COLOR SCIENCE

datacolor

HOW HUMANS SEE COLOR

Why Color Perception Causes So Many Disagreements

Color is highly subjective. Here is the science behind color perception and the many factors that impact how we see.

HOW WE SEE

TRICHROMATIC THEORY

The theory explains how photoreceptor cells in our eyes respond to various wavelengths, only allowing us to see in shades of gray.

LIGHT SPECTRUMS

Cone cells allow us to respond to blue, red, and green spectrums. Together, the three color spectrums produce a more expansive set of recognizable colors.

OPPONENT PROCESS THEORY

The opponent process theory discusses how two colors can negate one another, furthering color complexity.

PHYSICAL/ENVIRONMENTAL FACTORS ALTERING COLOR

Light Source

Varying light frequencies reflecting from an object can alter color perception and accuracy.

Background

The backgrounds we use can change the way in which we evaluate and interpret colors, potentially resulting in optical illusions.

Personal

Age, medications, mood and memory are all factors that can influence the way in which we see color.

40%

Did you know?

According to a study in 2005, the human retina alters dramatically from person to person. The difference can be up to forty percent and yet we all see similar colors. Color nuances are therefore controlled significantly by our brains, in turn giving us a subjective notion of color.