



Pearson BTEC Level 4 Certificate in Optical Dispensing

Specification

BTEC Professional qualification

First registration July 2021

Issue 2

About Pearson

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This specification is Issue 2. Key changes are summarised on the next page. We will inform centres of any changes to this issue. The latest issue can be found on our website.

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Summary of changes to the Pearson BTEC Level 4 Certificate in Optical Dispensing specification Issue 2

Summary of changes made between previous issue and this issue	Page number
Unit 11: Paediatric Optical Dispensing has been added as a new additional unit.	72
The Malpractice section has been updated.	85

If you need further information on these changes or what they mean, please contact us via our website at: qualifications.pearson.com/en/support/contact-us.html

Contents

1	Introducing the qualification	1
	What are BTEC Professional qualifications?	1
	Qualification purpose	1
	Industry support and recognition	1
	Funding	2
	Relationship with previous qualifications	2
2	Qualification summary and key information	3
3	Qualification structure	4
	Pearson BTEC Level 4 Certificate in Optical Dispensing	4
4	Assessment requirements	5
	Language of assessment	5
	Internal assessment	5
	Assessment of knowledge units	6
	Assessment of skills units	6
5	Centre recognition and approval	8
	Approvals agreement	8
	Centre resource requirements	8
6	Access to qualifications	9
	Access to qualifications for learners with disabilities or specific needs.	9
	Reasonable adjustments and special consideration	9
7	Recognising prior learning and achievement	10
8	Quality assurance of centres	11
9	Units	12
	Unit 1: Geometric Optics	13
	Unit 2: Ophthalmic Lenses	19
	Unit 3: Applied Optics of Prisms	25
	Unit 4: Dispensing Astigmatic Lenses	30

Unit 5: Lens Thickness in Dispensing	34
Unit 6: Spectacle Magnification and Field of View in Dispensing	39
Unit 7: Multifocal and Progressive Lenses	45
Unit 8: Lens Choice and Visual Disturbances	50
Unit 9: Remote Service Delivery in the Optical Sector	56
Unit 10: Performing Delegated Specialist Functions	62
Unit 11: Paediatric Optical Dispensing	72
10 Suggested teaching resources	83
11 Appeals	84
12 Malpractice	85
Dealing with malpractice in assessment	85
13 Further information and publications	87
14 Glossary	88
Part A – General terminology used in specification	88
Part B – Terms used in knowledge and understanding criteria	89
Annexe A	90
Unit mapping overview	90
Annexe B	91
Assessment strategy	91

1 Introducing the qualification

What are BTEC Professional qualifications?

BTEC Professional qualifications are work-related qualifications available from Level 4 to Level 8 in a range of sectors. They give learners the knowledge, understanding and skills they need to prepare for employment in a specific occupational area. The qualifications also provide career development opportunities for those already in work.

BTEC Professional qualifications put learning into the context of the world of work, giving learners the opportunity to apply their research, skills and knowledge in relevant and realistic work contexts. This applied, practical approach means that learners develop the knowledge, understanding and skills they need for career progression or further study.

The qualifications may be offered as full-time or part-time courses in colleges and training centres, and through employers.

Qualification purpose

The Pearson BTEC Level 4 Certificate in Optical Dispensing is for learners who are working in, or who are intending to work in optical dispensing as an Optical Dispensing Technician.

The Pearson BTEC Level 4 Certificate in Optical Dispensing is suitable for learners to:

- develop knowledge and skills related to optical dispensing
- achieve a qualification to prepare for employment
- achieve a nationally recognised Level 4 qualification
- develop own personal growth and engagement in learning.

Industry support and recognition

This qualification is supported by, and has been developed in collaboration with, Distance Learning – Specsavers.

Funding

Qualifications eligible and funded for post-16-year-olds can be found on the funding Hub.

Relationship with previous qualifications

This qualification is a direct replacement for the Pearson BTEC Level 4 Certificate in Optical Dispensing, which has expired. Information about how the new and old units relate to each other is given in *Annexe A*.

2 Qualification summary and key information

Qualification title	Pearson BTEC Level 4 Certificate in Optical Dispensing
Qualification Number (QN)	603/7666/1
Regulation start date	30/06/2021
Operational start date	01/07/2021
Approved age ranges	16-18 19+
Total qualification time (TQT)	257 hours.
Guided learning hours (GLH)	133 hours.
Assessment	Internal assessment.
Grading information	The qualification and units are graded Pass/Fail.
Entry requirements	In order to register for this qualification learners will need access to an optical practice and a registered dispensing optician/ optometrist.
Progression	Learners who achieve the Pearson BTEC Level 4 Certificate in Optical Dispensing can progress to more senior job roles and further professional qualifications.

3 Qualification structure

Pearson BTEC Level 4 Certificate in Optical Dispensing

The requirements outlined in the table below must be met for Pearson to award the qualification.

Number of units that must be achieved	8
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Unit number	Mandatory units	Level	Guided learning hours
1	Geometric Optics	4	15
2	Ophthalmic Lenses	4	24
3	Applied Optics of Prisms	4	10
4	Dispensing Astigmatic Lenses	4	16
5	Lens Thickness in Dispensing	4	18
6	Spectacle Magnification and Field of View in Dispensing	4	14
7	Multifocal and Progressive Lenses	4	18
8	Lens Choice and Visual Disturbances	4	18

Unit number	Additional units (Learners may complete additional units; however, these will not contribute to the minimum required for achievement of the qualification)	Level	Guided learning hours
9	Remote Service Delivery in the Optical Sector	4	12
10	Performing Delegated Specialist Functions	4	25
11	Paediatric Optical Dispensing	4	26

4 Assessment requirements

The table below gives a summary of the assessment methods used in the qualification.

Units	Assessment method
All units	Internal assessment (centre-devised assessments).

Language of assessment

Learners must use English only during the assessment of this qualification.

A learner taking the qualification(s) may be assessed in British Sign Language where it is permitted for the purpose of reasonable adjustment.

Further information on the use of language in qualifications is available in our *Use of languages in qualifications policy*, available on our website, [qualifications.pearson.com](https://www.pearson.com/qualifications).

Internal assessment

Internally assessed units are subject to standards verification. This means that centres set and mark the final summative assessment for each unit, using the examples and support that Pearson provides.

To pass each internally assessed unit, learners must:

- achieve all the specified learning outcomes
- satisfy all the assessment criteria by providing sufficient and valid evidence for each criterion
- prove that the evidence is their own.

Centres must ensure:

- assessment is carried out by assessors with relevant expertise in both the occupational area and assessment. For the occupational area, this can be evidenced by a relevant qualification or current (within three years) occupational experience that is at an equivalent level or higher than this qualification. Assessment expertise can be evidenced by qualification in teaching or assessing and/or internal quality assurance or current (within three years) experience of assessing or internal verification
- internal verification systems are in place to ensure the quality and authenticity of learners' work, as well as the accuracy and consistency of assessment.

Learners who do not successfully pass an assignment, are allowed to resubmit evidence for the assignment or to retake another assignment.

The assessments must also incorporate the Skills for Health Assessment Principles (November 2017) in *Annexe B*.

Assessment of knowledge units

To pass each knowledge unit, learners must independently complete assignment(s) that show that the learning outcomes and assessment criteria for the unit have been met.

Format of assignments for knowledge units:

- all learning outcomes and assessment criteria must be covered
- assignments can include both practical and written tasks
- assignments are independently completed as a distinct activity after the required teaching has taken place
- the brief is issued to learners with a defined start date, a completion date and clear requirements for the evidence they are required to produce
- all or parts of units can be combined into a single assignment. Learning outcomes must not be split into more than one assignment.

Each unit contains suggested tasks that centres can use to form the basis of assignments for learners to complete. It is expected that centres will contextualise these and ensure that the final version is checked by their internal verifier.

Examples of evidence could include: written assignments or test, but these must match the command verbs of the assessment criteria.

Assessment of skills units

To pass each skills unit, learners must:

- gather evidence from their course in a portfolio showing that they have met the required standard specified in the learning outcomes, assessment criteria and Pearson's quality assurance arrangements
- have an assessment record that shows how each individual assessment criterion has been met. The assessment record should be cross-referenced to the evidence provided. The assessment record should include details of the type of evidence and the date of assessment. Suitable centre documentation should be used to form an assessment record.

Learners can use one piece of evidence to prove their knowledge, skills and understanding across different assessment criteria and/or across different units. The evidence provided for each unit must reference clearly the unit that is being assessed

and learners should be encouraged to signpost evidence. Evidence must be available to the assessor, the internal verifier and the Pearson Standards Verifier.

Examples of forms of evidence include observation records, reflective accounts, witness testimony and products of learners' work. Learners must provide evidence of their achievement of the knowledge-based learning outcomes and the associated assessment criteria in skills units – achievement cannot be inferred from performance.

Any specific evidence requirements for a unit are given in the unit's *Assessment* section.

5 Centre recognition and approval

Centres must have approval prior to delivering or assessing any of the units in this qualification.

Centres that have not previously offered BTEC Professional qualifications need to apply for, and be granted, centre recognition as part of the process for approval to offer individual qualifications.

Existing centres will be given 'automatic approval' for a new qualification if they are already approved for a qualification that is being replaced by a new qualification and the conditions for automatic approval are met.

Guidance on seeking approval to deliver BTEC qualifications is given on our website.

Approvals agreement

All centres are required to enter into an approval agreement with Pearson, in which the head of centre or principal agrees to meet all the requirements of the qualification specification and to comply with the policies, procedures, codes of practice and regulations of Pearson and relevant regulatory bodies. If centres do not comply with the agreement, this could result in the suspension of certification or withdrawal of centre or qualification approval.

Centre resource requirements

As part of the approval process, centres must make sure that the resource requirements below are in place before offering the qualification:

- appropriate physical resources (for example IT, learning materials, teaching rooms) to support the delivery and assessment of the qualification
- suitable staff for delivering and assessing the qualification (see *Section 4 Assessment requirements*)
- systems to ensure continuing professional development (CPD) for staff delivering and assessing the qualification
- health and safety policies that relate to the use of equipment by learners
- internal verification systems and procedures (see *Section 4 Assessment requirements*)
- any unit-specific resources stated in individual units.

6 Access to qualifications

Access to qualifications for learners with disabilities or specific needs.

Equality and fairness are central to our work. Our *Equality, diversity and inclusion policy* requires all learners to have equal opportunity to access our qualifications and assessments, and that our qualifications are awarded in a way that is fair to every learner.

We are committed to making sure that:

- learners with a protected characteristic (as defined by the Equality Act 2010) are not, when they are taking one of our qualifications, disadvantaged in comparison to learners who do not share that characteristic
- all learners achieve the recognition they deserve from their qualification and that this achievement can be compared fairly to the achievement of their peers.

For learners with disabilities and specific needs, the assessment of their potential to achieve the qualification must identify, where appropriate, the support that will be made available to them during delivery and assessment of the qualification.

Centres must deliver the qualification in accordance with current equality legislation. For full details of the Equality Act 2010, please visit www.legislation.gov.uk

Reasonable adjustments and special consideration

Centres are permitted to make adjustments to assessment to take account of the needs of individual learners. Any reasonable adjustment must reflect the normal learning or working practice of a learner in a centre or a learner working in the occupational area.

Centres cannot apply their own special consideration – applications for special consideration must be made to Pearson and can be made on a case-by-case basis only.

Centres must follow the guidance in the Pearson document *Guidance for reasonable adjustments and special consideration in vocational internally assessed units*.

7 Recognising prior learning and achievement

Recognition of Prior Learning (RPL) considers whether a learner can demonstrate that they can meet the assessment requirements for a unit through knowledge, understanding or skills they already possess and so do not need to develop through a course of learning.

Pearson encourages centres to recognise learners' previous achievements and experiences in and outside the workplace, as well as in the classroom. RPL provides a route for the recognition of the achievements resulting from continuous learning.

RPL enables recognition of achievement from a range of activities using any valid assessment methodology. If the assessment requirements of a given unit or qualification have been met, the use of RPL is acceptable for accrediting a unit, units or a whole qualification. Evidence of learning must be sufficient, reliable and valid.

Further guidance is available in our policy document *Recognition of prior learning policy and process*, available on our website.

8 Quality assurance of centres

For the qualification in this specification, the Pearson quality assurance model will consist of the following processes.

Centres will receive at least one visit from our Standards Verifier, followed by ongoing support and development. This may result in more visits or remote support, as required to complete standards verification. The exact frequency and duration of Standards Verifier visits/remote sampling will reflect the level of risk associated with a programme, taking account of the:

- number of assessment sites
- number and throughput of learners
- number and turnover of assessors
- number and turnover of internal verifiers
- amount of previous experience of delivery.

Following registration, centres will be given further quality assurance and sampling guidance.

For further details, please see the work-based learning quality assurance handbooks, available in the support section of our website:

- *Pearson centre guide to quality assurance – NVQs/SVQs and competence-based qualifications*
- *Pearson delivery guidance & quality assurance requirements – NVQs/SVQs and competence-based qualifications.*

9 Units

This section of the specification contains the units that form the assessment for the qualification.

For explanation of the terms within the units, please refer to *Section 14 Glossary*.

It is compulsory for learners to meet the learning outcomes and the assessment criteria to achieve a Pass. Content is compulsory unless it is provided as an example and is therefore marked 'e.g.'. All compulsory content must be delivered, but assessments may not cover all content.

Where legislation is included in delivery and assessment, centres must ensure that it is current and up to date.

Unit 1: Geometric Optics

Level: 4

Guided learning hours: 15

Unit introduction

The aim of this unit is to enable the learner to apply physical laws relevant to optics and use them to show the path light will take as it travels through a transparent optical medium.

In this unit, you will learn about the lens properties such as refractive index and relative curvature and how to calculate them. You will explore the laws of reflection and refraction and learn how to apply them to demonstrate, with the use of diagrams, their effect on light as it travels through transparent media.

Learning outcomes and assessment criteria

To pass this unit, learners need to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria	
1	Be able to calculate optical lens properties	1.1	Specify lens properties for a selected lens including: <ul style="list-style-type: none">• refractive index• V-value• density
		1.2	Calculate for lens properties: <ul style="list-style-type: none">• relative curvature• Curve Variation Factor• surface powers• radius of curvature

Learning outcomes		Assessment criteria	
2	Be able to apply physical laws relevant to optics	2.1	Apply the laws of reflection and refraction in relation to the pathway of light
		2.2	Explain the use of an anti-reflective coating to reduce reflectance
		2.3	Explain the terms critical angle and total internal reflection
		2.4	Assess the percentage of light reflected from a transparent object

Unit content

What needs to be learned

Learning outcome 1: Be able to calculate optical lens properties

1A Specify lens properties

- Refractive index: ratio between the speed of light in air, or strictly speaking a vacuum, and its speed in the medium is known as the refractive index of the medium. Refractive index is usually given the symbol n and its value will always be greater than unity (which means 1).
- A lens material with a higher Index of refraction will bend more light and will require less of a curve to achieve a specific Rx. Surfacing with less curve for a given Rx will help keep the lens thinner. Higher index lenses typically have a higher specific gravity, due to the increased material density
- V-value: How a lens performs with respect to the splitting of light into its component colours is called the v-value or Abbe number; the amount of chromatic aberration or tendency material to separate light, based on varying wavelength, of an ophthalmic lens material. The higher the v-value of a lens, the lower chromatic aberration and the lower the chromatic aberration, the better the clarity.
- Density: Density tells us how heavy a material is. Its value is the weight (in grams) of 1 cubic centimetre of the material (g/cm^3). Combining density and relative curvature will help to give a better comparison of the weight of different lenses;; material density increases as lens thickness is reduced by increasing index; weight of lens depends on its shape and size, volume and the density of the lens material

1B Calculate lens properties

- Relative Curvature: Relative curvature is a means of comparing the curvature of two surfaces; $RC = (n_{\text{old}} - 1)/(n_{\text{new}} - 1)$; Previous refractive index (or crown glass) compared to new refractive index; $(1 - RC) \times 100$ to express as a percentage reduction in thickness.
- Curve Variation Factor: calculate quickly how much flatter a lens will be if it is made in a higher index material when compared to Crown glass; $CVF = 0.523 / (n_{\text{lens}} - 1)$.
- Surface Powers: Calculate using thin lens theory $F = F_1 + F_2$; measured in dioptres; reciprocal relationship between Dioptres and metres; conversion of focal length to power; $F = n' - n/r$ when radius of curvature known.
- Radius of Curvature: The effect of changing refractive index; $r = n' - n/F$; n' is refractive index of material light is entering and n is material light is leaving; F is surface power

What needs to be learned

Learning outcome 2: Be able to apply physical laws relevant to optics

2A Laws of reflection and refraction

- Reflection: when a ray of light strikes a mirror, the light ray reflects off the mirror; reflection involves a change in direction of the light ray; angle of incidence equals the angle of reflection
- Refraction: when light travels from one medium to another, it generally bends, or refracts; a way of predicting the amount of bend; also known as Snell's Law; $n \sin i = n' \sin i'$
- Snell's Law; calculate angle of refraction; show on ray diagram; a denser medium will have a smaller angle of refraction as ray bends towards the normal; a less dense medium will have a larger angle of refraction as bends away from the normal

2B Anti-reflective coatings

- Application of interference in anti-reflective coatings; use for reducing reflectance; problems caused by reflectance in spectacle lenses

2C Critical angles and total internal reflection

- Critical angle: a unique angle of incidence that results in a refracted angle of 90° . This happens only when light passes into a more optically dense medium
- Total internal reflection: when the angle of incidence is greater than the critical angle of a medium; light does not pass through and refract, it reflects off the boundary surface

2D Reflectance

- $R = \frac{(n-1)^2}{(n+1)^2} \times 100$; expressed as a percentage of light being reflected at each individual surface of the lens

Essential information for tutors and assessors

Essential resources

Learners undertaking this qualification will need access to an optical practice and a registered dispensing optician/ optometrist.

Staff supervising this unit should be occupationally competent and registered with the General Optical Council. They should have recent experience of optical practice and be able to demonstrate evidence of continuing professional development in order to maintain their registration with the General Optical Council. Exceptions to the requirement for registration may apply in Ireland.

Assessment

This unit is internally assessed. To pass this unit, the evidence that learners present for assessment must demonstrate that they have met the required standard specified in the learning outcomes and assessment criteria.

The assessment for this unit should be set in a specific organisational context, it should draw on learning from the unit and be designed in a way that enables learners to meet all the assessment criteria.

A recommended assessment approach is given below. Centres are free to create their own assessment as long as they are confident it enables learners to provide suitable and sufficient evidence to meet the stated standard of the assessment criteria and achieve the learning outcomes.

Learning outcome 1: Be able to calculate optical lens properties

An example assignment for this learning outcome could be to produce a series of real cases where the learner has selected an appropriate lens and provide the lens properties based on manufacturers information.

This will then be followed with some case examples regarding dispensing different refractive indices and the impact of this. Calculation of relative curvature, CVF and radius of curvature will be required.

To satisfy the assessment criteria for this learning outcome, learners will:

1. Provide the main features and properties of a lens they have dispensed to a patient in either a real or simulated scenario.
2. Assess, through the use of calculation, the impact of changing the refractive index and lens material on the thickness and curvature of a lens.

Learning outcome 2: Be able to apply physical laws relevant to optics

An example assignment for this learning outcome could be to apply the laws of reflection and refraction in case scenarios by explaining the law in each case and using the relevant formula to calculate the path of light being affected.

To satisfy the assessment criteria for this learning outcome, learners will:

1. Use the laws of reflection and refraction to explain the path light is taking and use any related formula to calculate the path of light as it continues.
2. Explain how an anti-reflective coating works and when it should be used.
3. Give an explanation of critical angles and total internal reflection and the impact they have on the path of light.
4. Identify reflectance as a problem in spectacle lenses and be able to calculate the amount and provide a solution.

Unit 2: Ophthalmic Lenses

Level: 4

Guided learning hours: 24

Unit introduction

The aim of this unit is to develop knowledge and understanding of ophthalmic lenses and how they affect the path of light to the eye, the use of optical instruments to identify relevant lens properties and the measurement of centration in spherical lenses.

In this unit you will learn how to calculate and compare the path of light through a thick lens using vergences. You will explore the use of optical instruments to identify lens properties and undertake a practical examination of ophthalmic lenses. You will also learn about centration distance and how to measure it accurately.

Learning outcomes and assessment criteria

To pass this unit, learners need to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria	
1	Be able to calculate the optical properties of thick lenses	1.1	Compare converging and diverging surfaces of spherical lenses
		1.2	Evaluate the path of light rays through thick lenses
		1.3	Assess the impact on back vertex power when lens thickness taken into account
2	Be able to use selected optical instruments to identify ophthalmic lens properties	2.1	Demonstrate the use of the lens measure to identify lens properties
		2.2	Demonstrate the use of the focimeter to identify lens properties
		2.3	Undertake a practical examination of lenses to obtain necessary data

Learning outcomes		Assessment criteria	
3	Be able to measure centration distances for ophthalmic lenses	3.1	Explain the term optical centre in relation to spherical lenses
		3.2	Demonstrate how to measure a patient's interpupillary distance
		3.3	Demonstrate how to measure near centration distance

Unit content

What needs to be learned
Learning outcome 1: Be able to calculate the optical properties of thick lenses
1A Converging and Diverging Surfaces <ul style="list-style-type: none">• Converging: Convex; plus power; light converges to a point or focus• Diverging: Concave; minus power; light diverges from a point• Parallel light; no power; light continues in straight line
1B Path of light through thick lenses <ul style="list-style-type: none">• Vergences: Calculate vergences for L1 (vergence before the lens), L1' (vergence after the front surface), L2 (vergence before the back surface), L2' (vergence after the back surface); measured in dioptres; reciprocal of dioptres will give distance in metres where required; centre thickness and refractive index must be taken into account; an object at infinity will yield parallel light and therefore no vergence, $L1=0$.
1C Back Vertex Power <ul style="list-style-type: none">• Effective power reaching the back surface of the eye, the retina; a standard for measurement of ophthalmic lenses; denoted by F_v; measured in Dioptres; final vergence calculated.
Learning outcome 2: Be able to use selected optical instruments to identify ophthalmic lens properties
2A Lens Measure <ul style="list-style-type: none">• Calibrate on flat surface; plus and minus scale; place in centre of lens; rotate to highest and lowest point on scale; record base curve- lowest numerical value; note spherical or toroidal surface; calculate sphere and cylinder powers of lens.
2B Focimeter <ul style="list-style-type: none">• Manual focimetry; Calibrate by fully turning power ring (racking out) and then refocussing for new user; positioning spectacles or lens on stage; using power ring to rotate until in focus; record power meridians; mark and measure centration distance.
2C Practical Examination <ul style="list-style-type: none">• Use lens measure and focimeter; determine curves; power meridians; centration distances; lens type.

What needs to be learned

Learning outcome 3: Be able to measure centration distances for optical lenses

3A Optical Centre

- A point on lens where light goes undeviated; positioned in front of patient's pupil both horizontally and vertically; only at this point will the patient have no prismatic effect.

3B Measurement of Interpupillary distance

- Measured with ruler; pupilometer or other digital device; binocularly – pupil centre to pupil centre or equivalent; monocularly – pupil centre to centre of nose bridge; position of both assistant and patient important; same height; straight on.

3C Near Centration Distance

- Eyes converge when focused on near task so pupil centre measurement changes; record interpupillary distance when eyes converged for near; ask patient to focus on near object while measuring.

Essential information for tutors and assessors

Essential resources

Learners undertaking this qualification will need access to an optical practice and a registered dispensing optician/ optometrist.

Staff supervising this unit should be occupationally competent and registered with the General Optical Council. They should have recent experience of optical practice and be able to demonstrate evidence of continuing professional development in order to maintain their registration with the General Optical Council. Exceptions to the requirement for registration may apply in Ireland.

Assessment

This unit is internally assessed. To pass this unit, the evidence that learners present for assessment must demonstrate that they have met the required standard specified in the learning outcomes and assessment criteria.

The assessment for this unit should be set in a specific organisational context, it should draw on learning from the unit and be designed in a way that enables learners to meet all the assessment criteria.

A recommended assessment approach is given below. Centres are free to create their own assessment as long as they are confident it enables learners to provide suitable and sufficient evidence to meet the stated standard of the assessment criteria and achieve the learning outcomes.

Learning outcome 1: Be able to calculate the optical properties of thick lenses

An example assignment to cover this learning outcome could be short answer questions requiring learners to prepare a comparison table of differing lens surfaces and carry out calculations to show the path of light through a thick lens. The learner would be required to show their working.

To satisfy the assessment criteria for this learning outcome, learners will:

1. Identify the main factors relating to 4 different lens surfaces. Learner will compare the lens forms, shapes and effect on light that is refracted by each surface.
2. Calculate vergences before and after each lens surface, showing the pathway of light at each stage.
3. Calculate the final effective power that reaches the eye.

Learning outcome 2: Be able to use selected optical instruments to identify ophthalmic lens properties

An example assignment to cover this learning outcome could be a series of practical exercises carried out in the workplace. These could include carrying out a training session with new staff members on use of optical instruments and practically examining lenses to obtain relevant data.

To satisfy the assessment criteria for this learning outcome, learners will:

1. Show knowledge and understanding of the use of a lens measure to identify lens curves.
2. Show knowledge and understanding of use of a focimeter to identify lens power and centration measurements.
3. Perform a practical examination using the aforementioned optical instruments to obtain lens data.

Learning outcome 3: Be able to measure centration distances for optical lenses

An example assignment to cover this learning outcome could be a practical exercise to demonstrate the measurement of interpupillary distances and lens centration.

To satisfy the assessment criteria for this learning outcome, learners will:

1. Give an account of the optical centre of a lens and how it is positioned.
2. Show knowledge and understanding of interpupillary distance and how to measure it.
3. Show knowledge and understanding of near centration distance and how to measure it.

Unit 3: Applied Optics of Prisms

Level: 4

Guided learning hours: 10

Unit introduction

The aim of this unit is to enable learners to develop knowledge and understanding of optical and ophthalmic prisms, be able to interpret ophthalmic prescriptions containing prisms and calculate prismatic effect during dispensing.

In this unit, you will learn the difference between optical and ophthalmic prisms, how to interpret notation relating to prisms and perform calculations involving prisms. You will also explore how prisms deviate and split light.

Learning outcomes and assessment criteria

To pass this unit, learners need to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria	
1	Understand the optical properties of prisms and why they are used in ophthalmic lenses	1.1	Explain the differences between optical and ophthalmic prisms
		1.2	Analyse notation relating to prescribed prisms
		1.3	Apply Snell's Law to show the path of light rays through a prism
		1.4	Explain why prism is used in ophthalmic lenses
2	Be able to measure prism power	2.1	Calculate prism power
		2.2	Evaluate the deviation of light by a prism
		2.3	Demonstrate the measurement of prism in ophthalmic lenses

Learning outcomes		Assessment criteria	
3	Be able to apply Prentice's Rule in optical dispensing	3.1	Apply Prentice's Rule to determine the induced prismatic effect when dispensing
		3.2	Assess the amount of differential prismatic effect and its tolerance
		3.3	Apply Prentice's Rule to determine the amount of decentration required to incorporate prism into spectacle lens

Unit content

What needs to be learned
Learning outcome 1: Be able to calculate the optical properties of prisms
1A Properties of Prism <ul style="list-style-type: none">• Comparison of uses; apical angles; deviation of light.
1B Prism Notation <ul style="list-style-type: none">• Amount of prism; base direction; 360 notation; how inserted into spectacles
1C Path of Light through prism <ul style="list-style-type: none">• Snells Law; use angle of incidence to calculate angle of refraction; variance caused by refractive index of prism and therefore density.
1D Prism in Ophthalmic Lenses <ul style="list-style-type: none">• Image displacement - One prism dioptre displaces an image one centimetre at a distance of one metre; muscle imbalance; convergence issues; hemianopia; deviate light to correspond with visual axes of the eye
Learning outcome 2: Be able to measure prism power
2A Calculate Prism Power <ul style="list-style-type: none">• $P = 100 \tan d$; measured in dioptres (D); deviation (d) required.
2B Calculate Deviation of Light <ul style="list-style-type: none">• $D = (n-1)a$; refractive index and apical angle required; measured in degrees.
2C Measuring Prism <ul style="list-style-type: none">• Manual focimetry, centring the target; focimeter graticules; base direction; prism compensator
Learning outcome 3: Be able to apply Prentice's Rule in Optical Dispensing
3A Prismatic Effect <ul style="list-style-type: none">• Prentice's Rule – $P = cF$; Decentration (c) measured in cm; Power (F) measured in dioptres; Prismatic Effect (P) measured in prism dioptres (Δ)
3B Differential Prismatic Effect <ul style="list-style-type: none">• Difference in prismatic effect between two eyes; calculate prismatic effect using Prentice's Rule as per 3.1; state the difference in prism between 2 eyes at the required direction; state in eye with most prism. 1Δ tolerance vertically; 0.25Δ tolerance horizontally
3C Decentration <ul style="list-style-type: none">• Prentice's Rule – $c = P/F$; convert from cm to mm to express.

Essential information for tutors and assessors

Essential resources

Learners undertaking this qualification will need access to an optical practice and a registered dispensing optician/ optometrist.

Staff supervising this unit should be occupationally competent and registered with the General Optical Council. They should have recent experience of optical practice and be able to demonstrate evidence of continuing professional development in order to maintain their registration with the General Optical Council. Exceptions to the requirement for registration may apply in Ireland.

Assessment

This unit is internally assessed. To pass this unit, the evidence that learners present for assessment must demonstrate that they have met the required standard specified in the learning outcomes and assessment criteria.

The assessment for this unit should be set in a specific organisational context, it should draw on learning from the unit and be designed in a way that enables learners to meet all the assessment criteria.

A recommended assessment approach is given below. Centres are free to create their own assessment as long as they are confident it enables learners to provide suitable and sufficient evidence to meet the stated standard of the assessment criteria and achieve the learning outcomes.

Learning outcome 1: Be able to calculate optical properties of prism

An example assignment to cover this learning outcome could be short answer questions where the learner prepares a table to compare optical and ophthalmic prism, provide a written account including any relevant calculations or diagrams, of prism notation and an explanation of the use of prism in ophthalmic lenses.

To satisfy the assessment criteria for this learning outcome, learners will:

1. Identify the main characteristics of optical and ophthalmic prisms and their uses.
2. Present the outcome of the eye examination and be able to interpret the amount and direction of prism required.
3. Use Snell's Law to show the path of light through a prism.
4. Provide a detailed account of why prism is used in ophthalmic lenses.

Learning outcome 2: Be able to measure prism power

An example assignment to cover this learning outcome could be short answer calculations using the relevant formula to calculate both deviation and prism power. Learner would be required to show their working.

A practical element would also be necessary to demonstrate and explain the measurement of prism in spectacle lenses.

To satisfy the assessment criteria for this learning outcome, learners will:

1. Calculate prism power using the correct formula and show evidence of their workings.
2. Calculate deviation using the correct formula and show evidence of their working.
3. Using a manual focimeter measure the amount of prism in a pair of spectacles.

Learning outcome 3: Be able to apply Prentice's Rule in Optical Dispensing

An example assignment to cover this learning outcome could be dispensing scenarios requiring the application of Prentice's Rule in situations involving prismatic effect, differential prismatic effect and decentration.

To satisfy the assessment criteria for this learning outcome, learners will:

1. Use Prentice's Rule to calculate the amount of prismatic effect induced by an incorrect pupil distance measurement or when the wearer is required to look away from the optical centre.
2. Assess the visual impact of differential prismatic effect when dealing with an anisometric prescription and determine whether it is likely to be tolerated.
3. Use Prentice's rule to determine how best to insert a prescribed prism into a pair of spectacle lenses.

Unit 4: Dispensing Astigmatic Lenses

Level: 4

Guided learning hours: 16

Unit introduction

The aim of this unit is to enable learners to develop their knowledge and understanding of astigmatism as a refractive error. The learner will develop an understanding of the different types of astigmatism and the correction. The learning from this unit can be used to enable the learner to dispense the appropriate lenses for astigmatic prescriptions.

In this unit, you will explore the terms and notation when dispensing astigmatic prescriptions and be able to apply them appropriately. The knowledge and understanding of these topics will allow you to select an appropriate lens and frame for an individual with an astigmatism and provide you with the skills to perform all types of transposition.

Learning outcomes and assessment criteria

To pass this unit, learners need to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria	
1	Understand astigmatism and how it is corrected	1.1	Explain the term astigmatism and the different types
		1.2	Analyse an astigmatic prescription and how it is corrected by ophthalmic lenses
		1.3	Describe the benefits and limitations of contact lenses as an optical correction for astigmatism
2	Be able to dispense an appropriate frame and lens for astigmatic prescriptions	2.1	Demonstrate the selection of an appropriate lens for an astigmatic prescription
		2.2	Explain what needs to be considered when selecting a frame for an astigmatic prescription.
		2.3	Identify a requirement for transposition and transpose lens specifications

Unit content

What needs to be learned
Learning outcome 1: Understand different types of astigmatism and the optical correction
1A Astigmatism types <ul style="list-style-type: none">• Simple hyperopic astigmatism: first focal line coincides with the retina while the second is located behind the retina; simple myopic astigmatism: first focal line is located in front of the retina while the second focal line is located on the retina; compound hyperopic astigmatism: both focal lines are located behind the retina; compound myopic astigmatism: both focal lines are located in front of the retina; mixed astigmatism: focal lines are on both sides of the retina/straddling the retina
1B Astigmatic Correction <ul style="list-style-type: none">• Corrected by cylindrical component of prescription; power required in two meridians; spherical lens power used for correction and 'cylinder' lens power to correct the difference between the powers of the two principal meridians of the eye, axis direction must be specified, must be between 1-180 degrees
1C Contact Lenses <ul style="list-style-type: none">• Limitations; Cylindrical components are available in contact lenses; a cylindrical component of less than 0.75D may not be corrected depending on patient tolerance; availability of toric lenses; high cylinders may need specialist lens (extended range) or rigid gas permeable lens; patients may complain of a reduced visual acuity• Benefits; soft contact lens range has significantly increased in recent years; cosmetically appealing; convenient for active lifestyle requirements
Learning outcome 2: Be able to dispense an appropriate frame and lens for astigmatic prescriptions
2A Astigmatic Lens <ul style="list-style-type: none">• Lens with sphere and cylindrical component; high index; position of thickness; coatings; lens material; lens type availability.
2B Frame Selection <ul style="list-style-type: none">• Position of thickness; weight of lenses; cosmesis; uncut size required
2C Transposition <ul style="list-style-type: none">• Changing from one sphero-cyl form to another (+ or; toric transposition for base curve, cross curve and sphere curve

Essential information for tutors and assessors

Essential resources

Learners undertaking this qualification will need access to an optical practice and a registered dispensing optician/ optometrist.

Staff supervising this unit should be occupationally competent and registered with the General Optical Council. They should have recent experience of optical practice and be able to demonstrate evidence of continuing professional development in order to maintain their registration with the General Optical Council. Exceptions to the requirement for registration may apply in Ireland.

Assessment

This unit is internally assessed. To pass this unit, the evidence that learners present for assessment must demonstrate that they have met the required standard specified in the learning outcomes and assessment criteria.

The assessment for this unit should be set in a specific organisational context, it should draw on learning from the unit and be designed in a way that enables learners to meet all the assessment criteria.

A recommended assessment approach is given below. Centres are free to create their own assessment as long as they are confident it enables learners to provide suitable and sufficient evidence to meet the stated standard of the assessment criteria and achieve the learning outcomes.

Learning outcome 1: Understand different types of astigmatism and the optical correction.

An example assignment to cover this learning outcome could be a series of astigmatic prescriptions, featuring both low and high astigmatism, where the learner will analyse what the prescription means and how they would correct it.

To satisfy the assessment criteria for this learning outcome, learners will:

1. Give an explanation of astigmatism and an account of the different types.
2. Examine the prescription, giving details of what each element means and assess suitable lens types.
3. Provide details of the benefits and limitations of correcting the prescription with contact lenses.

Learning outcome 2: Be able to dispense an appropriate frame and lens for astigmatic prescriptions.

An example assignment to cover this learning outcome could be for the learner to gather evidence of astigmatic patient interactions and complete a case scenario for a patient with a high astigmatism.

To satisfy the assessment criteria for this learning outcome, learners will:

1. Provide selected lens details for patient in a real or simulated scenario.
2. Give an account of any considerations for selecting a frame during a patient episode or scenario, including a calculation of thickness and position.
3. Show an understanding of when transposition is required and be able to perform for a given scenario.

Unit 5: Lens Thickness in Dispensing

Level: 4

Guided learning hours: 18

Unit introduction

The aim of this unit is to provide the learner with knowledge and understanding of lens thickness. The learner will explore the impact of lens thickness on dispensing, the positioning of the thickness and methods which will reduce it. The learner will also be able to apply their knowledge from this unit, to dispensing decisions and use the sagitta formula to calculate lens thickness.

In this unit, you will gain an understanding of the impact of thickness, not only on lenses, but on frame choice, comfort and cosmesis. You will explore methods to reduce thickness and learn how to calculate the edge thickness using the sagitta formula and position of thickness using cross cylinder transposition. You will then be able to apply this knowledge to your dispensing decisions.

Learning outcomes and assessment criteria

To pass this unit, learners need to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria	
1	Understand the impact of lens thickness when dispensing	1.1	Evaluate the influence lens centre and edge thickness have on frame choice and comfort during dispensing to patients
		1.2	Explain methods used to reduce lens thickness during dispensing of spectacles
2	Be able to use the basic sagitta formula in optical calculations	2.1	Define the relationship between sag and edge thickness in reference to the sagitta formula
		2.2	Perform calculations using the basic sagitta formula
		2.3	Apply the sagitta formula to lens dispensing decisions

Learning outcomes		Assessment criteria	
3	Be able to determine the position of thickness contained in a lens	3.1	Demonstrate how the position of thickness is shown using power diagrams
		3.2	Calculate the principal meridians for a high-powered lens
		3.3	Explain the difference in position of thickness for a: <ul style="list-style-type: none"> • plus lens • minus lens

Unit content

What needs to be learned
Learning outcome 1: Understand the impact of lens thickness in dispensing
1A Influence of thickness on frame choice <ul style="list-style-type: none">• Limitation of styles and materials; plastic to conceal thickness; unsuitability of rimless and supra designs; minimise weight for wearer comfort; high index lenses; reflections may be apparent; need for anti-reflective coating; impact on cost for patient; frame shape may impact thickness; frame size kept to a minimum
1B Methods to reduce thickness <ul style="list-style-type: none">• Materials; material density increases as lens thickness is reduced by increasing index; the higher the refractive index the thinner the lens; lens form such as aspheric will flatten a bulbous plus lens ; the minimum substance of uncut lens; small diameter and round shape of the lens and frame; anti-reflection coating will make any thickness less apparent
Learning outcome 2: Be able to use the basic sagitta formula in optical calculations
2A Sagitta Formula <ul style="list-style-type: none">• $s = r - \sqrt{r^2 - y^2}$; r- radius; y- cord length = ½ diameter; sag is the difference between the centre thickness and edge thickness.
2B Sag calculations <ul style="list-style-type: none">• $s = r - \sqrt{r^2 - y^2}$; r- radius; y- cord length = ½ diameter; edge thickness for a minus lens = centre thickness (t) + sag (s); edge thickness for a plus lens = t - s.
2C Sag during dispensing <ul style="list-style-type: none">• Sag can be calculated for each lens material and compared to aid decision on best possible lens
Learning outcome 3: Be able to determine the position of thickness contained in a lens
3A Power diagrams <ul style="list-style-type: none">• Cross diagram showing meridians; sphere in all directions; cyl in direction opposite axis; power lies 90 degrees to axis
3B Principal Meridians <ul style="list-style-type: none">• Cross cyl transposition
3C Thickness position <ul style="list-style-type: none">• Plus lens; convex; thickness in centre; bulbous shape• Minus lens; concave; thickness at the edges; may be reduced by glazing process.

Essential information for tutors and assessors

Essential resources

Learners undertaking this qualification will need access to an optical practice and a registered dispensing optician/ optometrist.

Staff supervising this unit should be occupationally competent and registered with the General Optical Council. They should have recent experience of optical practice and be able to demonstrate evidence of continuing professional development in order to maintain their registration with the General Optical Council. Exceptions to the requirement for registration may apply in Ireland.

Assessment

This unit is internally assessed. To pass this unit, the evidence that learners present for assessment must demonstrate that they have met the required standard specified in the learning outcomes and assessment criteria.

The assessment for this unit should be set in a specific organisational context, it should draw on learning from the unit and be designed in a way that enables learners to meet all the assessment criteria.

A recommended assessment approach is given below. Centres are free to create their own assessment as long as they are confident it enables learners to provide suitable and sufficient evidence to meet the stated standard of the assessment criteria and achieve the learning outcomes.

Learning outcome 1: Understand the impact of lens thickness and dispensing

An example assignment to cover this learning outcome could be a case study or patient scenario where learner can evaluate the impact of lens thickness on the completed spectacles and show evidence of considerations made during frame selection and for patient comfort. Learner will also provide options of methods to reduce thickness and be able to justify their final choice.

To satisfy the assessment criteria for this learning outcome, learners will:

1. Consider all of the ways thickness may impact frame choice and comfort for the wearer,
2. Give an account of methods to reduce lens thickness.

Learning outcome 2: Be able to use the basic sagitta formula in optical calculations

An example assignment to cover this learning outcome could be a case study requiring the comparison of various lens materials and their thicknesses. The learner would be required to carry out numerous sagitta calculations and apply the results to their dispensing decisions.

To satisfy the assessment criteria for this learning outcome, learners will:

1. Show the relationship between sag and edge thickness in both plus and minus lenses.
2. Calculate lens thickness using the basic sagitta formula.
3. Use the sagitta formula and calculations to select an appropriate refractive index during dispensing.

Learning outcome 3: Be able to determine the position of thickness contained in a lens

An example assignment to cover this learning outcome could be a case study where learner will use power diagrams and cross cylinder transposition to show power meridians and position of thickness within the lens. This will allow the learner to select an appropriate frame and lens accounting for the lens thickness.

To satisfy the assessment criteria for this learning outcome, learners will:

1. Show power diagrams for a given prescription.
2. Calculate the principal meridians for a given prescription.
3. Give an account of the differing positions of thickness for plus and minus lenses.

Unit 6: Spectacle Magnification and Field of View in Dispensing

Level: 4

Guided learning hours: 14

Unit introduction

The aim of this unit is to provide the learner with a knowledge and understanding of the types of spectacle magnification and how to calculate it for both thick and thin lenses. The learner will also explore field of view and how it is affected by spectacles.

In this unit, you will learn the definitions and formulae for spectacle magnification types and how to calculate the magnification produced by both thick and thin lenses. You will explore field of view and how it is affected by lens power, fitting distance and frame aperture, while comparing to field of view with contact lenses where none of those elements are a factor.

You will also learn about dispensing phenomena, such as scotoma, ghost images and colour fringing and the circumstances under which they may occur.

Learning outcomes and assessment criteria

To pass this unit, learners need to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria	
1	Understand spectacle magnification and how it can be calculated	1.1	Explain spectacle magnification and its impact on vision.
		1.2	Assess the amount of spectacle magnification experienced with: <ul style="list-style-type: none">• thin lenses• thick lenses
2	Understand how field of view is affected and managed in spectacles	2.1	Analyse how field of view through spectacles is affected by: <ul style="list-style-type: none">• lens power• fitting distance• frame aperture size

Learning outcomes		Assessment criteria	
		2.2	<p>Explain the circumstances under which the following dispensing-related phenomena occur:</p> <ul style="list-style-type: none"> • scotoma • ghost images • colour fringing
		2.3	<p>Explain the management of the following dispensing related phenomena:</p> <ul style="list-style-type: none"> • scotoma • ghost images • colour fringing

Unit content

What needs to be learned
<p>Learning outcome 1: Understand spectacle magnification and how it can be calculated</p> <p>1A Types of Spectacle magnification</p> <ul style="list-style-type: none">• Spectacle - The ratio of the retinal image of a distant object in the corrected ametropic eye to the blurred or sharp image formed in the same eye when uncorrected;• Nominal – object placed in anterior plane of the lens and image formed at infinity;• Linear – a simple ratio of object and image size or distance;• Maximum - object is positioned so that the image lies at the least distance of distinct vision and that the lens is actually in contact with the eye;• Angular - ratio of the angle subtended at the eye by the virtual image to the angle subtended at the unaided eye by an object placed at the least distance of distinct vision.• Distortion; space perception; change in image size <p>1B Spectacle Magnification Calculation</p> <ul style="list-style-type: none">• For thin lens also known as power factor (PF)= $1/1-dF_{sp}$; vertex distance in metres (d); power of the thin spectacle lens (F_{sp}) in Dioptres; can also be calculated using ocular refraction/spectacle refraction = K/F_{sp}• For thick lens also known as shape factor (SF) = $1/1-(t/n)F_1$; centre thickness (t) in metres; refractive index (n); front surface power (F_1); spectacle magnification of a thick lens requires shape factor and power factor combined.
<p>Learning outcome 2: Understand how field of view is affected and managed in spectacles</p> <p>2A Field of View in Spectacles</p> <ul style="list-style-type: none">• Lens Power; as the magnitude of the surface power increases, the sagitta increases; steeper surfaces have greater surface heights than flatter surfaces; as the size of the lens increases, the sagitta increases; a change in diameter affects the sagitta more rapidly than a change in surface power; as magnification increases field of view decreases.• Fitting distance; the closer the spectacles are fitted the smaller the vertex distance and larger the field of view.• Frame aperture size; the larger the frame aperture the larger the field of view.

What needs to be learned

2B Dispensing Phenomena

- Scotoma – high powered plus lens causes “jack in the box” effect where objects viewed in the periphery will disappear and suddenly reappear
- Ghost Images – total internal reflection in the spectacle lenses; reflections on back or front lens surfaces; strong illumination in a dark background e.g street lamps, car headlights; more noticeable at night; vergence of light causing image and refracted light must be equal; position of ghost image within the field of view- won't be seen if coincides with source or at edge of field of view.
- Colour Fringing – symptom of transverse chromatic aberration; lower v-value materials can produce higher levels of colour fringing; high index materials have low v-values; polycarbonate material also has low v-value.

2C Management of dispensing phenomena

- Scotoma- make wearer aware of sudden disappearance and reintroduction of objects – jack in the box effect – reduce vertex distance as much as possible, selection of frame with geometric centres aligned with distance centration, increase pantoscopic tilt and face form angle.
- Ghost images -Multi-layer anti-reflective coating (MAR), change lens form, change vertex distance, both dependant on position of ghost image.
- Colour Fringing – increase v-value of lens material, change to lower index material, reduce frame and lens diameter, reduce vertex distance, increase face form angle.

Essential information for tutors and assessors

Essential resources

Learners undertaking this qualification will need access to an optical practice and a registered dispensing optician/ optometrist.

Staff supervising this unit should be occupationally competent and registered with the General Optical Council. They should have recent experience of optical practice and be able to demonstrate evidence of continuing professional development in order to maintain their registration with the General Optical Council. Exceptions to the requirement for registration may apply in Ireland.

Assessment

This unit is internally assessed. To pass this unit, the evidence that learners present for assessment must demonstrate that they have met the required standard specified in the learning outcomes and assessment criteria.

The assessment for this unit should be set in a specific organisational context, it should draw on learning from the unit and be designed in a way that enables learners to meet all the assessment criteria.

A recommended assessment approach is given below. Centres are free to create their own assessment as long as they are confident it enables learners to provide suitable and sufficient evidence to meet the stated standard of the assessment criteria and achieve the learning outcomes.

Learning outcome 1: Understand spectacle magnification and how it can be calculated

An example assignment to cover this learning outcome could be short answer questions involving the calculation of spectacle magnification for thick and thin lenses. Learners will be required to show evidence of their workings.

To satisfy the assessment criteria for this learning outcome, learners will:

1. Provide an explanation of spectacle magnification, including the different types. The learner will also give an account of the visual impact and what patients would perceive.
2. Calculate the amount of spectacle magnification for both thick and thin lenses.

Learning outcome 2: Understand how spectacles affect field of view

An example assignment to cover this learning outcome could be a series of case studies where patients are showing a reduction in field of view. The learner will analyse the causes exploring lens power; fitting distance and frame aperture size and the affects they have on field of view. The learner will be required to look at various dispensing-related phenomena which interfere with field of view.

To satisfy the assessment criteria for this learning outcome, learners will:

1. Present the outcome of their findings in relation to what may be reducing a patient's field of view. The learner will analyse lens power, fitting distance and frame aperture size and present their findings.
2. Discuss or provide a written account of circumstances where dispensing phenomena such as scotoma, ghost images and colour fringing may present themselves and how they can be managed.

Unit 7: Multifocal and Progressive Lenses

Level: 4

Guided learning hours: 18

Unit introduction

The aim of this unit is to provide the learner with a knowledge and understanding of the refractive error, presbyopia. The learner will explore what is happening anatomically, in the eye, what causes it and the visual difficulties as a result.

Learners will also gain knowledge and understanding of how to correct presbyopia. They will explore all available lens options and the factors that influence the prescribed addition.

In this unit, you will learn, not only about presbyopia as a refractive error, but the factors which influence it, and how to correct it. You will explore details of each lens type available to correct it, the characteristics, advantages and limitations of each. You will also study progressive lens designs and the considerations when dispensing a multifocal correction.

Learning outcomes and assessment criteria

To pass this unit, learners need to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria	
1	Understand presbyopia as a refractive error	1.1	Explain what is happening in the eye when a patient becomes presbyopic and the cause
		1.2	Explain the visual difficulties a patient may experience in early presbyopia
2	Understand the correction of presbyopia	2.1	Analyse the lifestyle requirements of a multifocal lens wearer to aid in selecting an appropriate correction
		2.2	Explain the two main factors which influence the required reading addition
		2.3	Explain the three main lens types for correcting presbyopia

Learning outcomes		Assessment criteria	
3	Understand different designs of progressive lens	3.1	Describe the different designs of progressive lens
		3.2	Evaluate the dispensing considerations for selecting a design of multifocal lens
		3.3	Explain the reasons for non-tolerance and how to prevent it

Unit content

What needs to be learned
Learning outcome 1: Understand presbyopia as a refractive error
1A Presbyopia <ul style="list-style-type: none">• Loss of elasticity of crystalline lens; loss of ability to accommodate for near; hardening of ciliary muscles; light focuses behind rather than on the retina; caused by ageing process.
1B Visual difficulties <ul style="list-style-type: none">• Loss of ability of focus close up; struggle to see small print; increased distance when reading (holding reading materials at arm's length)
Learning outcome 2: Understand the correction of presbyopia
2A Lifestyle <ul style="list-style-type: none">• Task analysis; working distances; hobbies; VDU requirements; peripheral vision requirements
2B Reading addition <ul style="list-style-type: none">• Age; amplitude of accommodation; working distance; distance correction.
2C Lens Types <ul style="list-style-type: none">• Progressive powered lens (PPL); bifocal; single vision near; enhanced reader; occupational lens.
Learning outcome 3: Understand the different designs of progressive lenses
3A Progressive Lens Designs <ul style="list-style-type: none">• Freeform; hard; soft; long corridor; short corridor
3B Dispensing Considerations <ul style="list-style-type: none">• Visual comfort – ability of the wearer to use each area of the lens; enhancement of prescription; lifestyle; occupation; preference; appearance – won't be able to see dividing line as with bifocal; safety – reduced visual field; frame size – must be deep enough to fit all areas of lens; accuracy of measurements- vertical fitting heights required; non-tolerance of certain designs,
3C Non-tolerance <ul style="list-style-type: none">• Lens design; head movements; expectations; lack of information around use of lens; field of view; adaptation required; task analysis

Essential information for tutors and assessors

Essential resources

Learners undertaking this qualification will need access to an optical practice and a registered dispensing optician/ optometrist.

Staff supervising this unit should be occupationally competent and registered with the General Optical Council. They should have recent experience of optical practice and be able to demonstrate evidence of continuing professional development in order to maintain their registration with the General Optical Council. Exceptions to the requirement for registration may apply in Ireland.

Assessment

This unit is internally assessed. To pass this unit, the evidence that learners present for assessment must demonstrate that they have met the required standard specified in the learning outcomes and assessment criteria.

The assessment for this unit should be set in a specific organisational context, it should draw on learning from the unit and be designed in a way that enables learners to meet all the assessment criteria.

A recommended assessment approach is given below. Centres are free to create their own assessment as long as they are confident it enables learners to provide suitable and sufficient evidence to meet the stated standard of the assessment criteria and achieve the learning outcomes.

Learning outcome1: Understand presbyopia as a refractive error

An example assignment to cover this learning outcome could be a case study of a patient scenario where they are first deemed presbyopic. The learner must explain the refractive error to the patient, the cause and the visual difficulties they may experience as a result.

To satisfy the assessment criteria for this learning outcome, learners will:

1. Give an account in their own words of what is happening inside the eye when a patient becomes presbyopic.
2. Give an account in their own words of the visual difficulties a patient will encounter when they become presbyopic.

Learning outcome 2: Understand the correction of presbyopia

An example assignment to cover this learning outcome could be a case study of a patient scenario where they are first deemed presbyopic and require a correction for different working distances. The learner must evaluate all the possible options for correction and select the one most suitable. They will also be required to calculate an intermediate addition taking into account the factors which will influence it.

To satisfy the assessment criteria for this learning outcome, learners will:

1. Perform a task analysis on the patient to determine the positions, working distances and visual requirements needed.
2. Give an account of the factors which will influence a near addition and be able to calculate and intermediate addition if required.
3. Give details of the 3 main multifocal types available to correct presbyopia.

Learning outcome 3: Understand the different designs of progressive lenses

An example assignment to cover this learning outcome could be a case study of a patient scenario where they are first deemed presbyopic and require a correction for different working distances. The learner will be required to consider numerous elements to make a decision on the best possible progressive design for the patient. The learner will also provide a written account of each design and the aspects of it that may form as advantage or limitation for the wearer.

To satisfy the assessment criteria for this learning outcome, learners will:

1. Give an account of the various progressive lens designs.
2. Consider all aspects of wear and form a conclusion on the best lens type and design for a patient.
3. Provide information on the reasons wearers are unable to tolerate progressive lenses and how the dispenser can prevent them.

Unit 8: Lens Choice and Visual Disturbances

Level: 4

Guided learning hours: 18

Unit introduction

The aim of this unit is to provide learners with knowledge and understanding of different lens forms and materials and the factors that influence the selection of each. The learner will also explore types of aberrations which can affect the optical performance of a lens.

In this unit, you will learn about the available lens forms and materials. You will apply the knowledge and understanding gained, to you dispensing to aid your decision regarding lens choice. You will also explore the use of aspheric lenses, their advantages and limitations and look at aberrations that can interfere with the optical performance of a lens and how to overcome them.

Learning outcomes and assessment criteria

To pass this unit, learners need to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria	
1	Understand the factors that influence the choice of lens for refractive correction	1.1	Explain choice of lens material (including refractive index) and the factors that influenced this choice
		1.2	Describe an aspheric lens in relation to lens form
		1.3	Explain the advantages and disadvantages of using an aspheric lens form
2	Understand the types of aberration which affect optical performance of lenses	2.1	Compare the different types of aberration
		2.2	Explain how to overcome different types of aberration through lens design
		2.3	Calculate transverse chromatic aberration (TCA)

Learning outcomes		Assessment criteria	
3	Understand the visual effects of a changing vertex distance	3.1	Explain the term back vertex distance and how it is measured
		3.2	Explain the importance of vertex distance for prescriptions with high powers
		3.3	Assess the impact of changing the vertex distance on a prescription

Unit content

What needs to be learned
Learning outcome 1: Understand factors that influence a choice of lens from refractive correction
1A Lens material <ul style="list-style-type: none">• Prescription suitability; lens thickness; v-value; reflections; robustness; impact resistance; UV protection
1B Aspheric lens <ul style="list-style-type: none">• Surface not portions of sphere or cylinder; used to eliminate spherical aberrations; more complex lens form
1C Advantages and Disadvantages of aspheric lens form <ul style="list-style-type: none">• Advantages: Can eliminate certain aberrations; flatter more cosmetically appealing design; reduction in magnification; must identify at least 3.• Disadvantages: larger off axis power errors; can cause adaptation problems; often fitted incorrectly; measurements must be adjusted by lowering vertical height measurements by 1mm for every 2 degrees of pantoscopic tilt; reduction in magnification can also be a disadvantage for some patients that require maximum magnification to enable them to perform near tasks; must identify at least 3.
Learning outcome 2: Understand the types of aberration which affect the optical performance of a lenses
2A Types of Aberration <ul style="list-style-type: none">• Spherical Aberration: caused by form of the lens; failure of the light rays to focus at the same distance from the lens• Coma: caused by the form of the lens; Light spreads into a comet-shaped flare rather than a point focus• Oblique astigmatism: caused by the form of the lens; two line images produced, one vertical and one horizontal• Chromatic Aberration: caused by the material of the lens; prevents rays of colour coming to a common focus and so patient may notice colour fringing
2B Overcoming Aberrations <ul style="list-style-type: none">• Spherical Aberration: Alter the form by bending the lens, use a stop to cut out certain rays, aspheric lens• Coma: Not a problem in spectacle lenses as the pupil only uses paraxial rays;• Oblique Astigmatism: best form lenses eliminate

What needs to be learned

- Chromatic aberration: prism can be used to eliminate or can be reduced by selection of a lens material with high v-value

2C Transverse Chromatic Aberration

- TCA – cF/V where prism is not known. – Decentration (distance from optical centre to position of gaze) in centimetres (c) and lens power in Dioptres (F)

Learning outcome 3: Understand the visual effects of a changing vertex distance

3A Back Vertex Distance

- Distance from the apex of the cornea to the back plane of the spectacle lens; measured using calipers or with a ruler; assistant must be to the side of the patient and at the correct height.
- BVD should be specified for all prescriptions over +/- 5D combined.
- BVD specified by optometrist and is the distance the patient was tested at i.e position of trial frame or phoropter head

3B Importance of BVD

- Altering the BVD can alter the power of the prescription; increasing BVD increases plus power; decreasing BVD decreases plus power; prescription must be amended accordingly, or frames adjusted to specified BVD.

3C Effectivity

- $F_v = F / (1 - dF)$; F is the prescribed power; d is the change in vertex distance; d must be in metres.

Essential information for tutors and assessors

Essential resources

Learners undertaking this qualification will need access to an optical practice and a registered dispensing optician/ optometrist.

Staff supervising this unit should be occupationally competent and registered with the General Optical Council. They should have recent experience of optical practice and be able to demonstrate evidence of continuing professional development in order to maintain their registration with the General Optical Council. Exceptions to the requirement for registration may apply in Ireland.

Assessment

This unit is internally assessed. To pass this unit, the evidence that learners present for assessment must demonstrate that they have met the required standard specified in the learning outcomes and assessment criteria.

The assessment for this unit should be set in a specific organisational context, it should draw on learning from the unit and be designed in a way that enables learners to meet all the assessment criteria.

A recommended assessment approach is given below. Centres are free to create their own assessment as long as they are confident it enables learners to provide suitable and sufficient evidence to meet the stated standard of the assessment criteria and achieve the learning outcomes.

Learning outcome 1: Understand factors that influence a choice of lens

An example assignment to cover this learning outcome could be a case study or patient scenario where the learner will dispense a lens and provide an account of the factors which influenced their decision. The learner will provide information on the material and form of the lens and its advantages and limitations for the wearer.

To satisfy the assessment criteria for this learning outcome, learners will:

1. Give an account in their own words, the factors which influenced the learner's choice of lens.
2. Give an explanation of an aspheric lens form.
3. Give an account of the advantages and disadvantages of an aspheric lens form.

Learning outcome 2: Understand the types of aberration which affect the optical performance of a lenses

An example assignment to cover this learning outcome could be a series of case studies or patient scenarios where the learner will identify the aberration the patient is suffering with, be able to explain it and discuss ways to overcome it.

To satisfy the assessment criteria for this learning outcome, learners will:

1. Explain the 4 types of aberration a patient may experience and compare the cause and solution of each one.
2. Calculate transverse chromatic aberration using the appropriate formula and showing workings.

Learning outcome 3: Understand the visual effects of a changing vertex distance

An example assignment to cover this unit could be a case scenario where the subject has a visual problem due to a changing vertex distance. The learner must be able to measure the vertex distance to determine it is not as specified and rectify the problem by calculating the effective power.

To satisfy the assessment criteria for this learning outcome, learners will:

1. Explain of the term Back Vertex Distance and explain how to measure it on a subject.
2. Explain the importance of the vertex distance when a subject has a prescription of higher power.
3. Be able to calculate the effective power

Unit 9: Remote Service Delivery in the Optical Sector

Level: 4

Unit type: Additional

Guided learning hours: 12

Unit introduction

This unit enables learners to gain the knowledge and understanding of the remote care route available to eligible optical sector customers within their workplace.

You will study the role and responsibilities of an assistant involved in the delivery of the remote service delivery route in your workplace, whether via video or audio call. You will learn how to identify which customers are appropriate for a remote appointment and be able to talk them through their journey. You will study the importance of data protection measures and consider how best to adapt your communication style to deliver a positive customer experience during a remote appointment.

Learning outcomes and assessment criteria

To pass this unit, learners need to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria	
1	Understand remote service delivery in the optical sector	1.1	Explain how appropriate customers are identified for a remote appointment
		1.2	Evaluate the remote customer journey (from booking to conclusion) and the benefits and challenges of this mode of service delivery when compared with the traditional face-to-face experience.
		1.3	Explain the role and responsibilities of the assistant in remote service delivery
		1.4	Describe the data protection measures that should be considered during the remote service delivery

Learning outcomes		Assessment criteria	
2	Be able to adapt own communication style to the remote service environment	2.1	Evaluate how communication style must be adapted for effective remote service delivery
		2.2	Demonstrate effective communication during a remote appointment

Unit content

What needs to be learned

Learning outcome 1: Understand remote service delivery in the optical sector

1.1 Identification of appropriate customers

- Identification of appropriate clinical pathways dependent on practice areas of speciality. Professional clinical decisions made and signed off by suitable registrant based around a combination of factors including: age; signs and symptoms (customers with signs and symptoms indicating an urgent condition should be seen face-to-face as soon as possible); ocular history; family ocular history; previous test results; existing ocular conditions; medical history. Clear and accurate use of triage forms; appropriate questioning and communication style used.

1.2 Customer journey

- Awareness and understanding of customer interactions with staff; staff roles; explanation of the steps in the customer journey from booking to the end of the appointment; routes for remote service delivery: video call/audio call; Awareness of the different clinical pathways available and how they differ dependent on clinical care required for each person; optometrist is responsible for interpretation and communication of any clinical information within a remote journey.
- Customer benefits: availability of appointments; reduce number of contacts; increased customer safety; convenience
- Customer challenges: unfamiliar mode of service delivery; addressing any preconceived perceptions/concerns; some loss of non-verbal communication; technical difficulties
- Workplace benefits: increase productivity; improved staff safety; varied work environment; staff development
- Workplace challenges: additional staff training; provision of a suitable environment within the workplace; technical difficulties

4. 1.3 Role of the assistant

- Explanation of appointment to the customer and how it differs from a traditional pathway; explain the benefits and challenges of remote care; clear communication throughout the appointment; completion of delegated tasks; equipment/technical set up (e.g. webcam); supporting colleagues in service delivery (updating customer record; handover to other colleagues); Display understanding of procedures in event of any issues e.g. equipment failure. Understanding of "red flags" to alert attending optometrist that a different clinic pathway may be required.

What needs to be learned

1.4 Data protection

- GDPR regulations and responsibilities; consent; consideration of video call location; staff training; breaches; reporting; age of consent. Personally identifiable information (PII); impact of data breaches; process of reporting data breaches; understanding of risks and near misses; GOC regulations and registration. GOC code of conduct; GOC Governance; NHS frameworks, referral pathways and GOS; understanding of clinical audit and its role.
- GOC and College of Optometrists guidance as applicable regarding exceptional situations such as COVID; principles on high standards in remote care

Learning outcome 2: Be able to adapt communication style to the remote service delivery environment

2.1 Adapt communication

- Video call: Eye contact; awareness of head positioning; positioning of hand gestures
- Make it clear who you are addressing; allow time for others to respond; not talking over other participants; deal with new and challenging situations

2.2 Effective communication

- Clear, accurate communication; explanation; active listening; check understanding; consent; encouragement; exchange of information

Essential information for tutors and assessors

Essential resources

There are no special resources needed for this unit.

Assessment

This unit is internally assessed. To pass this unit, the evidence that learners present for assessment must demonstrate that they have met the required standard specified in the learning outcomes and assessment criteria.

The assessment for this unit should be set in a specific organisational context, it should draw on learning from the unit and be designed in a way that enables learners to meet all the assessment criteria.

A recommended assessment approach is given below. Centres are free to create their own assessment as long as they are confident it enables learners to provide suitable and sufficient evidence to meet the stated standard of the assessment criteria and achieve the learning outcomes.

Learning outcome 1: Understand remote service delivery in the optical sector

Learning outcome 1 assesses knowledge, so written evidence from the learner will be needed.

An example of a suitable assignment to cover this learning outcome could be the development of a short training session for new colleagues, assessing the learners' understanding of the remote service delivery route, including their role and responsibilities.

To satisfy the assessment criteria for this learning outcome, learners will:

1. Provide details of how appropriate customers are identified for a remote appointment
2. Evaluate the remote customer journey when compared with traditional face-to-face delivery, using the learner's own words
3. Give a clear account of the role and responsibilities of the assistant in remote care
4. Provide details of the data protection measures which should be considered during remote service delivery

Learning outcome 2: Be able to adapt communication style to the remote service delivery environment

Learning outcome 2 assess skills. The primary method of assessment for this learning outcome is observation in the workplace by the supervisor. Expert witness testimonies will be recorded for each observation in a learner logbook which would be submitted for assessment.

To accompany this, learners would be asked to submit a reflective statement highlighting how they have adapted their communication style to fit this new environment.

To satisfy the assessment criteria for these learning outcomes, learners will:

1. Evaluate how communication style should be altered during remote service delivery, using the learner's own words
2. Demonstrate effective communication during a remote appointment

Unit 10: Performing Delegated Specialist Functions

Level: 4

Unit type: Additional

Guided learning hours: 25

Unit introduction

This unit enables learners to gain the knowledge and clinical experience of the functions that can be delegated to optical assistants.

You will learn about the functions which can be delegated to an assistant, looking at the purpose of the task, customer selection and the relevant workplace procedures. You will learn how to perform several delegated functions and understand how to provide the results of these in the format required by your workplace. You will understand your role, and that of the delegating optometrist, in the completion of these delegated functions.

Learning outcomes and assessment criteria

To pass this unit, learners need to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria	
1	Understand the importance and purpose of delegation	1.1	Describe what delegation is
		1.2	Explain the role and responsibilities of the following the undertaking of delegated functions: <ul style="list-style-type: none">• Optical assistant• Delegating optometrist
2	Understand the purpose of pre-diagnostic tests	2.1	Explain the purpose of non-contact tonometry, including the significance of intraocular pressure
		2.2	Explain the purpose of autorefraction to include the benefits of this test
		2.3	Explain the purpose of keratometry

Learning outcomes		Assessment criteria	
3	Be able to perform pre-diagnostic tests	3.1	Perform non-contact tonometry
		3.2	Perform autorefraction
		3.3	Demonstrate how to use an automated device to gain keratometry measurements
4	Understand the procedures and terminology associated with digital ocular images	4.1	Explain the purpose of digital fundus imaging including the: <ul style="list-style-type: none"> • importance of imaging • differences between methods of image capture
		4.2	Identify key structures on digital fundus images
		4.3	Demonstrate the accurate capture of a digital fundus image
		4.4	Explain the purpose of digital imaging of the external eye including the: <ul style="list-style-type: none"> • importance of imaging • methods of image capture including the differences between photography and OCT imaging
		4.5	Identify key structures on digital external eye images
5	Understand the requirements of specific delegated functions performed by the assistant	5.1	Describe common colour vision defects, including how they are identified
		5.2	Explain the purpose of visual field testing to include why a visual field test may be performed
		5.3	Describe the purpose of stereopsis tests
		5.4	Explain the importance of offering a contact lens teach to customers
		5.5	Describe the purpose of a convergence test
		5.6	Describe the purpose of an ocular motility test
		5.7	Describe the purpose of a pupil reflex test
		5.8	Describe the purpose of a cover test
		5.9	Demonstrate specific delegated functions in own workplace

Unit content

What needs to be learned
Learning outcome 1: Understand the importance and purpose of delegation
1.1 Delegation <ul style="list-style-type: none">• Asked to undertake a function/procedure on behalf of a colleague
1.2 Responsibilities to include professional body guidance on delegating functions and accepting delegated functions
Roles and responsibilities <ul style="list-style-type: none">• Optical assistant: full understanding of the delegated function; have the required skills, knowledge, and experience; completed relevant training; confident in performing the activity; awareness of limitations of own role – collection of images and information (under supervision) only. No interpretation or discussing clinical findings. Awareness of communication with supervising optometrist and procedures to raise any issues or non-compliance.• Delegating practitioner: Attending and observing overall management of the customer; responsible for the work of the person to whom they have delegated the procedure; Awareness of importance of communication with optical assistant and the limitations of their role. Awareness of procedures if issues/non-compliance raised by optical assistant. Interpretation and communication of clinical findings to customer.
Learning outcome 2: Understand the purpose of pre-diagnostic tests
2.1 Non-contact tonometry <ul style="list-style-type: none">• Measures intraocular pressure; machine called tonometer; does not touch eye; uses a puff of air to flatten the cornea; no need for numbing eye drops; intraocular pressure can vary depending on the time of day; the role of IOP in the detection of glaucoma; ocular hypertension; detection of other pathologies like retinal detachment; risk of false positives.
2.2 Autorefraction <ul style="list-style-type: none">• Provides approximation of customer prescription; rapid measure of refractive error; machine called autorefractor; non-contact; customer asked to focus on a moving image.
2.3 Keratometry <ul style="list-style-type: none">• Multifunction automated devices (e.g. Tonoref 3) can be used to obtain corneal keratometry readings; non-contact; measure curvature of anterior surface of cornea; assess amount of astigmatism

What needs to be learned

Learning outcome 3: Be able to perform pre-diagnostic tests

3.1 Perform non-contact tonometry

- Preparation of machine; explanation of test to customer; clear communication throughout; positioning; hygiene; repetition of readings; recording results; able to identify potential sources of error (faults with equipment; issues with customer fixation; customer behaviour (e.g. blinking, jumping, squeezing lids together)); following workplace procedures. Interpretation of results and communication with customer completed by optometrist using their professional clinical judgement.

3.2 Perform autorefraction

- Preparation of machine; explanation of test to customer; clear communication throughout; positioning; hygiene; repetition of results; recording results; able to identify potential sources of error (faults with equipment; issues with customer fixation/behaviour); following workplace procedures

3.3 Perform automated keratometry

- Preparation of machine; explanation of test to customer; clear communication throughout; positioning; hygiene; repetition of results; recording results; able to identify potential sources of error (faults with equipment; issues with customer fixation/behaviour); communication of results to optometrist. Interpretation of results and communication completed by optometrist using their professional clinical judgement

Learning outcome 4: Understand the procedures and terminology associated with digital ocular images

4.1 Purpose

- Non-invasive; photographic record; able to view changes over time; disease progression; digital fundus photography captures a 2D image; optical coherence tomography (OCT) captures a range of images that can include a 3D cross-section of the retina as well as 2D images.

4.2 Key structures

- Optic nerve head, macula, fovea, retinal blood vessels

4.3 Accurate capture

- Preparation of machine; explanation of test to customer; clear communication throughout; positioning; hygiene; ensure key structures are visible; repeat images if unclear; following workplace procedures

4.4 Digital imaging of the external eye and methods of capture

- Non-invasive; photographic record; identify common minor eye conditions and more serious conditions; identify and monitor cataracts.

What needs to be learned

- Slit lamp photography captures images of the external eye with different magnifications. External eye and ocular adnexa image capture is also possible on digital retinal cameras with necessary adjustment. Cross-section imaging of the cornea and the anterior segment angle is possible with OCT imaging, if required by attending optometrist.

4.5 Key structures

- Eyelids; eyelashes; cornea; conjunctiva; iris; pupil; crystalline lens; anterior segment angle

Learning outcome 5: Understand the requirements of specific delegated functions performed by the assistant

5.1 Colour vision

- Red-green colour defects most common; more prevalent in males; can impact job opportunities; health and safety implications; Other colour vision deficiencies 'blue/yellow deficiency' and monochromacy; most common method of testing: Ishihara colour test; other tests include City Colour vision test and Hue colour arrangement tests.

5.2 Visual field testing

- Measures extent of a customer's peripheral vision; can detect dysfunction in central/peripheral vision which may be caused by various conditions such as age-related macular degeneration, optic neuropathy, retinal detachment; confrontational visual field testing and use of an Amsler grid; results are used to determine field of vision
- Reasons visual field test may be performed include risk of glaucoma, vascular disease, suspected tumours, unexplained headaches, retinal disease, suprathreshold tests; threshold tests

5.3 Stereopsis testing

- Depth perception; Binocular vision: both eyes working together to create a single image; depth perception; amblyopia

5.4 Contact lens teach

- Optician's Act 1989 on the sale and supply of contact lenses; eye health; safety; hygiene; handling; cleaning; dos and don'ts; compliance; maintenance

5.5 Convergence test

- Assess ability of a customer's eyes to come together effectively as they focus at near; double vision can result if customer's eyes are unable to converge effectively

5.6 Ocular motility test

- Assessment of eye movement and alignment; normal movement: both eyes work together in a range of gaze; SAFE (Smooth, Accurate, Full, Extensive); abnormal movement: can lead to blurred/double vision

What needs to be learned

5.7 Pupil reflex test

- Pupils react to a light stimulus; constrict when light is shone at the eye; dilate when light source removed; healthy pupils are equal size

5.8 Cover test

- Check customer's binocular vision at distance and near fixation; each eye covered in turn; uncovered eye watched for change in fixation; movement can indicate misalignment of the eyes; amblyopia; identify issues e.g. double vision

5.9 Learners will be asked to demonstrate a minimum of FOUR delegated functions from the list below:

Colour vision test

- Explanation of test to customer; use test plate and hold at correct distance and give appropriate instructions and speed; recording results. Interpretation of results completed by optometrist.

Visual fields test

- Preparation of machine; explanation of test to customer; clear communication throughout; positioning; correct prescription lens; lighting; hygiene; repetition of results; recording results; able to identify potential sources of error (faults with equipment; issues with customer fixation/behaviour); following workplace procedures. Interpretation of results completed by optometrist.

Stereopsis test

- Demonstrate accuracy in completing the task (most common methods: Titmus Fly test and Lang Stereo test) under observation by attending optometrist; effective communication with the customer to enable them to perform tasks correctly: effective communication to the optometrist with observations, if required. Awareness of limitations of role; interpretation of results and communication with customer by attending optometrist using their professional judgement

Contact lens teach

- Demonstration of contact lens insertion and removal; lens handling; lens cleaning. Demonstrate accuracy and confidence in completing the task under observation by attending optometrist; effective communication with the customer to enable them to perform tasks correctly

Convergence test

- Demonstrate accuracy in completing the task under observation by attending optometrist; effective communication with the customer to enable them to perform task correctly: effective communication to the optometrist with observations if required. Awareness of limitations of role; interpretation of results and

What needs to be learned

communication with customer by attending optometrist using their professional judgement

Ocular motility test

- Demonstrate accuracy in completing the task under observation by attending optometrist; effective communication with the customer to enable them to perform task correctly: effective communication to the optometrist with observations, if required. Awareness of limitations of role; interpretation of results and communication with customer by attending optometrist using their professional judgement

Pupil reflex test

- Demonstrate accuracy in completing the task under observation by attending optometrist; effective communication with the customer to enable them to perform tasks correctly: effective communication to the optometrist with observations if required. Awareness of limitations of role; interpretation of results and communication with customer by attending optometrist using their professional judgement

Cover test

Demonstrate accuracy in completing the task under observation by attending optometrist; effective communication with the customer to enable them to perform task correctly: effective communication to the optometrist with observations if required. Awareness of limitations of role; interpretation of results and communication with customer by attending optometrist using their professional judgement

Essential information for tutors and assessors

Essential resources

For this unit, centres need an autorefractor, a fundus camera and/or an OCT machine, a tonometer, automated keratometer, cover paddle, pen torch, colour vision tests, visual fields machine, Titmus Fly stereo and/or Lang Stereo tests.

Assessment

This unit is internally assessed. To pass the unit, the evidence that learners present for assessment must demonstrate that they have met the required standard specified in the learning outcomes and assessment criteria.

It is expected that this unit will be assessed in a real working environment, where evidence is naturally occurring and collected over a period of time. Further details are given later in this section.

Centres are responsible for deciding on the assessment activities that will enable learners to produce valid, sufficient, authentic and appropriate evidence to meet the assessment criteria.

Wherever possible, centres should adopt a holistic and integrated approach to assessing the skills units in the qualification. This gives the assessment process greater rigour, minimises repetition and saves time. The focus should be on assessment activities generated through naturally occurring evidence in the workplace rather than on specific tasks. Taken as a whole, the evidence must show that learners meet all learning outcomes and assessment criteria over a period of time. It should be clear in the assessment records where each learning outcome and assessment criterion has been covered and achieved.

Learning outcome 1 assesses knowledge, so written evidence from the learner will be needed.

An example of a suitable assignment to cover this learning outcome could be the development of an informative poster, assessing the learner's understanding of the what is meant by delegation and the roles and responsibilities of the individuals involved in undertaking delegated functions.

1. Provide details of what is meant by delegation in the optical sector
2. Give a clear account of the roles and responsibilities of the optical assistant and the delegating practitioner in the undertaking of delegated functions

Learning outcomes 2 and 5 assess knowledge, so written evidence from the learner will be needed. Assessment criterion 5.9 assesses skills and so the primary method of assessment will be observation in the workplace (see below).

An example of a suitable assignment to cover this learning outcome could be the development of an information leaflet or a short training session, assessing the learner's understanding of the different techniques and what they can be used to identify.

To satisfy the assessment criteria for these learning outcomes, learners will:

1. Give a clear account of the purpose of non-contact tonometry, including the significance of intraocular pressure
2. Give a clear account of the purpose of autorefraction, to include the benefits of this test, in the learner's own words
3. Give a clear account of the purpose of keratometry
4. Provide details of common colour vision defects and how they can be identified
5. Give a clear account of the purpose of visual field testing, to include why a visual field test may be performed
6. Provide details of the purpose of stereopsis tests
7. Provide details of the importance of a contact lens teach to the customer, in the learner's own words
8. Provide details of the purpose of a convergence test
9. Provide details of the purpose of an ocular motility test
10. Provide details of the purpose of a pupil reflex test
11. Provide details of the purpose of a cover test

For assessment criterion 5.9, learners must demonstrate a minimum of FOUR delegated functions from the following list: colour vision assessment, visual fields test, stereopsis test, contact lens teach, convergence test, ocular motility test, pupil reflex test, cover test. To achieve this AC, the learner must be able to demonstrate their ability to competently perform the delegated functions stated.

12. Demonstrate specific delegated functions in own workplace

Learning outcome 3 assesses skills. The primary method of assessment for this learning outcome is observation in the workplace. To achieve this learning outcome, the learner must be able to demonstrate their ability to competently perform the delegated functions stated.

The practical demonstrations of these tasks should be observed by a suitable professional registrant and recorded in a logbook which would be submitted for

assessment. Evidence should be generated over a period of time to demonstrate consistent performance.

To accompany this, learners would be asked some short answer questions to demonstrate their understanding of the tasks completed.

To satisfy the assessment criteria for these learning outcomes, learners will:

1. Perform non-contact tonometry following workplace procedures
2. Perform autorefraction following workplace procedures
3. Perform automated keratometry following workplace procedures

Learning outcome 4: Understand the procedures and terminology associated with digital ocular images

Learning outcome 4 assesses knowledge, so written evidence from the learner will be needed.

An example of a suitable assignment to cover this learning outcome could be a discussion with an optometrist and a practical demonstration of the stated task. During the discussion, the learner would be required to provide information on the purpose of digital imaging and be able to identify key structures on digital images.

The discussion would be followed by short answer questions to provide evidence of their learning.

To achieve this learning outcome, the learner must be able to demonstrate their ability to accurately capture a digital fundus image (either by digital retinal photography or OCT). The practical demonstration of this tasks should be recorded in a logbook and used as evidence to support the relevant AC.

To satisfy the assessment criteria for this learning outcome, learners will:

1. Provide details on the purpose of digital fundus imaging, including the importance of imaging and the different methods of image capture
2. Identify key structures on a digital fundus and OCT image
3. Demonstrate the accurate capture of a digital fundus image
4. Provide details on the purpose of digital imaging of the external eye, including the importance of imaging and the different methods of image capture
5. Identify key structures on a digital external eye and anterior segment image

Unit 11: Paediatric Optical Dispensing

Level:	4
Unit type:	Additional
Guided learning hours:	26

Unit introduction

This unit enables learners to gain knowledge and understanding of refractive errors and eye conditions that commonly affect children, exploring how they are managed or corrected through accurate dispensing.

In this unit, you will learn strategies to communicate effectively with children. You will gain an understanding of the considerations and measurements required to accurately select an optical appliance for a child.

Learning outcomes and assessment criteria

To pass this unit, learners need to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes	Assessment criteria
1. Understand how to communicate effectively with children	1.1 Explain effective communication techniques for dealing with children 1.2 Describe how to build rapport with children with additional needs 1.3 Evaluate any adaptations to the patient journey when the patient is under 16 including relevant supervision 1.4 Explain how to handle complaints involving children
2. Understand ocular conditions affecting children and how these are managed	2.1 Explain the importance of the critical period and how it affects the management of children 2.2 Analyse prescriptions relating to children 2.3 Explain possible conditions in relation to children and understand the management of some common conditions 2.4 Explain suitable lens options for children

Learning outcomes	Assessment criteria
	2.5 Explain any advice on wear that would be given to children being dispensed spectacles for the first time
3. Understand the importance of accurate measurements when dispensing children's spectacles	3.1 Describe the facial measurements required to dispense spectacles to children 3.2 Describe the differences in the facial anatomy of children when compared with adults 3.3 Explain how the child's age affects the measurements and frame fitting 3.4 Explain the importance of accurate measurements 3.5 Demonstrate how to take accurate facial measurements on a child
4. Understand the considerations for selecting a suitable child's frame	4.1 Explain the features and benefits of a child's frame 4.2 Describe how facial measurements aid in selecting the most suitable frame 4.3 Explain the characteristics of a correctly fitting child's frame 4.4 Demonstrate how to effectively fit a child's frame 4.5 Explain any advice and considerations when a child is collecting their spectacles

Unit content

What needs to be learned

Learning outcome 1: Understand how to communicate effectively with children

1A Communication techniques

- Active listening; tune into emotions; acknowledge how the child is feeling; gather information; try to see situation through the child's eyes; involve the child in all decisions/conversations

1B Children with additional needs (including learning disabilities, and additional communication requirements)

- Alternative methods of communication may be required; communication method should be tailored to the child and their needs; the following methods may be required - gestures/non-verbal communication, talk to them often to explain processes in detail, provide constant explanations, use of pictures/flashcards, respect any limitations

1C Patient journey

- Child's concentration is limited so keep admin to a minimum; size and cooperation of the child will determine if any diagnostic testing can be carried out; diagnostic tests may need to be altered - child standing or use of booster seat; test types will be altered to suit age and stage of child; children's test charts; children may wish to pre-select frame while they wait for test; limit wait time of young children where possible; dispensing may be best done away from a dispense desk; measurements should be checked for accuracy; supervision of under 16 dispense and collection

1D Handling complaints

- Complaints are usually brought forward by parent/guardian of the patient; communication during the complaint needs to be balanced between giving clear and honest explanations to the parent whilst still maintaining positive attitude towards the need of the child; in a scenario where there is missing information or misunderstanding of the requirements by the person with parental responsibility, these issues should be discussed with either a dispensing optician or optometrist
- Complaints could arise from issues with product quality, where the wearer or parent has noticed a manufacturing issue with the glasses; product quality complaints can cause a loss of confidence in both the product and service and usually require time for amendment and correction (e.g. ordering a new frame/lens) this can cause frustration for the wearer and parent due to the inconvenience caused and inability to use the product during this time

What needs to be learned

Learning outcome 2: Understand ocular conditions affecting children and how these are managed

2A Critical period

- Time period between birth and around seven years old where development abnormalities of the eyes can be treated and corrected; children during this time may be kept on shorter recalls to check advancement of any ametropia, and to check that the eyes are developing correctly and working together; amblyopia can occur if one eye is not developing properly, amblyopia will be shown by a reduction in visual acuity than what is expected and is sometimes linked to a turning of the eye; amblyopia is often able to be counteracted during the critical period through spectacle correction and patching, this will be managed by an ophthalmic or optometric professional; some methods of eye condition management either with optical appliances or surgery

2B Prescription analysis

- Younger children in the critical period (aged two-seven) are predominantly hyperopic due to smaller axial length of the eye; hyperopia can reduce as the patient grows, as the axial length increases, this is called emmetropisation, when this occurs within an eye of standard axial length this will mean the patient will not require correction, this happens in its majority during the critical period; uncorrected vision can cause lasting pathological conditions; myopic prescriptions are possible for children, this can be hereditary or due to pathology/developmental issues; astigmatism is equally common in children's prescriptions as adult;. in some cases, a child may require a reading addition; reading additions are sometimes required when a patient has a limited amount of accommodation (such as Down's syndrome); paediatric patients should be seen under the supervision of a dispensing optician or optometrist

2C Ocular conditions and abnormalities

- Congenital cataracts: a child born with opacities inside the crystalline lens, this could result in reduced visual acuity and blurred vision, can be treated surgically depending on severity, and replaced with intraocular lens (IOL) transplant
- Strabismus: abnormal alignment of the eyes, can be caused by over convergence associated with uncorrected hyperopia, extraocular muscle problems and is treated with optical aids, patching and/or surgery
- Amblyopia: a reduction in visual acuity in one eye in comparison to what an optometrist would expect, often can be linked to strabismus, and can cause anisometropia; amblyopia can be caused by having ametropia that is not being corrected, causing strain on the vision; treated with optical aids, patching or blurring the dominant eye, this treatment is normally provided by optometrists and orthoptists in a specialist ophthalmology department

What needs to be learned

- Retinoblastoma: retinoblastoma is a rare type of eye cancer that can affect young children, usually under the age of five; if it is picked up early, retinoblastoma can often be treated successfully; more than nine out of 10 children with the condition are cured; retinoblastoma can either affect one or both eyes; if it affects both eyes, it is usually diagnosed before a child is a year old; if it affects one eye, it tends to be diagnosed later (between the ages of two and three)

2D Lens options

- Consider lenses with high v-value that offer great performance, but that are also durable and impact resistant; materials like Trivex are tough, scratch resistant and offer good performance but are little used due to cost; materials such as 1.498 CR39 offer fair impact resistance in comparison to polycarbonate, but is optically superior; sports glasses lenses for children are usually made in polycarbonate due to its improved impact resistance (the only downside of this material is that it is more prone to scratching)
- Anti-reflective coatings are useful for removing reflection of the lens, making optical performance better and reducing ghost images
- UV400 coatings are advisable as the majority of UV exposure to the eyes happens before age 18
- Tinted lenses have some application particularly in bright sunlight, polarising being most suitable due to glare reduction; photochromic is not advisable unless clinically required as it can cause light sensitivity issues
- Aspheric and high index lenses can be used to remove oblique astigmatism and flatten the lens; however, these options do come with negatives such as reduced magnification on hyperopic prescriptions and reduced v-value
- Glasses lenses in any index should never be dispensed to children due to safety concerns of the lens and the additional weight they have, this can cause discomfort and the spectacles to slip forward

2E Advice on wear

- Advice given to children when wearing their glasses: keep glasses in case when not wearing; when taking glasses off use two hands; when putting glasses down place them on their sides not on the lenses; wear as directed by optometrist; parents should be educated on appropriate frame fitting and sizing so that they will notice any deviation from the correct fitting, and ensure the patient attends the practice to have it corrected; do not sleep/shower in glasses; advise sports glasses (contact lenses if suitable) for sport and physical activities; if vision feels blurred or headaches occur with new glasses make parent/guardian aware, so they can arrange a return to the practice to see a registered professional

What needs to be learned

- Advice should be given to parents about the importance of protecting children from UV including sunglasses and beyond spectacle lens options, e.g. wearing caps or wide brimmed hats

Learning outcome 3: Understand the importance of accurate measurements when dispensing children's spectacles

3A Facial measurements

- Lens ordering requires a binocular PD or on higher and more complicated prescriptions monocular PD and heights are required
- Frame fitting requires facial measurements of: head width; temple width; apical radius; crest height; length to bend; and bridge projection
- Fitting triangle: each ear takes about 40% of the weight of the glasses with the final 20% on the patient's nose

3B Facial anatomy

- Differences in children's anatomy includes: smaller head and temple width; lower crest height; negative bridge projection and larger apical radius; and a smaller length to bend requirement; children also have smaller pupillary distance; pantoscopic angle ranges from 0 in babies to 10 degrees for an older teenager

3C Age and frame fitting

- As children develop the fitting requirement can change; younger children have a larger, under-developed bridge which makes spectacles sit lower, however with age the bridge will develop gradually; temple and head width increases requiring a larger width of frame, and possibly adjustment of the angle of letback; pupillary distance growth can also require a larger frame as ideally the geometrical centre of the frame will match the pupil centre to avoid unnecessarily decentring the lens

3D Accurate measurements

- Incorrect lens measurements can cause the child to look through the wrong part of the lens, fitting issues can cause a frame to sit incorrectly, which can change the viewing position, these issues can lead to inducing prism, which can cause diplopia, blurred vision and headaches; in children during the critical period this could cause a lasting effect on vision

3E Taking accurate facial measurements

- Hold patient's attention when taking PD measurements with either a fixation stick or pen torch; if patient is non-cooperative PD measurement should be attained with a canthus-to-canthus measurement; facial measurements should be taken with a facial gauge if deemed appropriate and safe to do so; ensure you are the same height as the child when taking the measurement, and that they are looking straight

What needs to be learned

ahead when taking a height measurement (NB for every 8mm your PD is bigger than the patient you should take off 0.5mm from the patients' PD measurement)

- Virtual measurement tools, which image capture and calculate measurements based off, this can be used to find measurements, professional judgement should be used when deciding whether image capture methods are to be used on a child
- Dispensing measurements, including facial measurements, will need to be taken under the supervision of a registered professional

Learning outcome 4: Understand the considerations for selecting a suitable child's frame

4A The features and benefits of a child's frame

- Children's frames are often flex sides or spring loaded for durability; have a suitable lens size for the patient's facial measurements; adjustable sides which can either have an appropriate side length or be able to be shortened to the required side length, glasses slipping down could result in the patient looking over the glasses or through the wrong part of the lens; younger children's frames should have very little pantoscopic tilt and wrap applied, or the ability to be altered
- Children's frames can be made of a range of materials including cellulose acetate, TR90 (a flexible plastic compound) and plated metals; some patients may suffer allergies to these materials, particularly plated metals with nickel or zinc base metals
- Sunglasses are also available for children; these must have full UV400 protection and ideally will be larger in depth to offer good coverage of the eye and will have an increased level of wrap to ensure light does not enter from the edge of the glasses

4B How facial measurements aid in selecting the most suitable frame

- Facial measurements should be used as a guide for selecting an appropriate children's frame; the size of the frame from ear points should be approximately 10mm smaller than the patient's head width (compensated head width); apical radius should resemble that of the selected frame; if the patient's crest height is low this would guide us to a deeper frame with a low bridge position, that sits higher on the face; bridge projection needs to be considered by observing the sweep of the lashes; a common problem is lashes that touch the back surface of the lenses so the vertex distance may need to be altered and effective power considered
- Prescription is integral when selecting a frame as differing thickness and weight can make some frame choices less suitable both in fitting and cosmetically; high hyperopic prescriptions cause centre thickness, so a rounder frame is more suitable to reduce the blank size, eliminating some thickness, and also gives a better cosmetic finish by increasing the depth of the frame and stopping the lens "ledging" where the top of the lens sticks out beyond the frame; on higher myopic prescriptions, thickness is towards the edge of the lens which causes increased

What needs to be learned

weight and can lead to the frames slipping forward if combined with poor frame fitting; avoiding excessive decentration will help eliminate this

4C The characteristics of a correctly fitting child's frame

- Glasses sit securely, not slipping down; eyelashes are not touching the back side of the lens; eyes are sitting centrally and symmetrically as possible in the frame; nose or bridge is in full contact with the patient's nose; length of drop is no longer than 35-40mm with the angle of drop avoiding the mastoid process and with an inward angle of around 15 degrees; glasses in good amount of contact with the fitting triangle

4D Demonstrate how to effectively fit a child's frame

- BEST (Bridge, Eyes, Sides, Temples) fit, checking bridge is fitting correctly, pads are appropriately angled and are making good contact; ensure eyes are central in the glasses, one is not positioned higher than the other and both are looking through the optical centre of the lens; behind the ear the bend should be in full contact with the head, spreading weight evenly and not catching on the back of the ear, at the temple sides of the frame should not be in contact with the head until the hairline, pantoscopic tilt should be minimal; if frame fitting is not considered appropriate, they should be readjusted as necessary under supervision of a registered clinician

4E Advice and considerations when a child is collecting their spectacles

- Praise and encourage putting the glasses on; explain to slightly older children what you expect them to see, point at pictures and ask them to name; show them a mirror so they can see themselves, children can react in different ways when first beginning to wear glasses, some are happy to keep them on and some will not, importance of using positive reinforcement to ensure the child wants to wear them and that older children understand the benefits of doing so; show the child the case they have to look after the glasses; understand that the parent might have mixed feelings about seeing their child in glasses
- Parents will need to be informed of policies and procedures for looking after the glasses, for example in the UK children's replacements and repairs are covered via the GOS (General Ophthalmic Service) scheme. Parents should also be informed on how to determine if the child's glasses fit appropriately, and the aftercare service available to them for further adjustments

Essential information for tutors and assessors

Essential resources

Learners undertaking this qualification will need access to an optical practice and a registered dispensing optician/optometrist.

Staff supervising this unit should be occupationally competent and registered with the General Optical Council. They should have recent experience of optical practice and be able to demonstrate evidence of continuing professional development in order to maintain their registration with the General Optical Council. Exceptions to the requirement for registration may apply in Ireland.

Assessment

This unit is internally assessed. To pass this unit, the evidence that learners present for assessment must demonstrate that they have met the required standard specified in the learning outcomes and assessment criteria.

The assessment for this unit should be set in a specific organisational context, it should draw on learning from the unit and be designed in a way that enables learners to meet all the assessment criteria.

A recommended assessment approach is given below. Centres are free to create their own assessment as long as they are confident it enables learners to provide suitable and sufficient evidence to meet the stated standard of the assessment criteria and achieve the learning outcomes.

Learning outcome 1: Understand how to communicate effectively with children

An example assignment for this learning outcome could be presenting the learner with different case scenarios involving parents and children with various visual needs and questions around the child's vision and care plan. The learner could then give written accounts of how they would deal with each scenario with a focus on communication and the techniques they would use.

To satisfy the assessment criteria for this learning outcome, learners will:

1. Provide details and reasons for varying the communication techniques they would use when dealing with children of different ages.
2. Give a clear account of how they build rapport with a child in situations where a child may be feeling uncomfortable or has additional needs.
3. Review information on adaptations to the patient journey, including consideration of strengths, weaknesses and alternative actions when a child is involved, paying particular attention to how they operate under the supervision of a registered practitioner.
4. Provide details of how they would handle a complaint involving a child and reasons for the strategies used.

Learning outcome 2: Understand ocular conditions affecting children and how these are managed

An example assignment for this learning outcome could be presenting the learner with different case scenarios and images involving children with various ocular conditions and prescriptions. The learner could then give written accounts of how they would manage each scenario.

To satisfy the assessment criteria for this learning outcome, learners will:

1. Explain the meaning of the critical period, give reasons for its importance and how it affects the management of any refractive errors.
2. Interpret prescriptions issued to children and provide a detailed account of the optical appliance that would be supplied, including prescription, frame and lenses.
3. Provide details of common ocular conditions children suffer from and how they would be managed by a multidisciplinary team.
4. Provide examples and arguments for any lens options the learner would recommend or supply.
5. Provide details, examples and reasons for any advice on wear that would be issued to a child or parent when being dispensed for the first time.

Learning outcome 3: Understand the importance of accurate measurements when dispensing children's spectacles

An example assignment for this learning outcome could be a practical exercise where the learner is observed by a mentor or tutor taking accurate facial measurements of a child. This may be accompanied by a reflective exercise or written short answer questions for the learner to demonstrate their understanding of the importance of this and the considerations they had to make.

To satisfy the assessment criteria for this learning outcome, learners will:

1. Give a clear account of the facial measurements required to dispense a child with spectacles.
2. Recall and apply knowledge of a child's facial anatomy and the differences in the facial anatomy of children when compared with adults.
3. Provide details and give reasons on how a child's age will affect the measurements taken.
4. Provide information and evidence to support the importance of accurate measurements.
5. Demonstrate how to take the required measurements accurately following the procedures and techniques outlined in the content. Learners should have a minimum of two attempts and a maximum of five attempts to accurately meet this criterion.

Learning outcome 4: Understand the considerations for selecting a suitable child's frame

An example assignment for this learning outcome could be a practical exercise involving the selection and fitting of a paediatric spectacle frame. This would require the supervision of a qualified mentor or tutor and should be accompanied by a reflective exercise around the considerations and actions involved in the process.

To satisfy the assessment criteria for this learning outcome, learners will:

1. Give an account of features and benefits of a frame designed for a child.
2. Give a clear account in their own words of how facial measurements aid in the selection of the most suitable spectacle frame for a given child.
3. Provide details and reasons for the characteristics of a correctly fitted child's frame.
4. Demonstrate the accurate fitting of a child's frame following the procedures laid out in the content. Learners should have a minimum of two attempts and a maximum of five attempts to accurately meet this criterion.
5. Give reasons, examples and evidence on any advice and considerations for assisting during the collection of a child's spectacles.

10 Suggested teaching resources

This section lists resource materials that can be used to support the delivery of the qualification.

Textbooks

A Greer CEng MRAS and G W Taylor BSc (Eng) CEng MIMechE – *BTEC First Mathematics for Technicians* (Nelson Thornes, 1982) ISBN 9780859509169

Prof M Jalie SMSA FBDO (Hons) HonFCGI HonFCOptom MIMgt and L Wray BSc FCOptom DCLP DOrth – *Practical Ophthalmic Lenses* (ABDO, 1987) ISBN 9780900099250

A H Tunnacliffe BA PhD Dip Maths DCLP FCOptom – *Essentials in Dispensing* (ABDO, 1998) ISBN 9780900099304

A H Tunnacliffe BA PhD Dip Maths DCLP FCOptom and J G Hirst BSc M Phil Grad Cert ED – *Optics* (ABDO, 2007) ISBN 9780900099151

Websites

www.abdo.org.uk

Associate of Dispensing Opticians website. Provides support, membership, news and materials for Dispensing Opticians.

[5949 Football & Eyecare 4pp A4 RUN @ 142% \(abdo.org.uk\)](#)

Children's eye protection in football; A PDF guide for referees, coaches and parents

www.optical.org

Website of the General Optical Council – regulator for optical professions in the UK.

www.opticianonline.net

Website providing support and news for optical professionals.

[Retinoblastoma \(eye cancer in children\) - NHS \(www.nhs.uk\)](#)

NHS guidance on retinoblastoma

11 Appeals

Centres must have a policy for dealing with appeals from learners. Appeals may relate to assessment decisions being incorrect or assessment not being conducted fairly. The first step in such a policy is a consideration of the evidence by a Lead Internal Verifier or other member of the programme team. The assessment plan should allow time for potential appeals after learners have been given assessment decisions.

Centres must document all learners' appeals and their resolutions. Further information on the appeals process can be found in the document *Internal assessment in vocational qualifications: Reviews and appeals policy*, available on our website.

12 Malpractice

Dealing with malpractice in assessment

'Malpractice' refers to acts that undermine the integrity and validity of assessment, the certification of qualifications and/or may damage the authority of those responsible for delivering the assessment and certification.

Pearson does not tolerate actual or attempted actions of malpractice by learners, centre staff or centres in connection with Pearson qualifications. Pearson may impose sanctions on learners, centre staff or centres where malpractice or attempted malpractice has been proven.

Malpractice may occur or be suspected in relation to any unit or type of assessment within a qualification. For further details on malpractice and advice on preventing malpractice by learners, please see Pearson's Centre Guidance: Dealing with Malpractice, available on our website.

Centres are required to take steps to prevent malpractice and to assist with investigating instances of suspected malpractice. Learners must be given information that explains what malpractice is and how suspected incidents will be dealt with by the centre. The Centre Guidance: Dealing with Malpractice document gives full information on the actions we expect you to take.

Pearson may conduct investigations if we believe a centre is failing to conduct assessments according to our policies. The above document gives further information, examples, and details the sanctions that may be imposed.

In the interests of learners and centre staff, centres need to respond effectively and openly to all requests relating to an investigation into an incident of suspected malpractice.

Learner malpractice

The head of centre is required to report incidents of suspected learner malpractice that occur during the delivery of Pearson qualifications. We ask centres to complete JCQ Form M1 (www.jcq.org.uk/malpractice) and email it with any supporting documents (signed statements from the learner, invigilator, copies of evidence, etc) to the Investigations Processing team at candidatemalpractice@pearson.com. The responsibility for determining any appropriate sanctions on learners lies with Pearson.

Learners must be informed at the earliest opportunity of the specific allegation and the centre's malpractice policy, including the right of appeal. Learners found guilty of malpractice may be disqualified from the qualification for which they have been entered with Pearson.

Failure to report malpractice constitutes staff or centre malpractice.

Teacher/centre malpractice

The head of centre is required to inform Pearson's Investigations team of any incident of suspected malpractice (which includes maladministration) by centre staff, before any investigation is undertaken. The head of centre should inform the Investigations team by submitting a JCQ M2 Form (downloadable from www.jcq.org.uk/malpractice) with supporting documentation to pqsmalpractice@pearson.com. Where Pearson receives allegations of malpractice from other sources (for example Pearson staff, anonymous informants), the Investigations team will conduct the investigation directly or may ask the head of centre to assist.

Pearson reserves the right in cases of suspected malpractice to withhold the issuing of results/certificates while an investigation is in progress. Depending on the outcome of the investigation, results and/or certificates may not be released or they may be withheld.

You should be aware that Pearson may need to suspend certification when undertaking investigations, audits and quality assurances processes. You will be notified within a reasonable period of time if this occurs.

Sanctions and appeals

Where malpractice is proven, we may impose sanctions such as:

- mark reduction for affected assessments
- disqualification from the qualification
- debarment from registration for Pearson qualifications for a period of time.

If we are concerned about your centre's quality procedures we may impose sanctions such as:

- requiring centres to create an improvement action plan
- requiring staff members to receive further training
- placing temporary suspensions on certification of learners
- placing temporary suspensions on registration of learners
- debarring staff members or the centre from delivering Pearson qualifications
- suspending or withdrawing centre approval status.

The centre will be notified if any of these apply.

Pearson has established procedures for considering appeals against sanctions arising from malpractice. Appeals against a decision made by Pearson will normally be accepted only from the head of centre (on behalf of learners and/or members or staff) and from individual members (in respect of a decision taken against them personally). Further information on appeals can be found in the JCQ Appeals booklet (<https://www.jcq.org.uk/exams-office/appeals>).

13 Further information and publications

- Edexcel, BTEC and Pearson Work Based Learning contact details: qualifications.pearson.com/en/support/contact-us.html.
- Books, software and online resources for UK schools and colleges: www.pearsonschoolsandfecolleges.co.uk.
- Our publications catalogue lists all the material available to support our qualifications. To access the catalogue and order publications, please visit our website.

All centres offering external assessments must comply with the Joint Council for Qualifications (JCQ) document *Instructions for conducting examinations*.

Further documents that support the information in this specification:

- *Access arrangements and reasonable adjustments* (JCQ)
- *A guide to the special consideration process* (JCQ)
- *Collaborative and consortium arrangements for the delivery of vocational qualifications policy* (Pearson)
- *UK information manual* (updated annually and available in hard copy) **or** *Entries and information manual* (available online) (Pearson).
- Distance learning and assessment policy (Pearson)

Publisher information

Any publisher can seek endorsement for their resources and, if they are successful, we will list their BTEC resources on our website.

14 Glossary

Part A – General terminology used in specification

Level	Units and qualifications have a level assigned to them. The level assigned is informed by the level descriptors defined by Ofqual, the qualifications regulator.
Guided learning hours (GLH)	This indicates the number of hours of activities that directly or immediately involve tutors and assessors in teaching, supervising, and invigilating learners, for example lectures, tutorials, online instruction and supervised study. Units may vary in size.
Total qualification time (TQT)	This indicates the total number of hours that a typical learner will take to complete the qualification. This is in terms of both guided learning hours but also unguided learning, for example private study, time spent in the workplace to master skills.
Learning outcomes	The learning outcomes of a unit set out what a learner knows, understands or is able to do as the result of a process of learning.
Assessment criteria	The assessment criteria specify the standard the learner is required to meet to achieve a learning outcome.
Unit content	This section sets out the required teaching content of the unit and specifies the knowledge, skills and understanding required for achievement of the unit. It enables centres to design and deliver a programme of learning that will enable learners to achieve each learning outcome and to meet the standard determined by the assessment criteria.
Summative assessment	Assessment that takes place after the programme of learning has taken place.
Valid assessment	The assessment assesses the skills or knowledge/understanding in the most sensible, direct way to measure what it is intended to measure.
Reliable assessment	The assessment is consistent and the agreed approach delivers the correct results on different days for the same learners and different cohorts of learners.

Part B – Terms used in knowledge and understanding criteria

Analyse	Examine methodically and in detail, typically in order to interpret.
Assess	Consideration of all factors or events that apply, to identify those which are the most important or relevant and make a judgement.
Compare	Identify the main factors relating to two or more items/situations, explaining the similarities and differences or advantages and disadvantages, and in some cases say which is best and why.
Describe	Give a clear account in their own words, including all the relevant information (e.g. qualities, characteristics or events, etc.). Description shows recall and in some cases application.
Detailed	Having additional facts or information beyond a simple response.
Evaluate	Bring together all information and review it to form a supported conclusion, drawing on evidence, including strengths, weaknesses, alternative actions, relevant data or information.
Explain	Provide details and give reasons and/or evidence to support an opinion, view or argument. OR Provide details and give relevant examples to clarify and extend a point. This would usually be in the context of learners showing their understanding of a technical concept or principle.
Identify	Shows the main features or purpose of something. Can recognise it and/or name characteristics or facts that relate to it.
Outline	Provide a summary or overview or brief description.
State	Express information in clear and precise terms.

Annexe A

Unit mapping overview

The table below shows the relationship between the new qualification in this specification and the predecessor qualifications: Pearson BTEC Level 4 Certificate in Optical Dispensing (last registration 31/12/2020).

Old units	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8
New units								
Unit 1	F							
Unit 2		F						
Unit 3			F					
Unit 4				F				
Unit 5					F			
Unit 6						F		
Unit 7							F	
Unit 8								F

KEY

- P – Partial mapping (some topics from the old unit appear in the new unit)
- F – Full mapping (topics in old unit match new unit exactly or almost exactly)
- X – Full mapping + new (all the topics from the old unit appear in the new unit but new unit also contains new topic(s))

Annexe B

Assessment strategy

Assessment Principles for Qualifications that Assess Occupational Competence

Version 4

November 2017

1. Introduction

- 1.1 Skills for Health is the Sector Skills Council (SSC) for the UK health sector.
- 1.2 This document sets out principles and approaches to the assessment of regulated qualifications not already described by the qualifications regulators in England, Wales and Northern Ireland. This information is intended to support the quality assurance processes of Awarding Organisations that offer qualifications in the sector and should be read alongside these. It should also be read alongside individual unit assessment requirements.
- 1.3 These principles will ensure a consistent approach to those elements of assessment which require further interpretation and definition, and support sector confidence.
- 1.4 These principles apply to qualifications and the units therein that assess occupational competence.¹
- 1.5 Throughout this document the term *unit* is being used for simplicity, but this can mean module or any other similar term.

2. Assessment Principles

- 2.1 Learners must be registered with the Awarding Organisation before formal assessment commences.
- 2.2 Assessment decisions for competence-based units must be made by an occupationally competent assessor primarily using evidence generated in the workplace during the learner's normal work activity. Any knowledge evidence integral to these learning outcomes may be generated outside of the work environment.
- 2.3 Assessment decisions for competence units must be made by an assessor who meets the requirements set out in the qualification's assessment strategy. Where the Awarding Organisation requires that the assessor holds, or is working toward, a formal assessor qualification, that qualification should be the

¹ These are qualifications which confirm competence in an occupational role to the standards required and/or confirm the ability to meet 'licence to practice' or other legal requirements made by the relevant sector, professional or industry body.

Level 3 Certificate in Assessing Vocational Achievement. Assessors holding the D32/33 or A1 qualifications are not required to re-qualify. Where an Awarding Organisation does not expect the assessor to hold or be working toward a formal qualification we would expect that Awarding Organisation to ensure that the assessor meets the same standards of assessment practice as set out in the Learning and Development National Occupational Standard 09 Assess learner achievement.

- 2.4 Competence-based units must include direct observation² in the workplace as the primary source of evidence.
- 2.5 Simulation may only be utilised as an assessment method for learning outcomes that start with 'be able to' where this is specified in the assessment requirements of the unit. The use of simulation should be restricted to obtaining evidence where the evidence cannot be generated through normal work activity. Where this may be the case the use of simulation in the unit assessment strategy will be agreed with Skills for Health.
- 2.6 Expert witnesses can be used for direct observation where they have occupational expertise for specialist areas, or the observation is of a particularly sensitive nature. The use of expert witnesses should be determined and agreed by the assessor.
- 2.7 Assessment decisions for knowledge only units must be made by an assessor qualified to make the assessment decisions as defined in the unit assessment strategy.

3. Internal Quality Assurance

- 3.1 Internal quality assurance is key to ensuring that the assessment of evidence for units is of a consistent and appropriate quality. Those carrying out internal quality assurance must be occupationally knowledgeable in the area they are assuring and be qualified to make quality assurance decisions.
- 3.2 Skills for Health would expect that where the Awarding Organisation requires those responsible for internal quality assurance to hold formal internal quality assurance qualifications that these would be the Level 4 Award in the Internal Quality Assurance of Assessment Processes and Practice or the Level 4 Certificate in Leading the Internal Quality Assurance of Assessment Processes and Practice, as appropriate depending on the role of the individual. Those responsible for internal quality assurance holding the D34 or V1 qualifications are not required to re-qualify. Where an Awarding Organisation does not expect those responsible for internal quality assurance to hold or be working toward a formal internal quality assurance qualification we would expect that Awarding Organisation to ensure that those responsible for internal quality assurance meet: the standard of practice set out in the Learning and

² Direct observation is face to face observation and must take place in the learner's workplace.

Development National Occupation Standard 11 Internally monitor and maintain the quality of assessment.

4. Definitions

4.1 Occupational competence:

This means that each assessor must be capable of carrying out the full requirements within the competence unit/s they are assessing. Occupational competence must be at unit level which might mean different assessors across a whole qualification. Being occupationally competent means they are also occupationally knowledgeable. This occupational competence should be maintained through clearly demonstrable continuing learning and professional development. This can be demonstrated through current statutory professional registration.

4.2 Occupationally knowledgeable:

This means that each assessor should possess relevant knowledge and understanding and be able to assess this in units designed to test specific knowledge and understanding, or in units where knowledge and understanding are components of competency. This occupational knowledge should be maintained through clearly demonstrable continuing learning and professional development.

4.3 Qualified to make assessment decisions:

This means that each assessor must hold a relevant qualification or be assessing to the standard specified in the unit/qualification assessment strategy.

4.4 Qualified to make quality assurance decisions:

Awarding Organisations will determine what will qualify those undertaking internal quality assurance to make decisions about that quality assurance.

4.5 Expert witness

An expert witness must:

4.5.1 have a working knowledge of the qualification units on which their expertise is based

4.5.2 be occupationally competent in their area of expertise

4.5.3 have EITHER a qualification in assessment of workplace performance OR a professional work role which involves evaluating the everyday practice of staff.

October 2022

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