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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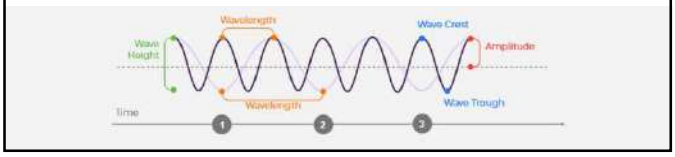
Wavelength & Frequency



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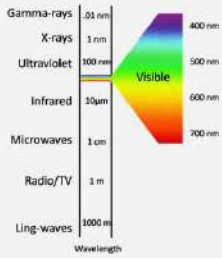
Visible Light



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Color Models

Additive and Subtractive Color Mixing

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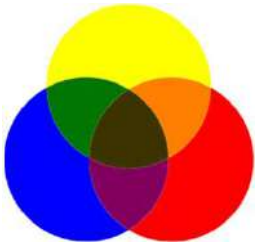
RYB Red, Yellow, Blue



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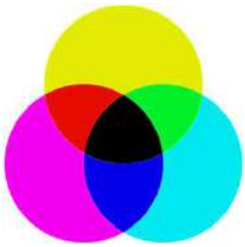
CMYK Cyan, Magenta, Yellow, Black



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RGB Red, Green, Blue

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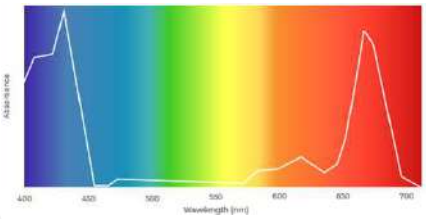
Reflected Light – Chromophore Absorption

Chlorophyll Absorption Spectrum



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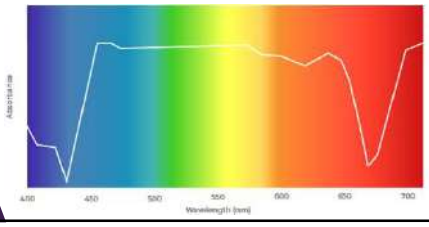
Reflected Light – Human Eye Absorption

Opsin Absorption Spectrum



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All colors are a combination of RGB Light

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Anatomy of Color Perception

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Scotopic vs. Photopic

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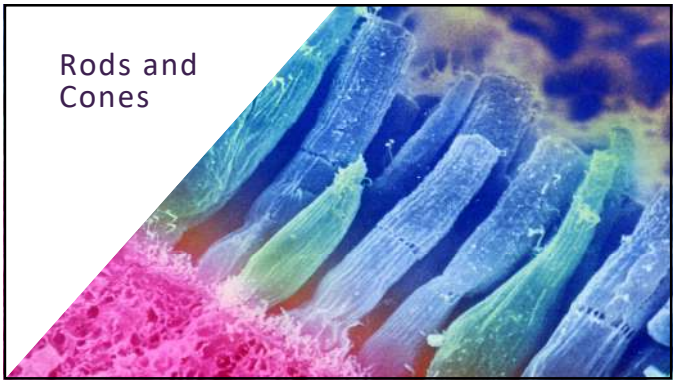
Rods and Cones



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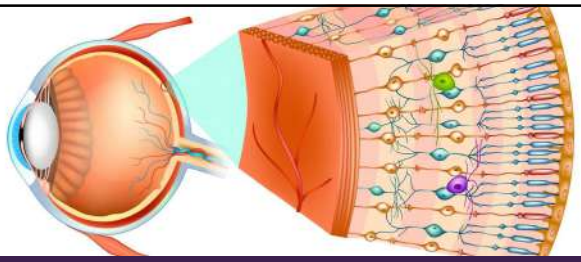

Anatomy of Color Perception

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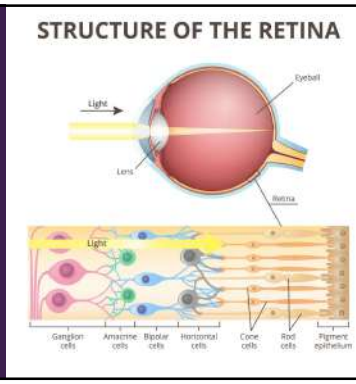
Movement of Light to the Cones



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Cone and Rod Cells

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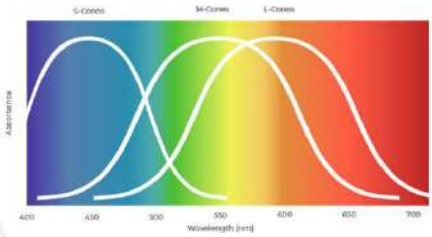
Cone Photoreceptivity



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Opsins are Photoreactive Proteins

Rhodopsin

Iodopsins

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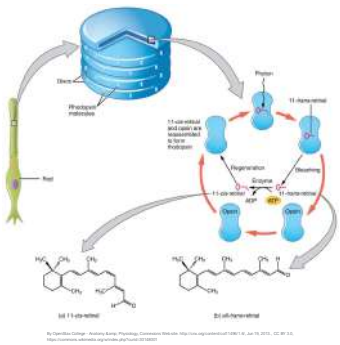
Phototransduction Cascade

- 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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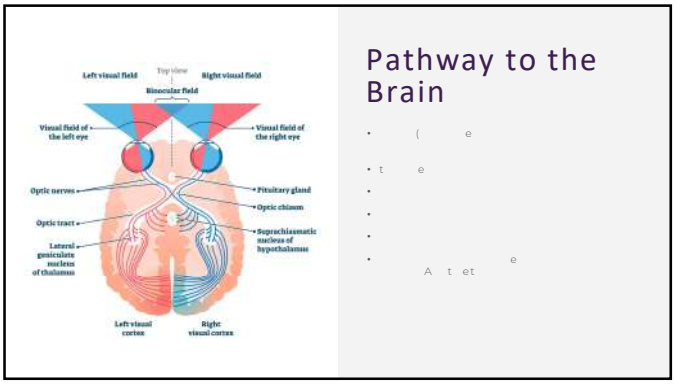

Pathway to the Brain

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Melanopsin Retinal Ganglion Cells

Intrinsically Photosensitive Cells

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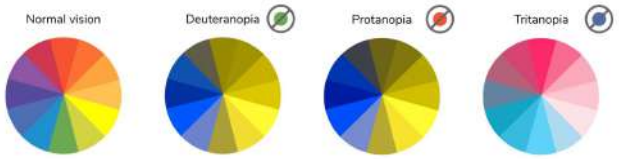
Color Blindness - Cones lack photopsins/iodopsins



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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

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Color is SPECIES Specific

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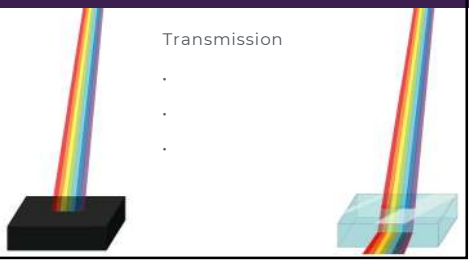
Absorption and Transmission

Absorption

Transmission



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Mirrors

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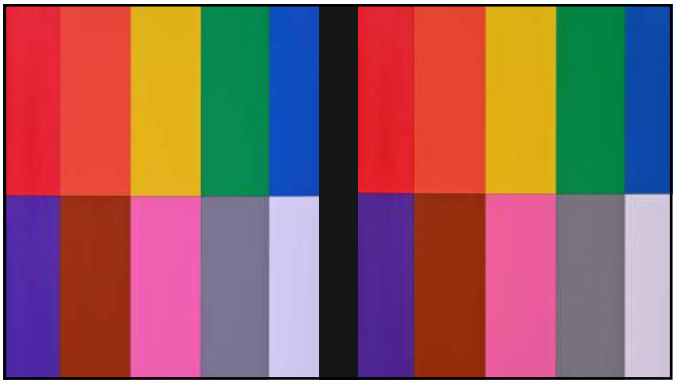

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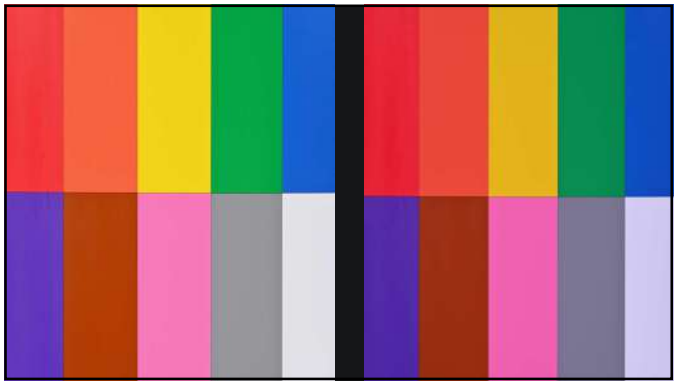

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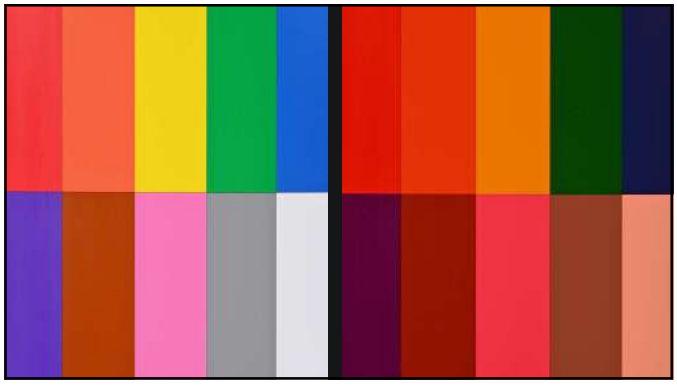

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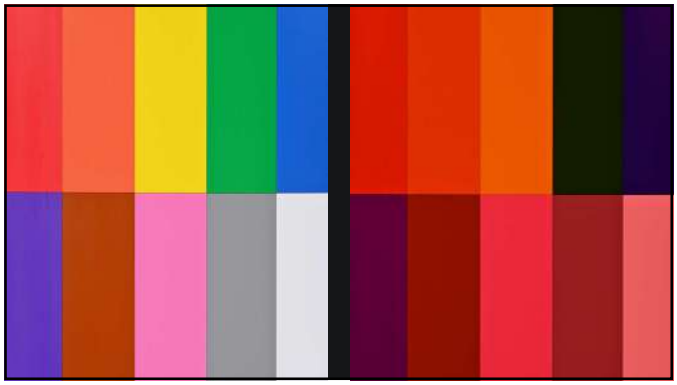

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Orange or Amber Lenses

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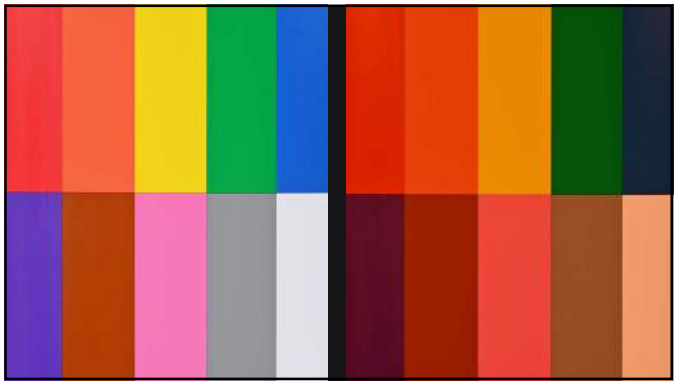

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Yellow Lenses

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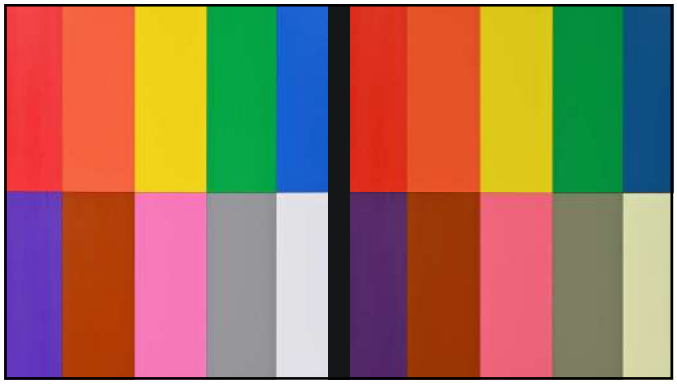

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Green Lenses

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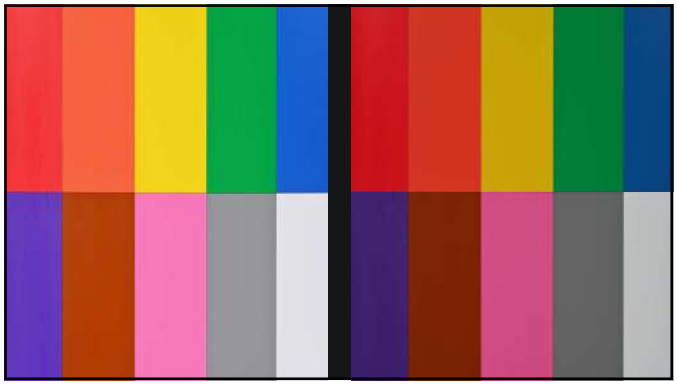

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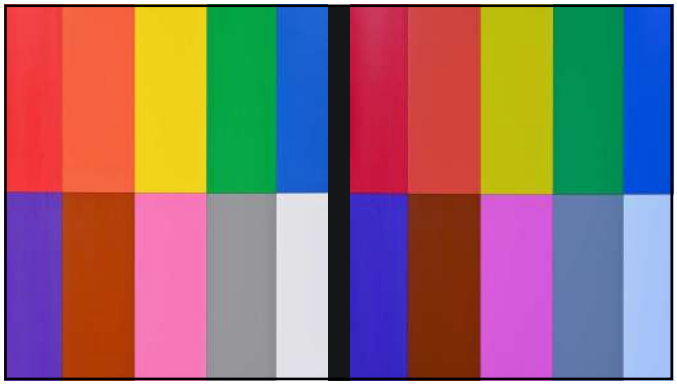

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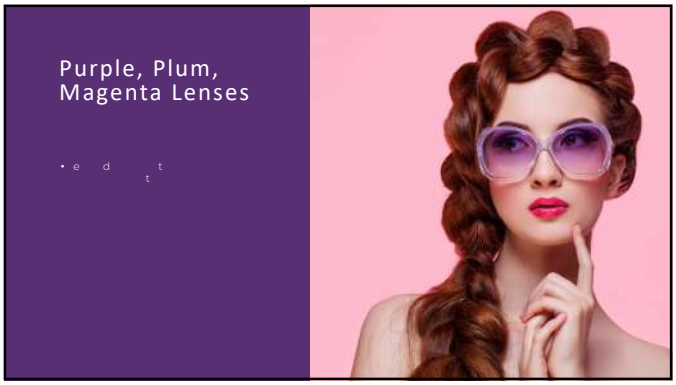

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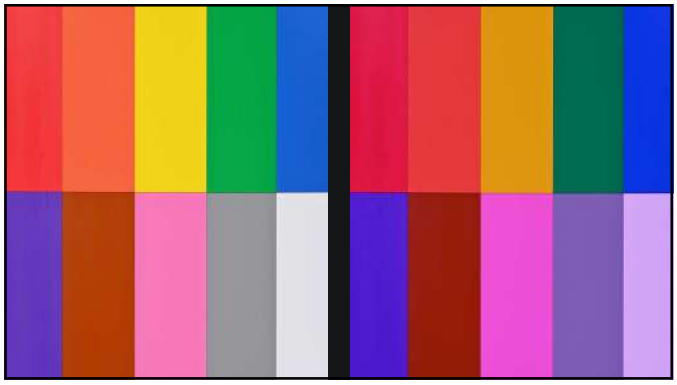

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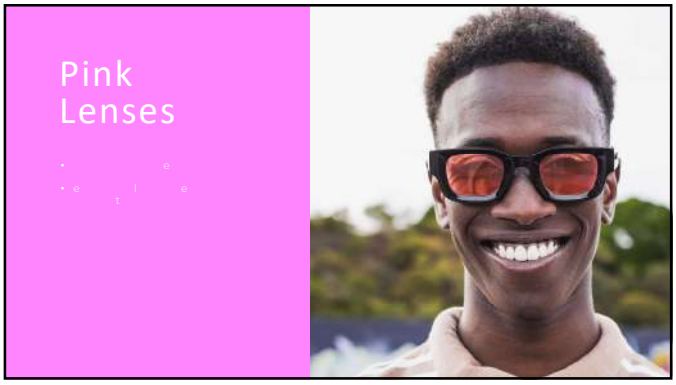

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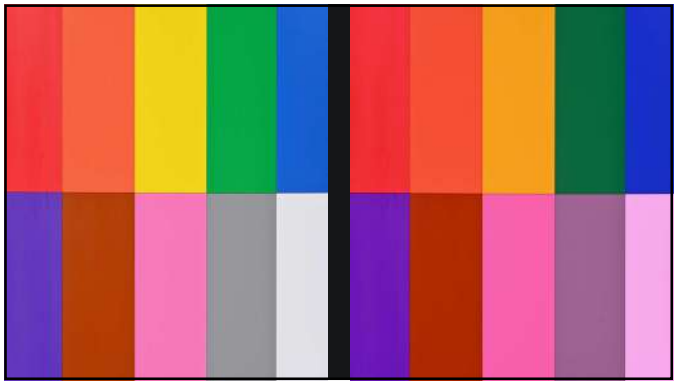

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You Try It

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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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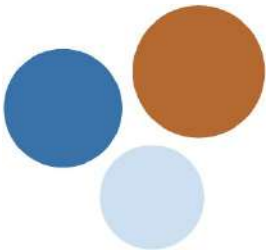

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No Tint is a Cure All for Everyone

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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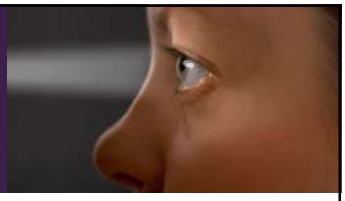
A word about Syntonics



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