

# Entry to Practice Competencies for Canadian Opticians

## A. Practise according to the codes of conduct and professional standards

### A1) Explain the function of the Regulatory body (College of Opticians), professional associations and provincial regulatory legislation.

- A1.1 Identify and summarize legislation relevant to the Opticianry Profession in the Province.  
Identify the role and legal responsibilities of Opticians under the relevant Act.  
Summarize the regulations, by-laws and standards of Practice for Opticians in Canada.
- A1.2 Identify the role and benefits to opticians of professional associations and the Regulatory Agencies.  
Compare and contrast the role of professional organizations related to the field of Opticianry.

**A2) Adhere to the Standards of Practice, legislation and code of ethics related to the Dispensing of Eyeglasses, Contact Lenses and Sub-Normal Vision services.**

- A2.1 Adhere to the Code of Ethics of the Optician Association / Provincial Regulatory Agency  
Discuss code of ethics for opticians as described by the profession and explore ethical issues and choices.
- A2.2 Adhere to the scope of practice, role and responsibilities as outlined in the Health Professions Act, Optician's Regulations, By-laws and Guidelines.  
Describe the professional Standards of Practice as determined by the provincial regulatory Agency in the operation of an optical dispensary.  
Identify the Guidelines for Standards of Practice for Opticians as determined by the Provincial Regulatory Agency including the responsibilities assumed by the student and supervising optician.
- A2.3 Securely maintain in accordance with the Freedom of Information and Privacy Act personal information in accordance with relevant provincial legislation and Standards of Practice.  
Maintain confidentiality about private and intimate patient matters.  
Hold in confidence all patient information, unless the Optician is permitted by the patient or required by the Act or any other enactment or by order of a court, to disclose the information.
- A2.4 Demonstrate ability as a role model of the professional behavior of the Optician.  
Acquire knowledge from every day experiences and understand the importance of continuous learning, sources and methods for keeping up to date as a professional.  
Analyze current professional issues as they relate to the practice of Opticianry.  
Provide care in a nondiscriminatory manner.  
Refer any incompetent, illegal or unethical conduct by colleagues or other health personnel to the appropriate authority.

## **B. Promote and ensure appropriate vision care for the patient.**

### **B1) Gather and analyze meaningful data.**

- B1.1 Question about previous experience with ophthalmic appliances.  
Inquire about patient concerns.
- B1.2 Take a complete client history and record data as required and in compliance with the standards of practice for opticians.  
Establish patient's vocational and avocational visual needs.  
Establish working distance, field of view requirements.  
Assess patient needs.  
Determine environmental influences on vision including lighting and physical set up of workstation.  
Apply knowledge of factors affecting vision in a working environment.
- B1.3 Collect and organize health data from appropriate sources using an established assessment format to contribute to the identification of a patient's health care needs.

### **B2) Record information accurately.**

- B2.1 Document and communicate patient data to provide continuity of care.  
Keep an ongoing record of the patient's eyeglass experience.  
Record details of patient's medical history affecting successful contact lens wear including indications and contraindications for specific lens modalities and solution protocols.  
Record details of patient's history of ocular health such as injuries, surgery, allergies, medication, hereditary diseases.
- B2.2 Create and maintain patient files, keeping full and accurate records related to:
  - Client information
  - Prescription information
  - Subjective information
  - Current medication
  - Clinical history

History of contact lens wear  
Hobbies and environment  
Motivation  
Objective information – ocular observations  
Ocular health  
Physical health.  
Document using behavioral description, the patient's communication pattern, therapies used and outcomes.  
Record all measurements as listed in Standards of Practice.  
Record communication with the Doctor or the lab.  
Record changes in fit of the lens, modifications, changes in care routine.  
Record any follow up, appointments, problems, advice.  
Record any changes made in response to problems.

### **B3) Prepare recommendations based on defined needs.**

- B3.1 Make recommendations to the patient for appropriate ophthalmic appliances for the patient's identified visual, vocational and avocational needs.
- B3.2 Address patient concerns about vision and/or ophthalmic appliances.

### **B4) Teach patients about good vision care.**

- B4.1 Implement an individualized teaching plan in order to promote, maintain and restore ocular health.  
Apply knowledge of teaching and learning principles and techniques.  
Recognize the importance of common, important factors influencing learning and adjust teaching according to:
  - Cognitive ability
  - Environment
  - Motivation
  - Psychomotor ability
  - ReadinessTake into account the characteristics of the patient, including:
  - Age
  - Culture

Economics  
Emotions  
Environment  
Gender  
Language  
Lifestyle  
Physiologic events.

#### **B4) Teach patients about good vision care (cont'd)**

Apply common guidelines in providing patient and family teaching including:

Assess current knowledge level of patient

Consider special needs of patients

Establish a positive learning environment

Pace learning to achieve optimum effect

Provide for active participation of patient

Select appropriate time for teaching

Use appropriate teaching methods to meet patient's learning needs

Use audio visual aids

Use repetition

Start with simple concepts before moving to complex

Actively involve the patient/family

Ask for feedback during the teaching cycle.

B4.2 Adjust teaching plan and delivery to meet needs of patients with special needs including, but not limited to:

Children of various age groups

Patients with impaired vision

Patients unable to read

Patients with short attention spans

Patients unable to speak

Cognitively impaired

Elderly patients

Mentally impaired

Hearing impaired.

- B4.3 Evaluate the effectiveness of teaching and learning through appropriate responses, demonstration of skill or change in behaviour.
- B4.4 Document the teaching plan, its delivery, and outcomes of the teaching and learning process.

#### **B4) Teach patients about good vision care (cont'd)**

- B4.5 Deliver instruction.

Explain the uses and limitations of the ophthalmic appliance, using a variety of demonstration techniques.

Prevent misuse and unnecessary abuse of eyewear.

Explain the general care and cleaning protocols including any unique instructions for specialty lenses or coatings.

Teach the patient to insert and remove contact lenses.

Acquaint the patient with disinfection, cleaning, rinsing and storing protocols.

Establish appropriate lens orientation for lens insertion including tips to recognize when a soft lens is everted and how to identify axis markings on toric lenses.

#### **B5) Evaluate the patient's application of eyeglasses, contact lenses, and sub-normal vision devices.**

- B5.1 Evaluate the patient's application of the ophthalmic appliance.

Perform troubleshooting procedures to correct any deficiencies related to the appliance.

Ensure that patient's visual, vocational, and avocational needs and requirements have been met.

Evaluate the effect of interventions.

Reconcile patient's expectations with realistic optical, physiological and visual results.

#### **B6) Plan and deliver follow-up care.**

- B6.1 Maintain integrity of the ophthalmic appliance.

- B6.2 Conduct a thorough follow up examination consistent with professional standards of practice.

Observe and record physiological anomalies that arise following the fit that were not present when pre-fit.

Affirm patient's ability to see at required distance.

- B6.3 Design, record, and communicate a plan of follow up care for the patient.  
Schedule and perform follow up activities.
- B6.4 Identify and make adjustments and/or repairs to patients' ophthalmic appliances.  
Verify patient's assent to your proposed adjustment and / or repair.  
Verify patient's satisfaction with adjustment and / or repair.

## **C. Conduct business in a professional manner.**

### **C1) Manage time and organize patient care effectively and efficiently.**

- C1.1 Rank the priority of patient needs according to:
  - Emergent – immediate threat to safety.
  - Urgent – actual problems requiring immediate help.
  - Potential – actual or potential problems unrecognized by the patient or family.
  - Anticipated – anticipated problems for the future.Prioritize the assessment and interventions required to meet the identified priority needs.  
Complete assessments and interventions on patients with highest priority needs first.  
Report findings and outcomes of priority needs on an ongoing basis.
- C1.2 Seek guidance and assistance as required.  
Seek guidance and assistance as required in order to provide care required in order of priority or in a reasonable time.  
Inform the supervisor / manager if assigned care activities are outside the scope of the Optician.
- C1.3 Demonstrate flexibility, creativity and adaptability in meeting the unexpected demands of the health setting.
- C1.4 Ensure documentation on all priority areas is completed in a timely manner.
- C1.5 Manage projects: identify the tasks from initiation to completion of a project; develop a schedule; assess resources and priorities; monitor progress; and revise the plan to include new information.

### **C2) Manage human resources.**

- C2.1 Apply knowledge of labor laws.
- C2.2 Recruit, interview and hire potential staff.  
Evaluate individual skills and limitations.
- C2.3 Develop and implement protocols for performance review.  
Detail individual performance goals in conjunction with staff members including student optician/intern.  
Terminate employees as required.
- C2.4 Schedule staff efficiently.

- Arrange vacation time, and sick leave as required.
- C2.5 Assign tasks.  
Assess and detail tasks.
- C2.6 Orient and train staff.
- C2.7 Apply the principles and concepts of human resources management and organizational behaviour in order to establish and maintain effective working relationships.  
Resolve conflicts.

### **C3) Perform marketing tasks.**

- C3.1 Keep accurate and current records of sales and expenses.  
Use accepted record keeping protocols.  
Review and record payment at the point of transaction as per company policy.  
Record payment, third party payments.  
Use accepted accounting procedures.  
Prepare standard business reports.
- C3.2 Establish and communicate pricing (including any applicable taxes) and policies.  
Review and explain at the point of transaction.  
Review the cost to charge ratio of repair and service work performed by staff.  
Establish and communicate refund and warranty policies.

### **C3) Perform marketing tasks (cont'd).**

- C3.3 Comprehend the retail optical business environment.  
Assess a specific company's selling points.  
Assess the demographics, wants and needs of target market.  
Assess competition and competitors' marketing strategies.
- C3.4 Apply company policies and procedures including but not limited to pertinent warranties, methods of payment and recourse for complaints.
- C3.5 Establish a selling environment.

#### **C4) Control inventory.**

- C4.1 Organize and maintain control over inventory.  
Maintain stock in appropriate condition for retail sale.
- C4.2 Determine and maintain an appropriate inventory.  
Develop an understanding of overhead costs.  
Regularly review manufacturer's listings  
Review current availability of lenses and frames.  
Refresh inventory.

#### **C5) Use current business practices and technology.**

- C5.1 Use a computer and relevant software.  
Demonstrate the use of a computer-based system, which includes managing the files and directory structure of a disk.  
Send and receive electronic mail.  
Prepare standard business communications.

#### **C6) Comply with applicable business laws and regulations**

- C6.1 Understand applicable tax regulations and government programs.

#### **C7) Apply problem-solving skills**

- C7.1 Solve a business problem by using an organized approach to define the problem, identify alternative actions and possible outcomes and recommend, with rationale, the preferred course of action.

#### **C8) Perform administrative tasks**

- C8.1 Assist the patient in completing any forms required by public or private vision care plans.



## **D. Assess patient vision and visual needs within the scope of practice.**

### **D1) Demonstrate an understanding of the structures and functions of the eye**

Define the location, dimensions, functions, gross structure, layers, structure of the layers, transverse section, and nerve supply and sources of nutrition and methods of waste product removal of structures in the adnexa.

Describe the conjunctiva including location of the caruncle and plica semilunaris, as well as the structure of the plica and caruncle, and lymphatics.

Describe the sclera including factors affecting its appearance.

Describe the cornea including radii of curvature and refractive index.

Describe the limbal region including the limbus as a transitional zone, the scleral spur, trabecular meshwork and canal of Schlemm.

Describe pupil position using the schematic eye.

Describe and diagram the pupil and chief ray.

Describe entrance and exit pupils.

Discuss the pupil as a limiting aperture including principal (or chief) ray; entrance and exit pupils and a comparison with telescope, microscope and camera.

Describe the iris including anterior aspects and colour as well as pupil reflexes.

Describe the eyelids including anterior aspect.

Describe the ciliary body including involvement in accommodation, longitudinal and coronal sections.

Describe the choroid.

Describe the retina including the structure of the cells of each layer and their distribution as well as the functions and connections of neural cells.

Discuss retinal images with a near object.

Describe blurred and clear retinal image sizes using an unaccommodated and accommodated schematic eye.

Describe the crystalline lens including radii of curvature and refractive index as well as changes during accommodation, the role of the capsule, Zonular fibres and changes that occur with age.

Describe the orbit and orbital fasciae.

Discuss the simple camera including concept of blur circle; depth of field; depth of focus; comparison with the eye.

## **D2) Demonstrate an understanding of the external anatomical structures**

Describe the lacrimal system including lacrimal, accessory lacrimal and tarsal glands and goblet cells as well as mucous, serous, sebaceous and lysozyme secretions, movement of tears, the lacrimal rivers and lake, tears drainage and passages, the lacrimal pump and tear film.

Describe the skull.

Discuss the location and structure of cranial and facial bones.

Discuss the location of major foramina, fossae and fissures.

## **D3) Demonstrate an understanding of the visual pathway**

Define the visual pathway.

Describe the location of the visual pathway, list the seven components, describe visual and visual reflex fibres, diagramming a representation of the visual field at each section, describing the supply of blood to the visual pathway and the effect of lesions in the visual pathway.

Discuss the visual pathway and the effect of lesions in the visual pathway.

Describe the optic nerve including the structure of the meninges as well as nerve fibres and neuroglia.

Discuss the location of the brain in relation to the spinal cord and meninges.

Discuss the structure of the brain, spinal cord and meninges.

Describe neuro-humoral transmission.

Discuss the four main groups of tissues (epithelium, connective tissue, muscle tissue, nervous tissue) including the structure of each group, the functions of each group and identifying the location of each group.

## **D4) Demonstrate an understanding of the photochemistry of vision**

Discuss colour vision.

Describe trichromatic, opponent colours and zone theories.

Describe monochromacy, dichromacy and trichromacy.

Describe congenital colour deficiencies, acquired colour deficiencies as well as tests for congenital colour deficiencies including colour naming tests, sorting and matching tests, and confusion tests.

Describe the electromagnetic spectrum; wavelength and colour.  
Describe transverse and longitudinal waves; the electromagnetic spectrum.  
Discuss the function of rods and cones.  
Discuss contrast sensitivity.  
Describe monocular and binocular contrast sensitivity and the related terms including factors affecting contrast sensitivity such as cataract and visual pathway lesions; clinical contrast sensitivity tests.  
Describe the effect of a contrast filter.  
Describe the use of the duochrome test in determining 'add'.  
Discuss the Duochrome test.  
Discuss fan and block and associated subjective routine.  
Describe potential sources of radiation and the effect upon the various components of the eye.  
Discuss light sensitivity.

#### **D5) Demonstrate an understanding of visual fields**

Discuss visual fields.  
Explain the concepts of “stops” and “field of view”.  
Describe factors affecting field of view of spectacle lenses.

#### **D6) Demonstrate an understanding of binocular function**

Describe simultaneous perception, fusion and stereopsis.  
Discuss anomalies of accommodation and convergence.  
Describe the role of refractive error; spasm of accommodation; pseudomyopia; convergence insufficiency; accommodative-convergence/convergence ratio.  
Describe relative accommodation and convergence including fusional reserves and Saccades and pursuit movements.  
Discuss theories of accommodation including changes in the lens during accommodation using a diagram of the accommodated schematic eye.  
Discuss the stimulus to accommodation.  
Discuss amplitude of accommodation.  
Describe near point of distinct vision or accommodation.

Discuss convergence and accommodation.

Describe accommodation in the uncorrected astigmatic eye.

Describe spectacle and ocular accommodation using a schematic eye corrected by a thin or thick lens.

Discuss presbyopia related to accommodation.

Discuss the role of refractive error; spasm of accommodation; pseudomyopia; convergence insufficiency; accommodative-convergence/convergence ratio.

Describe reduction of amplitude with age including causes for this phenomenon.

Describe versions and vergences; diagnostic positions of gaze; the metre angle and its relationship to the prism dioptre; near point of convergence and disjunctive vertical movements.

Describe physiological position of rest; active and passive positions; position of functional rest; dissociation and association of eyes; accommodative, proximal and fusional convergence.

#### **D6) Demonstrate an understanding of binocular function (cont'd).**

Describe the unaccommodated eye including the far point.

Describe fixation disparity.

Describe median; face and frontal planes; erect head position; centre of rotation; fixation point; optic, fixation, nodal and visual axes; angles alpha, kappa and gamma; Listing's plane; Primary, secondary and tertiary positions of gaze.

Define field of vision and field of fixation.

#### **D7) Demonstrate an understanding of refractive conditions of the eye**

D7.1 Demonstrate an understanding of the optics of the eye, ametropia and its correction.

Discuss emmetropia and ametropia in real eyes.

Define and compare anisometropia and including retinal images in and measurement of.

Discuss hypermetropia related to accommodation.

Describe magnification in anisometropia and including dioptric and cortical image sizes.

Describe axial, curvature and index ametropia in schematic, and real eyes.

Discuss correction of spherical ametropia with a thin lens using a schematic eye.

Discuss asthenopia and its symptoms.

Describe the power of the eye including ocular refraction, spectacle refraction and vertex distance and equations relating them.

D7.2 Discuss aphakia related to accommodation.

Discuss the etiology of aphakia.

Discuss the signs, symptoms and treatments for aphakia.

Describe the effect of the inability to accommodate, spectacle refraction in aphakia, retinal image size in aphakia using a schematic diagram of the eye made aphakic, correction of aphakia with a contact lens or an intraocular lens as well as clinical aspects of aphakia.

Describe pseudo-aphakia.

#### **D7) Demonstrate an understanding of refractive conditions of the eye (cont'd)**

D7.3 Describe stereopsis in astigmatic corrections.

Discuss astigmatism.

Describe the astigmatic pencil of light and blur ellipse.

Describe astigmatism in the human eye using a schematic eye.

Describe the retinal image of a point object in astigmatism.

Describe the classification of astigmatism including simple, compound and mixed astigmatism.

Describe distance vision in the unaided astigmatic eye.

Describe correction of astigmatism using a schematic eye.

Define oblique astigmatism, tangential and sagittal planes of refraction, the astigmatic pencil of light, and the effect on astigmatism of stop position and form of lens.

Explain spherical aberration, coma and oblique astigmatism.

Explain the surface astigmatism of a conicoid and how this can be used to combat aberrational astigmatism.

D7.4 Describe spherical ametropia including myopia and hypermetropia.

Describe growth of the human eye in emmetropia and spherical ametropia including correlation and component errors, progressive myopia and pseudomyopia.

Discuss the resting state as well as the anomalous myopias including empty field myopia, night myopia and instrument myopia.

Describe the use and appropriate selection of aspheric lenses for correction of high degrees of myopia and (hyper)metropia.

- Describe facultative, absolute, manifest and latent hypermetropia including accommodation in juvenile stress myopia.
- D7.5 Describe presbyopia.

#### **D8) Demonstrate an understanding of ocular motility**

- Describe strabismus and pseudostrabismus including suppression and suppression tests.
- Describe ductions including actions of individual muscles; combined actions of extraocular muscles; theories of ocular rotation.
- Classify types of heterophoria and heterotropia.
- Discuss heterophoria.
- Define bifixation; orthophoria; heterophoria and heterotropia.
- Describe associated and dissociated heterophoria.
- Describe the use of prisms in cases of heterophoria including Fresnel lenses and prism adaptation.
- Discuss points, axes and planes associated with eye movements.

#### **D9) Understand the correction of visual error and apply principles of refraction.**

- D9.1 Use standard distance and reading charts.
- Explain the construction of standard eye charts.
- Describe detection or visibility acuity, resolution acuity; Landholt rings and illiterate E's bar gratings; Snellen's definition of acuity; Snellen fraction recognition or letter acuity; design of letter charts; choice of letter and letter style; methods of measuring children's acuity; the Sheridan Gardiner test; vernier acuity.
- D9.2 Describe visual acuity.
- Discuss visual activities.
- Describe the numerical valuation for visual acuity.
- Describe the effects of aging on acuity.
- Describe visual acuity and its relationship to contrast sensitivity.
- Discuss relative spectacle magnification.
- Describe spectacle magnification with thin and thick lenses using a schematic eye.
- Use the equation for basic retinal image size including thick and thin spectacle lenses.
- D9.3 Use the schematic eye.

- Discuss Gullstrand's simplified schematic eye and its equivalent surface.
- Describe and diagram focal points and focal lengths of the schematic eye.
- D9.4 Demonstrate an understanding of retinoscopy.  
Discuss retinoscopy.
- D9.5 Demonstrate a knowledge of the role of laser surgery in correcting retinal problems, in visual therapy, addressing ocular emergencies, and photorefractive surgery.

#### **D10) Analyze data to design ophthalmic appliances.**

- D10.1 Perform calculations related to light.  
Diagram and perform calculations of the path of light rays.  
Diagram light rays that pass through reflecting surfaces including paraxial ray tracing through lens mirrors, thin lenses in differing media, spectacle lenses and the eye and Purkinje images and ghost images in spectacle lenses.  
Compare finite and paraxial rays by diagramming the path of each through spherical surfaces.
- D10.2 Assess the object-image relationship.  
Describe nodal points and the clear retinal image size.  
Use the equation for basic retinal image size including thick and thin spectacle lenses.  
Calculate clear image size for a distant object.  
Demonstrate an understanding of polarization.  
Define plane-polarized light including a description of why light is considered to be a transverse wave motion; the production of plane-polarized light including reflection, ordinary and extraordinary rays and dichroic crystals.  
Describe the polaroid sheet including polarization and blue sky, polarimeters, correct glazing for polarizing spectacles and suitable uses for polarizing spectacles.  
Describe the properties of wave of light and groups of waves.
- D10.3 Determine required magnification.  
Make calculations for magnification with thin lens correction using a schematic eye including effect of axial length and corneal power induced ametropias on the retinal image size.  
Discuss relative spectacle magnification.  
Describe spectacle magnification using a schematic eye corrected by a contact lens including a comparison with spectacle correction.

Discuss a simple magnifier including a definition of linear and angular magnification; proof of nominal magnification for a lens system or a thick lens; calculation of magnifying power in general situations (to include refractive error of the eye).

D10.4 Solve presenting problems.

Solve problems of high power and / or specialty forms.

Solve problems of geometric optics related to the fitting of ophthalmic appliances.

Calculate the effect of vertex distance change in the results of refraction.

### **D11) Integrate concepts of anatomy, physiology and pathology in order to provide optimum care.**

D11.1 Recognize abnormal ocular conditions.

Recognize symptoms of ocular anomalies.

Use appropriate terminology describing abnormal ocular conditions.

Name and define terms relating to pathological, congenital, acquired, primary, secondary, spastic and cicatricial conditions.

Discuss abnormal conditions of the eyes and adnexa.

Understand the effect of systemic disorders on the eye and adnexa.

Discuss the effects of radiation on the eye and adnexa.

Demonstrate knowledge of the eye and ocular adnexa.

Describe etiology, signs and symptoms of compensated and uncompensated heterophoria

Discuss diabetes, papilloedema and Sjogren's syndrome.

**D11) Integrate concepts of anatomy, physiology and pathology in order to provide optimum care.**

- D11.2 Demonstrate an understanding of the signs, symptoms and treatment of various conditions/disorders
- Describe signs, symptoms and treatment of eyelid conditions including but not limited to epicanthus, ptosis, entropion, ectropion, trichiasis, and coloboma.
  - Describe signs, symptoms and treatment of lid inflammation including but not limited to hordeolum, chalazion and blepharitis.
  - Discuss inflammation.
  - Name and describe the signs and symptoms of inflammation in general as well as acute and chronic inflammations and their consequences.
  - Describe signs, symptoms and treatment of conjunctivitis including but not limited to bacterial, viral and allergic conjunctivitis.
  - Describe signs, symptoms and treatment of nystagmus.
  - Describe signs, symptoms and treatment of conjunctival conditions including but not limited to pinguecula, pterygium, and hemorrhages.
  - Describe signs, symptoms and treatment of disorders of the lacrimal system including but not limited to dacryocystitis and epiphora.
  - Describe signs, symptoms and treatment of keratoconus.
  - Describe signs, symptoms and treatment of iris conditions including but not limited to aniridia, iritis, keratitic precipitates, aqueous flare, hypopyon, posterior and anterior synechiae and hyphaema.
  - Describe signs, symptoms and treatment of lens conditions including subluxation of the lens, and cataract including senile, congenital, traumatic, nuclear and secondary forms.
  - Describe signs, symptoms and treatment of glaucomas including primary narrow angle, chronic simple open angle, secondary and juvenile glaucoma.
  - Describe signs, symptoms and treatment of retinal detachment.
  - Describe signs, symptoms, and treatment of retinal vascular accidents.
  - Identify ocular tissues.
  - Describe signs, symptoms, and treatment of tumors of ocular tissues.
  - Discuss amblyopia; describe signs, symptoms and treatment of amblyopia.
  - Define amblyopia including monocular and binocular amblyopia; strabismus, anisometropic, stimulus deprivation,

types; meridional amblyopia and uncorrected astigmatism; failure of lateral inhibition in geniculate and cortical sites.  
Describe occluders and the treatment of amblyopia with central fixation.

**D11) Integrate concepts of anatomy, physiology and pathology in order to provide optimum care (cont'd).**

- D11.3 Refer patients with abnormal ocular conditions for medical advice.  
Refer patient to a medical practitioner as required.
- D11.4 Demonstrate an understanding of the use of ophthalmic drugs.  
Discuss ophthalmic drugs.  
Describe neuro-humoral transmission.  
Describe types of ophthalmic drugs and topical preparations.  
Describe the functions and effects of ophthalmic drugs related to visual outcomes.  
Describe regulations affecting use and storage of ophthalmic drugs in ophthalmic practices.

## **E. Fit, prepare and dispense appropriate devices using current practices and technology.**

### **E1) Demonstrate an understanding of physical optics**

Describe Newton's corpuscular theory; Huygen's wave theory, associated difficulties of propagation of light through a vacuum and velocity of light passing through different optical media.

Define a ray of light.

Demonstrate knowledge of historical development of light and of lens theory.

Define the difference between paraxial and finite rays by diagramming the light rays.

Describe and explain the diffraction grating and measurement of wavelength of light.

### **E2) Interpret the prescription.**

Express a lens power in crossed cylinder form or sphero-cylinder form the latter being in either plus or minus cylinder form.

### **E3) Understand and apply knowledge of lens theory for the correction of ametropia.**

#### **E3.1 Demonstrate an understanding of optical instruments.**

Discuss telescopic and microscope lens systems including calculation of magnifying power for both afocal and non-afocal settings including a comparison to the lensometer and keratometer and for application of low vision aids.

Describe the theory of determination of corneal radius, image doubling principle and fixed as well as one-position and two-position instruments and the measurement of astigmatic corneas.

Explain interference and diffraction.

Demonstrate an understanding of ophthalmic instruments and aids related to a complete oculo-visual assessment.

Describe the principle of the instrument including illumination and the use of lenses in the ophthalmoscope including angular magnification, linear field of view.

**E3) Understand and apply knowledge of lens theory for the correction of ametropia (cont'd).**

Discuss the relationship of the resolving power of an instrument to the eye and minimum magnifying power.  
Discuss the effect of vertex distance change on the results of refraction.

Use knowledge of visual optics and anatomy and physiology and the special issues of the aging eye.

- E3.2 Solve problems related to the optics of the eye.  
Solve problems of spherical lens forms.  
Solve problems of effectivity, vertex powers and transposition.  
Solve problems of bifocal lens forms.  
Solve problems using sphero-cylindrical lens forms.  
Solve problems of multifocal lens forms.  
Solve problems of decentration.  
Recognize and determine vertical imbalance and how to correct it.  
Solve problems related to applied optics and lens forms.

**E3) Understand and apply knowledge of lens theory for the correction of ametropia (cont'd).**

- E3.3 Perform calculations to apply the principles of visual and applied optics.  
Use the thin lens formula to calculate and describe lens forms and use thick lens formula.  
Use the formula for calculating surface power to determine the surface power required in a lens medium other than that for which the tools are calibrated.  
Calculate prismatic effects at various points away from the optical centre of spherical and sphero-cylindrical lenses, with their axes in any meridian.  
Calculate the decentration required to produce specified amounts of prism in a given prescription.  
Calculate the prismatic effect required to produce a given decentration.  
Calculate spectacle magnification, shape factor, power factor, form and / or thickness of afocal isekonic lenses.  
Calculate the edge and centre thickness of spherical or sphero.  
Calculate the sum of obliquely combined cylinders by using formula –cylindrical.  
Calculate spherical equivalent.  
Describe and calculate the extent of apparent field of view and real field of view.  
Describe and calculate the 'image jump' effect of different styles and sizes of bifocals.

Calculate prismatic effects at the near vision point (NVP) and neutralize prismatic effect at the NVP.  
Identify which lens should be selected for bi-centric grinding in a given lens medium and to calculate the amount of slab-off prism required.  
Calculate the effective power of a lens.  
Calculate prescription modification to account for different vertex distances.  
Calculate the effective power of a lens in near vision.  
Calculate the ranges of vision through the various portions of a given trifocal or progressive lens.  
Calculate the intermediate addition for a prescription that designates only distance and near powers.  
Perform calculations for a thin lens to determine front and back vertex powers and focal lengths; define principal and nodal points, unit magnification in the principal planes.  
Calculate images for near and distant objects using vergences.  
Calculate the positions of the focal lines and circle of least confusion for thin lenses of different powers.  
Measure vertex powers and the vergence impressed by spectacle lenses in near vision.  
Use measurements derived from lens thickness, sag formulae, lens measure (clock) and sagometers.

#### **E4) Apply knowledge of binocular vision.**

- E4.1 Discuss monocular and binocular vision.  
Compare binocular versus monocular vision including contrast sensitivity and acuity; stereopsis versus monocular depth perception.  
Discuss binocular movements.  
Discuss binocular status.  
Describe binocular visual acuity.  
Discuss monocular depth perception.  
Demonstrate an understanding of anomalies of binocular vision.

#### **E5) Troubleshoot**

Explain typical short term physiological difficulties related to ophthalmic appliances.  
Explain visual or physiological symptoms that would require immediate attention.  
Teach the patient how to solve typical mechanical problems related to ophthalmic appliances.  
Develop a patient specific adaptation program and check regimen.

## **F. Fit, prepare and dispense appropriate eyeglasses using current practices and technology.**

### **F1) Apply knowledge of lens theory and perform ocular measurements.**

Define and visually identify segment types and sizes including diameter, width, height, depth, top position, drop, geometrical and optical inset.

Define and locate distance and near visual points of bifocal lenses.

Describe the ranges of trifocals and progressive lens formats available including the advantages and disadvantages of each.

Describe and diagram the regions of indistinct vision, astigmatism and skew distortion inherent in the progressive lens format.

Describe and locate the identifying markings found on a typical progressive power lens.

Describe thickness reduction prism (TRP) and determine the amount of TRP or prescribed prism required.

Describe Fresnel diffraction and diffractive lenses.

Describe the use of back vertex power to classify spectacle lenses.

Identify wavelength transmittance of the ocular media.

Discuss transmission curves for a range of lens materials and for a range of tint formats.

Define spectral and luminous transmittance.

Define a spherical lens in terms of its base curve, surface powers and nominal power.

Indicate on a diagram, with radii of curvature marked, converging and diverging forms of a spherical lens.

Discuss dioptric systems.

Describe shape factor.

Determine monocular pupillary distances including for distant and near point gaze.

Determine suitable vertical height for standard bifocal styles.

Measure the vertex distance of each lens of the patient's existing eyeglasses.

Measure the vertex distance of each lens of the patient's final frame selection.

Determine the need to apply the compensated power formula.

Measure curves including base curves and secondary curves.  
Calculate the power of a lens.

### **F1) Apply knowledge of lens theory and perform ocular measurements (cont'd).**

Measure segment heights and widths.  
Measure lens thickness including at nasal and temporal edges and at optical center.  
Calculate and record the change in power due to fitting vertex distance.  
Calculate convergence through centered and decentered spectacle lenses.  
Measure and calculate the prismatic effect of lenses.  
Locate and measure the optical center height including distance above segment and vertical distance from bottom of frame.  
Locate and measure distance between optical centers on a given pair of lenses.

### **F2) Demonstrate an understanding of aberrations**

Discuss aberrations in the eye's optical system.  
Describe spherical aberration, chromatic aberration, coma, oblique astigmatism, curvature of field and distortion.  
Describe magnitudes of spherical and chromatic aberrations.  
Describe significance of the aberrations.  
Describe the effects of the pupil in dealing with aberrations.  
Define spherical aberration and its influence on the paraxial theory of ophthalmic lenses.  
Define chromatic aberration.  
Define longitudinal and transverse aberration (LA and TA).  
Demonstrate knowledge of the history and evolution of bifocals.  
Describe the development and use of split bifocals, cement bifocals, upcurve bifocals, panoptik bifocals and bonded bifocals.  
Locate optical centers of lenses and geometric centers of lens apertures in frame.  
Demonstrate a knowledge of appropriate lens media including the indices of refraction, abbe factors, thickness variants, reflective characteristics, recommended coatings and tints, power ranges, manufacturing limitations and availability of same.  
Define a cylindrical surface in terms of power meridians, axis notation.

Describe and explain the diffraction grating and the measurement of wavelength of light.  
Describe visual anomalies related to eyeglass wear including but not limited to the 'jack in the box effect', 'ring scotoma', 'pin-cushion effect' and 'barrel distortion'.  
Describe curvature of field (Petzval surface).  
Define the far point.  
Describe and explain principles of lenses for use under water, recumbent prisms, Fresnel lenses and prisms, and frosted lenses.  
Describe and explain principles of design of aids for low visual acuity, spectacle magnifiers, loupes, telescopic spectacles and field expanders.  
Describe aspherical lens surfaces.

### **F3) Use ophthalmic instruments and aids for eyeglass fitting.**

- F3.1 Use instruments.  
Use a spectrometer (UV meter).  
Use a caliper to measure lens thickness as per original order.  
Use a ruler or task specific device to determine suitable vertical location for distant optical center including both single vision and multifocal prescriptions.  
Use the penlight reflex and pupillometer methods to take a papillary distance.  
Use a vertex distometer or other task specific device to measure vertex distance.  
Use a lensometer to measure the refractive power of lenses.  
Use edging and finishing equipment to fabricate eyeglasses.  
Use a lens clock to measure base curve.

### **F4) Advise and assist with frame and lens choice.**

- F4.1 Access information on product availability and manufacturer's specifications.  
F4.2 Make lens and frame recommendations.  
Describe the advantages and disadvantages of photochromic filters as well as to describe their transmission curves (unactivated as well as exposed), kinetic energy curves and their availability in various lens formats.  
Observe a variety of frame sizes and shapes on the patient.

Determine the suitability of eye size given specific prescription and anatomical features.  
Determine the suitability of bridge for specific frontal, transverse and crest angles of patient's nose.  
Assess appropriateness of style and length of temple for specific anatomical features.  
Discuss importance of combining function and fashion elements of the frame selections.  
Convey to the patient the advantages and disadvantages of each frame under consideration including resulting lens appearance, weight, durability, maintenance requirements.  
Describe the difference between as well as the advantages and disadvantages of vacuum tints and through and through (fixed) tints.  
Describe the vacuum coating process for the application of single and multi-layered anti-reflection coating as well as for the application of filtration tints.  
Describe the source of and methods of reducing troublesome reflections (ghost images) as well as the conditions causing various intensities of ghost images.  
Describe and illustrate through diagrams the benefits of multi-layer anti-reflection applications as opposed to single layer anti-reflection applications in combating poor resolution due to light intensity.  
Describe the properties of impact resistant lenses for both dress and industrial uses including the required specifications for a variety of lens media.  
Recommend the best frame given specific prescription requirements, frame size requirements and patient's choices.  
Use knowledge of trigonometric functions and optical calculations applied to lens manufacturing and lens and frame selection.  
Advise, assist and recommend to patients an appropriate selection of products including when task specific products are required.  
Advise patient of visual consequences and physiological adaptation requirements created by changes in prescription.  
Make appropriate tint and coating recommendations.

#### **F4) Advise and assist with frame and lens choice (cont'd).**

F4.3 Select to achieve optimal comfort and vision.

#### **F5) Design, prepare and order eyeglasses.**

F5.1 Demonstrate knowledge of lens designs, materials and manufacturing methods.

Display an understanding of methods of manufacturing lens blanks.

Understand the protocols of the lab being used.

Describe the relationship between the finished lens box dimensions, decentration required, indices of refraction of material selected and resulting edge thickness.

F5.2 Order any components as required.

Convey the lens specifications required using either hard copy or electronic format.

Note prescription changes, frame adjustments and repairs and ancillary purchases.

Note specifications of lenses, coatings, tints, special applications and frames being ordered.

Properly and efficiently develop and verify an appropriate lens order.

F6.3 Ensure completion of the eyeglasses in a timely fashion.

Establish and monitor a reasonable delivery time.

Coordinate with the lab and frame supplier.

#### **F6) Fabricate eyeglasses and perform needed repairs.**

Examine frames and lenses.

Note adjustment, lens, tint, coating and frame quality.

Layout and assess proper surface and polish lenses as required by prescription using both glass and plastic lens media.

Use manufacturers' specification charts.

Inspect completed adjustment and / or repair.

Dye and coat lenses, excluding specialty vacuum coat applications according to specifications.

Manufacture a properly sized lens free of edging defects.

Mount finished lenses into frames.

Complete manufacturing process without distorting or otherwise marking the frame.

Place eyeglass unit in standard alignment.

Prepare order for delivery.

Calculate the cost of repair.

Establish a reasonable timeline for completion of repair.

Establish a reasonable timeline for delivery of completed eyeglass unit to patient.

Solder frame components as required.

Modify tints or coatings as required.

Re-cut lenses as required.  
Re-string nylon frame mounts as required.

### **F7) Evaluate completed eyeglass product.**

- F7.1 Verify the physical and optical integrity of the eyeglass unit.  
Measure the reading addition of a bifocal lens.  
Verify lens specifications as per original order including prescription, optical centre location, required prism, segment size and height.  
Note model, color, size and general appearance of frame as delivered.  
Verify frame supplied as per original order.  
Inspect lens, verifying transparency of lens, colour and quality of tinting or coating as ordered, and integrity of lens surface.  
Verify lens medium and format as per original order.  
Correlate all components of the written or electronically transferred frame and lens information with the assembled components that accompany the order.  
Verify light transmission of coatings or tints as per original order.  
Determine power anomalies.  
Ensure quality as per policy.

### **F8) Deliver eyeglasses.**

- F8.1 Understand applicable tolerance standards.  
Verify that the lens complies with technical standards.
- F8.2 Calculate potential sources of visual discomfort.
- F8.3 Re-fit and readjust eyeglasses as required.  
Verify patient satisfaction with adjustment and / or repair.  
Make adjustments including to the bridge, temples, pantoscopic angle, face form and vertex distance.  
Explain expected changes in special perception, focusing distances.

## **G. Fit, prepare and dispense appropriate contact lenses using current practices and technology.**

### **G1) Interpret the prescription.**

- Transpose to minus cylinder form.
- Establish base line visual acuity.
- Discuss correction of ametropia with a contact lens.

### **G2) Develop patient's visual profile.**

- Inquire about and record the patient's expectations of contact lens wear.
- Determine accommodation and convergence requirements in contact lenses compared with spectacles.
- Establish/determine wearing schedule requirements.
- Determine patient's focusing requirements.
- Determine patient's lens format and modality requirements.
- Anticipate indications and contraindications to lens wear and specific solution usage resulting from unusual ocular symptoms.
- Discover and evaluate reasons for wanting contact lenses.

### **G3) Use ophthalmic instruments and devices to perform ocular measurements and assessments for contact lens fitting**

- Use a Snellen chart or equivalent measuring tool.
- Use a contactek to verify the calibration of the keratometer.
- Perform keratometry.
- Co-relate K readings and the prescription to determine if any difference in power of the two eyes is axial or refractive and thus to make the appropriate recommendation to the patient.
- Establish base line corneal curvature.
- Measure palpebral fissures, diameter of cornea, diameter of pupil and eyelid position.

Perform biomicroscopy.  
Manipulate lids.  
Ascertain lid tension.  
Evert upper lid to inspect for signs of giant papillary conjunctivitis.  
Note condition of cornea and adnexa.  
Use Florescein Disclosing solution.  
Establish tear quality by applying the measurement of the tear break up/measure and record dehydration time.  
Establish tear quantity by performing a Schmirer test.  
Use a radiuscope to measure the B.C.O.R. of an RGP lens.

#### **G4) Evaluate existing contact lens.**

Assess lens movement.  
Assess hydration and cleanliness of lenses.  
Perform and chart the results of a biomicroscopy examination.

#### **G5) Review range of lens choices.**

Explain limiting factors of prescription and physiology.  
Consider appropriate lens modalities.  
Select lens of alternate specifications targeting a solution to symptoms presented and observed.  
Review available lens formats and specifications.  
Determine any limiting characteristics of the lenses.  
Advise patients regarding the pros and cons of each lens modality.  
Use knowledge of available manufacturing specifications.  
Establish required water content requirements of lenses.

#### **G6) Use diagnostic lenses and calculate contact lens specifications.**

Select appropriate diagnostic lenses.  
Assess static and dynamic performance of lens.

Perform over refraction in conjunction with trial contact lenses.  
Perform critical contact lens and optical lens measurements.  
Assess static and dynamic position of lenses.  
Measure base curve as appropriate.  
Measure diameter as appropriate.  
Measure power as appropriate.  
Measure thickness as appropriate.

#### **G7) Design, prepare, order and modify optically correct contact lenses.**

Use measurements taken and results of trial lens fitting.  
Design a gas permeable lens.  
Select an appropriate soft lens.  
Order specific edge treatments, lens diameters, peripheral curves and blends (gas permeable).  
Calculate the compensated power that should be ordered.  
Assess power that needs to be ordered to achieve maximum visual acuity.  
Establish relationship between the corneal surface and the back of an RGP lens using fluorescein.  
Calculate compensating power for ordering lens.  
Order appropriate lens modality for specific patients.

#### **G8) Evaluate and correct performance of contact lenses.**

- G8.1 Ensure appropriate RGP lens modifications are completed as required.  
Inspect edge quality as appropriate.  
Inspect peripheral curve quality as appropriate.  
Assess surface quality.  
Discuss rationale and procedures for RGP lens modifications including:  
Polish surfaces  
Adjust powers  
Re-cut peripheral curves  
Reduce diameter

Re-blend lens  
Re-roll edges.  
Make RGP lens modifications as required.  
Verify completion of modifications as specified.

**G9) Provide followup care and evaluate anomalies affecting contact lens wear.**

- G9.1 Determine anomalies and their possible source.  
Note unusual ocular symptoms such as conjunctivitis and dry eye.  
Recognize and identify any corneal pathology or injury.  
Relate contact lens related physiological anomalies to their source.
- G9.2 Implement appropriate followup care to address:  
Inadequate lens movement.  
Problems with lens hydration and cleanliness.  
Contact lens-related physiological anomaly.

**G10) Demonstrate proper aseptic techniques for contact lenses.**

- G10.1 Adhere to procedures for disinfecting and sorting soft contact lenses including:  
Cleaning of lens surface  
Disinfecting the lens  
Oxidization (Hydrogen Peroxide)  
Cold chemical regime  
Thermal disinfection (heat)  
Neutralization, rinsing or storing
- G10.2 Follow procedures for using protein removers.

## **H. Fit, prepare and dispense appropriate sub normal vision devices using current practices and technology.**

### **H1) Recognize symptoms specific to the low vision patient.**

Identify age-related anomalies.

Maintain an up to date knowledge base on ocular anomalies and low vision.

### **H2) Interpret the prescription and evaluate the patient needs.**

#### H2.1 Evaluate the patient's needs

Assess patient's physical dexterity in using the appliance on an independent basis.

Assess the patient's psychological preparedness to accept a low vision device.

Provide focusing targets for a range of visual distances.

Determine the patient's visual goals.

#### H2.2 Recommend an appropriate appliance.

Select potentially appropriate devices for the patient's primary visual goal.

Identify appropriate optical parameters for low vision device.

Determine the impact of illumination on visual goals.

### **H3) Advise patient on purchase, use and maintenance of sub normal vision appliances**

#### H3.1 Assist the patient in purchasing the device.

Discuss available product.

#### H3.2 Train the patient on the use and care of the vision aid.

Explain and demonstrate the use and limitations of the device.

## **I. Implement and maintain infection control and safe practices.**

### **I1) Demonstrate proper aseptic techniques.**

Disinfect lenses, tools and instruments.

Use storage techniques for trial lenses commensurate with solutions chemistry, pharmacology and microbiology issues.

Maintain sample frames on display in a hygienic fashion.

### **I2) Teach patients proper hygiene protocols.**

Demonstrate proper hygiene protocols.

Communicate consequences of non-compliance.

### **I3) Recognize and control infection hazards.**

Recognize the current landscape of infectious diseases and required preventative measures for public safety.

### **I4) Use safe procedures related to tools, equipment and products**

I4.1 Apply safety procedures recommended/defined by:

The Optical Laboratory Association.

Health Protection Branch of Canada and the Food and Drug Administration of the USA.

Canadian Safety Association and American National Standards.

The Canadian Ophthalmological Society, Canadian Association of Optometrists, Opticians Council of Canada and American Academy of Ophthalmology.

International Organization for Standardization standards.

Outline and comply with WHMIS legislation in terms of scope, material data safety sheets and labeling requirements for controlled substances.

- I4.2 Demonstrate proper personal hygiene.  
Maintain proper personal hygiene.
- 14.3 Apply first aid and CPR.  
Apply knowledge of basic first aid and CPR.  
Discuss first aid for common presenting medical conditions.  
Make decisions and deal with common medical emergencies that may occur in the workplace or at home, including wounds, bleeding and unconsciousness.  
Survey the safety of the emergency scene and contact EMS appropriately.

## **J. Communicate effectively.**

### **J1) Use a wide range of verbal and nonverbal communication strategies**

- J1.1 Use empathy and active listening skills.  
Itemize and rephrase patient's choices to clarify needs.  
Demonstrate an appreciation of the needs of others, ways of encouraging positive relationships, an awareness of sources of conflict and strategies for conflict resolution when working independently and / or as a member of a group.  
Understand the importance of verbal and nonverbal communications.  
Identify communication barriers.  
Apply interpersonal communication concepts in the understanding of personal and professional relationships.  
Observe, evaluate and improve communications in relationships.  
Use demonstration techniques and questioning skills.
- J1.2 Present ideas clearly and effectively.
- J1.3 Use an interview process to determine needs
- J1.4 Use effective techniques with various ages and behaviours.  
Identify and apply appropriate communication techniques with children.  
Identify and use appropriate communication techniques and interventions to manage the abusive and / or aggressive patient.  
Identify and use established protocols, policy and procedure to assess, manage and report abusive and aggressive patient behaviour.  
Build effective relationships with all age groups.  
Identify and use alternative techniques to create a relationship and to communicate to the speech / language impaired patient (i.e. communication boards, electronic devices).

### **J2) Communicate effectively with health care professionals and patients.**

- J2.1 Use appropriate terminology.

Understand and apply common prefixes, suffixes, root words, symbols and abbreviations as related to production of ophthalmic appliances.

Demonstrate knowledge of common optical appliances and material terms in assessment, communication and documentation.

Speak about observations with a mature and informed vocabulary.

### **J3) Prepare documents and patient records.**

- J3.1 Use writing that is consistent with the rules of English grammar.  
Use consistent ophthalmic terminology on printed professional communications.  
Write objectively and accurately about patient observations.

### **J4) Use effective interpersonal skills to resolve conflicts and complaints.**

- J4.1 Apply conflict resolution skills to resolve concerns and / or complaints.  
Use appropriate business etiquette when resolving conflicts.

## **K. Perform as a member of a health care team.**

### **K1) Collaborate as both a team member and team leader in the workplace.**

- K1.1 Function in independent, interdependent and collaborative roles with other members on the health care team to provide total vision care.  
Understand the role / responsibilities of each member of the health care team.
- K1.2 Teach, guide, instruct, mentor, and supervise the student / intern in all areas of the profession.

### **K2) Liaise, refer and interact with all eyecare professionals.**

- K2.1 Seek guidance when applicable.
- K2.2 Confer with appropriate health professionals and refer patients as required.  
Serve as a patient advocate with other members of the team.  
Liaise with patient's medical practitioners as required.
- K2.3 Recommend routine eye health screening.