


Rose Colored Glasses

How Our Eyes Perceive Color and How You Can Manipulate Color Like a Wizard

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Class Handout

Use your phone or tablet to access this deck as a handout in PDF format.

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Class Overview

Color Perception

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Color Manipulation: Wizardry

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Why?

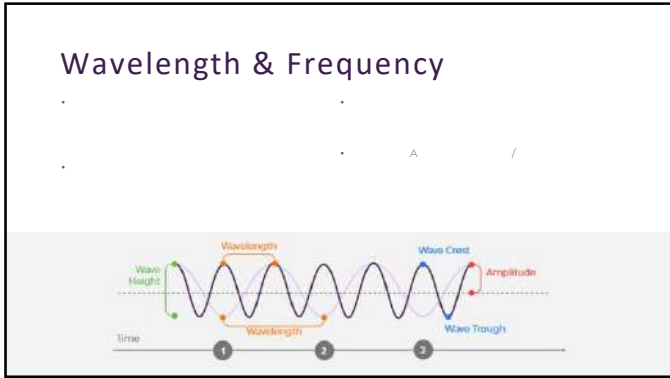


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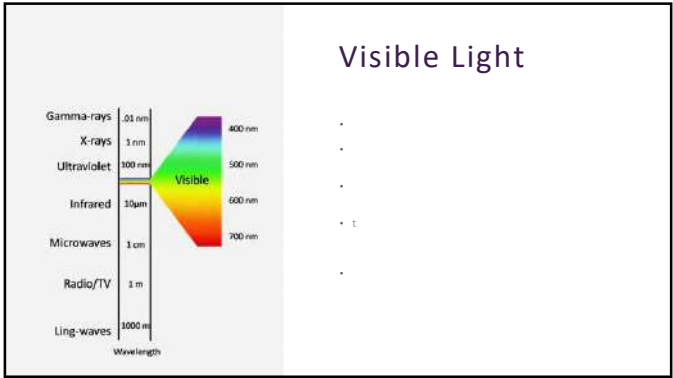
Understanding Light and Color



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Color Models

Additive and Subtractive Color Mixing

An abstract, swirling pattern of colors including red, orange, yellow, green, blue, and purple, illustrating the concept of color mixing.

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RYB Red, Yellow, Blue

A diagram of the RYB color model showing three primary colors: Red, Yellow, and Blue. The overlapping areas create secondary colors: Green (Yellow + Blue), Orange (Red + Yellow), and Purple (Red + Blue). The center where all three overlap is a dark brown/black.

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CMYK Cyan, Magenta, Yellow, Black

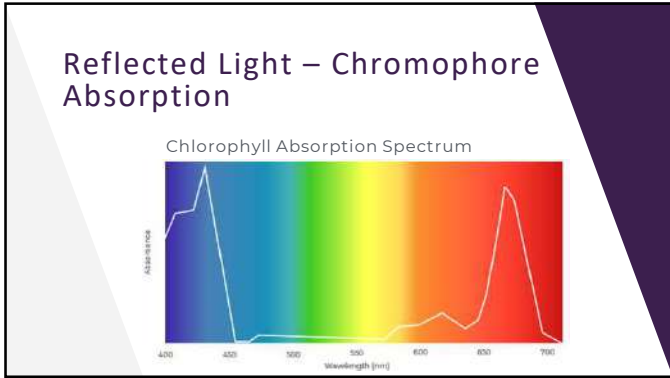
A diagram of the CMYK color model showing three primary colors: Cyan, Magenta, and Yellow. The overlapping areas create secondary colors: Red (Magenta + Yellow), Green (Cyan + Yellow), and Blue (Cyan + Magenta). The center where all three overlap is black.

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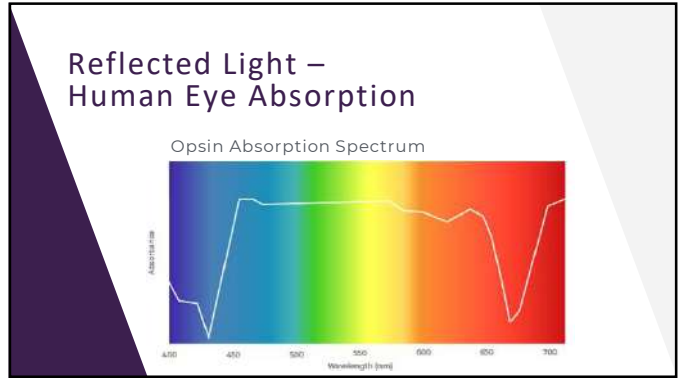
RGB Red, Green, Blue

A diagram of the RGB color model showing three primary colors: Red, Green, and Blue. The overlapping areas create secondary colors: Yellow (Red + Green), Cyan (Blue + Green), and Magenta (Red + Blue). The center where all three overlap is white.

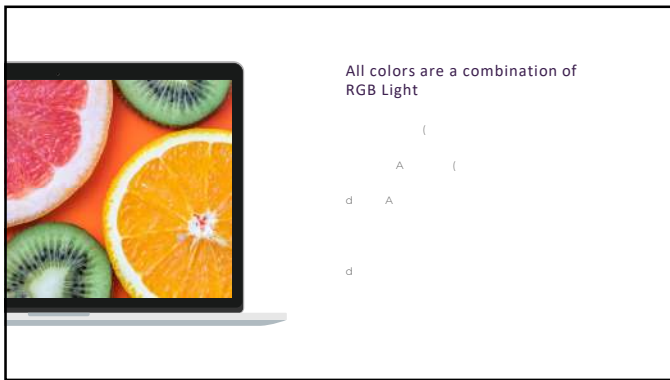
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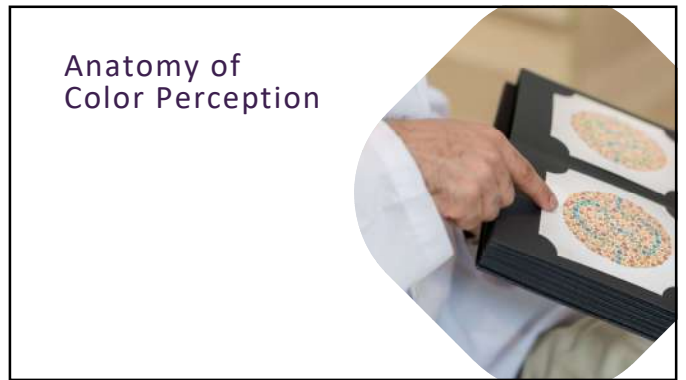
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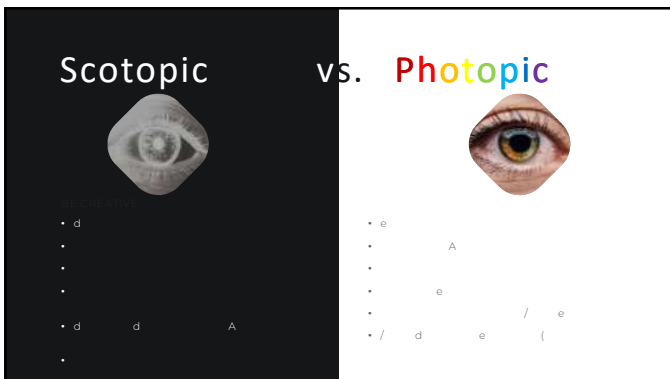
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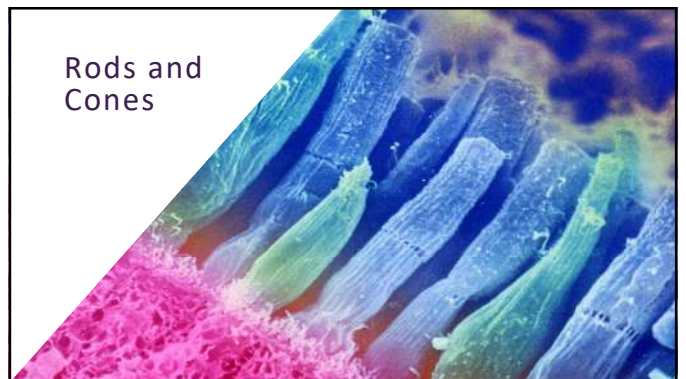
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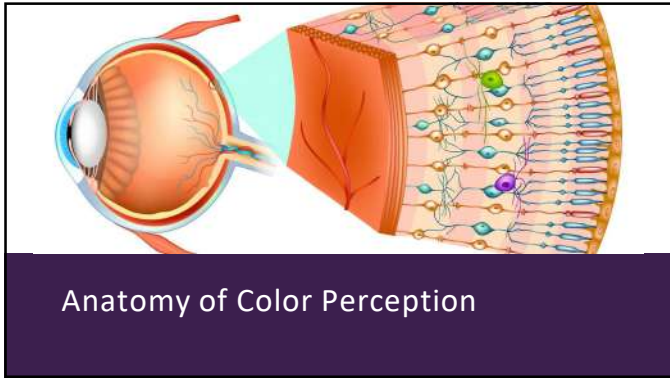
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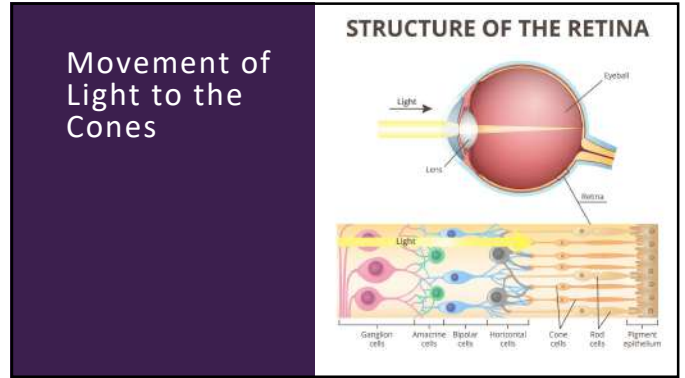


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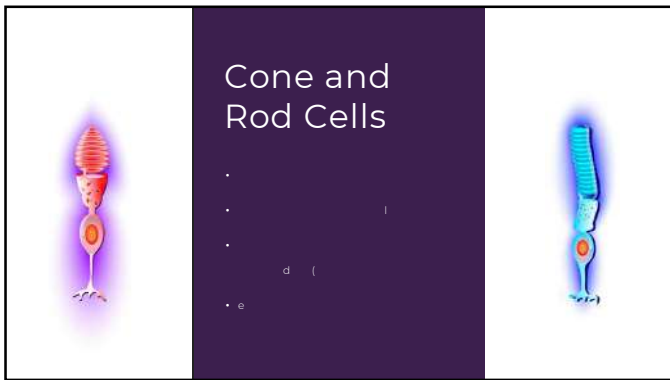
Anatomy of Color Perception

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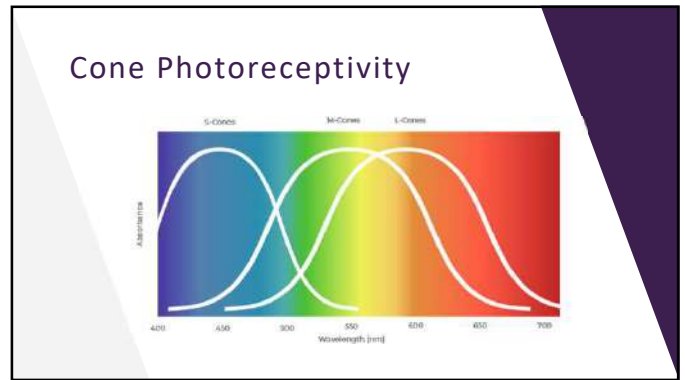
Movement of Light to the Cones

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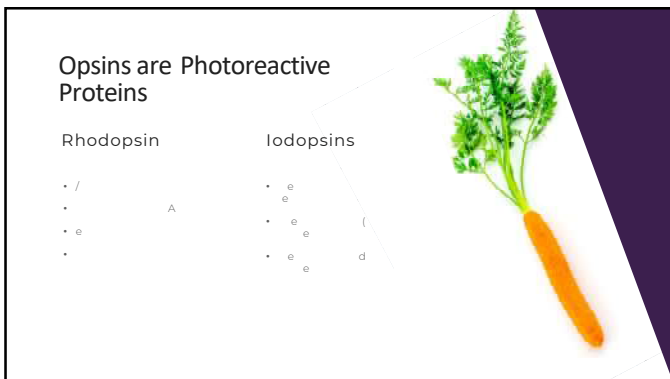
Cone and Rod Cells

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Cone Photoreceptivity

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Opsins are Photoreactive Proteins

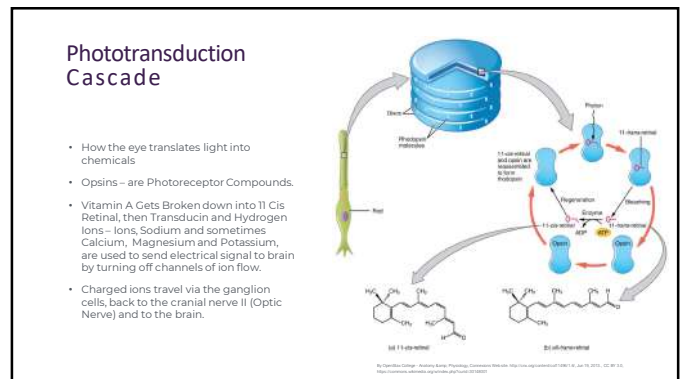
Rhodopsin

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Iodopsins

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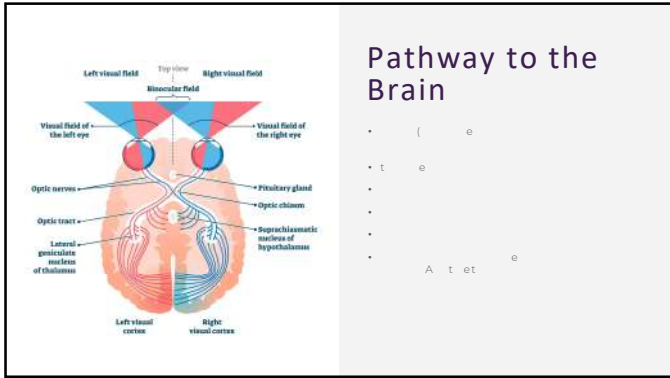
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Phototransduction Cascade

- How the eye translates light into chemicals
- Opsins – are Photoreceptor Compounds.
- Vitamin A Gets Broken down into 11 Cis Retinal, then Transducin and Hydrogen Ions – Ions, Sodium and sometimes Calcium, Magnesium and Potassium, are used to send electrical signal to brain by turning off channels of ion flow.
- Charged ions travel via the ganglion cells, back to the cranial nerve II (Optic Nerve) and to the brain.

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Pathway to the Brain

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Melanopsin Retinal Ganglion Cells

Intrinsically Photosensitive Cells

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Color Blindness - Cones lack photopsins/iodopsins

Normal vision Deuteranopia Protanopia Tritanopia

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Visual perception is context specific

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Color Language is CULTURALLY Specific

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Color attaches to our emotion culturally

Color	Western Europe & North America	Asia	Middle East
red	danger, anger, love, passion, action, adventure	joy, happiness, celebration, luck, prosperity	danger, evil, blood
green	nature, progress, regeneration, new beginnings, luck, money, peace	growth, vitality, future, energy, optimism, fertility	harmony, strength, luck, wealth, wisdom, fertility
blue	trustworthy, calm, authority, peace, sadness, calm, loyalty	loyalty, intelligence, wealth	protection, safety, heaven, immortality, spirituality

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Color is SPECIES Specific

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Wizardry!

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Absorption and Transmission

Absorption

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Transmission

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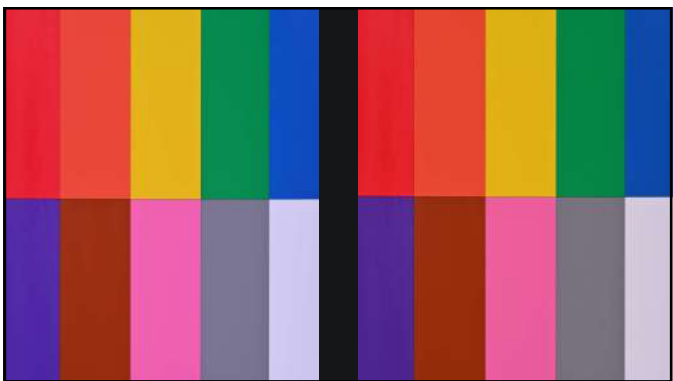
Polarization

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Mirrors

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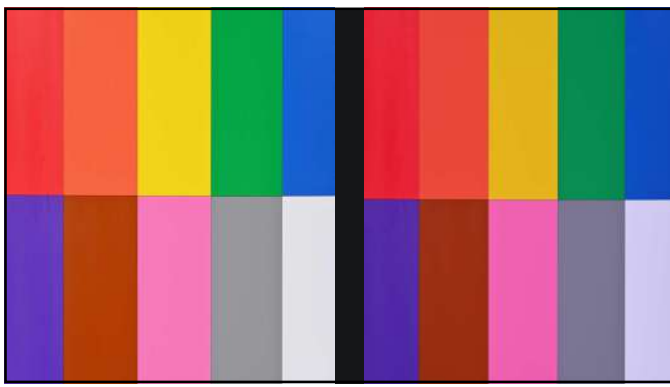
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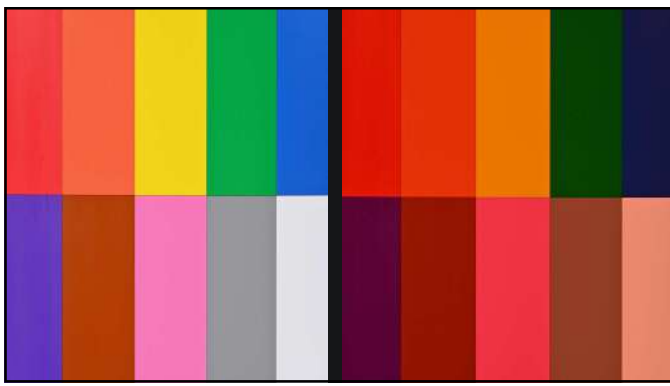
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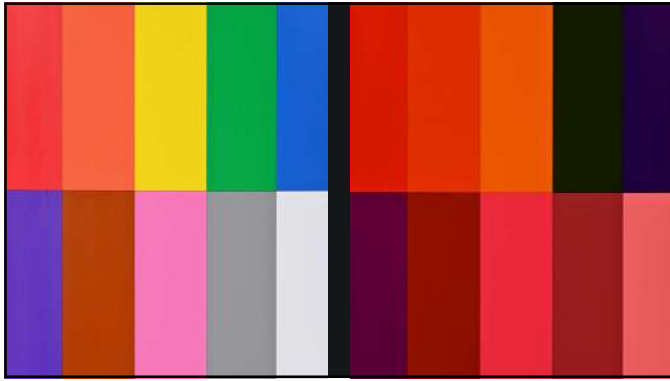
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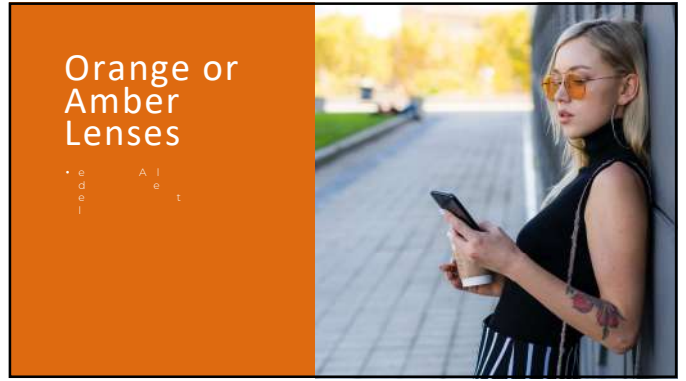
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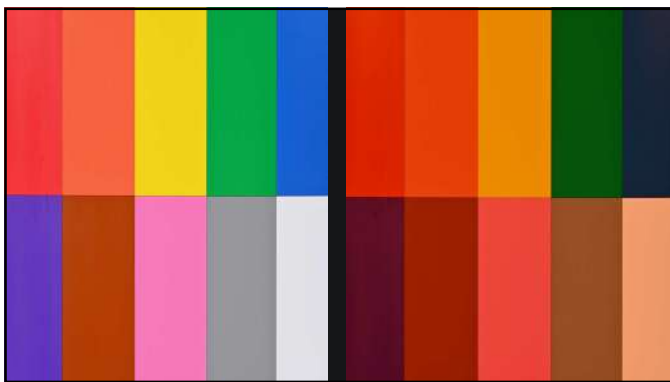
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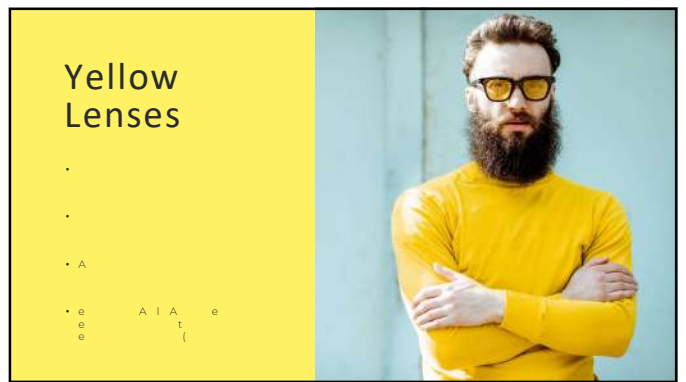
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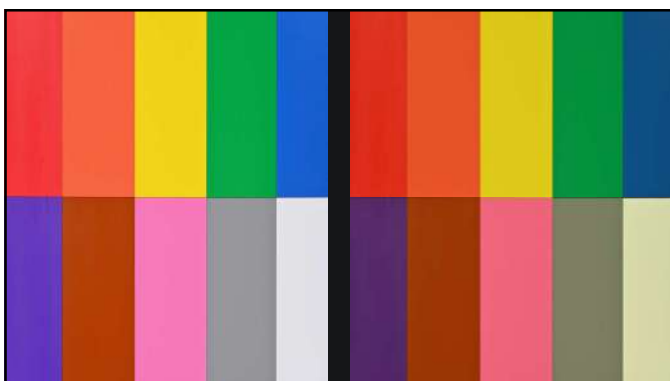
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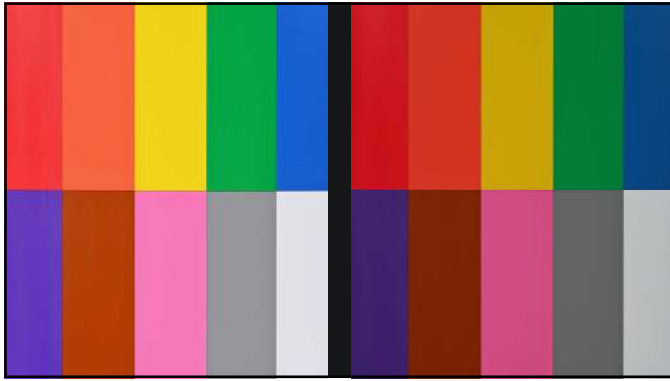
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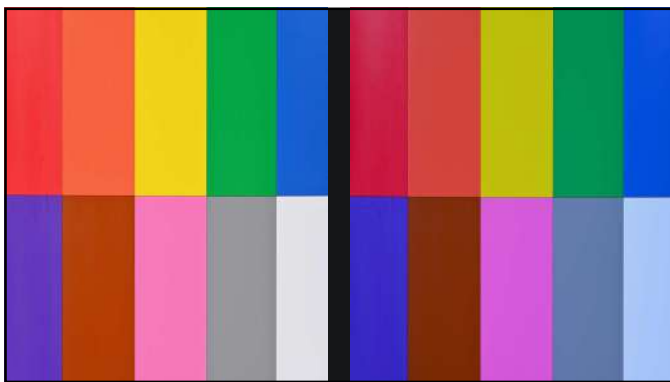
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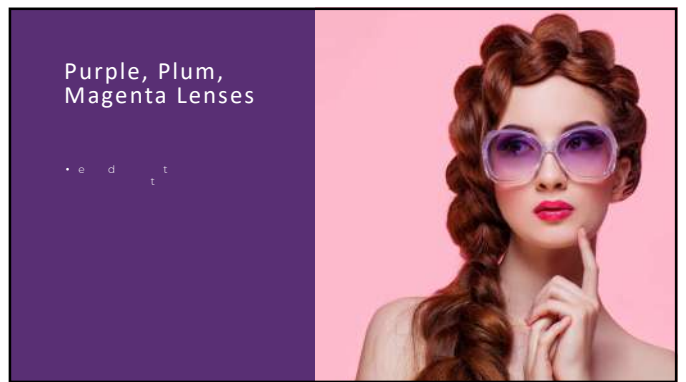
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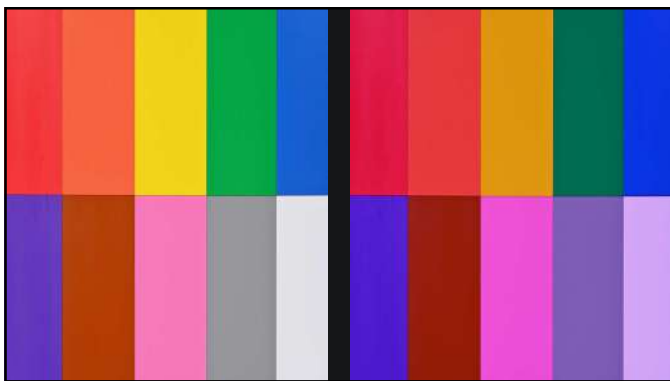
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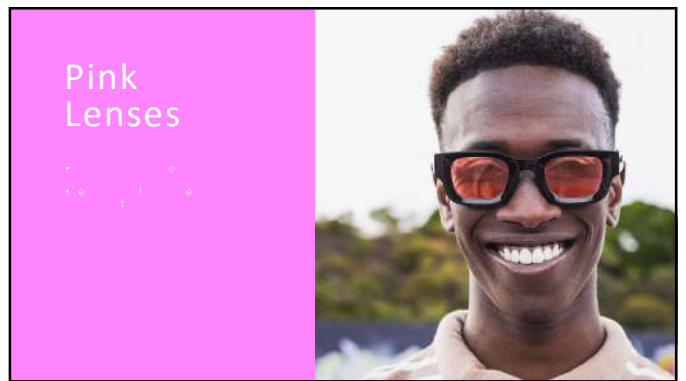
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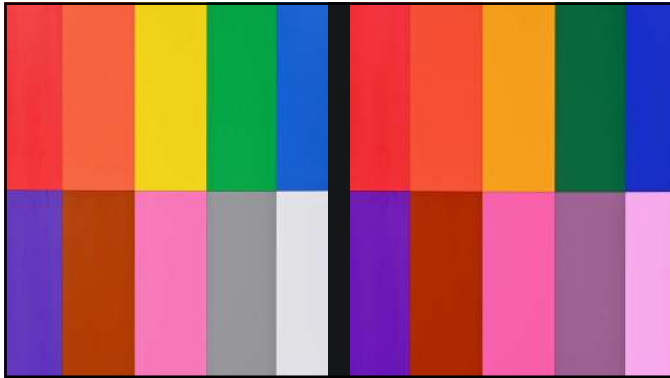
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You Try It

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Whatever tint he prefers when given options!

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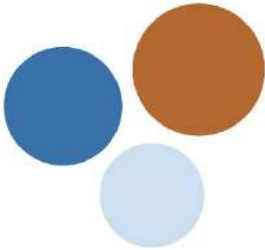
Tints can help you sell multiple pairs of eyewear. And they are HOT!



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Specialty Tints: Expensive but Therapeutically Significant

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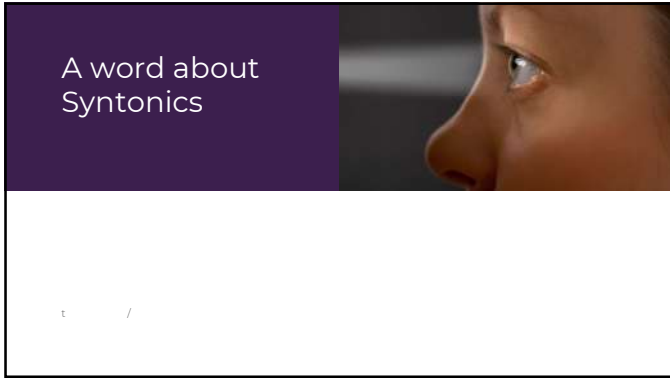
No Tint is a Cure All for Everyone



Use tint samples to assess comfort of the wearer or Filter Simulators

BPI Lens Color Filter Selector
https://www.callbpi.com/golf/index.php?route=product/product&product_id=851

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