

UNIQUE

UNDERSTANDING GENES & CHROMOSOMES

Eyes and sight

rarechromo.org

This guide has been compiled as a resource to help individuals with a rare gene or chromosome disorder and visual impairment or an eye anomaly, and their families, find information, support and practical advice.

Eyes and sight

Visual impairment and eye conditions are common in many genetic conditions. The eyes and brain develop together before birth and continue to work as a connected system throughout life to allow us to see, process and understand the world around us. Many of the genes involved in growth, development and function of the brain also play important roles in the development of the eyes and healthy sight.

Receiving a diagnosis of an eye condition or learning that a child has reduced vision can feel overwhelming. Parents often describe worrying about how their child will learn, communicate and navigate the world around them. While these feelings are understandable, many children with vision differences adapt extremely well and can thrive with the right support.

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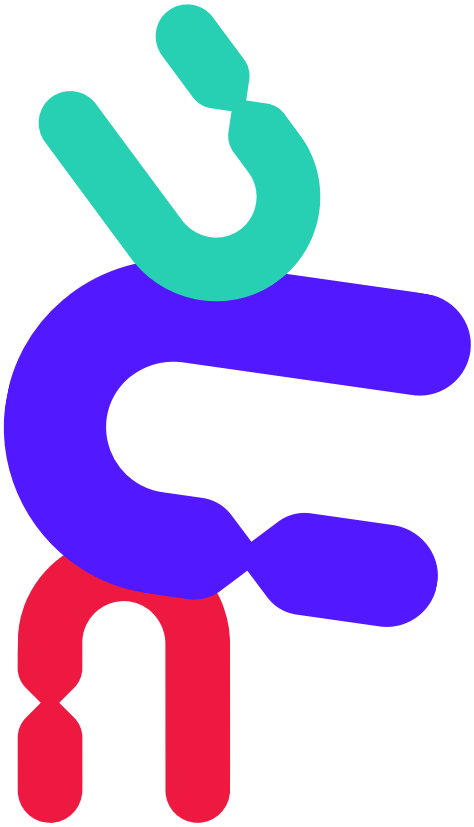
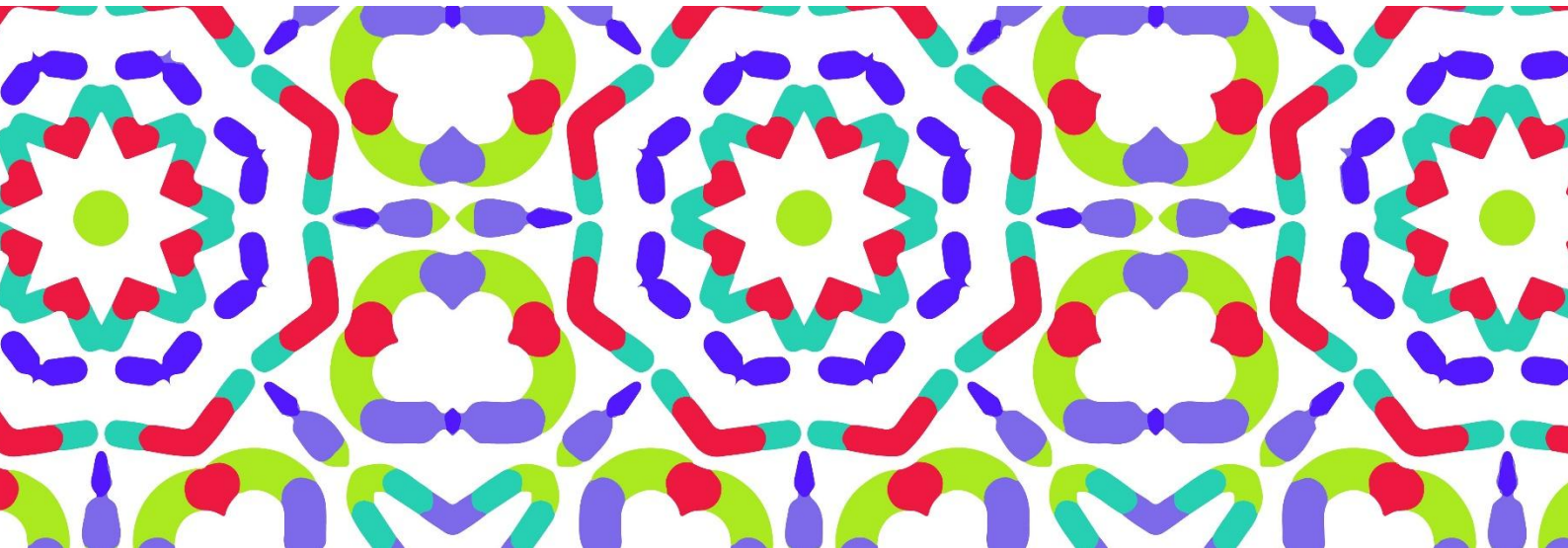




Diagnosing vision problems

Some children are born with eye conditions that are present from birth, while others develop difficulties with vision during infancy or childhood. Early identification of anomalies or conditions that affect the eyes and vision is important for all children, including those without additional needs. Eye conditions may be identified by parents, health visitors, school screening programmes, optometrists, paediatricians or ophthalmologists.

Signs that a child may have difficulties with their vision

Some difficulties with vision are obvious from birth, while others can develop gradually during infancy or childhood. Not all children will be able to tell you that they are having difficulty seeing, particularly if they are very young or have developmental delay.

The following signs may suggest that further assessment is needed:

Babies

- Not making eye contact
- Not looking at or responding to faces
- Not following faces, toys or lights with their eyes ("fixing and following")
- Eyes that appear to wander or do not move together
- Constant shaking or wobbling of the eyes (nystagmus)
- A white, dull or unusual reflex in photographs instead of the normal red reflex
- Constant watering of the eyes
- Sensitivity to light
- Unusual appearance of one or both eyes or eyelids

Older children

- Sitting very close to screens, books or objects
- Holding objects unusually close to the face
- Frequently narrowing their eyes (squinting)
- Turning or tilting the head to look at things
- Bumping into objects or appearing unusually clumsy
- Difficulty recognising faces or finding objects
- Complaining of blurred or double vision
- Difficulty seeing in dim light or at night
- Sensitivity to bright light
- Frequent eye rubbing

When should I seek medical advice?

You should seek medical advice if you have concerns about your child's vision, eye movements, eye appearance or visual development. In many cases, your first point of contact may be your GP, health visitor, community paediatrician, or a high-street optician. These professionals can assess your child's vision and eye health and arrange referral to an ophthalmologist (eye doctor) if needed.

Urgent medical assessment is recommended if you notice any of the following:

- A white, pale or absent red reflex in photographs
- A sudden change in vision
- A painful, red eye
- New misalignment of the eyes, particularly if it develops suddenly
- Significant sensitivity to light
- Any concerning change in the appearance of the eye

Understanding visual impairment

Having a visual impairment does not necessarily mean that a person is completely blind. Vision exists on a spectrum, and people with visual impairment may retain varying degrees of useful vision. Visual impairment can range from mild sight loss to profound blindness.

Many people who are registered as sight impaired or severely sight impaired retain some useful vision and can still read, recognise faces, use technology, travel independently and take part in everyday activities.

In the UK, healthcare professionals may use terms such as:

Sight impaired (SI)

A person with significant sight loss that cannot be fully corrected with glasses, contact lenses or medical treatment. Previously known as partially sighted, this term is used for people with permanent sight loss that significantly affects daily life.

Severely sight impaired (SSI)

A person with more severe sight loss who meets specific certification criteria, previously known as blind. Many people who are severely sight impaired still have some remaining vision, such as the ability to detect light, movement, colours or large objects.

Certificate of vision impairment (CVI)

If an ophthalmologist feels a person meets the relevant criteria, they may offer certification. Sight loss must affect both eyes for certification to be considered.

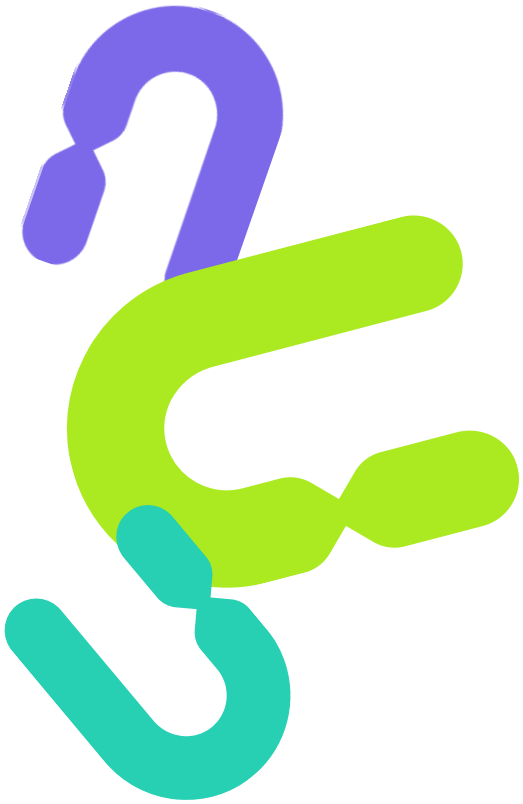
Certification may be considered in people with:

- Visual acuity* worse than 6/60
- Visual field* loss e.g. severe tunnel vision*

Registration may help people access:

- Educational support
- Vision rehabilitation services
- Mobility and orientation training
- Travel concessions

*Visual acuity: how clearly you can see at a distance
*Visual field: everything you can see when you look straight ahead
*Tunnel vision: loss of side (peripheral) vision



Eye assessments

Eye specialists use a variety of tests depending on a child's age and developmental stage. Regular eye examinations are important because many vision anomalies can be successfully treated or managed if identified early.

Who are the eye specialists?

Children may be cared for by several different eye specialists, each with a different role:

Optometrists (opticians): assess vision, prescribe glasses and contact lenses, and monitor eye health.

Orthoptists: specialise in eye movements, squints (strabismus), double vision and visual development in children. They often assess and treat "lazy eye" (amblyopia).

Ophthalmologists: are medical doctors who specialise in diseases of the eye and vision. They diagnose eye conditions, prescribe treatments and perform surgery when required.

Visual Acuity

Most eye examinations performed by a high-street optician, orthoptist or ophthalmologist will include a test of visual acuity. Visual acuity is a measure of how clearly a person can see.

One common method is a Snellen chart, which consists of rows of letters that gradually become smaller towards the bottom. A person stands a set distance away and is asked to read the smallest line they can see clearly.

Many eye clinics now use LogMAR charts, which have become the standard method for measuring visual acuity in hospitals and research studies. LogMAR charts contain the same number of letters on each line and provide a more precise and reproducible measurement of vision.

Snellen chart



LogMAR chart



unique

Vision may be recorded as a fraction, such as 6/6, 6/12 or 6/60. The first number refers to the testing distance (6 metres in the UK). The second number refers to the distance at which a person with standard vision would be able to read the same line.

In the UK, the testing distance is usually 6 metres, whereas in some countries, including the United States, vision is recorded using feet (for example, 20/20, 20/40 or 20/200). 6/6 vision is equivalent to 20/20 vision and is considered normal visual acuity.

- 6/6 = 20/20 = 0.0 logMAR = normal vision
- 6/12 = 20/40 = 0.3 logMAR = mild reduction in vision
- 6/60 = 20/200 = 1.0 logMAR = significant visual impairment

If a person is unable to read the largest letters on the chart, vision may be recorded using other measures:

- CF (Counting Fingers): The person cannot read the chart but can count the examiner's fingers at a specified distance
- HM (Hand Movements): The person cannot count fingers but can detect a hand moving in front of them
- PL (Perception of Light): The person can detect the presence of light but cannot see hand movements
- NPL (No Perception of Light): The person is unable to detect any light

These terms are often used for people with severe visual impairment when standard vision charts cannot be used.

Other common abbreviations you may see include:

- VA: Visual acuity
- RE: Right eye
- LE: Left eye
- BE: Both eyes

Young children may be unable to identify letters or symbols. In these cases, eye specialists may use picture-based tests; matching tests, such as Cardiff Cards, Teller Acuity Cards, Kay Pictures; or assessments based on visual behaviour and development. These methods help estimate how well a child sees and whether their vision is developing as expected.

Other Vision Measurements

- Colour vision testing with Ishihara plates (coloured dotted circles)
- Visual field testing to assess peripheral vision
- Assessment of depth perception

Additional tests may include retinal imaging, optical coherence tomography (OCT), electrophysiology (ERG/VEP) and Magnetic Resonance Imaging (MRI) scans if required.

Different types of eye and vision conditions

Refractive errors

These are among the most common causes of reduced vision and can often be corrected with glasses or contact lenses.

They include:

- Short-sightedness (myopia)
- Long-sightedness (hypermetropia)
- Irregular oval shaped cornea or lens (astigmatism)

Eye movement and alignment disorders

Some children develop problems with how the eyes move or work together.

Examples include:

- Squint (strabismus)
- Uncontrolled repetitive eye movements (nystagmus)
- Restricted eye movements (ophthalmoplegia) including Duane syndrome

These conditions can affect visual development and may increase the risk of "lazy eye" (amblyopia).

External eye, eyelid and tear duct differences

Some children have differences affecting the eyelids, tear ducts or the outside appearance of the eyes. Many of these conditions affect the appearance or comfort of the eyes rather than sight itself, although some children may require treatment to optimise vision and eye health.

Examples include:

- Droopy upper eyelid (ptosis)
- Difficulty closing the eyelids completely (lagophthalmos)
- Blocked or absent tear ducts
- Excessive tearing or watery eyes (epiphora)
- Dry eyes

Many of these conditions can be managed with eye drops, monitoring or surgery when necessary.



Congenital glaucoma

Developmental and structural eye differences

Some children are born with differences in how the eye develops.

Examples include:

- Cataracts (clouding of the lens)
- Glaucoma (damage to the nerve connecting the eye and brain due to build up of pressure in the eye)
- Coloboma (a gap or missing piece of tissue in part of the eye)
- Microphthalmia (the eye is abnormally small)
- Anophthalmia (without one or both eyes)
- Aniridia (partial or complete loss of the coloured part of the eye (iris))

Retinal and optic nerve conditions

The retina is a thin layer of light-sensitive cells lining the back of the eye. It converts light into signals that are sent to the brain via the optic nerve.



Optic nerve hypoplasia

Conditions affecting these structures include:

- Retinal dystrophy (a group of conditions affecting vision in dim and/or bright light often associated with visual field loss) including retinitis pigmentosa and cone-rod dystrophy
- Optic nerve hypoplasia (underdevelopment of the nerve connecting the eye to the brain)
- Optic atrophy (damage or degeneration of the optic nerve)

These conditions can lead to reduced vision, night blindness, tunnel vision or visual impairment. Some children are unusually sensitive to bright light (photophobia). Wearing hats, sunglasses or tinted lenses may help in some situations.

Brain-based visual impairment

Not all vision problems originate in the eyes themselves. Some children have difficulty processing visual information because of differences in how the brain interprets visual signals. This is known as cerebral visual impairment (CVI) or cortical visual impairment.

Children with CVI may:

- Have difficulty recognising faces or objects
- Become overwhelmed in visually busy environments
- Find it difficult to locate items
- Struggle with movement through unfamiliar surroundings

Specialist assessment and support can help maximise functional vision.

Glasses and contact lenses

Many children with genetic conditions benefit from glasses. Glasses can improve vision, support learning and help visual development. Some children may need to wear glasses all the time, while others only wear them for certain activities such as reading or looking at objects in the distance. Contact lenses may also be suitable for some children and adults.

It can sometimes take time for children to adjust to wearing glasses and contact lenses. Consistent encouragement and positive reinforcement can help children become comfortable with them.

Eye specialists often prescribe glasses for children even if they do not complain of poor vision, since glasses can support visual development and help prevent complications such as “lazy eye” (amblyopia).

Understanding a glasses prescription

An eye specialist or optician may prescribe glasses using numbers recorded in dioptres (D). These numbers describe how much focusing correction is needed**.** In general, the larger the number, the stronger the glasses prescription.

You may notice a "+" (plus) or "−" (minus) sign next to the prescription.

- Plus (+): prescriptions are used to correct long-sightedness (hypermetropia). Long-sighted people have good distance vision but have difficulty seeing near objects clearly.
- Minus (-): prescriptions are used to correct short-sightedness (myopia). Short-sighted people have good near vision but have difficulty seeing objects clearly in the distance.

Some people have an eye that is shaped more like a rugby ball than a football. This is called astigmatism and can cause blurred or distorted vision. Astigmatism is a common natural imperfection in the shape of your eye and is easily resolved with glasses or contact lenses.

Prescriptions may therefore contain two numbers:

- Sphere (SPH): The sphere value corrects long-sightedness or short-sightedness
- Cylinder (CYL)**:** The cylinder value corrects astigmatism

For example: SPH -2.00 / CYL -1.50 means that glasses are for both short-sightedness and astigmatism.

Why might one eye have a different prescription?

It is common for each eye to require a different amount of correction. In many cases, this difference is small and causes no noticeable symptoms. This simply means that one eye needs a stronger focusing correction than the other. This does not necessarily indicate a serious eye problem. Eye specialists consider the prescription alongside other aspects of eye health, vision and development when deciding whether any treatment or follow-up is required.



NHS Funding for Children’s Glasses

In the UK, children under 16 years of age, and young people aged 16-18 years in full-time education, are usually entitled to free NHS sight tests, an NHS optical voucher towards the cost of glasses or contact lenses and help with the cost of stronger or more complex lenses when clinically required. Public and government funding for children's vision care is available in many different countries but varies significantly around the world.

Eye patching and vision therapy

Some eye conditions can interfere with the normal development of vision during childhood. This is particularly important during the first few years of life, when the connections between the eyes and the brain are still developing.

For example:

- A squint (strabismus)
- A significant difference in glasses prescription between the two eyes
- A cataract or other condition affecting vision in one eye
- Certain eye movement, focusing or binocular vision disorders

Lazy eye (amblyopia) occurs when vision in one eye does not develop as expected during childhood. If the brain consistently receives a clearer image from one eye than the other, it may begin to favour the stronger eye and rely less on information from the weaker eye. Without treatment, the weaker eye may develop permanently reduced vision, even if the eye itself appears healthy.

The aim of treatment is to help the eyes and brain learn to work together effectively. During early childhood, visual pathways are still developing, and treatment is often most successful when started early.

Eye Patching

One of the most common treatments for amblyopia is eye patching. A patch is placed over the stronger eye for a prescribed number of hours each day. This encourages the brain to use the weaker eye, allowing visual pathways to develop more as expected.

Many children dislike wearing a patch initially, but consistent use is important to achieve the best possible visual outcome.

In some children, atropine eye drops may be used instead of patching. These drops temporarily blur vision in the stronger eye, encouraging greater use of the weaker eye.

Prism glasses

Some children with squints, eye movement disorders or double vision may benefit from prism lenses. Prisms are specialised lenses incorporated into glasses that alter the path of light entering the eye. They can help align images seen by each eye, reducing symptoms such as double vision and making vision more comfortable. This is now very rarely used in children.

Vision therapy

Vision therapy refers to a programme of exercises and activities designed to improve specific visual skills, such as eye movements, focusing ability and coordination between the eyes. However, this is very rarely used in genetic eye conditions and not commonly provided on the NHS.

It may be recommended for selected children with binocular vision difficulties, convergence insufficiency (difficulty with near or vertical vision as the eyes cannot move centrally towards the nose), focusing difficulties or some eye movement disorders. It is not suitable for every eye condition, and an eye specialist will advise whether a child is likely to benefit.

Eye surgery

A small number of children may require surgery to improve vision or optimise eye function. The type of surgery recommended will depend on the underlying eye condition and the child's individual needs.

Examples include:

- Cataract surgery
- Squint surgery
- Glaucoma surgery
- Eyelid surgery
- Tear duct surgery
- Retinal surgery

Questions you may want to ask your eye surgeon

- What are the expected benefits of surgery?
- What are the possible risks or complications?
- How long will recovery take?
- Will further surgery be needed in the future?
- Will my child still require glasses, patching or other treatments after surgery?

Preparing for eye surgery

Most eye surgery performed in children is carried out under a general anaesthetic (GA), meaning your child will be asleep throughout the procedure and will not feel any pain during the operation.

Before surgery, families will usually meet members of the ophthalmology team to discuss:

- Why surgery has been recommended
- What the operation involves
- Potential benefits and risks
- The expected recovery period
- Any alternatives to surgery

Children are often seen in a pre-operative assessment clinic before their operation. This may include:

- An examination of the eyes
- Measurements of vision and eye alignment
- Review of medications and medical history
- An assessment by the anaesthetic team to ensure it is safe to proceed with a general anaesthetic

On the day of surgery, another eye examination may be performed to confirm the surgical plan and answer any final questions. Most families find that clear communication with the ophthalmology and anaesthetic teams helps them feel more prepared and confident about their child's surgery.

After surgery

Many eye operations are performed as day-case procedures, meaning children are able to return home on the same day. Some children may need eye drops, ointments, eye shields, glasses or follow-up appointments during recovery.

It is common for the eye to appear red, watery or slightly swollen for a short period after surgery. The ophthalmology team will explain what to expect and when to seek further medical advice.

Support in education

Vision plays an important role in learning, communication, mobility and independence. Even relatively mild visual difficulties can affect a child's ability to access educational materials, participate in classroom activities and navigate the school environment.

Many children with visual impairment attend mainstream schools and thrive with appropriate support and reasonable adjustments.

Children with visual impairment may benefit from:

- Enlarged print or electronic magnifiers
- High-contrast materials
- Assistive technology like screen-reading software
- Modified classroom layouts like seating near the front of the classroom

Education, health and care plans (EHCPs)

In the UK, some children with visual impairment and additional needs may be eligible for an Education, Health and Care Plan (EHCP), in the US this is known as an individualized education plan (IEP) and there are equivalent documents in many other countries

An EHCP is a legal document that describes a child's educational, health and social care needs, along with the support required to help them achieve their full potential. This support may include specialist teaching, assistive technology, mobility training, therapy input or additional classroom assistance.

Parents who feel their child's visual impairment is affecting their education can discuss concerns with their school, local authority, educational psychologist or healthcare team.

Qualified teachers of children and young people with vision impairment (QTVIs)

Children with visual impairment may be supported by a Qualified Teacher of Children and Young People with Vision Impairment (QTVI).

QTVIs are specialist teachers who help children access education, advise schools on appropriate adaptations and provide practical support for families and teaching staff.

They may assist with:

- Classroom adaptations
- Access to learning materials
- Use of visual aids and assistive technology
- Mobility and independence skills
- Transition planning between schools



Eye clinic liaison officers (ECLOs)

Some hospitals have an Eye Clinic Liaison Officer (ECLO) who provides practical and emotional support to people living with visual impairment and their families.

ECLOs can help families understand a diagnosis, access support services, navigate education and benefits systems, signpost to appropriate educational provision and connect with local and national charities. They often act as an important link between healthcare, education and community support services.

Specialist educational provision

Most children with visual impairment attend mainstream schools with appropriate support and adaptations. However, some children may benefit from additional specialist provision.

Depending on a child's needs and local services, support may include:

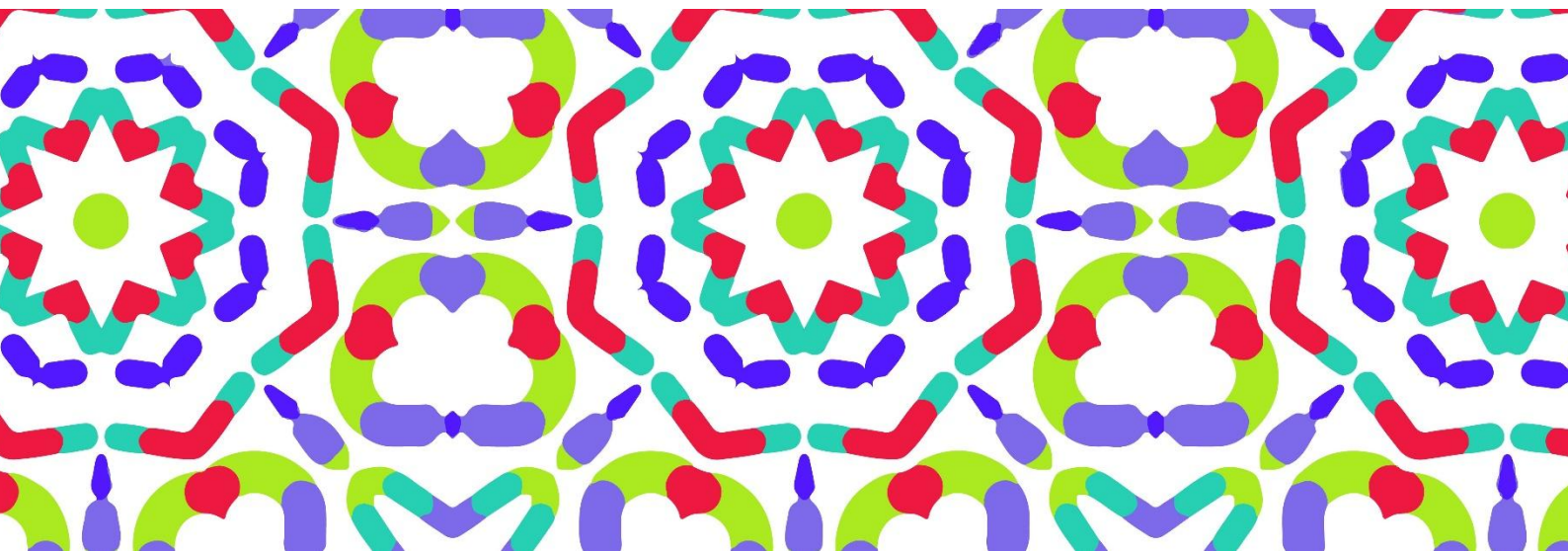
- Specialist outreach from a Qualified Teacher of Children and Young People with Vision Impairment (QTVI)
- Resource bases or specialist units for children with visual impairment within mainstream schools
- Specialist schools for children with visual impairment or multiple disabilities

The most appropriate setting will depend on the child's vision, educational needs, independence skills and any additional medical or developmental conditions. Educational professionals and families should work together to identify the environment in which the child can thrive and access learning most effectively.

Early identification of visual difficulties, appropriate support and regular communication between families and professionals can help children develop confidence, independence and reach their full potential

Good communication between families, schools, eye specialists and support services can help ensure that children receive the support they need both inside and outside the classroom.

Every child uses their vision differently, and even children with the same diagnosis may require different adjustments. It is important that educational support is tailored to the individual child's strengths, challenges and learning style.



Independence and daily living

Early access to appropriate educational support, mobility training, assistive technology and specialist services can help maximise confidence, independence and opportunities throughout life.

Developing independence

Children with visual impairment can develop a wide range of skills that support independence at home, in education and in the community. The level of support required varies considerably between individuals and depends on the degree of visual impairment, any associated medical conditions and the child's overall development.

Many children benefit from support with:

- Navigating unfamiliar environments
- Road safety and crossing roads safely
- Recognising signs, landmarks and obstacles
- Using technology and accessibility features
- Organising personal belongings
- Independent travel skills

Often QTVIs and ECLOs will engage specialist mobility and habilitation professionals to help children develop these skills from an early age.

Technology and accessibility

Technology can play an important role in promoting independence.

Many smartphones, tablets and computers include built-in accessibility features such as:

- Screen magnification
- Voice control
- Large text settings
- Screen readers
- Colour and contrast adjustments
- Text-to-speech functions

These tools can help individuals access information, communicate and navigate their environment more easily.

For example, Meta smart glasses are an assistive tool for visual impairment. They connect to a smartphone and give hands-free access to built-in AI. Users can use voice commands to get real-time audio descriptions of surroundings, help to read menus or identify items. However, this technology may not be suitable for people with learning difficulties/intellectual disability.

Driving and vision

Parents often wonder whether their child will be able to drive in the future.

The ability to drive depends on a person's learning and behavioural abilities as well as their vision and whether they meet the legal visual standards required in their country. Some individuals with visual impairment are able to drive safely, while others may not meet the required standards.

In the United Kingdom, drivers must be able to read a number plate from a specified distance and meet minimum visual acuity and visual field requirements. Visual standards are assessed individually and may vary depending on the underlying eye condition.

Some eye conditions affect peripheral vision, night vision or sensitivity to glare, which may affect driving eligibility even when visual acuity is relatively good.

If driving is not an option, public transport, active travel, community transport schemes, taxis and other support services can provide alternative means of travel and help maintain independence.

Public transport and travel

Many individuals with visual impairment can travel independently using public transport.

Support may include:

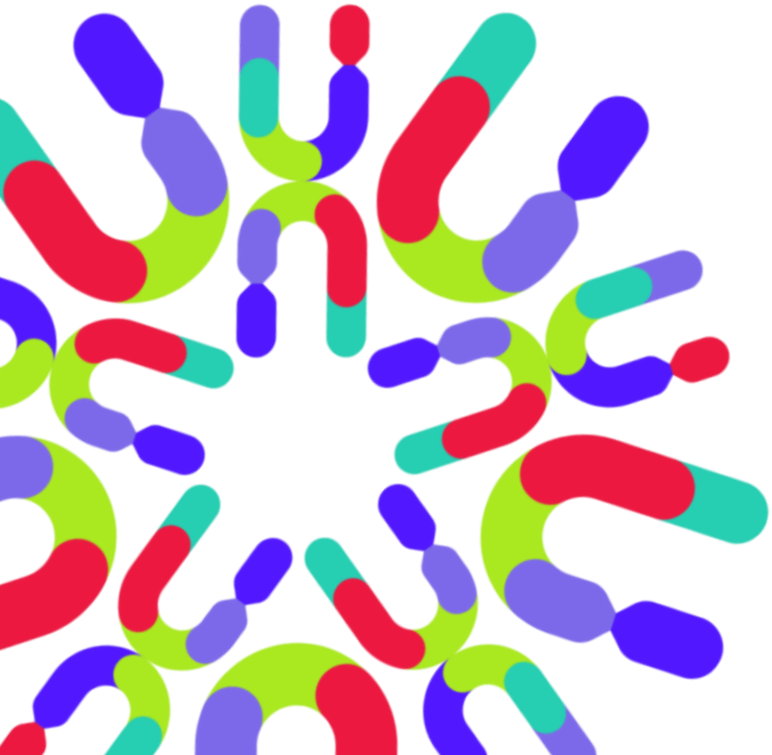
- Mobility training
- Orientation skills
- Use of canes where appropriate
- Accessible journey planning apps
- Audio announcements on buses and trains
- Assistance from transport staff

As children grow older, developing confidence with public transport can help increase independence and participation in education, employment and social activities.

People with visual impairment may be eligible for:

- Free or discounted bus travel through concessionary travel schemes
- A Disabled Persons Railcard, which gives the cardholder and an accompanying adult discounted rail fares
- Assistance when travelling by train, including help boarding, alighting and navigating stations

Depending on where you live, additional schemes may be available.



Some young people and adults with severe visual impairment may benefit from a guide dog. Guide dogs can provide practical assistance with navigation and support confidence and independence when travelling in the community.

Many people with visual impairment also use mobility training, long canes and accessible technology to travel independently.

Useful organisations (UK)

Royal National Institute of Blind People (RNIB)

RNIB provides information, practical advice and support for people living with sight loss and their families. They offer resources on education, employment, benefits, technology and daily living.
Website: **RNIB**
Helpline: **0303 123 9999**

Eye and Vision Jargon: when speaking with eye specialists, families are often introduced to unfamiliar terminology. A helpful glossary can be found on the RNIB website: **Find information on eye conditions a-z | RNIB | RNIB**

Royal Society for Blind Children (RSBC)

RSBC supports blind and partially sighted children, young people and their families. They offer family support, social opportunities, educational advice and programmes that help children build confidence and independence.
Website: **RSBC**
Email: **connections@rsbc.org.uk**
Phone: **020 3198 0225**

VICTA (Vision Impairment Centre for Teaching and Aid)

Provides grants, educational resources, family activities, technology support and opportunities for children and young people with visual impairment.
Website: **VICTA**

LOOK UK

Offers mentoring, peer support and practical advice for visually impaired children, young people and their families.
Website: **LOOK UK**
Email: **info@look-uk.org**
Phone: **07464 351 958**

Sense

Supports children and adults with complex disabilities, including individuals with combined hearing and visual impairment (deaf-blindness).
Website: **Sense**
Email: **info@sense.org.uk**

BlindAid

A London-based charity supporting blind and partially sighted adults to maintain independence, develop practical daily living skills and remain connected to their local communities.
Website: **BlindAid**
Email: **enquiries@blindaid.org.uk**
Phone: **020 7403 6184**

Guide dogs

Although best known for guide dogs, the charity offers a wide range of support services for children and young people with vision impairment, including educational support, family services and mobility training.
Website: **Guide Dogs**
Email: **information@guidedogs.org.uk**
Phone: **0800 781 1444**

Fight for sight

Funds research into eye disease and sight loss while supporting people affected by visual impairment.
Website: **Fight for Sight**
Email: **info@fightforsight.org.uk**
Phone: **020 7620 2066**

Eye condition-specific support (UK)

Retina UK

Supports individuals and families affected by inherited retinal conditions and funds research into inherited progressive sight loss.
Website: **Retina UK**
Email: **helpline@RetinaUK.org.uk**
Phone: **0300 111 4000**

MACS (Microphthalmia, Anophthalmia and Coloboma Support)

Provides information and support to families affected by microphthalmia, anophthalmia and coloboma.
Website: **MACS**
Email: **help@macs.org.uk**
Phone: **0800 169 8088**

Nystagmus Network

Provides information, advocacy and peer support for people living with nystagmus and their families.
Website: **Nystagmus Network**
Email: **info@nystagmusnet.org**
Phone: **01427 718093**

Glaucoma UK

Support, education and information for people affected by glaucoma.
Website: **Glaucoma UK**
Email: **helpline@glaucoma.uk**
Phone: **01233 648 170**

Macular Society

Provides support and information for people affected by macular disease and central vision loss.
Website: **Macular Society**
Phone: **0300 3030 111**

Inform Network Support

Rare Chromosome Disorder Support Group
The Stables, Station Road West, Oxted, Surrey, RH8, 9EE, UK
Tel: +44(0)1883 723356
help@rarechromo.org I rarechromo.org

Join Unique for family links, information and support:

Become a member

Please help us to help you!

Unique is a charity without government funding, existing entirely on donations and grants.
If you can, please make a donation:

Donate via our website

Alternatively, donate via this QR code:

This information guide is not a substitute for personal medical advice. Families should consult a medically qualified clinician in all matters relating to genetic diagnosis, management and health. Information on genetic changes is a very fast-moving field and while the information in this guide is believed to be the best available at the time of publication, some facts may later change.

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