BOARD FOR HEARING AID SPECIALISTS AND OPTICIANS

CURRICULUM REVIEW COMMITTEE

***TENTATIVE* AGENDA**

May 22, 2024, 9:00 a.m., Board Room 3, Second Floor

Department of Professional and Occupational Regulation
Perimeter Center, 9960 Mayland Drive
Richmond, Virginia 23233
(804) 367-8590

Members: Kristina Green, Kaytlyn Young, Darla All, Erik Meland, and Stacey Brayboy

I.   CALL TO ORDER

II.   EMERGENCY EVACUATION PROCEDURES

III. APPROVAL OF AGENDA

    1.   Board for Hearing Aid Specialists and Opticians Curriculum Review Committee Agenda, May 22, 2024

IV.   PUBLIC COMMENT

V.   OPTICIAN CURRICULUM CRITERIA REVIEW

VI.   ADJOURN

<div align="center">

PERIMETER CENTER CONFERENCE CENTER
EMERGENCY EVACUATION OF BOARD AND TRAINING ROOMS
(Script to be read at the beginning of each meeting.)

</div>

PLEASE LISTEN TO THE FOLLOWING INSTRUCTIONS ABOUT EXITING THE PREMISES IN THE EVENT OF AN EMERGENCY.

In the event of a fire or other emergency requiring the evacuation of the building, alarms will sound. When the alarms sound, <u>leave the room immediately</u>. Follow any instructions given by Security staff

Board Room 1
Exit the room using one of the doors at the back of the room. Upon exiting the room, turn **RIGHT.** Follow the corridor to the emergency exit at the end of the hall.

Upon exiting the building, proceed straight ahead through the parking lot to the fence at the end of the lot. Wait there for further instructions.

Board Room 2
Exit the room using one of the doors at the back of the room. (Point) Upon exiting the room, turn **RIGHT.** Follow the corridor to the emergency exit at the end of the hall.

Upon exiting the building, proceed straight ahead through the parking lot to the fence at the end of the lot. Wait there for further instructions.

You may also exit the room using the side door, turn **Right** out the door and make an immediate **Left**. Follow the corridor to the emergency exit at the end of the hall.

Upon exiting the building, proceed straight ahead through the parking lot to the fence at the end of the lot. Wait there for further instructions.

Board Rooms 3 and 4
Exit the room using one of the doors at the back of the room. Upon exiting the room, turn **RIGHT.** Follow the corridor to the emergency exit at the end of the hall.

Upon exiting the building, proceed straight ahead through the parking lot to the fence at the end of the lot. Wait there for further instructions.

Training Room 1
Exit the room using one of the doors at the back of the room. Upon exiting the room, turn **LEFT.** Follow the corridor to the emergency exit at the end of the hall.

Upon exiting the building, proceed straight ahead through the parking lot to the fence at the end of the lot. Wait there for further instructions.

Training Room 2
Exit the room using one of the doors at the back of the room. Upon exiting the doors, turn **LEFT.** Follow the corridor to the emergency exit at the end of the hall.

Upon exiting the building, proceed straight ahead through the parking lot to the fence at the end of the lot. Wait there for further instructions.

From: Williams Anna <█████████████████>
Sent: Wednesday, April 10, 2024 2:04 PM
To: BCHOPLicensing (DPOR) <BCHOPLicensing@dpor.virginia.gov>
Subject: Re: Related Technical Instruction

Good afternoon,

I have attached our file that contains each class that we are seeking approval for. In the file you'll outlines, approval numbers, and affirmations of time. Please let me know if you need more information.

I am also including a snip of the ABO/NCLE Approval numbers and the links to our classes.

Title	ABO End Date	NCLE End Date	ABO Approval #	NCLE Approval #	AOA Approval #
Establishing a Healthy Team Dynamic	2/5/2027	2/5/2027	SWEOA018	CWEOA002	PM-0091-22
Foundation of Ophthalmic Lens Power	2/5/2027	2/5/2027	STWEOA122-1	CTWEOA003-1	OP-0075-22
LENS STANDARDS AND FORMULAS	3/6/2027	3/6/2027	STWEOA127-2	CTWEOA008-2	OP-0079-22
LENSOMETRY	2/5/2027	2/5/2027	STWEOA123-1	CTWEOA004-1	PT-0024-22
Maintaining a Healthy Team	1/18/2027	1/18/2027	SWEOA013	CWEOA001	
OCULAR ANATOMY AND ADVANCED OCULAR ANATOMY	2/9/2027	2/9/2027	STWEOA124-1	CTWEOA005-1	AP-0024-22
Optimizing Managed Vision Care	2/9/2027	2/9/2027	SWEOA019	CWEOA005	PM-0095-22
Pediatric Dispensing	2/9/2027	2/9/2027	STWEOA125-1	CTWEOA007-1	
Triage and Referring Patients	3/28/2027	03/28/2027	SWEOA020	CWEOA006	
Understanding Prismatic Effect	2/9/2027	2/9/2027	STWEOA126-1	CTWEOA006-1	OP-0076-22

Links:

Establishing a Healthy Team Dynamic
ESTABLISHING A HEALTHY TEAM DYNAMIC - ABO - Leonardo (essilorluxottica.com)

Foundation of Ophthalmic Lens Power
FOUNDATION OF OPHTHALMIC LENS POWER - ABO - Leonardo (essilorluxottica.com)

Lens Standards and Formulas
LENS STANDARDS AND FORMULAS - ABO - Leonardo (essilorluxottica.com)

Lensometry
LENSOMETRY - ABO - Leonardo (essilorluxottica.com)

Maintaining a Healthy Team
MAINTAINING A HEALTHY TEAM - ABO - Leonardo (essilorluxottica.com)

Ocular Anatomy and Advanced Ocular Anatomy
OCULAR ANATOMY - ABO - Leonardo (essilorluxottica.com)

Optimizing Managed Vision Care
OPTIMIZING MANAGED VISION CARE - ABO - Leonardo (essilorluxottica.com)

Pediatric Dispensing
PEDIATRIC DISPENSING-ABO - Leonardo (essilorluxottica.com)

Understanding Prismatic Effect
UNDERSTANDING PRISMATIC EFFECT - ABO - Leonardo (essilorluxottica.com)

Best Wishes and Warmest Regards,
Anna Williams
Manager – Training and Development

LEONARDO
science for a new vision

Part of EssilorLuxottica

To Whom It May Concern,

I certify that I have completed the following course in no less than the number of credit hours (1) requested for approval.

Establishing a Healthy Team Dynamic

Paige Shoven

Sincerely,

Paige Shoven, M.Ed, ABOC

From:	kaviles@abo-ncle.org
Sent:	Tuesday, February 13, 2024 6:00 PM
To:	Shoven Paige
Subject:	ABO Course Approval
Follow Up Flag:	Follow up
Flag Status:	Flagged

AMERICAN BOARD OF OPTICIANRY

NATIONAL CONTACT LENS EXAMINERS

217 N. Upper Street, Suite 201

Lexington, KY 40507

703-719-5800 • 800-296-1379

Web Address: www.abo-ncle.org

Dear Judith,

This letter will confirm that the **American Board of Opticianry** Education Committee **approved** the following **online** course:

Course: Establishing a Healthy Team Dynamic

Hours: 1

Designation: Non-Ophthalmic

Course Number: SWEOA018

Expires: February 5, 2027

This course has been approved for **3 years**.

Thank you for your continued commitment to quality education. If you have any questions regarding the above, please feel free to call the office at (703) 719-5800

Sincerely,

Karla Y. Aviles
Education Coordinator

2

From:	kaviles@abo-ncle.org
Sent:	Tuesday, February 13, 2024 6:12 PM
To:	Shoven Paige
Subject:	NCLE Course Approval

Follow Up Flag:	Follow up
Flag Status:	Flagged

AMERICAN BOARD OF OPTICIANRY

NATIONAL CONTACT LENS EXAMINERS

217 N. Upper Street, Suite 201

Lexington, KY 40507

703-719-5800 • 800-296-1379

Web Address: www.abo-ncle.org

Dear Judith,

This letter will confirm that the **National Contact Lens Examiners** Education Committee **approved** the following **online** course:

Course: Establishing A Healthy Team Dynamic

Hours: 1

Designation: Non-Ophthalmic

Course Number: CWEOA002

Expires: February 5, 2027

This course has been approved for **3 years**.

Thank you for your continued commitment to quality education. If you have any questions regarding the above, please feel free to call the office at (703) 719-5800

Sincerely,

Karla Y. Aviles
Education Coordinator

Establishing a Healthy Team Dynamic

1 hour non-ophthalmic ABO credit

Abstract: The course covers three essential notions to establish a healthy team dynamic. First, how to set specific, measurable, attainable, and relevant goals. Second how to use different types of communication to build rapport. Finally, how to manage time effectively by communicating, organizing, and prioritizing.

Objectives:

1. To understand the importance of identifying and setting SMART goals.
2. To learn about effective time management techniques, managing your time effectively by communication g clearly, organizing and prioritizing your work, and controlling interruptions.
3. To learn about communication and identify the different communication types.
4. To be able to differentiate effective verbal and non-verbal communication techniques.
5. Learn to build rapport with colleagues and patients.

Time Outline

I. Goal Setting and Action Plans (15 mins)
   a. Setting SMART Goals
      i. Performance Goals
      ii. Development Goals
      iii. SMART Goals
         1. Specific
         2. Measurable
         3. Attainable
         4. Relevant
         5. Time-Bound
   b. Preparing and Action Plan
      i. Create written SMART Goals
      ii. Identify how to achieve your goals
      iii. Create a timeline
      iv. Determine resources needed
      v. Execute the plan
   c. What does it look like in real life?
II. Effective Time Management (20 mins)
   a. Top 4 time management practices
      i. Manage your communication
         1. Listen Actively
         2. Maintain eye contact
         3. Paraphrase and check for understanding
         4. Ask questions

               5. Use Clarifying comments
- ii. Organize and Prioritize
- iii. Control Interruptions
- iv. Stop Procrastination in its tracks
- b. Tips to manage your time better
  - i. Prioritize your daily tasks
  - ii. Create a to-do list
  - iii. Ask for help
  - iv. Schedule time for interruptions
- c. Leverage practice management systems
  - i. Practice Management System (PMS)
    1. Schedule appointments
    2. Track resources
    3. Accounts Payable
    4. Accounts Receivable (the other AR)
    5. HIPPA information
    6. Product Orders
  - ii. Benefits of a PMS
    1. Marketing
    2. Billing/Estimates
    3. Scheduling
    4. HIPPA
    5. Insurance Benefits
    6. Tracking performance
  - iii. Limitations of practice management systems
- III. Effective Communication skills (20 mins)
  - a. The importance of effective communication skills
    - i. Why is it important?
    - ii. Communication and the professional
  - b. Non Verbal and verbal communication
    - i. Verbal communication
    - ii. Non Verbal Communication
    - iii. Reflection on your own styles
  - c. Listening effectively
    - i. Tips to being a good listener
    - ii. Handling feedback effectively
- IV. Avoiding Miscommunication
  - a. Understand why it happened and how to prevent miscommunication.
  - b. Negative and positive words

Test Questions

Topic		Goal Setting			
Screen ID			Template	Multiple Choice with Single Correct Answer	
Screen Content					
Title		Question - 1			
Prompt		*Select the best answer then click **Submit**.*			
Text		When referring to SMART goals, identify the correct definition of the acronym SMART.			
Learner options ***Place an X in the box to the left of the correct answer(s).*** ***Delete unused choices and text.***			A	Standard, Measurable, Attainable, Recordable, Time-bound	
		X	B	Specific, Measurable, Attainable, Relevant, Time-bound	
			C	Specific, Moderated, Alterable, Referable, Traceable	
			D	Strategic, Marketable, Achievable, Reusable, Training-based	
Programming Instructions/ System Response			**Move to next frame**		

Topic	Goal Setting			
Screen ID		**Template**		Multiple Choice with Single Correct Answer

Screen Content		
Title	Question – 2	
Prompt	*Select the best answer then click **Submit**.*	
Text	Identify the goal that meets all the criteria for a SMART goal.	

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	I would like to get promoted to be a Store Manager. When I become a Store Manager, I would increase employee satisfaction.

	B	I will reduce the attrition rates of the Store Staff by:
		  i. Running a Rewards and Recognition program
		  ii. Inviting greater participation from the employees for leadership decisions
		  iii. Enhancing the training programs and increasing employee responsibilities
		  iv. Increasing the scope for flexible work timings
		  v. Setting clear expectations from the individual roles and fine tuning the roles to meet the employee expectations wherever possible

	C	I will reduce the wait time at the Cash Counter in the peak hours by 2 minutes.

X	D	I will increase the quarterly sales of the store by 10% (over the same period last year) for the next two quarters. I will do this by:
		  i. Increasing the Sales Targets of the Dispensers correspondingly
		  ii. Rewarding and recognizing good performance
		  iii. Announcing schemes and rebates on the dead stock
		  iv. Running promotion campaigns
		  v. Introducing a special economy range for the economy-minded people

Programming Instructions/ System Response	**Move to next frame**

Topic	Goal Setting			
Screen ID		**Template**	Multiple Choice with Single Correct Answer	

Screen Content

Title	Question - 3
Prompt	*Select the best answer(s) then click **Submit**.*
Text	Which of the following attributes make a SMART goal?

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	The goals should be kept simple and not very challenging
X	B	The person should know how (s)he is going to make the goal happen
	C	The goal should have at least one of the 5 SMART (Specific, Measurable, Attainable, Relevant, or Time-bound) attributes
	D	The goal should be ambiguous

Programming Instructions/ System Response	**Move to next frame**

Topic	Goal Setting			
Screen ID		**Template**		Multiple Choice with single Correct Answer

Screen Content

Title	Question 4
Prompt	*Select the best answer then click **Submit**.*
Text	Identify the relevant SMART goal for an experienced Dispenser from the list below.

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	Develop the capability of servicing all the customer requests by myself without the support of dispensary staff.
	B	Learn enough through my work as a Dispenser to become a doctor
X	C	Identify the 5 most frequently faced problems that the customers face with the frames, and learn to fix those problems in the next 2 months.
	D	Develop in depth a dispensary business plan for next year.

Learner Action	**Learner Feedback**		**Programming Instructions/ System Response**
	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page

Topic	Goal Setting					
Screen ID			**Template**		Multiple Choice with single Correct Answer	
Click all answers then click Submit.	WA		Incorrect. Click NEXT to continue.			Show ticks and crosses next to option. Click NEXT and branch to next page

Screen Content

Title	Question – 5	
Prompt	*Select the best answer(s) then click **Submit**.*	
Text	Which of the following is an example of Sending and Receiving forms of communication?	

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	Comprehension
	B	Conveyance of messages
	C	Building of rapport
X	D	Reporting of statistics

Learner Action	**Learner Feedback**		**Programming Instructions/ System Response**
Click all answers then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect. Click NEXT to continue.	Show ticks and crosses next to option. Click NEXT and branch to next page

Topic	Effective Communication Skills		
Screen ID		**Template**	Multiple Choice with Multiple Correct Answers

Screen Content

Title	Question - 6	
Prompt	*Select the best answer then click **Submit**.*	
Text	Which of the following statement is true regarding formal communication?	

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	Formal communication promotes friendliness and openness in the dispensary
	B	You use formal communication while conversing with regular patients
X	C	Use formal communication whenever you are in doubt about your relationship with another person
	D	You use formal communication when conversing with colleagues in the dispensary

Topic		Effective Communication Skills			
Screen ID			**Template**	Multiple Choice with Multiple Correct Answers	
Learner Action		**Learner Feedback**			**Programming Instructions/ System Response**

Topic				
Screen ID			**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question - 7
Prompt	*Select the best answer then click **Submit**.*
Text	Which informal communication rule is often forgotten but is invaluable when communicating with patients in the dispensary?

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	Use of first names	
	B	Respect for and sensitivity to individual customers	
	C	Limitations of discussion to business topics only	
X	D	Use of nonverbal communication	

Programming Instructions/ System Response	Move to next frame

Topic		Conflict in the Dispensary		
Screen ID			**Template**	Multiple Choice with Single Correct Answer

Screen Content (Text may be limited.)

Title	Question 8
Prompt	*Select the best answer then click **Submit**.*
Text	_____ information accompanies words and communicates feeling and emotions through techniques such as intonation or body language.

Topic	Conflict in the Dispensary			
Screen ID		**Template**		Multiple Choice with Single Correct Answer

Learner options				
Place an X in the box to the left of the correct answer.		A	Qualifying	
		B	Quality	
	X	C	Qualitative	
		D	Quantitative	
Delete unused choices and text.				

Programming Instructions/ System Response	**Move to next frame**

Topic	Effective Time Management			
Screen ID		**Template**		Multiple Choice with Single Correct Answer

Screen Content (Text may be limited.)	
Title	Question 9
Prompt	*Select the best answer then click **Submit**.*
Text	Which of the following is NOT an effective time management technique?

Learner options				
Place an X in the box to the left of the correct answer.		A	Organizing work	
		B	Prioritizing work	
	x	C	Procrastinating	
		D	Using "To Do" Lists	
		E	Managing interruptions	
Delete unused choices and text.				

Programming Instructions/ System Response	**Move to next frame**

Topic	Effective Time Management			
Screen ID		**Template**		Multiple Choice with Single Correct Answer

Screen Content (Text may be limited.)	
Title	Question 10
Prompt	*Select the best answer then click **Submit**.*
Text	Which of the following is a category to which you can assign tasks while prioritizing a "To-Do" List?

Topic	Effective Time Management		
Screen ID		**Template**	Multiple Choice with Single Correct Answer
Learner options ***Place an X in the box to the left of the correct answer.*** ***Delete unused choices and text.***		A	Important and required
		B	Relevant and unimportant
		C	Urgent and important
	x	D	Not important and required
		E	All of the above
Programming Instructions/ System Response		**Move to next frame**	

Topic	Effective Time Management		
Screen ID		**Template**	Multiple Choice with Single Correct Answer
Screen Content (Text may be limited.)			
Title	Question 11		
Prompt	*Select the best answer then click **Submit**.*		
Text	Which of the following is the best way to communicate effectively and better manage your time _____.		
Learner options ***Place an X in the box to the left of the correct answer.*** ***Delete unused choices and text.***		A	Set expectations and meet them to build trust
	X	B	Listen actively to your co-workers, managers, and patients to allow for clear communication and sharing of expectations
		C	Paraphrase and check for understanding
		D	Use clarifying comments to avoid miscommunication and resulting rework
Programming Instructions/ System Response		**Move to next frame**	

Topic	Effective Time Management	
Screen ID		**Template** Multiple Choice with Single Correct Answer
Screen Content (Text may be limited.)		
Title	Question 12	
Prompt	*Select the best answer then click **Submit**.*	
Text	What is one way you can manage interruptions effectively?	

Topic	Effective Time Management			
Screen ID		**Template**	Multiple Choice with Single Correct Answer	

Learner options			
Place an X in the box to the left of the correct answer. *Delete unused choices and text.*	X	A	Schedule two or three times in a day for checking emails.
		B	Avoid contact with colleagues
		C	Don't return phone calls
		D	Avoid contact with patients
		E	All of the above

Programming Instructions/ System Response	**Move to next frame**

Topic	Effective Time Management			
Screen ID		**Template**	Multiple Choice with Single Correct Answer	

Screen Content (Text may be limited.)	
Title	Question 13
Prompt	*Select the best answer then click **Submit**.*
Text	Which category of prioritization is the one you should address first?

Learner options			
Place an X in the box to the left of the correct answer. *Delete unused choices and text.*		A	Not urgent and not important
		B	Urgent and Not Important
	X	C	Urgent and Important
		D	Not urgent and Important

Programming Instructions/ System Response	**Move to next frame**

Topic	Effective Time Management			
Screen ID		**Template**	Multiple Choice with Single Correct Answer	

Screen Content (Text may be limited.)	
Title	Question 14

Topic	Effective Time Management		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Prompt	*Select the best answer then click **Submit**.*
Text	There are many reasons people procrastinate. They don't like the task at hand or are not sure how to do a task. What is the best way to keep from procrastination?

Learner options ***Place an X in the box to the left of the correct answer.*** ***Delete unused choices and text.***		A	Delegate your work to others
		B	Ignore it, it will be there later
	X	C	Just get started
		D	None of the above

Programming Instructions/ System Response	Move to next frame

Topic	Effective Time Management		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content (Text may be limited.)

Title	Question 15

Prompt	*Select the best answer then click **Submit**.*

Text	The best time to create your "To Do" list is

Learner options ***Place an X in the box to the left of the correct answer.*** ***Delete unused choices and text.***		A	At the beginning of your work shift
	X	B	Before you leave your shift each day create the next days list
		C	At the beginning of each week
		D	Whenever you want to do it

Programming Instructions/ System Response	Move to next frame

Topic	Effective Time Management		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content (Text may be limited.)

Title	

Topic	Effective Time Management		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Prompt	*Select the best answer then click **Submit**.*
Text	

Learner options

Place an X in the box to the left of the correct answer.

Delete unused choices and text.

	A	
X	B	
	C	
	D	

Programming Instructions/ System Response	**Move to next frame**

Topic	Goal Setting		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content (Text may be limited.)

Title	Question 16
Prompt	*Select the best answer then click **Submit**.*
Text	What part of a SMART needs to be described and provided in the following goal? I will successfully manage the frame inventory to allow for a better patient experience.

Learner options

Place an X in the box to the left of the correct answer.

Delete unused choices and text.

	A	Specific
	B	Relevant
X	C	Time-bound
	D	Attainable

Programming Instructions/ System Response	**Move to next frame**

Topic	Conflict in the Dispensary			
Screen ID		**Template**	Multiple Choice with Single Correct Answer	

Screen Content (Text may be limited.)

Title	Question 17
Prompt	*Select the best answer then click **Submit**.*
Text	In a conflict, it is important to be

Learner options				
Place an X in the box to the left of the correct answer.		A	Passive	
		B	Stern	
	X	C	Assertive	
		D	Manipulative	
Delete unused choices and text.				

Programming Instructions/ System Response	**Move to next frame**

Topic	Effective Time Management			
Screen ID		**Template**	Multiple Choice with Single Correct Answer	

Screen Content (Text may be limited.)

Title	Question 18
Prompt	*Select the best answer then click **Submit**.*
Text	When there is simply too much to do, what should you do?

Learner options				
Place an X in the box to the left of the correct answer.		A	Just finish what tasks you can, the rest can wait.	
	X	B	Ask for help from your co-workers	
		C	Decline Urgent and Important requests until you are caught up.	
		D	Go home early	
Delete unused choices and text.				

Programming Instructions/ System Response	**Move to next frame**

Topic	Effective Time Management		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content (Text may be limited.)

Title	Question 19
Prompt	*Select the best answer then click **Submit**.*
Text	Which category of prioritization should you avoid?

Learner options

Place an X in the box to the left of the correct answer.

Delete unused choices and text.

X	A	Not urgent and not important
	B	Urgent and Not Important
	C	Urgent and Important
	D	Not urgent and Important

Programming Instructions/ System Response	**Move to next frame**

Topic	Effective Time Management		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content (Text may be limited.)

Title	Question 20
Prompt	*Select the best answer then click **Submit**.*
Text	Which of the following is NOT one of the 5 aspects that can hinder your productivity at work?

Learner options

Place an X in the box to the left of the correct answer.

Delete unused choices and text.

	A	Lack of Prioritization
	B	Procrastination
	C	Lack of to-do lists
X	D	Clear Communication

Programming Instructions/ System Response	**Move to next frame**

Garnett, Heather (DPOR)

AMERICAN BOARD OF OPTICIANRY

NATIONAL CONTACT LENS EXAMINERS

217 N. Upper Street, Suite 201

Lexington, KY 40507

703-719-5800 • 800-296-1379

Web Address: www.abo-ncle.org

Dear Walter,

This letter will confirm that the **American Board of Opticianry** Education Committee **approved** the following **online** course:

Course: Foundations for An Ophthalmic Lens

Hours: 1

Designation: Ophthalmic Level I

Course Number: STWEOA122-1

Expires: February 5, 2027

This course has been approved for **3 years**.

Thank you for your continued commitment to quality education. If you have any questions regarding the above, please feel free to call the office at (703) 719-5800

Sincerely,

Karla Y. Aviles
Education Coordinator

2

To Whom It May Concern,

I certify that I have completed the following course in no less than the number of credit hours (1) requested for approval.

Foundations of Ophthalmic Lens Power

Sincerely,

Brooke K Carrasco

Brooke Carrasco, ABOC, NCLE

To Whom It May Concern,

I certify that I have completed the following course in no less than the number of credit hours (1) requested for approval.

Foundations of Ophthalmic Lens Power

Paige Shoven

Sincerely,

Paige Shoven, M.Ed, ABOC

Date: 3/4/2022

To Whom It May Concern,

I, ___Walter "Pete" Hanlin_____ do certify that I am the author of the following Continuing Education credit that is being submitted to the American Board of Opticianry for consideration of approval.

CE02 – Foundation of Ophthalmic Lens Power

Best regards,

CEC: FOUNDATION OF OPHTHALMIC LENS POWER

FOUNDATION OF OPHTHALMIC LENS POWER covers the following three areas:

1) Focal Length of a Spectacle Lens: defines focal length and explains the relationship between focal length and dioptric power. This course also provides different examples of how to calculate focal length.
2) Vertex Distance and Vertex Compensation: explains the concept of vertex compensation and how to consider this factor when fitting a patient's eye wear. explains the concept of vertex compensation and how to consider this factor when fitting a patient's eye wear
3) Magnification and Spectacle Lenses: explains how unbalanced magnification in lenses can create vision problems. It also identifies key elements of magnification and how to use a knowledge of these elements to balance magnification in a lens.

Course outline/timing:

Focal Length of a Spectacle Lens (20 minutes)

1) Course Objectives

   a) Define "focal length"

   b) Explain the concept of focal length and its relationship to dioptric power

   c) Explain the difference between a real and a virtual focal point

   d) Determine dioptric power if given focal length

   e) Determine the focal length if given the dioptric power

2) Defining Focal Length

   a) Plus Lenses - Parallel rays of light converge to a real image at the focal point of the lens

   b) Minus Lenses - Virtual focal point is determined by tracing the diverging rays backwards

3) Focal Length and Dioptric Power

   a) Plus Lens - Real focal point

   b) Minus Lens - Virtual focal point

   c) Focal Length formula

   d) Chart reflecting overall lens power and focal length

4) Key Takeaways

   a) The focal length of a lens is a measurement of how strongly it converges (focuses) or diverges (diffuses) light.

   b) A plus lens will make parallel rays of light converge to a real image at the focal point of the lens. The focal length is also called the back vertex focal length.

   c) For a minus lens, the virtual focal point is determined by tracing the diverging rays backwards. The distance from the lens to the virtual focal point is also called the front vertex focal length.

   d) If you are given the power of a lens, you can compute the focal length. Similarly, if you are given the focal length of a lens, you can compute the lens power.

   e) The lens power is equal to the reciprocal of the focal length measured in meters.

Vertex Distance and Vertex Compensation (15 minutes)

1) Course Objectives

    a) Understand vertex distance

    b) Explain vertex compensation

    c) Define the essentials of vertex effect

    d) Arrange the variables into the framework of the formula

    e) Use the formula to compute the compensated lens power

2) Vertex Overview

    a) Vertex Distance Definition

    b) Describing a Cylinder lens

    c) When is Vertex Compensation necessary?

3) Vertex Compensation Formula

    a) Vertex Effect chart

    b) Vertex Compensation formula examples

4) Key Takeaways

    a) The vertex distance is the distance between the back surface of a corrective lens and the front of the cornea.

    b) All lenses have two dioptric power values. One is the actual power which may be measured in a lensometer, and the other is the effect power that only the wearer perceives.

    c) Vertex compensation enables the optician who notes differences between the examined and fitting vertices to adjust the lens power in the worn lenses to match the value of the examined power.

    d) Whenever any lens is moved farther or closer in the fit than where it was examined, the perceived power of the lens changes. In lenses with powers less than 6.50 diopters, this change is usually not significant, but in lenses above 6.50 diopters, wearers will usually notice a difference.

    e) To calculate the necessary compensation in power, you must:

    f) first calculate the amount of compensation necessary per millimeter of displacement. It is equal to (Lens power)2 / 1000

    g) then multiply that number by the exact number of millimeters of displacement between the examination vertex and the fitting vertex

Magnification and Spectacle Lenses (30 minutes)

1) Course Objectives
   a) Explain what magnification is and its effect on vision
   b) Understand the causes of magnification
   c) Learn the magnification formula to calculate the amount of magnification in a lens
   d) Manage the variables of lens design to balance magnification between lenses

2) What is Magnification?
   a) Magnification
   b) Minification
   c) Condition called aniseikonia,

3) The Magnification Formula
   a) Magnification Formula
   b) Shape Factor/Index of Refraction
   c) Power Factor
   d) Design Variable chart
   e) Contact Lenses are worn with no Vertex Distance

4) Managing Variables to Impact Magnification
   a) Base Example - High Plus Lens with Standard Variables
   b) Examples: Lowering the Base Curve leads to lower magnification
   c) Examples: Decreasing the center thickness leads to further decrease
   d) Examples: Decreasing the vertex distance lowers magnification further.
   e) Examples: Increasing the Refractive Index decreases magnification.

5) Key Takeaways:
   a) The elements of lens design which influence magnification are: base curve, thickness, vertex, and index of refraction
   b) There are several methods for adjusting these three elements in order to create binocular harmony
   c) The magnification formula can be used to determine the total amount of magnification difference between the eyes
   d) The magnification formula can be used as a predictor of how design changes will solve the problem of magnification imbalance

UNDERSTANDING PRISMATIC EFFECT

Welcome to UNDERSTANDING PRISMATIC EFFECT ABO CE!

UNDERSTANDING PRISMATIC EFFECT covers the following three areas:

1. Understanding Prism in a Prescription: provides detailed information on how to read prism in a prescription and identify different types of prism. It also provides information on how to use a lensometer to identify the amount and base direction of the prism in a lens.
2. Understanding Lens Power and Prismatic Effect: describes how to identify lens power in different types of lenses. It also provides a detailed description of how to use Prentice Rule in measuring the power of a lens.
3. Balancing Prescribed Prism: explains the difference between prescribed prism and induced prism and the purpose of balancing prism. It also provides the rules for canceling, compounding, and balancing prism.

Let's get right into it with our first lesson on Understanding Prism in a Prescription. At the end of this course, you will be able to:

1. Describe the two types of prism (prescribed and induced) that can exist in a prescription
2. Explain the base direction of any existing prescription
3. Use the lensometer to identify the amount and base direction of prism in a lens Identify common problems unwanted and induced prism can cause for the patient
4. Follow industry protocol for reordering lenses exceeding prism tolerances

UNDERSTANDING PRISM IN A PRESCRIPTION

Welcome to the lesson on understanding prescribed and induced prisms.
At the end of this course, you will be able to:

- Describe the two types of prism (prescribed and induced) that can exist in a prescription

- Explain the base direction of any existing prescription

- Use the lensometer to identify the amount and base direction of prism in a lens

- Identify common problems unwanted and induced prism can cause for the patient

- Follow industry protocol for reordering lenses exceeding prism tolerances

VISUALIZING PRISM IN A LENS

PRISMS ARE THE BUILDING BLOCK OF LENSES

IN A SIMPLISTIC VIEW, DEPENDING UPON HOW THE PRISMS ARE ARRANGED, A PLUS OR MINUS LENS WILL RESULT

Plus lenses are a combination of prisms base to base.

Minus lenses are a combination of prisms apex to apex.

THE OPTICAL CENTER OF A LENS IS THE CENTRAL POINT THROUGH WHICH LIGHT MAY PASS WITHOUT BEING DEVIATED
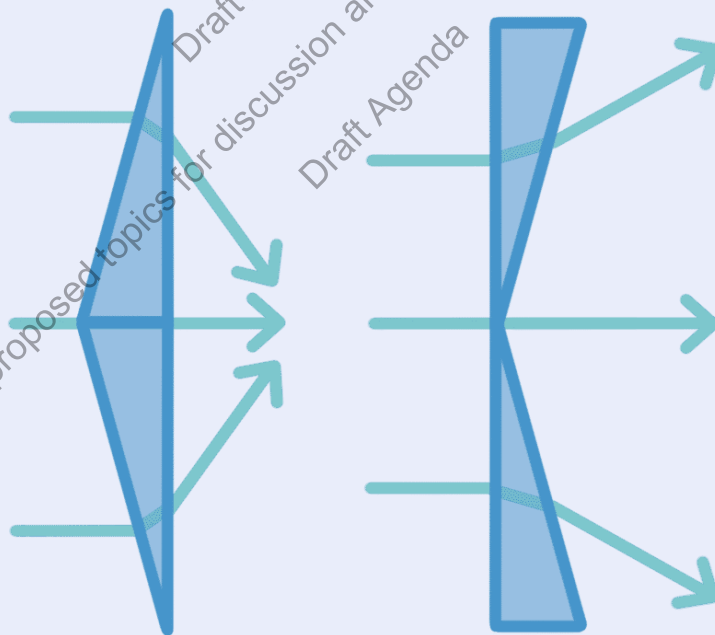
The optical center occurs at the point where both prisms meet in a lens. In a plus lens, the optical center is the point where the prisms meet base to base. In a minus lens, the optical center is the point where the prisms meet apex to apex. Since light always bends towards the base, plus lenses converge light while minus lenses diverge light.

When the optical centers match the location of the patient's center pupil, there is no prism of any sort. Anytime lenses are ground to situate the centers away from the center pupil, prismatic effect will result. The half of the lens through which the patient views is a prism with a base direction of in, out, up, or down.

BASE IN PRISM
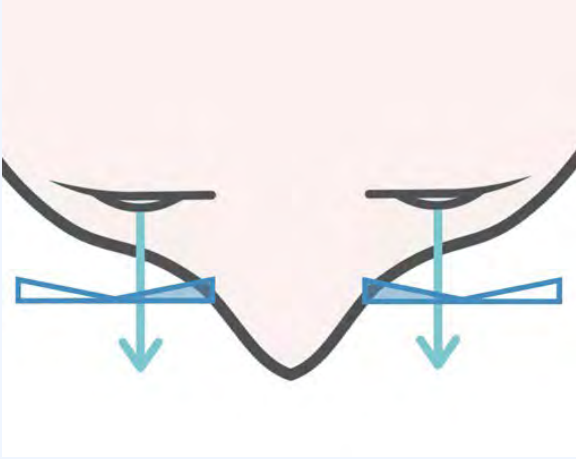
When the centers of a minus lens are wider than a patient's pupillary distance, the patient will look through the inner half of the lens, which is a prism with the base in towards the nose.
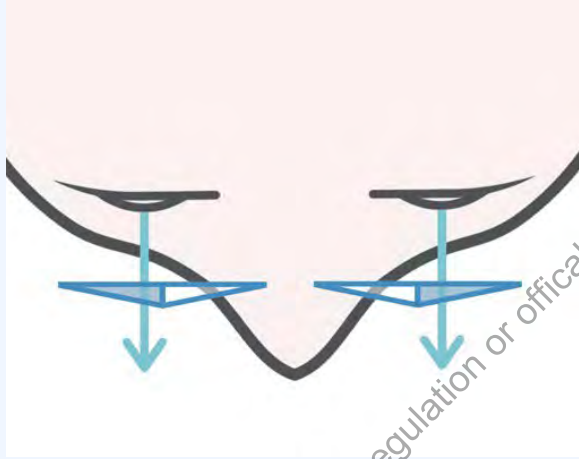
When the centers of a plus lens are narrower than a patient's pupillary distance, the patient will look through the outer half of the lens, which is a prism with the base in towards the nose.

BASE OUT PRISM
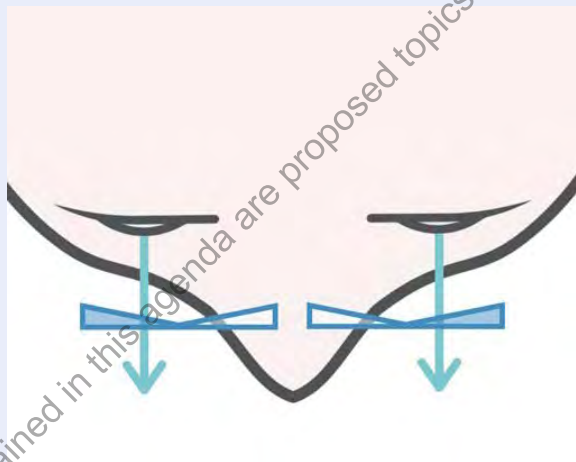
When the centers of a minus lens are narrower than a patient's pupillary distance, the patient will look through the outer half of the lens, which is a prism with the base out towards the ear.
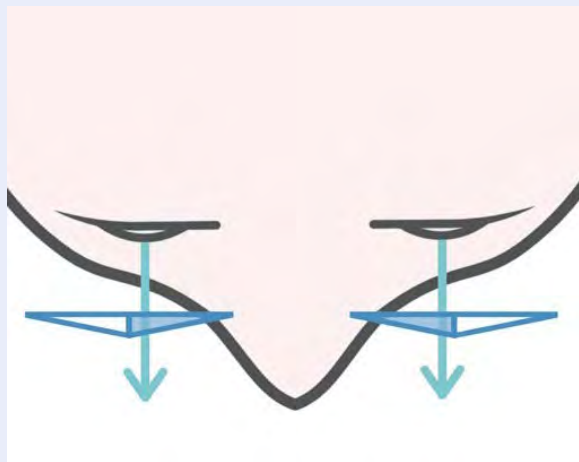
When the centers of a plus lens are wider than a patient's pupillary distance, the patient will look through the inner half of the lens, which is a prism with the base out towards the ear.

BASE DOWN PRISM
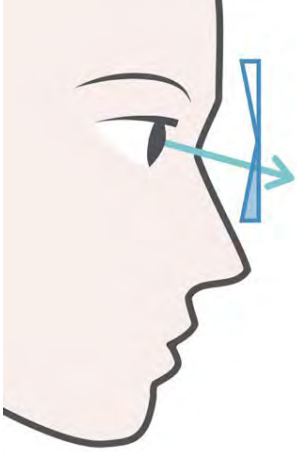
Looking through the lower half of a minus lens puts the line of sight through the half of the lens that isa prism with its base down from the line of sight.
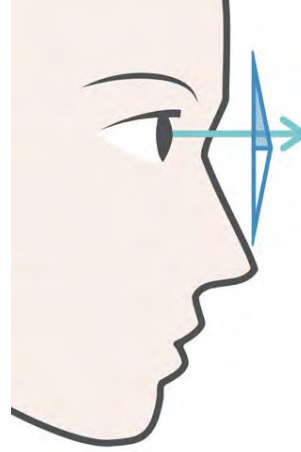
Looking through the upper half of a plus lens puts the line of sight through the half of the lens that isa prism with its base down from the line of sight.
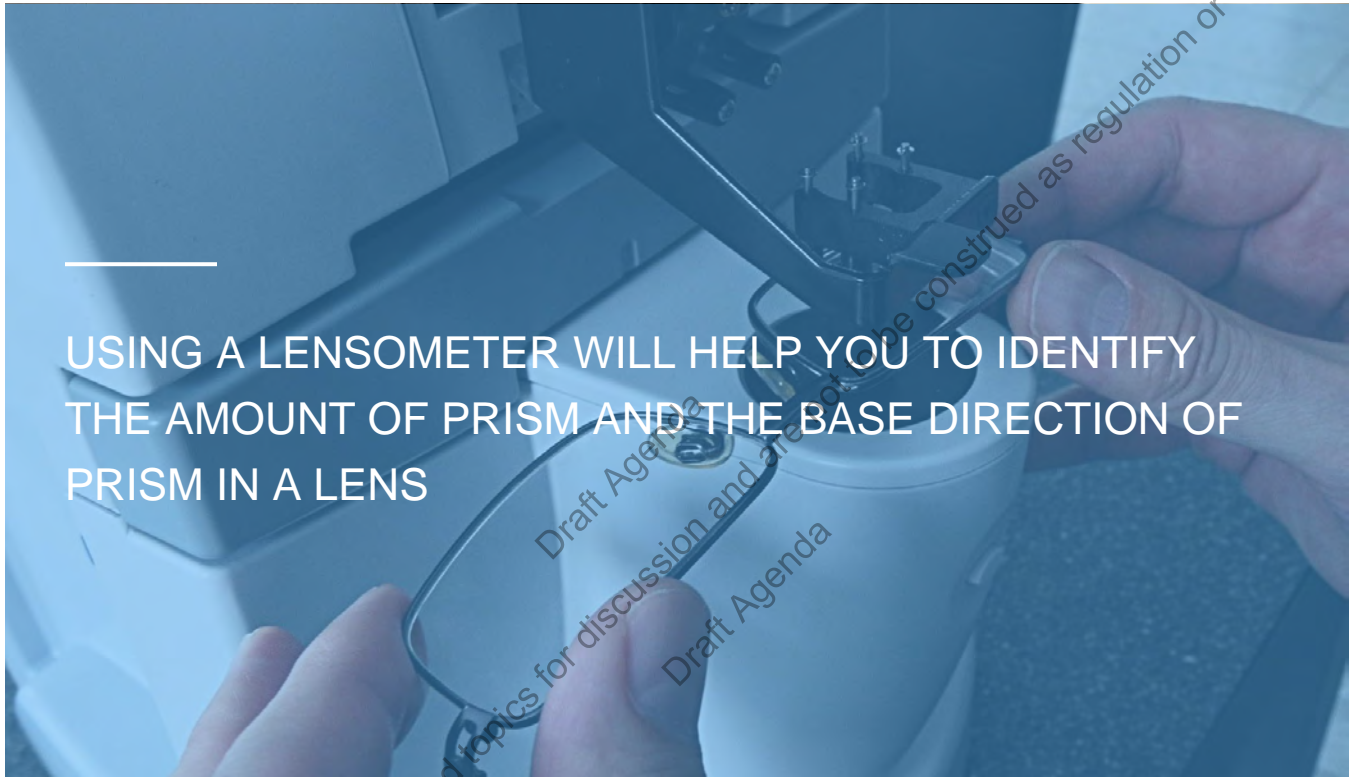
BASE UP PRISM
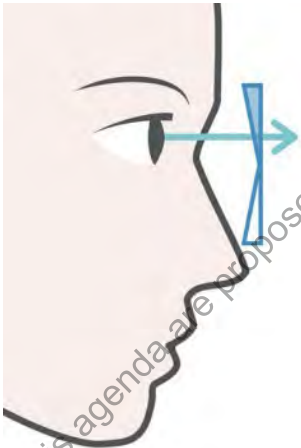
Looking through the upper half of a minus lens puts the line of sight through the half of the lens that is a prism with its base up from the line of sight.
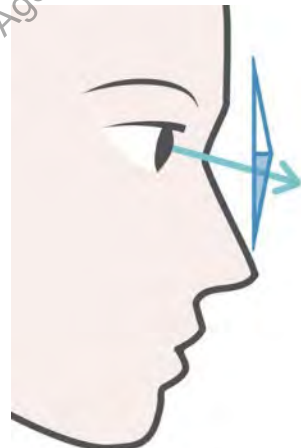
Looking through thelower half of a plus lens puts the line of sight through the half of the lens that isa prism with its base up from the line of sight.

CHECKING PRISM WITH A LENSOMETER

USING A LENSOMETER WILL HELP YOU TO IDENTIFY THE AMOUNT OF PRISM AND THE BASE DIRECTION OF PRISM IN A LENS

READING PRESCRIBED PRISM

1. Place each lens into the lensometer, one at a time. Be careful to situate the center of the target over the reticle at the point that represents the amount and direction of the prescribed prism.

2. Spot each lens at the center of the reticle.

3. Measure the distance between the dots. If this distance between the dots equals the patient's pupillary distance, then the prism has been centered correctly.

MEASURING INDUCED PRISM

1 Disregard the optical centers of the surfaced lens

2 With a marking pen, dot where the centers should have been surfaced to line up over the pupils. You can have the patient wear their eyewear and place a dot in front of each pupil

3 Place your new marking pen dot directly on the center over the lens stop

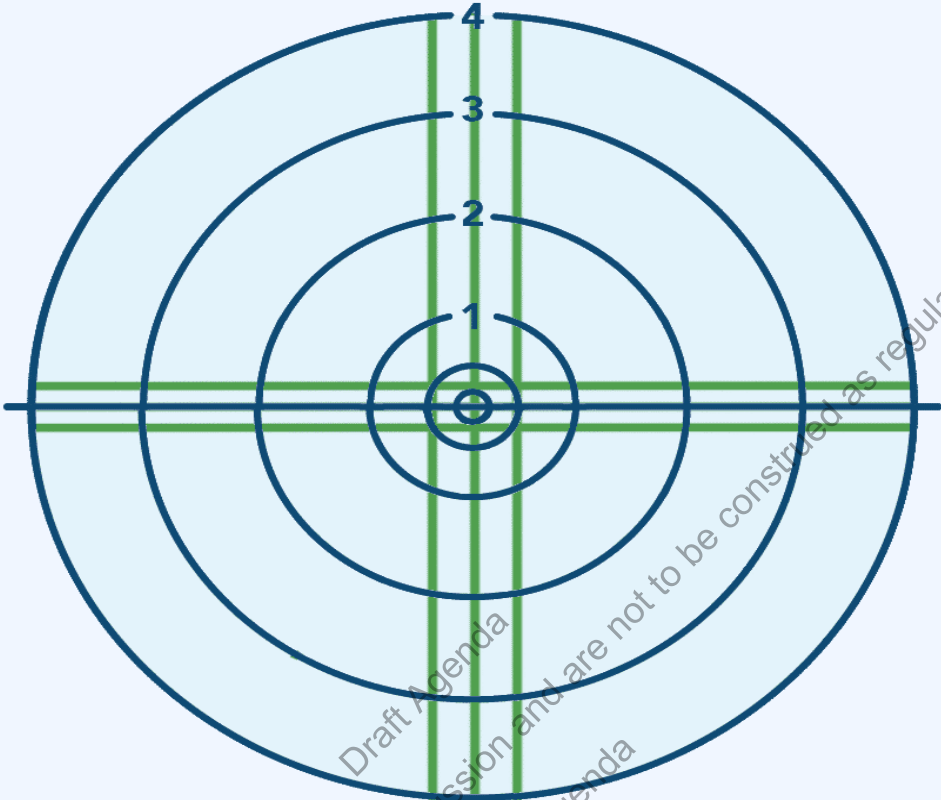**4** View the displaced target and let the reticle indicate the amount and direction of the prismatic effect
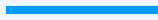
NO PRISM AT THE OPTICAL CENTER

The reticle is the bullseye target in the background. Each circle is designated with a number that corresponds to a dioptric value of prism. A lens that is centered with no prism will show up with the mires (the crisscrossed lines) exactly on center.
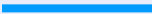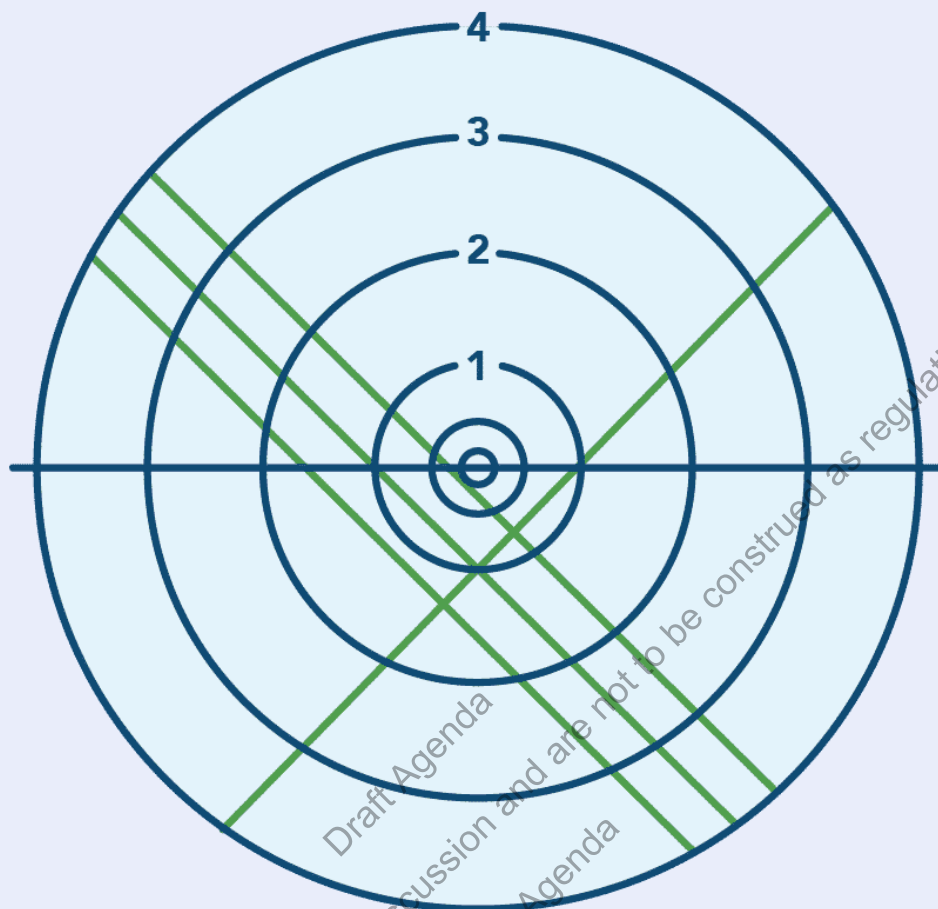
READING PRISM ON A LENSOMETER

A lens that is spotted with the patient's pupillary distance and reads as the diagram to the left, indicates that the lens will generate a 1 diopter prism down.

In some cases a doctor will write a prism prescription calling for the use of different prism values in different directions. To verify the presence of the prescribed prism, the lens should be spotted at the patient's pupillary distance. The target should be displaced at that point. Read the position of the target by locating the center of the target as the intersection of the two directional tangent values.
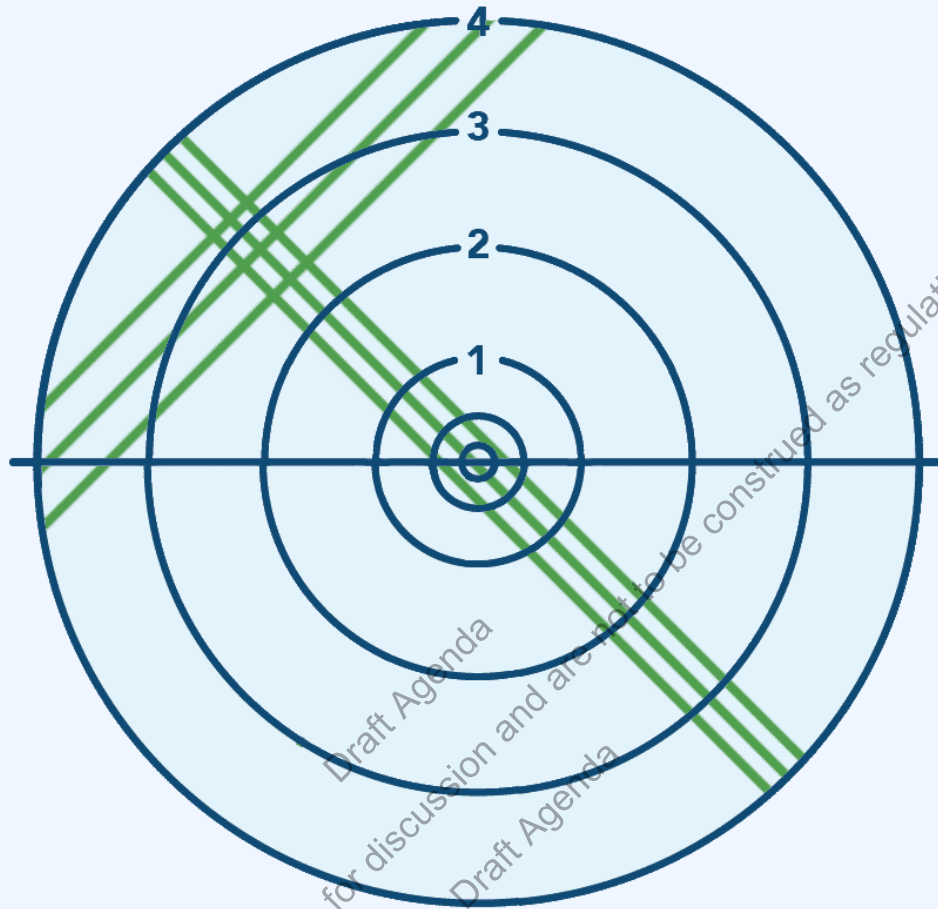
Compound prism (i.e., different prism values in different directions) is read at the intersection of two tangent lines. The diagram shows 2 diopters of prism base up and 2 diopters of prism base out.

WHAT PATIENTS MAY EXPERIENCE DUE TO UNWANTED PRISM

Direction of unwanted prism	Visual effect	Patient experience
Excessive base down prism	Floor (Horizontal) seems concave	Standing in the bottom of a bowl
Excessive base down prism	The horizon is displaced upward	Walking uphill
Excessive base up prism	Floor (Horizontal) seems convex	Standing on top of a hill
Excessive base up prism	The horizon is displaced downward	Walking downhill
Excessive base in or out prism	Horizon seems high toward base or/low toward apex	The floor seems tilted

INDUSTRY PROTOCOL FOR REORDERING LENSES EXCEEDING PRISM TOLERANCES

Upon inspection, lenses not meeting industry standards should be returned to the lab from which the lenses came. When reordering lenses, it is important to inform the lab that the lenses exceeded industry tolerance for prismatic effect. According to ANSI 2005 standards, induced prism beyond 0.66 diopters per pair horizontally or 0.33 diopters per pair vertically are not acceptable.

The amount of excessive prism should be noted and identified for each eye. This will eliminate guesswork and help the lab to identify the nature of the error. With specific data the lab will be able to process the new lenses quickly and efficiently.

☐ In a progressive lens, prism should not be measured at the distance verification circle. Prism should be measured at the primary reference point (PRP), which is the dot below the fitting cross and the optical center of a progressive lens. For all EssilorLuxottica designs, this dot is 4mm below the fitting cross in the middle of the microengravings

KEY TAKEAWAYS

Congratulations! You have completed the "Understanding prism in a prescription" lesson.

In this course you learned:

1 To describe the two types of prism (Prescribed and Induced) that can exist in a prescription

2 How to explain the base direction of any existing prescription

3 How to explain the base direction of any existing prescription

4 To identify common problems, unwanted and induced prism can cause for the patient

5 To identify common problems, unwanted and induced prism can cause for the patient

UNDERSTANDING LENS POWER AND PRISMATIC EFFECT

Welcome to the lesson on understanding lens power and prismatic effect.
At the end of this course, you will be able to:

- Visualize all lenses as a combination of prisms

- Describe lens power in both spherical and cylindrical lenses

- Transpose any cylinder prescription into either plus or minus cylinder form

- Find the power of any lens in the two major meridians of 90 degrees and 180 degrees

- Use the Prentice rule formula to compute prismatic effect
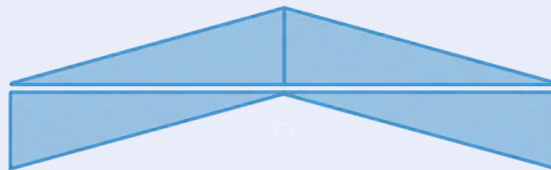
SPHERICAL AND CYLINDRICAL LENSES

THE TOTAL POWER OF A LENS IS THE EQUAL TO THE COMBINATION OF THE FRONT CURVE AND BACK CURVE POWERS

LENS POWERS IN SPHERES:
A spherical lens is formed when a front curve of singular dioptric power is combined with a back curve of singular.

Convex front surface

Front curvatures are usually convex and are referred to as plus powers.

Concave back surface
Back curvatures are usually concave and are referred to as minus powers.

*In order to derive lens power, you must use a lens clock to read the power of the front curve and add it to the power of the back curve. The resulting value is the lens power.

DESCRIBING A CYLINDER LENS

- Cylinder lenses are appropriately named since their design resembles that of a cylindrical tube.

- Unlike a sphere, which has only one power, a cylindrical lens has two separate meridians of power

- The meridian with the strongest power is called the "major" meridian, and the meridian with the weakest power is called the "minor" meridian. These two meridians are 90 degrees apart

- The meridians falling between the major and the minor meridians will have powers which fall between the strongest and weakest powers

- By definition, the cylindrical power of the lens is the difference between the major and minor meridians
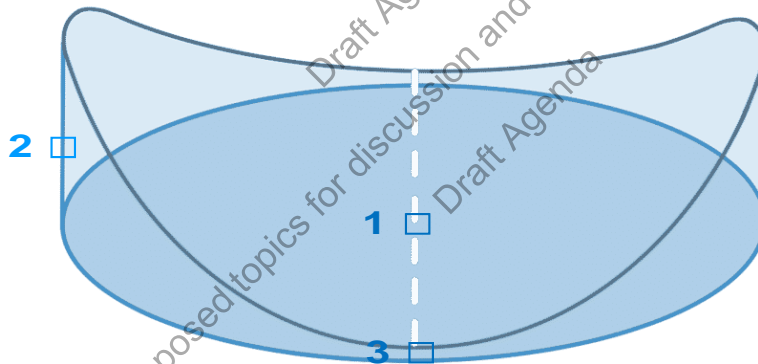
1. **Cylinder axis**

The axis indicates the angle between the two meridians of astigmatism. The axis is expressed in degrees.

2. **Maximum edge thickness**

A cylinder lens will be the thickest at major meridian. This area occurs at a 90 degrees angle from the cylinder axis

3. **Minimum edge thickness**

The cylinder lens will be the thinnest at the cylinder axis.

EVERY CYLINDER LENS CAN BE DESIGNATED IN TWO WAYS

It is important to note that the same lens can be designated in two ways without changing the actual power of the cylinder lens. The two forms of a cylinder lens are known as "plus cylinder form" and "minus cylinder form".

The process of switching from one form to another is called transposition. The rules of transposition are as follows:

1   add cylinder to sphere

2   change sign of cylinder

3   shift axis by 90 degrees by adding 90 to an axis of 90° or less, or subtracting 90 from an axis of 91° or greater

Using these three steps, we will transpose the following prescription from plus to minus cylinder form:

Sphere	Cylinder	Axis
+3.00	+1.00	90

1   Add cylinder to sphere: +3.00 + 1.00 = +4.00, when the prescription is written in minus cylinder form, +4.00 will be the first number

2   Change sign of cylinder: +1.00 was the cylinder power in plus cylinder form. Therefore, we change it to -1.00, which is the second number in the minus cylinder form

3   Shift axis by 90 degrees: 90° was the axis in the plus cylinder form. Following the rules, we add 90° to it, resulting in 180°, which is the last number in the minus cylinder form

Once transposed, the prescription is written as:

Sphere	Cylinder	Axis
+4.00	-1.00	180

Both of the designations, while looking different, actually represent the same lens powe

PRISMATIC EFFECT CALCULATIONS

AS EYECARE PROFESSIONALS, IT IS CRITICAL THAT YOU ARE ABLE TO LOCATE THE TOTAL LENS POWER OF ANY LENS AT THE TWO KEY AXES OF 180° AND 90°

THE POWERS IN THESE TWO MERIDIANS ARE ESSENTIAL TO PRISMATIC EFFECT CALCULATIONS

With the prismatic effect calculations, you can determine the quality and **efficiency** of any lens.

- Axis 180°: when the placement of the optical centers varies from the patient's pupillary distance, prism is introduced. The distance the centers are off, and the lens power at axis 180°, are critical variables in the Prentice rule formula which is used to determine whether the lenses meet industry tolerances or not.

- Axis 90°: when lens power varies from eye to eye, it is necessary to note the variation in the 90 degree meridian. Power discrepancies in the 90 degree meridian will lead to prismatic imbalances at the reading level. The lens power at axis 90° along with the reading depth are critical variables in thePrentice rule formula which wi ll be used to correct prismatic imbalances at near points

RESOLVING POWER WITH AXES OF 180° OR 90°: ALL OR NOTHING

- o   Axis 180°: if the axis is written as 180° then no cylinder exists at 180°. The power of that lens at 180° is the sphere power only, while at 90° the power is all of the sphere and all of the cylinder added together.

- o   Axis 90°: if the axis is written as 90°, then no cylinder exists at 90°. The power of that lens at 90° is the sphere power only, while at 180° the power is all of the sphere and all of the cylinder added together.

RESOLVING POWER WITH AXES OF 45° OR 135°: HALF AND HALF

These are easy to resolve if you remember the definition of a cylinder. A cylinder has zero power along its axis, and 100% of its power 90 degrees away from its axis, and 50% of its power 45 degrees away from its axis.

Therefore, to calculate the power of a cylindrical lens with an axis at 45° or 135° in the vertical (90°) or horizontal (180°) meridians, simply add one half of the cylinder power to the sphere power (since 90° and 180° are both 45° degrees away from the axis of a lens having a cylinder axis of 45° or 135°).

For example, the Rx OD: -1.00 -3.00 x 045 will have -2.50 diopters of power in both the 90° and 180° meridians (because both of these meridians are 45 degrees away from the cylinder axis, simply add 1/2 the cylinder power to the sphere power to determine the power in those meridians).

RESOLVING POWER WITH OBLIQUE AXES: USE THE TABLE

When cylinder axes fall on other than 45°/90°/135°/180° the exact percentage of cylinder can be calculated using trigonometry, or by using the table below—as most of the industry does.

Find the closest value in either column A or B that best matches the distance from your axis of concern (180° or 90°). Use the percentage in that line to compute the amount of cylinder that will be present at your axis of concern and add that to the sphere power for the total power.

Degrees from axis	Cylinder
0° or 180°	0%
5° or 175°	1%
10° or 170°	3%
15° or 175°	7%
20° or 160°	12%
25° or 155°	18%
30° or 150°	25%
35° or 145°	33%
40° or 140°	41%
45° or 135°	50%
50° or 130°	59%
55° or 125°	67%
60° or 120°	75%
65° or 115°	82%
70° or 110°	88%
75° or 105°	93%

Degrees from axis	Cylinder
80° or 100°	97%
85° or 95°	99%
90°	100%

Example : +2.00 - 1.00 X 35

- Solving a vertical imbalance problem, you are concerned with the power at 90°.

- Axis 35° is 55° degrees away from the axis which is at 90 degrees. Based on the line in the chart that starts with 55°, the lens would have 67% of the -1.00 cylinder at 90°.

- To calculate 67% of the lens power of -1.00, multiply the two numbers together: (67%) X (-1.00) = -0.67 diopters, which is the Cylinder lens power at axis 90°.

- Remember that sphere power is the same everywhere on the lens. To find the total lens power at 90°, we need to add the Sphere power to the Cylinder power, both at axis 90°.

- Sphere Power + Cylinder at 90° = Total power of the lens. In this case, (+2.00) + (-0.67) = (+1.37 diopters) = Total power of the lens

THE PRENTICE RULE FORMULA TRANSLATES VARIABLES INTO REAL OBJECTIVE VALUES OF PRISMATIC EFFECT

Using this formula, you will be able to translate variables such as lens power and distance in millimeters into realobjective values of prismatic effect that can easily be judged with industry tolerances and evaluated to improve lens design.

Prismatic effect   =   (Distance in millimeters X Lens Power) / 10

The units of prismatic effect ar measured in diopters of prism.

Example :

OD +2.00-2.00 X 045
OS +1.00-0.50 X 090

The patient's pupillary distance is 64 mm (mono-PD of 32 mm in each eye)

The centers from the lab were ground at 68 mm (2.0 mm too wide in each eye)

Prismatic effect and direction in each lens:

- OD (right): in order to use Prentice's formula, you need the lens power. Based on what you learnedearlier, you should be able to calculate the power at 180°, which is +1.00.

- OS (left): likewise, you should be able to calculate the power at 180°, which is +0.50.

- OD: (2.0 mm x +1.00)/10   =   2/10   =   0.20 diopters of prism base out

- OS: (2.0 mm) x +0.50)/10   =   1/10   =   0.10 diopters of prism base out

Total prismatic effect: Out and Out compound, so this job generates 0.30 diopters of prism which is within industry tolerance. Industry standards are covered in a separate lesson in this course.

LATERAL PRISMATIC EFFECTS DUE TO CENTRATION ERRORS

Aligning the optical centers of the lenses with the patients' pupils will ensure there is no prismatic effect. However, misalignment will lead to lateral prismatic effects with base directions depending upon the power of the lens. Click on the markers below to learn more:

KEY TAKEAWAYS

In this lesson, you learned:

1 A spherical lens is formed when a front curve of singular dioptric power is combined with a back curve of singular dioptric value. The lens which results from that combination is spherical since it has only one overall dioptric power

2 In order to derive lens power, you must use a lens clock to read the power of the front curve and add it to the power of the back curve. The resulting value is the lens power

3 Unlike a sphere, which has only one power, a cylindrical lens has two separate meridians of power. The meridian with the strongest power is called the "major" meridian, and the meridian with the weakest power is called the "minor" meridian

4 The same lens can be designated in two ways without changing the actual power of the cylinder lens. The two forms of a cylinder lens are known as "plus cylinder form" and "minus cylinder form"

5 The process of switching from one form of cylinder to another is called transposition. The rules of transposition are as follows :

- add cylinder to sphere
  change sign of cylinder
- shift axis by 90 degrees by adding 90 to an axis of 90° or less, or subtracting 90 from an axis of 91° or
- greater

6 By calculating prismatic effect, you can determine the quality and efficiency of any lens. In order to do so, you need to calculate the amount of cylinder at a given angle of the lens. At 180° or 90°, it is all power or no power. At axes 45° and 135°, it is split half and half. Any angle in between, a table is used to get the amount of cylinder power

7 The Prentice rule helps you calculate the amount of prismatic effect at a given point. The amount of prismatic effect is equal to (Distance in millimeters X Lens Power) / 10

8 When the optical centers of the lenses are centered with the center of the patient's pupils there is no induced prismatic effect. Any misalignment will lead to induce prism. The direction of the base of the induced prism will depend on the type of lens (minus or plus power) and the direction of the misalignment

BALANCING PRESCRIBED PRISM

Welcome to the lesson on balancing prescribed prism.
At the end of this lesson you will be able to explain:

- The difference between prescribed prism and induced prism

- The purpose of balancing prescribed prism

- The rules of prism cancelling and compounding

- The rules of balancing prescribed prism

- How to balance prescribed prism in an actual prescription
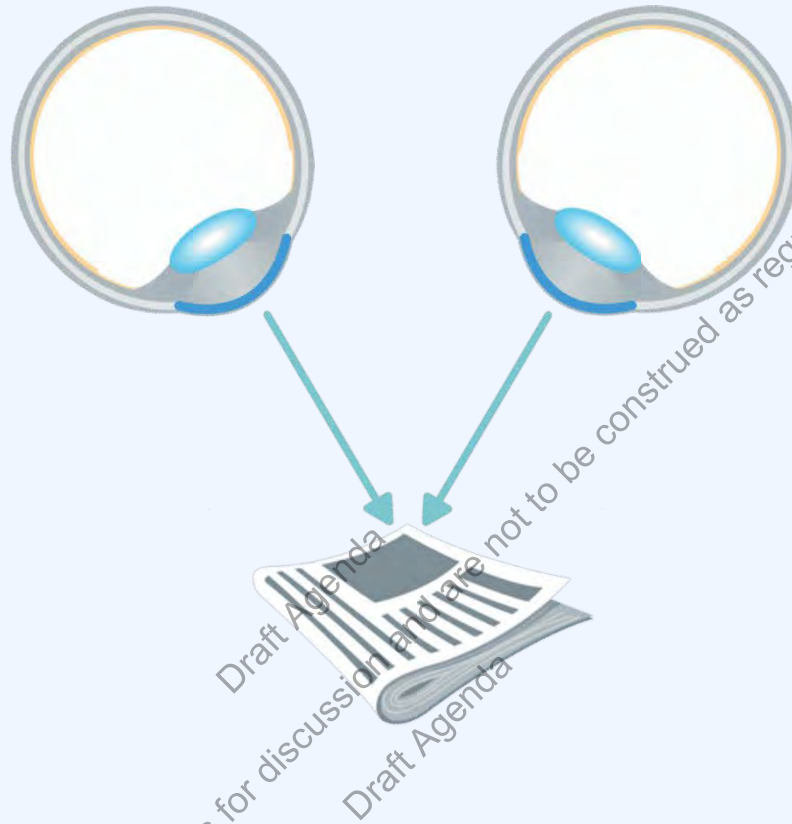
PRESCRIBED VS INDUCED PRISM

PRESCRIBED PRISM HELP PATIENTS WITH MISALIGNED OPTICAL AXES

Normal binocular vision give patients clear single vision, through perfect alignment of the eyes. What patients see is slightly different from one eye to the other, as objects are seen at different angles. With proper alignment, the brain combines creates one clear image. This is known as binocular vision and it is what gives us a sense of distance and three-dimensionality.
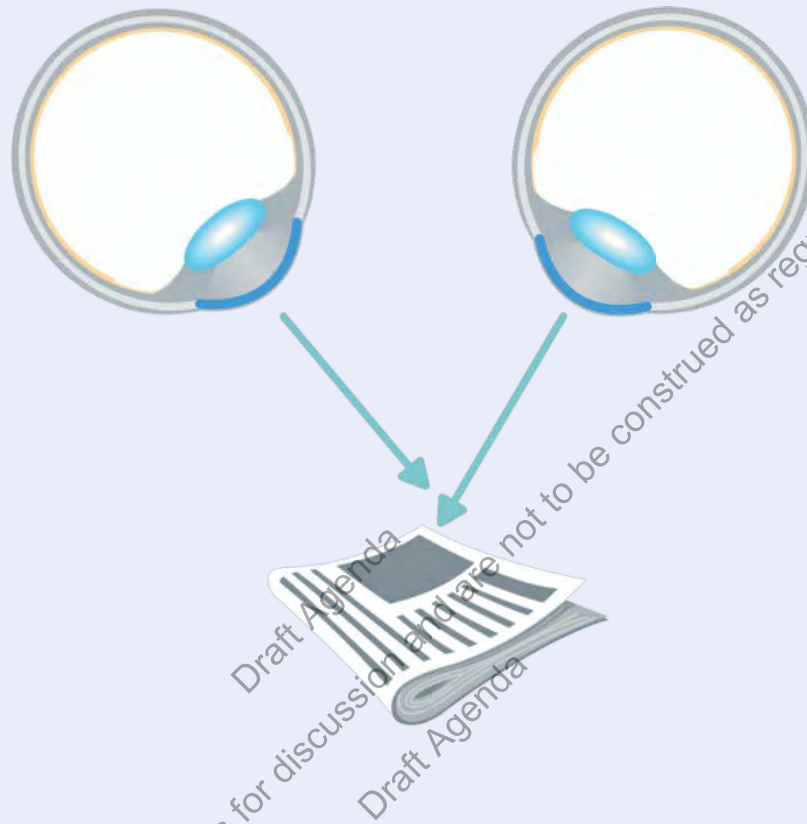
There are many cases though where the eyes are not in alignment with each other and the two eyes see not-so-slightly different images. The brain has trouble combining the two views, resulting in double vision.

Strabismus is the term to describe when one's eyes are misaligned. Strabismus is a failure of the two eyes to maintain proper alignment. The degree of misalignment can vary, ranging from small to large angle deviations. Strabismus can be constant or intermittent. The misalignment might always affect the same eye (unilateral strabismus), or the two eyes may take turns being misaligned (alternating strabismus).

The different types of strabismus are as followed:

- Exotropia: eyes are deviated outwards

- Esotropia: eyes are turning inwards

- Hypertropia: eyes are deviated upwards

- Hypotropia: eyes are deviated downwards
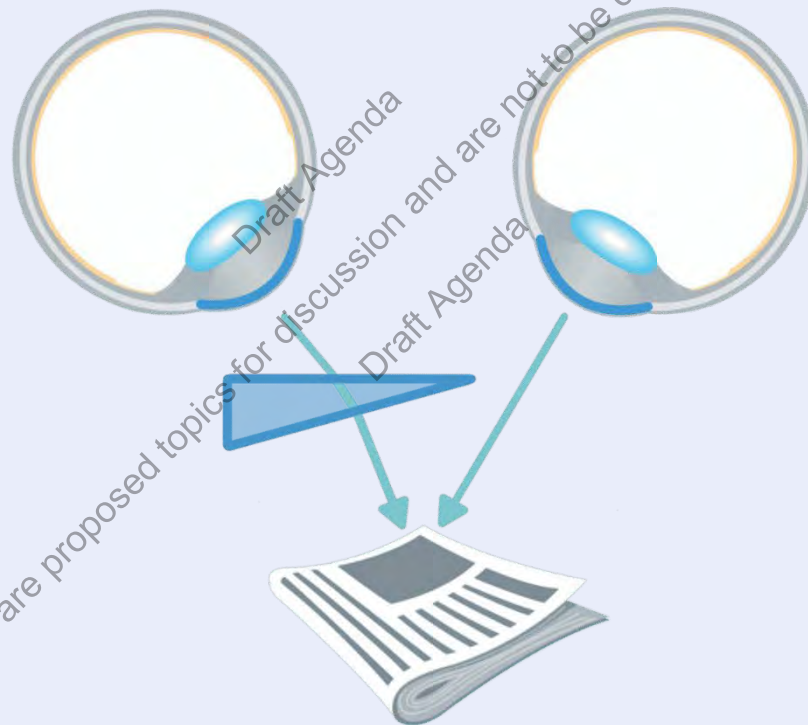
By prescribing prism, the doctor can deviate the light rays to the base so the image seen by the wearer will come on the axis of the eye.

Prisms are prescribed by the doctor in prismatic diopters. The doctor will also provide the base of the prescribed prism:

- Base IN to correct exotropia (eyes are deviated outwards)

- Base OUT to correct esotropia (eyes are deviated inwards)

- Base DOWN to correct hypertropia (eyes are deviated upwards)

- Base UP to correct hypotropia (eyes are deviated downwards)

Some prisms are just up, down, in or out. Others are oblique, which requires that a horizontal and vertical base direction be specified.

INDUCED PRISM IS USUALLY CAUSED BY A FABRICATION OR FITTING ERROR

When centers are ground too wide or too narrow, or fitted too high or low, a person with normally good alignment is forced to look through the unwanted prism that has been induced by the grinding or alignment error. Where no prism is required, its presence can cause blurred or double vision.

According to the ANSI Z80.1 standards, induced prism above 0.66 diopters horizontally or 0.33 diopters vertically is unacceptable.
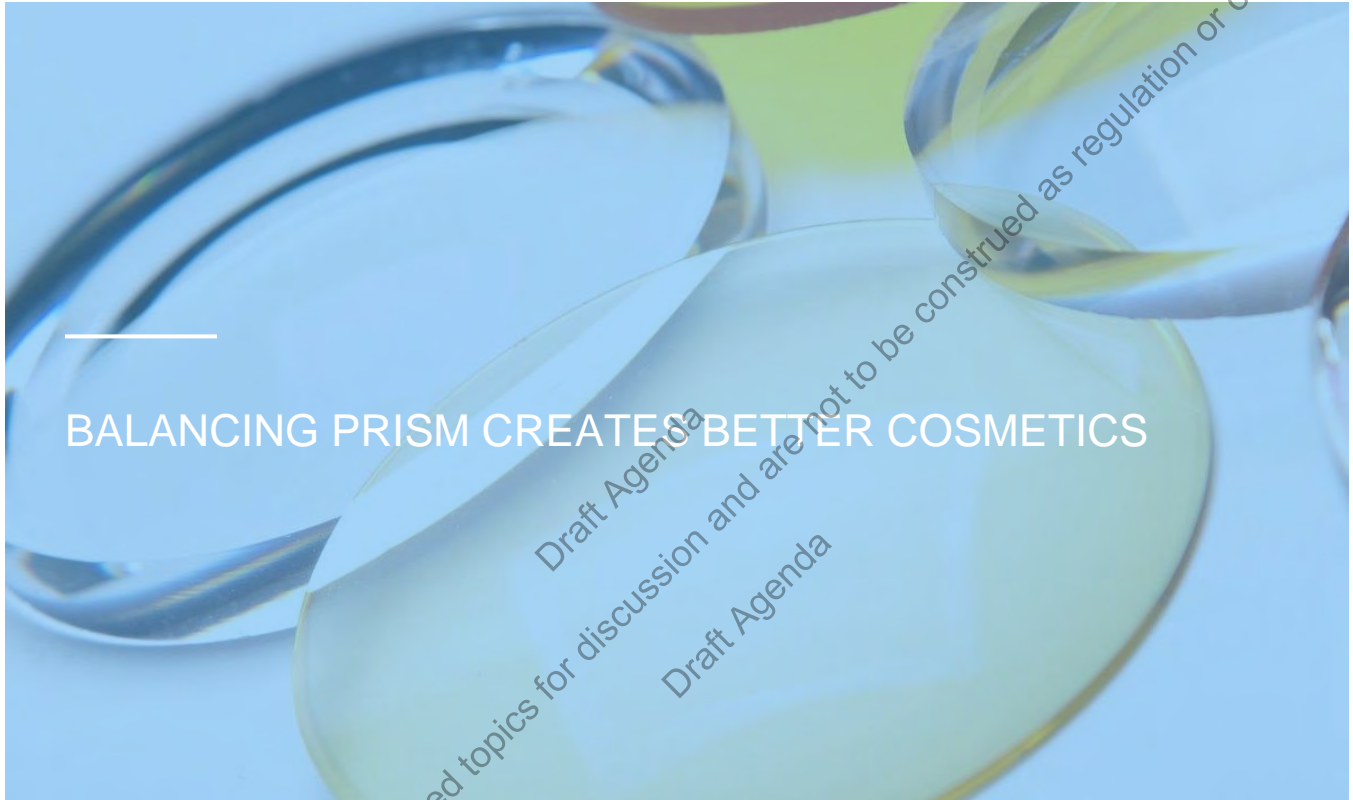
In this lesson we will only deal with balancing prescribed prism. We will learn how to make this good form of prism even better.

THE RULES FOR BALANCING PRISM

BALANCING PRISM CREATES BETTER COSMETICS

Often when doctors prescribe prism they write it as a total and leave it all in one eye.

Example: OD -1.00 with 10Δ down

While this will work in theory, the real lenses will be out of balance in both thickness and weight. The reason we split the prism is to create better cosmetics by balancing thickness and better wearing comfort by balancing weight.
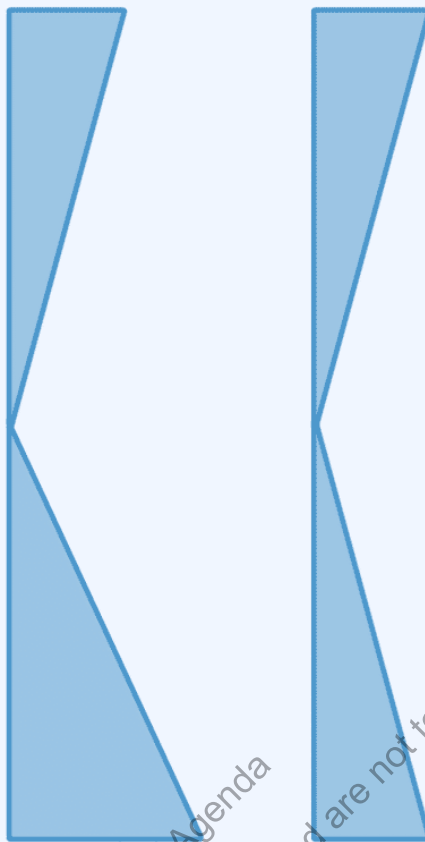
The diagram to the left shows two example cross sections of minus lenses, depicted as a pair of prisms apex-to-apex. The "out of balance" lens (left) is thinner on the top than on the bottom of the cross-section. For this reason, we could say the prism is "out of balance" or "unbalanced".

What these rules do is allow you to break one large amount of prism into two smaller amounts of prism while maintaining the same effect for the wearer.

1   The desired effect of prescribed prism can be loaded all into one eye or balanced between both eyes. The effect to the wearer is the same.

2   When splitting prism you may split the amount as long as it adds up to the total, but you must always keep the direction the same in the prescribed eye. If the prescribed prism is up or down, the split should be distributed with up in one eye and down in the other (compounding effect). Whenever prescribed prism is split, you must keep the prescribed direction the same in the prescribed eye.

Original Rx	Same Rx with split prism
OD: -1.00 sph 10Δ down	OD:-1.00 sph 5Δ down
OS: -1.00 sph	OS: -1.00 sph 5Δ up

3 If the prescription power is already balanced from eye to eye, a 50/50 split of the prescribed prism is the appropriate choice. As an example:

Original Rx	Same Rx with split prism
OD: -1.00 sph 5Δ down	OD:-1.00 sph 2.5Δ down
OS: -1.00 sph	OS:-1.00 sph 2.5Δ up

4 If one lens has less power, and therefore less thickness and weight, you might consider putting the majority (60% to 70%) of the split prism in the weaker lens, which will make the lens thicker and thereby achieve better balance in thickness between the two lenses.

Original Rx	Same Rx with split prism
OD:-6.00 sph 5Δ down	OD:-6.00 sph 1Δ down
OS: -1.00 sph	OS: -1.00 sph 4Δ up

5   When splitting up prism, you want to ensure that the prismatic effects of each eye are additive to reach the prescribed amount of prism (compounding effect). You can do this with the following compounding situations:

Base up + base down	Base in + base in	Base out + base out

6   In the case of prescribed prism in or out, the base direction should be the same in both eyes and in the same direction as the prescribed prism (compounding effect). The result will be split prism with balanced weight and thickness.

Original Rx	Same Rx with split prism
OD: -1.00 sph 10Δ out	OD:-1.00 sph 5Δ out
OS: -1.00 sph	OS: -1.00 sph 5Δ out

8   Splitting prism should be done with the doctor's permission. Always check with the doctor before splitting prism.

KEY TAKEAWAYS

In the lesson on "Balancing prescribed prism", you learned that:

1 Prism can be prescribed by the doctor to address misalignment of the patient's vision.

2 Prism can also be induced due to fabrication or fitting error.

3 The desired effect of prescribed prism can be loaded all into one eye (i.e., in one lens) or preferably balanced between both eyes.

4 The reason we split the prism (between lenses) is to create better cosmetics by balancing thickness and better wearing comfort by balancing weight.

5 If the prescribed prism is up or down, the split should be distributed with up in one eye and down in the other.

6 In the case of prescribed prism in or out, the base direction should be the same in both eyes and in the same direction as the prescribed prism.

You have completed the lesson!

FOCAL LENGTH OF A SPECTACLE LENS

Welcome to the lesson on focal length of a spectacle lens.
At the end of this lesson, you will be able to:

- Define "focal length"

- Explain the concept of focal length and its relationship to dioptric power

- Explain the difference between a real and a virtual focal point

- Determine dioptric power if given focal length

- Determine the focal length if given the dioptric power

DEFINING FOCAL LENGTH
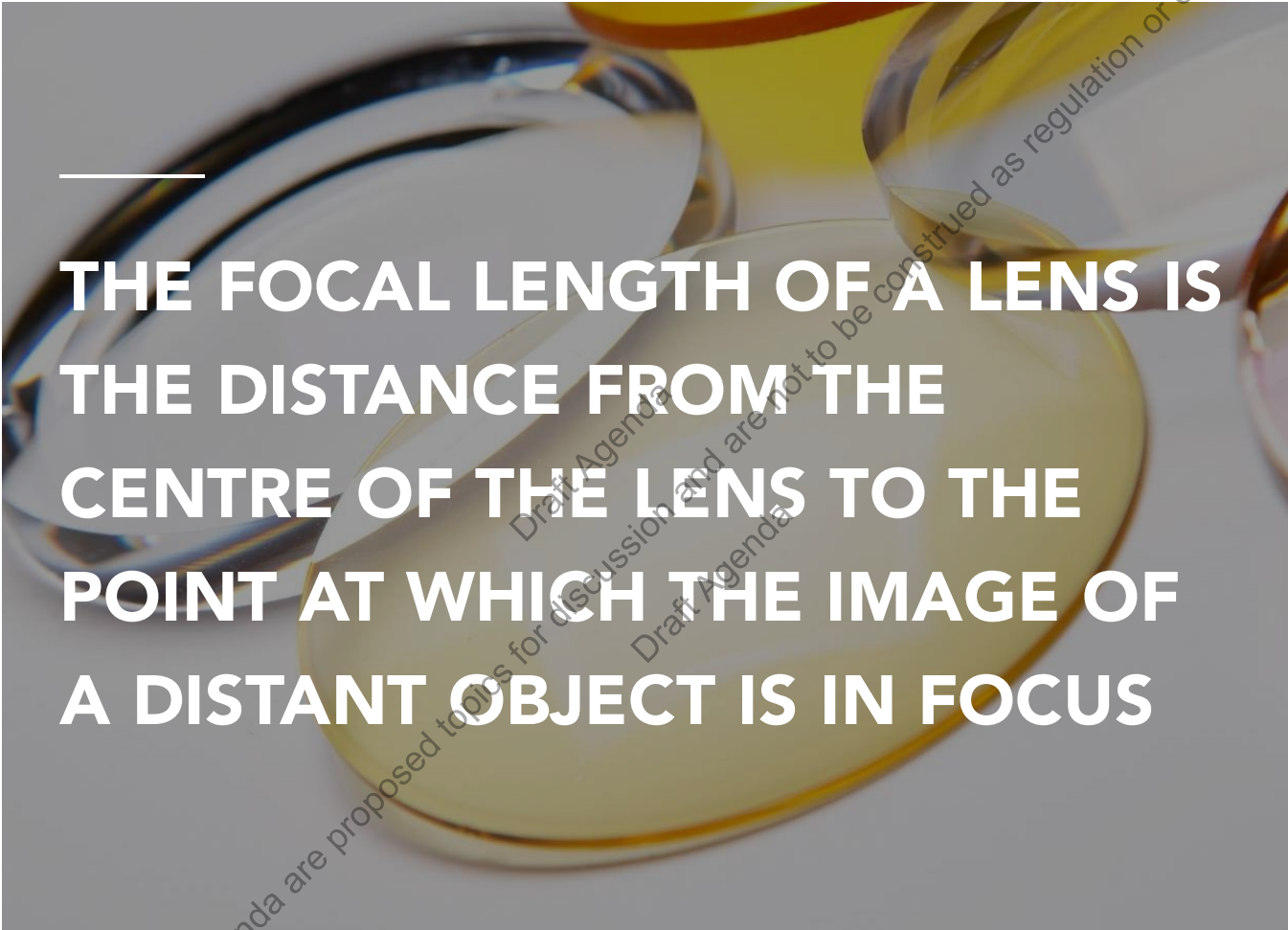
THE FOCAL LENGTH OF A LENS IS THE DISTANCE FROM THE CENTRE OF THE LENS TO THE POINT AT WHICH THE IMAGE OF A DISTANT OBJECT IS IN FOCUS

A PLUS LENS WILL MAKE PARALLEL RAYS OF LIGHT CONVERGE TO A REAL IMAGE AT THE FOCAL POINT OF THE LENS

•f

The light rays coming in from the left strike the lens and are directed toward the focal point on the right. The solid horizontal and angled arrows are the paths of real light rays. The solid vertical line indicates the focal plane where the focal point is, and a real image is located. For a plus lens, the focal length is also called the "back vertex focal length."

FOR A MINUS LENS, THE VIRTUAL FOCAL POINT IS DETERMINED BY TRACING THE DIVERGING RAYS BACKWARDS

$f \bullet$

The light rays coming in from the left strike the lens and are directed outward, never converging on a focal point. Focal length is determined by tracing the diverging

rays backwards (dotted lines) until they meet at the focal point. The distance from the lens to the virtual focal point is also called the "front vertex focal length."
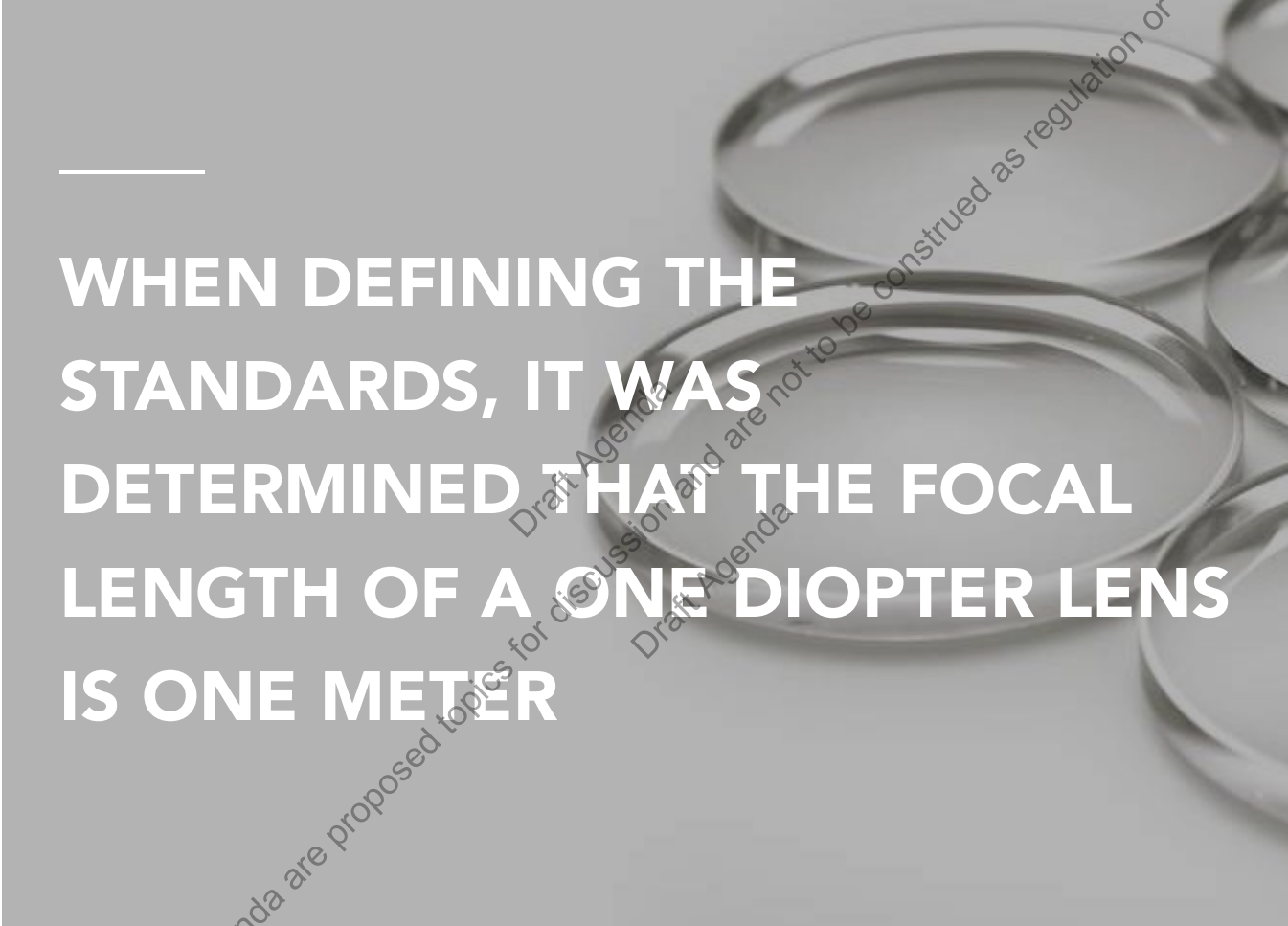
CONTINUE

FOCAL LENGTH AND DIOPTRIC POWER

WHEN DEFINING THE STANDARDS, IT WAS DETERMINED THAT THE FOCAL LENGTH OF A ONE DIOPTER LENS IS ONE METER
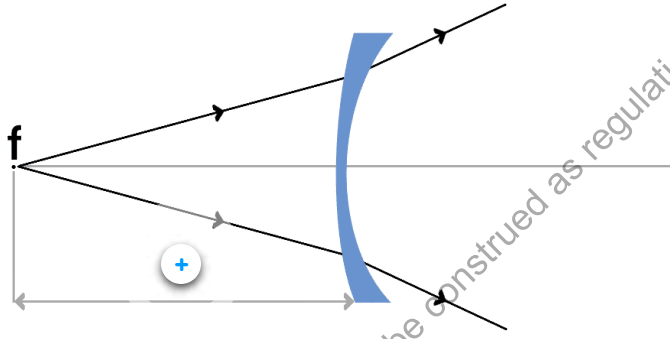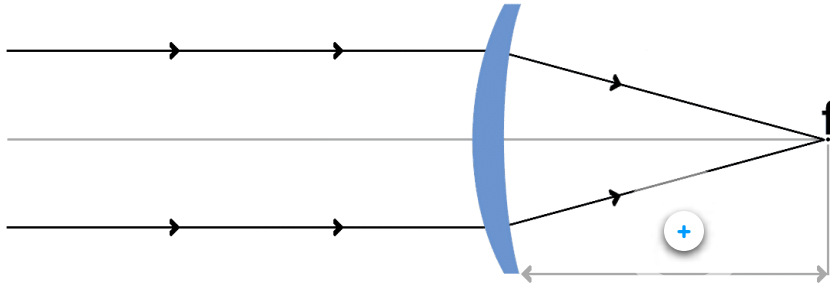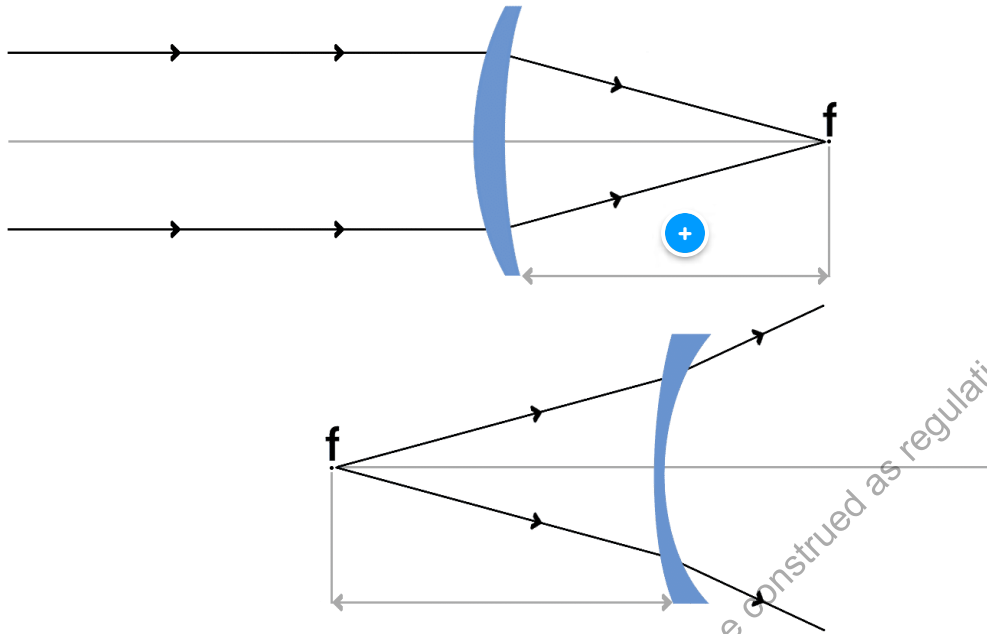
Plus lens: real focal point

Plus lenses have a "real" focal point because they bring parallel rays of light to a point of focus.

For a one diopter plus lens, the real focal point in one meter away.
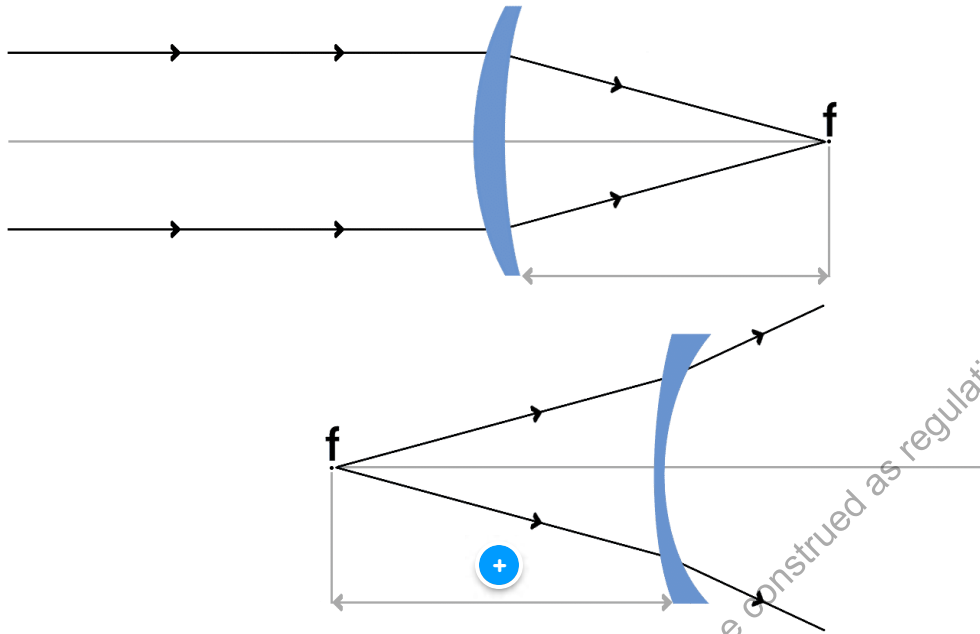
Minus lens: virtual focal point

Minus lenses have a "virtual" focal point because in order to find the focal point you must virtually trace the real rays backwards to find them.

For a one diopter minus lens, the virtual focal point in one meter away.

THE LENS POWER IS EQUAL TO THE RECIPROCAL OF THE FOCAL LENGTH MEASURED IN METERS.

If given the lens power, you can determine the focal length by applying the following formula:

Focal length (in meters) = 1 / Lens power (in diopter)

Similarly, you can determine the lens power from the focal length with the following formula:

Lens power (in diopter) = 1 / Focal length (in meters)

As the power of a lens increases, the focal length decreases. In a similar way, when the focal length of a lens increases, the power of a lens decreases.

Overall lens power	Focal length
0.25 diopter	4 meters
0.50 diopter	2 meters
1 diopter	1 meter
2 diopters	0.5 meter
4 diopters	0.25 meter

CONTINUE

KNOWLEDGE CHECK

Welcome to the knowledge check on "Focal length of a spectacle lens".

Let's quickly check if you remember what we discussed in this lesson.

This assessment contains 6 questions.

Plus lenses have a...

○   virtual focal point

○   real focal point

○   arbitrary

The focal length of a lens is a measurement of how strongly it converges or diverges light.

○ True

○ False

Focal length and power of the lens are:

○ Inversely proportional

○ Directly proportional

○ Independent of each other

What is back vertex focal length?

○ The back vertex focal length is the distance between a plus lens and the focal point of the lens

○ The back vertex focal length is the distance between the image and the object

○ The back vertex focal length is the difference between the focal length and the lens power

○ The back vertex focal length is the distance between a minus lens and the focal point of the lens

What is the formula for focal length?

○   Focal Length = 1 / (Back Vertex)

○   Focal Length = 1 / (Lens Power)

What is the focal length of a 20 diopter lens?

○ 20 meters

○ 2 meters

○ 1/12th of a meter

○ 1/20th of a meter

KEY TAKEAWAYS

IN THE LESSON ON FOCAL LENGTH OF A SPECTACLE LENS, YOU LEARNED:

1   The focal length of a lens is a measurement of how strongly it converges (focuses) or diverges (diffuses) light

2   A plus lens will make parallel rays of light converge to a real image at the focal point of the lens. The focal length is also called the back vertex focal length

3   For a minus lens, the virtual focal point is determined by tracing the diverging rays backwards. The distance from the lens to the virtual focal point is also called the front vertex focal length

4   If you are given the power of a lens, you can compute the focal length. Similarly, if you are given the focal length of a lens, you can compute the lens power

5   The lens power is equal to the reciprocal of the focal length measured in meters

You have completed the lesson!

MAGNIFICATION AND SPECTACLE LENSES

Welcome to the lesson on magnification and spectacle lenses.
At the end of this lesson, you will be able to:

- Explain what magnification is and its effect on vision

- Understand the causes of magnification

- Learn the magnification formula to calculate the amount of magnification in a lens

- Manage the variables of lens design to balance magnification between lenses

WHAT IS MAGNIFICATION?

THE MAGNIFICATION FORMULA

MANAGING VARIABLES TO IMPACT MAGNIFICATION

KNOWLEDGE CHECK

KEY TAKEAWAYS

WHAT IS MAGNIFICATION?

THE TERM "MAGNIFICATION" IS USED TO DESCRIBE BOTH MAGNIFICATION AND MINIFICATION

Spectacle lenses are prescribed to correct refractive errors within the eye and provide focused vision. However, one "side effect" of refractive lenses is the tendency of lenses to magnify or minify objects.

All spectacle lenses cause some degree of magnification. The visual system is usually not bothered by magnification, provided it is relatively equal between both lenses.

Magnification occurs when a spectacle lens enlarges the image of an object being viewed. Magnification is directly proportional to the amount of plus power in a lens (that is, the greater the plus power, the higher the level of magnification produced by the lens).

Minification occurs when a spectacle lens reduces the image size of a viewed object. Minification is directly proportional to the amount of minus power in a lens (that is, the greater the minus power, the higher the level of minification produced by the lens).

However, when lenses produce significantly different amounts of magnification, the brain is not able to maintain binocular vision (i.e. combine the images of both eyes to create a single image).

This condition is called aniseikonia, and can usually occur when the difference in magnification is greater than 4% (which occurs when the difference in power between the right and left lenses is >2.50 diopters).
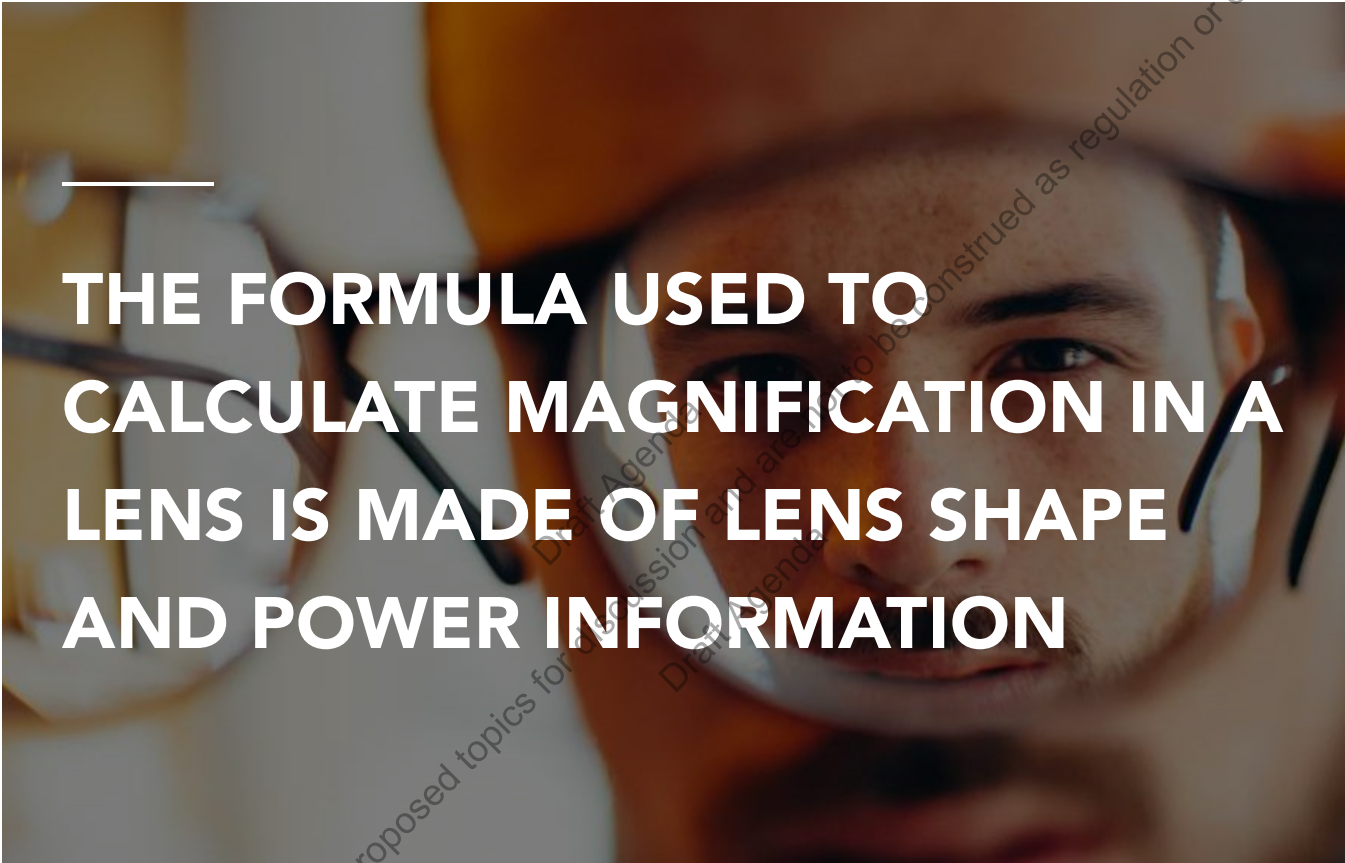
CONTINUE

THE MAGNIFICATION FORMULA

THE FORMULA USED TO CALCULATE MAGNIFICATION IN A LENS IS MADE OF LENS SHAPE AND POWER INFORMATION

MAGNIFICATION = SHAPE FACTOR x POWER FACTOR

SHAPE FACTOR	POWER FACTOR

The shape factor contains information about the shape/appearance of the lens:

- thickness (in meters)
- base curve
- index of refraction

SHAPE FACTOR = 1 / [1 - (thickness/index) x base curve]

SHAPE FACTOR	POWER FACTOR

The power factor contains information about the refractive power of the lens and its position in front of the eye.

POWER FACTOR = 1 / [1 - (vertex x power)]

The formula used to calculate magnification in a lens is as follows:

MAGNIFICATION =
1 / [1 - (thickness/index) x base curve] x 1/[1 - (vertex x power)]

Although it is not important or practical to memorize the spectacle magnification formula, it is important to understand how each element of lens design affects magnification (which becomes apparent when considering the formula).

Design variable	Impact	Impact

Design variable	Impact	Impact
Thickness	Increased thickness = Stronger magnification	Increases shape factor
Index	Higher index = Lower magnification	Decreases shape factor
Base curve	Increased base curve = Stronger magnification	Increases shape factor
Vertex	Increased vertex distance = Stronger magnification	Increases power factor
Lens power	Increased plus power = Stronger magnification	Increases power factor

CONTACT LENSES ARE WORN WITH NO VERTEX DISTANCE

- Most patients are refracted at a 10 to 14 mm distance. Taking into account these different distances, all contact lens prescription over + or – 4.00 diopters need to be compensated for vertex distance.

- When switching from contact lenses to spectacle lenses, patients will experience changes in magnification. Myopes may experience

minification when wearing spectacle lenses, in comparison to contacts. On the contrary, hyperopes may experience magnification with lenses at a higher vertex distance.

CONTINUE

MANAGING VARIABLES TO IMPACT MAGNIFICATION
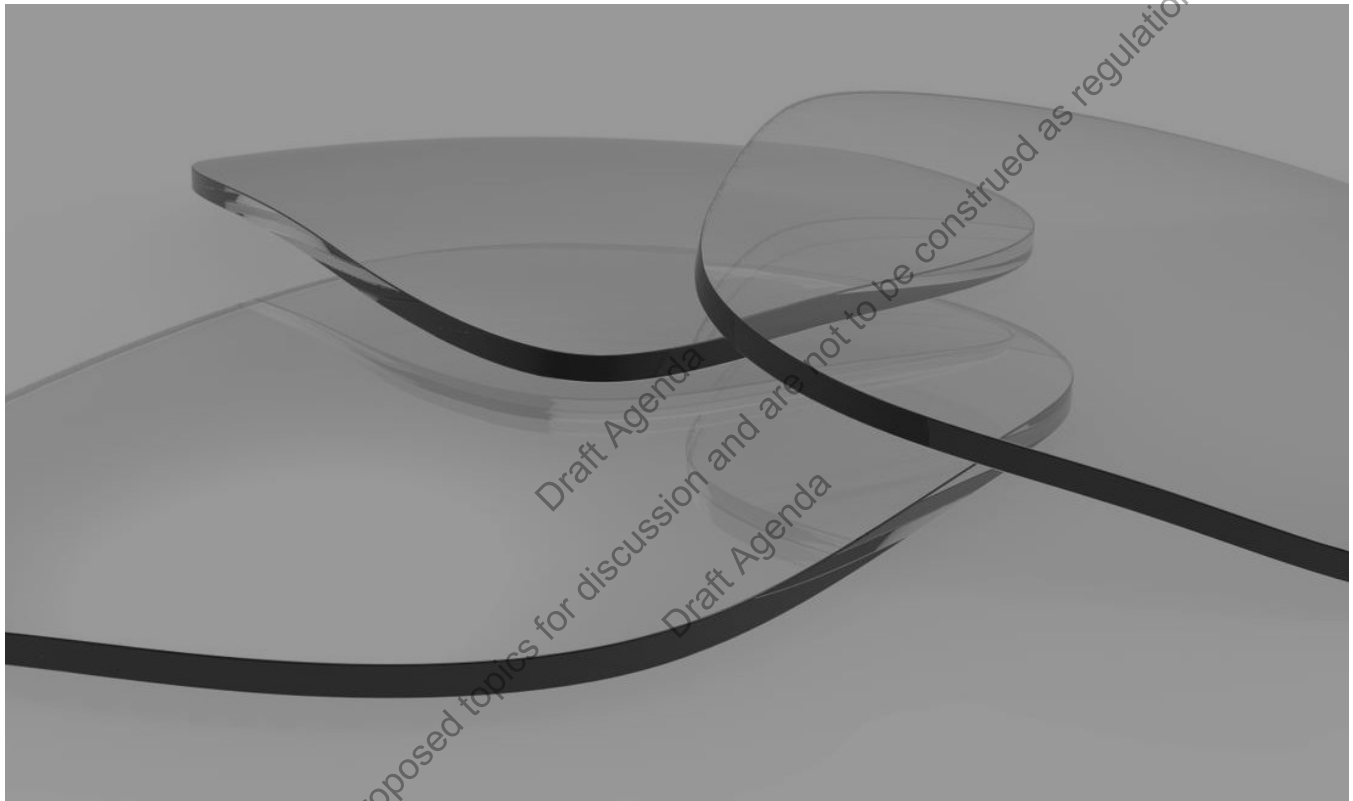
BASE EXAMPLE: HIGH PLUS LENS WITH STANDARD VARIABLES

Design variable	Value
Thickness	5mm (0.005m)

Design variable	Value
Index	1.50
Base curve	8.00
Vertex	13mm (+3mm) = 16mm
Lens power	+6.00 sphere

In this case, the magnification formula is:

magnification = 1 / [1 - (0.005/1.50) x (8.00)] x 1 / [1 - (0.016 x 6.00)]

SHAPE FACTOR	1.027
POWER FACTOR	1.106
SHAPE FACTOR x POWER FACTOR	1.136
MAGNIFICATION	**13.6%**

LOWERING THE BASE CURVE LEADS TO LOWER MAGNIFICATION

Design variable	Value

Design variable	Value
Thickness	5mm (0.005m)
Index	1.50
Base curve	**6.00 (change from 8.00 in example #1)**
Vertex	13mm (+3mm) = 16mm
Lens power	+6.00 sphere

In this case, the magnification formula is:

magnification = 1 / [1 - (0.005/1.50) x (6.00)] x 1 / [1 - (0.016 x 6.00)]

SHAPE FACTOR	1.020
POWER FACTOR	1.106
SHAPE FACTOR x POWER FACTOR	1.128
MAGNIFICATION	**12.8%**

In this example a change from 8.00 to 6.00 in base curve leads to a decrease of magnification from 13.6% to 12.8%.

DECREASING THE CENTER THICKNESS LEADS TO FURTHER DECREASE

Design variable	Value
Thickness	**3mm (change from 5mm in example #1)**
Index	1.50
Base curve	**6.00 (change from 8.00 in example #1)**
Vertex	13mm (+3mm) = 16mm
Lens power	+6.00 sphere

In this case, the magnification formula is:

magnification = 1 / [1 - (0.003/1.50) x (6.00)] x 1 / [1 - (0.016 x 6.00)]

SHAPE FACTOR	1.012
POWER FACTOR	1.106
SHAPE FACTOR x POWER FACTOR	1.119
MAGNIFICATION	**11.9%**

In this example a change from 5mm to 3mm center thickness leads to a further decrease of magnification to 11.9% (originally 13.6% in example #1).

DECREASING THE VERTEX DISTANCE LOWER MAGNIFICATION FURTHER

Design variable	Value
Thickness	**3mm (0.003mm)**
Index	1.50
Base curve	**6.00 (change from 8.00 in example #1)**
Vertex	**10mm (+3mm) = 13mm**
Lens power	+6.00 sphere

In this case, the magnification formula is:

magnification = 1 / [1 - (0.003/1.50) x (6.00)] x 1 / [1 - (0.013 x 6.00)]

SHAPE FACTOR	1.012
POWER FACTOR	1.085

SHAPE FACTOR x POWER FACTOR	1.098
MAGNIFICATION	**9.8%**

In this example a change of vertex distance from 13mm to 10mm leads to a further decrease of magnification to 9.8%.

INCREASING THE REFRACTIVE INDEX DECREASES MAGNIFICATION

Design variable	Value
Thickness	**3mm (0.003mm)**
Index	**1.67 hi-index**
Base curve	**6.00 (change from 8.00 in example #1)**
Vertex	13mm (+3mm) = 16mm
Lens power	+6.00 sphere

In this case, the magnification formula is:

magnification = 1 / [1 - (0.003/1.67) x (6.00)] x 1 / [1 - (0.013 x 6.00)]

SHAPE FACTOR	1.011
POWER FACTOR	1.085
SHAPE FACTOR x POWER FACTOR	1.097
MAGNIFICATION	**9.7%**

In this example a change of refractive index (from 1.50 to 1.67) leads to a further decrease of magnification to 9.7%.

The only variable we have left alone is the refractive power of the lens (since we cannot change the Rx). Magnification has been reduced from 13.6% to 9.4%, which is quite significant. Remember, the goal is not to eliminate magnification, but rather to get the magnification levels of the lens to within 4% of each other.

CONTINUE

KNOWLEDGE CHECK

Welcome to the knowledge check on "Magnification and spectacles lenses".

Let's quickly check if you remember what we discussed in this lesson.

This assessment contains 4 questions.

Aniseikonia usually becomes a problem when the difference in power between the right and left eyes is greater than:

○ 1.50 diopter

○ 2.50 diopters

○ 4.00 diopters

○ 5.00 diopters

What actions will reduce the difference in magnification between the lenses of this prescription: OD +1.00 SPH, OS +6.00 SPH, OU +2.50 ADD. Select all applicable answers:

☐   Decrease magnification of the left lens by selecting a lower base curve

☐   Increase magnification of the right lens by increasing the center thickness

☐   Increase magnification of the left lens by increasing the center thickness

☐   Increase magnification of the right lens by selecting a higher base curve

What are the most recommendable actions you can take to reduce the difference in magnification between the lenses of this prescription: OD -0.50 SPH, OS -8.00 SPH. Selection all applicable answers.

☐ Select a flatter base curve to increase minification of the right eye

☐ Select a steeper base curve to decrease minification in the left eye

☐ Increase index of refraction in the right lens to decrease minification

☐ Increase index of refraction in the left lens to decrease minification

☐ Increase thickness of the right eye

In the following prescription, which action will have the most impact on bringing the levels

of magnification closer together?

OD -2.00 SPH, OS +3.00 SPH

○ Decreasing the base curve of the right eye and increasing the base curve of the left eye

○ Increasing the base curve of the right eye and decreasing the base curve of the left eye

○ Increasing the vertex distance of both lenses

○ Increasing the thickness of both lenses

KEY TAKEAWAYS

IN THE LESSON ON "MAGNIFICATION AND SPECTACLE LENSES" YOU HAVE LEARNED:

1 The elements of lens design which influence magnification are: base curve, thickness, vertex, and index of refraction

2 There are several methods for adjusting these three elements in order to create binocular harmony

3 The magnification formula can be used to determine the total amount of magnification difference between the eyes

4 The magnification formula can be used as a predictor of how design changes will solve the problem of magnification imbalance

You have completed the lesson!

VERTEX DISTANCE AND VERTEX COMPENSATION

Welcome to the lesson on vertex compensation.
At the end of this lesson, you will be able to:

- Understand vertex distance

- Explain vertex compensation

- Define the essentials of vertex effect

- Arrange the variables into the framework of the formula

- Use the formula to compute the compensated lens power

VERTEX OVERVIEW

VERTEX COMPENSATION FORMULA

KNOWLEDGE CHECK
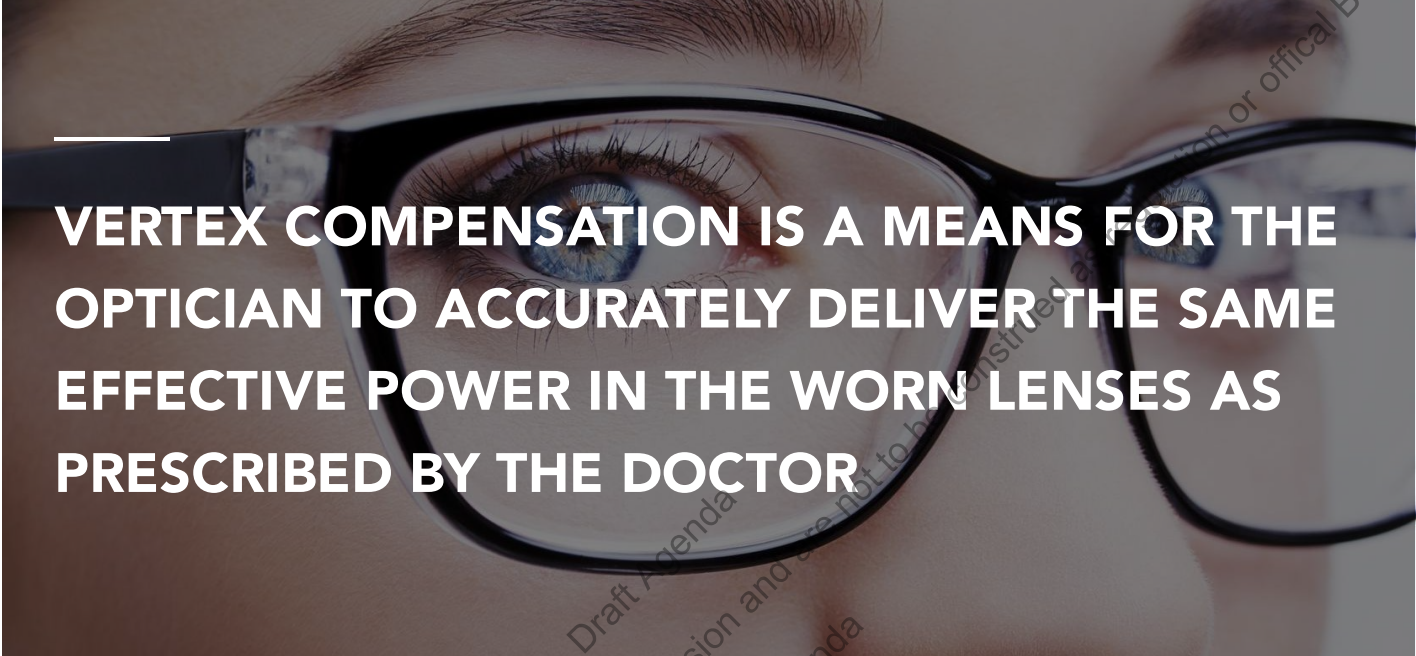
KEY TAKEAWAYS

VERTEX OVERVIEW

VERTEX COMPENSATION IS A MEANS FOR THE OPTICIAN TO ACCURATELY DELIVER THE SAME EFFECTIVE POWER IN THE WORN LENSES AS PRESCRIBED BY THE DOCTOR

Whenever any lens is moved farther or closer in the fit than where it was examined, the perceived power of the lens changes. In lenses with powers less than 6.50 diopters, this change is usually not significant, but in lenses above 6.50 diopters, wearers will usually notice a difference.

Vertex compensation enables the optician who notes differences between the examined and fitting vertices to adjust the lens power in the worn lenses to match the value of the examined power.

THE VERTEX DISTANCE IS THE DISTANCE BETWEEN THE BACK SURFACE OF A CORRECTIVE LENS AND THE FRONT OF THE CORNEA

All lenses have two dioptric power values. One is the actual power which may be measured in a lensometer, and the other is the effective power which only the wearer perceives. The same lens may be perceived in different ways by the same wearer depending on variations in vertex (fitting distance).
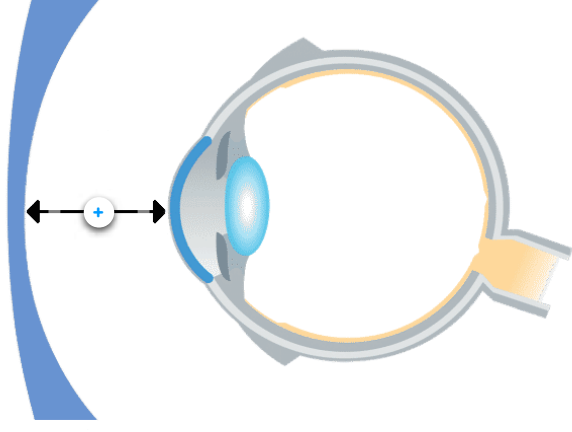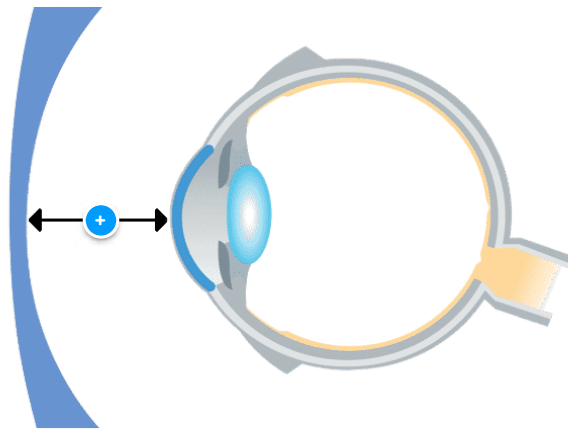
Vertex distance

Vertex affects the perceived power of all lenses. Increasing or decreasing the vertex distance changes the optical properties of the system. By moving the focal point forward or backward, the optician can effectively change the power of the lens relative to the eye.

The effect is most notable in lenses of greater dioptric power. As lens power increases, so too will the effect of vertex on power.

WHEN IS VERTEX COMPENSATION NECESSARY?

A prescription conveys the dioptric power necessary to correct a given condition of the eye. In order to achieve the exact result with a pair of spectacles, the dioptric power and the fitting vertex should equal the prescribed power and the examined vertex. Otherwise compensations should be made.

THERE ARE MANY WAYS TO TAKE A VERTEX MEASUREMENTS. ELECTRONIC DEVICES ARE THE MOST ACCURATE
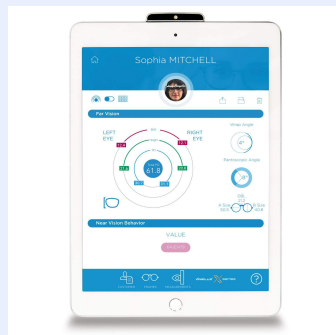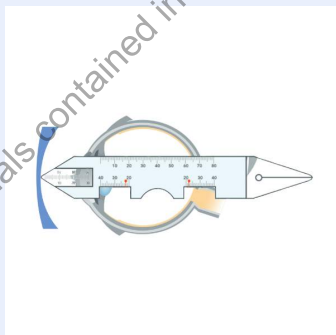
Ruler   **Digital device**

CONTINUE

VERTEX COMPENSATION FORMULA

PLUS OR MINUS LENSES ARE EQUALLY AFFECTED BY VERTEX EFFECT, BUT THE DIRECTION OF THE EFFECT IS OPPOSITE
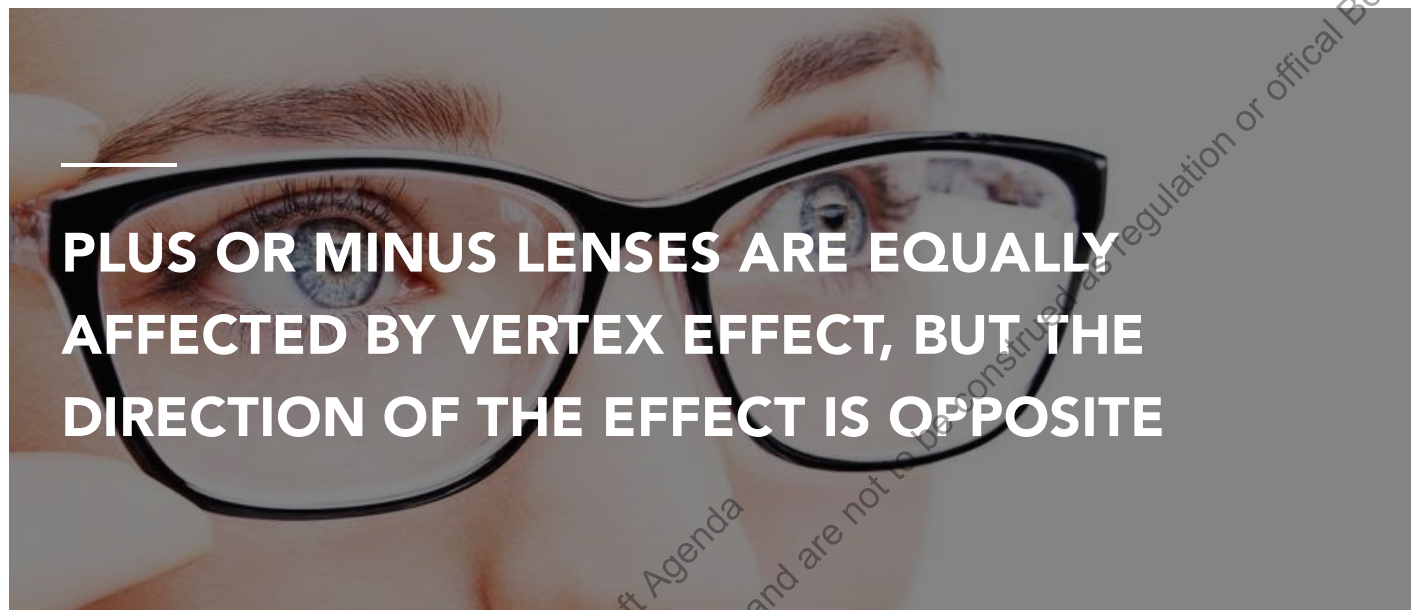
Whenever any lens is moved farther or closer in the fit than where it was examined, the perceived power of the lens changes. In lenses with powers less than 6.50 diopters, this change is usually not significant, but in lenses above 6.50 diopters, wearers will usually notice a difference.

Lens type	Fitting situation	Perceived effect	Compensation needed
Plus lens	Increased vertex	Strengthening effect	Weaker lens power
Plus lens	Decreased vertex	Weakening effect	Stronger lens power
Minus lens	Increased vertex	Weakening effect	Stronger lens power
Minus lens	Decreased vertex	Strengthening effect	Weaker lens power

TWO-STEP APPROACH TO CALCULATE THE NECESSARY COMPENSATION IN POWER:

(1)

You must first calculate the amount of compensation necessary per millimeter of displacement:

Amount of compensation necessary per millimeter of displacement	= (Lens power)^2 / 1000

(2)

You should then multiply that number by the exact number of millimeters of displacement between the examination vertex and the fitting vertex:

Amount of compensation necessary per millimeter of displacement	X Millimeters of displacement	= Compensation in power needed at fitting vertex

EXAMPLE #1: COMPENSATING A SPHERICAL LENS

The prescription give by the doctor reads a pair of + 10.00 SPH, with an examined vertex of 15.0 mm. Upon fitting the individual with lenses, we determine that the new lenses will have a fitting vertex of 12.0 mm (average vertex distance for adults are between 12 to 14mm). Remember that when moving a plus lens closer, we must compensate and fit with a stronger plus lens.

Amount of compensation necessary per millimeter of displacement	= (10.00)^2 diopters / 1000	= 100/1000 = 0.10

In this example, there is a 5.0 mm displacement.

0.10 diopters	X 3.0mm of displacement	= 0.30 diopters of compensation

CONSIDER A LENS WITH POWER EQUAL TO +10.00 DIOPTERS, WHICH NEEDS TO BE DISPLACED BY 5.5 MILLIMETERS

FITTED FARTHER AWAY	FITTED CLOSER

First formula: (10.00)² divided by 1,000 = 100 divided by 1,000 = 0.10 diopters / mm
Second formula: 0.10 diopters per millimeter of displacement x 5.5 millimeters = 0.55 diopters

Since it is a plus lens fitted farther away, there is a strengthening effect. We must weaken the lens power to compensate. Therefore, subtract 0.55 diopters from the original lens power of + 10.00 diopters = +9.45 diopters.

FITTED FARTHER AWAY	FITTED CLOSER

First formula: (10.00)² divided by 1,000 = 100 divided by 1,000 = 0.10 diopters / mm
Second formula: 0.10 diopters per millimeter of displacement x 5.5 millimeters = 0.55 diopters

Since it is a plus lens fitted closer, there is a weakening effect. We must strengthen thelens power to compensate. Therefore, add 0.55 diopters to the original lens power of + 10.00 diopters = +10.55 diopters.

CONSIDER A LENS WITH POWER EQUAL TO -10.00 DIOPTERS, WHICH NEEDS TO BE DISPLACED BY 5.5 MILLIMETERS

FITTED FARTHER AWAY	FITTED CLOSER

First formula: (10.00)² divided by 1,000 = 100 divided by 1,000 = 0.10 diopters / mm
Second formula: 0.10 diopters per millimeter of displacement x 5.5 millimeters = 0.55 diopters

 Since it is a minus lens fitted farther away, there is a weakening effect. We must strengthen the lens power to compensate. Therefore, subtract 0.55 diopters to the original lens power of - 10.00 diopters = - 10.55 diopters.

FITTED FARTHER AWAY	FITTED CLOSER

First formula: (10.00)² divided by 1,000 = 100 divided by 1,000 = 0.10 diopters / mm
Second formula: 0.10 diopters per millimeter of displacement x 5.5 millimeters = 0.55 diopters

Since it is a minus lens fitted farther away, there is a strengthening effect. We must weaken the lens power to compensate. Therefore, add 0.55 diopters to the original lens power of - 10.00 diopters = - 9.45 diopters.

EXAMPLE #2: COMPENSATING A CYLINDER POWER

A new Rx reads -10.00 -4.00 x 090 in both eyes, with an examined vertex of 15.0 mm and a fitting vertex of 12.0 mm.

The compensation procedure is the same, but now we must use the formula twice, once for each meridian. We should view cylinders as two separate lenses.

SPHERE COMPENSATION

Amount of compensation necessary per millimeter of displacement	= $(-10,00)^2$ diopters / 1000	= 100/1000 = 0.10

0.10 diopters of change per mm of displacement x 3.0 mm of displacement = 0.30 diopters of compensation. Since this is a minus power, moving the lens closer will have a strengthening effect. Therefore, we must weaken the lens to compensate. The resulting compensated sphere power is -9.70 diopters.

CYLINDER COMPENSATION

In the 180 meridian, we have -14.0 diopters of power:

Amount of compensation necessary per millimeter of displacement	= $(-14.00)^2$ diopters / 1000	= 196/1000 = 0.196

0.196 diopters of change per mm of displacement X 3.0 mm of displacement = 0.588 diopters. Round this answer to the nearest quarter-diopter, which is 0.50 diopter.

Because the situation is a minus lens fitted closer, there is a strengthening effect. We must weaken the cylinder lens power by 0.50 diopter from -14.00 to -13.50 diopters in the 180 meridian. The resulting value will be the new cylinder power:

- Power in cylinder meridian = -13.50 diopters

- Sphere power = -9.50 diopters

- New compensated cylinder: (-13.50) - (-9.50) = -4.00

The compensated Rx now reads: -9.50 -4.00x090 fit at 12mm

CONTINUE

KNOWLEDGE CHECK

Welcome to the knowledge check on "Vertex distance and vertex compensation".

Let's quickly check if you remember what we discussed in this lesson.

This assessment contains 4 questions.

All lenses have two dioptric power values. They are:

- ☐ Actual power

- ☐ Virtual power

- ☐ Effective power

- ☐ Distance power

- ☐ None of the above

A plus lens with an increased vertex fitting will give:

○ Weakening effect

○ Strengthening effect

○ No effect

○ None of the above

A minus lens with a increased vertex fitting will give:

○ Weakening effect

○ Strengthening effect

○ No effect

○ None of the above

Vertex compensation is made when the dioptric power and the fitting vertex are equal to the prescribed power and the examined vertex.

○ True

○ False

KEY TAKEAWAYS

IN THE LESSON ON "BALANCING PRESCRIBED PRISM" YOU LEARNED:

1 The vertex distance is the distance between the back surface of a corrective lens and the front of the cornea

2 All lenses have two dioptric power values. One is the actual power which may be measured in a lensometer, and the other is the effective power which only the wearer perceives

3 Vertex compensation enables the optician who notes differences between the examined and fitting vertices to adjust the lens power in the worn lenses to match the value of the examined power

4 Whenever any lens is moved farther or closer in the fit than where it was examined, the perceived power of the lens changes. In lenses with powers less than 6.50 diopters, this change is usually not significant, but in lenses above 6.50 diopters, wearers will usually notice a difference

5 To calculate the necessary compensation in power, you must:

- first calculate the amount of compensation necessary per millimeter of displacement. It is equal to (Lens power)^2 / 1000

- then multiply that number by the exact number of millimeters of displacement between the examination vertex and the fitting vertex

You have completed the lesson!

1.0

FOCAL LENGTH OF A SPECTACLE LENS
Plus lenses have a _____ focal point.

Select the best answer and then click "Submit"

Correct	Choice Text
○	virtual
●	real
○	arbitrary
○	invisible
○	Add a choice (optional)...

02   FOCAL LENGTH OF A SPECTACLE LENS
What is the focal length of a 10 diopter lens?

Select the best answer and then click "Submit"

Correct	Choice Text
⦿	10 centimeters
◯	100 centimeters
◯	1000 millimeters
◯	1 centimeter

03   FOCAL LENGTH OF A SPECTACLE LENS

Focal length and power of the lens are _____.

Select the best answer and then click "Submit"

Correct	Choice Text
○	dependent on each other
○	directly proportional
○	independent of each other
●	inversely proportional

04 FOCAL LENGTH OF A SPECTACLE LENS
Vertex distance is:

Select the best answer and then click "Submit"

Correct	Choice Text	Multiple Choice ⌄
⦿	The distance between the back surface of a corrective lens and the front of the cornea	
○	The distance between the front surface of a corrective lens and the front of the cornea	
○	The difference between the back surface of a corrective lens and the front of the corrective lens	
○	The difference between the front surface of a corrective lens and the front of the retina	

05 FOCAL LENGTH OF A SPECTACLE LENS
What is the formula for focal length?

Select the best answer and then click "Submit"

Correct	Choice Text	Multiple Choice ⌄
○	Focal length = 1/back vertex	
⦿	Focal length = 1/lens power	
○	Focal length = 1/difference between the minus lens and the focal point	
○	Focal length = 1/difference between the plus lens and the focal point	

FOCAL LENGTH OF A SPECTACLE LENS

Minus lenses have a _____ focal point.

Select the best answer and then click "Submit"

Correct	Choice Text
●	virtual
○	real
○	arbitrary
○	invisible

FOCAL LENGTH OF A SPECTACLE LENS
A minus lens could be described as _____.

Select the best answer and then click "Submit"

Correct	Choice Text
●	two prisms apex to apex
○	two prisms base to base
○	a cylinder lens
○	a plano lens

08   VERTEX COMPENSATION
All lenses have two dioptric powers. They are:

Select the best answer and then click "Submit"

Correct	Choice Text
◯	Virtual power and effective power
⦿	Actual power and effective Power
◯	Distance power and actual power
◯	Plano power and actual power

09   VERTEX COMPENSATION
The examined and fitting vertex will be the same when optometrists use this instrument to obtain the patient's Rx:

Select the best answer and then click "Submit"

Correct	Choice Text	Multiple Choice ∨
○	Lensometer	
●	Phoropter	
○	Diopter	
○	Pupilometer	

10   VERTEX COMPENSATION
A plus lens with an increased vertex fitting will result in _____.

Select the best answer and then click "Submit"

Correct	Choice Text	Multiple Choice ∨
○	no effect	
	weakening effect	
●	strengthening effect	
○	strabismus effect	

11

VERTEX COMPENSATION
A minus lens with an increased vertex fitting will result in _____.

Select the best answer and then click "Submit"

Correct	Choice Text	Multiple Choice ⌄
○	no effect	
●	weakening effect	
○	strengthening effect	
○	strabismus effect	

12

VERTEX COMPENSATION
The instrument used to measure vertex is known as:

Select the best answer and then click "Submit"

Correct	Choice Text	Multiple Choice ⌄
○	Diopter	
○	Lensometer	
○	Phoropter	
●	Distometer	

13   VERTEX COMPENSATION
      If a patient is wearing a -8.50 diopter sphere and the adjustment is made to move the
      glasses closer to their eyes, what effect will this have on the effective power of the lens?

      Select the best answer and then click "Submit"

Correct	Choice Text	Multiple Choice ∨
○	Decrease minus power	
◉	Increase minus power	
○	Cause base in prism	
○	Cause base out prism	

14   MAGNIFICATION AND SPECTACLE LENSES
      Difference in magnification, over _____ from eye to eye, is usually problematic to
      the wearer.

      Select the best answer and then click "Submit"

Correct	Choice Text	Multiple Choice ∨
◉	4%	
○	6%	
○	10%	
○	8%	

15   MAGNIFICATION AND SPECTACLE LENSES
Total thickness of the existing lenses is used to determine the _____ _____ difference between the two eyes.

Select the best answer and then click "Submit"

Correct	Choice Text	Multiple Choice ∨
○	ophthalmic distance	
○	optic pressure	
○	percentage decentration	
◉	percentage magnification	

16   MAGNIFICATION AND SPECTACLE LENSES
What happens to the magnification difference when one base curve is steepened and the other flattened?

Select the best answer and then click "Submit"

Correct	Choice Text	Multiple Choice ∨
○	Has no effect	
○	Increases the magnification difference	
◉	Reduces the magnification difference	
○	Reduces pantoscopic tilt	

17   MAGNIFICATION AND SPECTACLE LENSES
It is difficult to control imbalances using _____ since both lenses are mounted in the same frame.

Select the best answer and then click "Submit"

Correct	Choice Text	Multiple Choice ∨
○	focal length	
◉	vertex	
○	magnification	
○	refraction	

18   MAGNIFICATION AND SPECTACLE LENSES
The magnification formula will enable you to:

Select the best answer and then click "Submit"

Correct	Choice Text	Multiple Choice ∨
○	Predict the pantoscopic tilt required for proper fitting	
○	Predict the prism in the lens	
◉	Predict the change in magnification percentage before ordering the lenses	
○	Predict the change in magnification percentage after ordering the lenses	

19 MAGNIFICATION AND SPECTACLE LENSES
Which of the following is a factor when determining magnification?

Select the best answer and then click "Submit"

Correct	Choice Text	Multiple Choice ⌄
○	Polarization	
○	Lens tint	
○	Pantoscopic tilt	
⦿	Lens thickness	

20 MAGNIFICATION AND SPECTACLE LENSES
Which of the below is a characteristic of aspheric lenses?

Select the best answer and then click "Submit"

Correct	Choice Text	Multiple Choice ⌄
○	Flatten towards the center of the lens	
○	Create the effect of a steeper base curve and a thinner profile	
⦿	Decreases magnification	
○	Increases magnification	

WARNING: EXTERNAL EMAIL

AMERICAN BOARD OF OPTICIANRY

NATIONAL CONTACT LENS EXAMINERS

217 N. Upper Street, Suite 201

Lexington, KY 40507

703-719-5800 • 800-296-1379

Web Address: www.abo-ncle.org

Dear Walter,

This letter will confirm that the **American Board of Opticianry** Education Committee **approved** the following **online** course:

    Course: Lens Standards and Formulas

    Hours: 1

    Designation: Ophthalmic Level II

    Course Number: STWEOA127-2

    Expires: March 6, 2027

This course has been approved for **3 years**.

Thank you for your continued commitment to quality education. If you have any questions regarding the above, please feel free to call the office at (703) 719-5800

Sincerely,

Karla Y. Aviles
Education Coordinator

This email was sent to PShoven@us.luxottica.com. You are receiving this email because you submitted a course for approval.

To Whom It May Concern,

I certify that I have completed the following course in no less than the number of credit hours (1) requested for approval.

CE20 – LENS STANDARDS AND FORMULAS

Sincerely,

Judy Lew, LDO, ABOC

To Whom It May Concern,

I certify that I have completed the following course in no less than the number of credit hours (1) requested for approval.

CE20 – LENS STANDARDS AND FORMULAS

Sincerely,

Brooke K Carrasco

Brooke Carrasco, ABOC, NCLE

CEC: LENS STANDARDS AND FORMULAS

LENS STANDARDS AND FORMULAS covers the following areas:
1. **ANSI Standards**: Describes ANSI standards and how these standards are applied to eyewear, both for lenses and frames. It reviews important considerations for reviewing these standards when making a recommendation to the patient. When working with patients, it is critical that you adhere to the standards set by the American National Standards Institute (ANSI) to ensure patient safety and comfort, as well as reduce your practice liability.
2. **Toric Transposition**: Defines the concept of Toric Transposition and how to use a lens clock to get the basic power readings of each lens surface.
3. **Sagittal Formula:** Defines Sagittal value and how to consider different elements of Sagittal value when dispensing lenses to a patient. This course will also describe how to compute the finished thickness of a patient's lenses.

Course outline/timing: Total 50 minutes

1) ANSI Standards (20 minutes)
2) Course Objectives
   a) Explain relevant ANSI industry standards
   b) Explain why ANSI standards are important
   c) Recommend safety eyewear with confidence
   d) Explain the impact resistance testing process and its importance
   e) Describe how ANSI standards apply when dispensing eyewear to patients
3) What are Standards and Why Do We Need Them?
   a) Light Bulb illustration
   b) Clothing illustration
   c) Spark Plugs for Engines illustration
   d) Trains illustration
4) The American National Standards Institute
   a) What are ANSI Standards?
   b) ANSI Standards ensure:
      i) The characteristics and performance of products are consistent
      ii) Products are tested the same way
   c) Who Develops ANSI Standards?
5) ANSI Standards For Safety Eyewear
   a) Basic Impact Lens Standards
      i) Have a minimum center thickness of 3.0mm
      ii) Be stamped with the manufacturer's trademark
   b) High Impact Standards for Safety Eyewear
      i) Minimum thickness of 2.0mm
      ii) Capable of resisting impact from a 0.25" steel ball traveling at 150 feet per second
      iii) Marked with manufacturer's trademark and a '+' after the trademark
      iv) Made from polycarbonate material, the safest choice
   c) Safety frames:
      i) Must be exposed to high-velocity and high-mass impact resistance tests while retaining the lenses
      ii) Must be marked with Z87-2, indicating they can be used for basic or high-impact
   d) Side Shields:
      i) Lateral protection will be 10mm behind the corneal vertex
   e) Injuries In the Workplace
      i) Every day an estimated 1000 eye injuries occur in America workplaces
      ii) The annual financial cost of these injuries is more than $300 million in lost

production time, medical expenses, and workers compensation.
  iii) Eye injuries happen because of:
    (1) Striking or scraping: the majority of eye injuries result from small particles or objects striking or scraping the eye, such as: dust, cement chips, metal slivers, and wood chips. These materials are often ejected by tools, windblown, or fall from above a worker. Large objects may also strike the eye or face, or a worker may run into an object causing blunt-force trauma to the eyeball or eye socket
    (2) Penetration: objects like nails, staples, or slivers of wood or metal can go through the eyeball and result in a permanent loss of vision
    (3) Chemical and thermal burns: industrial chemicals or cleaning products are common causes of chemical burns to one or both eyes. Thermal burns to the eye also occur, often among welders. These burns routinely damage workers' eyes and surrounding tissue
6) Liability and The Ten Principles
  a) The Ten Principles:
    i) Insure that the lab supplying the eyewear you are dispensing, is properly ensured
    ii) Insure that the lab supplying the eyewear you are dispensing, is properly ensured
    iii) Inspect all eyewear to ensure they are properly marked. If it is not, reject the job and return it to the fabricating lab
    iv) Never substitute safety frame parts
    v) Never solder or otherwise "alter" a safety frame. Replace any broken or missing parts with original factory parts
    vi) Never re-edge a safety lens. If you re-edge, you are responsible for monogramming the lens, thereby identifying yourself as the optical responsible for the performance of the eyewear
    vii) Know the policy of the company you serve. Make exceptions only if written and signed by the person in charge of the program
    viii) Make sure side-shields on all prescription safety eyewear are the exact model designed to fit the frame. Do not supply side shields that are not tested on a specific frame style
    ix) Watch for loose lenses of any kind. If the frame is stretched or the lenses are too small, they should be replaced. Also, be on the lookout for scratched or pitted glass lenses. They will fail with minimal impact and represent a danger to the wearer. Contact the person responsible for the patient's safety and explain the hazard you have identified
    x) Institute a "Duty to Warn Policy" in your optical for all patients
7) Key Takeaways
  a) In your day-to-day activities, you will meet patients with different needs. You will need to determine if the patient's need is for the workplace, general-purpose, or sports eyewear
  b) You need to adhere to specific ANSI standards to ensure patient safety and comfort
  c) Safety requirements set by ANSI need to be followed to ensure patient safety and avoid liability
  d) Following the ten principles of safety eyewear will help you reduce liability

8) **TORIC TRANSPOSITION** (15 minutes)
9) Course Objectives
   a) Define Toric Transposition
   b) Explain the procedure of Toric Transposition
   c) Use a lens clock to get basic power readings from each lens surface
   d) Combine front and back readings to get the total lens power of a lens
   e) Use a lens clock to get a quick add reading on traditional segments
10) What Is the Purpose of Toric Transposition?
   a) Toric Transposition definition
   b) Spectacle lens powers are achieved by combining various surface curvatures.
      i) The lens clock is an instrument that reads surface curves.
      ii) Front curves are generally convex and as such referred to as plus powers.
      iii) Back curves are generally concave and as such referred to as minus powers.
      iv) In order to derive lens power, you must read the power of the front curve and add it to the power of the back curve. The resulting value is the lens power.
      v) Example
11) Lens Clock / The Tool
   a) What is a Lens Clock?
      i) Definition and what it is used for
      ii) If the curve being measured is on the front surface of the lens, the black numbers apply
      iii) If the curve being measured is on the back surface of the lens, the red numbers will apply
      iv) A lens clock is precisely calibrated if it reads zero when pressed against a perfectly flat hard surface.
   b) Using the Lens Clock Step by Step
12) Lens Clock and Proper Procedures
   a) Proper Lens Clock Procedure FrontSide
   b) Proper Lens Clock Procedure MinusSide/Spheres
   c) Proper Len Clock Procedure for Cylinder Surfaces
   d) Proper Lens Clock Procedure for Minus Side/Cylinders
   e) Toric Transposition and Axis
   f) Toric Transposition/Bonus/Reading Add Power
13) Key Takeaways
   a) What is Toric Transposition
   b) Proper procedure for executing Toric Transposition
   c) How to use a lens clock to get readings from both front and back surface
   d) How to resolve readings from both sides to get total lens power
   e) How to read an add power with a lens clock

14) **SAGITTAL FORMULA** (15 minutes)
15) Course Objectives
   a) Define Sagittal Value
   b) Explain the procedure of Toric Transposition
   c) List the elements of thin lens design
   d) Arrange the variables into the framework of the formula
   e) Use the formula to compute the finished thickness of any given lens
16) Sagittal Formula
   a) Sagittal Formula definition
      i) Sagittal Formula example
17) Elements of Lens Thickness
   a) Variables Which Affect Lens Thickness
      i) Frame Size
      ii) Lens Shape
      iii) Decentration
      iv) Index of Refraction
      v) Specified Center on Minus Lenses or the Edge on Plus Lenses
   b) Frame Size
      i) Frame size is the most significant element of thin lens design.
   c) Lens Shape
      i) Second to frame size, shape is a significant factor in reducing lens thickness.
         (1) Effective Diameter
   d) Decentration
      i) Decentration is the third most significant factor in arriving at the finished thickness of a lens.
   e) Computing Decentration
      i) Step 1: A Box + DBL = FramePd
      ii) Step 2: Frame Pd - Patient Pd = Total Decentration
      iii) Step 3: Frame Pd/2 = Monuclular Frame Pd
      iv) Step 4: Subtract patients monocular Pd (left/right) from above
      v) Example
   f) Index of Refraction
      i) Définition
      ii) Example
   g) Specified Center on Minus Lenses or Edge on Plus Lenses
   h) Talk About Lenses Before Picking Out a Frame
18) Assembling the Formula
   a) Finished Lens Thickness Computation
      i) Step 1: Compute the decentration, double it, and add that value to the effective diameter of that shape.
      ii) Step 2: Using the following formula, compute the Sagittal value or thickness value. Radius Squared x Dioptric Power/2000 x (N-1) = Sag (Thickness) in mm
      (a) Radius = 1/2 of the number computed in Step 1 (v)
      (b)Dioptic Power = Strongest Meridian of the lens. (Working with this number will always give the maximum thickness. Depending upon location of power, the reallens may be slightly (c) thinner.)
      2000 = constant
      (d) N = Index of Refraction of material being used
      iii) Step 3: The answer in step 2 tells us the thickness of the lens with a zero edge (minus lens) or zero center (plus lens). We need to add 1.5 mm to calculate the real world lens thickness. This answer is the approximate finished thickness of the job. If the lens is plus, the answer refers to center thickness. If the lens is minus, the answer refers to edge thickness.
      iv) Example #1
      v) Example #2
19) Key Takeaways

a) How Sagittal Value relates to lens thickness
b) The many different elements of thin lens design
c) How each element can be controlled to create the thinnest lens
d) To arrange the variables into the framework of the formula
e) How to use the formula to compute the finished thickness of any given lens

Learning Objectives:
1. Explain the importance of adhering to ANSI standards when dispensing eyewear to patients, including the impact resistance testing process and the characteristics and performance requirements for safety eyewear.

2. Define and describe the concept of Toric Transposition, including how to use a lens clock to obtain basic power readings from each lens surface and how to combine front and back readings to determine the total lens power.

3. Define Sagittal Value and list the elements that affect lens thickness, including frame size, lens shape, decentration, index of refraction, and specified center or edge on lenses. Explain how to use the Sagittal Formula to compute the finished thickness of a given lens.

Topic	Sagittal Formula		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question 1

Prompt	*Select the best answer then click **Submit**.*

Text	What is Sagittal value?

Learner options			
Place an X in the box to the left of the correct answer(s). **Delete unused choices and text.**	X	A	The height of a concave or convex surface from its apex to a chord cutting through its base.
		B	The diameter of a concave or convex surface along its longest point.
		C	A measurement representing the a material's ability to refract light.
		D	A measurement representing the chromatic properties of a material.

Learner Action	**Learner Feedback**		**Programming Instructions/ System Response**
Click all answers then click Submit.	CA	Correct.	Click NEXT and branch to next page
	WA	Incorrect.	Show ticks and crosses next to option. Click NEXT and branch to next page

Topic	Sagittal Formula		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question 2

Prompt	*Select the best answer then click **Submit**.*

Text	What is the sagittal depth of a surface with the following characteristics? Material = Polycarbonate (Index 1.586) Curvature = 5.00D Lens Diameter = 60mm

Learner options			
Place an X in the box to the left of the correct answer(s). **Delete unused choices and text.**		A	* + 2.7 mm
	X	B	* + 4.7 mm
		C	* + 5.9 mm
		D	* + 7.9 mm

Topic	Sagittal Formula			
Screen ID		Template	Multiple Choice with Single Correct Answer	

Learner Action	Learner Feedback			Programming Instructions/ System Response
Click all answers then click Submit.	CA	Correct.		Click NEXT and branch to next page
	WA	Incorrect.		Show ticks and crosses next to option. Click NEXT and branch to next page

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Topic	Sagittal Formula			
Screen ID		Template	Multiple Choice with Single Correct Answer	

Screen Content

Title	Question 3
Prompt	*Select the best answer then click **Submit**.*
Text	Which of the following has the MOST impact on the thickness of a lens?

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	Index of refraction
	B	Lens color
X	C	Refractive (dioptric) power
	D	Base curvature
	-	-----

Learner Action	Learner Feedback			Programming Instructions/ System Response
Click all answers then click Submit.	CA	Correct.		Click NEXT and branch to next page
	WA	Incorrect.		Show ticks and crosses next to option. Click NEXT and branch to next page

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Topic	Sagittal Formula			
Screen ID		Template	Multiple Choice with Single Correct Answer	

Screen Content

Title	Question 4
Prompt	*Select the best answer then click **Submit**.*
Text	Maximum thickness in minus lenses is evident at the _____.

Topic	Sagittal Formula			
Screen ID		**Template**	Multiple Choice with Single Correct Answer	

Learner options				
Place an X in the box to the left of the correct answer(s). *Delete unused choices and text.*		A	Optical center	
	X	B	Edge	
		C	Zero center	
		D	Central midpoint	

Learner Action	**Learner Feedback**		**Programming Instructions/ System Response**
Click all answers then click Submit.	CA	Correct.	Click NEXT and branch to next page
	WA	Incorrect.	Show ticks and crosses next to option. Click NEXT and branch to next page

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Topic	Sagittal Formula			
Screen ID		**Template**	Multiple Choice with Single Correct Answer	

Screen Content				
Title	Question 5			
Prompt	*Select the best answer then click **Submit**.*			
Text	Given the following information, what is the radius of curvature for this surface? Dioptric Power = 6.00 Lens Material = CR-39 (1.50 index)			

Learner options				
Place an X in the box to the left of the correct answer(s). *Delete unused choices and text.*		A	* 72.2mm	
	X	B	* 83.3mm	
		C	* 94.4mm	
		D	* 105.5 mm	

Learner Action	**Learner Feedback**		**Programming Instructions/ System Response**
Click all answers then click Submit.	CA	Correct.	Click NEXT and branch to next page
	WA	Incorrect.	Show ticks and crosses next to option. Click NEXT and branch to next page

Topic	Toric Transposition		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question 6
Prompt	*Select the best answer then click **Submit**.*
Text	How is spectacle lens power achieved?

Learner options			
Place an X in the box to the left of the correct answer(s). *Delete unused choices and text.*	X	A	By combining surfaces with different curvatures
		B	By combining identical surface curvatures
		C	By increasing the diameter of the lens
		D	By decreasing the diameter of the lens

Learner Action	Learner Feedback		Programming Instructions/ System Response
Click all answers then click Submit.	CA	Correct.	Click NEXT and branch to next page
	WA	Incorrect.	Show ticks and crosses next to option. Click NEXT and branch to next page

Topic	Toric Transposition		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question 7
Prompt	*Select the best answer then click **Submit**.*
Text	Transpose the following Rx into minus cylinder form: +1.00 +2.50 x090

Learner options			
Place an X in the box to the left of the correct answer(s). *Delete unused choices and text.*		A	+1.00 -2.50 x090
		B	+3.50 -2.50 x090
	X	C	+3.50 -2.50 x180
		D	+1.00 -2.50 x180

Topic		Toric Transposition			
Screen ID			**Template**	Multiple Choice with Single Correct Answer	
Learner Action		**Learner Feedback**			**Programming Instructions/ System Response**
Click all answers then click Submit.	CA	Correct.			Click NEXT and branch to next page
	WA	Incorrect.			Show ticks and crosses next to option. Click NEXT and branch to next page

Topic		Toric Transposition			
Screen ID			**Template**	Multiple Choice with Single Correct Answer	
Screen Content					
Title	Question 8				
Prompt	*Select the best answer then click* **Submit**.				
Text	Given the information below, calculate the ADD power of a lens based on the following lens clock readings. Lens clock reading above the segment: + 6.00 Lens clock reading in the near addition area of the lens: + 8.50				

Learner options ***Place an X in the box to the left of the correct answer(s).*** ***Delete unused choices and text.***				
		A	* - 4.00 diopters	
X		B	* + 2.50 diopters	
		C	* + 3.00	
		D	* + 2.00 diopters	

Learner Action		**Learner Feedback**			**Programming Instructions/ System Response**
Click all answers then click Submit.	CA	Correct.			Click NEXT and branch to next page
	WA	Incorrect.			Show ticks and crosses next to option. Click NEXT and branch to next page

Topic		Toric Transposition			
Screen ID			**Template**	Multiple Choice with Single Correct Answer	
Screen Content					
Title	Question 9				
Prompt	*Select the best answer then click* **Submit**.				
Text	Transpose the following Rx into plus cylinder form:				

Topic	Toric Transposition			
Screen ID		**Template**	Multiple Choice with Single Correct Answer	

	-3.50 -1.50 x045		

Learner options				
Place an X in the box to the left of the correct answer(s). ***Delete unused choices and text.***		A	-3.50 +1.50 x045	
		B	-5.00 +1.50 x045	
	X	C	-5.00 +1.50 x135	
		D	-3.50 -1.50 x135	

Learner Action	**Learner Feedback**		**Programming Instructions/ System Response**
Click all answers then click Submit.	CA	Correct.	Click NEXT and branch to next page
	WA	Incorrect.	Show ticks and crosses next to option. Click NEXT and branch to next page

Topic	Toric Transposition			
Screen ID		**Template**	Multiple Choice with Single Correct Answer	

Screen Content				
Title	Question 10			
Prompt	*Select the best answer then click **Submit**.*			
Text	Given the information below, calculate the power of a lens based on the following lens clock readings. Lens clock reading of front side of lens: + 6.00 Lens clock reading back side of lens: - 4.00			

Learner options				
Place an X in the box to the left of the correct answer(s). ***Delete unused choices and text.***		A	* +10.00D sphere	
		B	* -10.00D sphere	
	X	C	* +2.00D sphere	
		D	* -2.00D sphere	

Learner Action	**Learner Feedback**		**Programming Instructions/ System Response**
	CA	Correct.	Click NEXT and branch to next page

Topic	Toric Transposition				
Screen ID			**Template**	Multiple Choice with Single Correct Answer	
Click all answers then click Submit.	**WA**	Incorrect.			Show ticks and crosses next to option. Click NEXT and branch to next page

Topic	ANSI Standards			
Screen ID			**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question 11
Prompt	*Select the best answer then click **Submit**.*
Text	Which of the following are responsibilities of ANSI?

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

		A	Establish tolerances based upon human visual perception limits
		B	Establish regulations regarding the manufacture of ophthalmic goods
X		C	Define realistic tolerances based upon current manufacturing capabilities
		D	Legislating standards for imported products coming into the country
		-	-----

Programming Instructions/ System Response	Move to next frame

Topic	ANSI Standards			
Screen ID			**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question 12
Prompt	*Select the best answer then click **Submit**.*
Text	Which aspect of ANSI standards is federally regulated?

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	Cosmetic conformity
	B	Optical tolerances
	C	Progressive corridor length
X	D	Impact resistance

Programming Instructions/ System Response	Move to next frame

Topic	ANSI Standards		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question 13	
Prompt	*Select the best answer(s) then click **Submit**.*	
Text	Which of the following are the standards for high impact eye wear?	

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	Minimum thickness of 3.5mm
	B	Capable of resisting impact from a 2.0″ steel ball traveling at 500 feet per second
X	C	Marked with manufacturer's trademark and a '+' after the trademark
	D	Made form CR-39 material

Programming Instructions/ System Response	Move to next frame

Topic	ANSI Standards		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question 14	
Prompt	*Select the best answer then click **Submit**.*	
Text	What is the optical tolerance for sphere and cylinder powers for most prescriptions?	

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	0.01D
	B	0.08D
X	C	0.12D
	D	0.25D

Programming Instructions/ System Response	Move to next frame

Topic	ANSI Standards		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question 15

Topic	ANSI Standards			
Screen ID		**Template**	Multiple Choice with Single Correct Answer	

Prompt	*Select the best answer then click **Submit**.*
Text	What is the ANSI designation for standards related to safety eyewear?

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	Z80.1
	B	Z80.7
X	C	Z87
	D	Z89

Programming Instructions/ System Response	Move to next frame

Topic	ANSI Standards			
Screen ID		**Template**	Multiple Choice with Single Correct Answer	

Screen Content

Title	Question 16
Prompt	*Select the best answer then click **Submit**.*
Text	What is the tolerance for axis for a lens having 0.25D cylinder power according to ANSI Z80?

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	±2°
	B	±5°
	C	±7°
X	D	±14°

Programming Instructions/ System Response	Move to next frame

Topic	ANSI Standards			
Screen ID		**Template**	Multiple Choice with Single Correct Answer	

Screen Content

Title	Question 17
Prompt	*Select the best answer then click **Submit**.*

Topic	ANSI Standards		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Text	Which of the following statements is true regarding eyewear that falls outside established ANSI tolerances for optical power?

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

		A	It is illegal to dispense the eyewear to a consumer in the United States
		B	The consumer must be informed the lenses do not meet ANSI tolerances
		C	It is legal to dispense the eyewear if the consumer signs a waiver
X		D	It is legal to dispense the eyewear

Programming Instructions/ System Response	Move to next frame

Topic	Sagittal Formula		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question 18
Prompt	*Select the best answer then click **Submit**.*
Text	What is the center thickness of a lens with the following characteristics?

Front surface sagittal depth = 8.4mm
Back surface sagittal depth = 6.2mm
Edge thickness = 1.0mm

Topic	Sagittal Formula			
Screen ID		**Template**	Multiple Choice with Single Correct Answer	

Learner options				
Place an X in the box to the left of the correct answer(s).		A	2.2mm	
	X	B	3.2mm	
		C	5.2mm	
		D	7.4mm	
Delete unused choices and text.				

Programming Instructions/ System Response	**Move to next frame**

Topic	Sagittal Formula		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question 19
Prompt	*Select the best answer then click **Submit**.*
Text	Which of the following is a true statement regarding a lens with the following characteristics? Front surface sagittal depth = 5.3mm Back surface sagittal depth = 8.7mm Center thickness = 2.4mm

Learner options			
Place an X in the box to the left of the correct answer(s).	X	A	This is a minus powered (diverging) lens
		B	This is a plus powered (converging) lens
		C	This is a plano powered (no power) lens
		D	By definition, this lens must have prism
Delete unused choices and text.			

Programming Instructions/ System Response	**Move to next frame**

Topic	ANSI Standards		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question 20
Prompt	*Select the best answer then click **Submit**.*

Topic	ANSI Standards			
Screen ID		**Template**	Multiple Choice with Single Correct Answer	

Text	According to ANSI standards, what is the axis tolerance for a lens with the following Rx? -1.00 -6.50 x060

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	±5°
	B	±3°
X	C	±2°
	D	±1°

Programming Instructions/ System Response	**Move to next frame**

From:	kaviles@abo-ncle.org
Sent:	Tuesday, February 13, 2024 6:02 PM
To:	Shoven Paige
Subject:	ABO Course Approval

Follow Up Flag:	Follow up
Flag Status:	Flagged

AMERICAN BOARD OF OPTICIANRY

NATIONAL CONTACT LENS EXAMINERS

217 N. Upper Street, Suite 201

Lexington, KY 40507

703-719-5800 • 800-296-1379

Web Address: www.abo-ncle.org

Dear Walter,

This letter will confirm that the **American Board of Opticianry** Education Committee **approved** the following **online** course:

Course: Lensometry

Hours: 1

Designation: Ophthalmic Level I

Course Number: STWEOA123-1

Expires: February 5, 2027

This course has been approved for **3 years**.

Thank you for your continued commitment to quality education. If you have any questions regarding the above, please feel free to call the office at (703) 719-5800

Sincerely,

Karla Y. Aviles
Education Coordinator

From:	kaviles@abo-ncle.org
Sent:	Tuesday, February 13, 2024 6:14 PM
To:	Shoven Paige
Subject:	NCLE Course Approval

Follow Up Flag:	Follow up
Flag Status:	Flagged

AMERICAN BOARD OF OPTICIANRY

NATIONAL CONTACT LENS EXAMINERS

217 N. Upper Street, Suite 201

Lexington, KY 40507

703-719-5800 • 800-296-1379

Web Address: www.abo-ncle.org

Dear Walter,

This letter will confirm that the **National Contact Lens Examiners** Education Committee **approved** the following **online** course:

Course: Lensometry

Hours: 1

Designation: Ophthalmic Level I

Course Number: CTWEOA004-1

Expires: February 5, 2027

This course has been approved for **3 years**.

Thank you for your continued commitment to quality education. If you have any questions regarding the above, please feel free to call the office at (703) 719-5800

Sincerely,

Karla Y. Aviles
Education Coordinator

This email was sent to PShoven@us.luxottica.com. You are receiving this email because you submitted a course for approval.

To Whom It May Concern,

I certify that I have completed the following course in no less than the number of credit hours (1) requested for approval.

CE17 – LENSOMETRY

Sincerely,

Brooke K Carrasco

Brooke Carrasco, ABOC, NCLE

CEC: LENSOMETRY

LENSOMETRY covers the following areas:
1. Lensometry - Explain the purpose of a lensometer and know the parts of a lensometer. Learn the different parts of a lensometer and the functionality of each part. Learn how to use and operate a lensometer to verify a prescription.
2. Lensometry 2 - Describe how a lensometer is used to measure Sphere Power, Cylinder Power, and Prism. Learn and the steps for operating a lensometer to perform these measurements
3. Lensometry 3 - Learn and know how to identify Single Vision Spherical lense and Single Vision Cylindrical lenses using a lensometer. Determine add powers for flat top multifocals and locate power in progressive lenses.
4. How to Use An Autolensometer - This course provides information on how to use an autolensometer to measure the power of a lens. It reviews the different parts of an autolensometer and key steps for using this instrument with patients.

Course outline/timing: Total 60 minutes

1) **Lensometry**
2) Course Objectives
    a) Describe how a lensometer is used to measure Sphere Power, Cylinder Power, and Prism
    b) Describe the steps for operating a lensometer to perform these measurements
3) Using a Lensometer
    a) What is a Lensometer?
        i) Measure spherical power
        ii) Measures cylindrical power and axis
        iii) Measures the optical center of a lens
        iv) Determines the degree and direction of prism
        v) Is capable of marking the center of the lens and various other measurements critical to proper lens performance
    b) By measuring the lens properties and comparing this to the written prescription, you can determine if:
        i) The lenses do not match the prescription and need to be remade
        ii) The lenses match the prescription and the patient needs to be re-examined for a new prescription
4) LENSOMETER - PARTS AND FUNCTIONALITY
    a) Parts of a Lensometer
        i) Adjustable Eyepiece
        ii) Auxilary prism ring
        iii) Lens Holder
        iv) Axis Wheel
        v) Power Drum
        vi) Spotting Device
        vii) Lens Table/Stage
        viii) The Reticle
        ix) The Target
5) OPERATING A LENSOMETER
    a) Using a Lensometer you can measure:
        i) Sphere power of a lens
        ii) Cylinder power of a lens
        iii) Axis location of the cylinder power
        iv) Optical Center of a lens
        v) Prism location
6) VERIFYING A PRESCRIPTION
    a) Verifying a prescription using a lensometer

            i)   Distance Vision Power

           ii)   Prism

          iii)   Near ADD Power

7)   Key Takeaways

    a)   A lensometer is used to determine the spherical power, cylindrical power and axis, optical center of a lens, and prism

    b)   A lensometer consists of seven primary parts, including the: adjustable eyepiece, auxiliary prism ring, lens holder, axis wheel, power drum, spotting devise, and lens table

    c)   If a lens does not provide satisfactory vision, it is important to use a lensometer to validate that the lens is accurate with regard to Distance Vision, Prism, and Near Vision

Course Outline / Timing
- 8) **Lensometry 2**
- 9) Course Objectives
    - a) Describe how a lensometer is used to measure Sphere Power, Cylinder Power, and Prism
    - b) Describe the steps for operating a lensometer to perform these measurements
- 10) LENSOMETER BASIC REVIEW
    - a) By measuring the lens properties and comparing them to the written prescription, you can determine if:
        - i) The lenses do not match the prescription and need to be remade
        - ii) The lenses match the prescription and the patient needs to be re-examined for a new lens prescription
- 11) LENSOMETRY 2 - INTRODUCTION AND OBJECTIVES
    - a) You will learn how to use a lensometer to:
        - i) Measure the spherical power of a lens
        - ii) Measure cylindrical power of a lens
        - iii) Measure Prism
    - b) Parts of a Lensometer
    - c) Steps for Focusing the Eyepiece
- 12) MEASURING THE LENS
    - a) Steps for measuring the spherical power of a lens
    - b) Steps for measuring the cylindrical power of a lens
- 13) PLUS OR MINUS CYLINDER FORM
    - a) Rotating the power drum of the lensometer clockwise will result in minus cylinder power
    - b) Rotating the power drum counterclockwise will result in plus cylinder power
- 14) Prism - An Introduction
    - a) Prism Directions
        - i) Base In (BI) - If the target is towards the nose it is prism Base In
        - ii) Base Out (BO) - If the target is towards the ear, it is prism Base Out
        - iii) Base Up (BU) - If the target is up, it is prism Base Up
        - iv) Base Up (BU) - If the target is up, it is prism Base Up
    - b) How to Measure Prism With a Lensometer
- 15) Key Takeaways
    - a) Using a lensometer, you can measure sphere power of a lens, cylinder power of a lens, axis location of the cylinder power, optical center of a lens, and prism location
    - b) The first step before marking any measurement using a lensometer is to focus the eyepiece
    - c) Cylinder form can occur in either plus or minus form
    - d) Prism lenses are usually used to correct a muscle imbalance between the two eyes
    - e) There are four basic prism directions: base in, base out, base up, and base down

Course Outline / Timing

16) **Lensometry 3**
17) Course Objectives
    a) Identify Single Vision Spherical Lenses
    b) Identify Single Vision Cylindrical Lenses
    c) Determine Add Powers forFlat Top Multifocals
    d) Locate Power in Progressive Lenses
18) OPTICAL MEASUREMENTS
    a) There are three types of measurements with a lensometer
        i) Sphere Power
        ii) Cylinder Power
        iii) Prism
    b) Optical Measurements
        i) Identifying Single Vision Spherical Lenses
           (1) How you can verify single vision spherical lenses for optical quality.
        ii) Identifying Single Vision Cylindrical Lenses
           (1) How to verify single vision cylindrical lenses for optical quality
19) FLAT TOP MULTIFOCALS AND PROGRESSIVE LENSES
    a) Determining Add Powers for Flat Top Multifocals
        i) Steps to verify finished eyewear with flat top multifocal lenses.
    b) Locating Power in Progressive Lenses
        i) Steps to verify finished eyewear with progressive lenses.
20) Key Takeaways
    a) Identify Single Vision Spherical Lenses
    b) Identify Single Vision Cylindrical Lenses
    c) Determine Add Powers for Flat-Top Multifocals
    d) Locate Power in Progresssive Lenses

21) **How to Use An Autolensometer**
22) Course Objectives
   a) Identify the different parts of an autolensometer
   b) Describe and demonstrate how to operate an autolensometer
   c) Understand how to measure lenses and contact lenses
23) WHAT IS AN AUTOLENSOMETER?
   a) The different parts of an autolensometer
      i) Screen
      ii) Lens holder
      iii) Marking pens
      iv) Nosepads
      v) Lens plate lever
      vi) Lens stand
      vii) Marking lever and pens
   b) How to measure a lens using an autolensometer
      i) Position the frames or the lens on the lens holder
   c) Reading the measurements on the screen
      i) The different sections of the screen
         (1) At the center is the cross cursor. This is the target you want to aim for to correctly position the lens on the autolensometer
         (2) On each side of the center target are the measurements information, separated from left to right eye. This information includes sphere, cylinder, axis, and addition powers. As well as monocular and binocular pupillary distances
         (3) Depending on the model you use, additional information will be available to you, including an indication of which lens you are measuring, single-vision or progressive lens measuring target, print options...
      ii) Positioning the lens to gain full alignment
         (1) Place the lens on the lens stand. Move the lens to bring the cross cursor in alignment with the target on the screen. A message or a visual cue (target changing color) will appear when the alignment is complete. Once you have the expected alignment, lower the lens holder slowly, and stabilize the lens.
         (2) If you are measuring a single lens or the right lens of a frame, the data appears on the right side of the screen. If you are measuring a left lens, the data appears on the left side.
         (3) The autolensometer will automatically measure and display the sphere, cylinder, and axis. If there is a prism in the lens, the information will be also automatically displayed.
         (4) Once you have measured one lens, save the measurements, and switch to the other lens. When you are finished, raise the lens holder to release the lens.
         (5) Repeat the same process for the second eye to complete the measurements.
   d) How to measure a Progressive Lens with an autolensometer
      i) Near ADD Power
         (1) Center the lens in this area to measure the near ADD power of the right lens.
         (2) Center the lens in this area to measure the near ADD power of the left lens.
      ii) Prism
         (1) Center the lens in this area to measure the prism of the left lens.
         (2) Center the lens in this area to measure the prism of the right lens
      iii) Distance Vision Power
         (1) Center the lens in this area to measure the distance vision power of the left lens.
         (2) Center the lens in this area to measure the distance vision power of the right lens.

        iv) Measuring the ADD power with a regular target
            (1) By positioning the near vision zone on the lens pad, you can also measure the addition power of the lens. Save the ADD power for each lens, once you have measured it.
        v) Measuring with the progressive lens design visualization mode
            (1) Some autolensometers models have a separate visualization mode for progressive lenses (which may automatically appear if a progressive is detected). This mode guides you in the measurements of both distance and near vision, with the help of a progressive lens design shape.
   e) Marking Lenses with An Autolensometer
       i) Place the lens on the eyeglass table
       ii) Position the lens using the cross on the screen
       iii) Press the marking lever, and mark the lenses with the marking pens

24)   MEASURING A CONTACT LENS WITH AN AUTOLENSOMETER
   a) Newer models of autolensometers allow you to measure contact lenses
   b) Neutralizing a contact lens
       i) Adjust your instrument settings
            (1) Change your instrument settings to accommodate the devices ability to read the power of the hard/soft contact lens. (Reference the instruments user manual as needed).
            (2) Change and replace the lens stand
                (a) Change the lens stand to the accompanying contact lens stand.
            (3) Prepare the Lens
                (a) Remove the water or moisture from the lens, and set it on the stand with paying attention not to distort it. Then, take a measurement quickly.
            (4) Measuring the Contact Lens
                (a) Set the contact lens on the contact lens stand, and adjust the lens placement as needed.
                (b) Lower the lens holder, and hold the contact lens stand which the contact lens is already placed to allow the instrument to verify the power.

25)   Key Takeaways
   a) An autolensometer will help you measure the properties of your patients' eyeglasses, and not only compare them to the written prescription, but also check for fitting measurements. Doing so, you will identify potential inaccuracies in the fitting measurements and lens power that would warrant a lens remake
   b) Autolensometers allow you the ability to measure all lens designs (cut and uncut); single-vision, progressive, and multifocal. For lenses mounted in the frame, you can measure fitting heights, and pupillary distances (monocular and binocular)
   c) To properly measure eyeglasses, first position the eyeglasses (oriented up) so that the bottom edge is in contact will the lens plate, and centered with the nose pad. Carefully place the lens on the lens pad. Move the lens to bring the cross cursor in alignment with the target on the screen.A message or a visual cue (target changing color) will appear when the alignment is complete
   d) Newer models of autolensometers allow you to measure the power of contact lenses, as well as the UV transmittance and blue light absorption properties of your patients' eyeglasses

Topic	Lensometry		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question - 1
Prompt	*Select the best answer then click **Submit**.*
Text	Which of the following is the function of the power drum on a lensometer?

Learner options				
Place an X in the box to the left of the correct answer(s).		A	Used to spot the optical center and 180° line on the lens
	X	B	Used to focus the target image and to indicate the power values of the lens
		C	Used to orient the target in order to determine the location of the cylinder power
Delete unused choices and text.		D	All of the above

Programming Instructions/ System Response	Move to next frame

Topic	Lensometry		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content (Text may be limited.)

Title	Question - 2
Prompt	*Select the best answer then click **Submit**.*
Text	Moving the power counter-clockwise results in _____

1

Course	Lensometry		*Module*	Lensometry		*Module #*	

Topic	Lensometry			
Screen ID		**Template**	Multiple Choice with Single Correct Answer	

Learner options				
Place an X in the box to the left of the correct answer.	x	A	Plus power	
		B	Minus power	
		C	Cylinder power	
		D	Prism power	
Delete unused choices and text.				

Programming Instructions/ System Response	**Move to next frame**

Topic	Lensometry			
Screen ID		**Template**	Multiple Choice with Single Correct Answer	

Screen Content (Text may be limited.)		
Title	Question - 3	
Prompt	*Select the best answer then click* **Submit**.	
Text	The plus power on the power drum is indicated by the _____ scale.	

Learner options				
Place an X in the box to the left of the correct answer.		A	Red	
	x	B	Black	
		C	Minus	
		D	Plus	
Delete unused choices and text.				

Programming Instructions/ System Response	**Move to next frame**

Topic	Lensometry			
Screen ID		**Template**	Multiple Choice with Single Correct Answer	

Screen Content (Text may be limited.)

2

Cours e	Lensometry			Module	Lensometry		Module #	

Topic		Lensometry			
Screen ID			**Template**	Multiple Choice with Single Correct Answer	
Title		Question - 4			
Prompt		*Select the best answer then click **Submit**.*			
Text		Cylinder power can be recognized in a lensometer if all of the lines of the target are_____.			

Learner options				
Place an X in the box to the left of the correct answer. **Delete unused choices and text.**		A	In clear focus at the same time	
		B	In clear focus at different times	
	x	C	Not in clear focus at the same time	
		D	None of the above	

Programming Instructions/ System Response		Move to next frame

Topic		Lensometry			
Screen ID			**Template**	Multiple Choice with Single Correct Answer	
Screen Content (Text may be limited.)					
Title		Question - 5			
Prompt		*Select the best answer then click **Submit**.*			
Text		Sphere power can be recognized in a lensometer if all of the lines of the target are _____ at the same time.			

Learner options				
Place an X in the box to the left of the correct answer. **Delete unused choices and text.**		A	Parallel	
		B	Perpendicular	
		C	In aspherical focus	
	x	D	In clear focus	

Programming Instructions/ System Response		Move to next frame

3

Topic		Using a Lensometer 2		
Screen ID			**Template**	Multiple Choice with Single Correct Answer

Screen Content (Text may be limited.)	
Title	Question - 6
Prompt	*Select the best answer then click **Submit**.*
Text	What is the prism direction when the target is directed towards the ear?

Learner options ***Place an X in the box to the left of the correct answer.*** ***Delete unused choices and text.***			
		A	Base in
	x	B	Base out
		C	Base up
		D	Base down

Programming Instructions/ System Response	**Move to next frame**

Topic		Using a Lensometer 2		
Screen ID			**Template**	Multiple Choice with Single Correct Answer

Screen Content (Text may be limited.)	
Title	Question - 7
Prompt	*Select the best answer then click **Submit**.*
Text	What purpose does prism serve in a lens?

Learner options ***Place an X in the box to the left of the correct answer.*** ***Delete unused choices and text.***			
		A	Corrects hyperopia
		B	Corrects presbyopia
	x	C	Corrects a muscle imbalance between the two eyes
		D	None of the above

Course	Lensometry	Module	Lensometry	Module #	

Topic	Using a Lensometer 2
Screen ID		**Template**	Multiple Choice with Single Correct Answer
Programming Instructions/ System Response		**Move to next frame**

Topic	Using a Lensometer 2
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content (Text may be limited.)

Title	Question - 8
Prompt	*Select the best answer then click **Submit**.*
Text	How do you measure a plus cylinder power?

Learner options

Place an X in the box to the left of the correct answer.

Delete unused choices and text.

	A	By rotating the power drum clockwise after focusing the sphere mires
x	B	By rotating the power drum counter-clockwise after focusing the sphere mires
	C	By rotating the power drum and cylinder axis wheel at the same time
	D	By turning the eyepiece clockwise after rotating the power drum clockwise

Programming Instructions/ System Response		**Move to next frame**

Topic	Using a Lensometer 2
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content (Text may be limited.)

Title	Question - 9
Prompt	*Select the best answer then click **Submit**.*
Text	How is prism observed in a lens when using a lensometer?

5

| Cours e | Lensometry | | | Module | Lensometry | | Module # | |

Topic		Using a Lensometer 2			
Screen ID			Template	Multiple Choice with Single Correct Answer	

Learner options				
Place an X in the box to the left of the correct answer. **Delete unused choices and text.**	x	A	By the displacement of the target center
		B	When the sphere lines are out of focus
		C	When the cylinder lines are out of focus
		D	When all lines of the target are in focus

Programming Instructions/ System Response	Move to next frame

Topic		Using a Lensometer 2			
Screen ID			Template	Multiple Choice with Single Correct Answer	

Screen Content (Text may be limited.)

Title	Question - 10
Prompt	*Select the best answer then click **Submit**.*
Text	On the power drum, the red scale indicates _____ power, while a black scale indicates _____ power.

Learner options			
Place an X in the box to the left of the correct answer. **Delete unused choices and text.**		A	Plus, minus
	x	B	Minus, plus
		C	Add, subtract
		D	Plus, positive

Programming Instructions/ System Response	Move to next frame

Topic		Using a Lensometer 3			
Screen ID			Template	Multiple Choice with Single Correct Answer	

Screen Content (Text may be limited.)

| *Course* | Lensometry | *Module* | Lensometry | *Module #* | |

Topic		Using a Lensometer 3		
Screen ID			**Template**	Multiple Choice with Single Correct Answer

Title	Question - 11
Prompt	*Select the best answer then click **Submit**.*
Text	While identifying a single vision cylindrical lens you realize that the sphere lines are broken. You know that this will indicate that the axis is not exact. What will you do next?

Learner options ***Place an X in the box to the left of the correct answer.*** ***Delete unused choices and text.***		A	Adjust the power drum until the cylinder lines of the target are sharply focused
	x	B	Adjust the axis wheel until the cylinder lines are no longer broken
		C	Adjust the power drum to focus the eye piece
		D	None of the above

Programming Instructions/ System Response	**Move to next frame**

Topic		Using a Lensometer 3		
Screen ID			**Template**	Multiple Choice with Single Correct Answer

Screen Content (Text may be limited.)				

Title	Question - 12
Prompt	*Select the best answer then click **Submit**.*
Text	While identifying Single Vision Spherical Lenses, the lens must be flush against the _____ to accurately determine lens power and prism.

Learner options ***Place an X in the box to the left of the correct answer.*** ***Delete unused choices and text.***	X	A	Lens stop
		B	Clamp
		C	Prism locator
		D	None of the above

7

| Cours e | Lensometry | | Module | Lensometry | Module # | |

Topic	Using a Lensometer 3
Screen ID		Template	Multiple Choice with Single Correct Answer
Programming Instructions/ System Response	**Move to next frame**

Topic	Using a Lensometer 3
Screen ID		Template	Multiple Choice with Single Correct Answer

Screen Content (Text may be limited.)

Title	Question - 13
Prompt	*Select the best answer then click **Submit**.*
Text	What do you need to analyze to be able to verify lenses with more than one optical center, such as multifocal lenses?

Learner options

Place an X in the box to the left of the correct answer.

Delete unused choices and text.

	A	Prism power
	B	Only the distance power
X	C	The distance power and add power
	D	Only the add power

Programming Instructions/ System Response	**Move to next frame**

Topic	Using a Lensometer 3
Screen ID		Template	Multiple Choice with Single Correct Answer

Screen Content (Text may be limited.)

Title	Question - 14
Prompt	*Select the best answer then click **Submit**.*
Text	Mr. Peterson's lenses are multifocals. You are in the process of verifying the distance portion. What steps will you perform?

Course	Lensometry	*Module*	Lensometry	*Module #*	

Topic		Using a Lensometer 3			
Screen ID			**Template**	Multiple Choice with Single Correct Answer	

Learner options				
Place an X in the box to the left of the correct answer.		A	You will focus the eye piece so that all target lines are in focus	
		B	You will rotate the power drum until the sphere lines are clearly focused, then you'll note the reading on the power drum	
Delete unused choices and text.		C	You will perform the same steps as those for single vision lenses, then you will mark the near PD with the marking device	
	x	D	You will perform the same steps as those for single vision lenses then you will mark the distance PD with the marking device	

Programming Instructions/ System Response	Move to next frame

Topic		Using a Lensometer 3			
Screen ID			**Template**	Multiple Choice with Single Correct Answer	

Screen Content (Text may be limited.)		
Title	Question - 15	
Prompt	*Select the best answer then click **Submit**.*	
Text	To identify the distance power and axis on Progressive lenses, place the _____ in front of the lens stop.	

Learner options				
Place an X in the box to the left of the correct answer.		A	Fitting cross	
	X	B	Distance circle	
		C	Optical center dot	
Delete unused choices and text.		D	Addition engraving	

Programming Instructions/ System Response	Move to next frame

| *Course* | Lensometry | *Module* | Lensometry | *Module #* | |

Topic		How to Use an Autolensometer		
Screen ID		Template	Multiple Choice with Single Correct Answer	

Screen Content (Text may be limited.)

Title	Question - 16
Prompt	*Select the best answer then click **Submit**.*
	Newer models of autolensometers allow you to measure the power of_____

Learner options

Place an X in the box to the left of the correct answer.

Delete unused choices and text.

	A	progressive lenses
X	B	contact lenses
	C	spherical lenses
	D	concave lenses

Programming Instructions/ System Response	**Move to next frame**

Topic		How to Use an Autolensometer		
Screen ID		Template	Multiple Choice with Single Correct Answer	

Screen Content (Text may be limited.)

Title	Question - 17
Prompt	*Select the best answer then click **Submit**.*
Text	Autolensometers allow you the ability to measure _____lens designs

Learner options

Place an X in the box to the left of the correct answer.

Delete unused choices and text.

	A	some
x	B	all
	C	various
	D	many

Programming Instructions/ System Response	**Move to next frame**

Course	Lensometry	Module	Lensometry	Module #	

Topic		How to Use an Autolensometer		
Screen ID		Template	Multiple Choice with Single Correct Answer	

Screen Content (Text may be limited.)			
Title	Question - 18		
Prompt	*Select the best answer then click **Submit**.*		
Text	What is the 1st step you should perform when using an autolensometer?		

Learner options

Place an X in the box to the left of the correct answer.

Delete unused choices and text.

x	A	Position the frames or the lens on the lens holder
	B	Place the lens blank/eyewear on the stage.
	C	Use the marking device to spot the lens.
	D	Look through the eyepiece and center the target in the reticle.

| *Course* | Lensometry | *Module* | Lensometry | *Module #* | |

Topic		How to Use an Autolensometer			
Screen ID			Template	Multiple Choice with Single Correct Answer	

Screen Content (Text may be limited.)

Title	Question - 19
Prompt	*Select the best answer then click* **Submit**.
Text	When you measure a contact lens on an autolensometer,

Learner options				
Place an X in the box to the left of the correct answer. **Delete unused choices and text.**		A	Set the contact lens on the contact lens stand and wait for the measurement to appear on the screen	
	x	B	Set the contact lens on the contact lens stand, and adjust the lens placement as needed. Lower the lens holder, and hold the contact lens stand which the contact lens is already placed to allow the instrument to verify the power.	
		C	Set the contact lens on the lens holder, and adjust the lens placement as needed. Lower the lens holder, and hold the contact lens stand which the contact lens is already placed to allow the instrument to verify the power.	
		D	First determine the amount of sphere power by bringing the 3 wide lines into focus. Then rotate the power drum and axis wheel until the 3 thin lines are in focus. The difference between the 2 powers will equal the cylinder power.	

12

Course	Lensometry	Module	Lensometry	Module #	

Topic		How to Use an Autolensometer			
Screen ID			**Template**	Multiple Choice with Single Correct Answer	

Screen Content (Text may be limited.)		
Title	Question - 20	
Prompt	*Select the best answer then click **Submit**.*	
Text	What is an autolensometer?	

Learner options ***Place an X in the box to the left of the correct answer.*** ***Delete unused choices and text.***	x	A	An autolensometer will help you measure the properties of your patients' eyeglasses, and not only compare them to the written prescription, but also check for fitting measurements.
		B	The autolensometer will help you to measure the spherical power, cylindrical power and axis, addition power, and optical center of a lens only.
		C	The autolensometer is a measuring device for automobile windshields
		D	The autolensometer helps the optometrist perform a refraction

13

Garnett, Heather (DPOR)

From: kaviles@abo-ncle.org
Sent: Thursday, January 18, 2024 6:23 PM
To: Shoven Paige
Subject: ABO Course Approval

Follow Up Flag: Follow up
Flag Status: Flagged

AMERICAN BOARD OF OPTICIANRY

NATIONAL CONTACT LENS EXAMINERS

217 N. Upper Street, Suite 201

Lexington, KY 40507

703-719-5800 • 800-296-1379

Web Address: www.abo-ncle.org

Dear Judith,

This letter will confirm that the **American Board of Opticianry** Education Committee **approved** the following **online** course:

Course: Maintaining a Healthy Team

Hours: 1

Designation: Non-Ophthalmic

Course Number: SWEOA013

Expires: January 18, 2027

This course has been approved for **3 years**.

Thank you for your continued commitment to quality education. If you have any questions regarding the above, please feel free to call the office at (703) 719-5800

Sincerely,

Karla Y. Aviles
Education Coordinator

Garnett, Heather (DPOR)

From: kaviles@abo-ncle.org
Sent: Thursday, January 18, 2024 6:24 PM
To: Shoven Paige
Subject: NCLE Course Approval

Follow Up Flag: Follow up
Flag Status: Flagged

AMERICAN BOARD OF OPTICIANRY

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217 N. Upper Street, Suite 201

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Web Address: www.abo-ncle.org

Dear Judith,

This letter will confirm that the **National Contact Lens Examiners** Education Committee **approved** the following **online** course:

    Course: Maintaining a Healthy Team

    Hours: 1

    Designation: Non-Ophthalmic

    Course Number: CWEOA001

    Expires: January 18, 2027

This course has been approved for **3 years**.

Thank you for your continued commitment to quality education. If you have any questions regarding the above, please feel free to call the office at (703) 719-5800

Sincerely,

Karla Y. Aviles
Education Coordinator

2

Date: July 21, 2022

To Whom It May Concern,

I, ___Judith (Judy) Lew_____ do certify that I am the author of the following
Continuing Education credit that is being submitted to the American Board of Opticianry for
consideration of approval.

CE12 – Maintaining a Health Team

Best regards,

CEC: MAINTAINING A HEALTHY TEAM

Course Description:

MAINTAINING A HEALTHY TEAM covers the following three areas:
1. Ethics and Employee Conduct: Describes the concept of ethics and reviews ethical practices in the practice. Through examples of ethical and non-ethical behavior in the lesson, the learner will be able to apply these concepts to the practice. Learn about and understand how to implement a Code of Conduct for the practice and why it is important to have one.
2. Handling Tough Conversations: Describes key steps for having a tough conversation with a colleague or patient. The learner will learn how to use these key steps when these conversations are necessary. .
3. Conflict Resolution: Provides information on how to identify conflict, how to approach the staff member or patient, and key steps for resolving conflict in the practice.

Course Outline w/timing: 55 minutes

1) Ethics and Employee Conduct (20 min)
   a) Introduction
   b) Course Objectives
      i) Explain what ethics are, and how to create and maintain an ethical environment
      ii) Identify whether or not an action is ethical
      iii) Explain the four steps of decision making, and the five factors for making an ethical decision
      iv) List individual personal values that impact ethical decision making
      v) List questions related to ethics, hiring and termination policies, laws, and standards
   c) Ethics and Your Practice
      i) Your Practice's reputation is one of its most important assets
         (1) Good business ethics contribute to your reputation and increase your business opportunities.
         (2) Unethical behavior, on the other hand, can result in ill will and negative publicity that hurts your practice's reputation and ability to attract business.
      ii) What are Ethics?
         (1) ethics are defined as the distinction of right from wrong, good from bad, and fair from unfair.
      iii) Ethics and Employee Conduct
         (1) Scénario 1
         (2) Scénario 2
   d) The Decision Making Process
      i) Essential Elements of an Ethical Decision
         (1) Examine the issue
         (2) Weigh the Alternatives
         (3) Make a Decision
         (4) Evaluate the Consequences
      ii) Personal Values and Decision Making
         (1) List of Individual personal values
      iii) The practice of ethical decision making lies with the individual
         (1) Ethical decision-making is influenced by the personal ethical values held by the individual.
         (2) It is the responsibility of the staff member to ensure they perform ethically at all times.
   e) The Framework for an Ethical Environment
      i) Code of Conduct

(1) Fundamental part of Developing and Maintaining an Ethical Environment
(2) What makes a great Code of Conduct?
    (a) Should be written for the practice staff
    (b) Easy to understand without any technical or legal jargon
    (c) Compréhensive.
    (d) Supported by your doctors and/or the practice owners.
    (e) Accessible.
    (f) Visually appealing
(3) What's in it for You and Your Practice?
    (a) Reinforce staff loyalty and retention
    (b) Prevent legal and regulatory violations
    (c) Encourage greater patient loyalty and retention
    (d) Build stronger relationships with vendors and other business partners
(4) Creating, Communicating, and Reinforcing Your Code of Conduct
    (a) A practice code of conduct is a living document that requires development, publication,education and reinforcement, as well as revisions when necessary.
        (i) Must communicate your doctor's or practice leadership's commitment to its purpose and contents in a compelling way.
        (ii) Should be communicated in a format that fits the practice staff's characteristics and needs.
        (iii) Should be inspirational
        (iv) Is an essential communication regarding compliance with laws and regulations.
        (v) Should help practice staff make the appropriate decision, by providing guidance, through frequently asked questions, common issues, solutions, and suggestions
        (vi) Must be reinforced on a regular basis by the practice's leadership
(5) Key Takeaways:
    (a) Ethics are defined as the distinction of right from wrong, good from bad, and fair from unfair
    (b) Effective decisions are decisions that you are most satisfied with, given the prevailing circumstances
    (c) There are four steps in the effective decision making process: examine the issue, weigh the alternatives, make a decision, and evaluate the consequences
    (d) Ethical decision-making is influenced by personal ethical values held by an individual
    (e) A code of conduct is a fundamental part of developing and maintaining an ethical environment within your practice
    (f) Practice leadership should make every effort to ensure staff follow the code of ethics by educating, communicating and using refresher courses and presentations
    (g) There are many benefits of implementing a code of ethics in your practice including staff retention and engagement, reduced risk of violation, enhanced relationships with vendors and suppliers, and greater engagement of patients

2) Handling Tough Conversations (15 min)
   a) Course Objectives
      i) Understand why people avoid having tough conversations
      ii) Explain why it's necessary to have tough conversations
      iii) Identify the key steps to consider during a tough conversation
      iv) Recognize the additional considerations to apply when navigating a tough conversation
      v) List some examples of tough conversations
   b) Tough Conversations
      i) Short term it looks easier to avoid tough conversations
      ii) Most people tend to avoid problems because:
         (1) They believe that ignoring the problem will eventually make it go away
         (2) Facing problems head-on requires a lot of courage and can appear intimidating at first
         (3) They do not want to admit that a problem exists
         (4) Past experiences dealing with problems did not turn out well
         (5) They do not like conflict
      iii) Remember when facing a tough conversation:
         (1) Address the problem as soon as it become evident
         (2) Emphasize with the other party
         (3) Write down the main points and ask the other party for their opinions
         (4) Listen actively
      iv) Having a tough conversation is something that will eventually happen
         (1) Examples of tough conversations in the practice
   c) Key Steps to Consider During a Tough Conversation
      i) Most issues can be resolved with honest conversation
         (1) Tough Conversation scenario
            (a) 4-step process to handle this situation
               (i) Preface the conversation with a commitment to the relationship
               (ii) Fill emotional tanks
               (iii) Replace "you" with "we" as much as possible and do not verbally attack the other person
               (iv) Sell the benefit
            (b) Summary
   d) Key Takeaways
      i) It is important to have tough conversations and communicate effectively when problems arise
      ii) There are four key steps to follow during a tough conversation
      iii) There are some additional considerations you need to remember while having tough conversations
      iv) Following the four-step process makes your listener receptive to your message and turns a tough discussion into a productive one

3) Conflict Resolution (20 min)
   a) Course Objectives
      i) Identify the different types of conflict
      ii) Understand the approaches you can take to resolve the conflict
      iii) Identify key behaviors to resolve conflicts
      iv) Explain the three primary steps in conflict resolution
   b) The 5 Types of Conflict
      i) Data Conflict
      ii) Task Conflict
      iii) Relationship Conflict
      iv) Value Conflict
      v) Structural Conflict
   c) Internal and external solutions for the types of conflict
      i) Internal solutions
         (1) Task, relationship and value conflicts relate to
             internal sources of conflict and may be much more difficult to resolve.
      ii) External solutions
         (1) Data and structural conflicts have external source of conflict: they are
             typically easier to resolve by changing something in the external
             environment.
   d) How to Approach a Conflictual Situation
      i) A renowned conflict resolution model proposed by Kenneth Thomas and Ralph
         Kilmann suggests that there are two dimensions when choosing a course of
         action in a conflict situation; Assertiveness and Cooperativeness
      ii) Within this framework, you may use one of the following 5 approaches in dealing
          with conflict:
         (1) Collaborating
            (a) Types of collaborating
               (i) Working together to identify the source of conflict and
                   propose solutions toward the goal
               (ii) Learning from each other's insight
               (iii) Listening and communicating to promote understanding
                     of needs, goals, and values
            (b) Results
               (i) Builds relationships and improves the potential for future
                   problem solving
               (ii) Promotes creative solutions
            (c) Appropriate when;
               (i) There is a common desire to work through hard feelings
               (ii) There are diverse interests and issues at play, yet a
                    common willingness to reach the goal
               (iii) New insights can be beneficial in achieving creative
                     solutions
               (iv) The issue is too important to make any compromises
         (2) Competing
            (a) Types of competing:
               (i) Use of authority, the position ofmajority, or power
               (ii) Putting pressure on the other through threats, force, or
                    intimidation
            (b) Results:
               (i) Lower levels of communication and trust
               (ii) Risk of escalation
               (iii) The other party may withdraw at some point
               (iv) Reduces the quality and durability of the solution
               (v) Increased likelihood of future problems

      (c) Appropriate when:
          (i) Working with short time frames and quick action is essential
          (ii) More trivial issues are at hand
          (iii) Leadership is required for tough decisions

(3) Avoiding
    (a) Types of avoidance
        (i) Mental or physical withdrawals
        (ii) Denial that the problem exists
        (iii) Changing the subject
        (iv) Blaming or minimizing the other party
        (v) Postponing to a future and more appropriate time
        (vi) Use of emotions (tears, anger, etc)
    (b) Results:
        (i) Often the dispute is not resolved
        (ii) The dispute keeps on building up and eventually explodes into a much worse situation
        (iii) Stress spreads to others (staff or family members)
    (c) Appropriate when:
        (i) Potential damage outweighs potential benefits
        (ii) The issue at hand is really not important, or another issue is more pressing
        (iii) Timing for dealing with the conflict is inappropriate

(4) Accommodating
    (a) Types of accommodating
        (i) Playing down the conflict to maintain harmony
        (ii) Yielding to the other point of view
        (iii) Self-sacrifice
    (b) Results:
        (i) Strengthens the relationship, which will be more effective in future problem solving
        (ii) Increases the chances that the other party may be more accommodating in the future
        (iii) Does not necessarily improve communication and transparency short term
    (c) Appropriate when:
        (i) Preserving harmony between parties is more important than the outcome
        (ii) You are flexible on the outcome, or when the issue is more important to the other party
        (iii) It's necessary to build up good faith for future problem solving
        (iv) You are wrong or in a situation where the other party could damage your position

(5) Compromising
    (a) Types of compromising
        (i) Finding middle ground
        (ii) Split the difference
        (iii) Exchanging concessions
    (b) Results:
        (i) Both parties feel they have reached their goals while maintaining the relationship
        (ii) Both parties may feel they lost the battle and feel the need to get even nexttime
        (iii) No relationship is established although it should also not cause relationship to deteriorate

                        (c) Appropriate when:
                              (i) Collaboration or competition fails
                              (ii) Time pressures require quick solutions
                              (iii) Short-term solutions are needed until more information
                                    can beobtained
  e) Resolving Conflicts Successfully
        i) Key Recommendations:
              (1) Set a safe environment
                    (a) Trust of character
                    (b) Trust of disclosures
                    (c) Capability trust
              (2) Identify emotions correctly
                    (a) Examples
                              (i) Anger
                              (ii) Confusion
                              (iii) Frustration
              (3) Listen actively and think about your response
                    (a) Slow down your response
                    (b) Do not respond immediately
                    (c) Focus on the speed and volume of your speech
                    (d) Try to postpone the conversation if you find you cannot respond
                        in a positive manner
              (4) Remain Positive
                    (a) Negative and Positive responses
              (5) Avoid Negative Language
                    (a) Key phrases to avoid
              (6) Avoid Confrontational Behavior
              (7) Know when to be assertive
              (8) Agree on the best solution
  f) Patients and Conflict Resolution
        i) Patient satisfaction should always be your top priority
        ii) Three steps in resolving patient conflicts
              (1) Assess the situation
              (2) Focus
              (3) Be deliberate
        iii) Apply these steps to real life conflicts
              (1) Examples
  g) Key Takeaways
        i) In your day-to-day activities, conflicts with staff members and patients can
           occur
        ii) There are 5 types of conflicts: data, task, relationship, value and structural.
           Depending on the type of conflict you are facing, you will need to determine the
           appropriate approach to solve it
        iii) To solve a conflict, you may collaborate or compete with the other party,
           avoid the conflict, accommodate or compromise
        iv) Patient conflicts usually stem from hurt emotions and it's your duty to
           remove the hurt and ensure patient satisfaction
        v) To resolve patient conflicts, you need to follow three primary steps and
           use key tips, such as identifying the emotion, preparing your responses,
           being positive, avoiding negative language, avoiding confrontation, and
           being assertive when required

Test Questions

Topic	Conflict Resolution		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content			
Title	Question - 1		
Prompt	*Select the best answer then click **Submit**.*		
Text	All of the following need to be achieved in a patient conflict EXCEPT_____.		

Learner options ***Place an X in the box to the left of the correct answer(s).*** ***Delete unused choices and text.***			
		A	Conflict resolution
		B	Patient satisfaction
		C	Relationship building
	X	D	Free glasses

Programming Instructions/ System Response	Move to next frame

Topic	Conflict Resolution		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content			
Title	Question – 2		
Prompt	*Select the best answer then click **Submit**.*		
Text	Which of the following is NOT an appropriate action to take during a patient conflict?		

Learner options ***Place an X in the box to the left of the correct answer(s).*** ***Delete unused choices and text.***			
		A	Consider your response carefully
		B	Empathize with their emotions
		C	Act upon their request immediately
	X	D	Tell them it is the practice's policy that prevents you from do anything about the situation

Programming Instructions/ System Response	Move to next frame

Topic	Conflict Resolution		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content		
Title	Question - 3	
Prompt	*Select the best answer(s) then click **Submit**.*	
Text	Which of the following is one primary step required to resolve patient conflicts?	

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	Identify the patient
	B	Discuss the situation with the patient
X	C	Focus on patient's need
	D	None of the above

Programming Instructions/ System Response	**Move to next frame**

Topic	Conflict Resolution		
Screen ID		**Template**	Multiple Choice with single Correct Answer

Screen Content

Title	Question – 4	
Prompt	*Select the best answer then click **Submit**.*	
Text	Which of following is NOT a key tip to remember when resolving conflicts?	

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	Think about your response
	B	Know when to be Assertive
	C	Be Positive
X	D	Quote practice policy on returns

Learner Action	Learner Feedback		Programming Instructions/ System Response
Click all answers then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect. Click NEXT to continue.	Show ticks and crosses next to option. Click NEXT and branch to next page

Topic	Conflict Resolution			
Screen ID		**Template**	Multiple Choice with Single Correct Answer	

Screen Content

	Title	Question – 5
	Prompt	*Select the best answer(s) then click **Submit**.*
	Text	Which of following is not a primary emotion?

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

X	A	Anger
	B	Confusion
	C	Loss of control
	D	Loss of self-esteem
	E	None of the above

Learner Action	Learner Feedback		Programming Instructions/ System Response
Click all answers then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect. Click NEXT to continue.	Show ticks and crosses next to option. Click NEXT and branch to next page

Topic	Conflict resolution		
Screen ID		Template	Multiple Choice with Multiple Correct Answers

Screen Content

Title	Question - 6
Prompt	*Select the best answer then click **Submit**.*
Text	Which of following is NOT a key tip you need to remember when responding to resolve conflicts?

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	Slow down your response
X	B	Reply immediately
	C	Create less anger and upset on both sides
	D	Focus on speed and volume of your speech

Learner Action	Learner Feedback		Programming Instructions/ System Response
Click all answers then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect. Click NEXT to continue.	Show ticks and crosses next to option. Click NEXT and branch to next page

Topic	Ethics and Employee Conduct		
Screen ID		**Template**	True or False

Screen Content			
Title	Question - 7		
Prompt	*Select the best answer then click* **Submit**.		
Text	Simply stated, ethics are defined as the distinction of right from wrong, good from bad, and fair from unfair		

Learner options **Place an X in the box to the left of the correct answer(s).** **Delete unused choices and text.**			
	X		True
			False

Programming Instructions/ System Response	**Move to next frame**

Topic	Ethics and Employee Conduct		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content (Text may be limited.)			
Title	Question 8		
Prompt	*Select the best answer then click* **Submit**.		
Text	Which of the following is an essential element of an ethical decision?		

Learner options **Place an X in the box to the left of the correct answer.** **Delete unused choices and text.**			
		A	Go with your 'gut' feeling
		B	Get a second opinion
	x	C	Weigh the alternatives
		D	None of the above

Programming Instructions/ System Response	**Move to next frame**

Topic	Ethics and Employee Conduct		
Screen ID		Template	Multiple Choice with Single Correct Answer

Screen Content (Text may be limited.)

Title	Question 9
Prompt	*Select the best answer then click **Submit**.*
Text	In many cases, your _____ _____ will influence how you make ethical decisions

Learner options

Place an X in the box to the left of the correct answer.

Delete unused choices and text.

	A	personal standards	
	B	work ethic	
x	C	personal values	
	D	favorite co-worker	

Programming Instructions/ System Response	Move to next frame

Topic	Ethics and Employee Conduct		
Screen ID		Template	Multiple Choice with Single Correct Answer

Screen Content (Text may be limited.)

Title	Question 10
Prompt	*Select the best answer then click **Submit**.*
Text	A Code of Conduct for the practice should _____ your staff members

Learner options

Place an X in the box to the left of the correct answer.

Delete unused choices and text.

	A	convict	
X	B	inspire	
	C	irritate	
	D	unite	

Programming Instructions/ System Response	Move to next frame

Topic	Ethics and Employee Conduct		
Screen ID		Template	Multiple Choice with Single Correct Answer

Screen Content (Text may be limited.)

Topic	Ethics and Employee Conduct		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Title	Question 11
Prompt	*Select the best answer then click **Submit**.*
Text	What is the sole objective for creating a quality Code of Conduct for the practice?

Learner options

Place an X in the box to the left of the correct answer.

Delete unused choices and text.

	A	Making sure the staff members know how to act appropriately with the patients
X	B	Improving the practice's success
	C	Use it for the employees performance reviews
	D	Making a list of "do's" and "don'ts" for the staff members to follow

Programming Instructions/ System Response	Move to next frame

Topic	Ethics and Employee Conduct		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content (Text may be limited.)

Title	Question 12
Prompt	*Select the best answer then click **Submit**.*
Text	What is the one of the most important assets a practice can have?

Learner options

Place an X in the box to the left of the correct answer.

Delete unused choices and text.

	A	Customers
	B	Cash flow
	C	Customer Service
X	D	Reputation

Programming Instructions/ System Response	Move to next frame

Topic	Ethics and Employee Conduct		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content (Text may be limited.)

Topic	Ethics and Employee Conduct		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Title	Question 13
Prompt	*Select the best answer then click **Submit**.*
Text	"Examine the Issue" is an essential element of an ethical decision. What is something to consider when you are examining the issue?

Learner options

Place an X in the box to the left of the correct answer.

Delete unused choices and text.

		A	Take all elements into account: the practice, the staff, patients and the environment
		B	Obtain complete and unbiased information from various sources
		C	Examine your motives for making the decision
	X	D	All of the above

Programming Instructions/ System Response	**Move to next frame**

Topic	Ethics and Employee Conduct		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content (Text may be limited.)

Title	Question 14
Prompt	*Select the best answer then click **Submit**.*
Text	There are many reasons people procrastinate. They don't like the task at hand or are not sure how to do a task. What is the best way to keep from procrastination?

Learner options

Place an X in the box to the left of the correct answer.

Delete unused choices and text.

		A	Delegate your work to others
		B	Ignore it, it will be there later
	X	C	Just do it
		D	None of the above

Programming Instructions/ System Response	**Move to next frame**

Topic	Ethics and Employee Conduct		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content (Text may be limited.)

Topic	Ethics and Employee Conduct		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Title	Question 15
Prompt	*Select the best answer then click **Submit**.*
Text	A practice code of conduct is a living document that requires _____, _____, _____ and _____, as well as revisions when necessary.

Learner options

Place an X in the box to the left of the correct answer.

Delete unused choices and text.

	A	work, dedication, training, practice
X	B	development, publication, education, reinforcement
	C	time, work, dedication, reinforcement
	D	None of the above

Programming Instructions/ System Response	**Move to next frame**

Topic	Handling Tough Conversations		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content (Text may be limited.)

Title	Question 15
Prompt	*Select the best answer then click **Submit**.*
Text	Reasons most people tend to avoid problems:

Learner options

Place an X in the box to the left of the correct answer.

Delete unused choices and text.

	A	They believe that ignoring the problem will eventually make it go away
	B	Facing problems head-on requires a lot of courage and can appear intimidating at first
	C	They do not like conflict
X	D	All of the above

Programming Instructions/ System Response	**Move to next frame**

Topic	Handling Tough Conversations		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content (Text may be limited.)

Title	Question 16
Prompt	*Select the best answer then click **Submit**.*
Text	What are the 3 important steps to correctly resolve a conflict?

Learner options

Place an X in the box to the left of the correct answer.

Delete unused choices and text.

	A	Focus, Be deliberate, and Provide a solution
X	B	Focus, Be deliberate, and Assess the solution
	C	Apologize, Be deliberate, and Provide a solution
	D	Apologize, Be deliberate, and Assess the solution

Programming Instructions/ System Response	**Move to next frame**

Topic	Handling Tough Conversations		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content (Text may be limited.)

Title	Question 17
Prompt	*Select the best answer then click **Submit**.*
Text	Which of the following is a key step to consider during a tough conversation?

Learner options

Place an X in the box to the left of the correct answer.

Delete unused choices and text.

	A	Preface the conversation with a commitment to the relationships
	B	Fill emotional tanks
	C	Replace "you" with "we" as much as possible and don't verbally attack the person
	D	Sell the benefit
X	E	All the above

Programming Instructions/ System Response	**Move to next frame**

Topic	Handling Tough Conversations	
Screen ID		Template	Multiple Choice with Single Correct Answer

Screen Content (Text may be limited.)	
Title	Question 18
Prompt	*Select the best answer then click **Submit**.*
Text	What is a reason people typically avoid tough conversations?

Learner options			
Place an X in the box to the left of the correct answer. **Delete unused choices and text.**		A	They don't care if the situation is resolved or not
	X	B	They don't like conflict
		C	They believe they are right so why deal with it?
		D	They are not good at talking to people

Programming Instructions/ System Response	Move to next frame

Topic	Handling Tough Conversations	
Screen ID		Template	Multiple Choice with Single Correct Answer

Screen Content (Text may be limited.)	
Title	Question 19
Prompt	*Select the best answer then click **Submit**.*
Text	What part of the four step process for handling tough conversations is showing the person how they will benefit from changing their actions?

Learner options			
Place an X in the box to the left of the correct answer. **Delete unused choices and text.**		A	Fill emotional tanks
		B	Replace "you" with "we" as much as possible and don't verbally attack the other person
	X	C	Sell the Benefit
		D	Preface the conversation with a commitment to the relationship

Programming Instructions/ System Response	Move to next frame

Topic	Handling Tough Conversations		
Screen ID		**Template**	True or False

Screen Content (Text may be limited.)

Title	Question 20
Prompt	*Select the best answer then click **Submit**.*
Text	Having a difficult conversation with a staff member or patient is something that likely will not happen

Learner options

Place an X in the box to the left of the correct answer.

Delete unused choices and text.

		True
X		False

Programming Instructions/ System Response	**Move to next frame**

From:	kaviles@abo-ncle.org
Sent:	Tuesday, February 13, 2024 6:03 PM
To:	Shoven Paige
Subject:	ABO Course Approval
Follow Up Flag:	Follow up
Flag Status:	Flagged

AMERICAN BOARD OF OPTICIANRY

NATIONAL CONTACT LENS EXAMINERS

217 N. Upper Street, Suite 201

Lexington, KY 40507

703-719-5800 • 800-296-1379

Web Address: www.abo-ncle.org

Dear Walter,

This letter will confirm that the **American Board of Opticianry** Education Committee **approved** the following **online** course:

Course: Ocular Anatomy

Hours: 1

Designation: Ophthalmic Level I

Course Number: STWEOA124-1

Expires: February 9, 2027

This course has been approved for **3 years**.

Thank you for your continued commitment to quality education. If you have any questions regarding the above, please feel free to call the office at (703) 719-5800

Sincerely,

Karla Y. Aviles
Education Coordinator

This email was sent to PShoven@us.luxottica.com. You are receiving this email because you submitted a course for approval.

2

From:	kaviles@abo-ncle.org
Sent:	Tuesday, February 13, 2024 6:18 PM
To:	Shoven Paige
Subject:	NCLE Course Approval

Follow Up Flag:	Follow up
Flag Status:	Flagged

AMERICAN BOARD OF OPTICIANRY

NATIONAL CONTACT LENS EXAMINERS

217 N. Upper Street, Suite 201

Lexington, KY 40507

703-719-5800 • 800-296-1379

Web Address: www.abo-ncle.org

Dear Walter,

This letter will confirm that the **National Contact Lens Examiners** Education Committee **approved** the following **online** course:

Course: Ocular Anatomy

Hours: 1

Designation: Ophthalmic Level I

Course Number: CTWEOA005-1

Expires: February 9, 2027

This course has been approved for **3 years**.

Thank you for your continued commitment to quality education. If you have any questions regarding the above, please feel free to call the office at (703) 719-5800

Sincerely,

Karla Y. Aviles
Education Coordinator

To Whom It May Concern,

I certify that I have completed the following course in no less than the number of credit hours (1) requested for approval.

CE03 – OCULAR ANATOMY

Sincerely,

Brooke K Carrasco

Brooke Carrasco, ABOC, NCLE

To Whom It May Concern,

I certify that I have completed the following course in no less than the number of credit hours (1) requested for approval.

OCULAR ANATOMY

Sincerely,

Paige Shoven

Paige Shoven, ABOC

CEC: ADVANCED OCULAR ANATOMY

ADVANCED OCULAR ANATOMY covers the following areas:
1. Discusses the different parts of the eye and how they contribute to a patient's vision. It also reviews different muscles in the eye and how light is experienced by the eye.
2. Provides detailed information about the anatomy of the eye and how this understanding should be appropriately used when working with patients. It also gives an overview of various ocular diseases.

Course outline/timing:

1) Advanced Ocular Anatomy (50 minutes)
2) Course Objectives
   a) Have a deeper understanding of the major parts of the eye
   b) Identify the main refractive bodies of the eye
   c) Understand accommodation
   d) Describe the main purpose of the retina
   e) List the six extraocular muscles and how the eye moves
3) Overview of the Visual System
   a) The Eye has three main layers:
      i) The Outer Layer: The Sclerotic Layer
      ii) The Middle Layer: The Uveal Tract
      iii) The Inner Layer: The Retina
   b) The Crystalline Lens is the central part of the eye
   c) The inside of the eye is divided into three chambers
      i) Anterior Chamber
      ii) Posterior Chamber
      iii) Vitreous humor
4) Refraction and Accommodation
   a) Cornea
   b) Aqueous humor
   c) Crystalline lens
   d) Vitreous humor
   e) Ciliary muscles
   f) Zonular fibers
5) Anatomy of the Retina
   a) The Optic Disk
   b) Fovea
   c) There are two types of photoreceptors in the human retina:
      i) Rods - What rods are and chart
      ii) Cones - What cones are and chart
   d) Ganglion Cells - These cells extend to form an optic nerve that conveys information to the brain and take the electrical information from the bipolar cells and process it to determine shapes, contrast and color.
   e) Picture of a Ganglion Cell
   f) Bipolar Cells - These cells take the electrical information from the photoreceptor cells and pass it along to other retinal cells.
   g) Picture of Bipolar Cells
   h) Horizontal Cells - These cells are connected to the photoreceptors that surround the bipolar connected photoreceptor cells and help integrate and regulate the input from multiple photoreceptor cells, increasing your visual acuity.
   i) Picture of Horizontal Cells
   j) Photoreceptors - This is where the rods and cones are located that convert light into electrical signals. Rods help you with night and peripheral vision. Cones are more concentrated in the macula (the central part of the retina) and proved central and color

vision. Retinitis pigmentosa can cause vision loss called retinitis pigmentosa, while AMD is the loss of central vision.

- k) Picture of Photoreceptors
- l) Retinal Pigment Epithelium (RPE) - This is a single layer of cells that provide essential nutrition and waste removal for the photoreceptor cells. Accumulation of waste can lead to AMD and Stargardt disease.
- m) Picture of Retinal Pigment Epithelium

6) Extraocular Muscles and Eye Movements
What the extraocular muscles are and what they do
- a) Superior Rectus - The superior rectus inserts at the anterior (front) portion of the eye, and its origin is behind the eye on the common ring tendon. Its primary function is to elevate the eye, and it has a mild secondary function of adduction and intorsion.
- b) Picture of the Superior Rectus muscle
- c) Superior Oblique - The superior oblique is unique. It inserts on the superior, lateral (ear-side), and posterior (back) of the eye. The anatomical origin is behind the eye on the lesser wing of the sphenoid bone, but the superior oblique muscle acts a pully, and loops back through a connective tissue sling called the trochlea. Even though it is positioned above the eye, its unique use of the trochlea gives it a primary function is to intort the eye, and secondary functions of depression and abduction.
- d) Picture of the Superior Oblique muscle
- e) Inferior Rectus -The inferior rectus inserts at the anterior (front) portion of the eye, and its origin is behind the eye on the common ring tendon. Its primary function is to depress the eye, and it has a mild secondary function of adduction and extorsion.
- f) Picture of the Inferior Rectus muscle
- g) Inferior Oblique - The inferior oblique is also. It inserts on the inferior, posterior, lateral portion of the eye. Its origin is on the medial (middle) maxillary bone. Its primary function is extorsion, and its secondary functions are elevation and abduction.
- h) Picture of the Inferior Oblique muscle
- i) Lateral Rectus - The lateral rectus inserts at the anterior (front) portion of the eye, and its origin is behind the eye on the greater wing of the sphenoid bone as well as the common ring tendon. Its primary function is to abduct the eye, and it has no secondary function.
- j) Picture of the Lateral Rectus muscle
- k) Medial Rectus - The medial rectus inserts at the anterior (front) portion of the eye, and its origin is behind the eye on the common ring tendon. Its primary function is to adduct the eye, and it has no secondary function.
- l) Picture of the Medial Rectus muscle

7) How are the extraocular muscles controlled?
- a) Three cranial nerves are responsible for controlling the extraocular muscles
  - i) Third cranial nerve (oculomotor nerve)
  - ii) Fourth cranial nerve (trochlear nerve)
  - iii) Sixth cranial nerve (abducers nerve)

8) Understanding Eye Movement
- a) There are two main kinds of movement:
  - i) Conjugate movement (eyes move in the same direction)
  - ii) Disjunctive (eyes move in opposite directions)

9) The Movement of the Eye May Be Affected by Damage to the Cranial Nerves
- a) Examples
  - i) Damage may result in lack of movement synchronization between the two eyes, and lead to double vision (diplopia).
  - ii) Damage to the oculomotor nerve (III) can lead to the inability to coordinate the movements of both eyes (strabismus), also eyelid drooping (ptosis) and pupil dilation (mydriasis).
  - iii) Lesions may lead to paralysis of the levator palpebrae muscle, removing the ability to open the eye.
  - iv) Damage to the trochlear nerve (IV) can also cause double vision with the eye adducted and elevated. The result will be an eye which can not move downwards

properly (especially downwards when in an inward position). This is due to impairment in the superior oblique muscle.

    v) Damage to the abducens nerve (VI) can also result in double vision. This is due to impairment in the lateral rectus muscle, supplied by the abducens nerve.

    vi) Amblyopia (also called lazy eye) is a type of poor vision that happens in just one eye. It develops when there is a breakdown in how the brain and the eye work together, and the brain cannot recognize the sight from one eye.

    vii) Ophthalmoparesis is weakness or paralysis of one or more extraocular muscles

XI.   Key Takeaways:
a.   There are three layers in the eye:
- i.   The outer layer of the eyeball is a tough, white, opaque membrane called the sclera. The slight bulge in the sclera at the front of the eye is a clear, thin, dome-shaped tissue called the cornea.
- ii.   The middle layer is the choroid. The front of the choroid is the iris, the colored part of the eye. In the center of the iris is a circular opening called the pupil.
- iii.   The inner layer is the retina. The retina is a thin nerve membrane that detects light entering the eye. Nerve cells in the retina send signals of what the eye sees along the optic nerve to the brain.

b.   There are three chambers in the eye:
- i.   The anterior chamber is the front part of the eye between the cornea and the iris.
- ii.   The posterior chamber is between the iris and lens.
- iii.   The vitreous chamber is between the lens and the back of the eye

c.   The main refractive element of the eye is the cornea. The crystalline lens is responsible for changing the eye's focal point.

d.   Accommodation is the ability of the eye to adapt itself to focus from distant to near objects.

e.   The retina consists of 10 distinct layers of nerve cells, nerve fibers, light receptor cells, and supporting tissue.

f.   The macula, near the center of the retina at the back of the eyeball, provides the sharp, detailed, central vision a person uses for focusing on what is directly in the line of sight. The rest of the retina provides side (peripheral) vision, which lets a person see shapes but not fine details.

g.   There are two pairs of muscles that move the eye from side to side: one pair that moves the eye up and down, and one pair that rotates the eye.

h.   Three cranial nerves are responsible for controlling the eye muscles. The movement of the eye may be affected by damage to the cranial nerves.

Topic	Ocular Anatomy			
Screen ID		**Template**	Multiple Choice with Single Correct Answer	

Screen Content

Title	**Question - 1**
Prompt	*Select the best answer then click **Submit**.*
Text	There are (6) extraocular muscles and (1) intraocular muscle. The intraocular muscle is called the _____ ?

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

X	A	Ciliary Muscle
	B	Orbicularis Muscle
	C	Levator Muscle
	D	Rectus Muscle Oblique Muscle

Programming Instructions/ System Response	**Move to next frame**

Topic	Ocular Anatomy			
Screen ID		**Template**	Multiple Choice with Single Correct Answer	

Screen Content

Title	**Question - 2**
Prompt	*Select the best answer then click **Submit**.*
Text	Which part of the eye becomes larger and less flexible with advancing years?

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	Cornea
	B	Retina
X	C	Crystalline Lens
	D	Iris

Programming Instructions/ System Response	**Move to next frame**

Topic	Ocular Anatomy		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content				
Title	Question - 3			
Prompt	*Select the best answer then click **Submit**.*			
Text	Someone with myopia is likely to have trouble seeing _____objects in focus.			

Learner options ***Place an X in the box to the left of the correct answer(s).*** ***Delete unused choices and text.***				
		A	A combination of distant and near	
	X	B	Distant	
		C	Intermediate	
		D	Near	

Programming Instructions/ System Response	Move to next frame

Topic	Ocular Anatomy		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content				
Title	**Question - 4**			
Prompt	*Select the best answer then click **Submit**.*			
Text	The crystalline lens has approximately ____ diopters of power.			

Learner options ***Place an X in the box to the left of the correct answer(s).*** ***Delete unused choices and text.***				
		A	10	
	X	B	20	
		C	44	
		D	60	

Programming Instructions/ System Response	Move to next frame

Topic	Ocular Anatomy		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content			
Title	**Question - 5**		
Prompt	*Select the best answer then click **Submit**.*		
Text	What are the two main refractive bodies in the eye?		

Learner options ***Place an X in the box to the left of the correct answer(s).*** ***Delete unused choices and text.***	X	A	Cornea and Crystalline lens
		B	Cornea and Retina
		C	Retina and Crystalline lens
		D	Ciliary and pupilary

Programming Instructions/ System Response	Move to next frame

Topic	Ocular Anatomy		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content			
Title	**Question - 6**		
Prompt	*Select the best answer then click **Submit**.*		
Text	The 6 extraocular muscles responsible for stabilization of the eye are:		

Learner options ***Place an X in the box to the left of the correct answer(s).*** ***Delete unused choices and text.***		A	Nasal rectus, Temporal rectus, Superior rectus, Inferior rectus, Superior oblique, Inferior oblique
		B	Lateral nasal, Medial temporal, Superior rectus, Inferior rectus, Superior oblique, Inferior oblique
		C	Lateral rectus, Medial rectus, Superior rectus, Inferior rectus, Nasal oblique, Temporal oblique
	X	D	Lateral rectus, Medial rectus, Superior rectus, Inferior rectus, Superior oblique, Inferior oblique

Programming Instructions/ System Response	Move to next frame

Topic	Ocular Anatomy			
Screen ID		**Template**		Multiple Choice with Single Correct Answer

Screen Content

Title	Question - 7
Prompt	*Select the best answer then click **Submit**.*
Text	The onset of presbyopia generally begins at age of?

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

X	A	40
	B	50
	C	60
	D	70

Programming Instructions/ System Response	**Move to next frame**

Topic	Ocular Anatomy			
Screen ID		**Template**		Multiple Choice with Single Correct Answer

Screen Content

Title	Question - 8
Prompt	*Select the best answer then click **Submit**.*
Text	The amount of light entering the cornea is controlled by the _____.

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	Cornea
	B	Pupil
X	C	Iris
	D	Crystalline Lens

Programming Instructions/ System Response	**Move to next frame**

Topic	Advanced Ocular Anatomy		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content	
Title	Question - 9
Prompt	*Select the best answer then click **Submit**.*
Text	Which ocular muscle rotates the vertical and horizontal axis of the eye toward the nose?

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	Superior Rectus
	B	External Rectus
	C	Inferior Oblique
X	D	Superior Oblique

Programming Instructions X / System Response	**Move to next frame**

Topic	Advanced Ocular Anatomy		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content	
Title	Question - 10
Prompt	*Select the best answer then click **Submit**.*
Text	_____ provides nutrition for outer layers of retina.

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	Bulbar Conjunctiva
	B	Iris
	C	Pupil
X	D	Choroid

Programming Instructions X / System Response	**Move to next frame**

Topic	Advanced Ocular Anatomy		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question - 11
Prompt	*Select the best answer then click* **Submit***.*
Text	Aqueous humor is produced by the _____.

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

X	A	Ciliary body
	B	Choroid
	C	Cholera
	D	Canal of Schlemm

Programming Instructions X / System Response	**Move to next frame**

Topic	Advanced Ocular Anatomy		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question - 12
Prompt	*Select the best answer then click* **Submit***.*
Text	What is the suggested frequency of eye exams for healthy individuals?

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	Once a month
X	B	Once a year
	C	Once every two years
	D	Twice a year

Programming Instructions X / System Response	**Move to next frame**

Topic	Advanced Ocular Anatomy		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Topic	Advanced Ocular Anatomy		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

	Title	Question – 13
	Prompt	*Select the best answer then click **Submit**.*
	Text	Sherrill has been wearing her contact lenses for years. Recently, her eyes started tearing and turning red whenever she wears them. What could this potentially be a symptom of?

Learner options				
Place an X in the box to the left of the correct answer(s).		A	Neovascularization
		B	Glaucoma
	X	C	Corneal Ulcer
		D	Retinal Detachment
Delete unused choices and text.			

Programming Instructions X / System Response	**Move to next frame**

Topic	Advanced Ocular Anatomy		
Screen ID		**Template**	Multiple Choice with Single Correct Answer
Screen Content			

	Title	Question - 14
	Prompt	*Select the best answer then click **Submit**.*
	Text	Which of the following diseases causes visible changes to the retina?

Learner options				
Place an X in the box to the left of the correct answer(s).		A	Myopia
	X	B	Diabetes
		C	Lupus
		D	Presbyopia
Delete unused choices and text.			

Programming Instructions X / System Response	**Move to next frame**

Topic	Advanced Ocular Anatomy		
Screen ID		**Template**	Multiple Choice with Single Correct Answer
Screen Content			

Topic	Advanced Ocular Anatomy		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Title	Question - 15
Prompt	*Select the best answer then click **Submit**.*
Text	Accommodation is defined as _____.

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	Light rays entering the eye
	B	The refracting power of the cornea
X	C	The act of the crystalline lens changing its shape to focus for objects at varying distances
	D	Reductions of visual acuity with no apparent cause

Programming Instructions X / System Response | **Move to next frame**

Topic	Advanced Ocular Anatomy		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question - 16
Prompt	*Select the best answer then click **Submit**.*
Text	Detailed visual perception is supplied by which structure within the retina?

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	Optic Nerve
	B	Nevus
X	C	Macula
	D	Sclera

Programming Instructions X / System Response | **Move to next frame**

Topic	Advanced Ocular Anatomy		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question - 17

Topic	Advanced Ocular Anatomy		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Prompt	*Select the best answer then click **Submit**.*
Text	Perception of color is provided by _____ within the retina.

Learner options ***Place an X in the box to the left of the correct answer(s).*** ***Delete unused choices and text.***	X	A	Cone cells
		B	Rod cells
		C	Drusen
		D	Toroid cells

Programming Instructions X / System Response	**Move to next frame**

Topic	Advanced Ocular Anatomy		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content	
Title	Question - 18
Prompt	*Select the best answer then click **Submit**.*
Text	Cones form a concentrated area in the retina called the _____.

Learner options ***Place an X in the box to the left of the correct answer(s).*** ***Delete unused choices and text.***		A	Crystalline Lens
	X	B	Fovea
		C	Retina
		D	Pupil

Programming Instructions X / System Response	**Move to next frame**

Topic	Advanced Ocular Anatomy		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question - 19
Prompt	*Select the best answer then click **Submit**.*
Text	The retina consists of _____ distinct layers of nerve cells, nerve fibers, light receptor cells, and supporting tissue.

Learner options			
		A	4
Place an X in the box to the left of the correct answer(s).		B	6
		C	8
	X	D	10
Delete unused choices and text.			

Programming Instructions X / System Response	**Move to next frame**

Topic	Advanced Ocular Anatomy		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question - 20
Prompt	*Select the best answer then click **Submit**.*
Text	Which of the following are responsible for movement or night vision?

Learner options			
	X	A	Rods
Place an X in the box to the left of the correct answer(s).		B	Cones
		C	Crystalline lens
		D	Cornea
Delete unused choices and text.			

Programming Instructions X / System Response	**Move to next frame**

Garnett, Heather (DPOR)

From: kaviles@abo-ncle.org
Sent: Tuesday, February 13, 2024 6:05 PM
To: Shoven Paige
Subject: ABO Course Approval

Follow Up Flag: Follow up
Flag Status: Flagged

AMERICAN BOARD OF OPTICIANRY

NATIONAL CONTACT LENS EXAMINERS

217 N. Upper Street, Suite 201

Lexington, KY 40507

703-719-5800 • 800-296-1379

Web Address: www.abo-ncle.org

Dear Judith,

This letter will confirm that the **American Board of Opticianry** Education Committee **approved** the following **online** course:

Course: Optimizing Managed Vision Care

Hours: 1

Designation: Non-Ophthalmic

Course Number: SWEOA019

Expires: February 9, 2027

This course has been approved for **3 years**.

Thank you for your continued commitment to quality education. If you have any questions regarding the above, please feel free to call the office at (703) 719-5800

Sincerely,

Karla Y. Aviles
Education Coordinator

Garnett, Heather (DPOR)

AMERICAN BOARD OF OPTICIANRY

NATIONAL CONTACT LENS EXAMINERS

217 N. Upper Street, Suite 201

Lexington, KY 40507

703-719-5800 • 800-296-1379

Web Address: www.abo-ncle.org

Dear Judith,

This letter will confirm that the **National Contact Lens Examiners** Education Committee **approved** the following **online** course:

Course: Optimizing Managed Vision Care

Hours: 1

Designation: Non-Ophthalmic

Course Number: CWEOA005

Expires: February 9, 2027

This course has been approved for **3 years**.

Thank you for your continued commitment to quality education. If you have any questions regarding the above, please feel free to call the office at (703) 719-5800

Sincerely,

Karla Y. Aviles
Education Coordinator

To Whom It May Concern,

I certify that I have completed the following course in no less than the number of credit hours (1) requested for approval.

CE13 – OPTIMIZING MANAGED VISION CARE

Sincerely,

Brooke K Carrasco
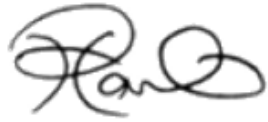
Brooke Carrasco, ABOC, NCLE

To Whom It May Concern,

I certify that I have completed the following course in no less than the number of credit hours (1) requested for approval.

CE13 – OPTIMIZING MANAGED VISION CARE

Sincerely,

Pete Hanlin, ABOM

CEC: OPTIMIZING MANAGED VISION CARE

Course Description:

OPTIMIZING MANAGED VISION CARE covers the following areas:
Managing Insurance During the Patients Visit: Know and understand that insurance is a major source of revenue for most practices. Discover why it is important for staff to know which insurance plans are accepted and the fundamental structure of each plan. Understand why it is important for the claims to be processed efficiently and properly
Optimizing Managed Vision Care: Discover how managed vision care works with the providers, labs, and the patients. Know and understand how to best offer eyewear solutions to your patients using their insurance.

Course Outline w/timing: 50 minutes

1) Managing Insurance During the Patients Visit
    i) Introduction
        (1) Insurance is a major source of revenue for most practices
        (2) It is important to know and understand the insurance plans your practice accepts
        (3) Handling insurance claims promptly and efficiently will maximize profits for the practice
    ii) Course Objectives
        (1) Understand the role of the front desk staff in collecting patient insurance information.
        (2) Prepare staff members with the patient insurance information for the next day's patients.
        (3) Understand the importance of maximizing patient's insurance benefits
        (4) Ensure confidentiality in managing insurance information within the practice
        (5) Ensure that insurance co-pays and patient out of pocket amounts are collected
    iii) Verifying Patient Eligibility
        (1) Ask the patient if they have insurance
        (2) Ask for the name of the insurance and/or vision plan
        (3) Ask the patient for the respective member ID and/or Social Security.
    iv) Obtaining an Insurance Authorization
        (1) Obtain an pre-authorization at least 24 hours, or one business day, prior to the appointment
        (2) Call the insurance company or access their website to verify eligibility by using the member ID or the patient's Social Security number.
        (3) Print the authorization and coverage level details and place the information in the patient's file.
        (4) Confirm the information with the patient prior to their appointment.
    v) Communicating Patient Insurance Information to Staff
        (1) It is important the patient record has the authorization noted in it
        (2) This will help the pre-exam tech and the optician familiarize themselves with the patient's benefits prior to the appointment.
        (3) Previewing the authorization allows the staff to highlight fully covered benefits and second pair coverage.
            (a) Expected co-payments for services and/or materials
            (b) Medical testing (exam,retinal imaging, etc.)
            (c) Plan's material coverage options such as:
            (d) Materials(Polycarbonate, high index...)

           (e) Lens design (Single Vision, progressive addition lenses, bifocal, trifocal)
           (f) Anti-reflective
           (g) Tint/Polarization
           (h) - Photochromic
           (i) - Scratch resistant coating
           (j) - UV
           (k) - Frame allowance
           (l) - Contact lenses

    vi) Your role as an Optician is to maximize patient benefits
        (1) Utilizing fully covered benefits
           (a) Increases patient satisfaction
           (b) Increases practice reimbursement amount from the plan
        (2) Verifying Insurance coverage and issues
           (a) Unable to verify patient eligibility issue
           (b) Patient has already used their benefits for the year

    vii) Setting the Right Tone With Patients
        (1) Talking with a Patient about insurance can be a tricky conversation and costly to the practice
        (2) You and your staff need to make sure you have the authorization of insurance coverage prior to the patient's arrival for their appointment.
        (3) When explaining benefits to the patient refrain from using phrases which could lead the patient to think their eyewear will be free.
        (4) The best time to talk with a patient about eyewear coverage by their insurance is after the exam
        (5) "Avoid Saying" and "Preferred Saying" graph

    viii) Insurance at Checkout
        (1) Partner with the front desk staff to better serve your patients during checkout
           (a) After the patient has completed their eye exam, you will assist them with their eyewear purchase and explain in detail their vision benefits.
           (b) After you have assisted the patient, one of two things will happen. Depending upon the policy of the practice, either you:
              (i) will order the glasses, collect the fees, and thank the patient, or
              (ii) will submit the order and escort the patient to the front desk for check-out
        (2) If you escort the patient to the front desk for check-out, the front desk associate will collect the fees, schedule any future appointments, and close with the patient.
        (3) Update the health record for the patient
        (4) File the insurance electronically

b) Key Takeaways:
    i) It is essential to the whole process that the insurance benefits are verified prior to the patient's visit. The front desk professionals may take this responsibility
    ii) The entire staff needs to understand how to communicate patient's insurance information in a confidential manner
    iii) You should maximize patient's insurance benefits
    iv) You should discuss confidently insurance allowances with patients
    v) You may need to collect co-pays and patient out of pocket amounts

2) Optimizing Managed Vision Care
a) Introduction

b) Course Objective
    i) List the key elements of a managed vision care plan
    ii) Describe the aspects of different provider networks
    iii) Recognize and describe different plan documents
    iv) Describe how you can contribute to your practice's profitability by optimizing managed vision care.
c) Anatomy of a Managed Vision Care Plan
    (1) All managed Vision Care Plan are built upon the following pillars:
        (a) Provider Network
        (b) Lab Structure
        (c) Plan Documents
    (2) The Provider Network
        (a) In-Network vs Out-of Network
            (i) The plan determines the qualification criteria
        (b) Out-of-Network
            (i) Are not contracted with the plan
    (3) The Lab Structure
        (a) There are different types of lab requirements that a managed care plan may require
            (i) Open Lab
            (ii) Defined Lab Network
                1. Contracted Lab
                2. Restricted Lab
    (4) The Plan Documents
        (a) Benefit Summary
        (b) Provider Reimbursement Summary
    (5) Look at Managed Care as an Opportunity
        (a) The best way to view your patients who have managed vision care as opportunities or as GEMS:
            (i) G - Most patients with managed vision care are GAINFULLY employed
            (ii) E - Managed care encourages patients to schedule regular eye EXAMS
            (iii) M - Many patients with managed care MAKE decisions based on need and coverage
            (iv) S - Patients with managed care want want value or SAVINGS from their coverage
        (b) Example of poor explanation of managed care benefits
        (c) Example of an excellent explanation of managed care benefits
    (6) Managed Vision Care and ECP Profitability
        (a) It is important to know and understand the managed care plans used by your patients and how they contribute to the profitability of the practice
            (i) Engage with your staff and work together to put an action plan into place for your practice
                1. Identity the major plans used by your patient base
                2. Understand how each plan reimburses
                3. Identify alignment of plan benefits and patient needs
                4. Identify how to maintain a high capture rate of managed care patients
            (ii) Develop a Plan
            (iii) Execute your Plan
                1. Start with the Front Desk
                2. Follow up with the optical
    ii) Key Takeaways

(1) In order to provide the best solutions for managed care patients, it is important to understand how managed vision care plans work
(2) The key elements of any managed vision care plan are provider networks,lab structure, and plan documents
(3) Each managed vision care plan has different requirements for provider network participation
(4) There are two types of lab structures that a plan might employ; open or defined lab network
(5) Understanding various managed vision care documents will enable you to explain plan benefits to patients and provide them with the best possible eyewear solution

Topic	Managing Insurance During the Patients Visit		
Screen ID		Template	Multiple Choice with Single Correct Answers

Screen Content

Question – 1	
*Select the best answer(s) then click **Submit**.*	
When a patient calls to make an appointment what is one of the first things your front desk staff needs to ask the patient?	

Learner options				
Place an X in the box to the left of the correct answer(s). **Delete unused choices and text.**		A	Why are they coming in to see the dr?
	X	B	If they have insurance
		C	Do they already have glasses?
		D	Are they having trouble seeing?

Learner Action	Learner Feedback		Programming Instructions/ System Response
	CA	Correct.	Click NEXT and branch to next page

Select the relevant answers and then click Submit.		Click NEXT to continue.	
	WA	Incorrect. Click NEXT to continue.	Show ticks and crosses next to option. Click NEXT and branch to next page

Topic	Managing Insurance During the Patients Visit		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Question – 2

*Select the best answer then click **Submit**.*

If an authorization is required, the front desk staff will need to obtain a pre-authorization for the patient at least _____ before or the business day prior to the appointment.

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	8 hours
	B	16 hours
X	C	24 hours
	D	32 hours

Learner Action	Learner Feedback		Programming Instructions/ System Response
	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page

Select the relevant answer then click Submit.	WA	Incorrect. Click NEXT to continue.	Show ticks and crosses next to option. Click NEXT and branch to next page

Topic	Managing Insurance During the Patients Visit		
Screen ID		Template	Multiple Choice with Single Correct Answers

Screen Content

Question – 3

*Select the best answer then click **Submit**.*

In the event the insurance company is unable to verify patient eligibility, the front desk staff should do the following

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

		A	Tell them they will have to pay cash
		B	Let them know their insurance is not any good
	X	C	Needs to contact and inform the patient so they are able to resolve the situation prior to the appointment
		D	They need to get new insurance

Learner Action	Learner Feedback		Programming Instructions/ System Response
	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page

Select the relevant answers then click Submit.	WA	Incorrect. Click NEXT to continue.	Show ticks and crosses next to option. Click NEXT and branch to next page

Topic	Managing Insurance During the Patients Visit		
Screen ID		Template	Multiple Choice with Single Correct Answer

Screen Content		

Knowledge Check – 4

*Select either True or False then click **Submit**.*

When explaining benefits to the patient refrain from phrases which will indicate to the patient that their glasses will be free.

Learner options			
Place an X in the box to the left of the correct answer(s).	X		True
			False
Delete unused choices and text.			

Learner Action	Learner Feedback		Programming Instructions/ System Response
Select the relevant answers then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect. Click NEXT to continue.	Show ticks and crosses next to option. Click NEXT and branch to next page

Topic	Managing Insurance During the Patients Visit		
Screen ID		**Template**	Multiple Choice with Single Correct Answer
Screen Content			

Question – 5

*Select the best answer then click **Submit**.*

	The best time to talk with a patient about eyewear coverage by their insurance is _____

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	when they arrive for their appointment
X	B	after the eye exam
	C	when they are asked to pay
	D	while the dr is talking with them

Learner Action	Learner Feedback		Programming Instructions/ System Response
Select the relevant answers then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect. Click NEXT to continue.	Show ticks and crosses next to option. Click NEXT and branch to next page

Topic	Managing Insurance During the Patients Visit		
Screen ID		Template	Multiple Choice with Single Correct Answer
Screen Content			

Question –6

*Select the best answer then click **Submit**.*

It is always good to use the word "_____" as this indicates to the patient they will have an out of pocket expense.

Learner options			
Place an X in the box to the left of the correct answer(s). **Delete unused choices and text.**	X	A	"purchase"
		B	"owed"
		C	"amount due"
		D	"credit card"

Learner Action	Learner Feedback		Programming Instructions/ System Response
Select the relevant answers then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect. Click NEXT to continue.	Show ticks and crosses next to option. Click NEXT and branch to next page

Topic	Managing Insurance During the Patients Visit

Screen ID		Template	Multiple Choice with Single Correct Answer

Screen Content

Question – 7

*Select the best answer then click **Submit**.*

Instead of saying "Your insurance covers…." what is the preferred saying?

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

X	A	"Your benefits towards your purchase are…."
	B	"Your co-pay is only…."
	C	"Have you thought about a loan…."
	D	"Your insurance only covers 10%…."

Learner Action	Learner Feedback		Programming Instructions/ System Response
Select the relevant answers then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect. Click NEXT to continue.	Show ticks and crosses next to option. Click NEXT and branch to next page

Topic	Managing Insurance During the Patients Visit		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Question – 8

*Select the best answer then click **Submit**.*

After you have assisted the patient, name one of the two things that will happen next depending upon the policy of the practice.

Learner options			
Place an X in the box to the left of the correct answer(s).		A	You will order the glasses, collect the fees, and ask the patient to leave
	X	B	You will order the glasses, collect the fees, and thank the patient
		C	You will let the patient know you cannot help them with their purchase
Delete unused choices and text.		D	You will call the lab with further instructions

Learner Action	Learner Feedback		Programming Instructions/ System Response
	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page

Select the relevant answers then click Submit.	WA	Incorrect. Click NEXT to continue.	Show ticks and crosses next to option. Click NEXT and branch to next page

Topic	Managing Insurance During the Patients Visit		
Screen ID		**Template**	True or False – Select one
Screen Content			

Question – 9

*Select the best answer then click **Submit**.*

Only the Optician needs to understand how to communicate patient's insurance information in a confidential manner

Learner options			
Place an X in the box to the left of the correct answer(s). Delete unused choices and text.			True
	X		False

Learner Action	Learner Feedback		Programming Instructions/ System Response
Select the relevant answers then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect. Click NEXT to continue.	Show ticks and crosses next to option. Click NEXT and branch to next page

Topic	Managing Insurance During the Patients Visit		
Screen ID		Template	Multiple Choice with Single Correct Answer
Screen Content			

Question – 10

*Select the best answer then click **Submit**.*

Your role as an optician is to maximize _____   _____

Learner options			
Place an X in the box to the left of the correct answer(s).		A	health care
		B	bottom line
	X	C	patient benefits
Delete unused choices and text.		D	patient satisfaction

Learner Action	Learner Feedback		Programming Instructions/ System Response
Select the relevant answers then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect. Click NEXT to continue.	Show ticks and crosses next to option. Click NEXT and branch to next page

Topic	Optimizing Managed Vision Care		
Screen ID		**Template**	Multiple Choice with Single Correct Answer
Screen Content			

	Question –11
	*Select the best answer then click **Submit**.*
	All Managed Vision Care plans are built upon the following three pillars:

Learner options			
Place an X in the box to the left of the correct answer(s).		A	Provider network, lab structure, increasing revenue
		B	Lab structure, customer satisfaction, preferred practice
	X	C	Provider network, lab structure, plan documents
Delete unused choices and text.		D	Preferred practices, open labs, plan documents

Learner Action	**Learner Feedback**		**Programming Instructions/ System Response**
Select the relevant answers then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect. Click NEXT to continue.	Show ticks and crosses next to option. Click NEXT and branch to next page

Topic	Optimizing Managed Vision Care

Screen ID		Template	True or False with one correct answer

Screen Content		
Question – 12		
*Select the best answer then click **Submit**.*		
Out-of-network providers are contracted with the Plan		

Learner options			
Place an X in the box to the left of the correct answer(s). **Delete unused choices and text.**			True
	X		False

Learner Action	Learner Feedback		Programming Instructions/ System Response
Select the relevant answers then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect. Click NEXT to continue.	Show ticks and crosses next to option. Click NEXT and branch to next page

Topic	Optimizing Managed Vision Care		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Question – 13

*Select the best answer then click **Submit**.*

The _____ _____ and the _____ summary are two important managed vision care plan documents you need to know about.

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

x	A	benefit summary, provider reimbursement
	B	provider summary, benefit reimbursement
	C	patient health, patient benefit
	D	Doctor summary, provider network

Le*a*rner Action	Learner Feedback		Programming Instructions/ System Response
Select the relevant answers then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect. Click NEXT to continue.	Show ticks and crosses next to option. Click NEXT and branch to next page

Topic	Optimizing Managed Vision Care		
Screen ID		Template	Multiple Choice with Single Correct Answer
Screen Content			

Question – 14

*Select the best answer then click **Submit**.*

Managed Vision Care should be looked at as an _____, not an _____ in the practice.

Learner options			
Place an X in the box to the left of the correct answer(s).		A	Obstacle, opportunity
	x	B	Opportunity, obstacle
		C	Asset, obstacle
Delete unused choices and text.			

Learner Action	Learner Feedback		Programming Instructions/ System Response
Select the relevant answers then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect. Click NEXT to continue.	Show ticks and crosses next to option. Click NEXT and branch to next page

Topic	Optimizing Managed Vision Care		
Screen ID		**Template**	Multiple Choice with Single Correct Answer
Screen Content			

Question – 15

*Select the best answer then click **Submit**.*

Which of the following is NOT a key element of a managed vision plan?	

Learner options ***Place an X in the box to the left of the correct answer(s).*** ***Delete unused choices and text.***			
		A	Provider Network
		B	Lab arrangements
		C	Plan documents
	X	D	Patient's past record

Learner Action	**Learner Feedback**		**Programming Instructions/ System Response**
Select the relevant answers then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect. Click NEXT to continue.	Show ticks and crosses next to option. Click NEXT and branch to next page

Topic	Optimizing Managed Vision Care		
Screen ID		**Template**	Multiple Choice with Single Correct Answer
Screen Content			
Question – 16			

*Select the best answer then click **Submit**.*

The best way to view your patients who have managed vision care as opportunities or as GEMS. What does the "S" in GEMS stand for?

Learner options			
Place an X in the box to the left of the correct answer(s). **Delete unused choices and text.**		A	SILLY
		B	SURLY
	X	C	SAVINGS
		D	STUPENDOUS

Learner Action	**Learner Feedback**		**Programming Instructions/ System Response**
Select the relevant answers then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect. Click NEXT to continue.	Show ticks and crosses next to option. Click NEXT and branch to next page

Topic	Optimizing Managed Vision Care		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content		
Question – 17		
*Select the best answer then click **Submit**.*		
Which of the following documents explain provider reimbursements from the plan and the patient payment for various vision care services?		

Learner options			
Place an X in the box to the left of the correct answer(s). **Delete unused choices and text.**	X	A	Provider reimbursement summary
		B	Provider protection policy
		C	In-network cost report
		D	Patient payment schedule

Learner Action	Learner Feedback		Programming Instructions/ System Response
Select the relevant answers then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect. Click NEXT to continue.	Show ticks and crosses next to option. Click NEXT and branch to next page

Topic	Optimizing Managed Vision Care		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content	
Question – 18	
*Select the best answer then click **Submit**.*	
Which of the following activities would NOT contribute to your Optical's profitability when working with managed vision care?	

Learner options			
Place an X in the box to the left of the correct answer(s). **Delete unused choices and text.**		A	Identify the major plans of your patient base
	X	B	Focus on selling only what the plan covers
		C	Understand how plans reimburse
		D	Maintain high capture rate of managed care patients

Learner Action	**Learner Feedback**	**Programming Instructions/ System Response**

| Select the relevant answers then click Submit. | CA | Correct.
Click NEXT to continue. | Click NEXT and branch to next page |
| | WA | Incorrect.
Click NEXT to continue. | Show ticks and crosses next to option. Click NEXT and branch to next page |

Topic	Optimizing Managed Vision Care		
Screen ID		Template	Multiple Choice with Single Correct Answer
Screen Content			

Question – 19

*Select the best answer then click **Submit**.*

The Acronym used to define the opportunities Managed Care patients bring to the practice is:

Learner options *Place an X in the box to the left of the correct answer(s).* *Delete unused choices and text.*		A	PAIN
		B	CASH
	X	C	GEMS
		D	GAIN

Learner Action	Learner Feedback		Programming Instructions/ System Response
Select the relevant answers then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect. Click NEXT to continue.	Show ticks and crosses next to option. Click NEXT and branch to next page

Topic	Optimizing Managed Vision Care		
Screen ID		Template	Multiple Choice with Single Correct Answer
Screen Content			

Question – 20

*Select the best answer then click **Submit**.*

Each managed vision care plan has different requirements for provider network participation	

Learner options			
Place an X in the box to the left of the correct answer(s).	X		True
			False
Delete unused choices and text.			

Learner Action	Learner Feedback		Programming Instructions/ System Response
Select the relevant answers then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect. Click NEXT to continue.	Show ticks and crosses next to option. Click NEXT and branch to next page

From:	kaviles@abo-ncle.org
Sent:	Tuesday, February 13, 2024 6:07 PM
To:	Shoven Paige
Subject:	ABO Course Approval
Follow Up Flag:	Follow up
Flag Status:	Flagged

AMERICAN BOARD OF OPTICIANRY

NATIONAL CONTACT LENS EXAMINERS

217 N. Upper Street, Suite 201

Lexington, KY 40507

703-719-5800 • 800-296-1379

Web Address: www.abo-ncle.org

Dear Paige,

This letter will confirm that the **American Board of Opticianry** Education Committee **approved** the following **online** course:

Course: Pediatric Dispensing

Hours: 1

Designation: Ophthalmic Level I

Course Number: STWEOA125-1

Expires: February 9, 2027

This course has been approved for **3 years**.

Thank you for your continued commitment to quality education. If you have any questions regarding the above, please feel free to call the office at (703) 719-5800

Sincerely,

Karla Y. Aviles
Education Coordinator

2

Garnett, Heather (DPOR)

From: kaviles@abo-ncle.org
Sent: Tuesday, February 13, 2024 6:19 PM
To: Shoven Paige
Subject: NCLE Course Approval

Follow Up Flag: Follow up
Flag Status: Flagged

AMERICAN BOARD OF OPTICIANRY

NATIONAL CONTACT LENS EXAMINERS

217 N. Upper Street, Suite 201

Lexington, KY 40507

703-719-5800 • 800-296-1379

Web Address: www.abo-ncle.org

Dear Paige,

This letter will confirm that the **National Contact Lens Examiners** Education Committee **approved** the following **online** course:

Course: Pediatric Dispensing

Hours: 1

Designation: Ophthalmic Level I

Course Number: CTWEOA007-1

Expires: February 9, 2027

This course has been approved for **3 years**.

Thank you for your continued commitment to quality education. If you have any questions regarding the above, please feel free to call the office at (703) 719-5800

Sincerely,

Karla Y. Aviles
Education Coordinator

2

To Whom It May Concern,

I, ___Paige Shoven_____ do certify that I am the author of the following Continuing Education credit that is being submitted to the American Board of Opticianry for consideration of approval.

Pediatric Dispensing

Best regards,

Paige Shoven

Paige Shoven

Pediatric Dispensing

Leonardo Online, On Demand Learning

1 Hr, Tech 1 ABO course

Abstract

Pediatric Dispensing is more than just fitting tiny adults with glasses. This class will compare and contrast the differences in patients as it relates to their age and the changing of their facial structure as they grow from infants to adults.

Timed Outline

Introduction

1. Video (3 minutes)

   Discover the children's Category. In this video, there is a brief outline of the upcoming course

2. Children's Dispensing Needs (10 minutes)
   a. Dispensing to Children
   b. Critical Visual sills
      i. Visual Skills and Learning Development
         1. Visual Acuity
         2. Eye Focusing
         3. Eye Tracking
   c. Unique Facial Characteristics
      i. Smaller PD
      ii. Smaller Bridge Height
      iii. Undeveloped Nasal Bridge
      iv. Less defined ear cartilage
      v. Smaller head width and temple length
   d. Prescription Analysis
      i. Is it a first-time prescription
         1. Astigmatism
         2. Hyperopic Prescription
         3. Myopic Prescription
      ii. Is there a prescribed Prism
      iii. Is there a change in prescription since the last visit
      iv. Other recommendations from the doctor
      v. Prescriptions can be confusing to parents
3. Frame Requirements for Children (10 minutes)
   a. Selecting the Right Frame
      i. Finding the perfect fit
   b. Taking Children's Measurements
      i. The fitting Triangle

        ii.   Facial measurements
             1.   PD
                  a.   If the child is too small for a pupilometer
                  b.   If the child has strabismus
             2.   Bridge Height
                  a.   Horizontal Center Line
                  b.   Vertical Center Line
             3.   Temple width and head width
             4.   Bridge Shape
                  a.   Frontal Angle
                  b.   Splay Angle
             5.   Bridge Projection
                  a.   Positive Projection
                  b.   Negative Projection
                  c.   How to measure bridge projection

4. Frame Characteristics (5 minutes)
    a.   Frame Styles
        i.   Frame Shape
             1.   Age of the patient
             2.   Prescription needs
             3.   A size measurements
    a.   Temple Styles
             1.   Types
                  i.   Drop End (skull temples)
                  ii.   Curl Ends (Cable Temples)
                  iii.   Loop Ends (attachable straps)
        ii.   Frame Materials
             1.   Rubber
             2.   Plastic or Acetate
             3.   Injected
             4.   Metal
             5.   Titanium
        iii.   Offering a Second Pair
        iv.   Frame Colors
        v.   Child's age
        vi.   Recommendations
             1.   Safety
             2.   Durability
             3.   Comfort
             4.   Stability
             5.   Aesthetics
    b.   Reassuring Parents about the quality of the frame
        i.   Warranty options

5. Lens Requirements for Children (15 minutes)

a. Lens Materials
   i. Plastic CR-39
   ii. Trivex
   iii. Polycarbonate
   iv.
b. Optimizing Lens Thickness
   i. Refractive Index Considerations
   ii. Spherical vs Aspherical Lenses
c. Coatings and Tints
   i. Anti Reflective Coatings
   ii. Tints
   iii. Sunglasses

6. Collection and Aftercare for Children (10 minutes)
   a. As children are picking up their glasses, you want to set the tone to ensure they are leaving with a positive impression.
      i. Create a lasting great experience
   b. Teach them to care for their eyewear
      i. Ensure the dispensing appointment is time well spent
   c. Check in with them afterwards
      i. Continue by checking in
      ii. Why is this important
      iii. How to prepare for the call
      iv. What to expect during the call

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20

Which of the following factors does not affect the choice of the lens index?

Select the correct answer.

Prescription (amount of refractive error)

Pupillary distance

Frame measurements

Lens tint

What is the best way to connect with older children?

Talk to them like a child using terms like "kids your age" and "child frames"

Use stickers as an incentive

Ask them about their favorite brands, styles, and any celebrity influencers they admire

Ask them about their budget

What lens material for children's eyeglasses should be avoided because of its lack safety features?

CR-39

Polycarbonate

Trivex

High-index plastic

When explaining how to look after eyewear, it's more important to address

The parent

The child

Both the parent and the child

The whole family

What is the recommended age for a child to have their first eye exam?

By the age of 3

By the age of 4

By the age of 5

By the age of 6

You should seek to build trust with:

The parents

Both parents and the child

The child

The entire family

How can you reassure a parent who is financially concerned about their child's eye care?

Use active listening skills to make them feel heard and recommend products that fit their child no matter the cost.

Communicate specific offers and insurance packages

Show them all the styles available to appeal to children with different tastes

Remind them their children's health should not have a price attached to it.

What should be communicated during the patient callback?

Negative words that can cause your patient to lose confidence in you

Positive words to make a good impression

Negative words that can lead to miscommunication

Sarcasm that can be misunderstood without body language

Are anti-reflective coatings suitable for children?

In some situations where they will be extreamly careful with their glasses

Yes, most new AR technologies offer supperior scratch protection

No, children are not bothered by glare

Only after they become teenagers

Can uncorrected poor vision can affect a child's personality and adjustment in their daily life.

Yes

No

Only when they are at school

Only when they are in environments they feel safe in

Which of the following factors does not affect the choice of the lens index?

Prescription (amount of refractive error)

Pupillary distance

Frame measurements

Lens tint

Children of all ages may experience a range of emotions during their eye care visit. Which option below will have little effect on the dispensing process with a young child who has become tired and irritable?

Offer them a distraction such as a toy or a tool like a calculator, ruler, or even the pupillometer to stimulate their curiosity

Ask about their preferences and what they like to do

Take the time to explain the offer so they can make the right decisions

Suggest they take a break

Why is it important to stress that children should remove their eyewear using both hands?

Because children tend to have unsteady hands

Because removing it with just one hand can cause the frame not to fit properly

Because children's hands are small

Children should not remove their glasses themselves

Because of the size of the child they use _____ of their lenses to see the world around them.

More

Less

The same amount

Just the top half

By age _____ the facial structure of a child will generally match those of an adult.

10

11

12

13

When is the fastest period of growth for children's face shape and size?

Between 1 and 3 years

Between 0 and 2 years

Between 2 and 4 years

Between 4 and 6 years

Which of the following is not a skill needed for effective reading?

Color Vision

Eye Focusing

Visual Acuity

Eye Tracking

An underdeveloped nasal bridge can give children negative or zero bridge projection, and this can cause the eyelashes to rub against the back of the lens. What can be done to prevent this?

Adjust the lens curvature

Adjust the lens thickness

Choose a frame with a pantoscopic tilt

Choose a frame with no pantoscopic tilt

If you're looking for a child's frame that is easily molded, strong, flexible, lightweight, and can withstand heat and cold, which material option would you choose?

Plastic

Rubber

Injected

Metal

What could be the benefit of adding a small amount of pantoscopic tilt to the frame?

Choose a frame with a positive bridge protection

Helps prevent the frame from irritating the skin

Helps create a more aesthetic appearance

Helps prevent eyelashes from rubbing against the back of the lenses

From:	kaviles@abo-ncle.org
Sent:	Tuesday, February 13, 2024 6:06 PM
To:	Shoven Paige
Subject:	ABO Course Approval

Follow Up Flag:	Follow up
Flag Status:	Flagged

AMERICAN BOARD OF OPTICIANRY

NATIONAL CONTACT LENS EXAMINERS

217 N. Upper Street, Suite 201

Lexington, KY 40507

703-719-5800 • 800-296-1379

Web Address: www.abo-ncle.org

Dear Walter,

This letter will confirm that the **American Board of Opticianry** Education Committee **approved** the following **online** course:

Course: Understanding Prismatic Effect

Hours: 1

Designation: Ophthalmic Level I

Course Number: STWEOA126-1

Expires: February 9, 2027

This course has been approved for **3 years**.

Thank you for your continued commitment to quality education. If you have any questions regarding the above, please feel free to call the office at (703) 719-5800

Sincerely,

Karla Y. Aviles
Education Coordinator

2

From:	kaviles@abo-ncle.org
Sent:	Tuesday, February 13, 2024 6:19 PM
To:	Shoven Paige
Subject:	NCLE Course Approval
Follow Up Flag:	Follow up
Flag Status:	Flagged

AMERICAN BOARD OF OPTICIANRY

NATIONAL CONTACT LENS EXAMINERS

217 N. Upper Street, Suite 201

Lexington, KY 40507

703-719-5800 • 800-296-1379

Web Address: www.abo-ncle.org

Dear Walter,

This letter will confirm that the **National Contact Lens Examiners** Education Committee **approved** the following **online** course:

Course: Understanding Prismatic Effect

Hours: 1

Designation: Ophthalmic Level I

Course Number: CTWEOA006-1

Expires: February 9, 2027

This course has been approved for **3 years**.

Thank you for your continued commitment to quality education. If you have any questions regarding the above, please feel free to call the office at (703) 719-5800

Sincerely,

Karla Y. Aviles
Education Coordinator

To Whom It May Concern,

I certify that I have completed the following course in no less than the number of credit hours (1) requested for approval.

UNDERSTANDING PRISMATIC EFFECT

Sincerely,

Brooke K Carrasco

Brooke Carrasco, ABOC, NCLE

To Whom It May Concern,

I certify that I have completed the following course in no less than the number of credit hours (1) requested for approval.

UNDERSTANDING PRISMATIC EFFECT

Sincerely,

Paige Shoven

Paige Shoven, ABOC

CEC: UNDERSTANDING PRISMATIC EFFECT

Course Description:

UNDERSTANDING PRISMATIC EFFECT covers the following three areas:
1. Understanding Prism in a Prescription: provides detailed information on how to read prism in a prescription and identify different types of prism. It also provides information on how to use a lensometer to identify the amount and base direction of the prism in a lens.
2. Understanding Prismatic Effect: describes how to identify lens power in different types of lenses. It also provides a detailed description of how to use Prentice Rule in measuring the power of a lens.
3. Balancing Prescribed Prism: explains the difference between prescribed prism and induced prism and the purpose of balancing prism. It also provides the rules for canceling, compounding, and balancing prism.

Course Outline w/timing:

1) Understanding Prism In a Prescription (15 min)
   a) Introduction
      i) Understanding Prescribed Prisms
      ii) Understanding Induced Prisms
   b) Course Objectives
      i) Describe the two types of prism (prescribed and induced) that can exist in a
      ii) Explain the base direction of any existing prescription
      iii) Use the lensometer to identify the amount and base direction of prism in a lens
      iv) Identify common problems unwanted and induced prism can cause for the patient
      v) Follow industry protocol for reordering lenses exceeding prism tolerances
   c) Visualizing Prism in a Lens
      i) Prisms are the building blocks of lenses
      ii) Plus lenses are a combination of prisms base to base
      iii) Minus lenses are a combination of prisms apex to apex
      iv) Base In Prism
      v) Base Out Prism
      vi) Base Down Prism
      vii) Base Up Prism
   d) Checking Prism with a Lensometer
      i) Reading Prescribed prism
      ii) Measuring Induced prism
      iii) Reading prism on a Lensometer
      iv) What Patients may experience due to unwanted prism
   e) Industry Protocol for reordering lenses exceeding tolerances
      i) Return the lenses to the lab that made them
      ii) Excessive prism should be
   f) Key Takeaways
      i) Able to describe the two types of prism (prescribed and induced)
      ii) Able to explain the base direction of any existing prescription
      iii) Learned to identify common problems unwanted and induced prism can cause for the patient

2) Understanding Lens Power and Prismatic Effect (20 min)
   a) Course Objectives
      i) Visualize all lenses as a combination of prisms
      ii) Describe lens power in both spherical and cylindrical lenses
      iii) Transpose any cylinder prescription into either plus or minus cylinder form
      iv) Find the power of any lens in the two major meridians of 90 degrees and 180 degrees
      v) Use the Prentice rule formula to compute prismatic effect
   b) Spherical and Cylindrical Lenses
      i) Lens Power in Spheres
      ii) Describing a Cylinder lens
      iii) Rules of Transposition
   c) Prismatic Effect Calculations
      i) Resolving powers in axes 180 and axes 90: All or Nothing
      ii) Resolving power with axes of 45 or 135: Half and Half
      iii) Resolving power with oblique axes: Use the Table
   d) The Prentice Rule Formula translates Variables into real objective values of prismatic effect
      i) Lateral Prismatic Effects due to Centration Errors
   e) Key Takeaways
      i) A spherical lens is formed when a front curve of singular dioptric power is combined with a back curve of singular dioptric value. The lens which results from that combination is spherical since it has only one overall dioptric power
      ii) In order to derive lens power, you must use a lens clock to read the power of the front curve and add it to the power of the back curve. The resulting value is the lens power
      iii) Unlike a sphere, which has only one power, a cylindrical lens has two separate meridians of power. The meridian with the strongest power is called the "major" meridian, and the meridian with the weakest power is called the "minor" meridian
      iv) The same lens can be designated in two ways without changing the actual power of the cylinder lens. The two forms of a cylinder lens are known as "plus cylinder form" and "minus cylinder form"
      v) The process of switching from one form of cylinder to another is called transposition. The rules of transposition are as follows :
      vi)   add cylinder to sphere
                 change sign of cylinder
      vii) shift axis by 90 degrees by adding 90 to an axis of 90° or less, or subtracting 90 from an axis of 91° or greater
      viii) By calculating prismatic effects, you can determine the quality and efficiency of any lens. In order to do so, you need to calculate the amount of cylinder at a given angle of the lens. At 180° or 90° , it is all power or no power. At axes 45° and 135° , it is split half and half. Any angle in between, a table is used to get the amount of cylinder power
      ix) The Prentice rule helps you calculate the amount of prismatic effect at a given point. The amount of prismatic effect is equal to (Distance in millimeters X Lens Power) / 10
      x) When the optical centers of the lenses are centered with the center of the patient's pupils there is no induced prismatic effect. Any misalignment will lead to induced prism. The direction of the base of the induced prism will depend on the type of lens (minus or plus power) and the direction of the misalignment

3) Balancing Prescribed Prism (15 min)
   a) Course Objectives
      i) Know the difference between prescribed prism and induced prism
      ii) Explain the purpose of balancing prescribed prism
      iii) Know and explain the rules of prism canceling and compounding
      iv) Know and explain the rules of balancing prescribed prism
      v) Know and explain how to balance prescribed prism in an actual prescription
   b) Prescribed vs Induced Prism
      i) Prescribed prism helps those with misaligned optical axis
      ii) Normal binocular vision
      iii) The different types of Strabismus
      iv) Prescribing prism to help patients with Strabismus
      v) Base direction of prescribed prism
      vi) Causes of Induced Prism
   c) The Rules for Balancing Prism
      i) Balancing Prism created better cosmetics
      ii) Out of balance or unbalanced prism
      iii) Splitting prism
      iv) Examples
   d) Key Takeaways
      i) Prism can be prescribed by the doctor to address misalignment of the patient's vision.
      ii) Prism can also be induced due to fabrication or fitting error.
      iii) The desired effect of prescribed prism can be loaded all into one eye (i.e., in one lens) or preferably balanced between both eyes.
      iv) The reason we split the prism (between lenses) is to create better cosmetics by balancing thickness and better wearing comfort by balancing weight.
      v) If the prescribed prism is up or down, the split should be distributed with up in one eye and down in the other.
      vi) In the case of prescribed prism in or out, the base direction should be the same in both eyes and in the same direction as the prescribed prism

Topic	Balancing Prescribed Prism		
Screen ID		Template	Multiple Choice with Single Correct Answer

Screen Content

Title	Question 1
Prompt	*Select the best answer then click **Submit**.*
Text	The reason a prism is split is to _____.

Learner options			
Place an X in the box to the left of the correct answer(s). *Delete unused choices and text.*		A	improve the accuracy of seg/fitting height measurements.
		B	improve visual acuity vs. a non-split prism.
	X	**C**	**improve cosmetics and comfort by dividing thickness and weight evenly.**
		D	reduce vertical prismatic imbalance.

Programming Instructions/ System Response		Move to next frame	

Learner Action	Learner Feedback		Programming Instructions/ System Response
Click the relevant answer and then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect Click NEXT to continue.	Click NEXT and branch to next page

Topic		Balancing Prescribed Prism			
Screen ID			Template	Multiple Choice with Single Correct Answer	

Screen Content

Title	Question 2
Prompt	*Select the best answer then click **Submit**.*
Text	You need to balance the amount of prism for eye wear with the following prescription. What is the appropriate way to balance this? Prescription: OD -1.00 with 10Δ down OS -1.00

Learner options				
Place an X in the box to the left of the correct answer(s). **Delete unused choices and text.**		A	OD -1.00 with 5Δ up OS -1.00 with 5Δ down	
	X	**B**	**OD -1.00 with 5Δ down** **OS -1.00 with 5Δ up**	
		C	OD -1.00 with 7.5Δ up OS -1.00 with 2.5Δ down	
		D	OD -1.00 with 7.5Δ down OS -1.00 with 2.5Δ up	

Programming Instructions/ System Response   Move to next frame

Learner Action	Learner Feedback		Programming Instructions/ System Response
Click the relevant answer and then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect Click NEXT to continue.	Click NEXT and branch to next page

Topic	Balancing Prescribed Prism		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question 3
Prompt	*Select the best answer then click **Submit**.*
Text	Which of the following is an example of compounding prism?

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	Base Up and Base Up
	B	Base In and Base Out
X	**C**	**Base In and Base IN**
	D	Base Out and Base In

Programming Instructions/ System Response			Move to next frame	
Learner Action	**Learner Feedback**			**Programming Instructions/ System Response**
Click the relevant answer and then click Submit.	CA	Correct. Click NEXT to continue.		Click NEXT and branch to next page
	WA	Incorrect Click NEXT to continue.		Click NEXT and branch to next page

Topic	Balancing Prescribed Prism		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content			
Title	Question 4		
Prompt	*Select the best answer then click **Submit**.*		
Text	You need to balance the amount of prism for a pair of eyewear with the following prescription. What is the appropriate way to balance this? Prescription: OD -1.00 sph 5Δ down OS -1.00 sph 10Δ out		

Learner options *Place an X in the box to the left of the correct answer(s).* *Delete unused choices and text.*			
		A	OD -1.00 sph 2.5Δ up; 5Δ out OS -1.00 sph 2.5Δ down; 5Δ out
		B	OD -1.00 sph 2.5Δ down; 5Δ out OS -1.00 sph 2.5Δ down; 5Δ out
		C	OD -1.00 sph 2.5Δ down; 5Δ in OS -1.00 sph 2.5Δ down; 5Δ out
	X	**D**	**OD -1.00 sph 2.5Δ down; 5Δ out** **OS -1.00 sph 2.5Δ up; 5Δ out**

Programming Instructions/ System Response		Move to next frame	

Learner Action	Learner Feedback		Programming Instructions/ System Response
Click the relevant answer and then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect Click NEXT to continue.	Click NEXT and branch to next page

Topic	Balancing Prescribed Prism			
Screen ID		**Template**	Multiple Choice with Single Correct Answer	

Screen Content

Title	Question 5
Prompt	*Select the best answer then click **Submit**.*
Text	Whenever a prescribed prism is split, it is important to keep the _____ the same in the prescribed eye.

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	Prescribed AMOUNT (diopters)
X	B	**Prescribed DIRECTION**
	C	Prescribed WEIGHT
	D	Prescribed THICKNESS

Programming Instructions/ System Response			Move to next frame	

Learner Action	Learner Feedback			Programming Instructions/ System Response
Click the relevant answer and then click Submit.	CA	Correct. Click NEXT to continue.		Click NEXT and branch to next page
	WA	Incorrect Click NEXT to continue.		Click NEXT and branch to next page

Topic	Understanding Lens Power and Prismatic Effect		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question 6
Prompt	*Select the best answer then click **Submit**.*
Text	The point in a lens through which light passes without being deviated is the _____.

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	Fitting Reference Point
X	**B**	**Optical Center**
	C	Circle of Least Confusion
	D	Focal Point

Programming Instructions/ System Response	Move to next frame	

Learner Action	Learner Feedback		Programming Instructions/ System Response
Click the relevant answer and then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect Click NEXT to continue.	Click NEXT and branch to next page

Topic	Understanding Lens Power and Prismatic Effect		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question 7
Prompt	*Select the best answer then click **Submit**.*
Text	Minus lenses diverge light, creating a _____.

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	Real focal point
	B	Magnified image
X	**C**	**Virtual focal point**
	D	Inverted image

Programming Instructions/ System Response	Move to next frame	

Learner Action	Learner Feedback		Programming Instructions/ System Response
Click the relevant answer and then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect Click NEXT to continue.	Click NEXT and branch to next page

Topic	Understanding Lens Power and Prismatic Effect		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question 8
Prompt	*Select the best answer then click **Submit**.*
Text	What is the process of switching from one cylinder form to another cylinder form called?

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	Transubstantiation
	B	Transduction
	C	Translation
X	**D**	**Transposition**

Programming Instructions/ System Response	Move to next frame	

Learner Action	Learner Feedback		Programming Instructions/ System Response
Click the relevant answer and then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect Click NEXT to continue.	Click NEXT and branch to next page

Topic	Understanding Lens Power and Prismatic Effect		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question 9
Prompt	*Select the best answer then click **Submit**.*
Text	The patient's pupillary distance is 64 mm or (32 mm in each eye). The centers from the lab were ground at 68 mm (2.0 mm too wide in each eye). Based on the following prescription, what is the total prismatic effect for this job? Prescription: OD +2.00 -2.00 X 045 OS +1.00 -0.50 X 090

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	.20 diopters
	B	.10 diopters
	C	.70 diopters
X	**D**	**.30 diopters**

Programming Instructions/ System Response		Move to next frame	
Learner Action	**Learner Feedback**		**Programming Instructions/ System Response**
Click the relevant answer and then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect Click NEXT to continue.	Click NEXT and branch to next page

Topic	Understanding Prism in a Prescription		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question 10
Prompt	*Select the best answer then click **Submit**.*
Text	Which description accurately describes a <u>diopter of prism</u>?

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

X	A	**Deflects light one centimeter at a distance of one meter**
	B	Focuses light at a distance of one meter
	C	Creates a real image with a magnification of 1.0x
	D	Creates a virtual image in front of the lens

Programming Instructions/ System Response	**Move to next frame**		

Learner Action	**Learner Feedback**		**Programming Instructions/ System Response**
Click the relevant answer and then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect Click NEXT to continue.	Click NEXT and branch to next page

Topic	Understanding Prism in a Prescription		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question 11
Prompt	*Select the best answer then click **Submit**.*
Text	When the pupil is aligned with this point on the lens, the wearer will not experience unprescribed prism in well-designed lenses.

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

X	A	**Optical Center**
	B	Fitting Reference Point
	C	Distance Verification Point
	D	Focal Point

Programming Instructions/ System Response		Move to next frame	

Learner Action	Learner Feedback		Programming Instructions/ System Response
Click the relevant answer and then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect Click NEXT to continue.	Click NEXT and branch to next page

Topic	Understanding Lens Power and Prismatic Effect		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question 12
Prompt	*Select the best answer then click **Submit**.*
Text	What kind of prism is induced when eye wear is fabricated with optical centers that are wider than the patient's PD- assuming the patient is a *myope* (minus powered lenses)?

Learner options			
Place an X in the box to the left of the correct answer(s). **Delete unused choices and text.**		A	Base Up prism
		B	Base Down prism
		C	Base Out prism
	X	**D**	**Base In prism**

Programming Instructions/ System Response		Move to next frame	
Learner Action	**Learner Feedback**		**Programming Instructions/ System Response**
Click the relevant answer and then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect Click NEXT to continue.	Click NEXT and branch to next page

Topic	Understanding Lens Power and Prismatic Effect	
Screen ID	**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question 13
Prompt	*Select the best answer then click **Submit**.*
Text	A tool called a _____ is used to read the precise amount and direction of prismatic effect in any lens.

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

X	A	**Lensometer**
	B	Distometer
	C	Pupilometer
	D	Refractometer

Programming Instructions/ System Response	Move to next frame	

Learner Action	Learner Feedback		Programming Instructions/ System Response
Click the relevant answer and then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect Click NEXT to continue.	Click NEXT and branch to next page

Topic	Understanding Lens Power and Prismatic Effect		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question 14
Prompt	*Select the best answer then click **Submit**.*
Text	If the sphere and cylinder lines cross at a point to the right of the reticule's center circle (while measuring an OS lens), there is _____ prism at the point of the lens being measured.

Learner options			
Place an X in the box to the left of the correct answer(s).		A	Base Up prism
		B	Base Down prism
	X	**C**	**Base Out prism**
		D	Base In prism
Delete unused choices and text.			

Programming Instructions/ System Response		**Move to next frame**	

Learner Action	**Learner Feedback**		**Programming Instructions/ System Response**
Click the relevant answer and then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect Click NEXT to continue.	Click NEXT and branch to next page

Topic	Understanding Lens Power and Prismatic Effect		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question 15
Prompt	*Select the best answer then click **Submit**.*
Text	What direction of prism might be prescribed to assist a person with esotropia (eye turns in) achieve binocular vision?

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	Base UP prism
	B	Base DOWN prism
X	**C**	**Base OUT prism**
	D	Base IN prism

Programming Instructions/ System Response		**Move to next frame**	

Learner Action	Learner Feedback		Programming Instructions/ System Response
Click the relevant answer and then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect Click NEXT to continue.	Click NEXT and branch to next page

Topic	Understanding Lens Power and Prismatic Effect		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question 16
Prompt	*Select the best answer then click **Submit**.*
Text	What amount of prism exists in a +4.00 sph lens at a point 4mm below the optical center?

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

X	A	**1.6Δ Base Up**
	B	0.8Δ Base Down
	C	1.6Δ Base Down
	D	0.8Δ Base Up

Programming Instructions/ System Response	**Move to next frame**		

Learner Action	**Learner Feedback**		**Programming Instructions/ System Response**
Click the relevant answer and then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect Click NEXT to continue.	Click NEXT and branch to next page

Topic	Understanding Lens Power and Prismatic Effect		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question 17
Prompt	*Select the best answer then click **Submit**.*
Text	Given the following Rx, how much vertical prismatic imbalance will occur at a point 8mm below the optical center?

OD – 5.00 sph
OS – 1.00 -4.00 x 090

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	There will be no prismatic imbalance
X	**B**	**3.2Δ prism**
	C	1.6Δ prism
	D	0.8Δ prism

Programming Instructions/ System Response			Move to next frame	

Learner Action	**Learner Feedback**		**Programming Instructions/ System Response**
Click the relevant answer and then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect Click NEXT to continue.	Click NEXT and branch to next page

Topic	Understanding Lens Power and Prismatic Effect		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question 18
Prompt	*Select the best answer then click **Submit**.*
Text	A patient who presents with the complaint below is most likely to be looking at a point through the lens that is producing _____. *"It always looks like I'm walking downhill, because the floor in front of me looks like its tilted downward."*

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	Base Out prism
	B	Base In prism
X	**C**	**Base Up prism**
	D	Base Down prism

Programming Instructions/ System Response   Move to next frame

Learner Action	Learner Feedback		Programming Instructions/ System Response
Click the relevant answer and then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect Click NEXT to continue.	Click NEXT and branch to next page

Topic	Understanding Lens Power and Prismatic Effect		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question 19
Prompt	*Select the best answer then click **Submit***.
Text	A patient has the following Rx: OD -0.50 sph OS -2.00 -0.50 x180 ADD OU +2.00 The patient wears a FT28 and reads at a point 8mm below the optical center. How much vertical imbalance exists at the reading point?

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

	A	There will be no prismatic imbalance	
	B	3.2Δ prism	
X	**C**	**1.6Δ prism**	
	D	1.2Δ prism	

Programming Instructions/ System Response | Move to next frame

Learner Action	Learner Feedback		Programming Instructions/ System Response
Click the relevant answer and then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect Click NEXT to continue.	Click NEXT and branch to next page

Topic	Understanding Lens Power and Prismatic Effect		
Screen ID		**Template**	Multiple Choice with Single Correct Answer

Screen Content

Title	Question 20
Prompt	*Select the best answer then click **Submit**.*
Text	A prism bends light towards it's _____, and displaces images towards it's _____.

Learner options

Place an X in the box to the left of the correct answer(s).

Delete unused choices and text.

X	A	**base, apex**
	B	apex, base
	C	base, center
	D	center, base

Programming Instructions/ System Response		Move to next frame	
Learner Action	**Learner Feedback**		**Programming Instructions/ System Response**
Click the relevant answer and then click Submit.	CA	Correct. Click NEXT to continue.	Click NEXT and branch to next page
	WA	Incorrect Click NEXT to continue.	Click NEXT and branch to next page