

CG Basics01: Basic Color Models.

RGB vs CMYK

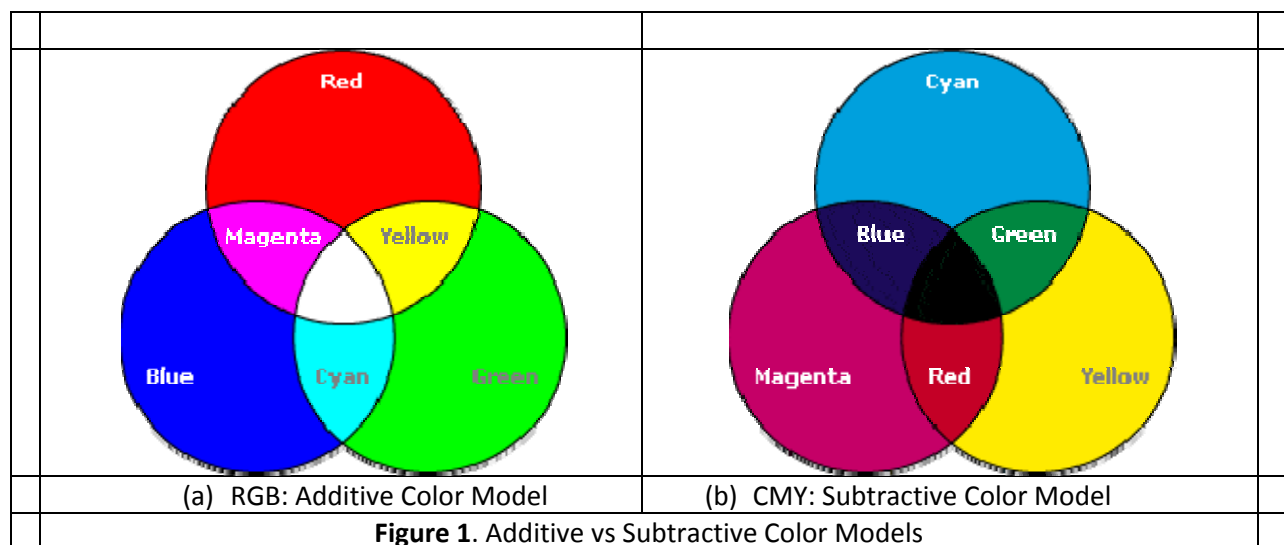
Historically, two main color models have evolved and became popular amongst device manufacturers:

1. **RGB** – Red, Green, Blue; emissive or additive color model
2. **CMYK** – Cyan, Magenta, Yellow, Black; reflective or subtractive color model

Color models are used in computer graphics to generate intermediate colors between surface points. Interpolative color induces shades and tones. These are used to increase the realism of the surface represented by images and at the same time give the illusion of depth of field. This induces the illusion of 3D while objects are drawn on a display system or printed on a paper surface.

RGB is used by display manufacturers mainly because this model adheres to the additive combination of three spectral ranges of the visible light from energy emissive devices such as LEDs, LCDs, CRTs, Plasma and variations. The convergence between R, G and B produces White.

CMYK is used in printing technology because this model adheres well to the color reproduction by pigmentation and reflection off a surface. This induces a subtractive effect. The convergence between C, M, and Y produces Black.



Which is better (a) or (b)?

Additive vs Subtractive Color Models

Additive color models display color as a result of light being transmitted or added onto the receiver. The absence of light produces no light, darkness, or black.

Subtractive color models generate color as a result of light being absorbed or subtracted by pigmentation (or ink) onto a reflective surface such as white paper. As more ink is added, less and less light is reflected resulting into black. In places of total absence of ink the resulting light being reflected from a white surface would be reflected as white.

Which is better Additive or Subtractive?

EOD.