Color Matching for Sublimation

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Discussion topics:

Before Color Matching
Nozzle checks, substrates, art quality, preventative maintenance, monitors, paper, the heat press, color management and other variables that affect color in sublimation.

What Palette to Use, RGB, Pantone, CMYK?
Defining the color spaces, differences/similarities, and which one to use.

Creating Palette Files to Sublimate
The greatest gift CorelDraw has to offer for printing and sublimating color samples

Creating a Palette from a Selection
This tool allows you to pull colors from any rasterized image or photo for a custom palette

The Blend Tool
Not just a design tool, the Blend tool allows you create thousands of colors from a preset range that you can then use to create custom palette colors.

Find and Replace Objects/Color Models

Using the Eye Dropper Tool

Adding Colors to an Existing Palette and Flyout Colors

Creating Gold
Use several CorelDraw tools to create the illusion of gold.

Things new in X6

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Eliminating Variables

Before experimenting with color matching, it is necessary to check all of your equipment and supplies. All of the following criteria are important, and unless these are addressed first, matching color is futile!

Nozzle Check

A nozzle check is your first line of defense; there's nothing worst than printing hundreds of transfers only to find thin white lines throughout your artwork.

Print a nozzle check before beginning any print job. If there are any nozzles missing, perform a head-cleaning, print blocks of color that corresponds with the missing nozzles or perform a manual cleaning on the capping station.
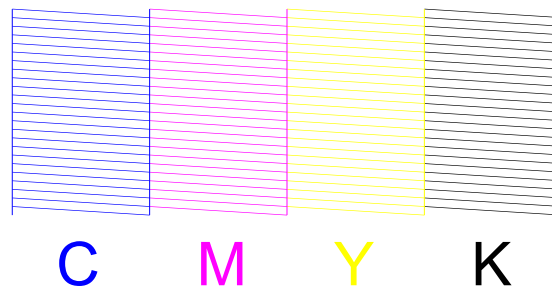
Print Something!

Lack of use can shorten the life span of any inkjet printer. Regular printing (a couple times a week) will keep your nozzles in shape, ready to print and will help avoid head-cleanings that use up significant amounts of ink.

Know the Substrates

Dye Sublimation's greatest strength is that it chemically bonds to the product, becoming part of the product (not covering the product) and allowing the original finish of the product to come through. This is also its greatest challenge. The sublimation dye is translucent, so the colors of the substrate will blend with the sublimation dye - the resulting colors will differ based on the color of the substrate. If you've never tested colors on the substrate for your project, you could be in for a surprise.

The Age of the Ink - the 6 Month Rule

As a general rule, I would recommend not using ink that is 6 months passed the "Use by Date" on the cartridge - you will likely see color shifting and other issues that can affect printing and sublimating. Also, make it a habit to mark the day's date that you install the cartridge. You won't want to have the same ink in the printer beyond 6 months, regardless of the "Use by Date".

Paper

Too much moisture in your paper is not good and may affect your colors, not to mention creating steam in your press that can smear your image. Paper acts like a sponge - whatever the environment, the paper will adjust to it. When not in use, keep the sublimation paper in a poly bag to prevent it from exposure to humidity.

The Heat Press

A good heat press is critical because the sublimation occurs within a temperature-specific range (380-400 degrees is the typical range). If your heat press temperature fluctuates well beyond this range, you are in for trouble. Heat presses will last a long time; don't start sublimating with a hobby press or the cheapest one you can find.

Laptop Monitors, other Monitors

Laptop monitors can be deceiving; push the monitor too far forward or backward will drastically change the way colors are perceived. Your monitor should be perpendicular to your eyes. Also, all monitors should be calibrated on a regular basis. Although not always found in the same location, see location listed below for making calibration adjustments.

1. Set the display to is native resolution. Go to the Control Panel > Display and select Adjust Resolution. Select the recommended resolution setting; this is the native resolution.
2. From the Control Panel, select Display. After the Display window opens, select Calibrate Color. A new window will open. Click Next.
3. Follow the on-screen instructions. Some of the options for calibrating the screen may not be available, depending on the monitor.

Color Management

This is one of the most overlooked pieces of the puzzle but is also very important. Regardless of the printer, graphic software, computer, profiles or PowerDrivers you are using, there is a specific color management for your operation and there are resources to help you achieve it. If you're not sure how, please check with your distributor for help.

The Artwork

This is the variable you may not be able to control, that is, if your customer is supplying the artwork. If the artwork arrives as Word document, PowerPoint or some other random software, beware. If you have a photograph or bitmapped image, make sure the resolution is 300dpi at the size you plan to print - many images from the web are only 72dpi. Check vector graphics to see what palette was used to create the art; you may have to substitute your own choice of palette colors to control the output.
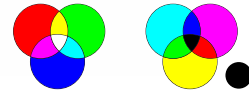
Which should you use?

There is no such thing as a "right" or "wrong" palette, but what you see on your screen may not be what you get on the final product. No matter which palette colors you work with, you will need to know what those colors look like when sublimated onto the substrate. Most experienced sublimators will work in RGB. This is also my preference. Below is a little information about various palettes.

RGB and CMYK

Put simply, RGB colors are colors made with light, like the colors on your monitor. CMYK colors are what are printed from your inkjet printer.

RGB - red, green, blue and CMYK - cyan, magenta, yellow and black, are two different color models that create a range of colors using a small set of primary colors. RGB and CMYK are considered device-dependent color models because the same colors appear differently when they are printed or displayed on different devices.
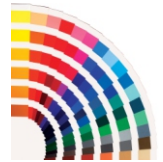
The RGB color model is an additive model that, when all colors are combined equally, produces white. Monitors, scanners, televisions, digital cameras and projectors use RGB to produce color. The two most common RGB models are Adobe RGB 1998 and sRGB.

The CMYK color model is a subtractive model. When cyan, magenta and yellow colors are subtracted to 0, produces no color. Addition of the cyan, magenta and yellow produces black, in theory. Because of the imperfection in the ink, CMY colors, when combined, tend to produce something less than black, therefore black is added to this model to compensate, thus the added K for black. Printing presses (off-set) and all inkjet printers use some version of a CMYK model.

The RGB color gamut contains millions of colors, but you can only print a few thousand CMYK process colors. However, the more color gamut you start with (RGB), the more color data your profile or PowerDriver has to use to convert those colors to the appropriate CMYK color.

Pantone Color Palettes and other Palettes

This is a standardized color reproduction system. Pantone makes color swatch books - a handy way to reference color with a remote customer that has the same swatch book. Be aware, however, that most Pantone colors Pantone colors cannot be reproduce using a cmyk inkjet printer. There *is* a special subset of Pantone colors that simulate the reproduction of CMYK colors (Pantone COLOR BRIDGE® Coated and GoeBridge™ coated). But, there is *no* Pantone color that has been produced specifically for sublimation ink!

Likewise, you will find that your graphic software has a variety of other spot color systems - TOYO, DIC, HKS, RAL and process color systems like Focoltone and Trumatch. Still other color systems are used for the web (monitor colors) like SVG. Again, none of these palettes have been designed for sublimation ink. All of the colors of these palettes will eventually be turned into a CMYK output if printed to your inkjet printer.

CREATING PALETTE FILES TO SUBLIMATE

Creating and sublimating color palettes is the best way to easily access colors. It also allows you to be able to discuss real color options with the customer. The following information about creating color palette files was based on a CorelDrawX5 and X6, but if you are using previous versions of CorelDraw - 10-X4, you will have to select Visual Basic > Play before selecting GlobalMacros from the drop-down.
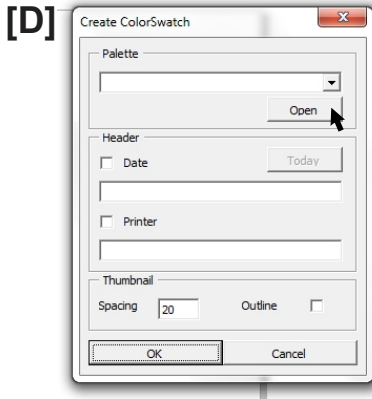
1. Open CorelDraw and create a new document.

2. Select Tools > Run Macro. A new window will open [A].

3. In the drop-down menu, select GlobalMacros (GlobalMacros.gms) [B].

4. In the same window, select Run. A new window will open [C].

5. In the new window, select Open. This will open another window through which you can locate the color palettes.

[A]

[B]

[C]

Continued

[D]

[E]
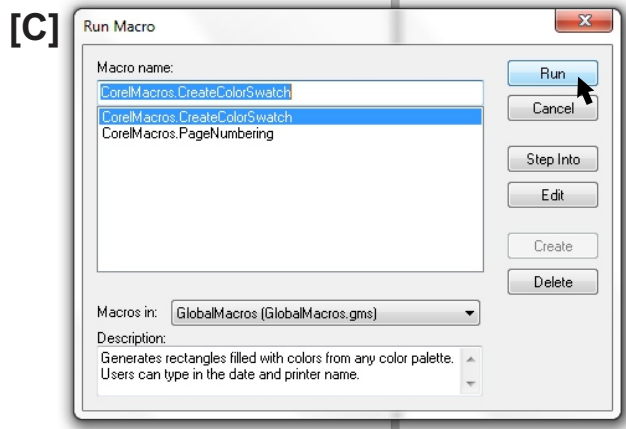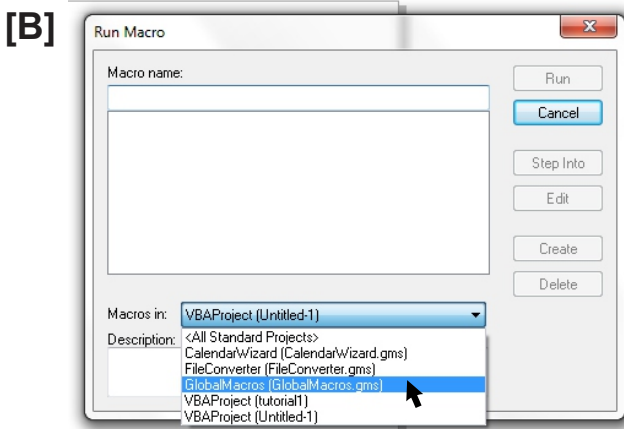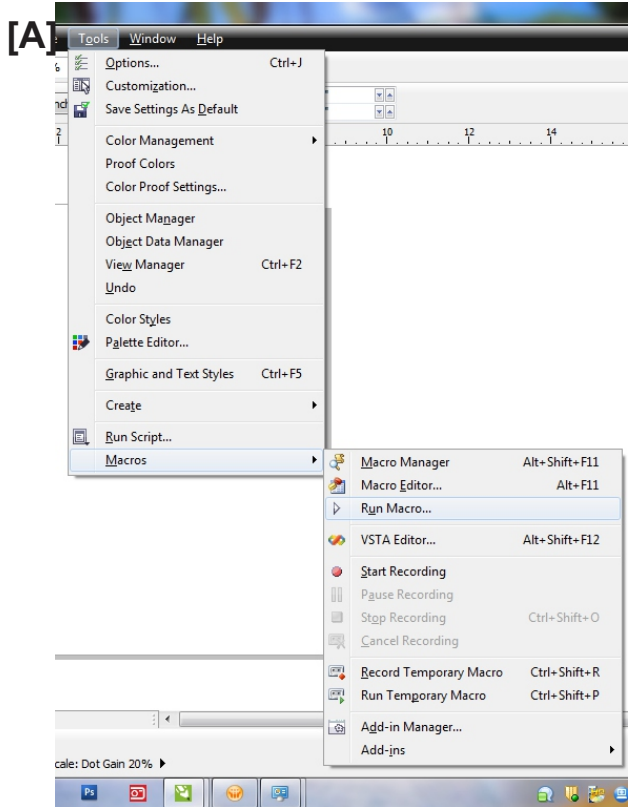
5. In the new window, select Open. This will open another window through which you can locate the color palettes [D].
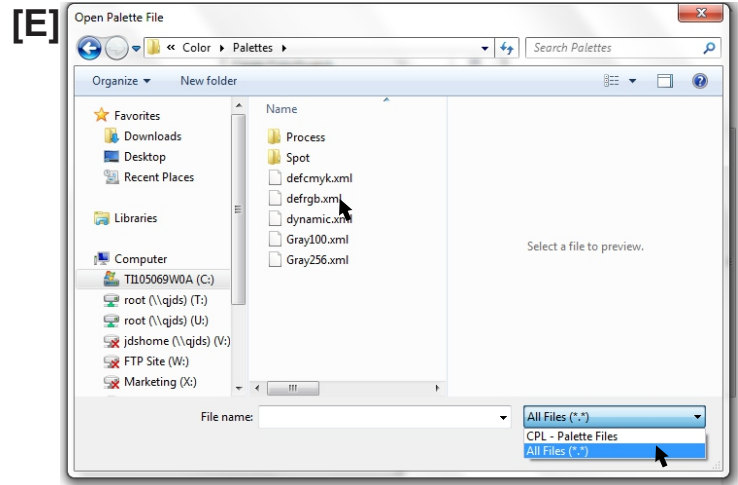
6. In the Open Palette File window [E], select All Files in the drop-down menu, then select the C drive > Program Files > Corel > CorelX5 (or available version) > Color > Palettes. There you will have access to all of the default color palettes.

[F]

7. Select a palette and click Open. A new window will open [F].

To select a custom palette, go to this location: (your name folder) > Documents > My Palettes, then select All Files in the drop-down menu [G].

8. At the bottom of the window, change the spacing to 5 [F]; this will give you more colors per page than the default. Click OK. Save the CorelDraw® file that is created. Print and sublimate the transfer to use as a reference [H].

[G]

[H]
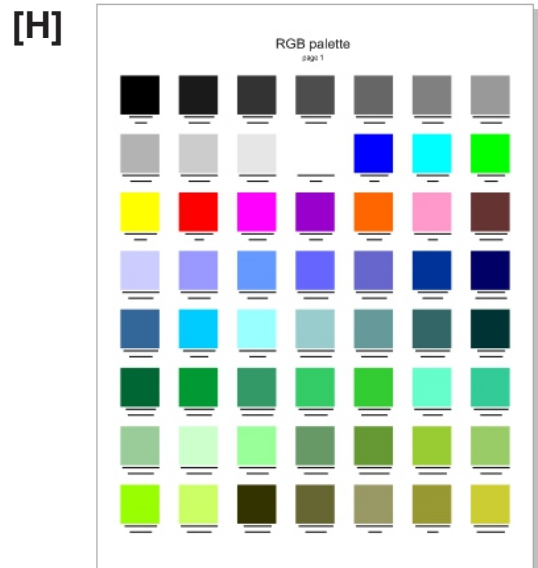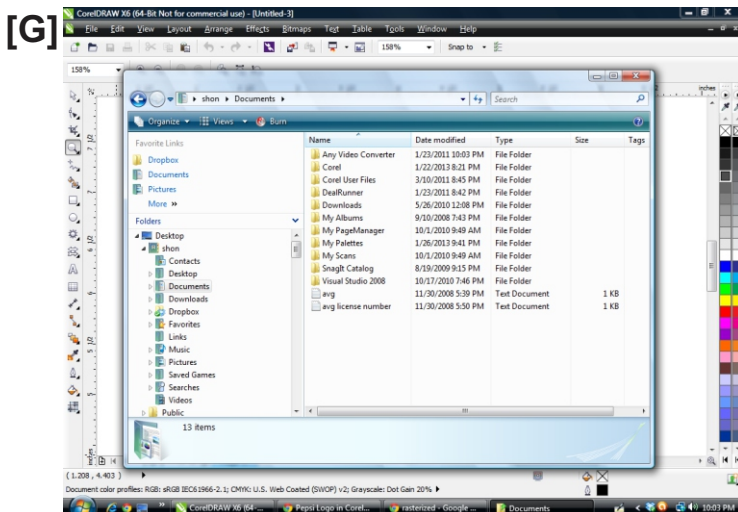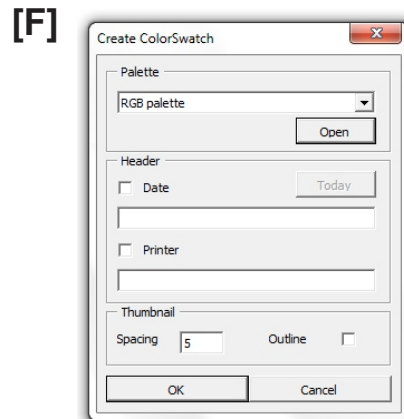
CREATING A PALETTE FROM SELECTION
[from Rasterized Images/Photos]

This is a great way to create complimentary colors to match colors from an existing image or photo. To create a printable palette from the newly created palette, refer to pages 7 and 8.

[A]

[B]
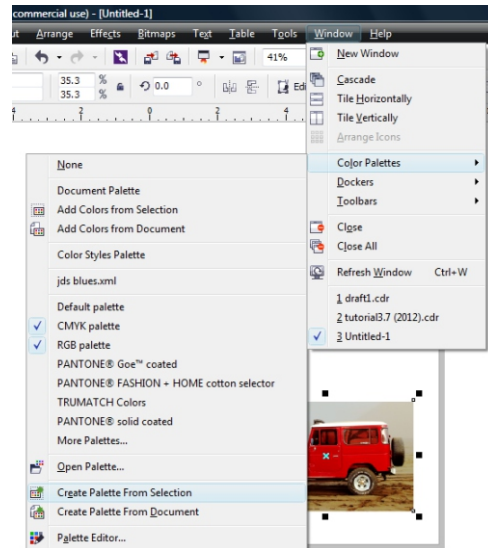
1. Select the image or photo [A].

2. Go to Window > Color Palettes > Create Palette from Selection [B].

3. Name the palette (the default location for this file is in "My Palettes" [C].

4. Select up to 256 colors to be created from the image [D].

5. Drag new color palette into your workspace (if so desired) [E].

6. See pages 7 and 8 to create a printable file from this newly created palette.

[C]
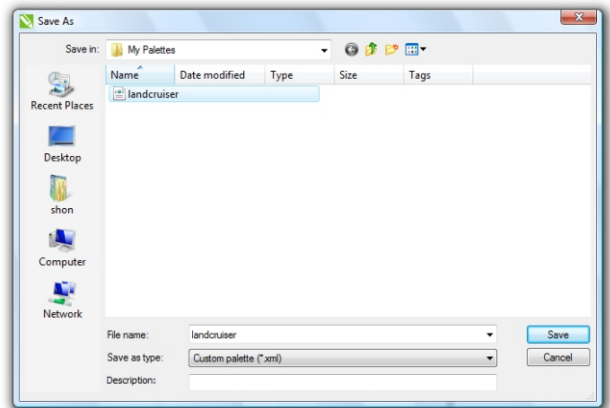
[D]

[E]
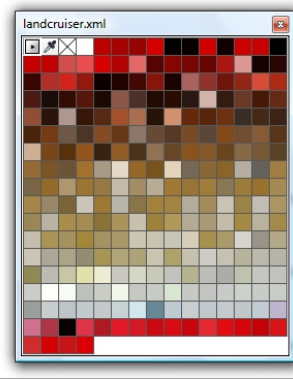
THE BLEND TOOL

This tool, often used as a purely design effect, is also, inadvertently, a good tool to use to create a range of color that can be used to create a custom palette. To create a printable palette from the newly created palette, refer to pages 7 and 8.

1. Create two closed vector graphics (square, circle, star, etc.).

2. Select the Blend tool, click on one graphic and drag to the other, unclick [B]

3. From the Property Bar, select the number of steps you want (up to 1000) [C].

4. From the Property Bar, select Clockwise or Counter Clockwise Blend for a different path through the color spectrum.

5. With the graphic selected, break apart the graphic and ungroup (Ctrl+K and Crtl+U) to separate into individual pieces [G].

6. Create a palette from the selected object/colors. With the objects selected, go to Window > Color Palettes > Create Palette from Selection [H].

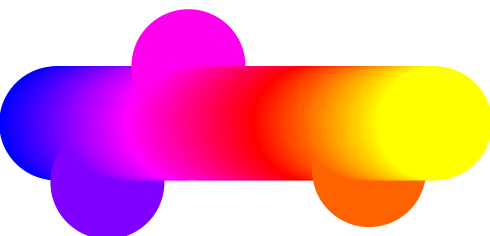7. See Page 7 and 8 to create a printable file from this newly created palette.

Blend tool:

Blend tool
Blend objects by creating a progression of intermediate objects and colors.

- Blend
- Contour
- Distort
- Drop Shadow
- Envelope
- Extrude
- Transparency

[A]

[B]

[C]

[D]

[E]

[F]

[G]

[H]

RGB custom palette1.xml
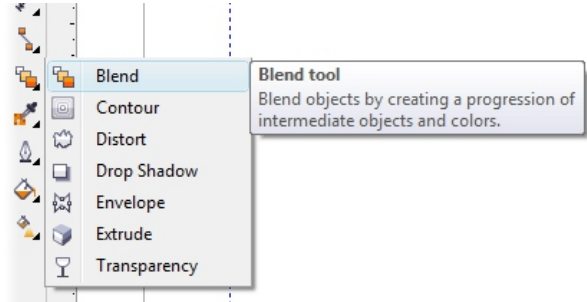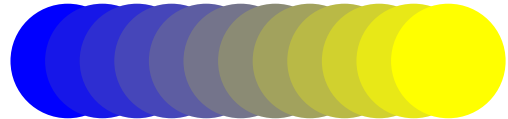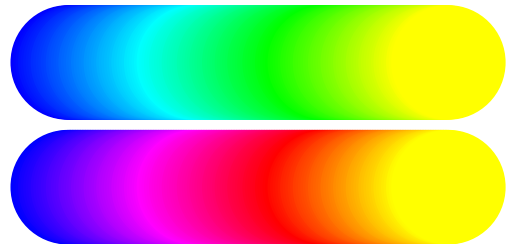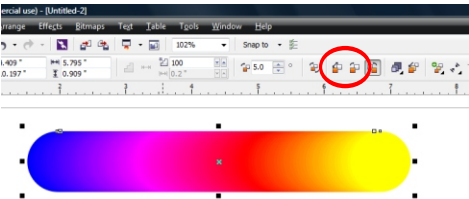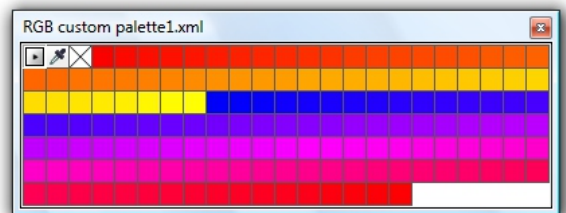
The graphic below (chicken hawk)is composed of many separate vector pieces. If you need to change the color of a large number of those pieces the Find and Replace can be used to quickly change all of those pieces at once. Entire color modes can be changed as well. For example, all CMYK colors can be change to RGB colors and vice-versa.

[A]

1. Go to Edit > Find and Replace > Replace Objects [A].

2. Select color or color model and click Next.

3. Use the eye dropper tool or the palette [B] to find the color that need to be replaced then select the replacement color using either tool.

4. Click Finish.

5. To replace an entire color model (CMYK to RGB) select Replace Color Model [C] and click Next.
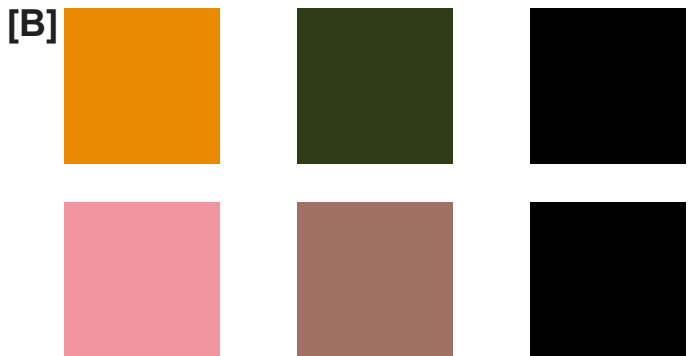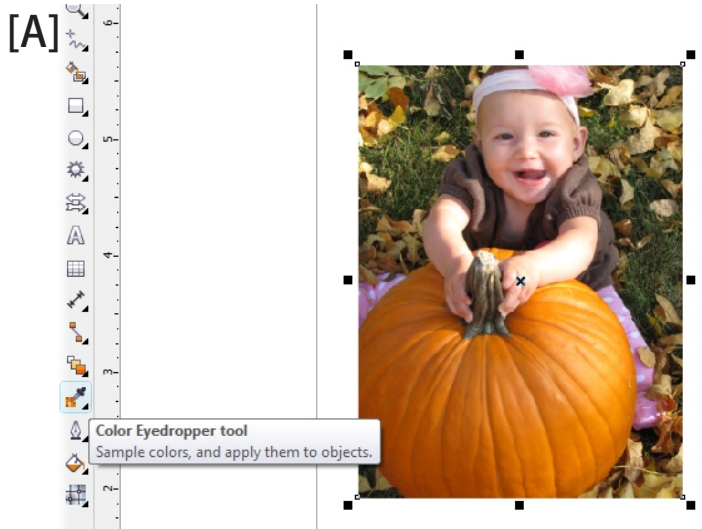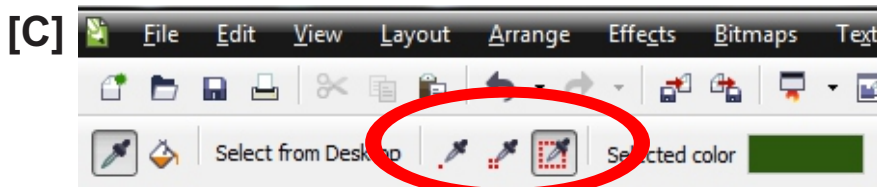
[B]

[C]
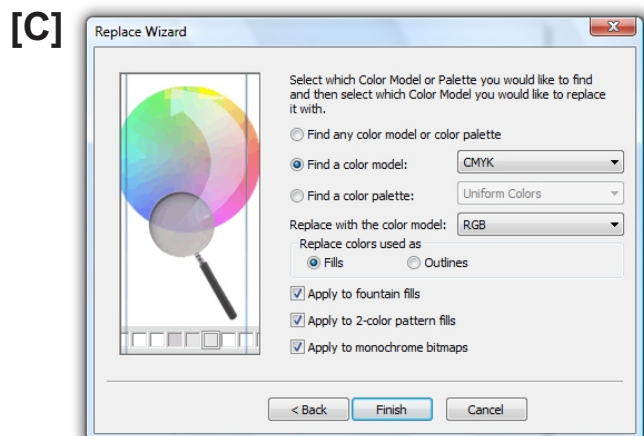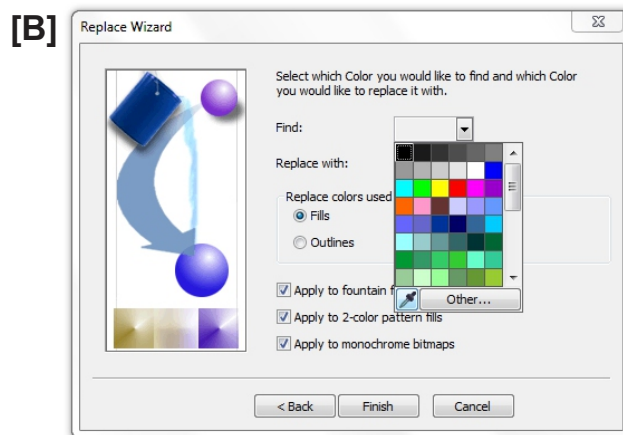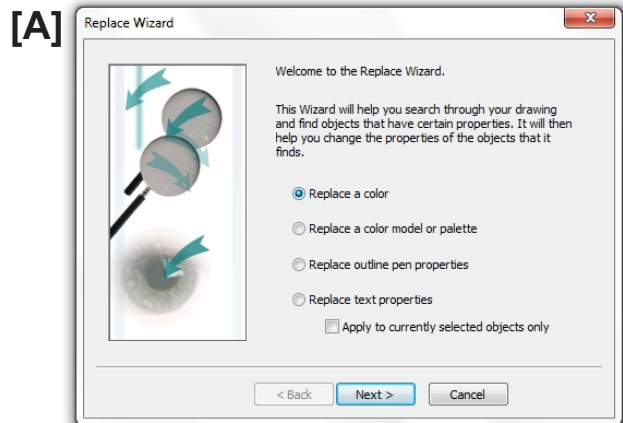
COLOR EYE DROPPER TOOL

The Color Eye Dropper Tool, updated in X5, can be used to sample colors from a raster or vector image and apply the color to a vector object.

1. Select the Color Eye Dropper Tool from the Tool Bar [A].

2. Hover over a color in the photo or object and click. The eye dropper is now a paint bucket.

3. Click and apply the color to closed vector graphic or text.

4. Change the sample coverage in the Property Bar to adjust the range of pixels to select.

[A]

Color Eyedropper tool
Sample colors, and apply them to objects.

[B]

TEXT

[C]

File   Edit   View   Layout   Arrange   Effects   Bitmaps   Text

Select from Desktop   Selected color

ADDING COLOR TO AN EXISTING PALETTE

For access to custom colors commonly used, add custom color swatches to an existing palette such as the RGB and CMYK palettes using the Palette Editor

1. Using the Eye Dropper tool from the top of the palette, click on a color to add to the existing palette [A].

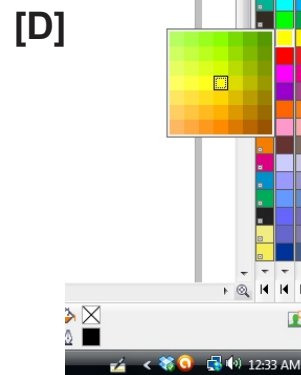**2. Right click the top of the palette and select Edit Color [B].**

3. Click on the new color and name the new color [C].

[A]

[B]

[C]

FLYOUT COLORS

[D]
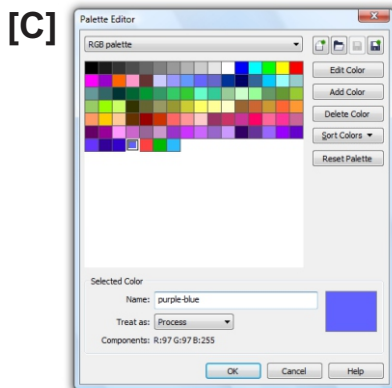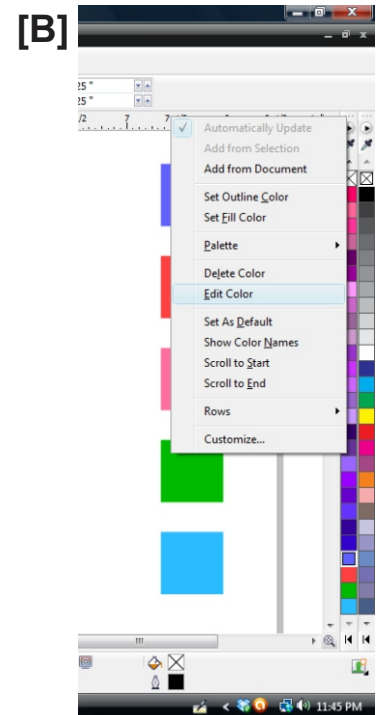
1. Select a range of colors from a single swatch color by clicking and holding until the Flyout Colors appear [A].
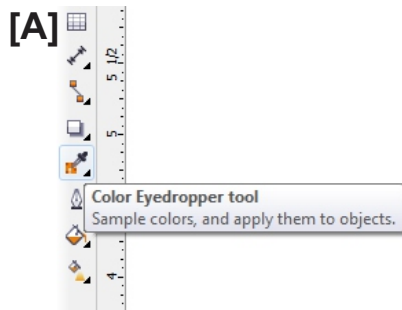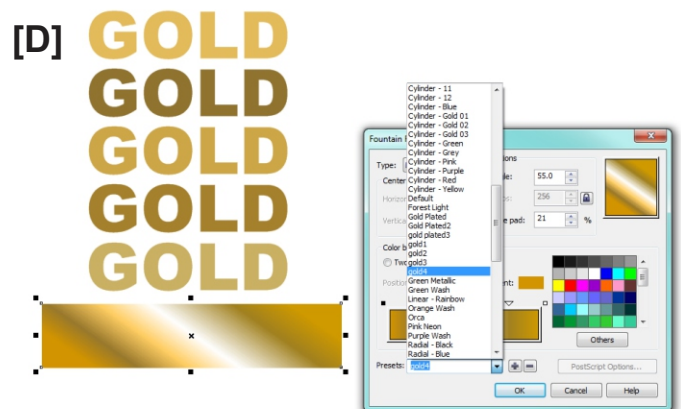
This Flyout can be used for any color palette.

CREATING GOLD

Creating the Illusion with Graphic Techniques

If you've ever tried to find a single color to represent a gold color, you know understand this challenge. he short answer: there isn't any *one* color that can be sublimated to look like metallic gold. That's the short answer and not a very satisfying one. The longer answer requires a little further explanation but will result in a much more dynamic image that will look as good as gold.

[A]

Color Eyedropper tool
Sample colors, and apply them to objects.

[B] GOLD GOLD GOLD GOLD GOLD

1. Use the Eye Dropper tool to select a few key colors from the trophy image [A].

2. Fill several graphics using the colors you have chosen [B].

3. Fill a rectangle with a gradient using the chosen colors [C].

4. Save your gradient as a Preset [D].

[C]

[D]

Continued

5. Add an Outline to the fill (F12) [E].

6. Change the text to Curves (Ctrl+Q).

7. Change the Outline to an Object (Ctrl+Shift+Q).

8. Fill the Object with the Preset gradient, but change the Angle to create a reflective bevel.

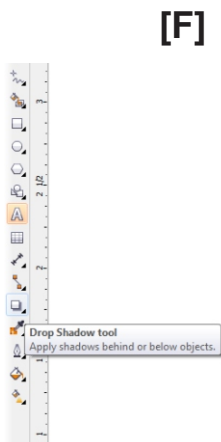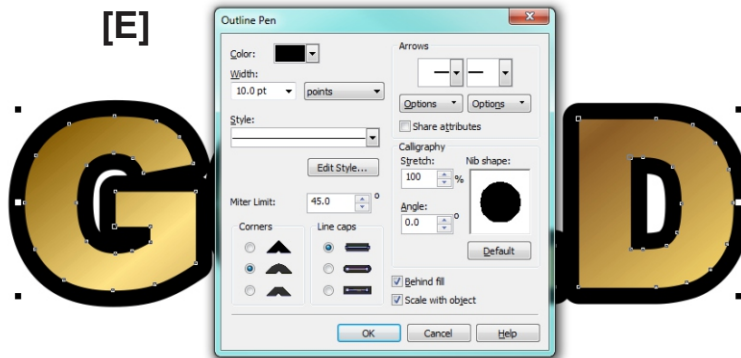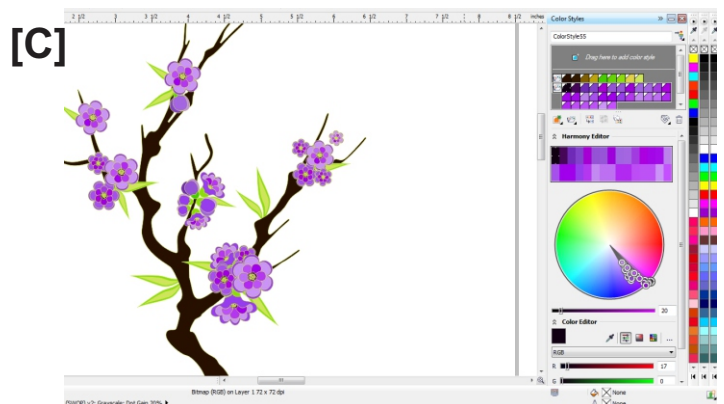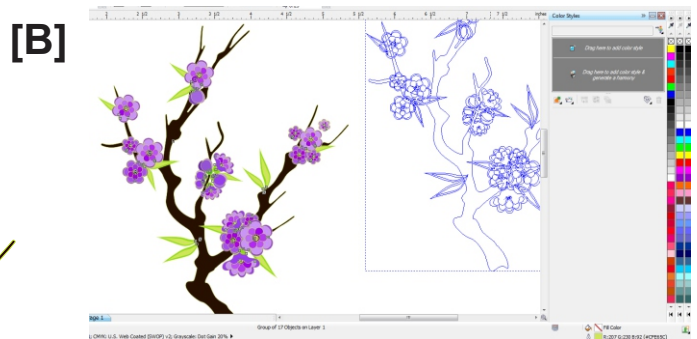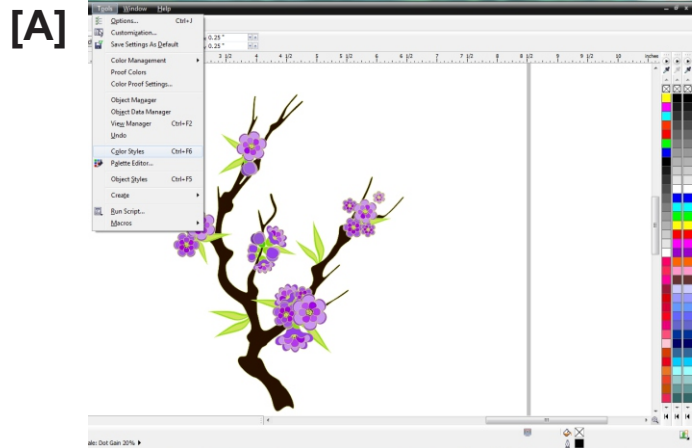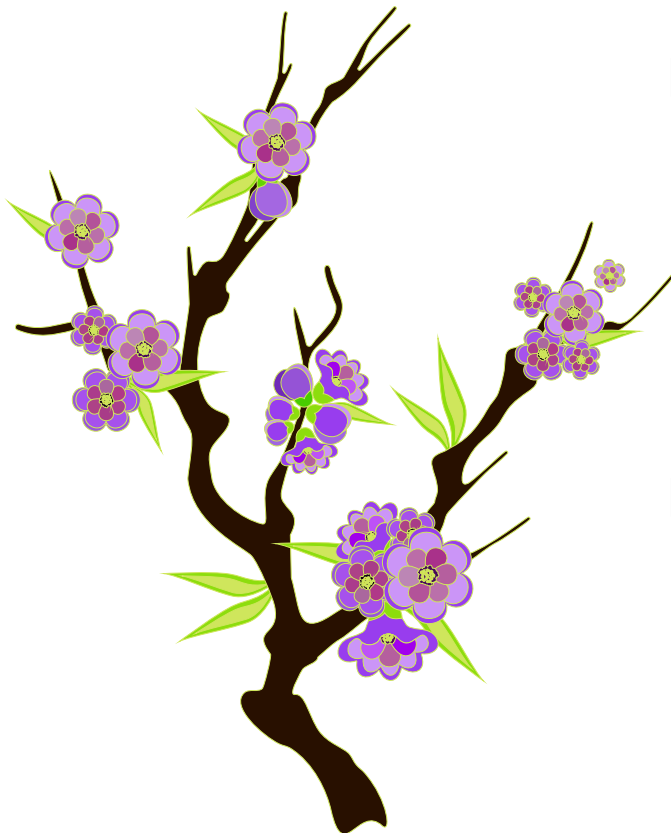9. To further the effect, add a Drop Shadow effect to both objects [F].

[E]

[F]

COREL X6 - WHAT'S NEW IN COLOR?
Color Styles, Harmony Editor

1. Select the group of vector graphics

2. Go to Tools > Color Styles (Ctrl+F5) [A].

3. Drag the graphic into the Docker [B]; a new window will open, click OK. Colors will be organized according to harmonious color groups.

4. Use the Harmony Editor [C] to change the hue of individual colors or groups of colors

[A]

[B]

[C]

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