15   Mixing and Matching with Digital Color Models
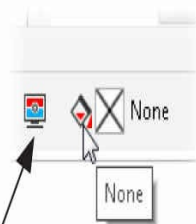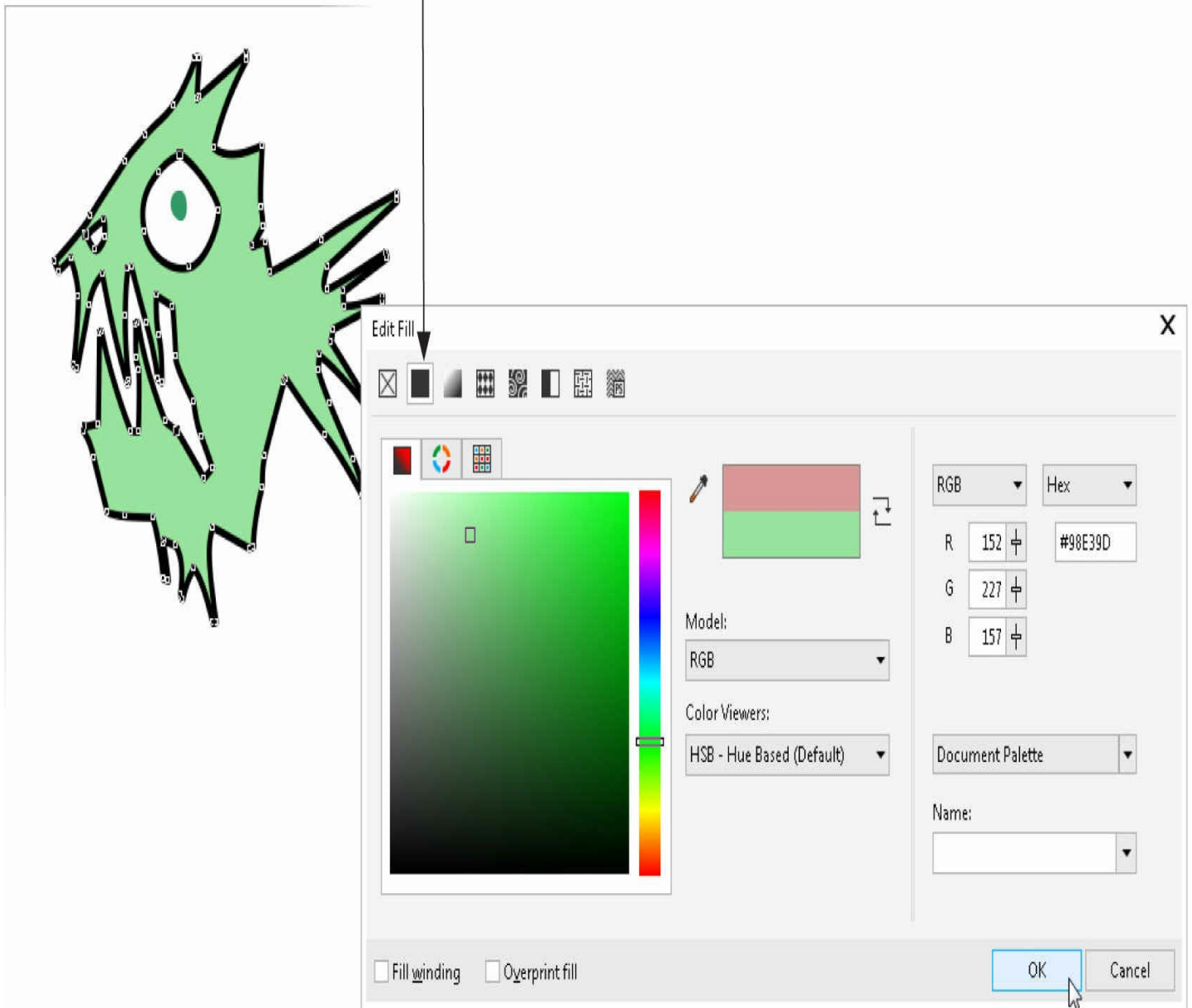
P ut away those crayons and fling that color wheel out on the front lawn. *Digital* color obeys *none* of the rules we were taught in school, and you use digital color models to fill objects that CorelDRAW, in turn, displays on your monitor. Defining colors, *period*, is an art that even professionals occasionally struggle with. The good news is that CorelDRAW makes applying the color you have in mind as simple as can be, through an extensive collection of industry-standard swatches, intuitive color models, and color mixers that make color definition more like play than work.

If you've ever been faced with picking out a tie to match your shirt at 6:30 A.M. in a dimly lit closet, you'll appreciate the importance of choosing harmonious and intriguing color schemes. Similarly, your color work from DRAW is out there for the public to evaluate; this chapter guides you through the digital process of choosing colors and ensuring that what you print is what you see onscreen. You want your colors to be *consistent* from the screen to the saved file to the final output.

Digital Color Terms and Definitions

Let's say you've created a rectangle on your page; by default, it has no fill. There are two quick ways to fill it. You can left-click on a color on the color palette, which offers a nice selection of preset colors. But let's say you want a specific color. If so, you double-click the Fill icon on the Status Bar (either the swatch or the bucket icon), shown in the following illustration, and you can then see (and work in) the Uniform Fill dialog as long as the selected object has no fill. If it's already filled with a fill *other* than Uniform, click the Uniform Fill style button at the top of the Edit Fill dialog. You're presented with a combination of interface palettes with tabs for models, mixers, and palettes.

Uniform Fill

Edit Fill

X

Model:
RGB

Color Viewers:
HSB - Hue Based (Default)

RGB   Hex

R   152   #98E39D
G   227
B   157

Document Palette

Name:

Fill winding   Overprint fill   OK   Cancel

None

None

Double-clicking opens
Uniform Fill by default.

Palettes are predefined collections of color swatches, which is pretty self-explanatory. Then you have mixers; this is *not* a self-explanatory area, and it's covered later in this chapter. Finally, you have models, an area worthy of some serious discussion here.

The first set of terms, which sets the stage for color exploration in this chapter, describes digital color and also defines the real-world colors you apply to paper, plastic, and so on, giving you a handle on the seemingly overwhelming variety of attributes that colors have. The terms are somewhat interrelated; when you change a parameter for one, most of the time you change a parameter for another.

Color Model   A *model* is a representation of something that's intangible or too ungainly in other respects to directly manipulate. For example, a child plays with a model airplane because this representation fits in his bedroom better than an actual airplane, and the passengers feel safer. *Color models* are used in CorelDRAW to make dealing with the relationships between colors easy; without a model of the intangible qualities of the light spectrum, choosing the colors you need would be quite a challenge. Additionally, a color model *scales* all the available colors you have when working in CorelDRAW and other programs, in the same way a model airplane can be rotated to see all its sides—a task that's hard to do with a full-sized airplane. Today, using a 24-bit color space, users have at least 16.7 million possible colors from which to choose in design work. There are still more color values if you work with a 48-bit color space, but we're getting off track here. A color model makes color selection much easier than choosing colors from a palette containing, for example, 16.7 million swatches (if such a thing were possible).

Color Space   Think of a color model as a piece of architecture: it's a structure. Now, if you were having a house built, your structure would need to take up space, usually on some land. A *color space* is the "land" for your color model "architecture." Different color models require different color spaces. To get off of this analogy kick here, let's say you have a CorelDRAW file to print from your inkjet printer. Inkjet printers use the CMYK color model as the basis for reproducing the colors you've used to fill objects within your document (CMYK color is covered later in this chapter). Unfortunately, digital color, the color you see on your monitor, has its structure in a fairly wide color space; RGB colors have a wider range of expression (more possible colors) than the CMYK color space. What can happen (unless you read this chapter carefully) is that some colors you use in your CorelDRAW document look fine onscreen, but they don't print as you anticipate. The reason is that the CMYK color space is smaller than the color space of your monitor, and some of your original design's colors are *clipped* when printed; they've been arbitrarily moved to a color that's *similar* to the color you used, or they just don't print, or you get a nice splotch of muddy brown on the printed page. You certainly want more control over how a CorelDRAW design prints, and that's why CorelDRAW offers a CMYK color picker and also a gamut alarm. *Gamut* is a term that means *the expressible range of color*. In other words, colors that fall into a specific color space. When you choose a color that

falls out of range of the color space, it's called an *out-of-gamut* color, and these colors won't print correctly because they are built on a part of the land you don't own.

File Color Capability   If the extent of your CorelDRAW work is to create CDR files, print them, and save them, you have no concerns about a file format that can hold all the colors you've picked and applied to objects. The CDR file format will retain the colors you've used. But if you intend to export a design to bitmap file format, different bitmap file formats have different ceilings of color capability, which relates to color space in many ways. TIFF images, as written by CorelDRAW, for example, can contain 16.7 million unique colors, and this file format can be written to the RGB color model, the CMYK color model, and even some color models such as Grayscale that offer no color at all but instead only brightness values. On the other hand, GIF images continue to be used for the web, and these images can only hold 256 unique colors—pretty meager when compared to 16.7 million colors—so you need to know how to design using only 256 colors, at most.

The sections that follow provide a step-by-step guide to understanding the structure of digital color and the space in which color resides, manipulating color models in CorelDRAW to define the colors you want, and matching color values a client gives you over the phone.

Subtractive and Additive Color Models

Within the world of color models, there are two distinct categories: *subtractive* and *additive* color models. You, the designer, use both: when you print something, you use a device that uses the subtractive color model, and when you design for the web or an onscreen presentation, you use an additive color model. How these models are similar, how they differ, and how you access these models in CorelDRAW is the subject of the following sections.

Subtractive Color Models

From the moment the first caveman depicted an antelope on his family room wall, humankind has been using a *subtractive* color model for painting. Subtractive color is what many artists were brought up on, mixing physical pigments—and as we all know, when you mix a lot of different pigments together, you eventually get black. This is what the traditional subtractive color model is all about: you *remove* part of the visible spectrum as you overlay one color on another. CMYK is a subtractive color model used in commercial printing, and in theory, if you put cyan, magenta, and yellow pigments together at full intensity, you should get black… but you don't. Black ink is abbreviated *K* in CMYK. It's shorthand for "key," the color printing plate to which the other colors are registered, or "keyed." In addition to making it possible to obtain a true black color, using black ink instead of heavy mixtures of CMY saves on overall ink costs and speeds ink drying times

Note   If you take your kids to a family restaurant that has crayons and menus that the kids color on, notice that the crayon colors are not cyan, magenta, and yellow. More than likely, they're red, yellow, and blue, and if you're lucky, green also comes in the little box. You might rightfully wonder why commercial presses use CMYK and your kids are using red, yellow, and blue. The answer is that red, yellow, and blue have traditionally been the primary subtractive colors used by painters throughout history—*before* scientific color theory proved that cyan is more of a pure subtractive primary than blue and that magenta describes a component of subtractive color better than red. Green was introduced as a primary subtractive color because of the human mind's perceptual bias that green is a *perceptual* primary color, although it's not used at all in today's commercial printing.

The RGB Additive Color Model

The *additive* color model describes color using *light*, not pigments. A combination of the primary additive colors—red, green, and blue—when combined in equal amounts at full intensity, produces white, not black, as subtractive CMYK color does. RGB is a common additive color model, and it is not at all intuitive to use as an artist; however, CorelDRAW has different views of the RGB color model that makes it easy and intuitive to work with.

Because a color model only does one thing—*it shows a mathematical relationship between values that are intangible*—you can use any color model to visualize the relationship among red, green, and blue, with the goal being to make color picking and color relationships as painless as possible to perform! Figure 15-1 shows the default view of the Uniform Fill dialog. When you first install CorelDRAW, it's optimized for commercial printing, both with your view of the drawing window and the CMYK color model offered on the Uniform Fill dialog. If you do web work and no print work, this chapter walks you through how to customize your onscreen display and your color choices for the RGB color model.

Color Eyedropper
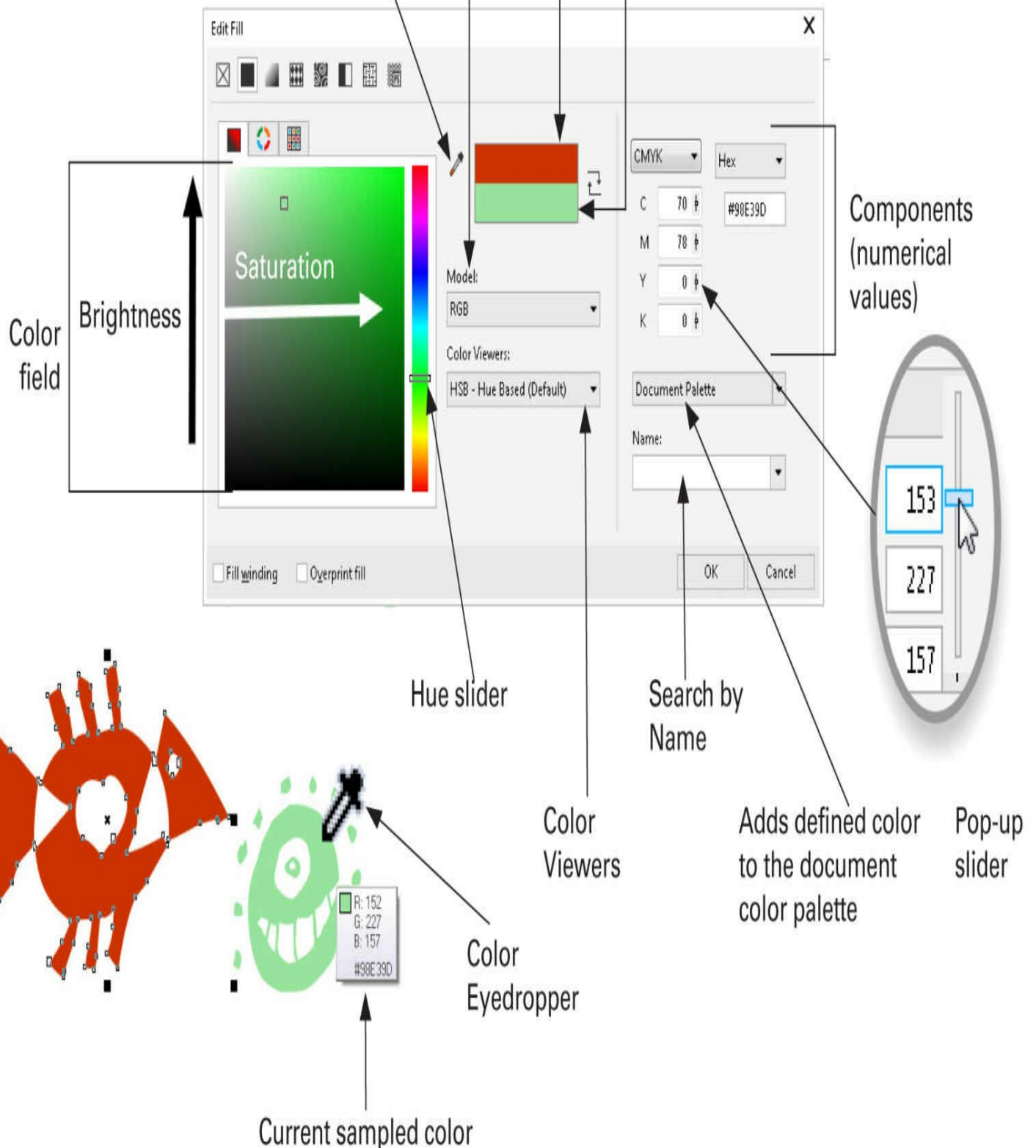
Current Color

Color Model

Proposed New Color

Components (numerical values)

Color field

Brightness

Saturation

Hue slider

Color Viewers

Search by Name

Adds defined color to the document color palette

Pop-up slider

Color Eyedropper

Current sampled color

Edit Fill

CMYK   Hex

C   70
M   78
Y   0
K   0

#98E39D

Model:
RGB

Color Viewers:
HSB - Hue Based (Default)

Document Palette

Name:

Fill winding   Overprint fill   OK   Cancel

153
227
157

R: 152
G: 227
B: 157
#98E39D

FIGURE 15-1   **The Uniform Fill part of the Edit Fill dialog is one of several areas from which you can pick colors in CorelDRAW.**

Let's look at these controls in Figure 15-1 one at a time. It's quite likely that a color attribute you're looking for right now can be defined in this dialog.

- **Color Model**   This selector drop-down list includes CMYK, CMY (as explained earlier, black is more a part of the printing process than a part of the color model), RGB, HSB, HSL, Grayscale, YIQ, LAB, and Registration. These models are covered later in this section. If you're in a hurry, CMYK should be chosen for in-gamut colors for printing, and RGB is the color model for doing nonprinted work.
- **Color field   and Hue slider** Here is something tricky, a little confusing, and totally wonderful on the Model tab. A model is a representation of a hard-to-grasp thing or idea. Simply because the default color model is CMYK, there's no real reason to offer a CMYK color picker to accompany the color model: CMYK is an intangible item; a model of it is best represented by what works *for the user*. The *HSB* Color field and slider make a terrific and intuitive mechanism for quickly defining colors, even though you're not *choosing* HSB colors. To manipulate brightness, you drag the little rectangle up or down in the Color field. To manipulate saturation, you drag left or right; obviously, you can navigate both brightness and saturation at the same time. The Hue slider to the right of the color field sets the predominant, recognizable attribute of the color you're picking. Users generally set the hue first, and then play with the amounts of saturation and brightness.
- **Current Color/New Color**   The color well at the top shows you the current color of the selected object on the page. The bottom color well shows you any changes you've made, and the two together provide a convenient way to compare color changes. You can also swap these colors by clicking the little circular arrow pattern icon directly to the right of these fields.
- **Components**   The field on the right provides a numerical breakdown of the current color, as expressed in the components of the current color model. Therefore, in Figure 15-1, you can see that the current color is purplish, and if you choose CMYK from the Components area drop-down list, you'll see this color's closest numerical equivalent in CMYK color mode is C: 70, M: 78, Y: 0, and K: 0. However, these values are not static; in fact, when you click the icon to the right of any value (the icon that looks like a slider), a slider does indeed pop up, and you can adjust the color by dragging any component value up or down. This gives you a more precise adjustment of the filled object's color; you can also insert your cursor into the number field (it's a live field), double-click to select the entire value, and then type in a new value.
- **Search by Name**   The color palette, the strip docked to the right of the drawing window, contains colors that are tagged with names such as Desert Blue and Mint

Green. To search quickly for a preset color on the color palette, you can choose from the drop-down list, or begin typing a name in the Name field—as you type more characters, the dialog narrows the search. If you have a custom palette loaded, you can't search it using the Model tab of the Uniform Color dialog; you conduct a search using the Palettes tab, the third tab above the color field.

- **Add To Palette**   This button adds the current color you've created to the document's color palette. You can then retrieve this color directly from the palette at the bottom of the interface at any time without visiting the Uniform Fill dialog. This is one way to save a custom color; see "Using the Color Styles Docker" later in this chapter for a more feature-filled way to save a custom color.

- **Color Viewers**   This flyout offers a choice of color selection interfaces for your chosen color model. To show the components of color models, the unique structures of the various color models necessarily need to be graphically represented. Some color models such as HSB are blessed with a structure that is intuitive for us mere mortals to use; others are less intuitive. The next illustration shows the RGB model with various viewers selected. Try the RGB – 3D Additive viewer; you'll hate it—although the model itself is mathematically sound, it just isn't user friendly and a slider is necessary *in addition to* the 3D picking cube because this model is just plain hard to visualize. At the top left is the RGB color model, except this time the HSB – Hue Based viewer has been selected from Color Viewers drop-down list. This viewer is perhaps the best all-purpose color picker from which you can choose colors in any color model. Again, try it; it's very easy to get the color you need quickly. At the bottom left is the RGB color model displayed as the HSB – Wheel Based color viewer. A variation of this color picker is used in Corel Painter; it, too, makes defining colors a joy instead of a chore.
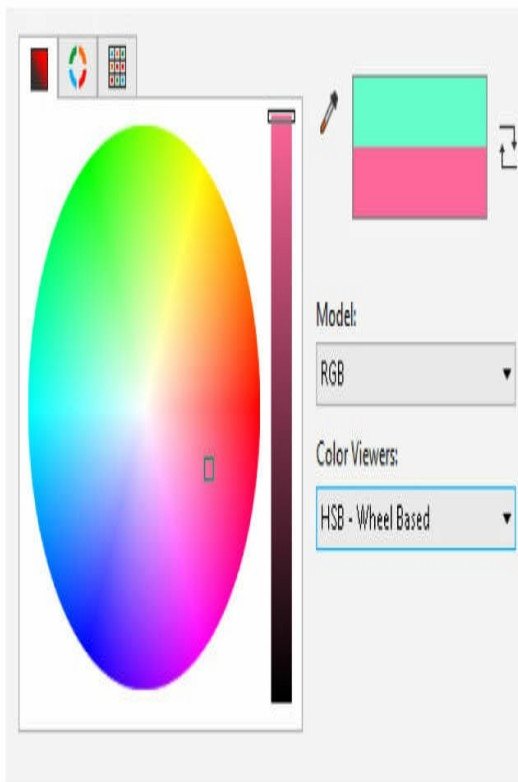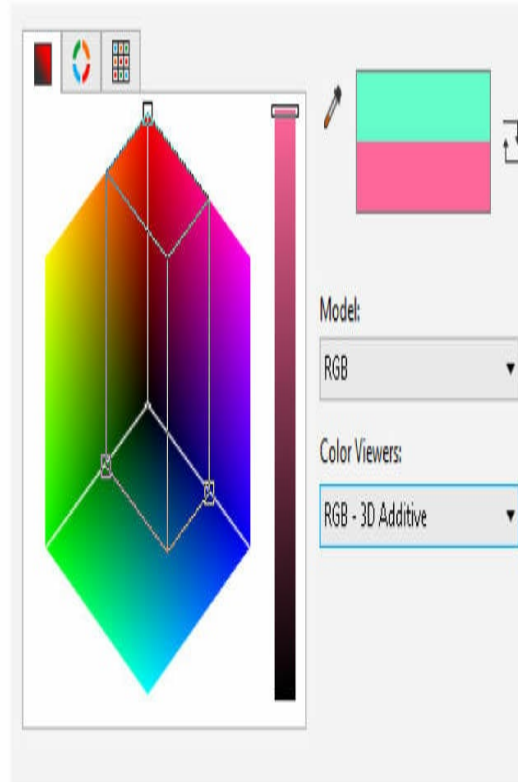
RGB as HSB – Hue Based
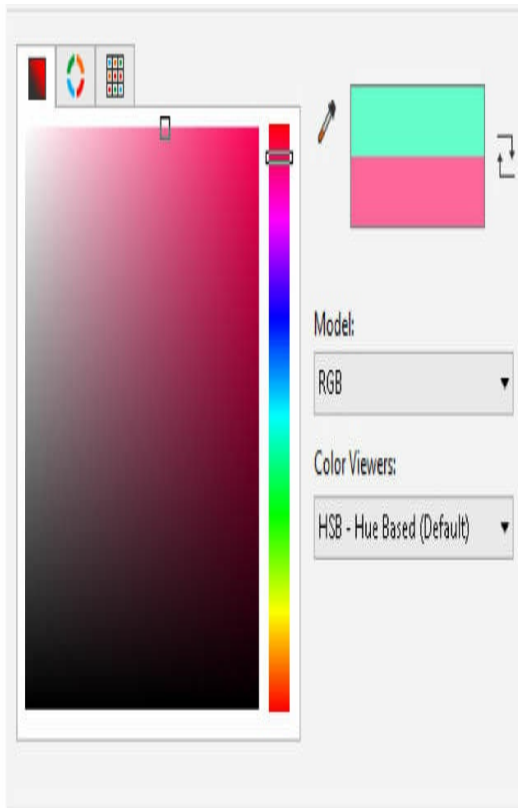
RGB as HSB – Brightness Based
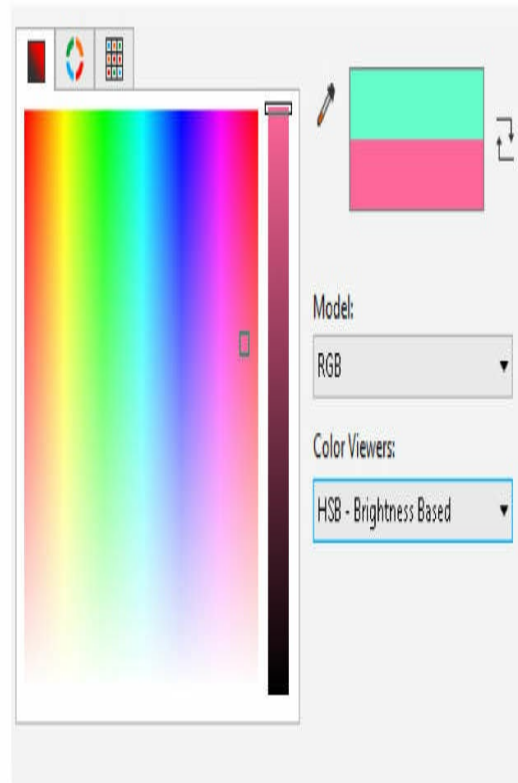
RGB as HSB – Wheel Based

RGB as RGB – 3D Additive

The HSB Additive Color Model

The HSB color model is to designers what the RGB color model is to software engineers;

HSB serves the non-programming community for intuitively choosing colors. HSB and RGB occupy the same color space but use different components. HSB is the acronym for *hue, saturation*, and *brightness*. It's occasionally called HSV (*V* for *value*) or HSL (*L* for *lightness*), but it all boils down to a user-friendly model for working with digital color. HSB was created by Dr. Alvy Smith, co-founder of Pixar Studios and an accomplished artist. The HSB color model has the same number of colors as the RGB color model. However, HSB organizes the relationship between color differently, and in a friendlier fashion, than RGB. Here are the HSB color components:

- **Hue**   The distinguishing characteristic of color. When you tell a friend, "Oh, that's a very nice blue tie" or "The TV picture is a little orange, isn't it?" you're describing the *hue* component of the color. Hue is usually expressed in degrees on a hue wheel; technically, hue is determined by light wavelength.
- **Saturation**   The presence of color, the purity, the predominance of a hue. We often use the saturation component when we talk about how juicy the colors are in a photograph. If a photo or drawing has a lot of noticeable blues, the blue hue is said to be quite saturated in that color. Conversely, colors you often see on today's household appliances, such as a toaster oven the manufacturer calls *Oyster, Putty, Ivory*, or *Bisque*, are neutral; they have no dominant hue, and they have little saturation. The pages in this chapter have no saturation.
- **Brightness**   The amount of illumination a color has. Brightness, as described in digital color terms, is somewhat elusive, but an analogy from traditional painting with pigments (subtractive color) provides some clarity. When you mix a pure color with white, you increase its brightness; in industries where color description is critical (fashion design, house paints) bright colors are a *tint* of a pure color, also called a *pastel color*. Then there are darker colors: a *shade* is the mixture of a color with black. Mixing with white increases lightness, whereas mixing with black reduces it. In both digital and traditional color, mixing black, white, or a perfectly neutral value in between black and white leaves hue unchanged.

LAB Color

LAB is both a color space *and* a color model. CorelDRAW offers LAB as a color model; however, LAB—the color space—is device independent, and, therefore, it can be used to describe colors you see in the drawing window, on a physical plastic bottle of soda, or even on a basketball. The Commission Internationale de l'Eclairage (the CIE, the International Commission on Illumination) was established about a century ago as a worldwide body for standardizing and exchanging color specifications. They created the LAB color model. It successfully replicates the spectrum of human vision, and this is why if you check out the color space of CIELAB on a scientific website, you'll note that there is a disproportionately large area of green in LAB color space. This is because the human eye

responds to this region of the visible spectrum more strongly than other hues. LAB is modeled after one channel of *luminance*, one color channel (named *A*) that runs from magenta to green, and another channel (named *B*) from blue to yellow. When you use LAB to describe a color, you're (theoretically) assured of color consistency. LAB, the color space, is frequently used by software engineers as a conversion space; when you want, for example, to convert an RGB bitmap to CMYK, the LAB color space is larger than both, and, as a consequence, colors are not driven out of gamut when the pixels in such a bitmap are reassigned new component values.

YIQ

The YIQ color model is similar in its components to LAB color; however, its purpose is for working with designs and text that are "video legal," as defined by the National Television Standards Committee (NTSC). YIQ's components are one channel of luminosity and two of *chromaticity* (color). Standard definition TV is brighter than PC monitors, the color range is smaller, and if you get an assignment to draw a logo for a commercial, you'd use this color model.

Grayscale

You use the Grayscale color model (which actually has no hue) if you're designing for one-color commercial printing and for laser-print output. You might find that a color design you've drawn doesn't look right if printed to a laser printer: blue areas seem too faint and reds look much too dark. By using a Grayscale model, you take the influence of hue out of the color equation, and what you see onscreen is what you get on paper.

Registration

You do not design with this color model; it's only one color. Registration is used for an object when you want that object to be printed on all commercial press plates, including spot color plates. As the name suggests, Registration applied, for example, to hairline paths around the border of a design helps a commercial pressman to see and keep all the printing plates in Registration when he or she reviews progressive proofs of the plates.

The following sections bring relevance to all of these explanations of color; you want to put color to *use* in CorelDRAW, so it's only fitting to move to where the palettes and other features are *located!*

Using Color-Related Dockers

If you've been doing some independent exploring, you might have discovered the Edit Fill dialog and the multitude of fill types, including Uniform. But the Edit Fill dialog is not a persistent part of the interface. The good news is that it's not supposed to be; three dockers

—covered next—are used to handle almost all commands that specify uniform color: the Color docker, the Color Styles docker, and the Object Properties docker. Let's take a look at these essential items.

Using the Color Docker

The Color docker, shown next, is extremely convenient to work with; essentially, it's the Uniform Fill dialog, just smaller, dockable, and persistent in the workspace. When an object is selected, you can specify whether the color applies to the outline *or* fill color of the object, and any changes to colors are immediately applied. To open the Color docker, choose Window | Dockers | Color. Unlike Uniform Fill in the Edit Fill box, you don't need to have an object selected to call it.
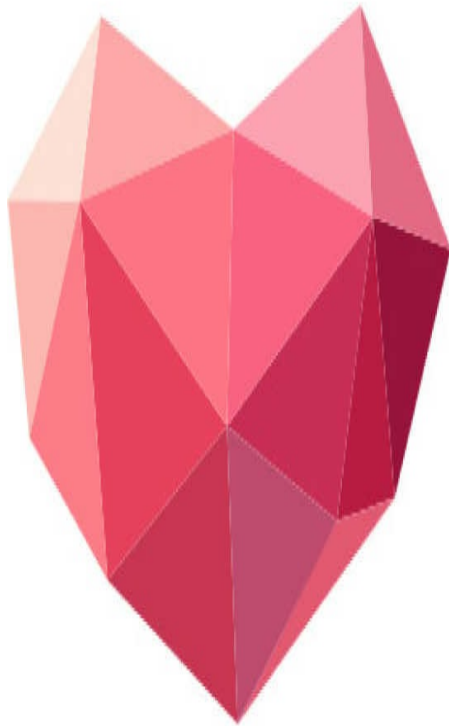
Color Sliders

Color Eyedropper

Color Viewers

Fixed Palettes

Flyout menu options

Color Docker

No Fill

No Outline

Add to Custom Spot Colors

Swap Colors

✓ HSB - Hue Based

HSB - Brightness Based

HSB - Wheel Based

RGB - 3D Additive

CMY - 3D Subtractive

CMYK - 3D Subtractive

Color Docker

RGB

R 255

G 102

B 153

#FF6699   Hex field

Apply lock

Fill   Outline   Click to apply outline.

Click to apply fill.

The Color docker is organized into three areas—Color Viewers and Color Sliders (the same as discussed earlier on the Uniform Fill dialog) and Fixed Palettes (actually, they were never broken). You can display each area by clicking one of three buttons at the top of the docker. Each area is geared toward specifying a color using its unique parameters and to then apply that color to the fill and/or outline of a selected object. Here's how each of the three areas is used for specifying color:

- **Color Sliders**   By default, CMYK is CorelDRAW's color space, but you can easily change that to RGB in the New Document dialog. You can mix the components of any color model you choose from the drop-down selector at the top by dragging the sliders or entering RGB (red/green/blue) values in the number fields. Notice that the sliders are in color and change dynamically, instantly updating to show you how much of a component affects the overall color as well as the relationship between one component and the others.
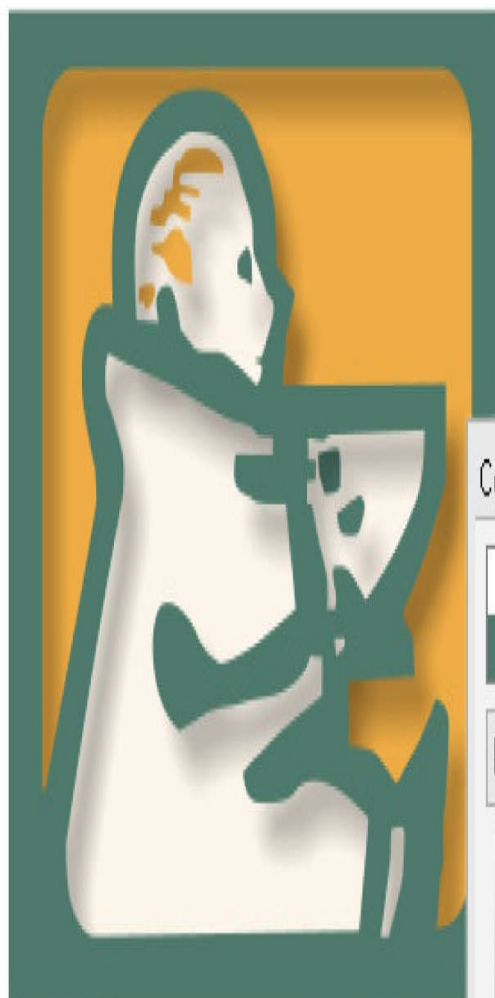

Note   Hexadecimal values are shown under the color component fields for RGB colors. This feature is handy when you or a coder needs to use the hex value of the colors you choose for coding web page backgrounds and such. You can copy the hex code by swiping to select it in the box and pressing CTRL-C. Then press CTRL-V to paste the value into a text document.

Color Sliders tab

Color Docker

RGB

R — 255

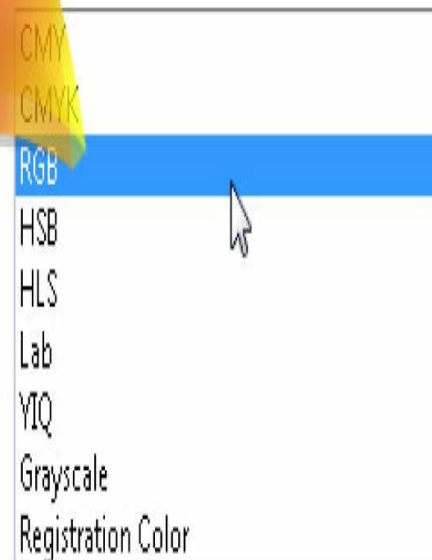G — 102

B — 153

#FF6699

Fill   Outline
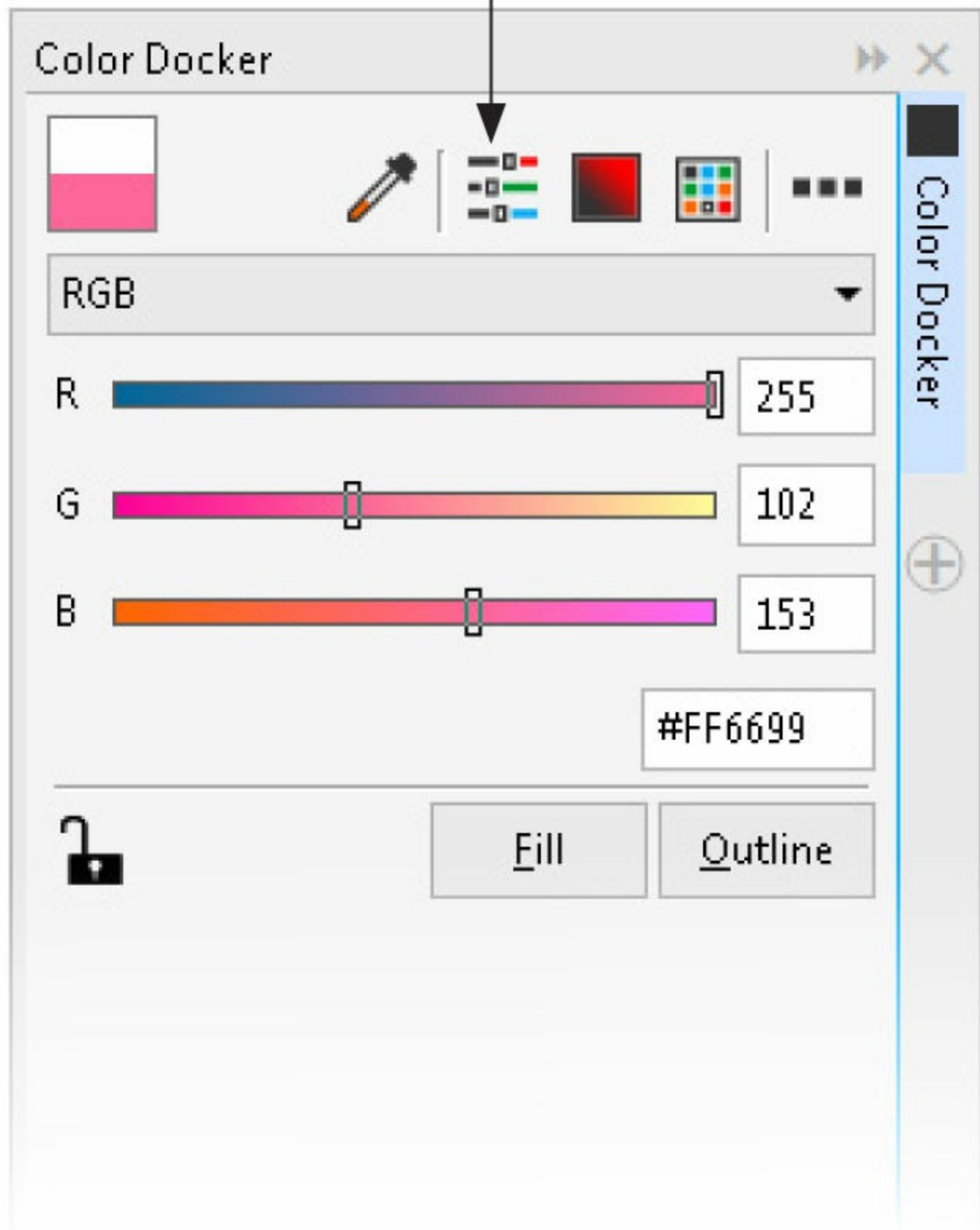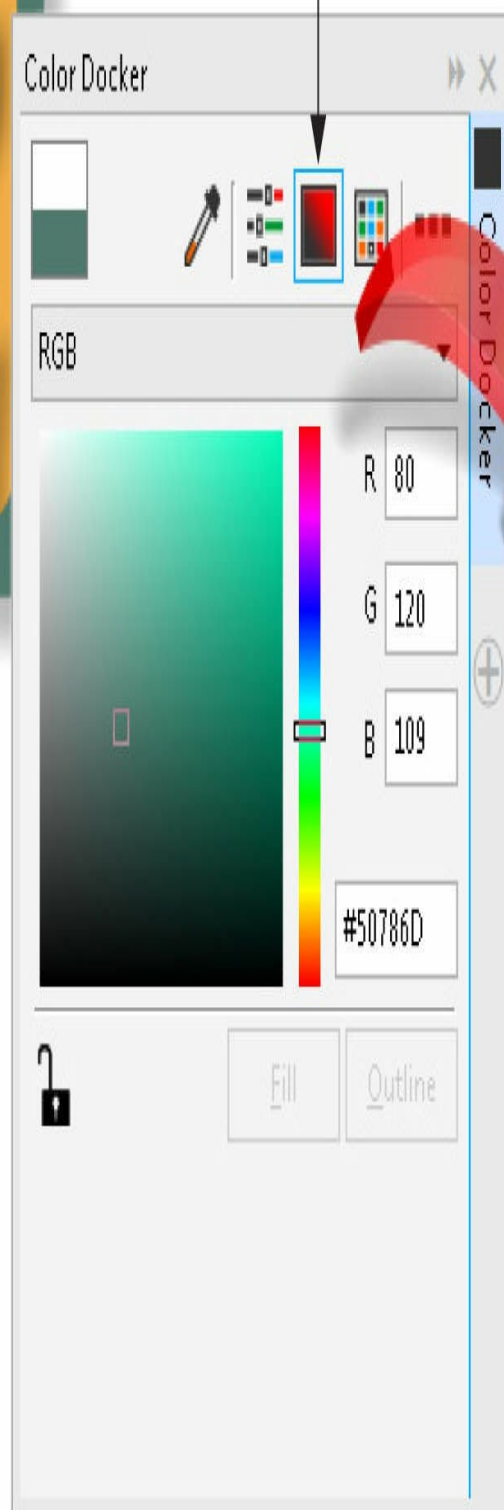
Color Docker

• **Color Viewers**   The color viewers (occasionally called *color pickers* in other

programs) on the Color docker basically offer the same options as the Color Viewers drop-drop in the Edit Fill dialog when Uniform Fill is chosen.

Color Viewers tab

Color Docker

RGB

R 80

G 120

B 109

#50786D

Fill   Outline

CMY
CMYK
RGB
HSB
HLS
Lab
YIQ
Grayscale
Registration Color

- **Fixed Palettes**   Use this area to choose a color from a swatch collection from vendors such as PANTONE, Trumatch, Focoltone, and others from the palette selector drop-down. Use the flyout options menu to display a color by name; if you have Tooltips turned on, the names of the swatches appear when you hover your cursor over them. The Tint slider at the bottom of this docker is dimmed if you've loaded Uniform Colors or any user or custom palette; this slider is for creating a mathematically precise color tint of an industry-standard solid color, such as any swatches in the PANTONE metallic-coated collection. Solid colors can make use of tints. Tints produce a lighter-appearing halftone of the solid-color ink on paper. Therefore, you can use this Tint slider with solid predefined colors, but not with process colors. Process colors are created in the physical world through separate passes of C, M, Y, and K pigments and, as a consequence, it's impractical to tint the four components. However, CorelDRAW professionals make spot colors for designs by applying a tint to a solid. The technique works because a spot color always requires a separate printing plate. To set up a tint of a solid color quickly, you can click-hold on a swatch and then release the mouse button after the flyout appears. Then you can choose from percentages in 10 percent increments, from solid to white. Tint flyouts appear only from the document palette; click the tint on the flyout, and then click Fill or Outline to apply it.

Fixed
Palettes tab

Click to show
names, find color,
add to spot colors.

Color Docker

PANTONE® solid coated

R: 245
G: 230
B: 160

#F5E6A0

C   4
M   7
Y   47
K   0

100
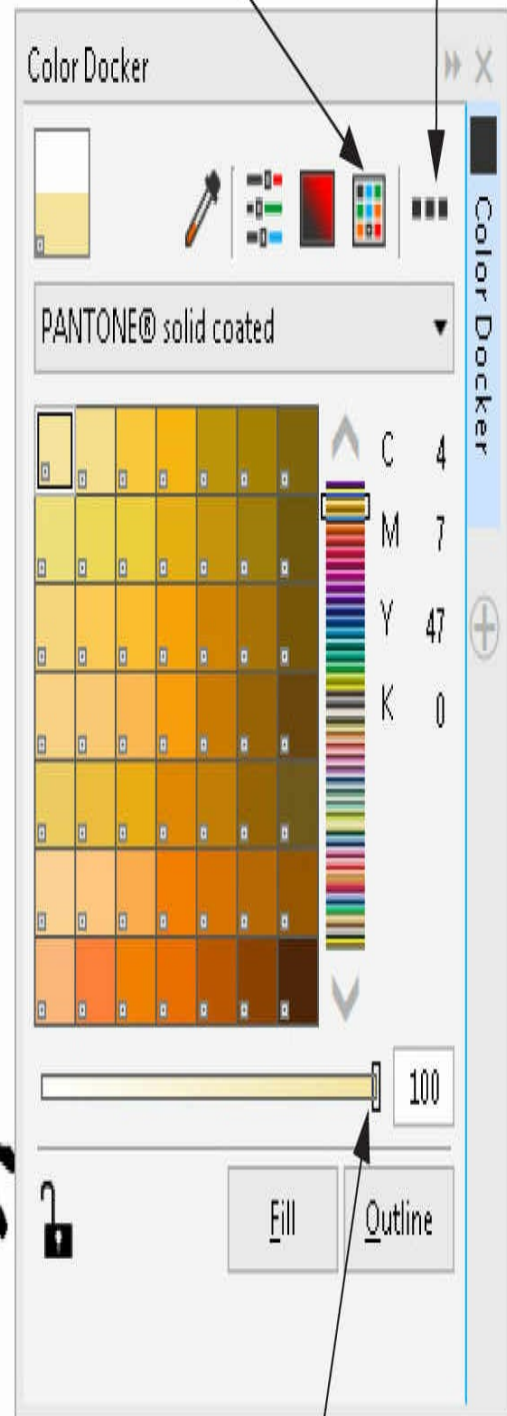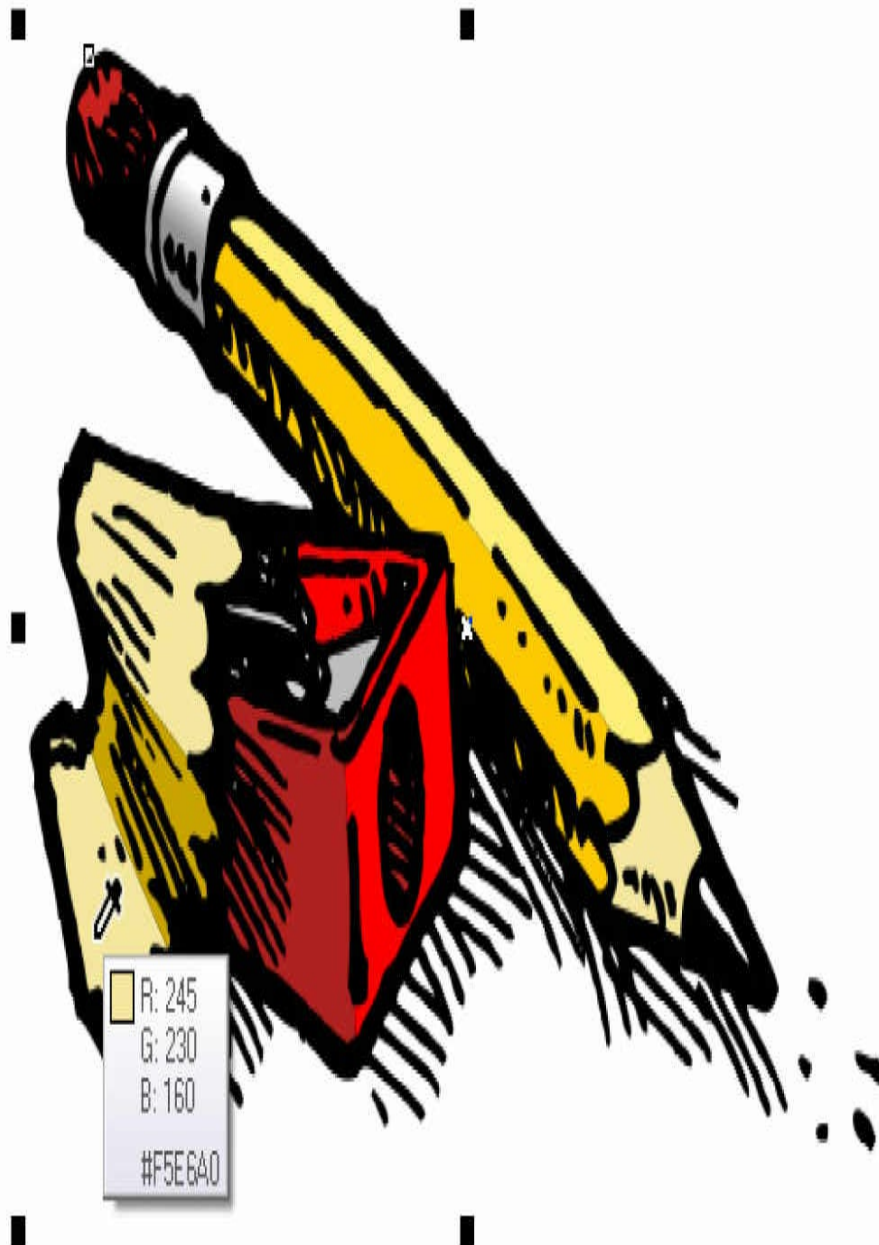
Fill   Outline

Tint (spot color)

Tip Swatches on the Color docker are "drag and drop." You can click-drag a color onto an object, selected or unselected, to instantly fill it. If you have good skills with your mouse or other input device, you can set an outline color for an object by dragging and then dropping a color swatch on the edge of an object, even if the object has no outline attributes; the action of drag-dropping a color forces the object to take on a Hairline outline.

Drop over object to apply object color.

Color Docker

PANTONE+ CMYK Uncoated

C 51
M 0
Y 58
K 8

100

Fill   Outline
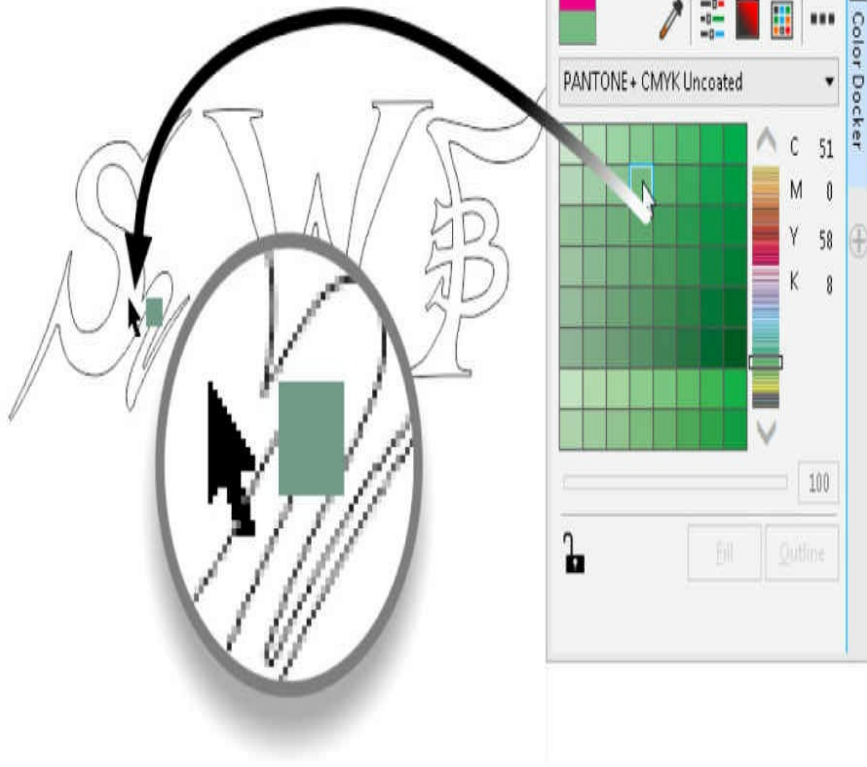
You're not over an object or its line. The Change Document Defaults dialog will appear if you release the mouse button.

Drop over path to apply outline color.

Color Docker

PANTONE+ CMYK Uncoated

C 0
M 59
Y 35
K 15

100

Fill   Outline
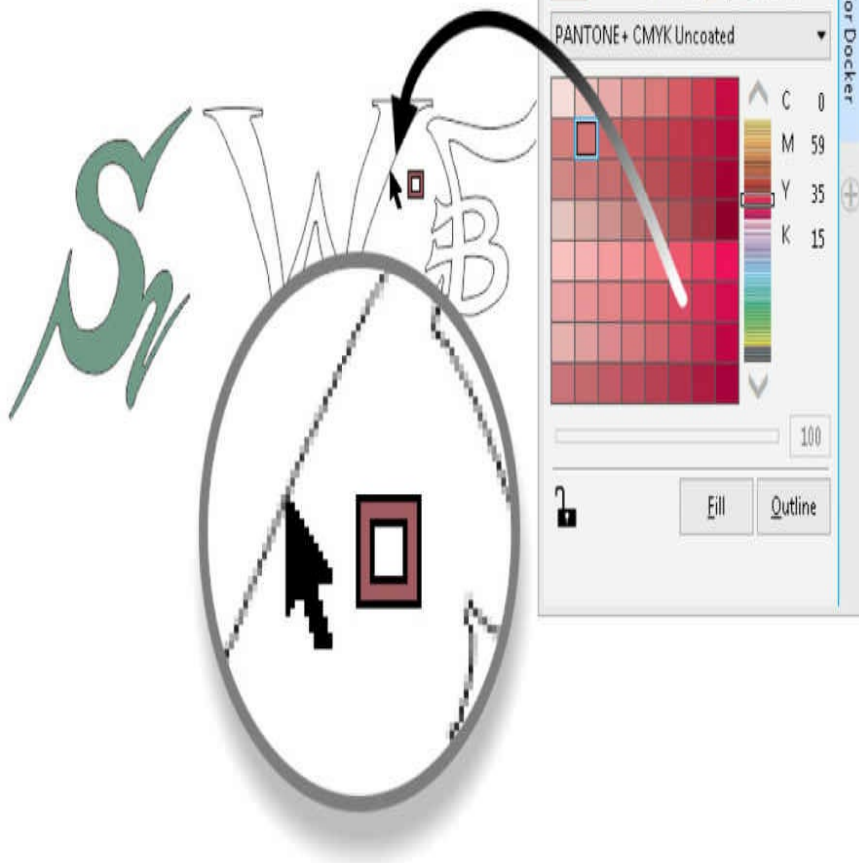
Finding and Applying Fixed Colors (and Tints)

To demonstrate some of the power of the Color docker, the upcoming tutorial shows you how to find a commercial color—specifically a PANTONE color. If you're familiar with physical swatch books, you know that PANTONE has zillions of unique colors, and an equivalent zillion different sets of numbers to name them.

Before beginning, understand that PANTONE is in the business of color and selling color swatch books. It is not reasonable, therefore, to expect 2016's Color of the Year, Serenity, to be offered in its precise value for Textile Cotton Extended values. The good news, though, is that CorelDRAW can automatically choose the *closest match* to any value you type into the Find Color dialog. Additionally, the author went to Pantone.com to view this year's colors and discovered the RGB, CMYK, Hex (web) values as well as the closest match to print on coated paper.

Open Shuz.cdr now and you'll learn how to match numerical values to printed colors, how to work with a tint (and add a shade) of a target color to the document palette, and how to apply colors to elements above the picture in the composition.

Dyeing a Pair of Shoes

Tutorial

1. With Shuz.cdr open, choose Window | Dockers | Color.
2. Click the Color Palettes button, click the Show Color Palettes, and then click the drop-down list. From the list of color palettes, choose Spot | PANTONE | Previous version | FASHION + HOME cotton selector. Choose Show Color Names from the "more options" flyout (…). The TCX suffix stands for Textile Cotton eXtended swatch collection.
3. Note that the number for the Serenity color is typed as editable text on the drawing. With the Text tool, highlight 15-3919 directly above the Plus series line in the text block. Press CTRL-C to copy the numbers to the Clipboard.
4. On the Color docker, click the flyout menu—those three dots directly to the right of the Color Palettes button. Choose Find Color by Name, as shown in the next illustration.
5. A pop-up box appears: place the cursor in the field in the box (the cursor becomes a text insertion cursor) and then press CTRL-v. If an exact match can be found, the Color docker will automatically add the suffix to the color name. If by some chance the box will not accept the pasted value, type the value in manually. In this case, an exact match cannot be found, but rather a very close one, so no suffix is added.

6. Click OK, and the swatches on the Color docker move and the closest match to the color you asked for is highlighted.

PANTONE®

SERENITY

15-3919TCX
PLUS Series
7452 C (Closest Match)

Plus Series RGB sR: 137 sG:171 sB: 227

Plus Series CMYK C:46 M: 23 Y:0 K:0

HTML (Plus Series) 89ABE3

SERENITY
15-3919TCX
PLUS Series

Find Color by Name   X

Color Name

PANTONE 15-3919 TCX   ▼

OK   Cancel

Color Docker

PANTONE® FASHION + HOME cotton ... ▼

PANTONE 16-3920 TCX
PANTONE 17-3919 TCX
PANTONE 16-3929 TCX
PANTONE 15-3930 TCX
PANTONE 16-40   TCX
PANTONE 17-39   TCX
PANTONE 18-3935 TCX

100% PANTONE 15-3930 TCX

100

Fill   Outline

No En...
Outline
to Custom Spot Colors
Colors
Color Names
Palette
olor

Name

PANTONE 15-3919

7. Add the current color swatch from the docker to the horizontal document palette at the bottom of the drawing of the shoes by click-dragging it. When you need lighter tones of the Color of the Year for highlights in the drawing, choose the base color, and then use the Tint slider on the Color docker to lighten the color, as shown in the following illustration. From the New Color swatch in the docker, drag a couple of lighter tints to the document palette to add them.

8. The opposite of "tint" in color language is "shade." In a subtractive medium such as physical pigments, a tint is achieved by adding white to a color, and a shade is created by adding black. Therefore, if you switch to the Color Sliders view of the color spectrum, you can drag the black (K) slider a little to the right to add black to the underlying color formula. This will come in as an indispensable technique when you want to replace areas of the shoe drawing with tints and shades within a gradient fountain fill.

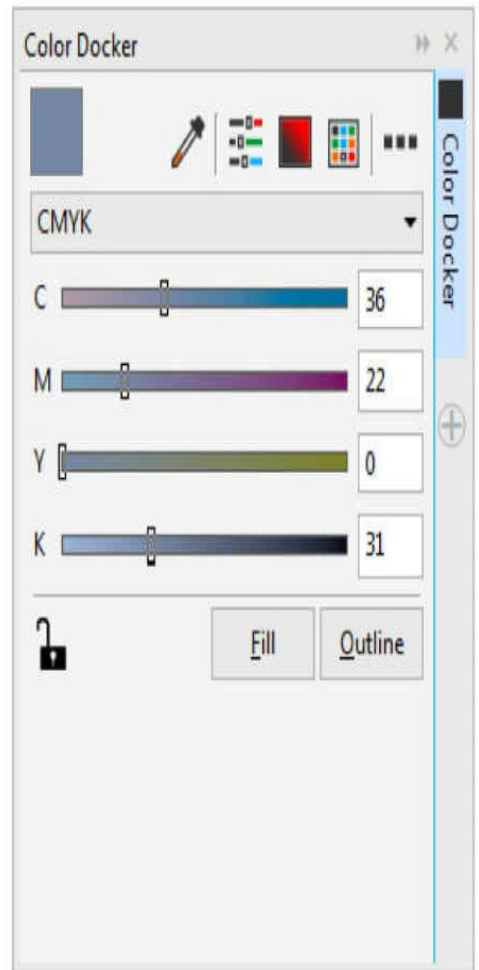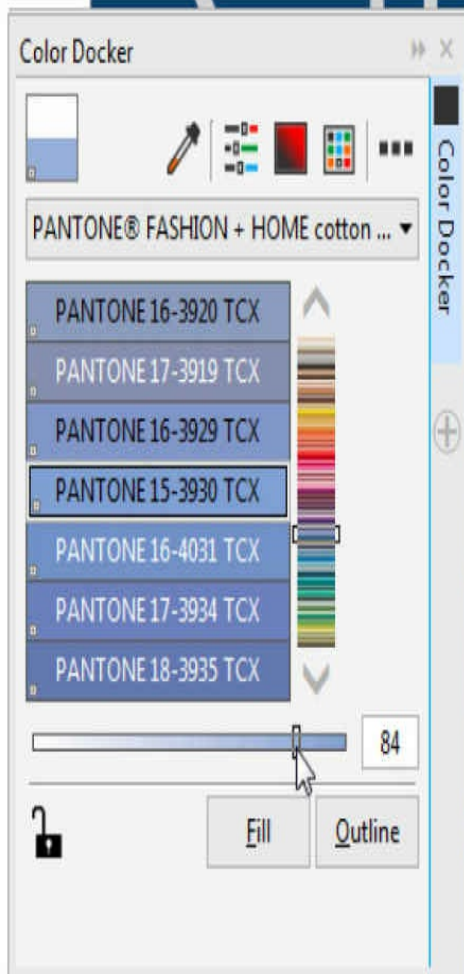9. Using the new swatches you just added to the document palette at the bottom of the drawing, drag and drop them onto various shapes that make up the shoe. There are a few areas that use a color gradient. To recolor a gradient, you need to first click on a color node using the Fill tool to display the color nodes. Drag the appropriate color swatches onto the individual color nodes that make up the gradient.

10. Be patient—or move on to other chapters in this *Official Guide*—because it might take as much as a half hour to recolor most of the shoe to shades of one of 2016's top colors. Feel free to leave the inside of the shoe its original color, and check out the accent colors for Serenity on Pantone.com, especially if you want a two-tone or three-tone expensive shoe.

Using the Color Palette Manager Docker

The Color Palette Manager, shown in Figure 15-2, gives you the option to manage multiple palettes and palette colors. To open the Color Palette Manager docker, choose Window | Dockers | Color Palette Manager. The docker is structured as a tree directory so you can view palettes by folder as your browse, and it includes handy palette command buttons.

Create Palette From Selected Objects

Create Palette From Document

Open Palette

Open Palette Editor

New Folder

New Blank Palette

User palettes

Fixed spot and CMYK color palettes

Custom palettes

Color Palette Manager

Palette Libraries
Process
CMYK
PANTONE
PANTONE+
CMYK Coated
CMYK Uncoated
COLOR BRIDGE® Coated
COLOR BRIDGE® Uncoated
Previous Version
RGB
Lab Colors
SVG Colors
TRUMATCH Colors
Uniform Colors
Universal Laser Systems
256 shades of Gray
CMYK Palette
Default Palette
Percent Gray
RGB Palette

Color Palette Ma...

CMYK Coated
CMYK Uncoated
COLOR BRIDGE® Coated
COLOR BRIDGE® Uncoated
...ious Version

Color Docker

PANTONE+ COLOR BRIDGE® Coated

PANTONE 500 CP
PANTONE 499 CP
PANTONE 498 CP
PANTONE 497 CP
PANTONE 5035 CP
PANTONE 5025 CP
PANTONE 5015 CP

100

Fill   Outline

As you can see in Figure 15-2, any color palette can be accessed by opening its eye icon (clicking it). By default, the palette will dock to the right, vertically, of the current color palette docked to the right of the drawing window, but you can undock it by dragging just above the flyout arrow at top—three faint dots represent a grip for the palette. Palettes remember their previous configuration, so if you've undocked a palette, closed it, and want to reopen it in a subsequent DRAW session, it will appear as you left it, docked or undocked.

Using Fixed and Custom Palettes

A *fixed* palette—such as the PANTONE palette demonstrated in the previous tutorial—is a noneditable collection of ink colors prepared by an ink manufacturer, such as a specific process or spot color. Fixed palettes are like small color catalogs. Even though you'll likely use only a handful of different fixed palettes, version X8 supports the latest available to support Corel's global community of users.

Using Fixed Palettes

Each fixed palette has its own special characteristics. Some palettes comprise spot and process ink colors, whereas others cater to web graphics. Using a specific color palette enables you to specify colors within the capabilities of the reproduction or display technique being used.

While browsing the fixed palettes within the Palette Libraries drop-down menu, you'll notice that CorelDRAW features an enormous number of choices. Here's a quick rundown on each of the fixed palettes available:

- **SVG Colors**   This palette in the collection is specifically formulated for applying Scalable Vector Graphics (SVG) colors using RGB values according to the standardized W3 consortium. For specific information, visit http://www.w3c.org/TR/SVG11/types.html#ColorKeywords.
- **PANTONE**   PANTONE is perhaps the largest color-matching system in the publishing industry. CorelDRAW includes all of PANTONE's digital ink collections, including coated and uncoated versions for spot inks, as well as process colors. DRAW also features PANTONE's metallic, pastel, and other palettes.
- **HKS**   This palette collection consists of spot ink colors based on CMY combinations varied with black. HKS palettes include HKS Colors, HKS E, HKS Z, HKS N, and HKS K.

- **Focoltone**   This 750-color palette designed by Focoltone reduces the need for color trapping using standardized CMYK screen percentages.
- **Trumatch**   The Trumatch process-color palette comprises more than 2,000 easily printable colors. Trumatch has specifically customized its color matching system to suit the digital color industry using the Computer Electronic Prepress System (CEPS). The palette comprises 40 tints and shades of each hue. Black is varied in 6 percent increments.
- **Web Safe**   The Web Safe palette contains the 216 colors of the Web Safe color model. Colors are defined using the hexadecimal scheme, meaning one of six shades of each color (red, green, and blue) are combined to create each color in the palette.
- **TOYO and DIC**   The TOYO and DIC color-matching systems are widely used throughout Asia—especially Japan. Each system contains its own numbering system and collection of different process colors. The TOYO collection of colors has been developed using its own process ink colors.

Creating Custom Palettes

CorelDRAW's custom palettes feature lets you create groups of your own defined colors. By creating a custom palette, you can make these color collections available via your onscreen palette as you work or available for later retrieval.

Tip   To create custom color palettes from a selection of objects or from all objects in your document, on the Color Palette Manager docker, choose either Create Palette From Selected Objects or Create Palette From Document, the second and third buttons on the top of this docker, respectively. This opens the Save Palette dialog, so you can name and save the colors you've used as a unique palette.

   CorelDRAW offers various ways to access custom palettes—via dialogs, the Color docker, or an open color palette. The fastest way is to click the flyout button on the default palette (the vertical strip where you've been choosing object and outline colors in this *Official Guide's* examples) and then choose Palette | Open. This opens the Open Palette dialog, and you can now browse through what's available. The pop-up menu where you found Open also includes the Save, Save As, Close, and New Palette commands.

   In addition to accessing a bundle of fixed color palettes, the Color Palette Manager docker is the ideal place to manage custom palettes. While editing palette colors, you can also access CorelDRAW's other color resources.

   To explore this for yourself, use these steps:

1. Open the Palette Editor dialog by choosing Window | Dockers | Color Palette Manager. Choose a palette by first clicking the eye (the visibility) button next to it to display the colors in the palette. Now, not all palettes allow this sort of editing: custom palettes, the document palette, and some of the RGB-themed palettes are all able to be edited. You can then double-click a color in the swatches to open the Palette Editor. To edit an existing custom color, select the color and click Edit Color. The Select Color dialog opens to reveal the color-selection resources.

2. To begin a new palette, click the New Palette button in the Palette Editor dialog to open the New Palette dialog. Enter a name and click Save. Your new palette is automatically opened, but as yet contains no colors.

3. To add colors, click Add Color for access to the Select Color dialog. Proceed by defining your new color and clicking the Add To Palette button. By default, new colors are automatically added.

4. Once your colors have been added, click OK to return to the Palette Editor dialog. If you wish, click to select the new color and enter a unique name in the Name box.

5. To remove a selected color, click Delete Color and confirm your action in the prompt that appears. To reorganize your palette colors, click Sort Colors and choose from Reverse Order, By Name, or By Hue, Brightness, Saturation, RGB Value, or HSB Value.

6. To name or rename an existing color, select the color in the palette, highlight its current name in the Name box, and enter a new name. Existing names are automatically overwritten once a new color is selected.

7. Use the Reset Palette button to restore your palette to its original state before any changes were made, or click OK to accept your changes and close the dialog.

Clearly, there are many ways to mix colors and save them in palettes. Next up is a way to change the *relationship* between colors in an illustration.

Using the Color Styles Docker

In DRAW, using the Color Styles docker is the way to create, name, and apply colors and color *relationships* to objects.

Note   Because all styles are associated with individual documents, you must have at least one document open to use the color tools available in the Color Styles docker.

Color styles are managed completely from within the Color Styles docker, shown in , which is opened by choosing Window | Dockers | Color Styles. The docker is
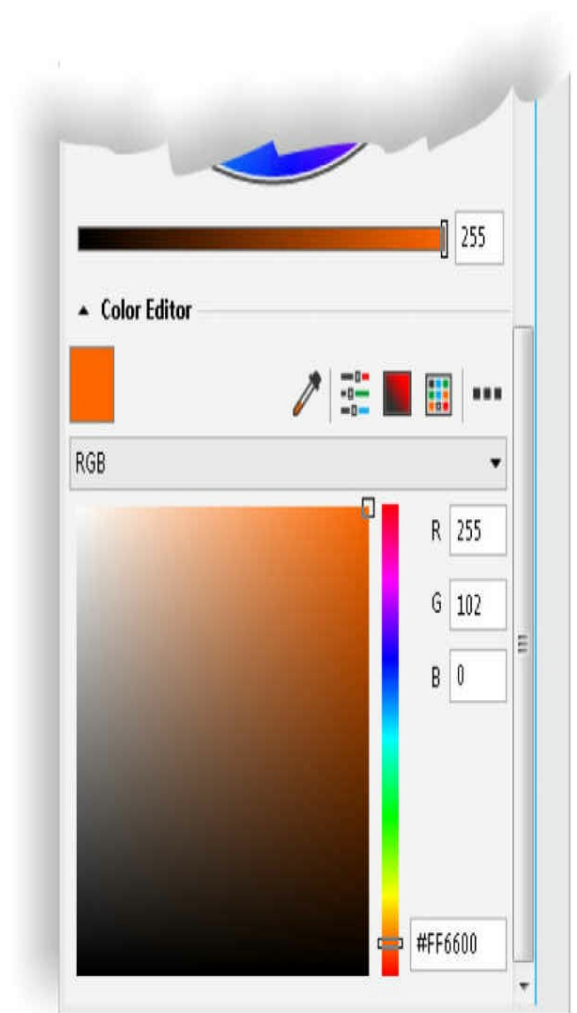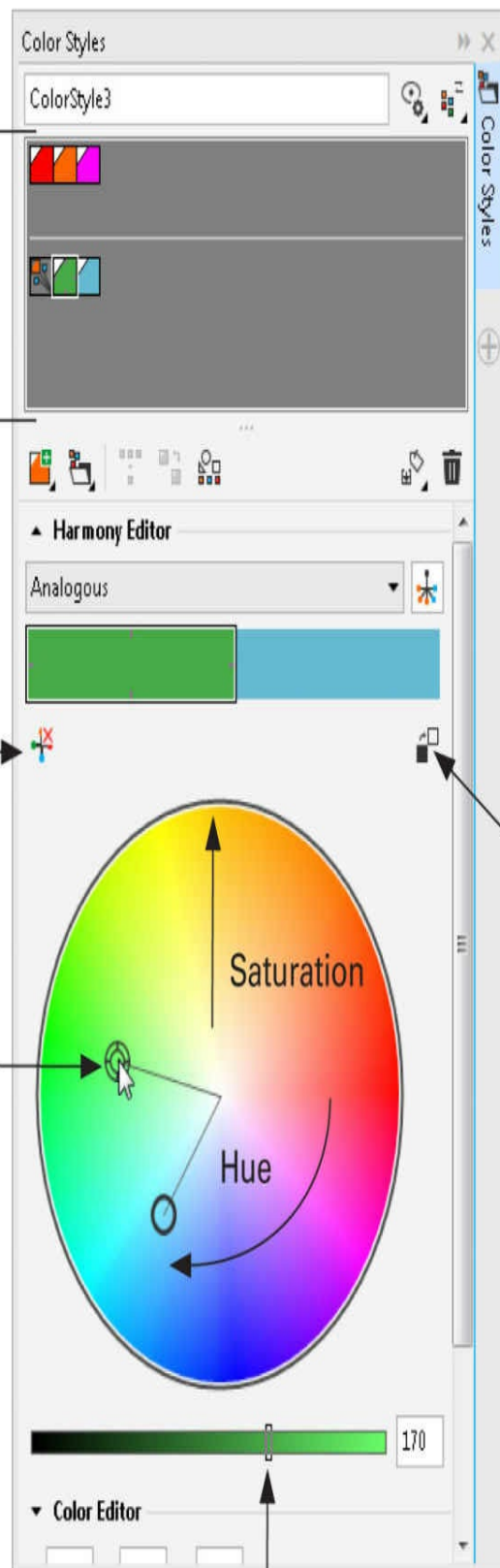
divided roughly into three areas:

Color Styles » X

ColorStyle3

Drop-down area for styles and harmonies

Color Styles

Options

Harmony types

▲ Harmony Editor

Analogous

Break Harmony Rule

Color node

Saturation

Hue

170

▼ Color Editor

Brightness

255

▲ Color Editor

RGB

R 255
G 102
B 0

#FF6600

Switches hues by 180°

Color Editor

FIGURE 15-3 The Color Styles docker has commands for creating new styles and harmonies.

- The Color Style and Harmony drop-downs for existing colors in the document. You can also mix up a new color with no colors on the page.
- The Color Editor. A style can consist of one or more colors. When only one color needs to be adjusted, use the Color Editor.
- The Harmony Editor. This area is where you can change not only a master color in your document (a color that is a color style), but also the relationship between it and other colors in the document that also have color styles. This is perhaps the most interesting part of the Color Styles docker because, as you'll see in the next tutorial, you can make many variations on a design simply by reassigning a predominant color in a color harmony style.

You won't see the Harmony Editor or the Color Editor before you've added colors—what the docker calls *color styles*—to either the Color Styles area or the Harmony Styles area. The text in these boxes is self-explanatory—the benefits to your artwork aren't, so they are addressed in a moment.

Let's begin with a fairly undemanding tutorial, where you are given a drawing and told to change two colors in it. Because the colors are scattered all over the place in the drawing, it's impractical to select each one, or even to use the Find and Replace Edit command to accomplish this given task. Instead, open the file Lots of cubes.cdr, and the following steps walk you through something amazing.
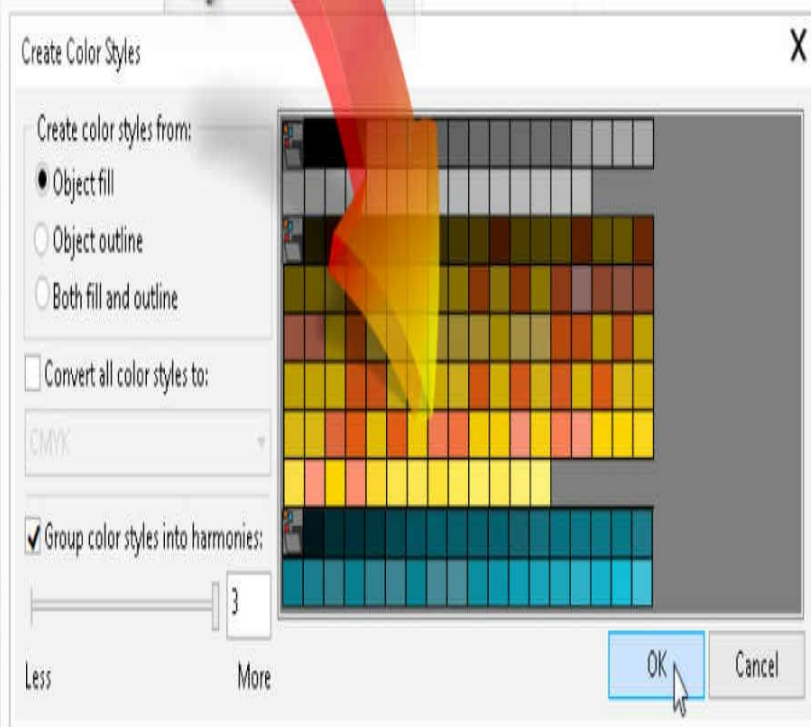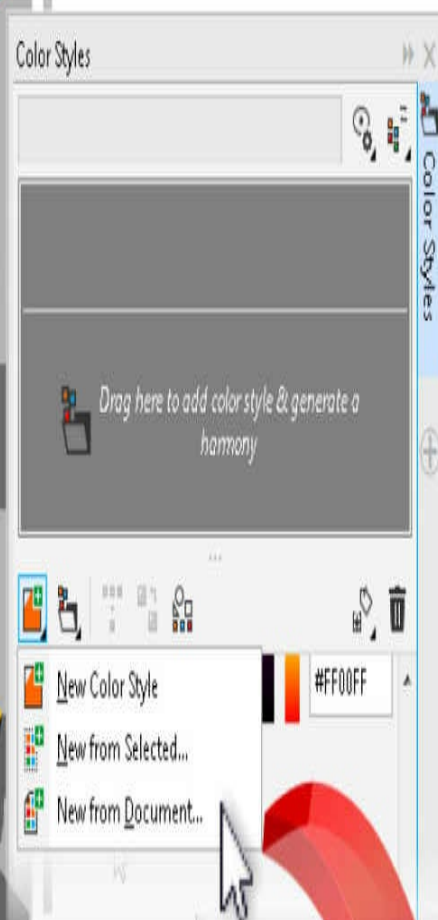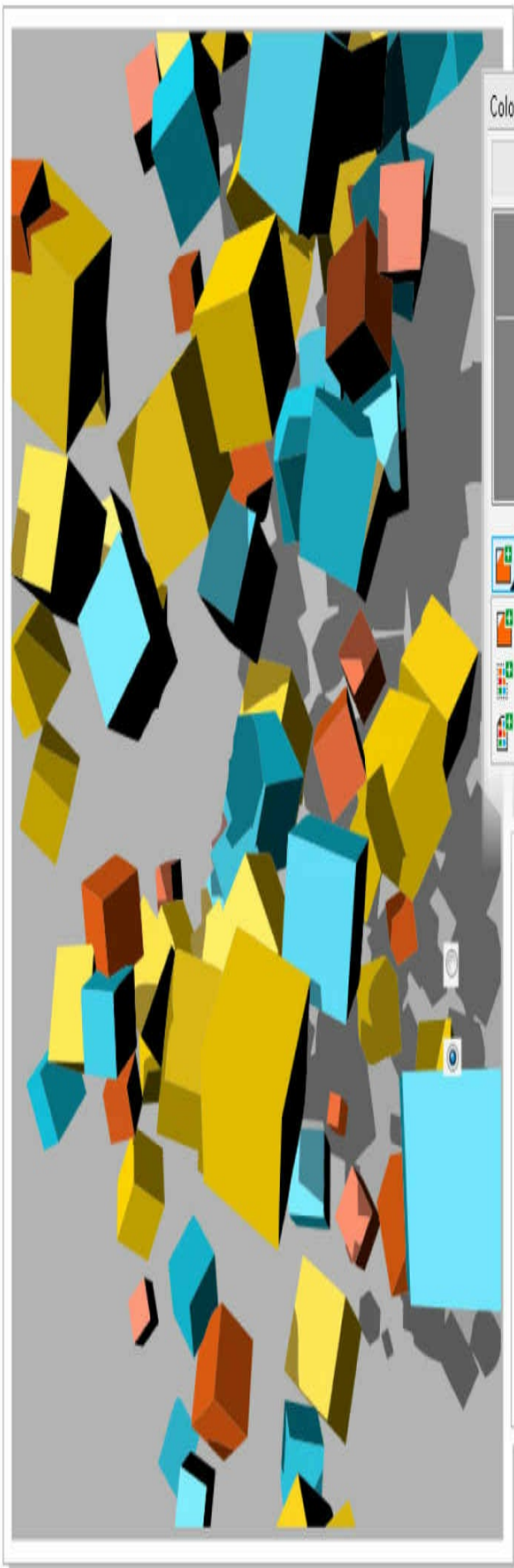
Making a Color Style and Changing It

Tutorial

1. Open the file Lots of Cubes.cdr. There is a proliferation of blue, yellow, and red cubes, and guess what? Your boss doesn't like the blue ones. He says, "Make them all yellow or red. Just recolor the blue ones." Bosses like to use the word *just* a lot to belittle the labor of artists; they also like to say, "during your lunch hour," but this is okay. Choose Window | Dockers | Color Styles Docker.
2. Click the New Color Style button (the orange square with a green dot at its upper right) and then choose New From Document from the menu. This command presents you with a dialog that organizes all the colors in the drawing into harmonic groups of colors. If you want more specific harmony groups, you can drag the Less/More slider below the

Group Color Styles Into Harmonies check box (which should be checked). But in this scenario, you'll see that the blues in this drawing all fall into one tidy style, with the diversity slider all the way over to Less.

3. Because the author did this artwork and you didn't, you cannot be sure there are no outlines in this illustration. Click the Create Color Styles From: Both Fill And Outline button. Remember to do this and/or click Object Outline (color) in your own work with the Color Styles docker. Your success depends on whether or not drawings have outline widths. Click OK, as shown in this illustration, and then it's on to color harmonies next.

Color Styles

Drag here to add color style & generate a harmony

New Color Style
New from Selected...
New from Document...

#FF00FF

Create Color Styles

Create color styles from:
● Object fill
○ Object outline
○ Both fill and outline

☐ Convert all color styles to:
CMYK

☑ Group color styles into harmonies:
3

Less   More

OK   Cancel

4. Click the Harmony folder that precedes all the swatches on the list, as shown in the following illustration. This is key: the Harmony Editor shows color markers for every color in the style, but, by default, these markers can be moved independently of one another… which makes recoloring all the blue objects to red or yellow a logistical nightmare. However, once the folder icon called out in the illustration is clicked (selected), you can move all the markers to a new location on the color wheel, and each value will be in proportion to the others.

Click the folder button to make sure
all the colors are present in the
Harmony Editor color wheel.

Color Styles

ColorStyle358

Harmony Editor

Custom
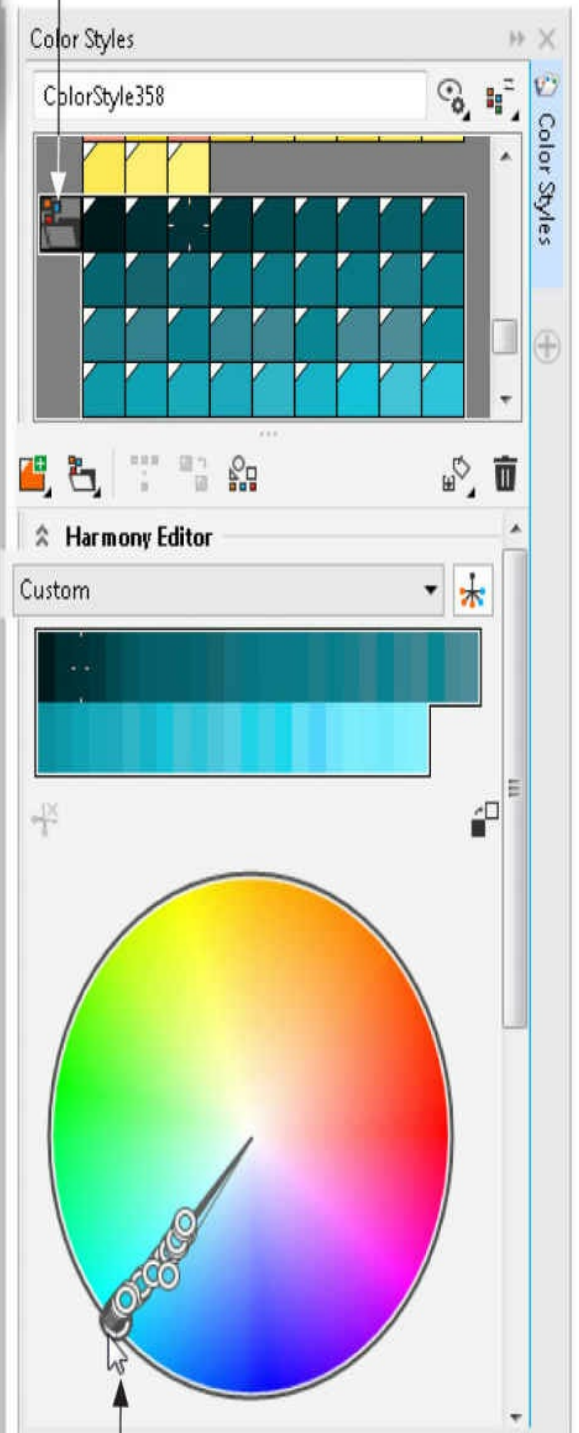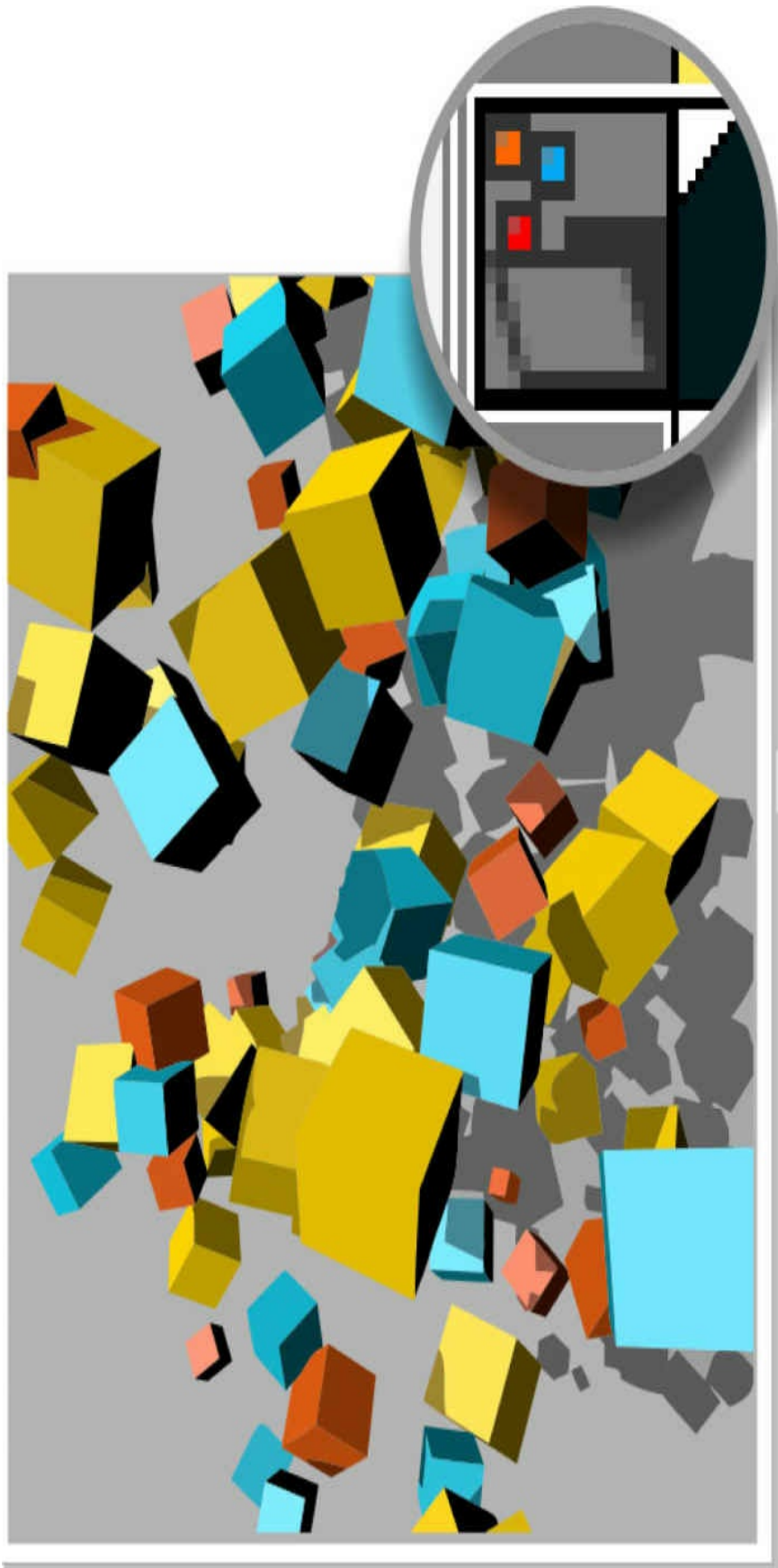
When folder icon above is chosen,
you can drag any color marker
to move them all.

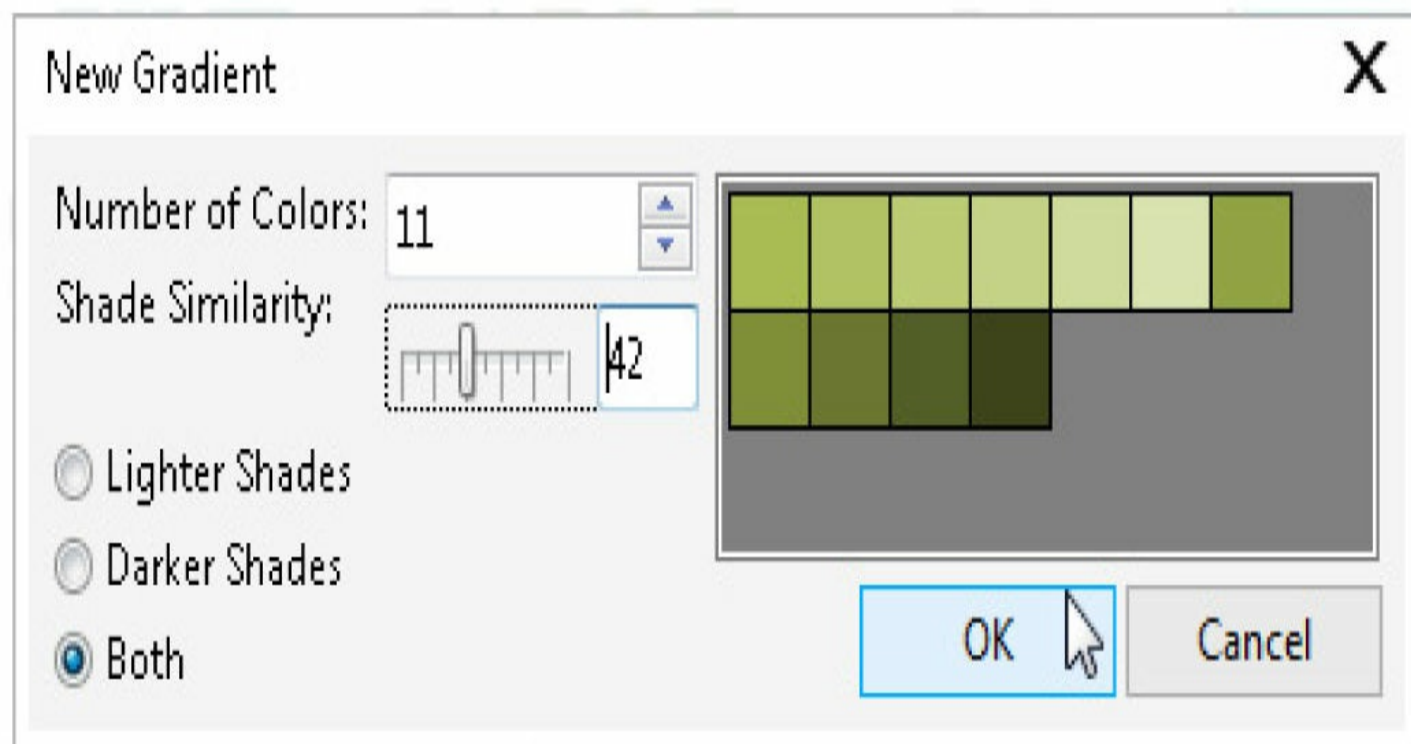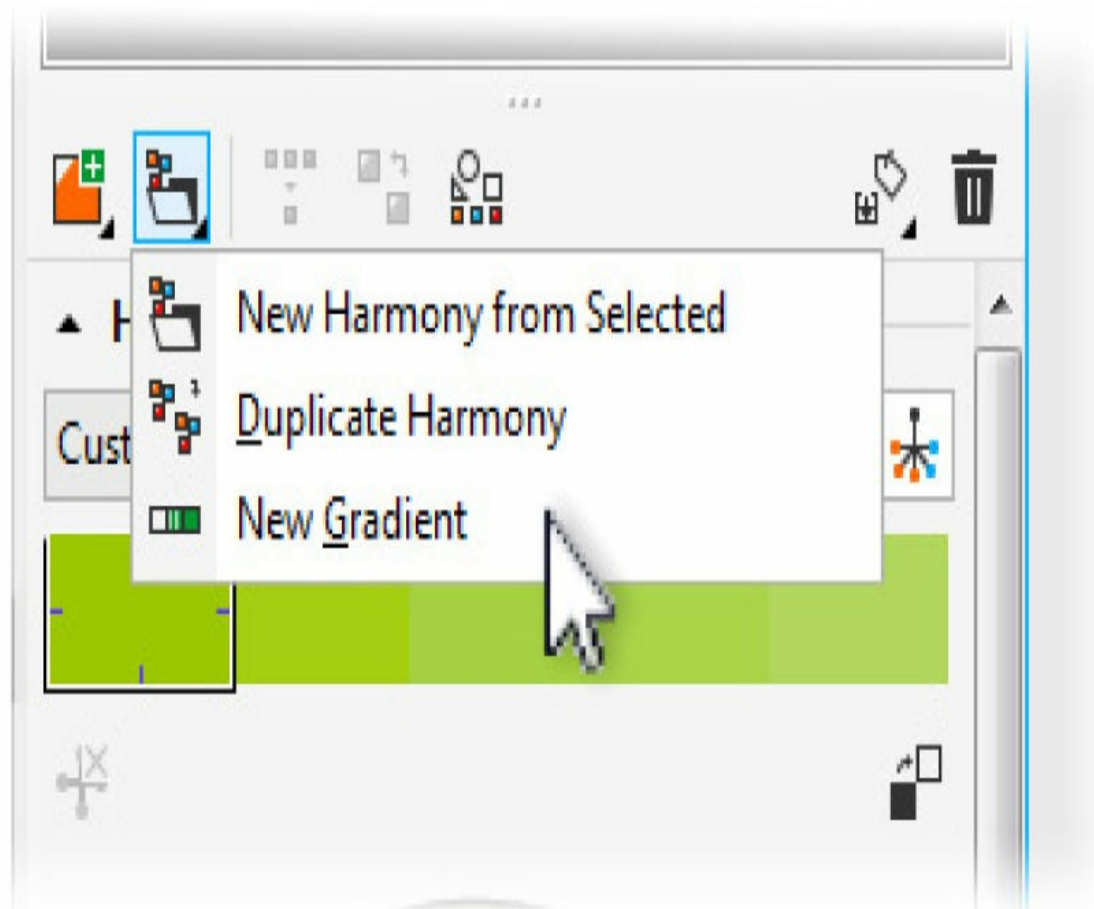5. Here's the fun part: drag a marker over to the area on the color wheel slightly between yellow and orange. Impressive, isn't it? Also try moving all the markers to the red hue. In the following illustration, there is no blue in the image. Your boss should be happier than he usually appears to be, and *you* learned a new trick to speed up humdrum work!
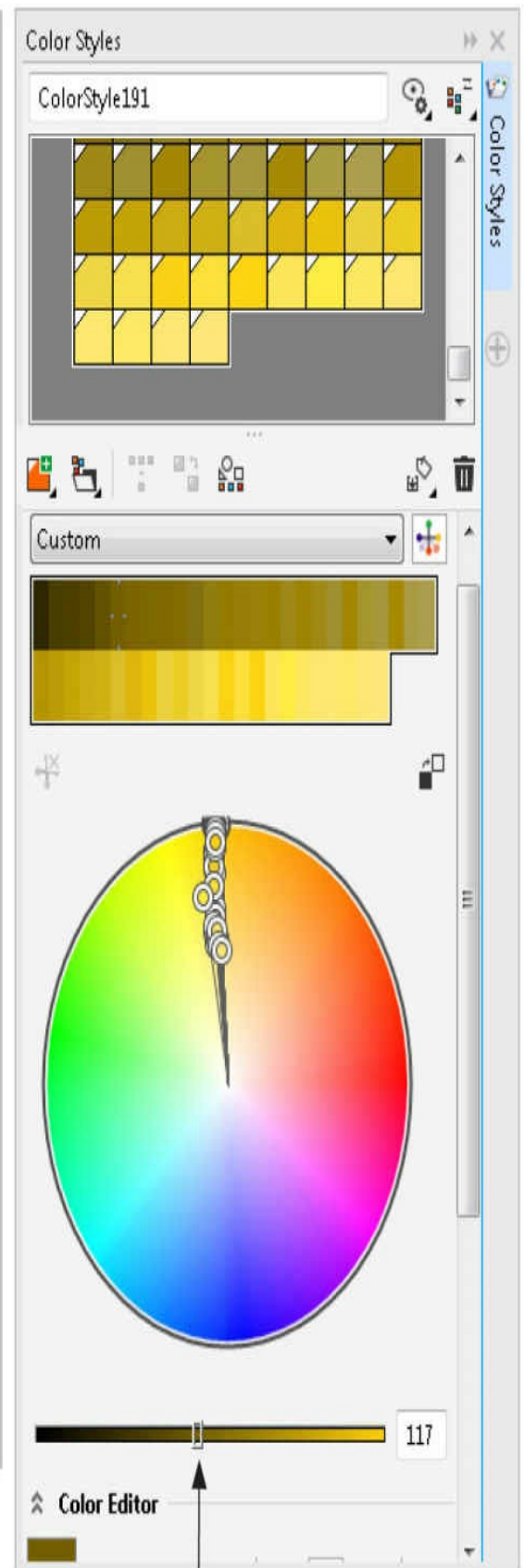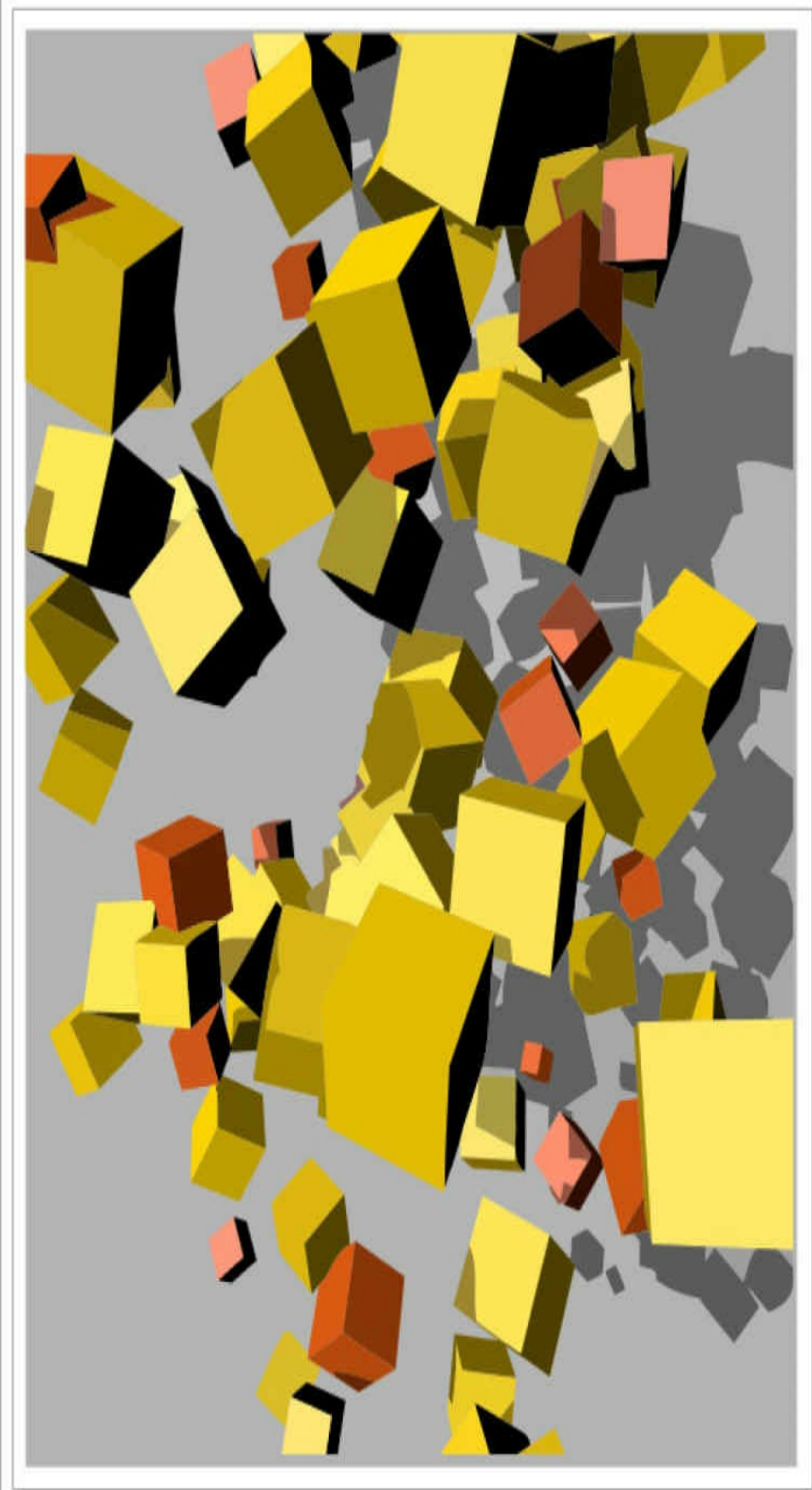
You can elect to brighten all the
colors in the style proportionately.

Introducing the New Color Harmony

The parent/child relationship of what used to be called "Master Colors" in previous versions has been reworked into something more intuitive and faster to use. One example of generating several shades of the same color to make a color style group is the new New Gradient command in the New Harmony drop-down in the Options area of the Color Styles docker, shown next. You need to have at least one color harmony swatch to the right of a color style icon in the Harmony Editor to access the New Gradient command. Once you've selected the New Gradient command, you're presented with options for the number of colors you want in the style, whether these colors are closely or loosely similar in brightness and saturation or very different (Shade Similarity), and whether you want lighter variations, darker, or both. It depends on your work. It's quite easy to generate three or four gradient styles and then use the Color Styles docker as a color palette, selecting objects on the page and then dragging a style swatch on top of the shape to color it. Once your drawing is finished, if there's a specific color in the range (the gradient) you don't like, it's easy enough to click that swatch and then change it with the Color Editor. If the entire hue gradient you've used is too warm or the wrong brightness, click the folder icon that precedes the swatches above the Harmony Editor, and then drag all the markers at once to a different hue.

New Gradient

Number of Colors: 11

Shade Similarity: 42

- ○ Lighter Shades
- ○ Darker Shades
- ● Both

OK   Cancel

Menu options:
- New Harmony from Selected
- Duplicate Harmony
- New Gradient

Tip   Dragging the joined markers toward the center of the circle desaturates all of them. Dragging them toward the edge of the circle increases the saturation proportionately.
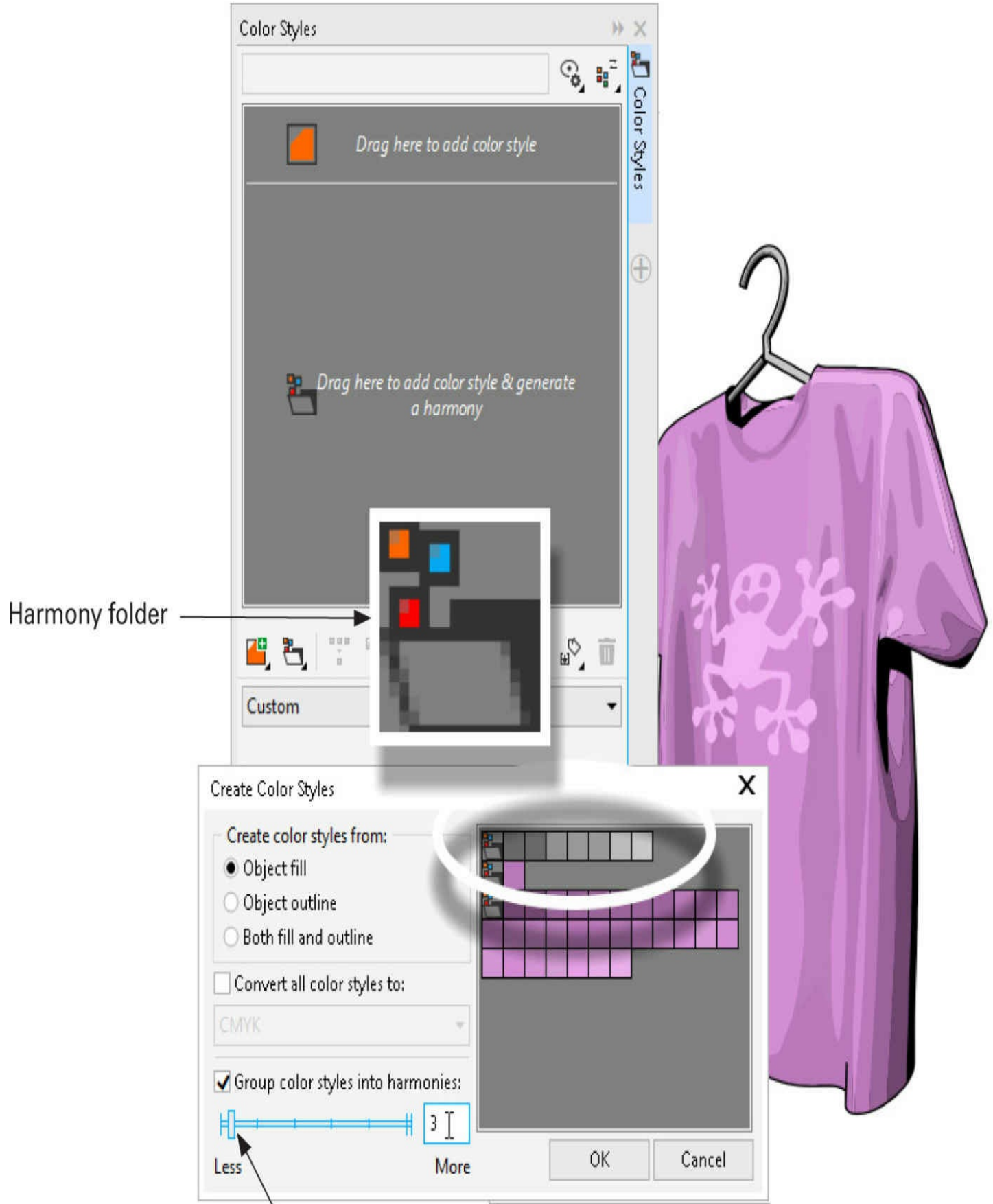
Color Harmonies for Fashion Design

If you've labored for far too long on an illustration of, say, an informal T-shirt, and you'd like to see how the whole color line of T-shirts this season looks, then, once again, this is a job for the Color Styles docker, and the steps are similar to, but not exactly like, the cubes you recolored earlier. Very quickly, open the file Shirt on Hanger.cdr and follow along here.

Changing the Color Harmonies of a Monochrome Drawing

Tutorial

1. With the file Shirt on Hanger.cdr and the Color Styles docker open, from the Options area on the docker, click the far-left drop-down button and choose New From Document.

2. In the dialog, by default, you'll probably notice that because all the colors in the document are minute differences of brightness and saturation, the Create Color Styles dialog wants to lump all the colors together. You want to recolor the shirt hanger to a color very different from the shirt, so drag the Less/More Group Color Styles slider to about 3 in this example. As you can see in this illustration, the silver of the shirt hanger separates beautifully into its own style group, as do the shirt colors.

Color Styles

Drag here to add color style

Drag here to add color style & generate a harmony

Harmony folder

Custom

Create Color Styles X

Create color styles from:
- ● Object fill
- ○ Object outline
- ○ Both fill and outline

☐ Convert all color styles to:

CMYK

☑ Group color styles into harmonies:

Less   3   More

OK   Cancel

A few more Harmony groups separate
the hanger from the shirt colors.

3. Click OK to return to the Color Styles docker. Click on the top Harmony folder icon, to the far left of the deepest gray color. This selects all the swatches to the right of it in the row.

4. On the Harmony color wheel, click-drag the grouped markers to, say, a dull orange so it looks a little like a gold hanger, thus increasing the price of the shirt. As a bonus, the hanger is now clearly visually separated from the shirt, as you can see here.

Color Styles

ColorStyle128

Drag here to add color style

▲ Harmony Editor

Custom
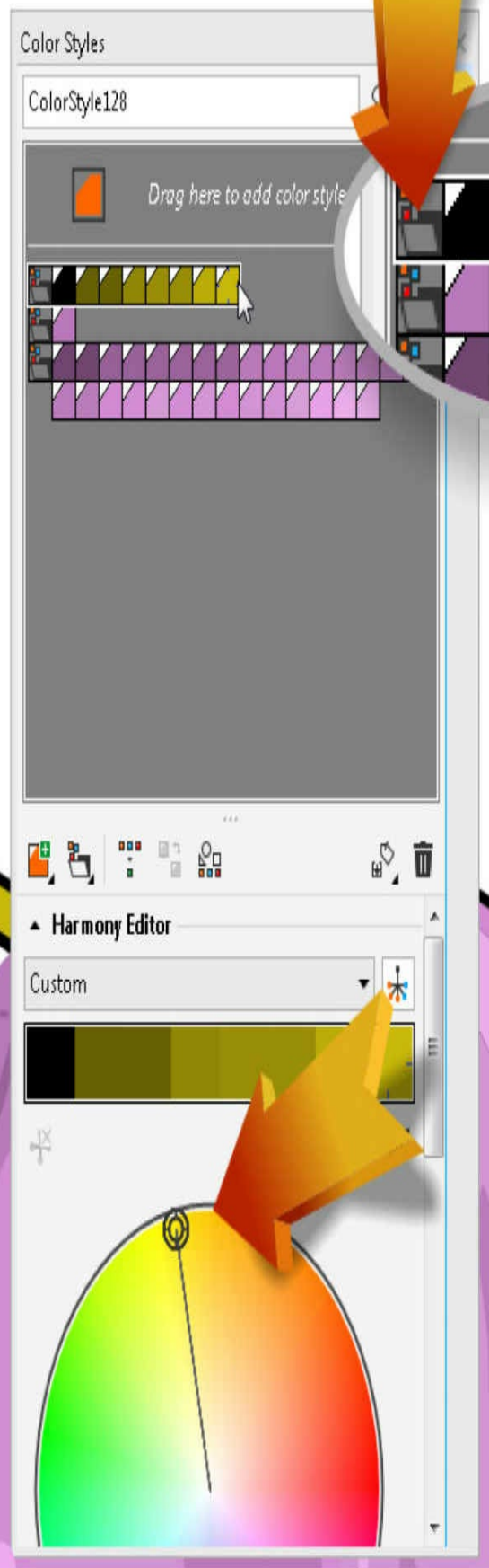
Changing Groups of Dissimilar Colors

We've had some fun with the amazing Color Styles docker; not many graphics programs can intelligently change the hue of a bunch of colors while slightly tweaking the brightness and saturation so the relationship and the differences between all the colors in a style remain visually constant and pleasing to the eye.

Here's a true test, though (spoiler alert: DRAW wins): you've created a logo whose colors are harmonious, but they are not of the same hue; in fact, some contrast with each other. You want to experiment with a different color scheme or two for the logo before submitting it. This is *definitely* a job for the Color Styles docker: open the file Breakfast to go to logo.cdr and get set for some dramatic editing work.

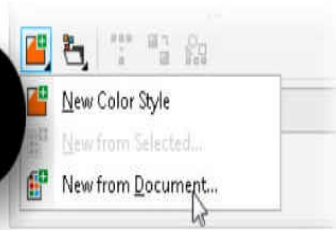# Recoloring a Logo with Color Styles

Tutorial

1. The CDR document contains a logo with several different colors but only a few strong hues. The objective here is to recolor the logo with a *different*, eye-pleasing color combination.
2. Choose Window | Dockers | Color Styles and then click the New Color Style drop-down. Choose New From Document (callout 1 in Figure 15-4).

Drag the purple color style to the top Harmony folder.

Click to select all swatches in a group.

1

- New Color Style
- New from Selected...
- New from Document...

3

Drag here to ad

2

te Color Styles

eate color styles from:
- Object fill
- Object outline
- Both fill and outline

Convert all color styles to:

CMYK

☑ Group color styles into harmonies:

5

Less   More   OK   Cancel
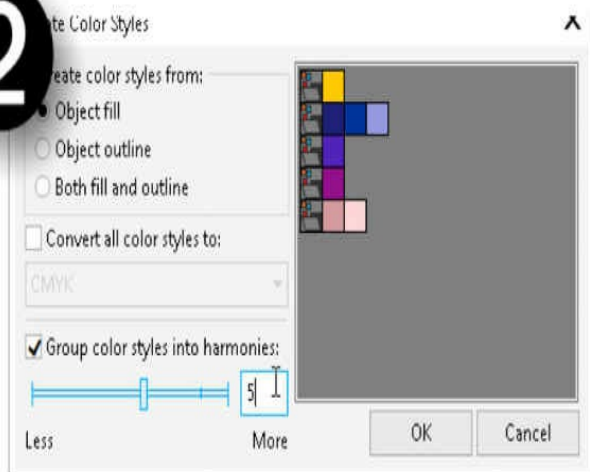
Custom

4
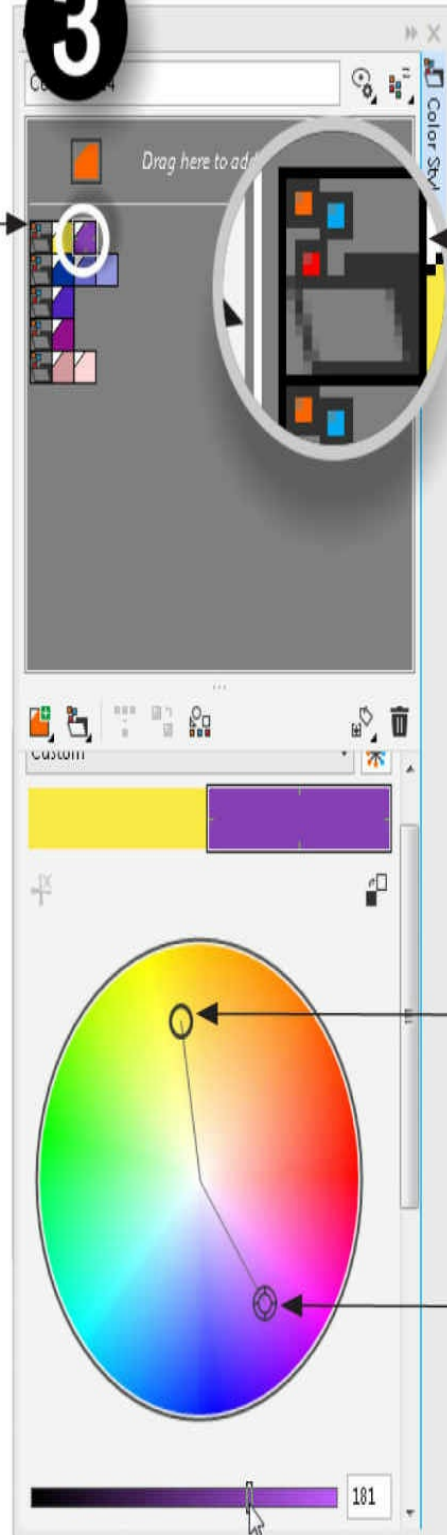
Not selected

Selected

181

Brightness slider

FIGURE 15-4 **Create harmonies from a drawing so that selective color and color relationships can be changed.**

3. Make sure the Group Colors Styles Into Harmonies check box is checked and specify **5** groups. By doing this, you'll have control over every color aspect of the logo when you modify it (see callout 2).

4. The wings in the logo are a Linear fountain fill, and the gold color has its own color harmony group (see callout 3). To dynamically modify this fountain fill, the last color in the fill needs to be in the same group. Drag the purple swatch to the right of the gold one.

   As a point of information before continuing, the Color Editor (see callout 4) will display two large colors and markers on the color wheel. When a marker is highlighted, the color is selected and can be changed without changing other colors. Depending on how many colors you've put in a style, each of the color handles can be moved independently of each other. However, when you click the folder icon that precedes the swatches, all the colors change relative to each other when you drag one color marker. You do have control, however, as to *how* the colors change when they move in tandem when you adjust one. You use the Harmony Types drop-down list to choose from Analogous Colors, Complementary, Tetrad, and a host of other color relationships.

5. It's time for you to experiment! Click the top Harmony folder to select the gold and purple, and then in the color wheel, drag either of the selected marker handles around.

6. If and when you're feeling adventurous, click the second-from-top folder to select all the purples and blues in the logo, and then move any of the selected markers around the color wheel. Use your artistic judgment, and you'll experience a creative process similar to what's illustrated in Figure 15-5.
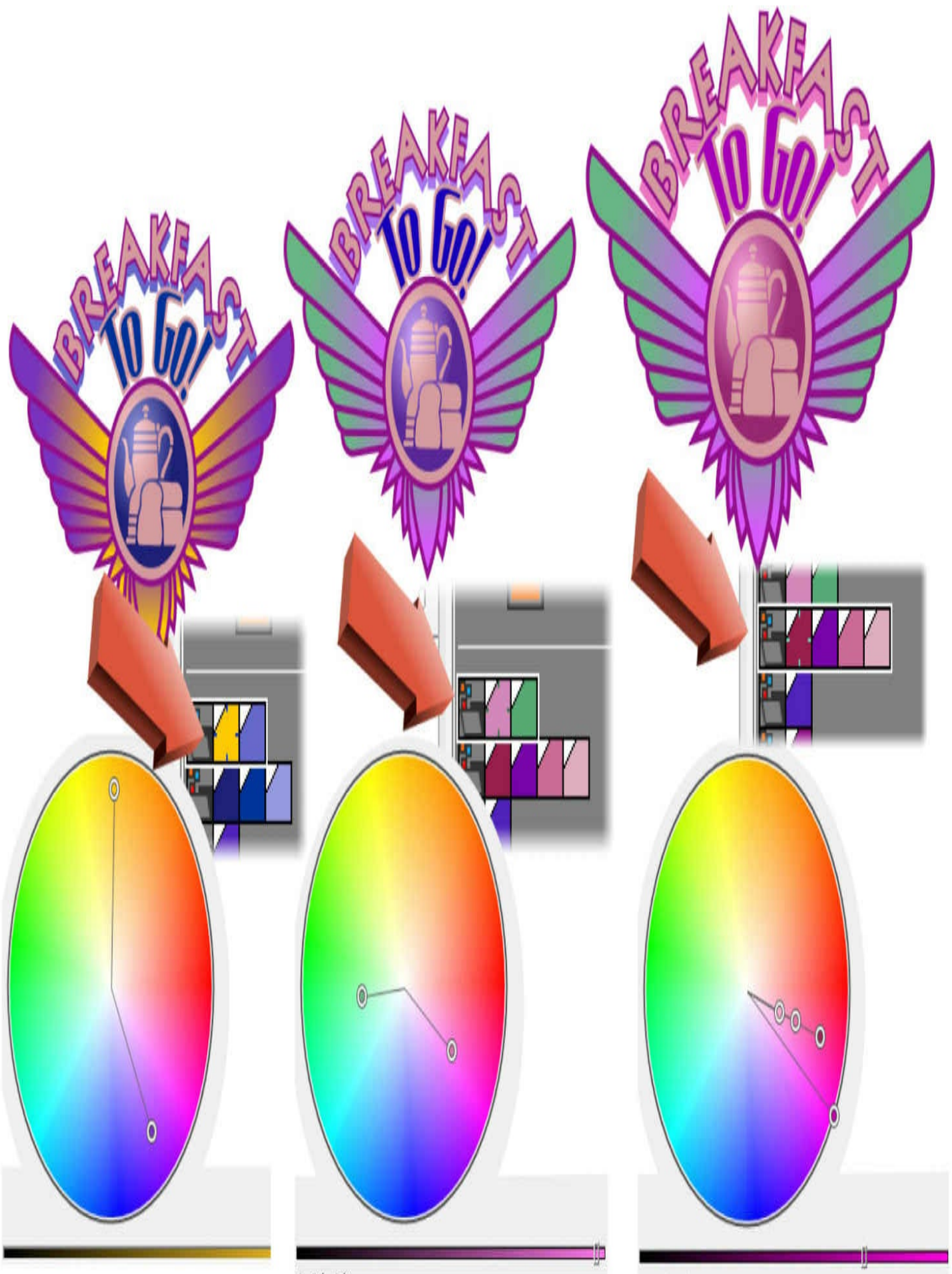
Color Relationships

Through color harmonies you can better see the relationships among primary, secondary, and complementary colors. In the additive color model, the primary colors are red, green, and blue. Complementary colors are the color opposites of primaries and lie at 180 degrees in opposition on a color wheel of hues. For example, the complementary color of red is green (more accurately know as cyan in recent years); the opposite of blue is yellow, and these complements are largely responsible for the A and B color channels in the LAB model, discussed earlier in this chapter. Secondary (additive) colors are the result of a mixture of two primary colors: red+green yields yellow, green+blue produces cyan, and red+blue produces magenta, which is the basis for the CMYK (subtractive) color model. It should be noted, however, that color harmonies, relationships that are described based on math, are not necessarily the sort of "harmony" one thinks of when designing a scheme, for example, for the living room. The "color explorer" utilities you can download online typically do exactly what CorelDRAW's mixer does. Usually showing only contrasting colors (color opposites, complementary colors), color mixers have no intelligence; they describe only relationships between hues and, therefore, can choose, for example, high school and college colors. But you truly have to use your own mind's eye when designing an *eye-pleasing* palette of colors to use in your work.

Adjusting and Transforming Color

In CorelDRAW, you can also alter all colors in a selection of drawing objects at once. Certain color adjustments may be performed either to selected bitmap images or to vector objects via filter commands. All the filters are available when a bitmap is chosen—far fewer commands are available when a vector object is selected. The quick solution to that is to *make a bitmap copy* of your vector work first, because the next command irreversibly changes your vector work to pixel-based work and your vector copy is gone. Choose Bitmaps | Convert To Bitmap. Then choose the desired options in the dialog and click OK, and the bitmap copy will take all of the filters described here. Choose Effects | Adjust or Effects | Transform to access the available filters for your selection.

- **Brightness-Contrast-Intensity** Use this to adjust the brightness, contrast, and/or intensity properties of all colors in a selection of bitmap or vector objects. The

brightness, contrast, and intensity properties can be adjusted individually based on the visual appearance of the object. Each value can be set between 100 and –100 percent. Choose Brightness-Contrast-Intensity from the Effects | Adjust menu.

- **Color Balance**   The Color Balance filter can be applied either to vector objects or bitmaps and enables you to adjust colors by RGB-CMY values. You can adjust the color balance of Cyan-Red, Magenta-Green, and/or Yellow-Blue colors specifically to Shadow, Midtone, and/or Highlights, with the added option of Preserve Luminance (brightness). RGB-CMY values range from 0 to 255. The Color Balance filter values range from –100 to 100. Color Balance is available from the Effects | Adjust menu.

- **Deinterlace**   This bitmap-only filter enables you to improve the appearance of bitmaps obtained from the older NTSC standard for video, as opposed to today's progressive video-capturing techniques with digital cameras. You'll find options for reducing either the even or odd horizontal lines seen in video formats. The filter has the effect of optionally filling the tiny gaps between the horizontal lines with either duplicate pixel colors or by averaging the color of surrounding pixels. Deinterlace is located under Effects | Transform.

- **Desaturate**   This option-free and instant bitmap-only filter converts your selected color bitmap to grayscale. Desaturate is located under Effects | Adjust.

- **Gamma**   This combination vector/bitmap filter changes the range measured between the highest and lowest color values of a selection, enabling you to adjust gamma between 0.10 and 10.00. Gamma is located under Effects | Adjust.

- **Hue-Saturation-Lightness**   This combination vector/bitmap filter enables you to adjust color based on the HLS model principles, similar to adjusting color based on color balance—with a twist. Using this filter, the hue, saturation, and/or lightness of colors can be adjusted all at once using the Master option or individually by selecting the Red, Yellow, Green, Cyan, Blue, Magenta, or Grayscale component. You'll find this filter under the Effects | Adjust menu.

- **Invert**   This option-free and instantly applied combination vector/bitmap filter changes the colors in a selection to be the "reverse" of the original colors, meaning colors are transposed in relative position across the standard color wheel. Invert is located under Effects | Transform.

- **Contrast Enhancement**   This bitmap-only filter enables you to change color contrast by adjusting the levels of the darkest and lightest color shades while automatically adjusting the color values between. Eyedropper tools enable you to sample your image's input and/or output values by color channel. A histogram displays the distribution of pixels according to their color values. The Auto-Adjust option averages colors between the lightest and darkest, or you can manually adjust changes to these colors using the Input Value Clipping slider. The Gamma Adjustment slider enables you to control the resulting midtone values. You'll find this filter under the Effects | Adjust menu.

- **Local Equalization**   This bitmap-only filter changes the contrast specifically at the edges to improve image detail. The Width and Height sliders can be set between 5 and 255, enabling you to specify the extent of the equalization effect toward the center of the image. You'll find it under the Effects | Adjust menu.
- **Posterize**   This combined vector/bitmap filter limits the number of colors in your selection to as few as two or as many as 32 colors using a Level slider control. You'll find it under the Effects | Transform menu.
- **Replace Colors**   This bitmap-only filter enables you to substitute one image color with another by choosing old and new colors; specifying hue, saturation, and lightness values; and specifying a color range. Eyedropper tools enable you to perform direct sampling. You'll find it under the Effects | Adjust menu.
- **Sample/Target Balance**   This bitmap-only filter takes color replacement a step further by enabling you to sample the color of a point—or an area—of a bitmap image and replace the color with a chosen color or color range. You'll find a complex set of options for sampling highlight, midtone, and/or shadow areas for replacement. Color changes can be adjusted all at once or by individual channel. You'll find this filter under Effects | Adjust.
- **Selective Color**   This bitmap-only filter enables you to adjust the color based on changes made to specific color spectrums. Adjust color based on color mode; and/or change reds, yellows, greens, cyans, blues, and/or magentas; and/or change gray levels for shadows, midtones, and highlights. This filter is under Effects | Adjust.
- **Tone Curve**   This bitmap-only filter adjusts shadow, midtone, and highlights channels uniformly or selectively or applies a preset tone curve via command buttons. The curve preview can be used to adjust the object's color interactively by click-dragging the curve itself. Clicking one of four Curve Style buttons enables you to apply a preset color adjustment. You can also save your curve or retrieve saved curves, and an Invert button instantly inverts the curve. This filter is found under Effects | Adjust.

Tip   You can quickly copy color properties between two objects (including groups) interactively by holding modifiers as you right-click-drag one object onto another (meaning click and hold the right mouse button to drag an object). Holding SHIFT copies the fill color, holding ALT copies the outline color, and holding SHIFT-ALT together copies both. With each action, your cursor will indicate the property being copied.

You've seen in this chapter how important color is; color sets a mood for an illustration, and the artistic use of color can actually fix an illustration that lacks visual interest or

complexity. And you now know how to define and save not only a color you need, but an entire palette. For still more information on color and other DRAW fills, be sure to check out Chapter 12. This concludes the section on colors and fills; from here, we travel to the land of very special effects—take what you've learned and use what you've drawn to bend it, distort it, and, in general, make it a unique piece by learning how to sculpt vector shapes.

PART VI   Creating the Illusion of 3D Composition

16 The Perspective and Extrude Effects

For centuries, traditional artists have studied and sweated (and sometimes failed) to create artwork that conveys a sense of dimension. Perspective, vanishing point, and angle of view can easily elude all but the most diligent, talented people because the sense of a third dimension on a 2D canvas is, after all, an illusion.

Fortunately, you don't have to go to school for years and you don't have to break a sweat when you want a little photorealism and dimension the next time you sit down to draw because you have CorelDRAW. In this chapter, you'll learn how to lift your graphical ideas right off the page with version X8's perspective effect and DRAW's legendary Extrude tool.

If you want your audience to be drawn *into* your work and not simply to stare at it, fire up CorelDRAW and read on!

Note   Download and extract all the files from the Chapter16.zip archive to follow the tutorials in this chapter.

The Perspective Effect: What Perspective Does to an Object

We've all seen examples of *perspective;* for example, after you make sure a train isn't coming, you stand on the tracks and look toward the horizon. Seemingly, the train tracks converge at the horizon. Naturally, the tracks don't *actually* converge, or it would be difficult to put a train on them. This optical illusion demonstrates the very real optics of the human eye. Any object that has parallel sides (such as a milk carton and most tables) when viewed at an angle other than face-forward will look as though its parallel sides converge at a point somewhere in the distance. This point, whether you can see it on train tracks or imagine it by mentally extending the parallel lines, is called the *vanishing point*, and