

Chapter 21 Color Subtractive Process Practice Worksheet

The way that color appears on a piece of paper and how your eyes interpret color involve two different color mixing processes. Your eyes see color using an additive color process. The RGB color model is the basis for how the additive process works and involves mixing colors of light. The CMYK color model is the basis for how the subtractive color process works and involves pigments of color which absorb colors of light.

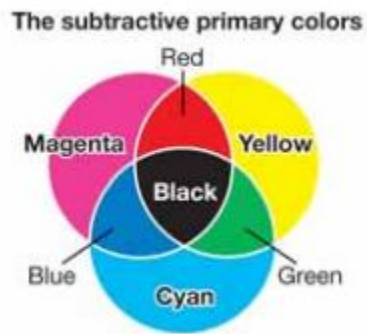
RGB color model			CMYK color model		
Primary colors	Mixed colors	New color	Primary colors	Mixed colors	New color
red	red + green	yellow	magenta	magenta + yellow	red
green	green + blue	cyan	yellow	yellow + cyan	green
blue	blue + red	magenta	cyan	cyan + magenta	blue
How black is made	Absence of light		How black is made	Pure black pigment	
How white is made	red + green + blue		How white is made	Absence of pigment or use of pure white pigment	

1. A laser printer prints a piece of paper that includes black lettering and a blue border. How are these colors made using the CMYK color model?

2. The CMYK color model works because the combination of pigments absorb and reflect light. Imagine that white light containing a mixture of red, green, and blue light shines on the combination of CMYK pigments in the table below. Indicate in the blank spaces which colors of light the pigments absorb and which color is reflected. Some parts of the table are filled in for you.

CMYK Color Model		
Mixed Colors	Reflected Color	Which colors of light are absorbed?
magenta + yellow	red	
yellow + cyan		blue is absorbed by yellow red is absorbed by cyan
cyan + magenta		

3. If you mix magenta paint and cyan paint, what color will you achieve?
4. A laser printer's ink only includes the colors cyan, magenta, yellow, and black.
- Explain how it makes the color green using these pigments.
 - Then, explain what happens for your eye to interpret this color as green.
 - This Venn diagram illustrates color mixing for the CMYK color model.



Now, make a Venn diagram for the RGB color model. Use color when you make your diagram. Be sure to level the difference between the primary colors and the new colors made by mixing.