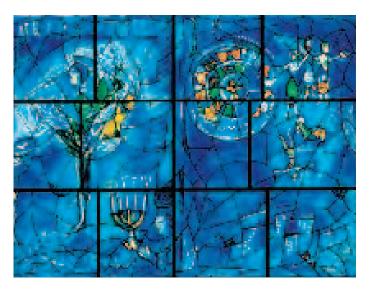
How We See Color

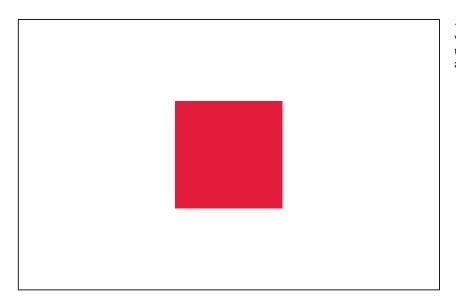
Color is an element of art that is derived from reflected light. You see color because light waves are reflected from objects to your eyes **(Figure 6.2).** White light from the sun is actually a combination of all colors.

When light passes through a wedge-shaped glass, called a prism, the beam of white light is bent and separated into bands of color, called the **color spectrum.**

FIGURE 6.2 Chagall has used many different tints and shades of blue. He has also used a few other colors for emphasis. Identify some of the objects he has emphasized this way. As the light outside changes throughout the day, how do you think the artwork changes? What if the day were stormy or rainy? How do you think the artist planned for this?

Marc Chagall. *The American Windows*. 1977. Stained glass. The Art Institute of Chicago, Chicago, Illinois. Gift of the Auxiliary Board of The Art Institute of Chicago in memory of Richard J. Daley, 1977. 938. © 2003 Artists Rights Society (ARS), New York/ADAGP, Paris.





▼FIGURE 6.3 What color do you see when you shift your gaze from the red to the white area? Your eyes can fool you about color.

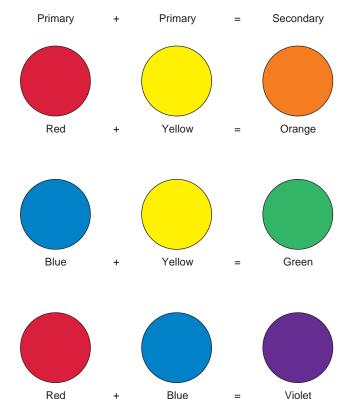
The colors of the spectrum always appear in the same order: red, orange, yellow, green, blue, and violet.

A rainbow is a natural example of a spectrum. Rainbows occur when sunlight is bent by water, oil, or a glass prism. You can find rainbows in the sky after a storm, in the spray from a garden hose, or in a puddle of oil.

We see color because objects absorb some of these light waves and reflect others. A red apple looks red because it reflects red waves and absorbs the rest of the colors. Special color receptors in your eyes detect the color of the reflected light waves. Another type of receptor detects the lightness or darkness of the color. Colors don't change.

Your ability to distinguish between them does. That is why your eyes have trouble seeing colors in dim light. Not enough light is reflected off of objects for you to see their color.

When you are looking at colors, your eyes can sometimes fool you. For instance, stare at the bright red shape in **Figure 6.3** for 30 seconds; then quickly shift your gaze to the white area below it. Did you see a green shape on the white surface? This is called an *afterimage*. It occurs because the receptors in your eyes retain the visual stimulation even after it has ceased. Your brain creates the afterimage as a reaction to the color you stared at originally.



▲ FIGURE 6.4 Primary and secondary hues.

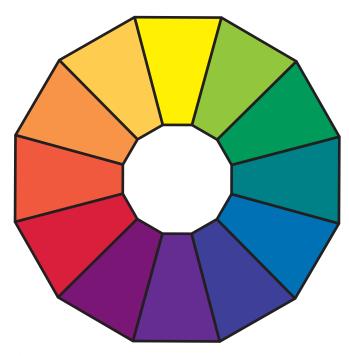


FIGURE 6.5 The color wheel.

The afterimage of a color is the opposite of that color. Green is the opposite of red. So the afterimage of green is the color red. The afterimage of black is white, and the afterimage of blue is orange. An afterimage isn't a strong color—it is only the ghost of a color. Some artists make use of the way your eyes work when they create optical illusions of color and movement.

Three properties of color work together to make the colors we see. These properties are *hue*, *value*, and *intensity*.

Hue

Hue is the name of a color in the color spectrum, such as red, blue, or yellow. Red, yellow, and blue are the primary hues. You cannot make primary hues by mixing other hues together. However, by combining the three primary colors and black and white, you can produce every other color.

The *secondary* hues are made by mixing two primary colors (**Figure 6.4**). Red and yellow make orange; red and blue make violet; and blue and yellow make green. Orange, violet, and green are the secondary hues.

The six *intermediate* colors are made by mixing a primary color with its secondary color. For example, red and orange make red-orange, red and violet make red-violet, blue and violet make blue-violet, and so on. You can make many additional variations by combining the intermediate colors.

A **color wheel** is *the spectrum bent into a circle*. It is a useful tool for organizing colors. The color wheel in **Figure 6.5** is a twelve-color wheel showing the three primary, three secondary, and six intermediate hues.

Other Color Systems

The three primary hues—red, yellow, and blue—are specifically the primary hues of pigment found in paints, pastels, or colored pencils. There are different color systems that apply to the colors seen on computer screens and those printed in magazines and photographs.

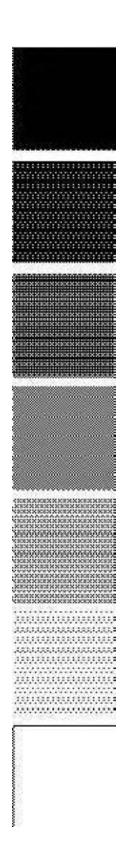
The primary colors of light, as on a computer screen, are red, green, and blue, commonly referred to as RGB. Because these colors are created by adding light, the pigment color system does not apply.

Another color system is used by printers—the CMYK color system. CMYK is short for the four primary colors of this system—cyan (also called process blue), magenta, yellow, and black. If you have worked with computer graphics software, you have probably seen references to CMYK color.

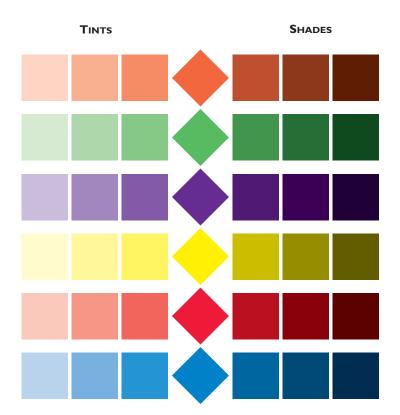
Value

Value is the art element that describes the darkness or lightness of a color. The amount of light a color reflects determines its color value. Not all hues of the spectrum have the same value. Yellow is the lightest hue because it reflects the most light. Violet is the darkest hue because it reflects the least light.

Black, white, and gray are *neutral colors* (**Figure 6.6**). When white light shines on a white object, the object reflects all of the color waves and does not absorb any. As a result, you see the color of all the light, which is white.



▲ FIGURE 6.6 Neutral colors: black, gray, and white.



▲ FIGURE 6.7 Color value scales.

A black object absorbs all of the color waves. Black reflects no light; black is the absence of light. Gray is impure white—it reflects an equal part of each color wave. The more light that gray reflects, the lighter it looks; the more it absorbs, the darker it looks.

You can change the value of any hue by adding black or white **(Figure 6.7).** *A light value of a hue* is called a **tint,** and *a dark value of a hue* is called a **shade.** The term *shade* is often used incorrectly to refer to both tints and shades. A tint is created by adding white; a shade is created by adding black.

When artists want to show a bright, sunny day, they use tints (**Figure 6.8**). Paintings having many tints are referred to as *high-key* paintings. Cassatt's *Margot in Blue* is an example of a high-key painting. *Low-key* paintings have shades,



FIGURE 6.8 Everything except Margot's eyes and hair are painted with tints of color. Even the shadow in the upper left corner of the picture has been softened with gray. The white highlights shimmer and create the effect of a sunny day.

Mary Cassatt. Margot in Blue. 1902. Pastel. 61×50 cm (24 \times 19%"). The Walters Art Gallery, Baltimore, Maryland.

or dark values, which are used when the artist wants to represent dark, gloomy days, nighttime, and dusk. Dark values can add a feeling of mystery to a work. They can also be used to create a sense of foreboding or danger (Figure 6.9).

If the change in value is gradual, the design produces a calm feeling. If the values take large leaps up and down the scale, from almost white to almost black, the artwork has an active, even nervous, effect.



▼ FIGURE 6.9 The dark values in this work enhance its ominous mood. Every hue in this work has been darkened with the addition of black except one. Which hue has not been changed? Why?

Rufino Tamayo. *Girl Attacked by a Strange Bird.* 1947. Oil on canvas. 177.8×127.3 cm $(70 \times 50^{1/8})$. Museum of Modern Art, New York, New York. Gift of Mr. and Mrs. Charles Zadok.

Activity

Creating Values

Demonstrating Effective Use of Art Media and Tools in Painting. Select a hue. Draw a row of three equal shapes. If you are using an opaque paint, such as tempera, add only a small amount of the hue to white with a brush or palette knife. Fill the first shape with the light value. Paint the second shape with the pure hue. Add a small amount of black to the hue to create a dark value, and paint this in the third shape.

If you are using a transparent watercolor paint, make a light value by thinning the paint with water to let more white paper show through. Make a hue darker by adding a small amount of black. Fill the three shapes as in the above directions.

Computer Option. Look at the color palette of your software program.

Choose only the tints and shades of one hue to create a computer drawing of a simple cityscape or underwater scene.

Colors do not have to be used realistically. Your software program will determine the number of tints and shades that you can use. If your software has the capabilities, mix your own tints and shades for use in this assignment.

Intensity

Intensity is the brightness or dullness of a hue (Figure 6.10). If a surface reflects only yellow light waves, for example, you see an intensely bright yellow. If a surface reflects other light waves, the color will appear duller. A pure or bright hue is called a high-intensity color. Dull hues are called low-intensity colors.

Complementary colors are the colors opposite each other on the color wheel. The complement, or opposite, of a hue absorbs all of the light waves that the hue reflects (Figure 6.11). Red and green are complements. Green absorbs red waves and reflects blue and yellow waves. (Blue and yellow waves combine to appear green.) Red absorbs blue and yellow waves and reflects red waves.

Mixing a hue with its complement dulls the hue, or lowers its intensity. The more complement you add to a hue, the duller the hue looks. Eventually, the hue will lose its own color quality and appear a neutral gray.

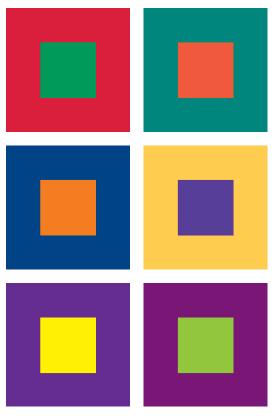
The hue used in the greatest amount in a mixture becomes dominant. For this reason, a mixture might look dull



▲ FIGURE 6.10 Intensity scale. This scale shows how the intensity of one hue changes as you add its complement to it. The first box is pure, high-intensity green. Each time you add more red, the green becomes duller. Eventually the even mix of green and red creates an interesting, low-intensity gray.

orange or dull blue, depending on the amount of color used. Orange and blue mixtures usually yield brownish results.

Hue, value, and intensity do not operate independently. They rely on one another to create all of the colors that you see around you. When you observe colors, you will see dull tints and bright tints, dull shades and bright shades, light hues and dark hues. Knowing the three properties of color helps you to understand and use color.



▲ FIGURE 6.11 Sets of complements. The left column are sets of primary and secondary complements. The right column are sets of intermediate complements.

Activity

Working with Intensity

Applying Your Skills. Contrary to what you may have thought, tree trunks are not really brown. They reflect a variety of light and dark low-intensity grays. Draw seven or more bare trees on a large sheet of white paper. Use real trees as models, if possible; if not, find photographs. Combine varying amounts of one primary color and its complement as well as white and black to create a number of different, low-intensity light- and dark-valued colors. Then use these colors to paint each tree a different color.

Computer Option. Design a simple motif using only two solid colors. Use Copy and Paste options to make five copies of the motif. Fill each motif with one primary color or intermediate color and its complement. If your software has the capabilities, mix the two complements together to create a dull or low-intensity version of each. Label each set of complements and mixture sets.



Check Your Understanding

- 1. What are the three properties of color?
- **2.** Define *color wheel*. What does a color wheel show?
- **3.** Describe the difference between tint and shade.
- **4.** Compare and contrast the use of value in Figure 6.8 on page 140 and Figure 6.9 on page 141.

Vocabulary

monochromatic analogous colors

Color Schemes

Tolors are like musical instruments. Each instrument has its own spe-✓ cial sound. When you hear an instrument in an orchestra, the sound you hear is affected by the sounds of the other instruments. When the musicians tune up before a performance, you hear confusing, even unpleasant, noises. When they play together in an organized way, they can make beautiful sounds. In the same way, putting colors together without a plan can be confusing and unpleasant to your eyes. Color without organization can look like a visual argument. A plan for organizing colors is called a color scheme.

When two colors come into direct contact, their differences are more obvious. A yellow-green surrounded by a green looks even more yellow. A yellowgreen surrounded by yellow, however, appears greener. Grayish-green will seem brighter when it is placed against a gray background. This effect is called simultaneous contrast (Figure 6.12).

A color scheme is a plan for organizing colors according to their relationship on the color wheel. By following a color scheme, you can avoid putting together colors in a confusing or unpleasant way. The following are some of the most frequently used color schemes.

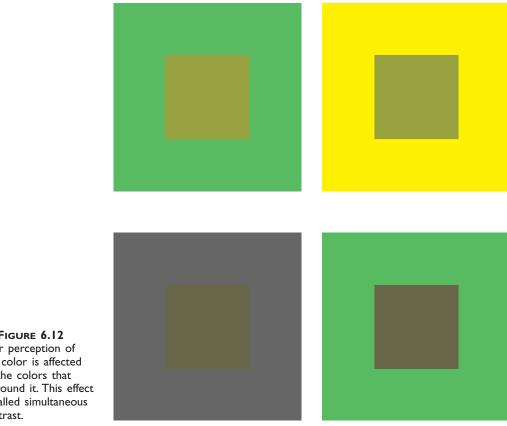


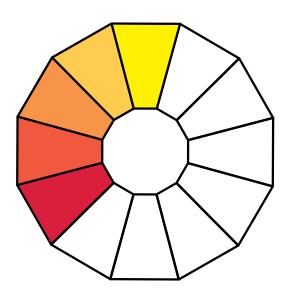
FIGURE 6.12 Your perception of any color is affected by the colors that surround it. This effect is called simultaneous contrast.

Monochromatic Colors

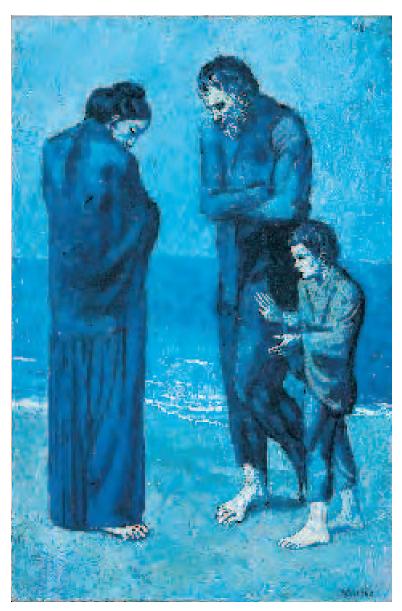
Monochrome means one color. A **monochromatic** color scheme is a color scheme that uses only one hue and the tints and shades of that hue. Because this is such a limited scheme, it has a strong, unifying effect on a design **(Figure 6.13).** It is very easy to organize furniture or clothing using monochromatic colors. The drawback to a monochromatic color scheme is that it can be boring.

Analogous Colors

Analogous colors are colors that sit side by side on the color wheel and have a common hue (Figure 6.14). Violet, redviolet, red, red-orange, and orange all have red in common. A narrow color scheme would be limited to only three hues, such as violet, red-violet, and red. An analogous color scheme creates a design that ties one shape to the next through a common color (see Figure 13.34 on page 380).



▲ FIGURE 6.14 Analogous colors are related.



▲ FIGURE 6.13 The artist has captured the sad mood of these people by using a monochromatic blue color scheme. He has kept it interesting by using the full range of tints and shades from white to black. Where are the whitest areas? Where are the blackest areas? Look at the title. Does the painting evoke this feeling?

Pablo Picasso. *The Tragedy*. 1903. Oil on wood. 105×69 cm $(41^{1}/_{2} \times 27^{1}/s'')$. National Gallery of Art, Washington D.C. © 1998 Board of Trustees. Chester Dale Collection. © 2003 Estate of Pablo Picasso/Artists Rights Society (ARS), New York.

Complementary Colors

The strongest contrast of a hue is produced by complementary colors. When a pair of high-intensity complements are placed side by side, they seem to vibrate. It is difficult to focus on the edge where the complements touch. Some artists use this visual vibration to create special effects. They make designs that sparkle, snap, and sizzle as if charged with electricity (**Figure 6.15**).

▲ FIGURE 6.15 Which set of complementary colors dominates this painting? Where is the contrast the strongest? Which area has the dullest contrast? Explain how the artist has done this?

Piet Mondrian. *Sun, Church in Zeeland.* 1910. Oil on canvas. $90.5 \times 62.1 \times 2.9$ cm $(35^3/8 \times 24^1/2 \times 1^1/8'')$. Tate Gallery, London, England. © Tate Gallery, London/Art Resource, NY. ARS, NY.

Complementary color schemes are exciting. They are loud, and they demand to be noticed. They are frequently used to catch the viewer's attention. How many ways do people use the red-and-green color scheme? Where else have you seen complementary color schemes used to grab attention?

Not all color schemes based on complements are loud and demanding. If the hues are of low intensity, the contrast is not so harsh. Changing the values of the hues will also soften the effect of the design.

Color Triads

A color triad is composed of three colors spaced an equal distance apart on the color wheel. The contrast between triad colors is not as strong as that between complements. The primary triad is composed of red, yellow, and blue. The secondary triad contains orange, green, and violet (Figure 6.16).

A high-intensity primary triad is very difficult to work with. The contrast between the three hues is so strong that they might make people uncomfortable. A triad can be made more comfortable to the viewer by changing the intensity or values (**Figure 6.17**). A triad of secondary colors is less disturbing.

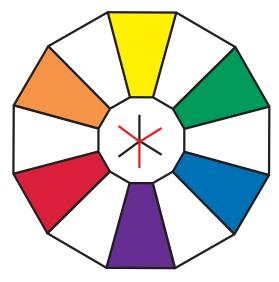
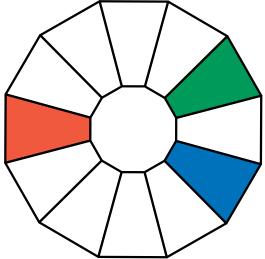


FIGURE 6.16 Color triads.



▲ FIGURE 6.17 Even though this painting is based on the primary triad, it is very comfortable to view. How has the artist organized the colors to make this painting easy to look at?

Fritz Glarner. *Relational Painting, Tondo* #40. 1955–56. Oil on Masonite. Diameter: 111.8 cm (44"). Walker Art Center, Minneapolis, Minnesota. Gift of the T. B. Walker Foundation, 1956.

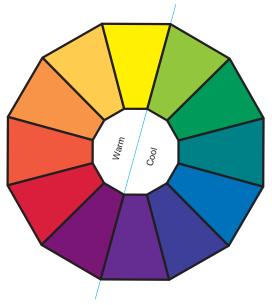


▲ FIGURE 6.18 Split complement.

Split Complements

A *split complement* is the combination of one hue plus the hues on each side of its complement **(Figure 6.18).** This is easier to work with than a straight complementary scheme because it offers

more variety. For example, start with red-orange. Check the color wheel to find its complement, blue-green. The two hues next to blue-green are blue and green. Red-orange, blue, and green form a split-complementary color scheme.



▲ FIGURE 6.19 Warm and cool colors.

Warm and Cool Colors

Sometimes the colors are divided into two groups, called *warm* and *cool* (Figure 6.19). Warm colors are red, orange, and yellow. They are usually associated with warm things, such as sunshine or fire (Figure 6.20). Cool colors are blue, green, and violet. They are usually associated with cool things, such as ice, snow, water, or grass (Figure 6.21). Warm colors seem to move toward the viewer and cool colors seem to recede, or move away.



▲ FIGURE 6.20 Albizu is a Puerto Rican artist. Many of her paintings were commissioned by jazz musician Stan Getz to be used as covers for his record albums. Can you see how the small areas of black jump out from the warm colors to visually suggest music with a Latin jazz beat?

Olga Albizu. *Growth.* c. 1960. Oil on canvas. 127×107 cm $(50 \times 42^1/s'')$. Lowe Art Museum, University of Miami, Miami, Florida. Gift of Esso Inter-American, Inc.

The amount of warmth or coolness is relative. Violet on a red background appears much cooler than violet alone. However, the same violet on a blue background seems much warmer than the violet alone.

Activity

Using Color Schemes

Demonstrating Effective Use of Art Media in Design. In your sketchbook, draw several squares. Arrange your initials or the letters of your name in a design in one of the squares. The letters must touch the four edges of the square. Do several different designs using the remaining squares. Play with the letters—turn them upside down, twist them out of shape, make them fat, or overlap them. Consider the letters as shapes. They do not have to be readable.

When you find a design you like, reproduce it on four squares of white paper. Now paint each design using one of the following color schemes: monochromatic, analogous, complementary, triad, split-complementary, warm, or cool. How do the color arrangements affect the design?

Computer Option. Create a design with the initials or letters of your name. The letters must touch the four edges of the screen. Experiment with the letters—make them different sizes and turn them upside down or twist them out of shape. They do not have to be readable.

When you find a design you like, save it. Use various tools to fill in all the shapes, lines, and spaces with each of the following color schemes: monochromatic, analogous, complementary, triad, splitcomplementary, warm, and cool.

When you finish all the color schemes, evaluate their effect on the basic design.



▲ FIGURE 6.21 The title for this work can be translated as "sad fact" or "sad figure" or even "metaphor for sadness." Examine the work to find a figure sitting in the center with legs and torso bent. The figure is surrounded by intersecting blue, black, and white shapes. Does the color scheme enhance the mood the artist intended to convey? Explain.

Francis Picabia. *Figure Triste*. 1912. Oil on canvas. 118.1×119.4 cm $(46\frac{1}{2} \times 47^{\circ})$. Albright-Knox Art Gallery, Buffalo, New York. Gift of the Seymour H. Knox Foundation, Inc., 1968. © 2003 Artists Rights Society (ARS) New York/ADAGP, Paris.



- **1.** Describe a monochromatic color scheme.
- **2.** What types of colors, when placed side by side, seem to vibrate?
- **3.** Compare and contrast the color schemes in Figures 6.20 and 6.21.

Vocabulary

pigments binder solvent dyes

Understanding the Nature and Uses of Color

Artists use color to create special effects in art. Not only do they use color to depict objects the way they actually look, but artists also use color to express ideas and emotions (Figure 6.22). By experimenting with color, you will learn what it can do, and you will learn how to use it so that you achieve the results you want. Understanding the nature and uses of color allows you to express yourself artistically.

Paint

All paints used in art are made up of three basic ingredients: pigment, binder, and solvent. Artists' **pigments** are *finely ground*, *colored powders that form paint when mixed with a binder*. Pigment colors cannot match the purity and intensity of the colors of light. The **binder** is *a material that holds together the grains of pigment* in a form that can be spread over some surface. Linseed oil is the binder for oil paints. Wax is used for encaustic paint, gum arabic for watercolor paints, and acrylic polymer for acrylic paints. A chemical emulsion is used to make school tempera paint. Many professional artists use a traditional method of mixing pure pigments with egg yolk for a translucent tempera paint. These binders each give different qualities to the paint.

The **solvent** is *the liquid that controls the thickness or the thinness of the paint*. Turpentine is the solvent for oil paints. Water is the solvent for watercolors and tempera. Water or acrylic medium is the solvent for wet acrylic paints, but once acrylic paint dries, it is waterproof.

Paint pigments do not dissolve—they remain suspended in the binder. When applied, the pigments stay on top of the surface and dry there. *Pigments that dissolve in liquid* are called **dyes.** Dyes do not remain on the surface as paints do. Dyes sink into and color the surface by staining it.

Visual Effects of Paint

The pigment, the binder, the solvent, and the surface to which the paint is applied all affect the color you see. Wet colors look brighter and darker than dry ones. Tempera and watercolor paints look duller and lighter after they dry. Oil paints glow even when dry because of their oil binder. If diluted with turpentine, oil paints dry to a dull finish.

The color and density of the surface receiving the paint affects the way the light waves will be reflected back to your eyes. If you apply red paint to a colored surface and to a white surface, your eyes will perceive the red paint differently on each surface. The colored surface absorbs some light waves, whereas the white surface reflects all light waves.

Have you ever tried to match colors that are on two different surfaces? A brown leather bag can never truly match a fuzzy brown sweater. Dense surfaces always look brighter because they reflect more light.

MEET THE ARTIST

ELIZABETH MURRAY



American (b.1940)

Elizabeth Murray was born in Chicago in 1940. From an early age, she showed an interest in art, which her parents encouraged. In elementary school she sold drawings of elephants, cowboys, and stagecoaches to her classmates for 25 cents apiece. This early success kept her interest in art alive.

A high school teacher recognized her talent and created a scholarship for her at the Art Institute of Chicago. Murray took classes in figure drawing, landscape painting, and traditional techniques. She walked through the exhibit halls of the Art Institute museum. Surrounded by masterpieces, she was inspired to become a painter.

In the 1960s, she was told that painting was dead. Everything that could be done had been done. Murray refused to listen and kept painting. Through her perseverance, she developed a style that combines painting with sculpture. Murray is now considered a master of the shaped canvas.



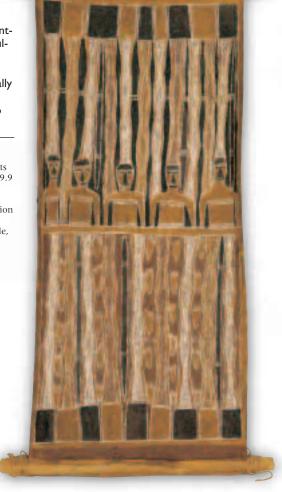
Sources of Pigment

In the past, pigments came from animals, vegetables, and minerals. A kind of beetle and the root of a certain plant were both sources for red pigment. Another plant produced a deep, transparent blue. Ultramarine blue was made by grinding a semiprecious stone. The color ocher was created by using natural clay colored by iron rust.

Today, synthetic (artificially made) pigments have been developed by scientists. The synthetics are brighter and more permanent than natural pigments, but some artists still prefer to use natural colors (Figure 6.23). Many weavers color their yarns with natural dyes. Some contemporary painters use only natural earth pigments.



Yäma Mununggiritj. *Yellow Ochre Quarry*. 1961. Natural pigments on eucalyptus bark. 69.9 × 30.5 cm (27¹/2 × 12"). The Kluge-Ruhe Aboriginal Art Collection of the University of Virginia, Charlottesville, Virginia.



Activity

Mixing Colors

Applying Your Skills. Collect and grind three of your own earth pigments (see Technique Tip 11 on page 432 in the Handbook). Mix them with a binder and solvent and experiment with them. Try using a variety of brushes and surfaces. Finally, paint a design that shows all the colors you can obtain from the pigments.

Computer Option. Mixing colors with light on a computer is very different from mixing colors with pigment. If your computer software has the capabilities, practice making secondary and intermediate colors. Also mix tints, shades, and intensity changes. Fill a variety of geometric shapes with all the new colors you have made, and show off your work by filling your screen with repeated shapes.

The Expressive Effects of Color

Artists use color in the language of art. They use color to express thoughts, ideas, and emotions. There are many ways to use color to convey feelings, and realistic representation is only one of them.

Optical Color

Sometimes artists reproduce colors as they see them. Until the late nineteenth century, this was the way most Western artists painted. Artists would try to capture color as it actually appeared. As we saw earlier in the chapter, colors can change depending on their surroundings. For example, in an automobile dealer's showroom, the color of a blue car is affected by the light, the color of the floor and the walls, and even the colors of the other cars. The car may sparkle as it reflects the showroom

lights. Shadows on the car may look dark blue or blue-violet. The red from the car next to it may cause a red-violet reflection on the blue surface.

A painter who is trying to show the car in its setting will use all the colors involved. He or she will make use of *optical color*, the color that results when a true color is affected by unusual lighting or its surroundings. Optical color is the color that people actually perceive. Compare the two paintings by Claude Monet in **Figures 6.24 and 6.25** to see how the time of day affects color.

The Impressionists were deeply involved with optical color and its relationship to light. They tried to express the sensation of light and atmosphere with their unique style of painting. They applied dots and dabs of colors from the spectrum. They did not mix black with any colors. They made gray, low-intensity colors by putting complements together instead of mixing just black and white. These low-intensity grays, such as dull blue and dull green, are much richer and look more natural in landscapes than do grays made by mixing black and white.



▲ FIGURE 6.24 Monet was one of the first artists to paint outdoors. He realized that the colors of a scene changed as the sunlight changed; so he carried several canvasses to record the same scene at different times of the day.

Claude Monet. Rouen Cathedral, West Façade. 1894. Oil on canvas. 100×66 cm $(39^3/8 \times 25^{15}/16'')$. National Gallery of Art, Washington, D.C. Chester Dale Collection.



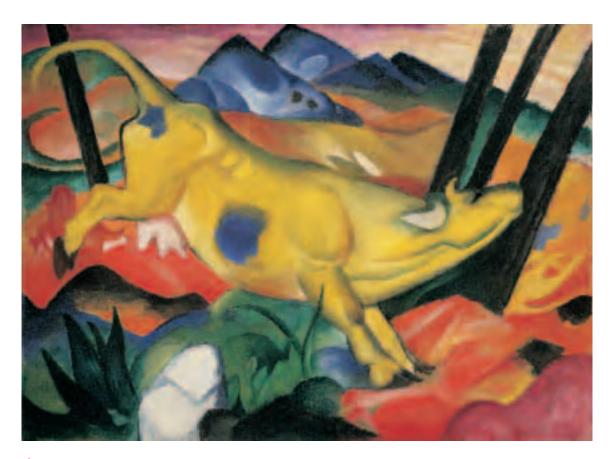
▲ FIGURE 6.25 This is Monet's same view of the Rouen Cathedral façade painted in a different light than Figure 6.24. Compare and contrast this painting to Figure 6.24. Explain how the changes in color affect the mood of each work.

Claude Monet. *Rouen Cathedral, West Façade, Sunlight.* 1894. Oil on canvas. 100×66 cm $(39^{3}/8 \times 25^{15}/16'')$. National Gallery of Art, Washington, D.C. Chester Dale Collection.

Arbitrary Color

When artists use color to express feelings, they usually ignore the optical colors of objects. They choose the colors arbitrarily, that is, by personal preference. They choose arbitrary colors rather than optical colors because they want to use color to express meaning (Figure 6.26). In abstract art, color is teamed with the other elements to become the subject as well as the meaning of the work (see Figure 6.1 on page 134 and Figure 6.28 on page 156).

Colors affect feelings. Light, bright colors can create happy, upbeat moods. Cool, dark colors can express mysterious or depressing themes. Warm, low-intensity earth tones seem comfortable and friendly. They are often used to decorate rooms in which people gather. A unique, light value of red-orange has been used to soothe people and has even been successful in calming violent prisoners. Blue is also known for its soothing qualities. Bright yellow is stimulating and pure red excites.



▲ FIGURE 6.26 Marc developed a personal theory of color symbolism. He believed that different hues symbolized different meanings. Yellow was a gentle, cheerful color, and for him, it symbolized women. He thought blue represented the spiritual and intellectual man. He said that red represented matter, and in this work, it symbolized the earth. Green served to complement the red.

Franz Marc. Yellow Cow. 1911. Oil on canvas. 140.7 \times 189.2 cm (55 3 /s \times 74 1 /2"). The Solomon R. Guggenheim Museum, New York, New York.



▲ FIGURE 6.27 Look at the different objects on the table. Identify the number of colors used for each object. Notice how the artist has used dark blue lines to outline the fruit and make each piece stand out. Does this use of color make the objects seem real?

Paul Cézanne. The Basket of Apples. c. 1895. Oil on canvas. 65.5×81.3 cm $(25^3/4 \times 32'')$. The Art Institute of Chicago, Chicago, Illinois. Helen Birch Bartlett Memorial Collection. (1926.252).

Artists today have put their knowledge of color psychology to work to develop unusual methods for using color. Many of their choices are personal—they make color say what they wish to express.

Space

The placement of warm and cool colors can create illusions of depth. Warm colors advance toward the viewer, and cool colors seem to recede and pull away. The French artist Paul Cézanne painted a cool, blue outline around the shape of a warm, round orange. The fruit seemed to be pushed forward by the surrounding blue background (Figure 6.27).

Movement

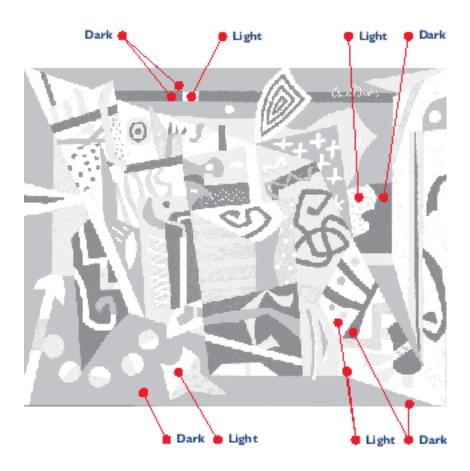
Color can create a sense of movement. When the values in a work jump quickly from very high key to very low key, a feeling of excitement and movement is created (**Figure 6.28**, page 156). When all the values are close together, the work seems much calmer. Today's artists use color to create movement and depth in abstract art.

When you work with color to create movement, remember to use values of pure hues as well as those of tints and shades. You will need to remember, for instance, that the pure hue yellow is much lighter than red or blue.

LOOKING CLOSELY

Jumps in Color Value Create Visual Movement

This is one of Stuart Davis's first abstract works that celebrates his love for New York City. Davis has used strong jumps in value (from bright white, pale blue, and yellow to red, black, and orange) to make your eyes jump around the work. He wants you to feel the excitement and movement of the city. This diagram indicates some of the value jumps. Where can you find others?





◀ FIGURE 6.28

Stuart Davis. Hot Still Scape for Six Colors–7th Avenue Style, 1940. 1940. Oil on canvas. 91.4 \times 113.9 cm (36 \times 447/s"). Museum of Fine Arts, Boston, Massachusetts. Gift of the William H. Lane Foundation and the M. and M. Karolik Collection, by exchange, 1983.120. © Estate of Stuart Davis/Licensed by VAGA, New York, NY.

Activity

Using Color for Effect

Demonstrating Effective Use of Art Media in Drawing. Create four small sketches of trees with leaves. Use a simple color medium such as crayon. Color each sketch to illustrate one of the following: true color, arbitrary color, tonality, optical color, depth through the use of warm and cool colors, or movement through value.

Computer Option. Using the tools of your choice, draw and label six sketches of trees or leaves. Let each sketch illustrate one of the following: true color, optical color, color that expresses personal feelings, depth through the use of warm and cool colors, movement through value, or tonality.

Evaluate the results of your work.

Develop your favorite sketch into a finished drawing.

Tonality

Sometimes an artist lets one color, such as blue, dominate a work. In such a case, the work is said to have a blue *tonality* (**Figure 6.29**). To have a certain tonality, the painting does not have to be monochrome. Other colors may be present. The overall effect of the work, however, will be of one color. Tonality has a unifying effect.



- **1.** All paints are made up of what three basic ingredients?
- **2.** What is the difference between paint pigments and dyes?
- **3.** Select and analyze two artworks from this lesson. What is the meaning of the color choices?

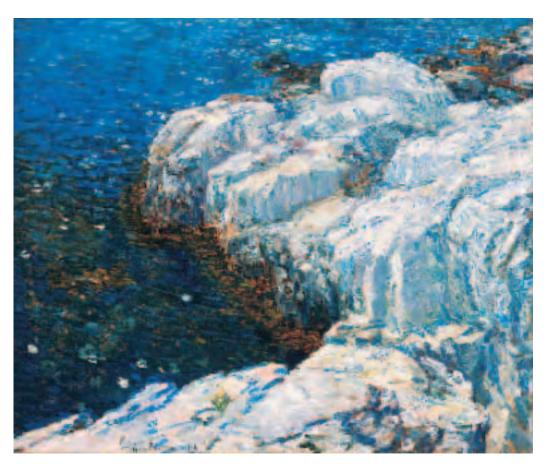


FIGURE 6.29 The blue tonality of this work conveys the cool impression of the water. The jellyfish are spots of contrast in the blue water. Although blue is the dominant color in this painting, other hues are used. What are they?

Childe Hassam. *Jelly Fish.* 1912. Oil on canvas. 35.8 \times 43.8 cm ($14^{1/8} \times 17^{1/4}$ "). Wichita Art Museum, Wichita, Kansas. The John W. and Mildred L. Graves Collection.

STUDIO PROJECT

6-1

Color Spectrum Star Book



▲ FIGURE 6.30

Armenian. Front cover of *The Gospels*. Thirteenth century (binding fourteenth century). Carved and hammered silver, gilded, and enameled, and set with jewels. $26 \times 18.7 \text{ cm} (10^1/4 \times 7^3/8'')$. The Metropolitan Museum of Art, New York, New York. Gift of Mrs. Edward S. Harkness, 1916 (16.99).

SUPPLIES

- Sketchbook and pencil, ruler
- \bullet 2 sheets of 3 imes 3" mat board
- White glue
- Heavy-duty aluminum foil
- ullet Four sheets of 6 imes 6" watercolor paper
- Watercolors and brushes
- Permanent nontoxic black marker
- Nontoxic rubber cement
- Two black ribbons ¹/₄ × 8"

Historical and Cultural Context

The object in **Figure 6.30** is a book cover dating to the Middle Ages. It was carved and hammered from silver and then covered in gold leaf and studded with jewels. Notice the use of *relief*, positive areas extending from a negative, or flat surface. Observe how each grape along the border appears to jut out in space.

What You Will Learn

Today, the art of making books by hand has been revived. You will participate in this revival by making a star book with front and back covers. When opened, the pages will form a three-dimensional object. Aluminum foil will be used to simulate hammered and carved silver. Your book's cover will have both raised and etched areas. You will add radial balance using plant shapes, as in Figure 6.30.

Creating

Gather real plants and images of plant forms from print or online resources. Illustrate your ideas by directly observing these samples.

Step 1 Make line drawings of plants in your sketchbook. Using a ruler, divide a second page of your sketchbook into 1-inch squares. In these squares, make small drawings of plant parts—leaves, roots, stems, flowers, and so on.

Step 2 Transfer your drawing of an entire plant to the center of the sheet of mat board. Using white glue as your "drawing" medium, redraw the lines of your plant. Let glue dry.

Step 3 Lay a sheet of heavy-duty aluminum foil over the surface. Gently press the foil around the glue lines so that the lines appear raised. Smooth the foil down around the lines. Fold and glue any excess foil over the edges, taking care not to tear the foil.

Step 4 Place one of your plant-part drawings in the upper left corner. Using the drawing as a template, trace over the lines with your pencil to leave an impression in the foil.

Step 5 Repeat this step for each corner. Complete your cover by adding four more copies of your template, one along the center of each edge.

Step 6 Create the pages. Use water-colors to create washes of color on the four sheets of watercolor paper. Follow this sequence: (for page 1) yellow-green, yellow, yellow-orange; (for page 2) orange, red-orange, red; (for page 3) red-violet, violet, blue-violet; (for page 4) blue, blue-green, green.

Step 7 With pencil, transfer a plant-part drawing onto each of the four pages. Trace over the lines with black marker. Add color with watercolors.

Fold and open each page top to bottom, side to side, diagonal to the left, and diagonal to the right. Notice that there is a front side and back side to the resulting three-dimensional object. Adorn each side with plant drawings and paint.

Step 9 With rubber cement, glue the pages and covers together, and attach ribbons.

Evaluating Your Work

- ▶ **DESCRIBE** Did you make two sketches, one of a complete plant, one of a plant part? Where does your whole plant appear on your finished cover? Where does the plant part appear? How many times does it appear?
- ► ANALYZE Does your cover have both raised and etched areas? Compare and contrast the use of color and the use of balance on the inside pages. What kind of balance is exhibited by the design of your finished cover?
- ▶ **INTERPRET** Does your book appear to be covered in silver? Does it suggest the ancient style of the book in Figure 6.30? What type of content would you expect to find inside a book with a color such as yours?
- ▶ JUDGE Would you judge your book cover to be a success? Why or why not? If you were able to redo your cover, what would you do differently next time? Evaluate your artistic decisions.



▲ FIGURE 6.30AB

Student work.

STUDIO PROJECT

Mood Painting

6–2



FIGURE 6.31

Kuna (Panama). *Mola: Our Environment*. 1995. Layered and cut fabric with stitchery. 106.7×167.6 cm ($42 \times 66''$). Georgia Southern University, Statesboro, Georgia.

SUPPLIES

- Sketchbook and pencils
- Watercolors and assorted brushes
- Scrap paper
- Tape
- Heavy drawing paper
- Drawing board
- Chalk

Historical and Cultural Context

The colorful work in **Figure 6.31**, called a mola, was made by the Kuna people of Panama. Among the Kuna, the tradition of making molas is passed down through generations of the same family. The works are made by sewing together layers of colored fabric and adding decorative needlework to the top layer. Molas are made for the fronts and backs of blouses. Many of the designs are similar to those found on pre-Columbian pottery. (Pre-Columbian art predates the arrival on this continent of Christopher Columbus in 1492.) Take a moment to study Figure 6.31. Note the array of bright colors used for highly stylized figures and objects of nature. What mood does this work communicate to you?

What You Will Learn

You will create a painting that illustrates the mood of an event or experience in your life. You will create visual solutions by elaborating on your experience. The event or experience can be happy (for example, a memorable birthday) or sad (a time when your team lost a big game). As in Figure 6.31, your colors will be either bright and with high intensity to represent happy times or dull and low intensity for sad times. Figures and objects in your painting should be stylized. In other words, they should be easily identifiable but simple, almost childlike.

Creating

Brainstorm happy or sad moments in your life. Think about objects you associate with these events. List these on a page in your sketchbook. Sketch several ideas. Then begin thinking about colors that express the mood of this event. Choose your best idea.

Step 1 Using watercolors and sheets of scrap paper, practice mixing complementary colors to create low-intensity and high-intensity colors (see pages 144–149.) Think about which colors best fit the objects you have chosen and the mood you are attempting to communicate.

Step 2 Tape a piece of heavy drawing paper to a stiff drawing board. Using chalk, transfer the sketch of your best idea onto the painted surface. Make sure to include the contour lines of objects and figures. Add in details that will be outlined as well (like the fish scales in Figure 6.31).

Step 3 Begin painting. Use the colors you have chosen to express the mood of your artwork. Switch to a finer brush, as necessary, to complete fine details of your work. Allow your painting to dry thoroughly before displaying it.

Evaluating Your Work

- ▶ **DESCRIBE** Did you illustrate your ideas based on an experience or event? Identify the experience and all the objects and figures in your picture.
- ➤ ANALYZE Did you choose bright colors or dull colors? Are your figures and objects stylized?
- ▶ **INTERPRET** What mood were you trying to express through your painting? Give your work a title that sums up your feelings about the event.
- ▶ JUDGE Were viewers able to recognize the mood of your work? Could they pick out individual details? If you were to redo your painting, what, if anything, would you do differently?



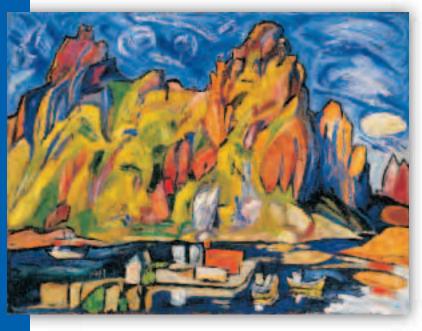
FIGURE 6.31A

Student work.

STUDIO PROJECT

Digital Color Collage

6-3



▲ FIGURE 6.32

William H. Johnson. *Harbor Under the Midnight Sun*. 1937. Museum of American Art, Smithsonian Institution, Washington, D.C./Art Resource, NY.

SUPPLIES

- Digital camera (optional) and/or photograph or magazine picture
- Computer
- Scanner
- Sketchbook and pencil
- Image-editing or paint program
- Photo quality paper
- Printer

Historical and Cultural Context

Imagine taking a common scene—perhaps the one outside your bedroom window—and stripping it down to the bare essentials. What would you end up with? This is precisely the question asked and answered by early twentieth-century artist William H. Johnson in **Figure 6.32.** If you study the work for a moment, you notice a craggy mountain rising up to a deep, azure sky swirling with clouds. At the bottom of the picture is an expanse of water dotted with boats—a harbor.

When Johnson painted this work, his primary influence was the French Post-Impressionist Paul Cézanne. Like Cézanne, Johnson has reduced the objects in his work to flat planes of color. If in some places the colors appear a little too intense, note the title Johnson gave to this work. Could it be that the midnight sun casts a different type of light than the daytime sun?

What You Will Learn

You will create a digital landscape painting. Begin by selecting a view of an existing landscape; then capture the view with a camera. After your photograph has been imported into a paint program, you will divide the landscape into four geometric areas. By applying a different color filter or lighting effect to each area, the final image will depict the passage of time.



Creating

Choose a familiar setting that looks interesting. Notice the way changes in sunlight or the different seasons affect the setting. Make sketches in your sketchbook.

Step 1 Use a digital camera to capture a picture of the chosen land-scape. If you are using a magazine image or a photograph as a picture source, scan the image into the computer. Use a format compatible with your image-editing or paint program. Save the image.

Step 2 Open your image-editing application. Go to the File menu, choose Open, and select a new document. Set up and save a document measuring 8 × 10 inches at a resolution of 72 dpi. Your orientation could be vertical or horizontal, depending on your image.

Step 3 Open your saved image in a separate file. Use the Freeform Selection tool to select about one fourth of the image. Copy and paste this section of the landscape into the corresponding area of your new document. Repeat this procedure for each of the remaining three quadrants of your landscape. Paste each selection into a new layer. Save the new document.

Step 4 Experiment with stretching, rotating, and overlapping the layers.

Working with a layer at a time, experiment with enhancing and changing aspects of color, such as contrast/brightness, hue/saturation, and color balance. Try using one or more of the filters in your program to add texture and special effects. Concentrate on changes that will convey the mood and look of different seasons or times of day.

Evaluating Your Work

- DESCRIBE What was the original source of the landscape in your work? Which tools did you use to alter the image? Explain how you used each tool and on what area of the painting.
- ► **ANALYZE** Compare and contrast how you used colors to convey a sense of passing time. Identify how changes in mood, season, or time are shown in each part of the picture.
- ▶ **INTERPRET** What mood or feeling does your work communicate? What would be a fitting title for your work?
- ▶ **JUDGE** Which aesthetic theory does your landscape reflect? How would you improve or change your art?



FIGURE 6.32A

Student work.

STUDENT ART PORTFOLIO

Color

Colors, as you have seen, can be warm or cool, dull or bright. These and other properties of color open up a world of possibilities for the artist. As you examine the student artworks on these pages:

- Compare and contrast the hues, values, and intensities of the colors used.
- Analyze them to form precise conclusions about the color scheme used.



▲ FIGURE 6.33

Student work. Spiders. Acrylic.

Activity 6.33 Color intensity.

Compare and contrast the intensity of the two main colors used in this painting. Form a conclusion about which orange and which blue is most intense.

Activity 6.34 Hue. Analyze the hues this student artist has chosen. Which are optical colors, and which are arbitrary colors? Form a conclusion about the meaning of the work.



▶ FIGURE 6.34

Student work. Winds of Change. Computer graphic.



▲ FIGURE 6.35

Student work. *Evening at the Rendezvous*. Acrylic.

Activity 6.36 Color scheme.

Evaluate and identify the color scheme used in this portrait.
Explain how it is used to draw the viewer's eye to the subject.

► FIGURE 6.36

Student work. *Number* 7. Water-color and colored pencil.



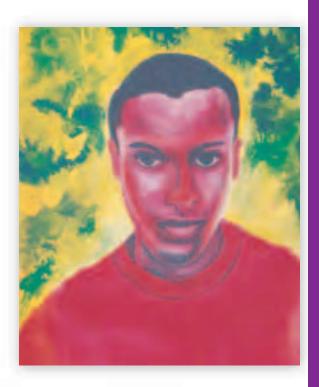
To view more student artworks, visit the Glencoe Student Art Gallery at art.glencoe.com.

For Your Portfolio

Evaluate Personal Artworks. As you add to your portfolio, be sure to evaluate the artistic decisions you made in your works in terms of their use of color. In the second step of your evaluation (the *analyze* step), indicate the color scheme (monochromatic, complementary, and so on) and its role in unifying the work. Also, note the effective use of color properties, such as value and intensity, in your composition. Keep the evaluation with the work itself.

Activity 6.35 Color triads.

The primary color triad—yellow, red, and blue—is used to color the shirt of the female figure in the background. Do you find this effective or distracting? Evaluate the use of this color triad.



Visual Art Journal

Survey the artworks on these pages or artworks in your classroom. Then select and analyze two of these peer artworks to form conclusions about historical and cultural contexts, intents, and meanings. If you are analyzing portraits, what can the clothing and/or hairstyles reveal about the historical context?

Art Criticism in Action



▲ FIGURE 6.37

Miriam Schapiro. Father and Daughter. 1997. Acrylic and fabric on canvas. 182.9×175.3 cm $(72 \times 69")$. Collection of Aaron and Marion Borenstein, Fort Wayne, Indiana.

Critiquing the Artwork

▶ 1 **DESCRIBE** What do you see?

List all the information found in the credit line.

- Describe the figures in this painting. Include details about their body language and clothing.
- What is the relationship of the figures?
- Describe the background.
- Which parts are painted, and which appear to be fabric?
- **ANALYZE** How is this work organized?

 This is a clue-collecting step about the elements of art.
 - What hues do you see? Name and locate examples of each.
 - Compare and contrast the use of tints, shades, and neutral colors.
 - What expressive effects of color has the artist used in this work?
- **3 INTERPRET** What message or feeling does this artwork communicate to you?

Combine the clues you have collected to form a creative interpretation of the work.

- Describe the relationship you sense between the father and daughter.
- How does color affect the mood of this work?
- What do you think the background represents?
- After your analysis, sum up what you believe the artist intended.
- JUDGE What do you think of the work?

 Decide if this is a successful work of art.
 - Did the artist use the element of color to convey her message well?
 - Do you think this is a successful work of art? Why or why not? Choose an aesthetic theory to defend your judgment.



Miriam Schapiro (b. 1923)



Miriam Schapiro is an American artist who was born in Toronto, Canada. She grew up in the Flatbush section of Brooklyn, New York. Her parents encouraged her interest in art. Her work connects her with women artists and craftspeople of the past. Like them, she draws her art media—including fabrics—from the world of women. She has even coined the word femmage to describe her unique art style. Schapiro combines collage with traditionally "female" art materials.

Seeing **Colors** in Art

The visual arts may have been influenced by the paints and pigments available.

Philip Ball, an art historian and author of *Bright Earth*, claims that what artists paint isn't only influenced by their color sense and artistic tastes. It also has to do with the colors and paints available to them. Experts say that the ancient Greeks created somber paintings because they had only four colors: black, white, red, and yellow.

During the Middle Ages, artists had more colors to use. Natural pigments were discovered including malachite (green), azurite (blue), orpiment (yellow), and realgar (orange).

Then oil colors were discovered. This type of paint was made by binding pigments with linseed, poppy, and nut oils. With oil paints, masters such as fifteenth-century artist Jan van Eyck (Figure 9.8, page 231) could produce intense, layered colors.

In the 1700s, more colors appeared, thanks to the discovery of chemicals such as cadmium (orange and yellow), chrome (yellows and green), and cobalt (blues).

The discovery of new colors will continue to influence painting. With computers, artists today can use about 17 million colors. From Realism to Abstract Expressionism, new colors have steered artists in new directions.





TIME to Connect

Leonardo da Vinci wrote about the importance of observing color. He recognized that changing light plays an important role in how people perceive color. Test this yourself.

- Observe and then sketch the colors of an object under fluorescent and incandescent light. Then observe and sketch the colors of the object in natural light at different times of the day.
- Organize your sketches in a chart. In what ways did the colors change?What conclusions can you draw?
- Share your observations and conclusions with the class. Think about how light may affect the choice of colors an artist makes.

TOP: The mix of verdigris with resins sometimes reacted badly to light, turning foliage black, as in Pollaiuolo's *Daphne and Apollo*.

ABOVE: Modern artists boldly use pure pigments. Anish Kapoor let the colors of a 1981 sculpture spill onto the floor.

CHAPTER

6 REVIEW

Building Vocabulary

On a separate sheet of paper, write the term that best matches each definition given below.

- **1.** An element of art that is derived from reflected light.
- **2.** Produced when light passes through a wedge-shaped glass, called a prism, and is bent and separated into bands of color.
- **3.** The name of a color in the color spectrum.
- **4.** A light value of a hue.
- **5.** A dark value of a hue.
- **6.** The brightness or dullness of a hue.
- **7.** The colors opposite each other on the color wheel.
- **8.** A color scheme that uses only one hue and the tints and shades of that hue.
- **9.** Colors that sit side by side on the color wheel and have a common hue.
- **10.** Finely ground, colored powders that form paint when mixed with a binder.
- **11.** A material that holds together the grains of pigment.
- **12.** The liquid that controls the thickness or thinness of the paint.

Reviewing Art Facts

Answer the following questions using complete sentences.

- **13.** Explain how the eye sees color.
- **14.** What is an afterimage? How is it produced?
- **15.** Name the three components of color.
- **16.** What is color value?
- 17. Name the different kinds of color schemes.
- **18.** What are complementary colors? How do complementary colors affect each other?
- **19.** What are synthetic pigments? How do they differ from natural pigments?
- **20.** What is arbitrary color?

Thinking Critically About Art

- **21. Synthesize.** Figure 6.20 on page 148 and Figure 6.21 on page 149 use very different color schemes. List the similarities and differences in their style and use of color.
- **22. Interpret.** Look at Figure 6.9 on page 141. The artist has used a color scheme of dark values to create a specific mood. Study the lines and shapes in this work. How do they affect the feeling of the painting? Notice the areas of bright, intense color. How does this add drama? Does the title add to the mood?
- **23. Compare and Contrast.** Examine Figures 6.15 on page 146, 6.22 on page 151, and 6.32 on page 162 to discuss the similarities and differences in the ways color is used to achieve a sense of balance.



Understanding the properties of color and how to use color effectively is a job

requirement of many careers in art. Interior designers and graphic designers, for example, create and work with color schemes on a daily basis. Go to **art.glencoe.com** to compare and contrast the job descriptions and requirements of these and many other art careers.

Linking to the Performing Arts



Read how Joanna Featherstone paints a picture with words as a professional story-

teller in the Performing Arts Handbook on page 418. Like a painter, Joanna uses tonality, contrast, intensity, and movement to tap into the emotions that each color evokes.