How to think

John Ikeda, OD

RULES

1. Attendance Optional
2. Put away cellphones + computers

Ideas

I googled "NBEO pass rate"

optometriceducation.org/news/national-board-of-examiners-in-optometry-yearly-performance-report/

futureeyedoc.org · ASCO Learning Center · OptomCAS · Optometry Admission Test · Optometry Programs Admissions Directory · ASCOConnect · Meetings & Events · Sponsor

ASSOCIATION of SCHOOLS and COLLEGES of OPTOMETRY

For Faculty & Administrators +
For Practitioners +
Future Students +
Current Students +
Diversity, Equity, Inclusion & Belonging +
Data & Reports +
Awards & Grants +
News & Resources ✕

National Board of Examiners in Optometry Yearly Performance Report

December 22, 2022

NATIONAL BOARD OF EXAMINERS IN OPTOMETRY
October 1, 2021 – September 30, 2022 Institutional Yearly Performance Report

Schools	Number of Candidates	Part I ABS First Timer Pass Rate	Part II PAM First Timer Pass Rate	Part III CSE First Timer Pass Rate	Ultimate Pass Rate
Arizona College of Optometry at Midwestern University[5]	51	86.27%	98.04%	94.12%	98.04%
Chicago College of Optometry[5]	44	68.18%	72.73%	93.18%	95.45%
Herbert Wertheim School of Optometry & Vision Science	62	88.71%	95.16%	96.77%	98.39%
IAUPR-School of Optometry[1]	32	37.50%	40.63%	40.63%	68.75%
Illinois College of Optometry	132	81.06%	95.45%	90.15%	96.97%
Indiana University School of Optometry	69	65.22%	92.75%	78.26%	85.51%
Michigan College of Optometry[4]	36	83.33%	97.22%	77.78%	91.67%
New England College of Optometry	112	74.11%	90.18%	72.32%	89.29%
Northeastern State University, Oklahoma College of Optometry[3]	27	77.78%	96.30%	74.07%	96.30%
Nova Southeastern University College of Optometry[1]	97	72.16%	85.57%	80.41%	90.72%
Pacific University College of Optometry	87	74.71%	86.21%	85.06%	85.06%

Schools	Candidates	Timer Pass Rate	Timer Pass Rate	Timer Pass Rate	Pass Rate
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Pacific University College of Optometry	87	74.71%	86.21%	85.06%	85.06%
Salus University, Pennsylvania College of Optometry	149	73.83%	81.88%	81.21%	83.89%
School of Optometry, Massachusetts College of Pharmacy & Health Sciences	51	50.98%	60.78%	68.63%	66.67%
Southern California College of Optometry at Marshall B Ketchum University	103	76.70%	86.41%	86.41%	90.29%
Southern College of Optometry[2]	120	85.00%	91.67%	79.17%	97.50%
State University of New York College of Optometry	95	87.37%	93.68%	81.05%	93.68%
The Ohio State University College of Optometry	69	92.75%	97.10%	89.86%	95.65%
University of Missouri St. Louis, College of Optometry[4]	37	86.49%	94.59%	72.97%	94.59%
University of Alabama at Birmingham, School of Optometry	39	71.79%	97.44%	74.36%	92.31%
University of Houston College of Optometry	94	73.40%	87.23%	89.36%	89.36%
University of Pikeville Kentucky College of Optometry	70	41.43%	60.00%	44.29%	60.00%
University of the Incarnate Word Rosenberg School of Optometry	50	56.00%	82.00%	76.00%	78.00%
Western University of Health Sciences	75	44.00%	70.67%	73.33%	66.67%
National	**1701**	**73.19%**	**86.01%**	**79.89%**	**87.77%**

NBEO FIRST-TIME PASS RATES

Exam	Year	Timeframe	Administration	Number of first-time takers	First-time pass rate (%)
Part 1- ABS	2020	9/1/2019- 8/31/2020	*July-20, Nov-20, Jan -21	84	65.48%
Part 2 – PAM		9/1/2019- 8/31/2020	Dec-19, *Jul-20	81	82.72%
Part 3 – CSE		8/1/2019 – 7/31/2020		74	79.73%
Part 1- ABS	2021	9/1/2020 – 8/31/2021	Mar-21, Aug-21	64	48.44%
Part 2 – PAM		9/1/2020 -8/31/2021	Dec-20, Apr-21	68	80.88%
Part 3 – CSE		8/1/2020 – 7/31/2020		80	72.50%
Part 1 – ABS	2022	9/1/2021 – 8/31/2022	Mar-22, Aug-22	53	22.6%
Part 2 – PAM		9/1/2021 – 8/31/2022	Dec-21, April-22	80	67.50%
Part 3 – CSE		8/1/2021 – 7/31/2022		80	71.25%

https://www.westernu.edu/optometry/about-the-college/student-outcomes/

1 You have the power

- Our school is probably average: no better, no worse
- You have the opportunity to make what you want of this education
- Don't expect you to be prepared for the test just because you studied and passed classes at school
- After you graduate, there are some students that will continue to learn and some who do not
- Go to meetings (AOA, AAO, OEPF), read outside of class, buy textbooks
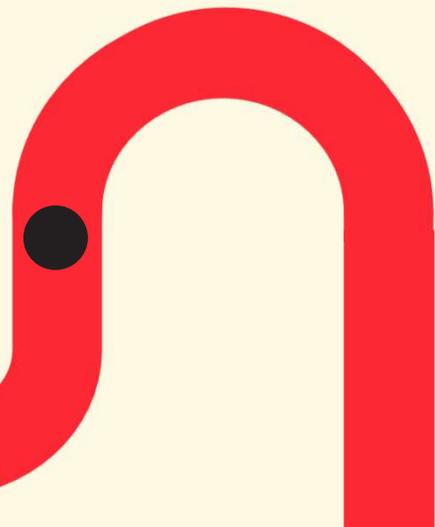
1 Do's and Don'ts

Do's
1. Summarize
2. Know important diagnoses (common or life threatening)
3. Read multiple sources (not relying on lectures or KMK)
4. Use google

• **Don't**
1. Memorize
2. Read KMK several times
3. Uses Optoprep
4. Highlighting and making flashcard
5. Memorize mnemonics

DATE	PARTS		
	I	II	III
Mar	100F		
Aug	100F		
Dec		100F	
Mar	100F		
Apr		100F	
Jun			325P
Dec		102F	
Mar	117F		
Apr		100F	
Aug	108F		
Dec		263F	
Aug	277F		
Dec		153F	
Nov	368P		
Apr		462P	

Goal: Pass NBEOPart 1,2,3

⬉ ② How to prepare

- **Goal: To be the best doctor**
- **Remember details that help you care for your patients**
- **Don't try to remember everything**
- **"Tell the story"**

- **What is astigmatism?**

How to prepare: "Tell the story"

Example:
- **Diabetes – poor perfusion**
- **Uveitis – autoimmune**
- **Neurotrophic Keratitis – damage of cornea nerves by herpes**
- **Ocular Ischemic Syndrome – midperipheral hemes**

Example: Low Yield

Embryonic Tissue*		Eye Tissue
Ectoderm	Neuroectoderm (stains with S-100)	• Retina → nonpigmented epithelium of ciliary body → pigmented iris epithelium • Retinal pigmented epithelium → pigmented epithelium of ciliary body → dilator & sphincter muscles of iris • Optic nerve • Vitreous (partial)
	Neural Crest Cells (stains with S-100)	• **Corneal stroma & endothelium** • Sclera (partial) • **Trabecular meshwork** • Ciliary muscles • **Melanocytes** • Schwann cells (think schwannoma/neurilemoma) • Meningeal sheaths of the optic nerve (think meningioma) • Vitreous (primary) • Pretty much everything else
	Surface Ectoderm ("LEVL surface")	• Lens • Epithelium (cornea, conjunctiva, caruncle, skin) • Vitreous (partial) • Lacrimal gland / Lacrimal drainage system
Mesoderm ("MESO")		• Muscles (fibers of EOMs) • Endothelium of all eye/orbital blood vessels • Sclera (temporal portion) / Schlemm canal • Other (vitreous)

https://www.ophthalmologyreview.org/articles/embryologic-development-of-the-eye

↖ ② **Example : Low yield**

- **Facts about development of surface ectoderm, neural ectoderm, neurocrest cells**
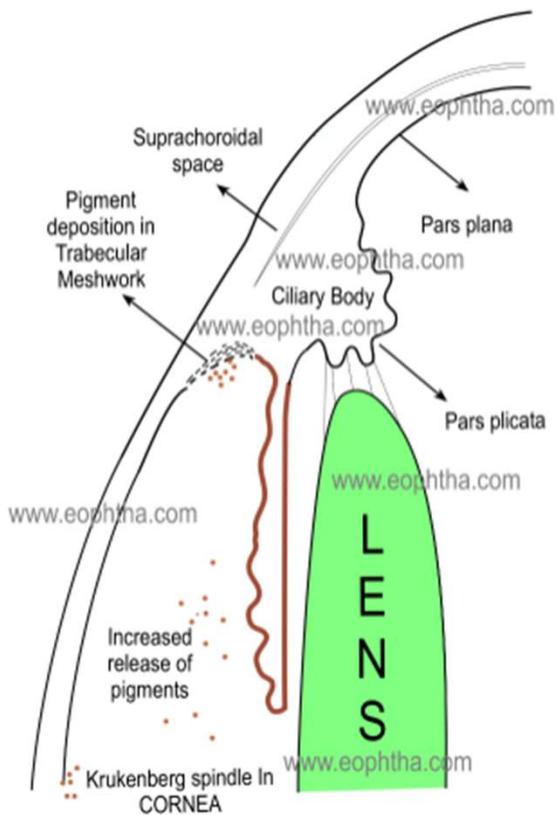- **BUT you might see how it makes sense**

EMBRYOLOGIC DEVELOPMENT OF THE EYE - MNEMONIC				
EMBRYONIC TISSUE	**SURFACE ECTODERM**	**NEURO ECTODERM**	**MESODERM**	**NEURAL CREST**
MNEMONIC	**LEVEL**	**ROMES**	**MESO**	*(All other stuctures)*
DERIVATIVES	• **L**ens • **E**yelid's Skin • **V**itreous • **E**pithelium of cornea • **L**acrimal gland	• **R**etina • **O**ptic Stalk/Nerve • **M**uscles of Iris • **E**pithelium of Iris & Ciliary body • **S**econdary & Tertiary vitreous	• **M**uscles (Extra ocular) • **E**ndothelium of Blood Vessels • **S**clera (Temporal) • **O**ccular Primary Vitreous	• Cornea (stroma and endothelium) • Sclera • Trabecular meshwork • Vitreous • Melanocytes • Ciliary muscles • Ciliary ganglion

WWW.OPENMED.CO.IN

RPE

Lens zonules rub against pigmented iris epithelium

Retina

Retina— NP ciliary epithelium--- P Iris epithelium
INNER CIRCLE

RPE – P ciliary epithelium – NP Iris epithelium
OUTER CIRCLE

Slide 15

JI1   John Ikeda, 10/22/2023

www.eophtha.com

Scientific Research Publishing ‹ › ⋮ ✕

Gestacional Age (months)	Minimal LogMAR	Minimal Snellen	Mean LogMAR	Mean Snellen
0	1.18	20/300	0.93	20/170
1	1.10	20/250	0.88	20/150
2	0.93	20/170	0.7	20/100
3	0.88	20/150	0.6	20/80
4	0.81	20/130	0.54	20/70
5	0.78	20/120	0.48	20/60
6 - 8	0.65	20/90	0.3	20/40
9 - 11	0.60	20/80	0.3	20/40
12 - 17	0.48	20/60	0.18	20/30
18 - 23	0.35	20/45	0.1	20/25
24 - 29	0.24	20/35	0.1	20/25
30	0.18	20/30	0	20/20

Two facts I want you remember:
6 year old should see 20/20 Snellen
1 year old should see 20/60 Snellen

Table 1
Expected visual milestones through early childhood

Age	Visual Milestone
Birth to 2 mo	Blinks to light
2–3 mo	Fix and follows
3 mo to 3 y	Central steady maintained
4–5 y	20/40 Pictures
5–6 y	20/30 Letters
6–7 y+	20/20 Snellen

Table 1 Expected visual milestones through early childhood

Published in The Pediatric clinics of North America 2014

Table 1. Expected visual acuity according to the age

Age (mo)	OKN	PL	VEP
0	20/400	20/400	20/400
2	20/200	20/200	20/60
4	20/200	20/200	20/60
6	20/100	20/150	20/40
12	20/60	20/50	20/20

OKN, optokinetic nystagmus test; PL, preferential looking test; VEP, visual evoked potential test.

Table 1. Expected visual acuity according to the age

Published in 2017
Pediatric visual acuity examinations and vision care

H. Paik

Clinically: We are mainly going to use PL (or Snellen only)
I've never used VEP or OKN in clinic. But know that 1 year reaches 20/20 in VEP

Useful fact:
OKN Drum -optokinetic reflex
Check for congenital strabismus by asymmetric temp to nasal vs nasal to temp confirms no binocularity)

- **I Can't See That Stupid Line**
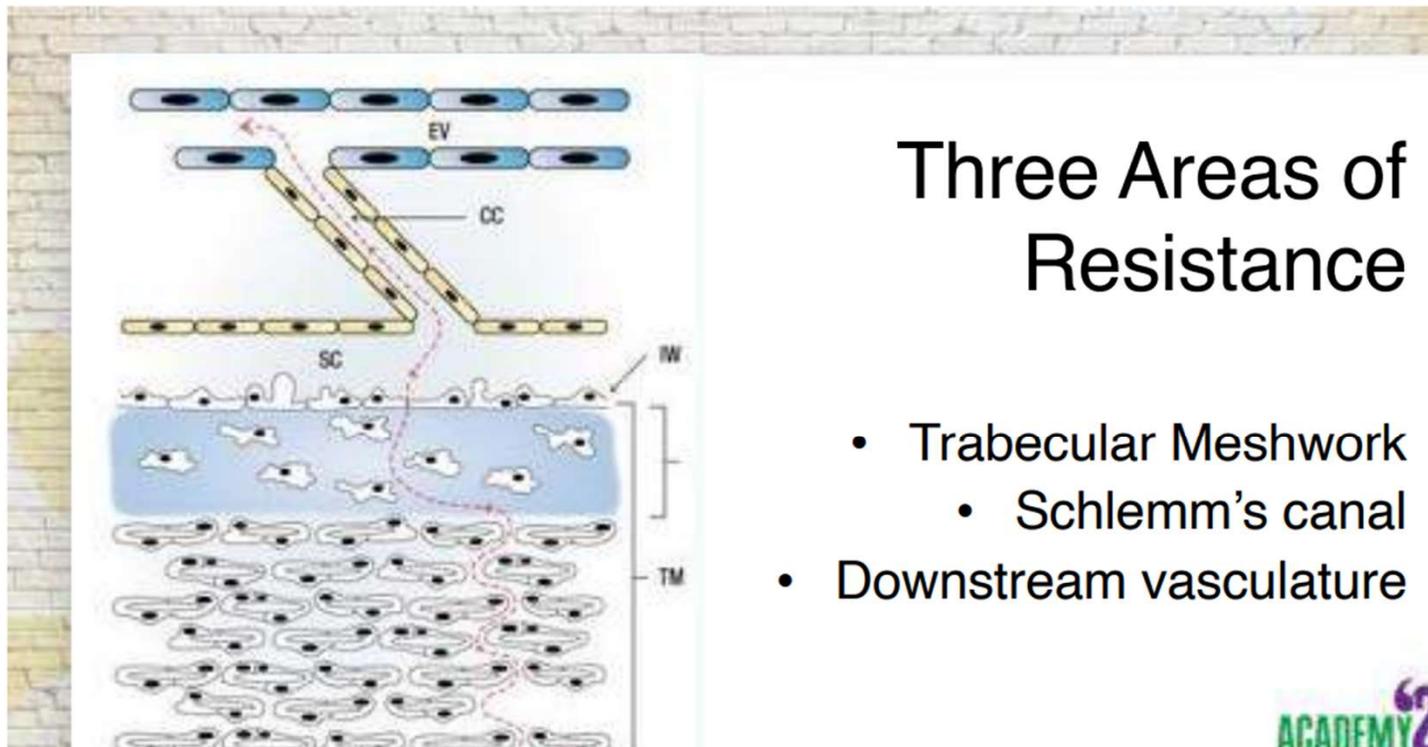
Three Areas of Resistance

- Trabecular Meshwork
  - Schlemm's canal
- Downstream vasculature

Schwalbe's line
Non-pigmented trabecular meshwor
Pigmented trabecular mes
Scleral spur
Ciliary body band

ACADEMY '23
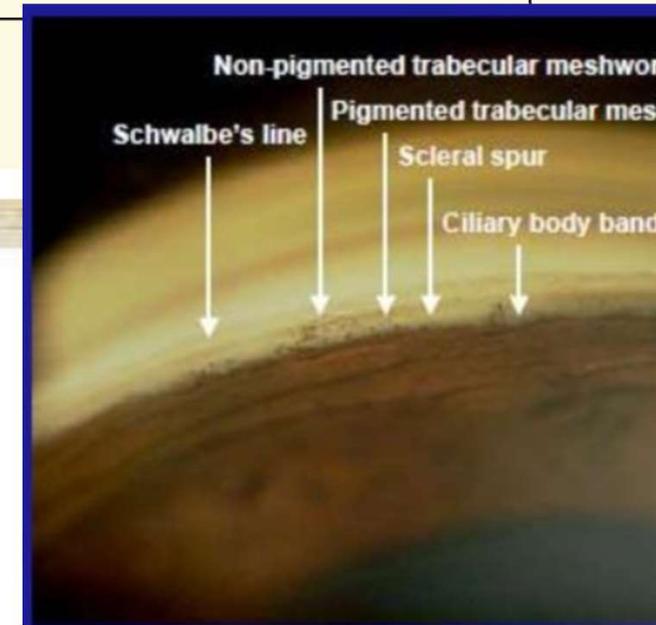
I hate mnemonics

- **Name 5 causes of proliferative retinopathy?**
  - *Diabetes, ROP, Vein Occlusion, OIS, Sickle Cell*

- **Think how you don't need to memorize this. What do all the conditions have in common?**
- **All conditions all have poor perfusion**

http://hyperphysics.phy-astr.gsu.edu/hbase/geoopt/raydiag.html#c2
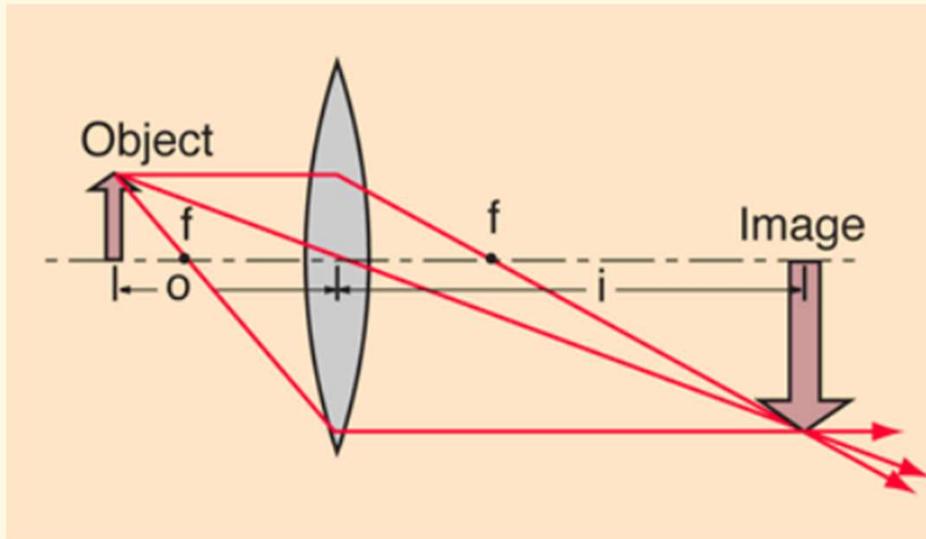
- **All objects have divergence**
- **The further away the object is away from the lens…. You get what? (no divergence or parallel light rays)**
- **All real objects are inverted**

- **Optics**
- **L + F = L'**

You don't have to memorize

$$-2 \quad +5 = +3$$
$$+5$$

50 cm   33cm
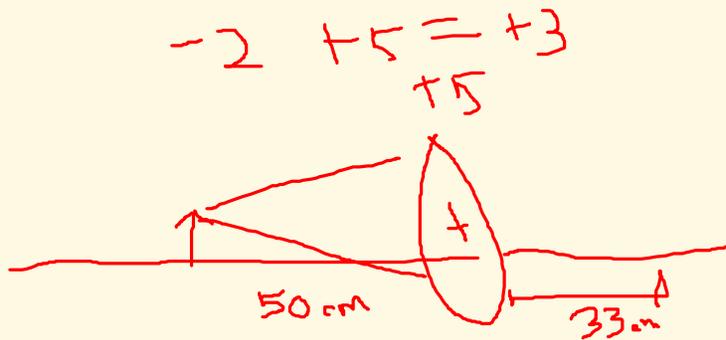
You must know this!

- The rest is basic algebra
- For instance is it asks what is height of the object
You would just set up a ratio 1/50 = x / 33 x= 0.66

If the object is 1 ft tall, the image would be 0.66 ft tall

- **Telescopes**
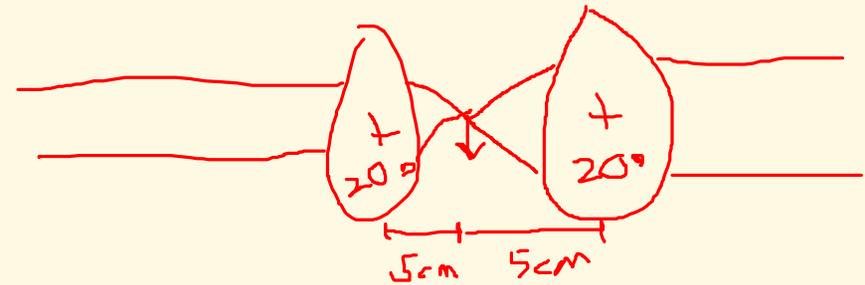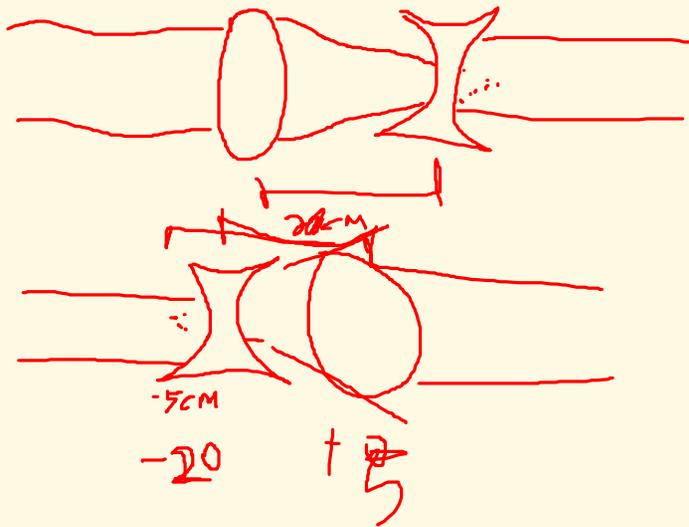
⬉ ② Retinoscopy

Example: Very low yield

- **Review two sources of White Dot Syndrome**
- **Summarize White Dot Syndrome after looking at the resources**
- **(OptometryAcademy.com/whitedotsyndrome**

1. https://www.nbeo.org/pdf/matrix/pdf/part_abs_samples.pdf
2. https://www.nbeo.org/part_pam_sample.cfm
3. https://www.nbeo.org/pdf/contents/ACMO_Sample_Patients.pdf
4. https://www.nbeo.org/pdf/CPDO_Sample_Patient_Cases.pdf
5. https://www.nbeo.org/pdf/CPDO_Sample_Solo_Items.pdf
6. https://www.nbeo.org/pdf/CPDO_Sample_Minicases.pdf

- **What is a normal phoria at distance and near?**
- **What is a cover test?**
- **What is the most common cause of a RAPD?**
- **What spectacle Rx do you need to think about vertex distance?**

Think: How can I retain information long term?

Use your time wisely

Study Multiple Resources

Use resources outside of classes

Optics

The main topic to passing boards

Tell the Story

Explain conditions in simple language

NBEO practice questions

But not excessive questions

My recommendations
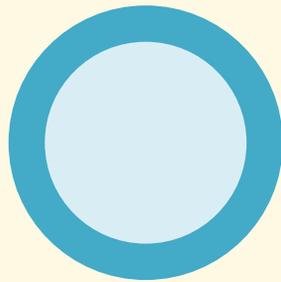
Attend Class
Getting an A isn't everything
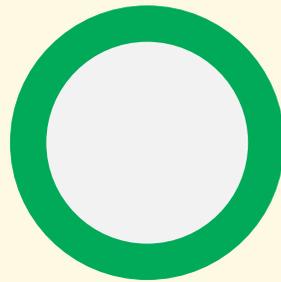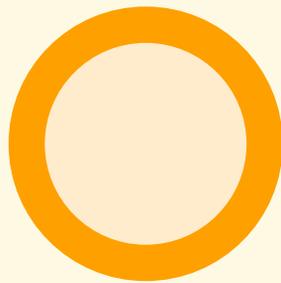
Study KMK
Read it as a book (once)
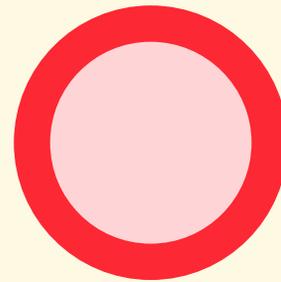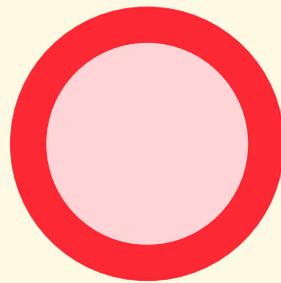
Google
Look for other resources
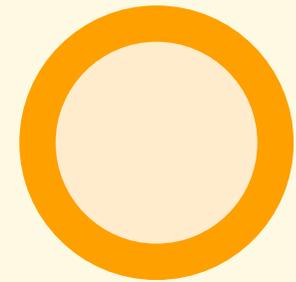
Attend Meetings
AOA, AAO, OEPF

Read Textbooks
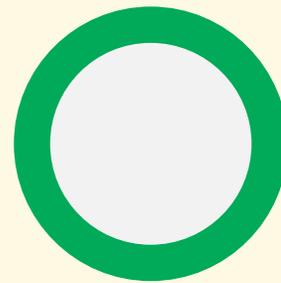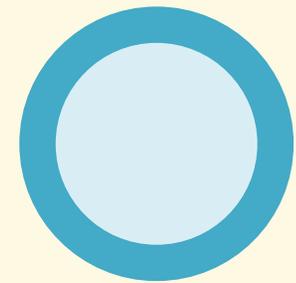Ocular Anatomy

Review of Optometry
Magazine is a good summary

Think Big Picture
Connect the Dots

Ask for Help
Ask faculty if you need help

Aug 2023 — **June 2024** — **Mar 18 or 19 2026** — **Dec 2026** — **May 2027**

White Coat Ceremony

Summer of first year is the ideal time to prepare

NBEO Part 1

NBEO Part 2 (and eventually Part 3 and Law Exam)

Graduation

What is a cover test?

- A cover test doesn't just measure phoria or eye alignment exactly.
- You can think of it as you explain to a parent and showing them what you are testing.
- First, a cover test require fixation.
- On unilateral cover test, I ask a patient to look at my target and both eyes should be looking at the target, and then I check to see if each eye is actually looking at it or needs to take refixation because it wasn't actually looking at it.
- A cover test isn't just a number, but a process and a state of ocular alignment.
- Cover test is an unnatural test, since it is a dissociated phoria, unlike a associated phoria like a Mallett Test or Vectographic slide.

What is pupil testing?

- You are testing **afferent (sensory)** as opposed to efferent (motor) issue. One of the most common is glaucoma. It is a **relative** condition meaning if the glaucoma (even if severe) was affected equally in both eyes you wouldn't have any relative APD.

How we get there

What is allergies?

- Itchiness

What is bacterial conjunctivitis?

- Mucopurulent
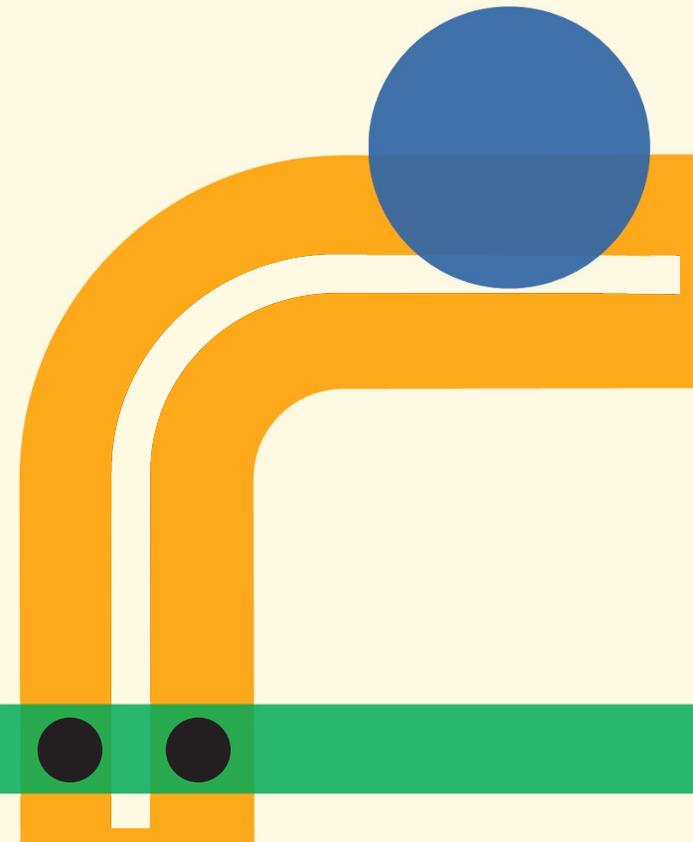
What is diabetic retinopathy?

- Lack of perfusion

NBEO Part 1 is taken March of 3rd year optometry school. 2.5 years of information.

If you estimate class is 6 hours a day x 40 weeks a year = 3000 hours of education

You can't memorize everything. You have think: How will I retain this information tomorrow and 10+ years from today

Thank you

John Ikeda, OD

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