

Optical Talk for Techs and Team Members

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Introduction

- Why are professional product recommendations so valuable?
- How do I know what to recommend?
- What is a benefit and how can I explain a benefit?

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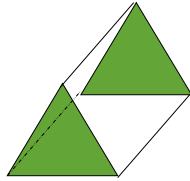
How is a Lens Made?

- Lenses are constructed and designed to meet the needs of the Rx.
- Meet the visual needs of the patient.
- All lenses no matter how complicated have some basic design features that are the same.

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How is a Lens Made?

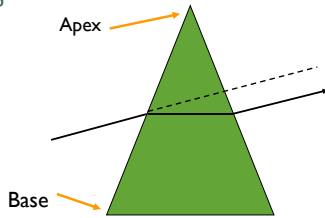
Wedge shaped piece of optical glass or plastic...



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How is a Lens Made?

A Prism



...that deviates a ray of light towards the **base** and an image towards the **apex**...

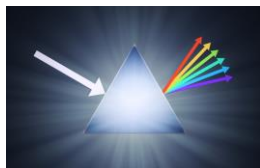
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How is a Lens Made?

A Prism

...and splits up white light into its component colors.

ROY G BIV



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How is a Lens Made?

Optics of Plus Lenses

Converges light rays
Magnifies images
Thicker in the middle,
thinner at the edge



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How is a Lens Made?

Optics of Minus Lenses

Diverges light
Minifies images
Thinner in the middle,
thicker at the edge



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Things to Consider

- Index of Refraction
 - How much does it bend light?

Material	Index of Refraction
Air	1.00
Water	1.33
CR39	1.5
Diamond	2.41

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Things to Consider

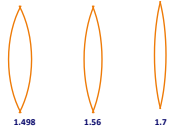
- Index of Refraction
 - A high index of refraction can have a dramatic difference on the final thickness, weight and profile of a lens
 - Reduce thickness translates into lighter and more comfortable eyewear

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Things to Consider

- Index of Refraction
 - As the index of refraction becomes higher, a lens of a given prescription and diameter needs less curvature and thickness to produce that power.
 - For plus lenses, this translates into thinner centers; for minus, it means thinner edges.



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Things to Consider

- Abbe Value
 - A number value given to lens materials to rate the amount of chromatic aberration
 - The higher the abbe value the less the chromatic aberration
 - If the aberration is significant enough, the lens wearer will likely see some reduction in vision quality and possibly colored ghost images

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Things to Consider

- Specific Gravity
 - The higher the specific gravity the heavier the lens will be
 - Thinner doesn't necessarily mean lighter weight

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Things to Consider

- Impact Resistance
 - High Impact Lens Test

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Lens Materials

- CR-39
 - 1.5 Index of Refraction
 - Lighter than glass
 - Thickest lens material
 - Specific Gravity 1.32
 - Abbe Value 58

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Lens Materials

- CR-39
 - Developed as a replacement for glass lenses during World War II
 - Available in all lens styles
 - Tints well
 - Thickest of the lenses
 - Light weight

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Lens Materials

- Polycarbonate
 - 1.59 Index of Refraction
 - Light Weight
 - Impact resistant
 - Specific Gravity 1.22
 - Abbe Value 29

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Lens Materials

- Polycarbonate
 - Represents 35% of all lenses sold
 - Thin profile
 - Available in numerous lens designs
 - Can be more difficult to tint

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Lens Materials

- Trivex
 - 1.53 Index of Refraction
 - Impact Resistant
 - Optical Clarity
 - Specific Gravity 1.11
 - Abbe Value 43 to 45

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Lens Materials

- Trivex
 - Combines excellent optics, strength, and ultra-lightweight
 - Available in multiple designs
 - Frame friendly

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Lens Materials

- High Index Plastic
 - 1.60 1.67
 - Thinner lenses
 - Aspheric designs
 - Specific Gravity 1.34
 - Abbe Value 32-43

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Lens Materials

- High Index Plastic
 - 50% thinner and 50% lighter than a regular resin or CR39 lens
 - Have flatter front curves for improved cosmetics and ease of insertion in frames

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Lens Materials

- Super High Index Plastic
 - 1.70+ Index
 - Thinner lenses
 - Aspheric designs
 - Specific Gravities
 - 1.26 to 1.30
 - Abbe Values 32 to 41

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Lens Designs

- Single Vision
 - Designed for one focal length
 - Distance, Intermediate, Near
 - Wide variety of lens materials

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Lens Designs

- Digital Single Vision
 - More accuracy
 - One focal length
 - Wide variety of lens materials

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Lens Designs

- Multifocals
 - Bifocals
 - Top is distance, lower is near
 - 25, 28, or 35mm wide
 - Trifocals
 - Middle is intermediate
 - Intermediate is typically 7 or 8mm deep

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Lens Designs

- Progressive Lenses
 - No Lines
 - Distance to Near seamlessly
 - Shaped like an hourglass
 - Traditional or short seg heights
 - Point your nose lens
 - Wide variety of lens materials

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Lens Designs

- Digital Progressives
 - Improved accuracy
 - Personalized designs
 - Available traditional and short seg
 - Wide variety of lens materials

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Lens Designs

- Computer Lenses
 - Single Vision or Multi Focus
 - Reduces eye fatigue and strain
 - Can be helpful for those with neck and shoulder issues

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Lens Designs

- Single Vision Readers/Intermediate Lens
 - Half eye or full field
 - Can help with certain medical conditions
 - Can improve quality of life
 - Wide variety of materials and treatments

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Lens Designs

- Specialty Lenses
 - Occupational lenses
 - Double D seg
 - Wider/Deeper segs

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Lens Treatments

- Scratch Coating
 - “resistant” NOT “proof”
 - Applied to all resin lenses
 - Base for AR
 - Instructions for cleaning

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Lens Treatments

- UV Protection
 - Blocks harmful UV rays
 - What damage can occur from UV radiation?
 - Applied to CR39
 - Mid and High Index materials - included

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Lens Treatment

- Anti Reflective
 - Basic Lens Material
 - Scratch Resistant Coating
 - Anti-Reflective Layers
 - Hydrophobic Topcoat
 - Oleophobic Topcoat
 - Anti-Static Properties

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Lens Treatments

- Anti Reflective
 - Layers of thin film – 1/5000th the width of a human hair
 - Vacuum deposited
 - Reduces reflections over a broad band of wavelengths
 - Increases light transmission

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Lens Treatments

- Anti Reflective
 - Reduces eyestrain when under artificial light
 - Cuts reflections from back of sun lenses
 - Improves cosmetics
 - Improves low light vision
 - Significantly improves high index lens transmission

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Lens Treatments

- Blue Light

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Lens Treatments

- Tints
 - Wide variety of colors and density
 - Cuts down brightness NOT glare
 - Fashion tints
 - Functional tints
 - Specialty Tints

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Lens Treatments

- Photochromatics
 - Variable tint
 - Clear to dark or dark to darker
 - Variety of colors
 - Convenient
 - Wide variety of materials and lens designs

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Lens Treatments

- Photochromatics
 - Needs UV exposure
- Variables
 - Temperature
 - Altitude
 - Orientation of lens to sunlight

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Lens Treatments

- Polarization
 - Venetian blind
 - Filter is suspended in lens
 - Reduces blinding glare
 - Improves contrasts
 - Wide variety of colors, materials, designs

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Lens Treatments

- Polarized
 - Photochromatic
 - How do I know if a lens is polarized?
 - To polarize or not to polarize
 - Expectations
 - Wide variety of colors

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Lens Treatments

- Mirrors
 - Solids or Gradients
 - Vacuum/Flash
 - Can be placed over any colored or clear lens
 - Wide range of colors
 - Who benefits

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Frames

- Semi-Rimless
 - Frame on the top not on the bottom
 - Lenses are grooved
 - Plus lenses

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Frames

- Rimless
 - Minimal frame
 - Drill through lenses
 - Compression mount systems
 - Are they durable?
 - Prescription ranges

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Frames

- Oversize
 - How could an oversize lens size affect the cosmetic appeal of the final product?
 - Can lead to more problems peripherally

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Frames

- Wraps
 - Too much wrap can change the wearer's vision
 - Some lenses may not be available

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Frames

- Short B Measurement
 - May require short corridor progressive lenses
 - What if they really LOVE the frame?

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Recommendations

- Sunwear
 - Who should have sunwear?
 - How can you encourage sunwear?

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Recommendations

- Eye Health History?
 - How could the answers influence your recommendations?
 - Ie: Macular Degeneration

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Recommendations

- Contact Lens Wearers
 - What recommendations should be made?
- Post Surgical Patients
 - What recommendations should be made?

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Recommendations

- Children
 - What recommendations should be made?

- Non-prescription
 - What recommendations should be made?

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Conclusion

If you believe in taking care of your patient's vision and eye health, everyone should be making recommendations at various touch points during their visit.

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Thank You

for attending

eyesofjoy@yahoo.com

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