



Orthoptics Curriculum Framework

Prepared by Dr Anna Horwood on behalf of the Education Committee of the
British & Irish Orthoptic Society ©2016

British & Irish Orthoptic Society, Salisbury House, Station Road, Cambridge CB1 2LA
Tel: +44 (0)1353 665541 www.orthoptics.org.uk bios@orthoptics.org.uk
Registered Charity number: 326905 Limited company no: 1892427 Registered office: as above

Contents

1	Introduction	4
1.1	Definition and Roles in Orthoptics	4
1.2	Context.....	5
1.3	Method	7
1.4	Overview of Scope of Current Orthoptic Practice	8
1.5	Overall Professional Values	9
1.6	Entry Requirements	9
1.7	Organisation of this Curriculum	9
2	Professional Behaviour, Legal Obligations, Personal Duties and Responsibilities	10
2.1	Statutory Obligations	10
2.2	Professional behaviour and relationships	10
2.3	Employer / employee issues	11
3	Foundation and Background Knowledge and Theory	12
3.1	General Anatomy & Physiology.....	12
3.2	Development and Lifespan Changes	12
3.3	General Pathology and Disease Processes	12
3.4	Detailed Ocular Anatomy and Physiology	12
3.5	Ocular Pharmacology and Use of Drugs.....	13
3.6	Normal Visual Function	13
3.7	Abnormal Visual Function & Orthoptics Theory.....	14
3.8	Refractive and Clinical Optics	14
3.9	Psychology	15
4	Investigation	16
4.1	History Taking	16
4.2	Vision	16
4.3	Observations/ ocular deviation / fixation.....	16
4.4	Binocular Vision	17
4.5	Suppression and Correspondence.....	17
4.6	Ophthalmological Investigation	18
5	Management.....	18
5.1	Treatment Methods	18
5.2	Concomitant Strabismus.....	19
5.3	Convergence, Accommodation and Nearwork Anomalies	20
5.4	Incomitant Strabismus	20

5.5	Effects of General Disease on Ocular Motility	21
5.6	Nystagmus	21
5.7	General Ophthalmology and Ophthalmic Symptomatology not covered elsewhere	21
5.8	Ophthalmic Procedures.....	22
5.9	Vision Screening.....	22
6	Research & Literature Skills	23
6.1	Literature Skills.....	23
6.2	Audit outcomes.....	23
6.3	Research skills	24
6.4	Extended Orthoptic Roles	25
7	References, Websites and Documents Accessed in the Preparation of this Curriculum.....	25
8	Glossary	27

1 Introduction

Education, training and regulation in Orthoptics is driven by core competencies required by the profession of a new graduate entering the workplace. Any undergraduate curriculum also provides a foundation for continuing postgraduate professional development and the many extended roles into which orthoptists may move.

This document will describe key knowledge, skills and attributes that the Orthoptics professional body, the British & Irish Orthoptic Society (BIOS), considers are required by entry-level orthoptists. In addition it is expected that this document will be useful as a reference document for:-

- The Health and Care Professions Council (HCPC) which regulates the profession in its decisions about profession-specific Standards of Proficiency, Standards of Performance Conduct & Ethics, Continuing Professional Development and Education and Training.
- Orthoptics undergraduate programme providers and teachers in Higher Education Institutions (HEIs) to assist them in providing course content and assessment.
- Representatives of BIOS and other Professional Statutory Regulatory Bodies (PSRBs) involved in the validation, revalidation, quality assurance and review of educational programmes.
- External examiners at the Universities offering degrees in Orthoptics.
- Quality Assurance Agency (QAA) Reviewers: providing an additional statement of national clinical practice from the professional body perspective.
- Commissioners of Orthoptics education.
- Orthoptics Clinical Tutors in practice placements.
- Orthoptics students, to give an overview of the expectations while in training and on qualification.
- Employers of entry level orthoptists, to provide an understanding of the breadth and depth of competence of new employees.
- International colleagues.

1.1 Definition and Roles in Orthoptics

Orthoptics is an Allied Health Profession which is primarily involved in the diagnosis and treatment of defects of binocular vision. In children, defective binocular vision is frequently associated with strabismus, amblyopia or conditions leading to eye strain. In adults, orthoptists additionally investigate, support and provide non-surgical treatment for people with double vision and other visual symptoms due to conditions such as stroke, thyroid eye disease and diabetes. These remain the core skills of an Orthoptist, and in the UK orthoptists are recognised by ophthalmologists and optometrists as specialists and experts in this field. Orthoptists work particularly closely with ophthalmologists in the management of strabismus.

Orthoptics has expanded over the years and now most orthoptists are a core part of wider hospital and community eye care teams (including ophthalmologists, optometrists, nurses and technicians), providing specialist skills and expertise in areas such as vision screening, low vision assessment, rehabilitation and working with children with special needs. Many orthoptists perform, or manage others performing, specialist ophthalmological assessments such as visual fields, glaucoma assessment, retinal scans, corneal topography and biometry. Others go on to become advanced practitioners in the development and provision of services managing many ophthalmological diseases in “extended roles”. All these roles have developed in recognition of orthoptists’ specialist knowledge and their skills in decision making, exercising professional autonomy and communication in challenging situations.

Most orthoptists work wholly or partly in, or with close contact with, a hospital or medical environment and work in the team which manages patients referred to ophthalmologists. Orthoptists can also receive referrals from primary care providers and manage some groups of service users autonomously.

A large proportion of their service users are children and many have complex needs with more general medical or developmental conditions. A high level of skill is necessary to make clinical decisions in such a complex environment and make onward referrals as appropriate. Many clinical presentations and clinical decisions do not fit neatly into precise diagnostic criteria or are suitable for prescriptive treatment protocols, so exercise of professional judgement to balance available information from challenging individuals and a spectrum of diagnostic variables is a core skill. Orthoptists are expected to be able to work autonomously, using evidence-based practice from the start of their careers. Orthoptic education, therefore, must prepare graduates to be competent to work to a high level of skill in this specialist field upon qualification.

1.2 Context

Orthoptics is a small profession with close links between the small number of HEIs which teach Orthoptics and the profession as a whole. There has been no formal BIOS curriculum document since Orthoptics became a graduate profession in 1992. Since then, there has been an overall consensus about what core competencies are, but with increasing emphasis on orthoptists undertaking extended roles there is now a need to make core competencies more explicit and to define where the boundary between core and extended roles should lie.

Orthoptists are regulated by the Health and Care Professions Council¹ which is itself overseen by the Professional Standards Authority for Health & Social Care (PSA fHaSC)². Grade banding within the NHS is based on a generic NHS Knowledge and Skills Framework³. BIOS has prepared an example for posts at each of the different levels of Agenda for Change banding⁴. The document at Band 5 provides details of baseline requirements. The Band 5 KSF guidelines stipulate a high level of clinical decision making, even if responsibility rests more on the individual orthoptist's personal practice rather than management of others, service development or responsibility for others' practice at this entry level. Promotion to higher bandings is dependent on either additional qualifications, possession of higher level or additional skills, or management responsibility within a service.

The HCPC sets out standards of education and training⁵, which in the case of Orthoptics is a Bachelor Degree with Honours in Orthoptics and the QAA provides subject specific Benchmark Statements for HEIs⁶.

The HCPC sets out broad standards for AHP education programmes including requirements for admission to a course, programme management and resources, practice placements, assessment⁷. The curriculum content for the different AHPs is determined by each profession's HCPC Standards of Proficiency⁸ for their part of the Register. The HCPC and QAA work with the professional bodies who "may develop learning and curriculum frameworks for their profession"⁷. The role of BIOS is to work with the HCPC to define Standards of Proficiency (SoPs) to ensure that the degree content is appropriate.

As a baseline the HCPC requires that:-

- 4.1 The learning outcomes must ensure that those who successfully complete the programme meet the standards of proficiency for their part of the Register.*
- 4.2 The programme must reflect the philosophy, core values, skills and knowledge base as articulated in any relevant curriculum guidance.*
- 4.3 Integration of theory and practice must be central to the curriculum.*
- 4.4 The curriculum must remain relevant to current practice.*

4.5 The curriculum must make sure that students understand the implications of the HCPC's standards of conduct, performance and ethics.

4.6 The delivery of the programme must support and develop autonomous and reflective thinking.

4.7 The delivery of the programme must encourage evidence-based practice.

4.8 The range of learning and teaching approaches used must be appropriate to the effective delivery of the curriculum.

4.9 When there is inter-professional learning the profession-specific skills and knowledge of each professional group must be adequately addressed.”⁵

The most recent version of the HCPC Standards of Proficiency was published in 2013.

The extended role of Orthoptists is becoming increasingly recognised in relation to providing care in ophthalmology services. The Royal College of Ophthalmologists has proposed a Three Step Plan⁹ which included to “Optimise and train members of multidisciplinary team of ophthalmic nurses, orthoptists, optometrists and health vision scientists both in hospitals and the community”. A Competency Framework has been prepared¹⁰ outlining three levels of competence in acute and emergency care, cataract assessment, glaucoma assessment and management and medical retina, outlined for each area in a hierarchical fashion – it is recognised that all HCPs will work within their own identified scope of practice -

- Level 1 – ability to participate in triage/screening and to monitor low risk patients with an established diagnosis to a strict protocol
- Level 2 – ability to make preliminary diagnosis within a specific area and manage under specific protocols
- Level 3 – ability to diagnose, manage and discharge within specific areas of practice

Level 1 General Basic Competencies are already taught in most undergraduate Orthoptics programmes and have been mapped to this updated curriculum. Level 2 & 3 competencies would require further training.

Currently there are three universities in the UK which offer undergraduate programmes in Orthoptics and which have been approved by the HCPC. They are the University of Liverpool and the University of Sheffield in England and Glasgow Caledonian University in Scotland. All provide training to HCPC standards, but also work within national differences in regulation and healthcare provision (including those of Wales and Northern Ireland which do not have their own Orthoptics courses). Re-approval of Orthoptics degrees is open ended. The universities sign a declaration of no change in alternate years and complete an audit on the other alternate years. Changes are assessed and if considered major enough will instigate a full HCPC approval visit. Each HEI also has their own internal and national constraints, priorities and drivers, so must reconcile all these policies when preparing their courses. Each HEI is free to develop degrees which meet the needs of all these different stakeholders. The final arbitrator of whether a graduate with an orthoptic qualification is admitted to the Register is the HCPC.

BIOS represents Orthoptists in England, Wales, Scotland, Northern Ireland, the Republic of Ireland and abroad. Orthoptists with a UK qualification, or HCPC Full Registration on the basis of equivalent qualification abroad, may be full members. This document does not apply to BIOS Associate Members who are trained and supervised locally.

This document covers the topics described in the HCPC Orthoptics SoPs, but adds additional detail. It is not intended to be prescriptive or exhaustive about how, when and precisely what should be taught, or to what level, but to provide guidance to Higher Education Institutions (HEIs) and their

collaborating partners as to what professionals produced by their courses will be expected to do in practice.

Exposure to a significant amount of clinical practice during training is also vital to consolidate theory into practice in clinical situations where communication is often a challenge. This Curriculum will not stipulate precise hours or timing of practice placement, but clinical experience is essential throughout training to consolidate clinical skills in the practice setting and to develop decision-making and autonomous thinking skills in a safe, supported and supervised environment

1.3 Method

This document was commissioned by BIOS and the project was led and drafted by Dr Anna Horwood. Drafts were referred back for comments and amendments to the BIOS Council, BIOS Education and Professional Development Committees, as well as the three HEIs offering courses in Orthoptics.

BIOS was keen to reflect current Orthoptic practice in the UK and the Republic of Ireland and so carried out a detailed online survey of the membership's views. The survey collected opinions about what core skills were currently expected from an entry-level, newly HCPC Registered Orthoptist across the range of different types of practice, and to what level of expertise. Respondents scored each topic on detailed ordinal scales which varied from basic/outline knowledge through to being expert in the topic or autonomously responsible for care. The ordinal scales were in different level of detail (four points to eight points) depending on the topic. More detailed scales were used for specific orthoptic skills to establish a more detailed overview of opinions. The Editor then collated the responses and assigned them to a common four level ordinal scale used across this document. The survey incorporated detailed orthoptic topics, as well as more generic skills common to all healthcare professionals and HCPC registerable professions. Responses from over 300 orthoptists represented approximately 25% of the practising membership of BIOS. The survey was used to map the priority given by the membership to each topic and these priorities have been subject to only minor amendments by the BIOS Education Committee in relation to newer requirements such recent Drug Exemptions legislation.

Curriculum documents prepared by the other Allied Health Professions, the College of Optometrists and the Royal College of Ophthalmologists were obtained for comparison. It was clear that each profession approached their documentation very differently. Some prepared a series of documents addressing the KSF across all levels of the profession; others were more prescriptive in regards to all aspects of undergraduate training; level of detail varied widely. Documentation from the HCPC, QAA, PSAfHaS and the NHS Knowledge and Skills Framework (KSF), AHPF and PHE was obtained and referred to.

A decision was taken that this document should reflect what a newly-qualified Orthoptist (at the time of publication) needs to be able to *do*, and broadly to what level of expertise.

This document should be read alongside any current and more detailed BIOS competency standards which are available for some topics on the BIOS website. It has been seen by the Royal College of Ophthalmologists and the College of Optometrists from whom comments were invited before finalisation of the document.

The document will be reviewed by the BIOS Education Committee every five years.

1.4 Overview of Scope of Current Orthoptic Practice

The membership survey gave an up-to-date snapshot of current practice requirements. There was overall agreement about many topics but also a wide spread of opinion in other domains.

It was clear from the survey that early-career orthoptists are often expected to work at a high level of autonomy very soon after qualification, working alongside more experienced staff, but not directly supervised. Although it is recommended that formal or informal mentoring and preceptorship arrangements should be in place to support them, they are usually expected to have their own caseload, but to seek advice when necessary. The complexity of Orthoptics means that a high level of training is needed to investigate and treat even a straightforward caseload.

Even though specific expertise to manage complex cases was often not expected at first, new graduates were generally expected to have sufficient knowledge to recognise unusual or complex cases while working unsupervised, and know when and how to seek appropriate support and advice, advise service users, or make onward referral. Most departments would expect their new graduates to work largely autonomously, while a few would supervise closely at first. Larger departments (or those with a very complex caseload) may have sufficient staff for closer supervision of new graduates, but this is the exception, not the rule. Training must therefore be geared to enable the less-supervised graduate to function safely. In many cases adherence to strict or prescriptive protocols may be inappropriate, and recognition of these situations is an important skill.

BIOS stressed in 2013 that “On qualification, all orthoptists are able to see all types of orthoptic patients, and indeed need to see all types of patients to maintain and develop their competencies, and therefore should be enabled to do this at Band 5. Newly qualified orthoptists will require additional support through mentoring/preceptorship, and the use of the BIOS Preceptorship programme is recommended.

Orthoptists at Band 5 may work unsupervised/single handed, when they are deemed competent to do so. In addition, a Band 5 orthoptist can be involved in the education of Orthoptic students as judged appropriate by the Lead Clinical Tutor/Head of Department.”
(<https://orthoptics.org.uk/Roles-and-job-descriptions>)

It was also clear from the survey that because most orthoptists work largely in hospital and multi-professional environments, a relatively high level of general medical knowledge was part of the role, in addition to profession-specific skills. Orthoptists need to know enough to understand medical terms in general hospital notes and letters, understand the implications of general medical interventions and be aware of the many medical signs and symptoms which might signal atypical development or affect eyesight.

Excellent communication skills are core to Orthoptics. Explanations to service users with little prior knowledge of vision issues may be complex; orthoptists work with very young children and many patients with communication difficulties; and they also need to communicate with a wide range of other professionals within and outside ophthalmology.

Early career orthoptists are not expected to have specialist skills beyond the levels of knowledge and expertise specified here. It is also recognized that orthoptists progressing to working in specialist areas later in their career may not need to use the whole range of skills taught as undergraduates. In this situation, the HCPC requirements for registrants to maintain a minimal level of Standards of Proficiency, Conduct and CPD are particularly important. Registrants are obliged to recognise and appraise their own individual level of competence and not undertake work involving skills which have been unused for any length of time without further training or updating.

1.5 Overall Professional Values

An orthoptist shares many common healthcare values with other healthcare professionals:-

- To behave professionally and ethically with a duty of care.
- To behave compassionately and altruistically
- To strive to achieve and maintain excellence and deliver the best possible care
- To act with honesty and integrity
- To act as an advocate for their patients

1.6 Entry Requirements

Each HEI will determine their own entry requirements for training as an Orthoptist, but it is expected that evidence of good verbal and written communication skills, relevant scientific background and personal commitment to patient care would be minimum requirements on which training can build.

1.7 Organisation of this Curriculum

Sections are divided into five domains:-

- **Professional Behaviour, Legal Obligations, Personal Duties and Responsibilities**
- **Foundation and Background Knowledge and Theory**
- **Investigation**
- **Management**
- **Research & Literature Skills**

The sections cover topics which may be taught and assessed sequentially or concurrently; by theoretical or practical means; taught once, or revisited throughout a programme. Some professional attitudes and skills, or less core topics may be assimilated and assessed purely from clinical placements.

The code in the right column of each section denotes the level of direct relevance to orthoptic practice derived from the survey of UK & Irish Orthoptists, the HCPC SoPs, recent Exemptions legislation and the RCOphth “Three Step Plan” Level 1 Basic Competencies¹⁰:-

- 1 = Outline knowledge of basic principles only.
- 2 = Have observed or have some theoretical knowledge but limited practical skills; know warning signs of abnormalities; understand terms in letters and reports.
- 3 = Core competence for autonomous practice in a straightforward situation; recognise limits of personal competence; support needed for more complex examples. **A minimal level 3 is given to all statutory topics**
- 4 = Specialist knowledge; a specific orthoptic skill where other professionals might ask the Orthoptist’s advice; autonomous practice expected.

For non-statutory topics, HEIs may choose to place more or less emphasis on a topic, providing that a minimal level 1 is achieved.

2 Professional Behaviour, Legal Obligations, Personal Duties and Responsibilities

Many of the topics in this section are governed by legislation and /or local governance and mandatory training (e.g. see HCPC Standards of Conduct documentation). Most are common to all healthcare professionals, and especially Allied Health Professionals working within the NHS in the UK. On registration, an orthoptist should at least have baseline competencies in these areas and know how to access further training.

2.1 Statutory Obligations

	level
Role and Statutory Obligations of the HCPC	
Statutory role and powers	3
Personal professional obligations, Standards of Proficiency and codes of conduct	4
Role and obligations for CPD and use of reflective practice	4
Adherence to local and national clinical and professional guidelines where applicable	4
Confidentiality	4
Respect and duty of care	4
Data protection	4
Record keeping (paper & digital)	4
Working within the limits of personal knowledge and skills	4
Reflective practice	4
Lifelong, self-directed learning	4
Use of current best evidence based practice	4
Ethical practice	4
Consent	4
Research ethics	2
Child and vulnerable adult protection and safeguarding	4
Personal and patient health and safety	3
Infection control in orthoptic practice	3
Equipment decontamination	3
Manual handling	3
Clinical governance	3
Reporting concerns about safety (whistleblowing and safeguarding)	3
Equality and diversity	3
Basic first aid and CPR	3

2.2 Professional behaviour and relationships

	level
Ability to deliver patient-centred care	4
Use professional judgement and problem-solving skills based on patient need to draw up appropriate management plans	4
Adapt management plans in relation to patient age, cognitive ability, social, environmental, cultural and psychological factors	4
Recognise social, political, economic, cultural and institutional factors influencing care delivery	3
Recognition of scope of practice, limitations of personal expertise and when to make onward referrals	4

Use existing records to inform patient care	4
Make accurate, contemporaneous and complete records of each patient episode	4
Prioritise a personal workload	3
Team working, communication and appropriate referral pathways between:-	
orthoptic colleagues	4
ophthalmologists	4
other eyecare professionals (optometrists, nurses, assistants, technicians)	4
multidisciplinary / community teams outside ophthalmology	3
within a formal legal framework (e.g. child protection, cared-for children, medico-legal)	3
Communication skills with the following range of service users:-	
Adults	4
Infants	4
Pre-school children	4
School-age children	4
Adolescents	4
Parents/carers/guardians	4
Service users for whom English is not their first language	3
Service users with hearing or other communication difficulties	3
Service users with cognitive impairments e.g. autism, dementia	3
Written communication and professional letters /reports	3
Use of digital resources	2
Informatics	2
Professional manner and dress	3
Demonstrating to students / other professionals	3
Be able to use presentation skills to present material to colleagues and wider audiences.	3
Appropriate use of social media and internet resources at work.	3
Conflict resolution with service users/ colleagues or others	2
How to maintain personal and service user safety in risky situations.	2
Importance of public health & wellbeing promotion as a healthcare professional (e.g. “making every contact count”)	2

2.3 Employer / employee issues

	level
NHS structure	2
Scope of orthoptics across the UK	3
Scope of orthoptics abroad	2
Roles of professions with which orthoptists work	3
Role of Professional Bodies e.g. BIOS, RCOphth, College of Optometrists, RCN	2
Orthoptic career structure and progression.	2
Professional indemnity and insurance	2

3 Foundation and Background Knowledge and Theory

Orthoptists need to relate their practice to overall medical and developmental issues, so that general medical terminology is understood and risk factors for orthoptic practice in case histories, letters and reports in hospital notes can be identified and treatment planned in relation to general factors affecting the patient. The survey revealed that more experienced orthoptists appreciated the importance of this knowledge in providing patient care more than those more recently qualified.

3.1 General Anatomy & Physiology

	level
Cell biology & histology	1
Genetics and inheritance	2
Basic structure and function of the musculoskeletal, respiratory, vascular, gastrointestinal and sensory systems.	1
Vascular, endocrine systems	2
Central and autonomic nervous systems, cranial nerves and head and neck anatomy.	3

3.2 Development and Lifespan Changes

	level
General embryology	1
Ocular embryology	2
General effects of prematurity	3
Typical physical and motor child development	2
Normal ageing	2

3.3 General Pathology and Disease Processes

	level
Developmental delay	2
Vascular diseases including stroke	2
Neoplastic diseases	2
Myopathic diseases especially ocular myopathies	3
Metabolic diseases including diabetes	3
Genetic diseases including chromosomal abnormalities which relate to the eye	2
Auto-immune diseases including MS, myasthenia gravis, thyroid eye disease,	3
Infectious. Viral /bacterial diseases including cellulitis and HZO	2
Inflammatory diseases including JRA	2
Neurological diseases	2
Cerebral palsy	2
Dementia	2

3.4 Detailed Ocular Anatomy and Physiology

	level
Bony orbit	3
Ocular adnexa & lacrimal	3

Extraocular muscles	4
Micro structure and function	4
Gross anatomy	4
Muscle actions	4
Orbital fascia including muscle pulleys	4
Ocular circulation	3
Ocular innervation	4
Sympathetic and parasympathetic	4
Cranial nerves II,III,IV,VI	4
Lens	3
Cornea	3
Aqueous /vitreous	3
Maintenance of intra-ocular pressure	3
Uveal tract	3
Retina	4

3.5 Ocular Pharmacology and Use of Drugs

A decision made in February 2016 prepared the way for the supply and administration of a defined range of drugs by already-qualified Orthoptists as an Extended Role, subject to certification of further training and qualification. In the future all newly qualified orthoptists will be able to supply and administer these drugs and this section of the Curriculum reflects these requirements. Many of the competences involved in the administration of drugs are common to many other aspects of Orthoptic practice (e.g. history taking, comprehensive treatment plans, inclusion, equality & diversity), so are covered elsewhere in this document. Precise details of the Curriculum involving Exemptions can be found on the BIOS website.

	level
Awareness of how medicines are licensed, sourced and supplied, and the implications the legal and ethical implications of doing so.	3
Systems necessary to supply and administer medicines.	3
Pharmacokinetics of miotic, mydriatic, local anaesthetic and cycloplegic drugs	4
Pharmacokinetics of other ophthalmic drugs	3
Drugs which can be used by Orthoptists as part of the Exemptions legislation	3
Adverse drug reactions and reporting	3
Indications and contraindications	3
Dosages, administration routes and storage	3
Interactions, cautions, and side effects	3
How multiple pathologies, existing medication, allergies and contraindications may affect the action of the drugs	3

3.6 Normal Visual Function

A detailed knowledge of all visual functions which relate to visual acuity, ocular fixation, alignment and binocular vision is core to Orthoptic practice.

	level
Visual acuity	4
Principles	4
Detection/ resolution/ recognition acuity/ hyperacuties	4
Alternative notations	4
Foveal vs peripheral vision	4

Contrast sensitivity	3
Motion detection	3
Fixation maintenance	3
Projection & normal correspondence	4
Horopter/Panum's area and space	3
Physiological diplopia	4
Retinal rivalry	3
Sensory fusion and stereopsis	4
Physiology of ocular alignment Muscle laws (Hering's, Sherrington's, Listing's Laws)	4
Vergence and motor fusion	4
Accommodation	4
Accommodation/convergence relationships (AC/A and CA/C relationships and ratios)	4
Relative vergence/accommodation	4
Colour vision including principles of colour vision tests	2
Dark adaptation	2
Optical illusions	1
Virtual reality	1
Visual processes involved with reading	3

3.7 Abnormal Visual Function & Orthoptics Theory

	level
Projection, diplopia and confusion in strabismus	4
Confusion	3
Suppression	4
Central	4
Peripheral	4
Amblyopia Classification, characteristics and aetiology	4
Eccentric fixation	4
Abnormal correspondence	4
Microtropia	4
Abnormal accommodation and convergence relationships	4
Fixation disparity	2
Concomitant esotropia and esophoria including microtropia. Classification, characteristics and aetiology	4
Concomitant exotropia and exophoria. Classification, characteristics and aetiology	4
Hypertropia and hyperphoria. Classification, characteristics and aetiology	4
Cyclotropia and hyperphoria. Classification, characteristics and aetiology	4
Incomitant strabismus. Classification and aetiology	4
Nystagmus. Classification and aetiology	4
Outline of history of Orthoptics	1
Outline of similarities and differences between orthoptics and optometric vision therapy and behavioural optometry	1

3.8 Refractive and Clinical Optics

Orthoptists use detailed knowledge of many optical principles in the management of their patients. They need to be competent in understanding clinical visual optics and using many optical instruments and techniques. Although they do not themselves prescribe spectacles, they are frequently required to advise on spectacle prescription when it applies to their patients.

	level
Refraction / reflection /diffraction / polarisation	3
Ocular aberrations	3
Refractive index	3
Lenses optics, notation	4
Lens types (Convex /concave / cylindrical / toric / bifocal / varifocal / multifocal/ Fresnel)	4
Transposition of prescriptions	4
Prism optics and notation including Fresnel prisms	4
Prism placement e.g. Prentice vs frontal plane / Effects of stacking	4
Tints and filters	2
Pinholes and stenopaic slit	3
Focimetry and neutralisation of lenses	3
Ophthalmoscopes including fixation ophthalmoscopes	4
Retinoscopes	4
Slit lamp	3
Loupes	1
Telescopes	1
Badal systems	1
Magnifiers and other low vision aids	2
Operating microscope	1
Refractive errors	
Myopia	4
Hypermetropia	4
Astigmatism	4
Anisometropia	4
Emmetropisation	3
Therapies for delaying onset or slowing progress of myopia	3
Presbyopia	3
Principles of refraction	
Retinoscopy. Cycloplegic / non cycloplegic / over refraction/ dynamic/ Bruckner / Mohindra	3
Subjective refraction and post mydriatic testing including crossed cylinders / duochrome test / astigmatic fan	3
Photorefraction / autorefraction	2
Principles of spectacle prescription	3
Principles of spectacle fitting. IPD /back vertex distance / High index lenses	2
Principles of prism prescription. Incorporated prisms	4
Correction of presbyopia including bifocals, multifocals, progressive lenses, monovision	3
Contact lenses Optical principles / types	3
Lens implants. Types & indications	2

3.9 Psychology

Awareness of psychological principles behind the patient / professional experience is increasingly recognised as improving patient care. While the outline of these topics can be formally taught, practical experience and training will be acquired during clinical placements.

	level
Outline of psychological development from infancy to adulthood	2
Language and communication acquisition	2
Literacy acquisition	2
Non-verbal communication	2

Health beliefs and inequalities in healthcare	2
Barriers to access to healthcare	2
Age/ ethnic/ cultural /social differences	2
Factors affecting adherence/ non-adherence to treatment	4
Psychopathology (depression/autism/anxiety/schizophrenia/OCD)	2

4 Investigation

For most of these topics knowledge of the theory, construction, use and interpretation of results and the ability to choose and carry out the test independently as part of a full investigation are core competencies; as is the ability to recognise atypical or complex responses, or the need for a specialist tests and seek support where appropriate.

4.1 History Taking

	level
Orthoptic history	4
General ophthalmic history	4
General medical history	4
Social, family, drug history	4

4.2 Vision

	level
Estimation of vision in infants and non-verbal service users	4
Electrodiagnostic tests of vision	2
Preferential looking and vanishing optotypes	4
Picture tests e.g. Kays, LEA symbols, E	4
Letter tests for children	4
“Gold standard” tests such as logMAR tests and Landolt C	4
Assessment of crowding / separation difficulty	4
Assessment of eccentric fixation	3
Clinical contrast sensitivity tests	3
Children’s colour vision tests	3
Adult colour vision tests including Ishihara, 100 hue	3

4.3 Observations/ ocular deviation / fixation

	level
Assessment of corneal reflections	4
Knowledge of angle kappa (alpha/lambda)	2
Cover/ uncover test	4
Alternate cover test	4
Prism cover test in primary position and 9 positions of gaze	4
Simultaneous prism cover test	4
Synoptophore	

Objective and subjective angle	4
Horizontal/vertical /torsional	4
Maddox Rod (and von Graefe's and tangent scale methods)	3
Knowledge of fixation disparity	2
Lees screen/Hess chart	4
Eye tracking and nystagmography	2
Ocular motility	4
Versions	4
Ductions	4
Smooth pursuit	4
Saccades	4
Vergence	4
Translatory movements	4
Optokinetic nystagmus (OKN)	4
Vestibulo-ocular reflex (VOR)	4
Clinical assessment of nystagmus	4
EMG	2
Field of BSV	4
Field of uniocular fixation	4

4.4 Binocular Vision

	level
Convergence to near point	4
4 Δ prism test	4
20 Δ BO prism test	4
Prism fusion ranges (to blur, diplopia and recovery)	4
Vergence facility (flipper prisms)	3
Near point of accommodation	4
Accommodation facility (flipper lenses)	3
Relative fusion/relative vergence methods	4
Bagolini striated glasses	4
Worth's lights	4
Synoptophore and prism assessment of potential binocular function	4
Filter bar assessment of fusion and DVD	3
Stereotests (anaglyphs (e.g. TNO) , vectographs (e.g. Titmus) , free space methods (Frisby, FD2, Lang, Lang 2pen)	4

4.5 Suppression and Correspondence

	level
Assessment of suppression	4
with prisms (including post-op diplopia test)	4
on the synoptophore (depth & area)	4
with filter bar	4
Differential diagnosis scotomatous vs non-scotomatous suppression	3
Assessment of microtropia	4
Assessment of (non microtropic) abnormal correspondence (abnormal binocular vision and foveal/foveal projection)	4

4.6 Ophthalmological Investigation

The principles and rationale for these tests should be understood and they should have been observed and preferably carried out in practice. In some orthoptic roles competencies may not need to be maintained if they do not form part of the clinical role. Undertaking them as a new role may involve local sign-off of competence.

	level
Pupil examination and external ocular examination	4
Practical administration of eye drops	4
Direct ophthalmoscopy	4
Slit lamp examination	
Anterior segment	3
Ocular media	3
Fundus (high plus lens)	3
Lid examination	3
Tonometry	
Contact/non-contact methods	2
Aplanation tonometry	2
Visual Fields	
Goldmann perimetry	3
Confrontation fields	4
Automated perimetry	3
Ocular Coherence Tomometry (OCT)	2
Heidelberg Retinal Tomography (HRT)	2
Corneal topography	2
Pachymetry	2
Retinal imaging & fluorescein angiography	1
Forced duction/generation tests	2

5 Management

“Management” means the use of findings from an investigation to draw up and carry out a management plan. A core skill is to recognise atypical or complex cases, adapt management plans accordingly and seek support where appropriate. In some areas, rather than carry out a procedure themselves, orthoptists need sufficient knowledge to assess overall ongoing care of a patient and re-refer problems, but not be expected to deliver or carry out a specific procedure. In some cases they would be expected to work as part of a team with others e.g. ophthalmologists/ optometrists /ophthalmic nurses.

5.1 Treatment Methods

	level
Knowledge of spectacle prescription	
in non-strabismic children	4
in strabismic children where the prescription affects the angle of deviation	4
in strabismic adults	4
Knowledge of the correction of presbyopia	4

Knowledge of spectacle fitting	
Adults	2
Children	3
Complex fitting needs	2
Knowledge of the treatment of myopia (near additions, atropine, orthokeratology)	2
Prism prescription	
Children	4
Adults	4
Press-on prism fitting	4
Occlusion (patches)	4
Optical penalisation	4
Atropine penalisation	4
Reduced contrast /dichoptic amblyopia treatment methods (e.g. Hess group methods)	2
Filters /overlays in specific literacy difficulties / dyslexia	2
Knowledge of miotic treatment of accommodative esotropia	1
Cycloplegia in accommodative problems	3
Orthoptic exercises	
Anti-suppression methods (scotoma and density)	3
Convergence /divergence methods (prisms, synoptophore, dot card etc.)	4
Relative vergence methods (+ve /-ve relative vergence, stereograms)	4
Awareness of where optometric vision therapy methods use similar principles with different names	2
Outline awareness of behavioural optometry methods	1
Pre-operative assessment	
Clerking procedures	1
Orthoptic role in aiding surgeon in decision-making where appropriate	
Simple concomitant strabismus	3
Complex strabismus (consecutive/ secondary / re-operations)	2
Incomitant strabismus	2
Post-operative assessment	
Orthoptic testing	3
Indications for referral for ophthalmologist opinion	3
Management of post-operative complications	3
Knowledge of strabismus surgery	
Techniques for concomitant strabismus	4
Techniques for incomitant strabismus	4

5.2 Concomitant Strabismus

This is the core of orthoptic practice so all registerable orthoptists would be expected to be competent to diagnose and manage all straightforward cases, recognise atypical and complex cases and seek more experienced support. In most cases an important part of the management process is not just *how* to treat, but the decision-making processes about when to treat, when *not* to treat or how, and how frequently, monitoring is necessary if treatment is anticipated, but not immediately indicated. This role is frequently carried out at orthoptist-level, without routine input from ophthalmologists.

	level
Pseudo strabismus	4
Amblyopia	
Strabismic	4

Anisometropic	4
Combined mechanism	4
Ametropic	3
Stimulus deprivation	2
Eccentric fixation	3
Large or decompensating esophorias	3
Intermittent esotropia	
Fully accommodative	4
Convergence excess	4
Distance esotropia in the elderly (“sagging eye” syndrome)	3
Cyclic & other	2
Constant esotropia	
Infantile	4
Constant without abnormal correspondence (AC)	4
Constant with AC	3
With accommodative element (partially accommodative)	4
Microtropia	4
Large or decompensating exophorias	4
Intermittent exotropia	4
Distance and non-specific exotropia	4
Near exotropia	4
Consecutive strabismus	3
Secondary strabismus	3

5.3 Convergence, Accommodation and Nearwork Anomalies

	level
Convergence insufficiency	4
Convergence spasm	2
Convergence paralysis	2
Accommodation insufficiency	3
Accommodation inertia	3
Accommodation spasm	2
Accommodation paralysis	2
Conversion disorders of vision (“functional amblyopia”/medically unexplained symptoms)	2

5.4 Incomitant Strabismus

(Generally managed together with ophthalmologists for medical/surgical aspects of treatment)

	level
Vertical deviations in primary concomitant strabismus e.g. inferior oblique dysfunction	4
Dissociated vertical or horizontal divergence (DVD /DHD)	4
IIIN palsies	4
IVN palsies	4
VIN palsies	4
Differential diagnoses (recent/longstanding, neurogenic/myogenic, SR/SO)	4
Alphabet patterns (A/V/Y/X/λ)	4
Multiple nerve palsies (Orbital apex, Cavernous sinus, HZO)	2
Brainstem palsies	2

Orbital trauma and fractures	4
Inflammatory strabismus (orbital cellulitis, myositis)	3
Iatrogenic strabismus	3
Incomitant strabismus associated with high myopia (“heavy eye”) or healthy ageing (distance esophoria/“sagging eye syndrome”)	3
Brown syndrome	4
Duane syndrome	4
Other congenital cranial dysinnervation syndromes including “congenital fibrosis syndrome” / Marcus Gunn syndrome	3
Orthoptic significance of cranial dysostoses	3
Ptosis	4
Supranuclear ocular palsies	3
Internuclear palsies	3

5.5 Effects of General Disease on Ocular Motility

	level
Hypertension	3
Diabetes	3
Stroke	3
Parkinson’s disease	3
Multiple sclerosis	4
Myasthenia gravis (including Tensilon/ice pack tests)	4
Thyroid ophthalmopathy	4
Neoplastic diseases	3
Cerebral palsy	3

5.6 Nystagmus

	level
Idiopathic and infancy onset nystagmus	
Non-surgical management	3
Surgical management	3
Acquired nystagmus	3
Latent nystagmus	3

5.7 General Ophthalmology and Ophthalmic Symptomatology not covered elsewhere

These topics should be taught and assessed to minimum of Level 1 of the Royal College of Ophthalmology Competency Frameworks in the appropriate topics ⁸

	level
General ophthalmic history taking	3
Acute and emergency ophthalmology	3
Disease processes and treatment	
Glaucoma and ocular hypertension	3
Retinal disease (Medical Retina) including AMD, RP	3

Cataract	3
Corneal disease	3
Oculoplastics	3
Neuro-ophthalmology	3
Ocular trauma	3

5.8 Ophthalmic Procedures

Orthoptists would not be expected to carry out these procedures, but should know the indications and methods available and have had the opportunity to observe the procedure either in person or on video.

	level
Administer drugs as prescribed	3
Recognise allergies and common complications	3
Botulinum toxin for strabismus	3
Botulinum toxin for blepharospasm/hemifacial spasm	2
Strabismus surgery	
Technique	3
Concomitant	3
Incomitant	3
Nystagmus surgery	3
Cataract surgery	2
Laser	
Refractive (LASIK)	2
Photocoagulation	2
Capsulotomy	2
Glaucoma surgery	2
Corneal surgery	2
Vitreoretinal surgery	2
Oculoplastic surgery	2
Orbital surgery	2
Lacrimal probing /chalazion surgery	2
Neurosurgery	1
Radiotherapy	1
Electrodiagnostic testing	3
Scanning techniques (ultrasound/ x ray, MRI, fMRI)	2
Neurological assessment	2
Paediatric developmental assessment	2

5.9 Vision Screening

Orthoptists may be involved in many different types of screening for visual defects. As a minimum they need an overview of the scope of screening for disease in general, for specific ocular diseases in particular, and the methods available for such screening. In some cases they will undertake unsupervised screening using agreed protocols and tests in which they have sufficient training and competence, and be expected to make appropriate referrals. As extended roles they may learn additional skills and competencies to perform more complex testing or develop and manage services. Orthoptists have particular skills in vision screening of children.

	level
Generic principles of health screening	2
National vision screening guidelines	3
Amblyopia screening	
Visual acuity screening	3
Strabismus screening	3
Risk factor screening e.g. photoscreening for refractive error	3
Retinopathy of prematurity	
Assisting ophthalmologists in fundus assessment	2
Ongoing monitoring of premature children as they develop	3
Children with hearing loss	3
Children with special needs e.g. Down syndrome /chromosome abnormalities, cerebral palsy.	3
Children with specific literacy difficulties	2
Diabetic adults	2
Age-related macular degeneration	2

6 Research & Literature Skills

6.1 Literature Skills

The practice of evidence-based medicine involves knowing how to appraise and apply published literature and also, increasingly, to be able to actively contribute to it, so should involve orthoptists at all stages in their career. Early career orthoptists should be equipped to use, and encouraged to develop, these skills.

	level
Access sources of literature	3
Carry out a literature review	3
Able to interpret findings of papers and literature reviews	3
Present and critically assess a paper in a journal club	3
Prepare a scientific abstract	3
Prepare a scientific poster	3
Prepare a systematic review	1
Write a scientific paper	1
Maintain a comprehensive CPD record	3

6.2 Audit outcomes

	level
Measure and evaluate critically the outcomes of professional activities	2
Understand statistical methods used to assess screening/ audit e.g. sensitivity, specificity, predictive values, ROC analysis, Bland Altman analysis	2
Carry out a simple audit in a local NHS setting	2
Understand principles of health economics and cost effectiveness e.g. quality of life analysis	2

6.3 Research skills

The NHS Health Research Authority (HRA) has stated that research should be embedded in healthcare. All orthoptists should be equipped with an outline knowledge and some experience of the research process. From the earliest stages in their career they should have sufficient research skills to contribute to local, national or international research projects as part of a team (recruiting, testing, data collection using a protocol), and to act ethically, legally and responsibly. By engaging in simple audits, service evaluations and low-level research activity, and with outline knowledge of higher level or more complex research processes, a culture of research can be encouraged. It is recommended that all undergraduates are given the opportunity to carry out a small research project or to have experience in using all the skills such a project would involve.

	level
Understand the differences between audit, service evaluation and research	3
Surveys/RCTs/qualitative methods	3
Understand when Ethics committee approval is necessary	3
Set up a database	2
Framing a research question/hypothesis generation	3
Prepare a simple research protocol	2
Data collection methods	2
Roles of a research team (CI, PI, Research Governance/Ethics, multi-centre collaborations)	2
Confidentiality, data protection, masking	3
Anonymisation, pseudonymisation of data	3
Prepare an Ethics application	2
The role of Public & Patient Involvement	1
Awareness of support services (hospital R&D, Research Design Service, mentorship schemes, local Council for AHP Research hubs, universities)	1
Sources of research funding and training schemes	1
Preparation of a research grant	1
Participant selection	2
Inclusion/exclusion criteria	2
Sampling	2
Questionnaire design	2
Randomisation	2
Data analysis	
Probability and statistical / clinical significance	3
Data cleaning /transposition	1
Qualitative methods (interviews and their analysis)	2
Descriptive statistics	3
Non-parametric statistics	2
Simple parametric statistics	2
More complex methods (e.g. multivariate, Bayesian, factor analysis)	1
Present a scientific poster	2
Present a scientific paper	1
Routes from research to practice/assessing impact	1

6.4 Extended Orthoptic Roles

The following services are currently considered “extended roles” for orthoptists and an entry-level orthoptist would not be expected to be competent in them without certified further training. Early career orthoptists should be aware of the scope and outlines of methods outlined in other parts of the curriculum within these roles. All orthoptists should be competent to assess patients with specific learning difficulties, stroke or neurological diagnoses and the “extended role” refers to additional higher level service provision to which these patients may be referred.

Surgical assisting

Botulinum toxin clinics

AMD screening/monitoring

Intra vitreal injection

Glaucoma/ocular hypertension screening / monitoring

Corneal clinic roles

Chalazion/Lacrimal (epiphora) clinic roles

Red eye clinics

Diabetic monitoring

Specialist visual aspects of managing children with special educational needs

Specific literacy difficulty/dyslexia assessment and visual management

Adult low vision assessment and support

Child low vision assessment and support

Specialist stroke services

Specialist neuro-ophthalmology services

7 References, Websites and Documents Accessed in the Preparation of this Curriculum

References

1. Health and Care Professions Council. <http://www.hcpc-uk.org/aboutregistration/standards/>
2. Professional Standards Authority for Health and Social Care
<https://www.professionalstandards.org.uk/>
3. NHS Knowledge and Skills Framework <http://www.nhsemployers.org/SimplifiedKSF>
4. British and Irish Orthoptic Society
https://orthoptics.org.uk/Resources/Documents/Standards/KSF%20Bands_5_6_7.pdf
5. Health and Care Professions Council. Standards of Education and Training. <http://www.hcpc-uk.org/assets/documents/1000295EStandardsofeducationandtraining-fromSeptember2009.pdf>
6. Quality Assurance Agency Benchmark Statement for Healthcare Programmes - Orthoptics.
<http://www.qaa.ac.uk/en/Publications/Documents/Subject-benchmark-statement-Health-care-programmes---Orthoptics.pdf>

7. Health and Care Professions Council Standards of Education and Training <http://www.hcpc-uk.org/assets/documents/10001A9DStandardsofeducationandtrainingguidanceforeducationproviders.pdf> 2014.
8. Health and Care Professions Council Standards of Proficiency - Orthoptists. http://www.hcpc-uk.org/assets/documents/10000516Standards_of_Proficiency_Orthoptists.pdf 2013.
9. Royal College of Ophthalmologists Three Step Plan. Reducing risk for eye patients - improving timely care. <https://www.rcophth.ac.uk/2016/05/rcophths-three-step-plan-to-reduce-risk-for-eye-patients/> 2016.
10. MacEwen C, Royal College of Ophthalmologists. Competency Framework, Developing a Competency Framework for expanded ophthalmic roles for Ophthalmic Nurses, Optometrists, Orthoptists and Ophthalmic Clinical Scientists 2016
<https://www.rcophth.ac.uk/2016/01/competency-framework/>

Other Documents Accessed

Council for Allied Health Profession Research. Position Statement “Promotion of research training opportunities for pre-registration AHP students in Higher Education Institutions” 2016

The Royal College of Speech & Language Therapists Guidelines for Pre-Registration Speech and Language Therapy Courses in the UK Incorporating Curriculum Guidelines. 2010

NHS Employers. Simplified Knowledge and Skills Framework (KSF)
<http://www.nhsemployers.org/SimplifiedKSF>

NHS Employers Summary Descriptions of KSF Core Dimensions
http://www.nhsemployers.org/~media/Employers/Documents/SiteCollectionDocuments/Summary_KSF_core_dim_fb131110.docx

National Health Service. Preceptorship Framework for Newly Registered Nurses, Midwives and Allied Health Professionals www.nhsemployers.org/your.../preceptorships-for-newly-qualified-staff

The College of Podiatry. Core Curriculum for Podiatric Medicine 2015

Chartered Society of Physiotherapy. Physiotherapy Framework (condensed version) putting physiotherapy behaviours, values, knowledge & skills into practice. Updated 2013

The British Dietetic Association. A curriculum framework for pre-registration education and training of dietitians. 2013

The Allied Health Professions Federation with Public Health England “A strategy to develop the capacity, impact and profile of allied health professionals in public health 2015-2018”
http://www.ahpf.org.uk/AHP_Public_Health.htm

British Psychological Society. Standards for the accreditation of undergraduate, conversion and integrated Masters programmes in psychology October 2015

http://www.bps.org.uk/system/files/Public%20files/PaCT/undergraduate_accreditation_2015_web.pdf

College of Optometrists. Core competency Documents for Optometry. Stage 1, Stage 2 and Dispensing

College of Optometrists <http://www.college-optometrists.org/en/utilities/document-summary.cfm?docid=725B7171-0328-484A-B9D713757F16251D>
<http://guidance.college-optometrists.org/guidance-contents/knowledge-skills-and-performance-domain/>

8 Glossary

AHP	Allied Health Profession or Professional
AHPF	Allied Health Professions Federation
BIOS	British & Irish Orthoptic Society
CPD	Continuing Professional Development
CAHPR	Council for AHP Research
HCPC	Health and Care Professions Council
HEI	Higher Education Institution
HRA	Health Research Authority
KSF	Knowledge and Skills Framework
NHS	National Health Service
QAA	Quality Assurance Agency
PHE	Public Health England
PSAfHaS	Professional Standards Authority for Health & Social Care
PSRBs	Professional Statutory Regulatory Bodies
RCOphth	Royal College of Ophthalmologists
SoP	Standards of Proficiency