



# Inclusive teaching and learning for children with visual impairments

Teachers' guide



République du Sénégal  
Ministère de l'Éducation nationale



sense  
International



Irish Aid  
Rialtas na hÉireann  
Government of Ireland



Sightsavers



## Table of Contents

---

<b>Acknowledgements</b>	<b>4</b>
<b>Introduction</b>	<b>5</b>
<b>1. Understanding inclusive education</b>	<b>6</b>
<b>2. Understanding visual impairment</b>	<b>9</b>
<b>3. Barriers to inclusive education</b>	<b>15</b>
<b>4. Twenty strategies for inclusion</b>	<b>18</b>
<b>5. Working with families</b>	<b>26</b>
<b>6. Identifying and referring children with sight difficulties</b>	<b>29</b>
<b>7. Teaching and learning braille</b>	<b>32</b>
<b>8. Tactile learning aids and raised diagrams</b>	<b>42</b>
<b>9. Orientation and mobility and other skills</b>	<b>45</b>
<b>10. Child safeguarding</b>	<b>51</b>
<b>11. Including children with albinism</b>	<b>54</b>
<b>12. Including children with deafblindness</b>	<b>57</b>
<b>13. Teaching and learning mathematics</b>	<b>60</b>
<b>14. Teaching and learning geography</b>	<b>73</b>
<b>15. Sports and games</b>	<b>77</b>
<b>16. Assistive technology for children with visual impairments</b>	<b>83</b>
<b>Conclusion</b>	<b>88</b>
<b>Appendix 1: Specimen programme for five-day workshop on inclusive education for children with visual impairments</b>	<b>89</b>

## Acknowledgements

---

This guide was developed by Guy Le Fanu, Mary Bassendine, Jan McCall, Steve McCall and Juliette Myers, with technical assistance being provided by Kolawole Ogundimu, Paul Lynch, Laurene Leclercq, Salimata Bocoum, Astou Sarr and Khady Ba.

The support of the Ministry of Education in Senegal for the development of the guide is gratefully acknowledged. We would particularly like to thank Mme Mbodj, Head of Primary Education, and M. Inspector Saliou Sene, Inclusive Education Coordinator. In addition, we would like to thank the inspectors, head teachers and staff (class teachers and itinerant teachers) of the Sightsavers-supported inclusive schools in Thieroye, Rufisque and Guediawaye.

Fiona Broadley and Suzy McDonald, Habilitation Specialists from the Education Habilitation Services at Priestley Smith School, Birmingham, UK, kindly reviewed the material on orientation and mobility. Alison Marshall, Director of Sense International, provided the material on deafblindness, and Emma Swain, formerly Communications Manager at Sightsavers, wrote the case-study at the end of this guide.

We would like to thank Irish Aid for their financial support for this publication.

The cover image shows Mafoune, an eleven year old pupil with low vision at a primary school in Mali, with her classmates. The project is supported by USAID. Photo: © Sightsavers/Javier Acebal.

Guy Le Fanu

September, 2018

## Introduction

---

This guide identifies ways in which children with visual impairments (children who are blind and children with low vision) can be included in mainstream schools in sub-Saharan Africa. It is designed for inspectors, teacher-trainers, head teachers, classroom teachers and other stakeholders in education systems. The guide was written at the request of the Ministry of Education in Senegal, but can also be used in other sub-Saharan African countries.

The guide covers the following subjects:

1. The eye, different types of eye condition, and the impact of visual impairment on children's learning.
2. The barriers faced by children with visual impairments.
3. Simple but effective ways in which teachers can include children with visual impairments in their classes.
4. The particular needs of specific groups of children with visual impairments – children who are blind, children with low vision, children with albinism, children with deafblindness, and girls with visual impairments.
5. Detailed advice on specific subjects – screening and assessment of children with sight difficulties; working with families; the teaching and learning of braille; using tactile aids and raised diagrams; orientation and mobility; child safeguarding; and assistive technology.
6. Ways of teaching 'challenging' subjects to children with visual impairments – mathematics, geography, and sports and games.

Each chapter discusses a particular topic. At the end of each chapter, there are specimen learning activities, and, at the end of the guide, a specimen five-day training programme.

## 1. Understanding inclusive education

---

This guide is about how you can include children with visual impairments in your school. It is therefore very important that we begin by defining the terms ‘children with visual impairments’ and ‘inclusive education’.

### Children with visual impairments

The term ‘children with visual impairments’ refers to two groups of children.

First, it refers to **children who are blind**. Children who are blind have no sight or very little sight.

Second, it refers to **children with low vision**. Children with low vision have a significant amount of useful sight, but still see much less than fully-sighted children. Children with low vision are sometimes called partially-sighted.

There is also a third group of children – children who have some difficulties with seeing but can see perfectly if they are provided with a customised pair of glasses. These children are not ‘visually impaired’. However, it is important that their visual needs are met, i.e. they receive a pair of customised glasses that they use both at home and at school. If this doesn’t happen, these children will not reach their potential – for instance, they may struggle to read books or read what has been written on the blackboard.

### Inclusive education

Inclusive education happens when all children, girls and boys (including children with visual impairments and other children with disabilities):

- a) Go to their local schools
- b) Learn in a stimulating, supportive and accessible environment in which they receive an education of good quality.

Children with visual impairments not only need to receive good quality educational support in schools, but good quality home-based educational support. This is because parents and other family members play a key role in the educational development of children with visual impairments – for instance, through encouraging them to explore the world around them and assisting them to develop social, communication and daily-living skills. This subject is discussed further in Chapter 5 of this guide.

### International agreements on inclusive education

International agreements, signed by the governments of countries throughout sub-Saharan Africa, say that children with visual impairments have the right to inclusive education. It is important that you are aware of these agreements as you can use this knowledge a) to persuade parents to send children with disabilities to school, and b) to persuade schools to include these children.

**United Nations Convention on the Rights of the Child (1989)** says:

- All children (i.e. young people aged 0 to 18) have the right to an education (Article 28) that develops their abilities and personality as fully as possible (Article 29)

## Guide: Inclusive teaching and learning for children with visual impairments

- Children with disabilities have a right to an education that helps them to live a full and active life (Article 23)
- All children have a right to good quality health services (Article 24). This article is important because children with visual impairments will be much more successful in education if they receive good quality assessments and necessary assistive devices – for instance, a pair of glasses. This subject is discussed further in Chapter 6.

Article 24 of the **United Nations Convention on the Rights of Persons with Disabilities** (2006) says:

- Children with disabilities have the right to inclusive, quality and free education in their local schools, and to both primary and secondary education
- Schools should practise ‘reasonable accommodation’. In other words, schools should do everything reasonably possible to meet the specific needs of pupils with disabilities.
- Schools should make sure that pupils with disabilities receive ‘individualised support’. In other words, teachers should provide pupils with disabilities with one-to-one assistance when and as necessary.

**Sustainable Development Goals** (2015) signed by the governments of 193 countries say:

- All children, including children with disabilities, have the right to ‘inclusive and equitable quality education and...lifelong learning opportunities’ (Goal 4)

The Sustainable Development Goals (SDGs) are also committed to ensuring:

- Equal access to all levels of education for girls and boys with disabilities (target 4.5)
- Inclusive, accessible learning environments for all (target 4.a)
- Good quality early childhood care and education (target 4.2)

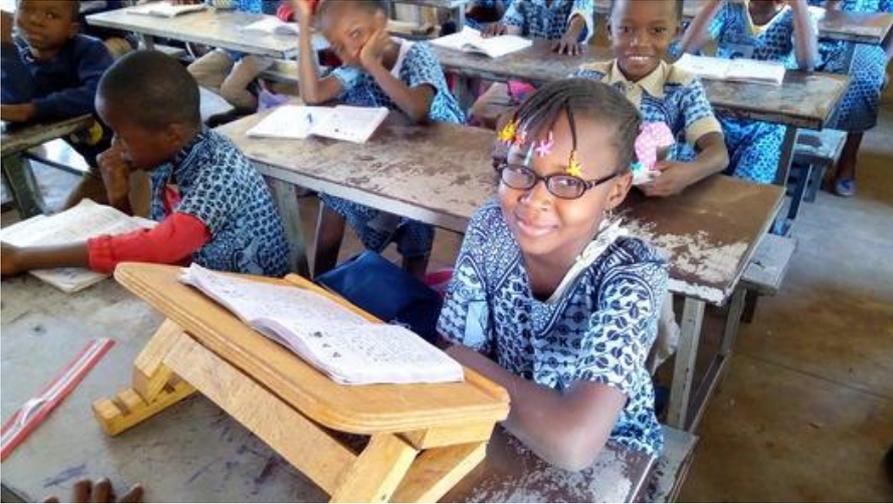
### National agreements and policies

You will find that national agreements and policies in your country similarly uphold the rights of children with disabilities. Try to find out about these agreements and policies, as once you have this knowledge you will be able to advocate for inclusive education more effectively in your schools and communities.

### Inclusive education in action

So far, we have talked about inclusive education in a very general way. We will now discuss inclusive education more specifically. Look at the photo on the next page. It shows a girl with low vision in a school in Mali.

Does the photo suggest the girl has been successfully included in school? Why do you think this?



Girl with low vision in a school in Mali. The project is supported by USAID. © Sightsavers.

Yes, the photo certainly suggests she has been successfully included in school. She looks happy and relaxed. She is wearing a smart school uniform like the other children. She is not sitting on her own in the class which could make her feel anxious and isolated, but next to another pupil. She is wearing a pair of glasses which helps her to read her text-books, see the blackboard and generally participate in class. She also has a reading-stand which makes it easier for her to read print (because the reading-stand brings print closer to her eyes).

Of course, we can't be sure that she has been successfully included in school. To do that, we would need to talk to the pupil, her parents, and her teachers in order to find out their views. We would need to observe her in the classroom (is she actively involved in lessons?) and in the playground (is she playing happily with the other children?). We would also need to find out how much progress she is making across the curriculum. However, the photo provides some positive signs of inclusion.

## Specimen learning activities

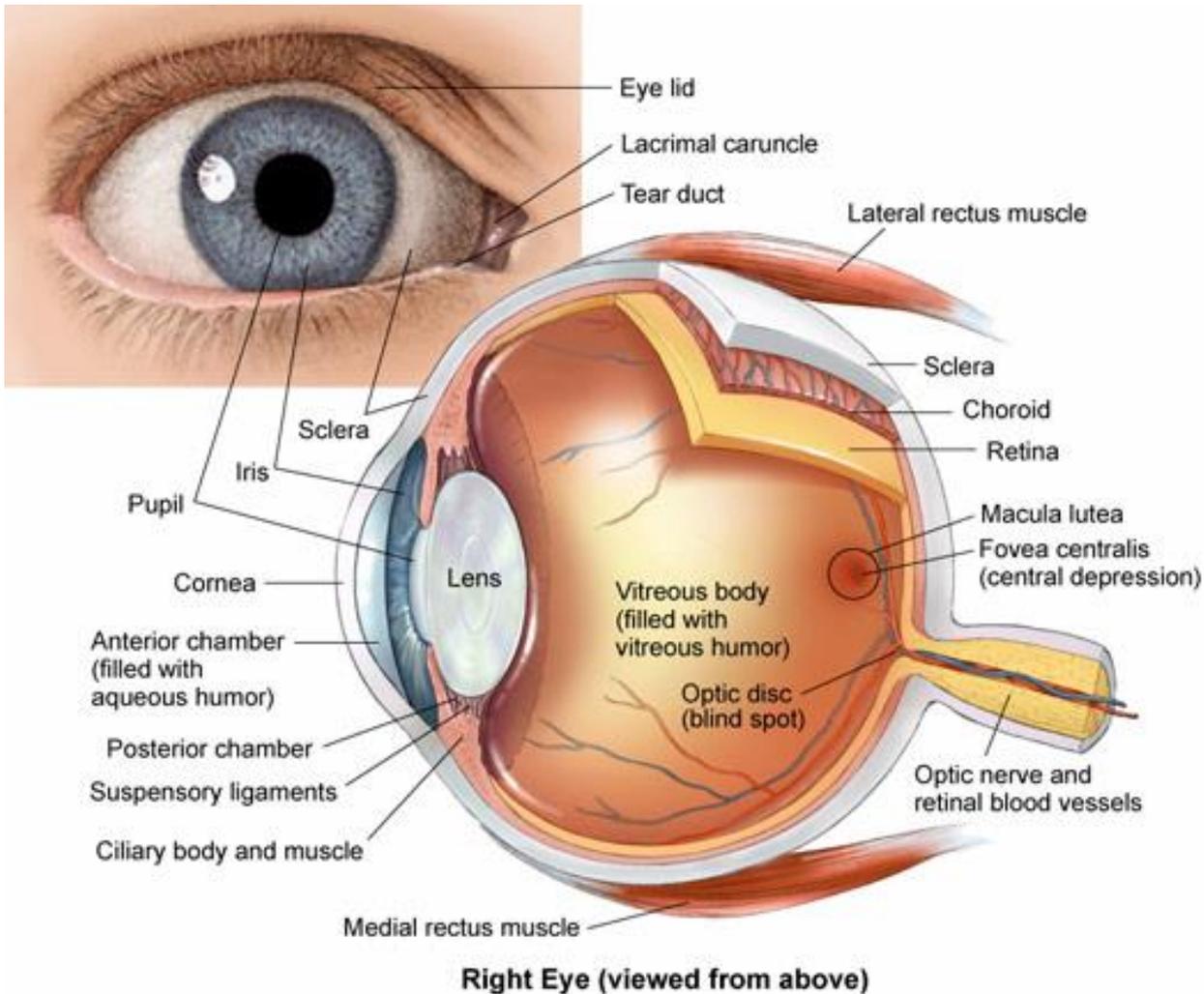
1. **Video.** Watch and discuss the Plan International video on child rights:  
<https://www.youtube.com/watch?v=mJggYdw3I0ka>
2. **Video.** Watch the video on inclusive education in Bangladesh produced by Plan International. What inclusive practices are shown in the video, and could they be adopted in your school? The video can be downloaded from:  
[https://www.youtube.com/watch?v=\\_9fiNgjjKbA](https://www.youtube.com/watch?v=_9fiNgjjKbA)
3. **Reflection.** In what ways is your school inclusive – not only for children with disabilities but also for other children? In what ways is your school not inclusive? How do you think your schools could be made more inclusive?
4. **Policy review.** Find out about the policies in your country on the education of children with disabilities. Are these policies adequate? Are they being implemented effectively? How can the situation be improved?

## 2. Understanding visual impairment

In this chapter, you are going to learn about visual impairment. In order to do this, you first need to know something about the eye and how it works.

### How the eye works

Below is a diagram of an eye.



The various parts of the eye help the eye to function effectively.

- **Eye lids** are there to protect the eyes. They do this by physically protecting the eye and by producing tears.<sup>1</sup> There are small holes near the edge of the eyelids – these are the **tear ducts** which drain the tears away. Tears help to clean the eyes and keep them wet – which is necessary for healthy eyes.
- There is a central, clear outer window at the front of the coloured part of the eye. This is the **cornea**.
- Behind the cornea, there is a black circle. It is the **pupil**. It lets light into the eye.

<sup>1</sup> This information about the eye is taken from F.V., Wiafe, B., 2007. *The Healthy Eyes Activity Book: A Health Teaching Book for Primary Schools* (2<sup>nd</sup> edn). International Centre for Eye Health: London.

## Guide: Inclusive teaching and learning for children with visual impairments

- Surrounding the pupil is the coloured part that changes the size of the pupil. It is called the **iris**.
- The **conjunctiva** is the thin, transparent tissue with blood vessels that covers the rest of the visible outer surface of the eye.
- The **lens** focuses light on the retina. The lens changes shape to be able to focus clearly on close or distant things. This process is called accommodation. When we grow older, the lens gradually hardens and cannot change shape so easily. As a result, the eye is not able to accommodate so well.
- The **retina** is in the back part of the eye. It contains the cells that respond to light. These cells are called photoreceptors. They capture light rays and convert them into electrical impulses. These impulses travel along the optical nerve to the brain where they are turned into pictures.
- The **vitreous** fills the centre of the eye. It is a thick, transparent substance. It gives the eye its shape.
- The **optic nerve** carries electrical impulses from the retina to the brain. It connects to the back of the eye.

### Eye problems

The diagram on the previous page shows a perfectly functioning eye. Unfortunately, people can have various problems with their eyes.

Some common eye problems in sub-Saharan Africa are:

- **Cataract** is by far the most common cause of blindness in Africa and in the world. It is responsible for 45-60% of the blindness in Africa. The lens, which is normally transparent (like a glass lens), can become opaque for many reasons, including increasing age, various diseases or injury. The opaque lens is called a cataract. Cataract is often associated with old age. However, some children are born with cataracts. Cataract is often difficult to identify in children, but it is vital that a) it is diagnosed as soon as possible after birth and b) an operation is performed by a specialist children's eye surgeon. After this operation, the child will need follow-up support, as often sight is not completely restored.
- **Glaucoma** is a condition in which excessive pressure in the eye causes permanent damage to the optic nerve. It is the commonest cause of irreversible (permanent) blindness in Africa. Children as well as adults can be affected by glaucoma.
- **Trachoma** is a bacterial infection caused by a micro-organism, chlamydia trachomatis. It is spread by contact with flies, and passed on by infected hands and towels, often from child to child or between mother and child during infancy. It is made worse by lack of clean water and crowded living conditions. Repeated or untreated infections cause the eyelid to turn inwards and the eyelashes to rub against the eyeball, resulting in abrasions on the inner eyelids and scarring of the cornea. Unlike the conditions we have discussed so far, trachoma is not found everywhere. However, in some places, trachoma is the second-most common cause of blindness after cataract. Trachoma can be treated with antibiotics in its early stages and sometimes by surgery to correct the in-turned eyelashes from rubbing on the cornea and leading to blindness.

Childhood blindness is seen as a priority illness by World Health Organization. The prevalence of blindness in sub-Saharan Africa is estimated to be 2-8 per 10,000 children. However, the number of children with low vision is likely to be far higher.

However, once visual impairment has set in, there is no effective treatment. A combination of **Surgery, Antibiotics, Facial cleanliness and Environmental improvements** is being used to eliminate this disease.<sup>2</sup> This is known as the **SAFE** strategy.

- **Onchocerciasis or River Blindness** is caused by a parasite passed on by repeated bites from blackflies prevalent by fast-flowing waters. Symptoms of the disease include severe itching from skin lesions and visual impairment. This disease can affect any part of the eye. More than 99% of infected people live in sub-Saharan Africa. World Health Organization (WHO) recommends yearly treatment programmes using Ivermectin over a period of 10-15 years in combination with insecticide spraying to eliminate the fly and break the cycle of disease.
- **Vitamin A deficiency.** If a young child does not eat enough food rich in Vitamin A or does not absorb it because of chronic diarrhoea, the retina can stop functioning and the child becomes unable to see. Orange, yellow and green vegetables, eggs, fish and animal liver all provide this nutrient which is essential for children and breast-feeding mothers. A mass programme of Vitamin A supplements has been successful, but only improvements in nutrition will provide a long-term solution. Many communities, including schools, are planting gardens and growing Vitamin A rich vegetables to encourage people to include them in their diet and to alleviate the problem.
- **Refractive error** is a condition in which the eye fails to focus images properly on the retina and the person sees a blurred image. The image can be corrected with spectacles to enable the person to see clearly. Refractive error is the commonest cause of mild to moderate sight loss. A related condition to refractive error is **presbyopia**.
- **Prebyopia** is when the ageing eye has lost the ability to focus on near objects and therefore near objects are blurred. Spectacles easily correct this problem. Presbyopia is therefore not a disease but a normal part of the ageing process in humans.

Children often develop eye conditions after birth. However, children are sometimes born with particular conditions – one such condition is **albinism**. This condition is discussed in Chapter 11 of this guide.

### Effects of eye conditions on children

Having discussed different eye conditions, we will now discuss the actual impact of eye conditions on children's visual functioning.

However, first of all we need to make a distinction between children who are blind and children with low vision. **Children who are blind** have no sight or very little sight. **Children with low vision** have a significant amount of useful sight, but still see much less than fully-sighted children.

As well as children with visual impairments (i.e. children who are blind and children with low vision), there is another group of children – children with correctable refractive error (see previous section). These children do not have perfect eyesight, but can see perfectly well if provided with a customised pair of glasses. We will discuss these children in more detail later in the guide.

---

<sup>2</sup> These environmental improvements include increased access to clean water and improved sanitation.

## Guide: Inclusive teaching and learning for children with visual impairments

Some eye conditions are **congenital**. Children are born with them. Some eye conditions are **acquired** and develop later in life.

Some eye conditions are **progressive**. This means a child's sight gets worse over time. Some eye conditions are **not** progressive. This means a child's sight will stay the same.

Some eye conditions affect **near vision**. Near vision is the ability to see things close to our eyes. For instance, pupils use their near vision to read books. Some eye conditions affect **distance vision**. Distance vision is the ability to see things further away. For instance, pupils use their distance vision to read the blackboard.

Some eye conditions affect near vision AND distance vision.

Some eye conditions cause **colour blindness**. People cannot see all or some colours. Some eye conditions cause **night blindness**. People with night blindness find it hard to see after sunset.

Some eye conditions cause **photophobia**. Children with photophobia find bright lights painful. Outside, they often need to wear dark glasses.

Some eye conditions reduce **central vision**. Central vision provides us with the detail in our vision and children rely on it to do tasks like reading books or reading from the blackboard. Children who lose their central vision often put their heads one side to try to use their peripheral vision for looking. Children who lose their central vision will have greater difficulty with fine detail tasks such as reading.

Some eye conditions reduce **peripheral vision**. Peripheral vision lets us see the things that are around us that are not in our central vision. Peripheral vision is very good at picking up movement and works well in poor light so children rely on it when they are moving around in class or the playground. It cannot pick up detail like our central vision does. Lack of peripheral vision is sometimes called **tunnel vision** because it is like looking through a tunnel. Children who lose their peripheral vision may move around hesitantly.

Some eye conditions cause interrupted or patchy vision. Some eye conditions cause **nystagmus** or 'twitchy eye'. The eyes twitch from side to side or up and down.

People with nystagmus find it hard to 'focus' on things. To focus is to see clearly and steadily.

Some children with visual impairments have multiple disabilities and may be referred to as **multiply-disabled**. For instance, their visual impairment may be combined with another disability such as hearing impairment or physical impairment.

As you can see, eye conditions can have different effects on children's learning and development. Each child with a visual impairment therefore has particular educational needs (related to the impact of their impairment on their functioning). It is important that you are aware of and respond to these needs, while recognising that children with visual impairments also have the same needs as the other children in your class (i.e. they need to learn to read and write, to study a range of interesting subjects, to make friends etc.) In this guide, we will describe how you can meet the various needs of children with visual impairments in your classroom.

## Specimen learning activities

1. **Video.** Watch the video on Fadzie, a young girl with a visual impairment. What problems did she face and how has she overcome these problems? You can download the video from: <http://www.vision2020uk.org.uk/blind-children-uk-releases-videos-to-raise-awareness-of-the-support-needed-by-children-and-young-people-with-vision-impairment/>
2. **Quiz!** With 6-10 colleagues, organise a quiz. One of you will be the 'quiz master' while the rest of you are divided into two teams. You can ask the following questions based on the section **Effects of Eye Conditions on Children** (pages 11-12).
  - i. Do children who are blind see nothing? **Answer:** No. Most children who are blind have some sight – for instance, some light perception.
  - ii. What is the alternative term for children with low vision? **Answer:** Children who are partially-sighted.
  - iii. What is the difference between a congenital and acquired eye condition? **Answer:** Children are born with congenital eye conditions. Acquired eye conditions develop later in life.
  - iv. What is near vision? **Answer:** Near vision is the ability to see things close to our eyes.
  - v. What is photophobia? **Answer:** Photophobia is a high degree of sensitivity to bright light.
  - vi. What does central vision allow us to do? **Answer:** Central vision allows us to see detail.
  - vii. What is peripheral vision? **Answer:** Peripheral vision is the ability to see what is to either side of us. Peripheral vision enables us to see 'out of the corners of our eyes'.
  - viii. What is the lack of peripheral vision sometimes called? **Answer:** Tunnel vision.
  - ix. What is nystagmus? **Answer:** Nystagmus is an eye condition that causes eye to twitch from side to side or up and down.
  - x. If a child is multiply-disabled what does it mean? **Answer:** It means that a child has more than one impairment.

This quiz will both test and develop participants' knowledge.

3. **Reflection.** Organise a group discussion with 5-10 other teachers. As a group, discuss the different levels of seeing of the group members. For instance, you can ask:
  - Who in the group has some difficulties with seeing – for instance, needs glasses?
  - Among those who have difficulties seeing, how many are short-sighted (in other words, have no problems seeing things close to their eyes, but have problems seeing things further away)?
  - Among those who have difficulties seeing, how many are long-sighted (can see things further away, but struggle to see things close to their eyes)?
  - How many have had problems with seeing all their lives?
  - How many have developed problems with seeing only in adulthood?
  - Do people find it hard or impossible to carry out certain activities due to their sight difficulties? If so, what activities? What strategies (if any) do people adopt to cope with their sight difficulties (e.g. wear a pair of glasses when reading)?

The above activity will give you and your colleagues a better understanding of the different forms sight loss can take.<sup>3</sup>

---

<sup>3</sup> Remember that any information revealed in this group discussion is confidential – it must stay within the group. You should also respect the right to privacy of those who do not want to contribute to the discussion.

## Guide: Inclusive teaching and learning for children with visual impairments

4. **Ask the expert.** Invite an eye health professional – for instance, an ophthalmologist, an optometrist or a community eye health worker – to talk to the group about their work. This will give you and your colleagues a much better understanding of issues related to the identification and assessment of children who are having difficulties seeing.

### 3. Barriers to inclusive education

---

Children with visual impairments can be very successful in school. They can also be very successful later in life. In your own country, you will no doubt be able to think of examples of successful politicians, scholars, lawyers, musicians, and community leaders (for instance), all of whom have visual impairments.

Unfortunately, children with visual impairments often face various barriers which make it difficult for them to realise their potential.

#### **The barrier of negative attitudes**

Negative attitudes are the most significant barrier of all for children with visual impairments –and other children with disabilities as well. Parents may be ashamed if they have children with visual impairments, and therefore be reluctant to send them to school. Even if children with visual impairments go to school, teachers may underestimate their ability. Children with visual impairments may also experience bullying and teasing from the other pupils.

#### **The barrier of lack of home-based educational support**

Children with visual impairments need home-based support in order to develop their potential. For instance, young children need the various types of stimulation (sights, sounds, smells, encouragement and praise, verbal explanation and description) which will encourage them to explore the world around them and develop their vocabulary. Children with visual impairments also need to be systematically taught daily living skills – how to eat, how to dress, how to wash etc. – as they find it hard to copy what others are doing because of their lack of sight.

#### **The barrier of lack of school-based educational support**

When children with visual impairments go to school, they require specific types of educational support. For instance, children with visual impairments need opportunities to use their non-visual senses (hearing, touch, smell) in order to access the curriculum. Children with low vision will also require opportunities to make best use of their residual vision – for instance, if they sit near the blackboard and the teacher writes in large clear letters on the blackboard, it will be easier for them to read the blackboard. Children who are blind will require specialist assistance – for instance, in order to learn to read and write braille. Unfortunately, these opportunities are not always available.

#### **The barrier of lack of assistive technology**

Children with visual impairments may require assistive technology – i.e. particular equipment and materials. For instance, blind pupils will require braille writing equipment and braille reading material. Children with low vision may require glasses, hand-held magnifiers and reading-stands. Unfortunately, this assistive technology may not be available, or may be in poor condition. Even if it is available and in good condition, children may not receive the specialist training which will enable them to use this equipment effectively.

## The barrier of inadequate eye health services

Good quality eye health services are very important for children with visual impairments. They need to receive good quality visual assessments and follow-up support from medical professionals (ophthalmologists, optometrists, community eye health workers etc.). Information from this assessment can be used to identify the particular educational requirements of the child – for instance, if the child needs to learn braille or requires a customised pair of glasses.

## The barrier of inaccessible environments

Children with visual impairments need to learn in accessible environments. For instance, environments:

- Where they can move around safely – e.g. playgrounds where there are not holes in the ground or objects lying around.
- Where they can hear clearly what others are saying – e.g. classrooms which are quiet and orderly.
- Where they can make best use of their residual vision – e.g. classrooms with adequate levels of lighting.

Look at the photo of a classroom in Sierra Leone below. Do you think it provides an accessible learning environment for children with visual impairments? If so, why? If not, why not?



School in Sierra Leone. © Sightsavers/Peter Caton.

## Overcoming the barriers

This chapter has identified the six barriers to success for children with visual impairments. The next chapter will identify some ways you can help these children to overcome these barriers.

## Specimen learning activities

1. **Ask the expert.** Invite people with disabilities (perhaps representatives of a disabled persons' organisation) to talk to you and your colleagues about a) the barriers they face (or have faced in the past) and b) how they have tried to overcome these barriers. The visiting speakers don't have to be people with visual impairments – they can be anyone with a disability. Make sure that at least one of the visiting speakers is a woman with a disability.
2. **Reflection.** Think about the community in which you live. What barriers are preventing people with disabilities accessing services and participating in activities? How do you think these barriers can be overcome?
3. **Reflection.** Think about the school in which you teach. What barriers make it difficult or impossible for some children with disabilities in your community to go to school? Even if there are children with disabilities who go to your school, do they still face barriers to learning? How do you think these barriers can be overcome?

## 4. Twenty strategies for inclusion

This chapter identifies twenty ways you can include children with visual impairments (i.e. children who are blind and children with low vision) in your schools.

### Create supportive networks

#### 1. Be supportive

Remember that children with visual impairments are the same as other children – they just happen to see less. You should therefore avoid singling out children with visual impairments and making them feel different from the others. Like all children, children with visual impairments also require praise and encouragement. They need to believe that the teacher appreciates and respects them.

Girls with disabilities, including girls with visual impairments, often face particular challenges. These can include: lack of parental support; teasing and bullying from other children; and inaccessible and unhygienic toilets. How can you and your colleagues improve this situation?

However, children with visual impairments also have specific educational needs related to their impairments, as will be discussed in this guide. For instance, they may need to learn particular skills or access particular equipment and materials. They may also find certain activities more challenging than fully-sighted pupils – for instance, reading and writing and moving around the school. It is therefore important that you provide children with visual impairments with the necessary types and levels of support.

Page 28 describes how you can help girls with visual impairments with hygiene issues.

#### 2. Establish buddy systems



Bineta and Fatou, best friends in a primary school in Dakar, Senegal. The project is supported by Irish Aid. © Sightsavers/ Peter Nicholls.

When a child with a visual impairment first goes to school, they may feel frightened, confused and lonely. If you set up a 'buddy system' in your classroom, this can make them feel better.

What is a buddy system? A buddy system is when you ask other children in your class to be the 'best buddies' of the child with a visual impairment. For instance, they can show the child around the school, explain the school timetable to the child, help the child with their work, and be with the child during breaks and lunch-times. Once the child with a

visual impairment is happy and self-confident in school, you can disband the buddy system.

## Guide: Inclusive teaching and learning for children with visual impairments

Remember that 'buddy systems' are not just for children with visual impairments. You can establish a buddy system for any pupil in your class who needs help and support. Children with visual impairments who are happy and successful in school can also be 'best buddies' for other children who are experiencing difficulties.

### 3. Establish child safeguarding systems in your school

Children with visual impairments are vulnerable to various types of abuse due to their lack of sight. Girls with visual impairments are particularly vulnerable to abuse due to negative gender attitudes and practices, and can be abused not only by male teachers but male pupils. You need to ensure there are strong child safeguarding systems in your schools a) to ensure that children are protected from abuse and b) to ensure cases of abuse are appropriately dealt with. Detailed advice is provided in Chapter 10 of this guide.

### 4. Collaborate

Don't try to do everything on your own. Work with others. This will make your life a lot easier.

- Talk to your colleagues, as they may be able to provide you with practical help.
- Specialist teachers of children with visual impairments can provide you with expert assistance.
- You can seek advice from international organisations like Sightsavers or blind people's organisations and NGOs in your country.
- Work closely with health services. Eye health specialists in clinics and hospitals can assess children with visual impairments, and then provide necessary assistive devices and follow up support. This subject is discussed in the Chapter 6 of this guide.
- Social services can play a key role in including children with visual impairments in schools, as can community-based organisations.
- Talk regularly to the child's parents. They can provide you with useful information about the child, and you too can provide them useful information. If you work with the parents, you can provide 'joined up' support for the child.
- Talk to the child. This is the best way you can find out about the child's needs. For instance, the child may be being bullied or are having difficulties keeping up in class. Once you have this information, you can respond to the child's needs.

## Classroom strategies

### 5. Open-up the curriculum

Children with visual impairments need to study the same subjects as the other children. Some people think children with visual impairments cannot study maths and geography or take part in sports and games. However, children with visual impairments can participate successfully in these activities, as discussed in Chapters 13-15 of this guide.

### 6. Communicate effectively

It is important that children with visual impairments are able to understand what you are saying in the classroom. You therefore need to speak clearly and face the class when you speak. All the children in your class will benefit if you communicate like this.

Children with visual impairments may also find it difficult to understand certain concepts because of their lack of sight and/or because their parents have been over-protective and not encouraged them to explore the world around them. For instance, if you talk about giraffe, a pupil with a visual impairment may be uncertain what you are talking about because he/she has never seen a

How would you describe the following to a blind pupil: a bird, a tree, an apartment block, the directions east and west, and a star?

giraffe. If this is the case, you will need to provide some helpful information about the giraffe – for instance, it has a long neck, a small head and four long legs. You can also bring a model of a giraffe into your classroom – the pupil with a visual impairment in your class, along with the other pupils, will be able to feel the model with their hands. If the pupil has low vision, the pupil (along with the other pupils) will be able to visually inspect the model. Pupils with low vision will also benefit from looking at a large, clear picture of a giraffe, as will the others. This type of learning is called multi-sensory learning because you are encouraging your pupils to use their different senses in order to learn.

When you meet a child who is blind, you should identify yourself clearly and tell them who else is present; and, whenever speaking to a child with a visual impairment, you should say the child's name first to get their attention.

## 7. Encourage multi-sensory learning

Multi-sensory learning is very important for children with visual impairments, and will also benefit the other children in your class. First, you need to recognise that children with low vision have a lot of useful vision, and need to be encouraged to use this vision. For instance, you should encourage them to look at pictures in books, read print, and observe the world around them. Second, it is important that you provide all children with visual impairments (i.e. both children who are blind and children with low vision) with opportunities to learn through their senses of hearing, touch, taste and smell. For instance, if you are teaching a lesson about different fruits, you can bring fruits in the classroom so all your pupils, not just the children with visual impairments, can touch, taste and smell the fruits.

## 8. Use the blackboard effectively

Children who are blind will not be able to see what you have written on the board and children with low vision may not find it easy to read what you have written. It is therefore very important that you tell your class what you have written on the board – the first time as you are writing on the board, and the second time after you have finished writing on the board.

Remember not to turn your back or put your hand over your mouth when addressing your class, as this will mean your pupils will struggle to hear what you are saying.

In order to make sure that children with low vision can read what you have written on the board, you need to take the following steps:

- Make sure the board is clean
- Make sure there are no shadows or reflections on the blackboard

## Guide: Inclusive teaching and learning for children with visual impairments

- Set out information clearly and simply
- Write neatly and clearly
- Ideally, use white or yellow chalk on a black surface
- Make sure the lines of text on the board are not too long. Avoid splitting words when you move to the next line.

If you follow the above advice, **all** the children in your class will benefit, not just the children with visual impairments.

### 9. Encourage pupils to help one another

When appropriate, encourage children to work together, in pairs and small groups. For instance, in mathematics, a fully-sighted child can read the questions while a child who is blind writes the answer. Alternatively, in science lessons, a group of children can carry out an experiment together, with the fully-sighted children carrying out certain tasks which the child who is blind is unable to perform (e.g. observing a particular liquid has changed colour). However, when you organise group activities, it is very important that children with visual impairments are actively involved, not just sitting there doing nothing.

### 10. Provide one-to-one assistance



A teacher in Sierra Leone helping a pupil to complete a writing exercise. The project is supported by the European Union. © Sightsavers/Michael Duff.

It can be difficult to provide one-to-one assistance for your pupils when teaching large classes. However, there will be occasions when children with visual impairments will require this assistance, particularly if they have to learn new skills. One-to-one assistance can often be a simple and straightforward process. For instance, it can involve the teacher providing a few words of explanation and encouragement, and perhaps demonstrating a simple process to the child. Sometimes, however, it can be a more complex matter, requiring

careful consideration. In such cases, it may be useful for you to follow this process:

- Reflect.** Identify a skill that the child needs to acquire – this should be something specific, useful and attainable which builds on previous learning.
- Plan.** Organise a task which provides the child with an opportunity to learn/demonstrate the skill.
- Explain.** Explain the task and the purpose of the task to the child.

- iv. **Observe.** Observe the child as s/he performs the task, providing guidance and assistance only if necessary.
- v. **Intervene.** You may choose to intervene to help the child perform part of the task.
- vi. **Assess.** Assess the child's performance – can the child carry out the task easily, with no outside assistance, or does the child find the task difficult?
- vii. **Re-test.** If the child successfully performs the task, praise the child and retest the child later (to check that the child can still perform the task), *or*
- viii. **Re-consider.** If the child cannot perform the task, reassure the child and consider what to do next – e.g. provide clearer explanation of the task, simplify the task, provide more/better assistance for the child, select an alternative task.
- ix. **Record.** Keep a record of the child's performance.

## 11. Teach systematically

You need to **plan** carefully, carefully **monitor** the child's performance, keep detailed **records**, and **report** both face-to-face and on paper to the child and the child's family on the child's performance and progress. This is something you need to do for all children, but it is particularly important that you do this when teaching children with visual impairments and other children with disabilities.

## Reading and writing

### 12. Provide access to braille

Braille is the reading and writing system for people who are blind. Children who are blind therefore need to be provided with the necessary assistive technology, tuition and encouragement. This subject is discussed in Chapters 7.

### 13. Provide access to print

Children with low vision will need to read and write print – unless they have very little sight or their sight will deteriorate in the future, in which case they may need to learn braille. In order to read print, these children will often require a customised pair of glasses. They may also benefit from reading-stands, thick-tipped pens, wide-lined paper, and other assistive technology. This is discussed in Chapter 16.

### 14. Adapt reading and writing tasks

Children with visual impairments often find it particularly hard to read large quantities of text in limited periods of time. This is because children who are blind read through touch (which requires high levels of concentration), and children with low vision do not see text as clearly and/or fully as fully-sighted children. Teachers therefore need to adapt reading tasks for children with visual impairments. For instance, someone else can read the text to the child with a visual impairment, or the child with a visual impairment can be given less to read, or a text can be recorded for them to listen to. However, this doesn't mean that children with visual impairments should be excused from reading tasks! They need to be given opportunities to develop their reading skills, just like other children.

Children with visual impairments may also find writing a challenging. If blind pupils are expected to use braille writing frames and styluses for long periods of time, they will find this tiring, stressful and physically painful.<sup>4</sup> Pupils with low vision may struggle to read their own handwriting. Again, it may be necessary for you to adapt writing tasks for these pupils. For instance, another pupil could act as their scribe; or the visually impaired pupil could use a tape recorder or phone to record work rather than write it; or the child could make an oral presentation to the rest of the class. Again, this doesn't mean that pupils with visual impairments should be excused from writing tasks!

## Resourcing

### 15. Ensure children with visual impairments have access to necessary assistive technology

Children with low vision often benefit from optical aids (such as glasses) and non-optical aids (such as reading-stands) so they can make best use of their residual vision. You therefore need to make sure these children a) can access this assistive technology and b) receive training in the use of this technology.

Children who are blind need to read and write braille. They will therefore require braille writing equipment (Perkins Brailers and braille paper and/or braille writing frames and styluses) and reading materials in braille. They will also require white canes to assist them to travel independently, as will many children with low vision. Again they will need to be provided with training in the use of this technology.

These issues are discussed further in Chapters 7 and 16.

## Promote accessibility

### 16. Make classrooms accessible

Children with visual impairments are very reliant on their sense of hearing in order to learn. You therefore need to make sure your classroom is a 'non-noisy' environment. All the children in your class will benefit from this.

You also need to make sure there is sufficient lighting in your classroom so children with low vision can see as well as possible. At the same time, you need to make sure these children are not facing bright lights as many children with low vision – particularly children with albinism – are photophobic, i.e. particularly sensitive to bright light.

You need to reduce clutter in classroom so pupils with visual impairments can travel easily and safely around the classroom. For instance, insist bags are stowed away and chairs are pushed under desks. Pupils with visual impairments will also need sufficient space for their books and equipment.

---

<sup>4</sup> While it is difficult to write braille for long periods of time using a writing frame, it is much easier to write braille using a Perkins Braille. However, Perkins Brailers are very expensive and need to be serviced regularly – as a result, many children who are blind in sub-Saharan African countries are unable to access Perkins Brailers.

## Guide: Inclusive teaching and learning for children with visual impairments

It is often useful for children with visual impairments to sit near the front of the class. This will make it easier for children with low vision to see the blackboard. It will also be easier for the teacher to provide one-to-one support for these children. However, children with visual impairments should not be seated on their own as this will make them feel isolated and self-conscious. Instead, they should be seated next to their fully-sighted classmates.

### 17. Make schools accessible

Children with visual impairments need to travel easily and safely around the school. You should therefore do the following:

- Fill in/smooth over hazards underfoot (e.g. uneven surfaces, potholes, sudden drops)
- Remove obstacles on the ground (e.g. rocks, rubbish)
- Remove hazards at head height or lower (e.g. branches of trees, bushes, open windows)
- Make sure stairs have handrails
- Paint a thick line on the edge of steps so children can see them more easily (yellow is a good colour)
- Put brightly-coloured tape on door frames, again so children with visual impairments can see them more easily
- Put brightly-coloured tape on the back of the chair of a child with visual impairment so the child can recognise his/her chair more easily

Remember also that toilets need to be clean, accessible and easy to use for children with visual impairments.



Photo of an inclusive school in Guediwaye, Senegal. The project is supported by Irish Aid. © Sightsavers/ Peter Nicholls

## 18. Facilitate travel to and from school

Children with visual impairments may find it difficult to travel to and from school. Is there any way these journeys can be made easier, safer and/or quicker for them? For instance, could they travel with a sighted guide, e.g. a fellow pupil at the school, or could the community pay their bus fares?

## 19. Organise orientation and mobility training

Children with visual impairments (both children who are blind and children with low vision) will benefit from orientation and mobility training. Orientation is about knowing where you, knowing what route to take, and knowing where you want to get to. Mobility is about actually getting there. Orientation and mobility training will therefore assist children with visual impairments to get from one place to one another, either with others or independently. If there are orientation and mobility specialists in your own country, they will be able to provide this training. Chapter 9 provides more information on this subject.

## And finally...

## 20. Believe in children with visual impairments, and believe in yourself!

Children with visual impairments can do anything other children can do, given early diagnosis and the right support from the start, and you can play a key role in helping them to realise their dreams.

## Specimen learning activities

- 1. Video discussion.** Watch the Sightsavers video about an inclusive school in Senegal. Afterwards, discuss the various types of support provided to the children with visual impairments. Would your school and community be able to provide similar support? Would you also need some external assistance to include these children in your school? If so, what sorts of assistance? Who could potentially provide this assistance? The video can be downloaded from:  
<https://m.youtube.com/watch?index1=&v=T5MReKF8dYM&list=PLjEIKBc63MPR0FouCuyZSfjDrCFt386Bb>  
A French version of the video can be downloaded from:  
<https://m.youtube.com/watch?v=POW5C9iwcOw&list=PLjEIKBc63MPR0FouCuyZSfjDrCFt386Bb&index=2>
- 2. Review.** Review the twenty strategies for inclusion in this chapter. How many of these strategies are helpful for all children, not just children with visual impairments? How many of these strategies would you be able to implement with little or no outside assistance? Which strategies do you think are particularly important, and why? Are there any additional strategies that you think should be added to the list?
- 3. Action research.** If there are children with visual impairments in your school, start to implement these strategies, keeping a daily journal. Which strategies are easiest to implement and which most difficult? Which strategies appear to be particularly effective? Talk to the children with visual impairments in your class – are they finding the strategies helpful and, if so, why? Report back to your colleagues.

## 5. Working with families

---

### Helping the child together

As a teacher, you can work with parents and other family members<sup>5</sup> to support the child with a visual impairment. In particular, you can:

#### Share information

The child's parents (and other family members) can provide you with valuable information about the child. For instance, they can tell you what the child likes/dislikes and what subjects the child finds easy/difficult. They can also provide you with valuable information about the child's visual impairment and the effects of this impairment on the child's functioning. In turn, you can inform the parents about how the child is doing in school – information they will find very interesting.

#### Jointly plan and implement education programmes

Parents and siblings can help with the child's education. For instance, they can listen to the child reading in the home or just make sure the child's homework is completed. If their child is blind, the parents may even agree to learn to read and write braille. You and the parents can also help the child to develop various skills – for instance, the pre-braille skills discussed in Chapter 7.

#### Provide support and encouragement

Parents of children with visual impairments experience all the joys of parenthood. However, at times, they are likely to feel isolated, anxious, confused, exhausted and helpless. When they experience these difficulties, they will appreciate it if you are there to listen to them. They will also appreciate it if you provide them with support and encouragement and tell them about all the progress their child is making in school.

#### Promote education transition

Children with visual impairments, like other children with disabilities, are often in danger of dropping out of school. You can work with their parents to ensure they stay in school and complete a full course of primary education. After the child has completed primary school, you should continue to work with the parents to make sure the child progresses to secondary education.

Parents of girls with visual impairments may be reluctant to send their daughters to school. They may be worried about their daughters' safety. They may also attach low priority to the education of girls. As a teacher, you have a key role to play a) in persuading them to send their daughters to school and b) in making sure your school provides a safe, supportive and stimulating learning environment for *all* girls, including girls with visual impairments.

---

<sup>5</sup> Other family members can play a key role in helping children with visual impairments – in particular, grandparents and siblings.

## Advise on daily living skills

Children with visual impairments may lack certain daily living skills when they first come to school. For instance, they may have difficulties dressing and undressing themselves, feeding themselves, or going to the toilet. If they are having these difficulties, you should discuss this matter with their parents, as their parents are the appropriate people to teach the child these skills. The parents can then:

- Explain to the child what the child should do
- Show the child what the child needs to do (if the child has sufficient sight)
- Help the child to carry out these tasks

In order to help the child to perform these tasks, the parents can use **the hand-over-hand technique**. This involves the parents placing their hands over the child's hands while the child carries out the activity. If the child encounters a problem, the parent can then guide the child's hands. For instance, when teaching a child how to eat, the parent can help the child to transfer food with a spoon from the bowl to the mouth.

On other occasions, **the hand-under-hand technique** may be more appropriate. This is when a child places their hands over a parent's hand while the parent carries out an activity – in the process, the child learns what to do.<sup>6</sup>

Parents can also use **the partial completion technique**. This is when the parents carry out part of task and then leave the child to complete the rest of the task. For instance, a parent can do up some of the buttons on a garment and then ask the child to complete the rest.



Boy with low vision playing with a toy helicopter at his aunt's house in Zanzibar. © Sightsavers/Tommy Trenchard.

You can also assist parents to develop their child's fine and gross motor skills (see Chapter 7), orientation and mobility skills (Chapter 9) and social skills (Chapter 9).

## Put the child and the child's family in touch with other service-providers

You can only do so much for the child and the child's family – especially, as there are many other children in your class who need your help. You also have limited professional capacity – you are a teacher, not an expert in children with visual impairments. It is therefore very important you refer

---

<sup>6</sup> As a teacher, you may decide to use the hand-over-hand, hand-under-hand technique and partial completion techniques when teaching the child academic skills – e.g. how to read and write braille. However, it is important to remember that in many cultures, any physical contact between male teachers and female pupils is unacceptable, and these norms should be respected. In such circumstance, only female teachers should use the hand-over-hand and hand-under-hand technique with female pupils.

## Guide: Inclusive teaching and learning for children with visual impairments

the child and the child's family to other professionals who can provide complementary support – for instance:

- Social workers and community workers who can provide home- and community-based support
- Specialist teachers of children with visual impairments who can provide complementary educational support (e.g. help the child to learn braille)
- Orientation and mobility specialists who can assist children with visual impairments to develop the skills to travel safely and independently
- Eye health professionals who can ensure children with visual impairments receive the necessary assessments, assistive devices and follow-up support – this subject is discussed in the next chapter.

### Female hygiene

Like fully-sighted girls, girls with visual impairments need:

- Access to safe, private toilets with running water
- During menstruation, access to sanitary cloths and pads, clean water and soap for washing their hands and bodies, and facilities for safely disposing or drying used materials
- Access to advice and information from female teachers about menstruation and good menstrual practices

Menstruation can be a particularly difficult process for girls with visual impairments due to their lack of sight. In order for them to manage this process successfully, they will need guidance and counselling. In particular, they will need to know the signs that a period is coming and what to do when they have a period. This support should be provided by female teachers. These teachers will also need to work with the girls' mothers to make sure the girls are receiving the necessary home-based support.

## Specimen learning activities

1. **Working with parents.** With 3-4 other teachers, make a list of all the ways in which you already collaborate and communicate with parents. How could you collaborate and communicate with parents even more effectively?
2. **Exclusion of girls from education.** Reflect on the reasons why girls, including girls with disabilities, are particularly likely to be out of school. How can schools, communities and government authorities overcome this problem?
3. **Ask the expert.** Invite the parents of a child with a visual impairment to come to your school and talk to staff about the challenges they face and the help they require.

## 6. Identifying and referring children who are having problems seeing<sup>7</sup>

In your school, there are likely to be children who have problems with seeing but are not receiving the support they need. This could be because nobody knows they have this problem, or because nobody fully appreciates just how difficult things are for them.

As a teacher, you therefore need to:

- i. Identify the children in your school who may be having difficulties with seeing
- ii. Refer these children for assessment to qualified health professionals
- iii. After assessment, make sure these children receive the necessary treatment, follow-up support and assistive devices.

Of course, the above will mean extra work for you, the teacher. However, if you don't help these children, they will struggle in school and fail to achieve their potential. They will also face problems in their homes and communities. In some cases, their sight problems will get worse because they have not received the right medical treatment – they may even end up losing their sight completely.

Some of the children who have trouble seeing will be children with visual impairments, i.e. children who are blind and children with low vision. However, most of these children will be children with refractive errors who will be able to see perfectly well as long as they have a customised pair of glasses. The point is that you need to help **all** the children in your school who have trouble seeing, not just the children with significant visual impairments.

The checklist on the next page will help you to identify children in your class and community who may be having difficulties with seeing. If a child shows any of the signs listed below, he/she should be referred to a qualified health professional **immediately**. This professional could be a community worker trained in eye health who can provide an initial diagnosis and refer the child to an eye health specialist if necessary. Alternatively, this professional could be an eye health specialist such as an ophthalmologist or optometrist. It is important that children are not only referred for assessment but receive the necessary follow up support – e.g. medical treatment,



Boy being screened for refractive error in Singida, Tanzania. © Sightsavers/ Nahward Jaff.

---

<sup>7</sup> The checklist was developed from material taken from the following websites: [https://www.babycenter.com/0\\_red-flags-signs-that-your-child-may-have-a-vision-problem\\_1439873.bc](https://www.babycenter.com/0_red-flags-signs-that-your-child-may-have-a-vision-problem_1439873.bc); <http://www.allaboutvision.com/parents/slideshow-warning-signs.htm>

## Guide: Inclusive teaching and learning for children with visual impairments

assistive devices, specialist support, and guidance and counselling.

	Checklist for identifying pupils with seeing difficulties	YES	NO
1.	Does the pupil hold objects close to their eyes when looking at them?		
2.	When reading, does the child hold the text near their eyes?		
3.	Does the child blink more than other children?		
4.	Does the child squint – i.e. partly close their eyes in order to see properly, or have eyes that look in different directions?		
5.	Do the child turn their head to one side to see better – for instance, in order to look at the blackboard?		
6.	Does the child rub their eyes a lot?		
7.	Does the child close one eye in order to see better?		
8.	Does the child avoid close, near-vision activities such as writing, reading and colouring?		
9.	Does the child often lose their place when reading or use a finger to guide their eyes when reading?		
10.	Is the child sensitive to bright light?		
11.	Does the child complain of headaches, tired eyes, or itchy eyes?		
12.	Has the child recently started to get poor grades?		
13.	Does the child move around the classroom and playground uncertainly, perhaps tripping over objects or bumping into things?		
14.	Is the child unable to find small objects which they have dropped?		
15.	Is the appearance of the eyes unusual in any way? For instance, <ul style="list-style-type: none"> <li>– Are the eyes red?</li> <li>– Are the eyes very watery?</li> <li>– Do the eyes blink a lot?</li> <li>– Do the eyes flicker up and down or from side to side?</li> <li>– Do the eyes have white spots?</li> <li>– Are the eyes cloudy?</li> <li>– Do the eyes have a fixed gaze?</li> <li>– Are the eyes turned outwards or inwards?</li> </ul>		

### But remember...

In this chapter, we have described ways you can make sure children with visual impairments receive the necessary assessment, treatment, devices and follow-up support. You also need to remember:

## Guide: Inclusive teaching and learning for children with visual impairments

- Children with visual impairments may not only have sight difficulties but other disabilities – for instance, a hearing impairment. If possible, you should therefore try to ensure that these children have comprehensive assessments.
- You not only have a duty of care to children who have difficulty with seeing, but to children experiencing other difficulties – for instance, children who have difficulties hearing, moving, communicating and/or understanding. These children also need assessments and necessary follow-up support. If you want to know more about how you can help these children, Sightsavers has developed teachers' materials on this subject which we are happy to share with you.

## Specimen learning activities

1. **Ask the expert.** Invite an adult with a visual impairment to talk to the group about their visual impairment, the impact it has had on their functioning, and their experiences with eye health services. In what ways, do they believe that eye health services can be strengthened?
2. **Ask the expert.** Invite an eye health professional – for instance, an ophthalmologist, an optometrist, an ophthalmic nurse or a community eye care worker – to talk about their work.

## 7. Teaching and learning braille

Braille is the reading and writing system for people who are blind, and it is therefore important that children who are blind are given the opportunity to read and write braille, in the same way that it is important that sighted children are given the chance to read and write print. Indeed, this right is recognised in the United Nations Convention on the Rights of Persons with Disabilities.

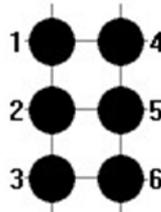
Children with low vision may also need to learn braille if they have very little sight or are likely to lose their sight in the future.

### What is braille?

Braille is a tactile reading and writing system used by people who are blind.

Braille is named after its creator, Louis Braille, a Frenchman who lost his sight as a result of a childhood accident.

A braille cell consists of six raised dots, each of which is given a number.



Different sequences of dots stand for different letters, words, punctuation signs or numbers.

For instance, if you look at the English Braille Code at the end of this chapter, you will see the letter 'c' is represented by dots 1 and 4 and the letter 'o' by dots 1, 3 and 5.

To read Braille, a child runs their finger-pads over patterns of bumpy dots that stand for letters of the alphabet (see below). However, sighted people can read Braille through looking at it.



Photo; blind pupil in Mali reading braille. © Sightsavers/Javier Acebal.

## Guide: Inclusive teaching and learning for children with visual impairments

To write braille, a child writes with a slate and stylus by pushing the tip of the stylus into heavy paper on the slate. The stylus pushes dots into the paper (see below). The child can then turn the paper over to read the raised dots with their fingers.



Alternatively, children can write braille using a Perkins Braille which is essentially a large, heavy braille typewriter.

### Developing braille pre-reading and pre-writing skills

In order to read braille, children who are blind have to:

- Be able to feel the dots under their finger pads
- Recognise the pattern they make

In order to write braille, children who are blind have to:

- Have strong hands and nimble fingers
- Be able to put a piece of paper in a Braille writing frame and take it out
- Be able to punch out holes in the paper using a stylus

In order to carry out these activities, these children will need to possess fine and gross motor skills and tactile sensitivity. They will also need to develop tracking skills. Below, we discuss ways you can teach these skills.

## Helping pupils who are blind to develop fine and gross motor skills

Young children who are blind are not always provided with the necessary opportunities to develop fine and gross motor skills (see textbox). This is sometimes because their parents are not sure how to help them. It is also sometimes because parents underestimate their capacities. However, it is very important that children who are blind develop these skills, along with other children – not least because they will require them to read and write braille. Below are some activities which will help them to do this, and which will also be enjoyable and useful for the other children in your class:

- Banging on tables or other surfaces with hands
- Feeling inside a container to find objects inside
- Taking the objects out of the container one by one
- Checking the container is empty by feeling inside
- Turning an object upside down
- Stacking objects using both hands – for instance, build a tower or a wall<sup>8</sup>
- Pounding and squeezing clay or dough, then rolling it out and cutting it into strips
- Hammering
- Filling empty washing-up liquid bottles with water and squeezing them out
- Filling a sponge with water and then squeezing it
- Throwing and catching a ball (see Chapter 15)
- Twirling a skipping-rope
- Feeling everyday objects with both hands and then naming them
- Finding objects which have been scattered over their desks
- Stirring and mixing
- Turning handles
- Winding string or wool onto a ball or around a handle
- Holding jars and unscrewing their lids
- Twisting and untwisting the bottle-tops
- Tying and untying knots
- Sorting objects into groups – for instance, objects of different types, textures and sizes
- Popping plastic bubble wrap
- Tearing and crumpling paper and card
- Opening and closing zips

### Fine and gross motors skills

Fine motor skills involve using various parts of the body to carry out small, complex tasks, such as tying shoelaces or writing with a pencil. Gross motor skills involve using various parts of the body to carry out broader, simpler tasks, such as kicking a football or opening and closing a door. Children who are blind need to develop both fine motor skills and gross motor skills.

---

<sup>8</sup> You can begin by asking the child to stack large objects such as boxes. Once the child has mastered this skill, you can ask them to stack smaller objects, such as cups and blocks. The exercise also provides you with the opportunity to teach the child 'position words' such as 'top' and 'bottom', 'size words' like 'big' and 'small', and 'order words' like 'first' and 'second'.

- Doing and undoing buttons

It is important that children are provided with opportunities to carry out these activities in their homes, as well as at school. You can talk to their parents about this.

## Helping pupils who are blind to develop their sense of touch (tactile sensitivity)

You can start by asking the pupils to sort small objects. You can begin with everyday objects that can be found in the home, the school or the market, such as dried peas, beans, stones and bottle tops. Mix the different types of object together and ask the pupils to sort them into separate boxes, cups or tins. They can also sort objects into groups according to size or shape or texture (e.g. rough and smooth). You should also use these activities to develop children's understanding of words like 'same', 'different', 'large', 'smaller' and 'bigger'.

Here are two examples of activities which will help develop recognition through touch:

### Feely bags

You can make 'feely bags' to help with matching. Fill small bags made from cloth with small everyday items – for example, two bags of beans, two bags of peas and two bags of rice. Stitch up the top of the bags. Mix up the bags and give them to the child. Ask the child to feel the bags and match the bags containing the same things. You can start with six bags and gradually increase the number of objects and bags.

### Sorting shapes

The child needs to develop the skill of recognising and discriminating between shapes using their hands. You can begin with simple shapes, such as circles, squares and triangles cut out from card. Once the child is able to recognise big shapes, you can give the child smaller shapes. The child should be encouraged to identify the shape using the pad of their fingers.

All the activities described so far will develop the capacity of your pupils to read and write braille.

## Teaching tracking skills

To read braille quickly and accurately the child has to be able to follow a line and move smoothly to the next line. The child needs to understand that it is easier to identify the patterns of dots in line by using a very light touch.

To begin with, the child can place his hand on top of the teacher's hand to feel the movement as the teacher tracks the line.<sup>9</sup> The teacher need to make smooth hand movements, guiding the child's hand at first, and later giving feedback to the child on the child's performance.

You can start to teach tracking by asking the child to follow lines of string glued to the page. Then, using a writing frame, you can makes lines of dots across the page.

---

<sup>9</sup> In many cultures, it is seen as deeply inappropriate for male teachers to have any sort of physical contact with female pupils. These cultural norms should be respected at all times, including when teaching braille. Generally it is best if blind girls receive braille tuition and other forms of one-to-support from female teachers.

## Guide: Inclusive teaching and learning for children with visual impairments

Encourage the child to follow the line using fingers on both hands together. You can start with a straight line and then go on to curved lines or zigzag or bumpy lines. Make the task into a game – for instance, you can say, “We are following a bumpy path. Can you tell me when we meet a bump in the path?”

You can also develop tracking skills through:

- i. **Pegboard work.** A pegboard is a block of wood with lines of holes drilled in it (see page 62 for an illustration of a pegboard). The child has to push wooden pegs into the holes. You can start by asking the child to push down pegs already placed in the holes. Once the child is used to the pegboard, you can ask the child to push the pegs into the holes independently. Make sure pegs are placed left to right in rows. Using both hands, children can follow the row they have just finished to find the beginning of the next row.
- ii. **Abacus work.** The child can practise moving beads one at a time from left to right across the abacus.

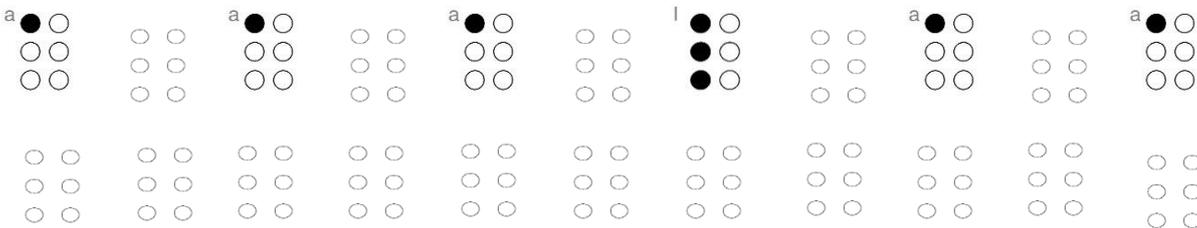
## Starting Braille

You can start by teaching children who are blind a few letters and then build up from there.

Some Braille letters are much easier to learn than others so you should start with these letters first. The letters ‘a’, ‘b’, ‘l’, ‘c’, ‘g’, and ‘e’ are good letters to begin with.

Here are some ideas for helping children to recognise letters:

Using the writing frame, make up rows of letters in braille like this. Leave spaces between the letters and between the rows like this:



You can then ask children to find the odd letter (‘l’ in the case of the lines of braille above).

You can do the same with other rows of letters. For instance, you can give the child a line of braille that reads:

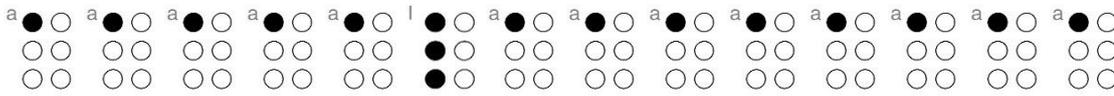


## Guide: Inclusive teaching and learning for children with visual impairments

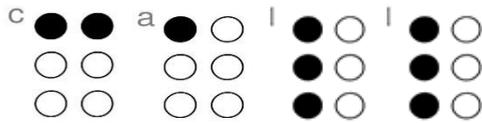
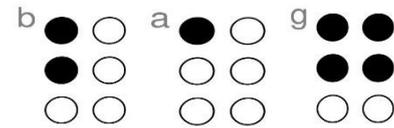
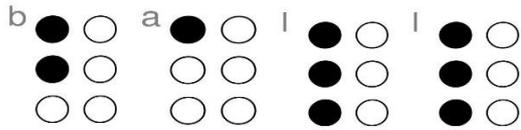
Or a line of braille that reads:



As the child becomes a better reader, you can remove the spaces between the letters. For instance, you can provide the child with a row of braille like this:

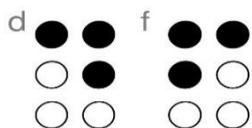


Make learning braille fun. When the child can spot the letters and knows their sounds, you can start to combine them to form simple words for the child to read, such as:



Soon you will be able to give the child short sentences, short paragraphs and even short books to read.

Some braille letters are 'mirror images' of each other – for instance, the letters 'd' and 'f'.



When teaching these letters, you need to make sure that the child can confidently read one letter before introducing the second. Otherwise, the child will become confused.

When the child first starts braille, you should leave out punctuation signs like full stops or speech signs altogether.

When children are starting to read, it helps if you can leave empty lines between the lines of braille.

Teach children to break words down into their various sounds. Ask the questions such as "What sound comes at the start of the word 'dog'?" and "What sound comes at the end of this word?"

Break down words into sounds and see if the children can recognise the word – for example say "d-o-g."

## Guide: Inclusive teaching and learning for children with visual impairments

When you write stories for the child, try to keep the words short and simple.

Put the child in the story. Write about things the child knows and finds interesting.

Once the child has learnt words, you can write them on cards. The child can keep the cards in a box and practise reading the words every day. You will need to cut off the top corner of the card so the child knows which way up they should go in the box.

With the right support, children who are blind can learn to read and write at the same speed as children who can see.

### Reading styles



Mbathio, a blind pupil, reading braille at a primary school in Rufisque, Senegal. The project is supported by Irish Aid. © Sightsavers/Peter Nicholls.

Braille readers are often taught to use the index finger (i.e. the finger next to the thumb) of the left hand as their main reading finger. As you can see in the picture above, it is useful to have other fingers on the reading hand in contact with the line of braille. Although these fingers don't do the reading, they can pick up useful information such as the length of the line ahead and they help to guide the reading finger and keep it moving in a straight line. Whichever finger the child uses, it is important that the child uses the pad of the finger for reading. The pad is the area between the tip and the first joint. The finger-tip is too small to cover all the dots in a braille cell.

Try to encourage a light touch and smooth movement across the braille letter. Discourage the 'up and down' finger movements which some children develop in order to work out the shape of the braille cell. This becomes a habit which is difficult to lose, and slows the child's reading speed. Most good readers learn to use both hands for reading. Children should be encouraged to use both hands from the start. One hand can read one line while the other hand finds the start of the next line. Some children can learn to read with one finger of each hand. If they can do this, it is a big

advantage. For example, if the reader mostly reads using a finger on the left hand, the right hand can take over reading the last few words of the line while the left hand moves back to find the start of the next line. This is a complicated movement which will take time to develop.

The reading material should be placed on a hard surface like a desk or table-top. This makes braille easier to read. Ideally the desk should not be too high and the arms should be comfortable and relaxed. The forearms need to rest on the desk, taking the weight off the hands. The child should sit upright and the book should be square to the desk. The fingers should be slightly curved when feeling shapes or letters. When you are stacking braille books, make sure you stack them standing up. If you lay them on top of one another, the dots will get pressed down and will be hard to read.

## Writing braille

You should teach the reading and writing of braille at the same time. Most children who use braille in West Africa learn to write using a braille slate and stylus.

The braille slate is a difficult instrument to use as the children have to write the letters back-to-front.

It is therefore recommended that children learn to write braille on a Perkins Brailier, as this will mean they do not have to write the letters back-to-front. Once the child can write Grade 1 braille on the Perkins Brailier, you can introduce the braille slate and stylus.

Do not expect children to write perfectly from the start. Don't correct every mistake, and praise the child for their efforts. Get them to read to you what they have written, and tell them how pleased you are. As with all activities, develop their confidence through providing them with encouragement.

If children who are blind are provided with plenty of opportunities to read and write braille, they can learn to read and write as well as fully-sighted children.

## The Unified English Braille Code

There are two kinds of English braille:

- i. Grade 1 braille is a simple form in which each letter is represented by a braille symbol. This is the type of braille used in primary school.
- ii. Grade 2 braille is more complex as some groups of letters or even words are represented by braille symbols. For instance, in Grade 2 braille, the words 'and', 'but', 'can' and 'people' are represented by single letters.

Parental and family support is vital if children who are blind are to develop their braille reading and writing skills. Parents can help by listening to the child, encouraging the child and generally discussing the child's reading and writing assignments with her/him. Best of all, parents can learn braille for themselves. They will then be better able to help these children with their reading and writing. The parents will be able to read braille with their eyes.

The diagram below shows Grade 1 English braille.<sup>10</sup>

# BRaille Alphabet

A	B	C	D	E	F	G	H	I
J	K	L	M	N	O	P	Q	R
S	T	U	V	W	X	Y	Z	
·	,	?	!	'	-	CAPITAL	#	0
1	2	3	4	5	6	7	8	9

<sup>10</sup> In The Unified English Braille Code, the # sign is now represented by a different braille symbol from the one in the braille chart above. In the Unified English Braille Code, dots 3, 4, 5 and 6 represent the number indicator.

## Specimen learning activities

1. **Fine and gross motor skills.** Carry out some of the activities listed on page 34-35 with a young child (for instance, your daughter or son) – e.g. filling a sponge with water and then squeezing it. If you carry out these activities, you will be better prepared when a child with a visual impairment joins your class. Remember that these activities will be useful and enjoyable for all the pupils in your class, not just the pupils with visual impairments.
2. **Feely bags activity.** Make your own 'feely bags'. Once you have made the feely bags, practise sorting the objects in the bags according to shape, size and texture (with your eyes closed!). Once you have made these feely bags, you will be able to use this resource to develop the fine motor skills and tactile sensitivity of all the pupils in your class, not just the children with visual impairments.
3. **Braille reading and writing exercise.** Practise writing the braille alphabet, using a writing frame/slate and stylus. Once you are able to do this, you and your colleagues can then write short braille messages to one another.

## 8. Tactile learning aids and raised diagrams

In the last chapter, we discussed braille – the tactile reading and writing system for children who are blind. In this chapter, we will discuss other ways in which children who are blind (and other children with visual impairments) can be encouraged to learn through touch.

### Tactile learning aids

You can also help pupils with visual impairments by providing them with tactile learning aids – in other words, objects that enable children to learn through touch.

Tactile learning aids can assist these pupils to learn new concepts. For instance, if a pupil touches a plant while the teacher provides verbal description, the pupil will develop a much better understanding of the plant (the different parts of the plant, how the plant grows, etc.). You can also provide your pupils with three dimensional geometric shapes – for instance, cubes and spheres – as this will give them a better understanding of geometry.

All your pupils will learn better, not just the children with visual impairments, if you use tactile aids in your class.



Children playing with blocks at a childcare centre in Chisomo, Malawi. The project is supported by Comic Relief. © Sightsavers/ Adriane Ohanesian

Remember that children with visual impairments sometimes need time to explore an object. They may need to touch it bit by bit in order to build up a whole picture. They will also need to learn its function. For example, to help the child explore an object, you can ask them to place their small hands over yours before they explore on their own.<sup>11</sup> This will give them confidence. As they are exploring the object, describe what they are touching – for instance, by saying, “This is the kettle. Feel how cold it is. This is the top, bottom, handle, spout, and this is the lid. Let’s open the lid! It’s stiff! Let’s feel inside! Yes there’s water in there...”

### Raised diagrams

Raised diagrams are also very useful, particularly for teaching children about geometry and maps (see Chapters 13 and 14). For instance, you can make a tactile map of Senegal by sticking string on a board to represent the country’s boundaries and rivers. You can also add the names of the

<sup>11</sup> As mentioned in the last chapter, in many cultures it is seen as deeply inappropriate for male teachers to have any sort of physical contact with female pupils. These cultural norms should be respected at all times, including when introducing children to tactile aids.

## Guide: Inclusive teaching and learning for children with visual impairments

principal towns in braille. If you have access to a thermoforming machine, you can produce these diagrams with the aid of heat and pressure (see Chapter 16).



Selection of raised diagrams and other tactile materials made by teachers in inclusive schools in Senegal. The project is supported by Irish Aid. © Sightsavers/ Peter Nicholls

Producing tactile diagrams can involve a lot of time and effort. You should therefore only use them when they will be useful for the child.

Tactile diagrams are useful when:

- The real object is unavailable – for example a lion
- The real object is too big or too small to feel – for example a fly or a bridge
- The child needs to learn about shapes and patterns – for example in geometry

Tactile diagrams are **not** useful when:

- Something is more easily described in words
- The real object or a model of the object is easily available
- Diagrams have too much detailed information in them
- Pupils do not have the skills to understand tactile diagrams

When presenting a tactile diagram to a child, you need to go through four stages:

- i. Make sure the diagram is the right way up (not upside down!)
- ii. Says what the diagram is about and provide a general overview of the diagram
- iii. Describe in more detail what is in the diagram
- iv. Give the child a chance to talk about what they are feeling with their fingers, and assist the child to explore the diagram for themselves

## Guide: Inclusive teaching and learning for children with visual impairments

Children need to start using tactile diagrams as early as possible if they are to develop the skills to make sense of them. To begin with, you should make sure these diagrams are as simple as possible. If you provide this help, children who are blind should be able to use tactile maps, graphs and diagrams to support their learning by the time they go to secondary school.

### Specimen learning activities

1. **Tactile learning aids.** With a colleague, carry out a role play in which one of you is the teacher describing a tactile learning aid and the other is a child with a visual impairment exploring the aid with their hands (and with their sight, if the child has low vision). After you have done this, reverse roles.
2. **Tactile diagrams.** Practise making your own tactile diagrams for children with visual impairments. You will need glue, card and materials which can be stuck to the card (for instance, string and beads). Once you have made these diagrams, you will have developed a valuable teaching and learning resource.

## 9. Orientation and mobility and other skills

### Orientation and mobility explained

Children with visual impairments need to be able to travel safely and easily around their schools and communities. In order to do this, they will need to develop orientation and mobility skills.

**Orientation** is knowing where you are, knowing where you are going, and knowing where you want to get to. **Mobility** is actually getting there.

All children with visual impairments will benefit from receiving training from **orientation and mobility specialists**, although it is recognised that these specialists are few and far between in



A blind pupil in Mali learning white cane skills. © Sightsavers/ Javier Acebal.

some countries. The orientation and mobility specialist will be able to teach children with visual impairments all sorts of skills, including using a **white cane** to travel independently and safely from one place to another. The picture on the left shows a young woman learning white cane skills. Through sweeping the cane form side to side over the surface of the ground, she is able to identify potential hazards she needs to look out for (for instance, rubbish, holes in the ground, steps and ledges). She is also better able to identify where she is – for instance, a grassy surface, a pebbly surface and a concrete surface will provide valuable clues on her whereabouts.

### Sighted guide technique

White canes should only be used in safe, familiar environments. When children with visual impairments are travelling in unpredictable environments, children with visual impairments (particularly children who are blind) will require sighted guides, i.e. fully sighted people who can assist them to get from one place to another. Adults with visual impairments will also require sighted guides when travelling in such environments. Sighted children as well as teachers can act as sighted guides for children with visual impairments, and you can train the pupils in your class as sighted guides

On the next page are some **'Top Tips'** about sighted guide technique, with accompanying illustrations.<sup>12</sup>

<sup>12</sup> Teresa Robertson produced the illustrations for the 'Top Tips' and Fiona Broadley wrote the advice. © Sightsavers

## Guide: Inclusive teaching and learning for children with visual impairments

**1. Meeting and greeting.** Talking normally and introduce yourself before asking the child with a visual impairment whether they would like help. See picture on the right.



**2. Offering your arm to the child.** The child should hold your arm just above the elbow with their fingers on the inside and thumb on the outside. (If the child is much smaller than you, the child may choose to hold your wrist or even your finger – see picture below.) Keep your arm close to your body so the child can detect your movements.



**3. Walking together.** Walk half a step ahead. Let the child hold onto your elbow if they're tall enough. Smaller children may hold your wrist, even a finger. Only parents or friends may hold a child's hand. Try to avoid uneven surfaces and walk at a speed comfortable for the child. Talk to the child about where you are and what's coming up. See picture on the left.

**4. Narrow spaces.** When going through narrow spaces, explain that the path has narrowed and then move your guiding arm towards the middle of your back. The child should automatically step in behind you. See picture on the right.



**5. Going through doorways.** When going through doorways, say if the door is 'push' or 'pull'. Placing the child on the hinge side, open the door with your guiding hand. You may need to swap sides to do this. The child should take the handle from you by using their free hand to follow your arm. They can then close the door behind you both. With smaller children, you will need to both open and close the door. See picture on the left.

**6. Steps and stairs.** With steps and stairs, you will need to say whether you are going up or down. You should then encourage the child to find the handrail by following your arm. When the child is ready, set off one step ahead (see picture on the right). Don't rush – stairs can be frightening, especially coming down. Take a slightly longer step at the top, allowing enough room for the child to step up and away from the edge.



**7. Seating.** When helping the child to locate a seat, guide the child to the seat, describing it as you approach (e.g. chair, sofa, stool).

Place your hand on the back of the seat to indicate its height and ask the child to follow your arm before sitting down. See picture on the left.

**8. Roads and kerbs.** A kerb is the step off or onto a pavement. Stop at the kerb and check for traffic (see picture on the right). If it's safe, say "kerb down" and cross, using the shortest route. Say "kerb up" as you approach the other side. If there is no kerb, stop at the roadside and say, "We are waiting to cross." Wait until it's safe, then say, "It's safe now. Let's cross." When walking by a roadside, keep the child on the side furthest from the road.

You can download a Sightsavers poster on sighted guide technique from:

<https://www.sightsavers.org/wp-content/uploads/2018/05/Assisting-children-with-visual-impairments-poster.pdf>



## Helping the new pupil in your class

When the pupil with a visual impairment first arrives in your class, you should go round the classroom with the child, showing him/her where things are (for instance, her desk, her locker, the door). You will need to carry out this exercise a number of times, as the child will not be able to grasp everything immediately. If the child has very little or no sight, you will need to use sighted guide technique for this exercise. You and the child should work out a simple, safe route from the door of the classroom to their desk or locker. The other pupils in your class can also play an important role in familiarising the child with the classroom. Remember that classroom floors should be cleared of bags, books and other unnecessary objects, that chairs should be stowed under desks, and that there should be clear pathways between desks.<sup>13</sup>



When the pupil has residual vision, you can add contrast to fixtures and fittings to help them find their way. In particular, you can paint a thick line of bright, non-slip paint on the edge of steps to help the child see the steps more easily (see illustration). Yellow is normally a good colour. It is normally only necessary for you to paint the first and last steps. You can also paint doorframes (or put brightly coloured tape on doorframes) so the child can identify doors more easily. You can also put brightly-coloured tape on the back of the child's chair so the child can identify their chair more easily.

You will also need to familiarise the child with other key places in the schools. In particular, the child will need to be able to access and use the latrines. However, you will need to make sure the latrines are clean, private, secure, sex-segregated, and user-friendly. (All the children in the school will benefit from this.) The pictures below shows the inside and outside of a school latrine in Tanzania which is accessible for all children with disabilities.



<sup>13</sup> Look at the photo of a class on page 16. In what ways is the classroom inaccessible for children with visual impairments and in what ways can it be made more accessible?

## Guide: Inclusive teaching and learning for children with visual impairments

As the child's confidence grows, you can help him/her to become more and more familiar with the school campus. You can help the child to learn new routes (one route at a time) – for instance, from the classroom to the latrines and from the classroom to the head teacher's office. In order to learn these routes, the child will need plenty of practice and repetition. The child will also need to be able to identify different places in the schools. You can assist them to do this by making them aware of the differences between these places. For instance, in one place:

- There may be particular sounds or smells
- The ground underneath the child's feet may feel different – perhaps because there is a concrete path or long grass.
- There may be a wall, a plant or a texture that the child can feel with their hands

The other pupils can also assist with this process through accompanying the child around the school, discussing different places with them.

As you are assisting the child with their orientation and mobility, you can also start to teach key 'position words', such as 'left', 'right', 'forwards' and 'backwards'. However, it is important that you do not try to teach all these words all at once, as otherwise the child will become confused.

It is important that you are sensitive to children's feelings when developing their orientation and mobility skills. Never underestimate their capacities. Equally, you shouldn't ask them to do too much too quickly. You should always ask a child if they want to take your arm. It is also important to remember that in many cultures it is inappropriate for a female pupil to have any sort of physical contact with a male teacher or a male pupil – you should always respect these norms.

You need to remember that the child will only be able to travel safely round the school if the school provides a safe environment for children. This issue is discussed earlier in this section.

## Teaching social skills

Pupils with visual impairments may sometime lack necessary social skills. This may be because they cannot see how other people are managing social situations and therefore cannot copy their behaviour. It may also be because they have had relatively little contact with people outside their families before coming to school. Establishing buddy-systems in your schools will help these children to make new friends. You may also need to have a quiet word with individual children from time to time. For instance:

- The child with a visual impairment may tend to dominate conversations, ignoring what others are saying. In this case, you should encourage the child to listen more carefully to others and respond to what they are saying.
- Conversely, the child may rarely contribute to conversations. In this case, you should encourage the child to be less reticent.
- The child may stand too close (or too far away) when talking to others, making the others uncomfortable. In this case, you can gently suggest the child stands a little further away (or stand a little closer).
- The child may not look at other people when talking/listening to them, giving the impression that he/she is not interested in their views. In this case, you should tell the child that is

## Guide: Inclusive teaching and learning for children with visual impairments

important that he/she should look at them during conversations, even if he/she cannot see them, and even to smile when appropriate.

- The child with severe visual impairment may also be unaware of simple social gestures and customs such as waving goodbye or nodding or shaking the head to agree (or disagree), so you may need to teach the child how and when to use them.

When teaching social skills, it is very important to praise and encourage the child for any progress made.

The following link provides information on teaching the child non-verbal communication skills:

<https://www.teachingvisuallyimpaired.com/non-verbal-communication.html>

The child with a visual impairment may also need to learn **daily living skills**. This is discussed in Chapter 5 of this guide. The teaching of **fine and gross motor skills** is discussed in Chapter 7.

## Specimen learning activities

1. **Sighted guide technique.** Practise sighted guide technique with a colleague, following the pictures and instruction in this chapter. One of you can be the guide, the other the person with a visual impairment. After practising walking together, you can practise more challenging activities, such as ascending and descending stairs and walking through narrow spaces.
2. **Reflection.** With your colleagues, think about ways in which your school (including the classrooms and latrines) can be made more accessible for pupils with disabilities, including pupils with visual impairments. Remember that all the children in your schools will also benefit from these changes. Draw up an action plan for improving your school.
3. **Ask the expert.** Invite someone with a visual impairment to describe how they travel from one place to one another and overcome the obstacles they face. Alternatively/additionally, you can invite an orientation and mobility instructor to visit your school, demonstrate orientation and mobility techniques, and provide training.
4. **Teaching social skills.** Practise teaching social skills with a colleague. One of you should be the teacher, the other a child with a visual impairment who lacks certain social skills. The teacher should quietly explain to the child how he/she can behave more appropriately in social situations, modelling good practice for the child when appropriate. The child should respond appropriately.

## 10. Child safeguarding

---

Child safeguarding is about protecting children from harm or abuse.

Child safeguarding can involve prevention – in other words creating an environment in which children are free from abuse.

Child safeguarding can also involve responding to a reported example of child abuse.

### What is child abuse?

Child abuse happens when a child is harmed, usually as a result of the failure of a parent/carer or organisation/community to provide a reasonable standard of care and protection. Abuse is often carried out by adults on children, but children can also abuse other children (e.g. through bullying and teasing).

There are several types of child abuse, including:

**Physical abuse:** When a child experiences physical harm due to the actions, or the failure to an act, of an adult or another child.

**Emotional abuse:** Abuse which causes the child distress and therefore harms the child's social, emotional and physical development.

**Neglect:** When someone in a position of responsibility (e.g. a parent, a carer or teacher) fails to act and therefore causes the child to experience suffering.

**Sexual abuse:** Any involvement of a child in any sexual activity by an adult or another child.

**Exploitation:** When someone uses a child for their own gratification/gain or for someone else's gratification/gain. Two common types of exploitation are sexual exploitation and commercial exploitation (e.g. exploitation for financial gain).

### Vulnerability of children with disabilities

Children with disabilities are vulnerable to abuse for various reasons:

- They may be seen as 'different' from other children, and therefore 'odd' or 'peculiar'.
- They may be less physically strong than other children, and therefore viewed as 'easy prey'.
- They may find it harder to inform responsible adults that they are being abused – for instance, because they have communication difficulties or use sign language (if they are deaf).

Children with visual impairments are particularly vulnerable to abuse as they may be unable to identify the individual/s who has abused them and therefore be unable to report them to the appropriate authorities.

Girl-pupils are particularly likely to experience various types of abuse due to negative gender attitudes and practices. Sexual abuse of girls by both male teachers and male pupils remains a very serious problem in education systems around the world.

## Guide: Inclusive teaching and learning for children with visual impairments

In some countries, children with albinism experience very high levels of abuse. Chapter 11 of this guide describes ways you can assist these children.

### How you can help

The best way you can help is by making sure that your school has a strong child safeguarding system in place, as this will help minimise child abuse and ensure that any child abuse is dealt with effectively. This system will need to protect **both** disabled and non-disabled pupils at your school, as all pupils are at risk of abuse.

The system will involve (amongst other things):

- A senior member of staff (or members of staff) assuming responsibility for child safeguarding
- The development of a school policy and an associated code of conduct for staff (all employees of the school, not just the teachers).
- The establishment of a simple, effective reporting system which can be used by children to report abuse.
- Training in child abuse for all school staff and other stakeholders (for instance, members of the School Board of Management).
- Awareness-raising for pupils so they a) know about the different types of abuse and b) know what to do if they believe they have experienced abuse.

You and your colleagues can also help by making your classroom/school as inclusive and child-friendly as possible. You can do this:

1. Through creating a supportive social environment in which all pupils (including children with visual impairments) are treated with respect and consideration (see Chapter 4 of this guide).
2. Through creating a supportive learning environment in which all pupils achieve their potential (again, see Chapter 4).
3. Through creating a safe and accessible physical environment in which all pupils (particularly children with visual impairments) travel easily and safely round the school (see Chapter 9 of this guide).<sup>14</sup>

### How others can help

It is likely the Ministry of Education in your country has developed a national policy on child safeguarding with associated guidelines and tools which you can use. It is possible that child safeguarding specialists working for the Ministry of Education will also be able to help you.

Sightsavers has developed a child safeguarding package which we are happy to share with you. This package includes a specimen child safeguarding policy; a code of conduct for teachers; safeguarding checklists; and training modules for teachers on child rights, child safeguarding, bullying, and counselling. The package also contains a training module for pupils. To obtain a copy of the package, you will need to contact the Sightsavers office in your country.

---

<sup>14</sup> You also need to make sure that children with visual impairments can travel easily and safely **to and from** school. Again, see Chapter 9.

## Specimen learning activities

1. **Child safeguarding training.** Carry out child safeguarding training in your school for teachers and pupils – you can either use recognised government tools or, if they do not exist, the tools developed by Sightsavers.
2. **Child safeguarding audit.** With colleagues, carry out a child safeguarding audit of your school – you can either use recognised government tools or, if they do not exist, the checklist developed by Sightsavers.
3. **Child safeguarding action plan.** Having carried out the child safeguarding audit in your school, you and your colleague can develop a child safeguarding plan for the school. This plan will need to cover all pupils, not just pupils with disabilities. You will also need to ensure children participate in the development and implementation of the plan.

## 11. Including children with albinism

We will now discuss one particular group of children with visual impairments – children with albinism.<sup>15</sup>

### What is albinism?



You will probably be aware of children with albinism in your community, as these children are recognisable because they have much paler skin and hair than other children.

Albinism is an inherited condition resulting in lack of black pigment in the hair, skin and eyes. Usually children with albinism are born to parents with typical black pigmentation. Sometimes only one child in a family has albinism and sometimes there are more.

It is important you are aware of the following key facts about albinism. Albinism is inherited. It is not contagious – it cannot be ‘caught’ by others. Albinism is always associated with poor eye-sight from birth. Children with albinism have low vision and are very sensitive to bright light.

The family of a child with albinism. As you can see, only one of the four children in the family has albinism. The girl with albinism is wearing a wide-brimmed hat as protection from the sun.

### Classroom strategies

In some communities in Africa, people have negative attitudes towards people with albinism. This can mean schools are reluctant to enrol children with albinism. Even if children with albinism are enrolled in schools, they can experience bullying and teasing. As a teacher, you can play a key role in raising awareness about albinism in your school and community, and thus promoting the inclusion of children with albinism in school. This may not be a simple process. It may involve you working with the senior management in your school and community leaders. It may also involve you working with disabled people’s organisations, particularly organisations set up by people with albinism.

You can help the children with albinism in your class by:

- Making sure that they are assessed by an eye health professional and provided with appropriate follow-up support, including a pair of glasses to help them see better.

<sup>15</sup> The information and illustrations in this section of the guide are taken from: Lund, P., Massah, B., Lynch, P., 2012. *Albinism in Malawi: Information Pamphlet for Teachers*. The Albino Association of Malawi: Lilongwe.

## Guide: Inclusive teaching and learning for children with visual impairments

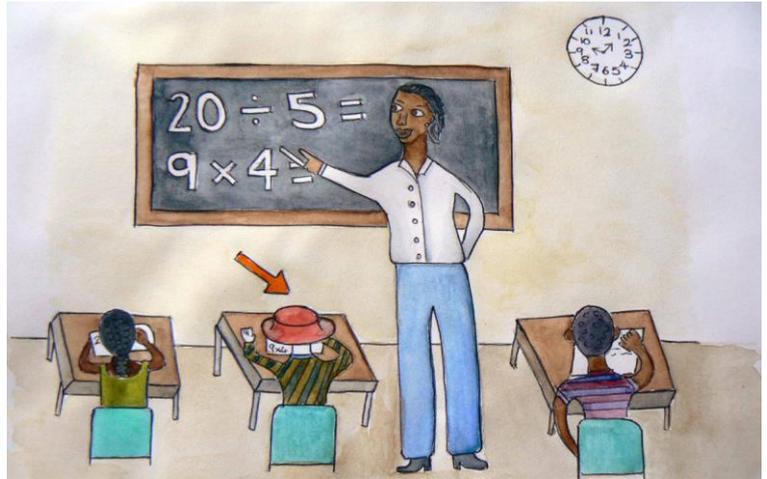
- Making sure they receive the right medical treatment if their skin is blistered or sore because of exposure to bright light.
- Observing individual children and talking to them and therefore better understanding the problems they are facing.
- When they are outside, making sure they wear hats with wide brims, long sleeved shirts with collars, and sunglasses which will protect them from bright light.
- Making sure they are not exposed to bright light either outside or inside the classroom.
- Allowing them to continue to wear their hats when in the classroom.
- Making sure they have glasses which will help them to see better.
- Recognising that it will take them longer to complete reading and writing tasks than other children.
- Providing them with large print material if this is possible.
- Providing them with handheld magnifiers so they can see regular-sized print more easily, and helping and encouraging them to use these magnifiers.
- Providing them with reading-stands so they can more easily read books with regular-sized print.
- Writing in large, clear letters on the blackboard, and allowing the child to sit near the front of the classroom so you can provide help easily and the child can see the blackboard.



A boy with albinism reading a large print book with big, clear pictures. He has a dark pen so he can read his handwriting more easily. As you can see, he is wearing a wide-brimmed hat and a long-sleeved shirt as protection from the sun. He is also wearing a pair of glasses.

## Guide: Inclusive teaching and learning for children with visual impairments

The picture on the right shows a girl with albinism in an inclusive classroom. As you can see, the girl is seated near the front so she can see the blackboard. As you can also see, the teacher has written in large, clear letters on the blackboard. The child is also wearing appropriate clothing – a wide-brimmed hat and long-sleeved blouse.



Finally, when teaching children with albinism, it is important that you make sure the other children treat the child with albinism in a friendly and respectful manner. You can do this by establishing 'buddy systems' in which pupils volunteer to help and support other children (see Chapter 4). You also need to make sure that the other pupils understand that the child with albinism is just the same as them

## Specimen learning activities

1. **Ask the expert.** Invite people with albinism (perhaps representatives of the local association for people with albinism) to come to your school to talk about the challenges faced by people with albinism.
2. **Presentation.** Deliver a presentation to your colleagues on inclusive education for children with albinism. If you want to find out more about the subject, you can download a guide in English from:

[https://www.sightsavers.org/wp-content/uploads/2018/03/Albinism\\_Information\\_for\\_teachers\\_and\\_parents\\_English.pdf](https://www.sightsavers.org/wp-content/uploads/2018/03/Albinism_Information_for_teachers_and_parents_English.pdf)

A French version can be downloaded from:

[https://www.sightsavers.org/wp-content/uploads/2018/03/Albinism\\_Information\\_for\\_teachers\\_and\\_parents\\_French.pdf](https://www.sightsavers.org/wp-content/uploads/2018/03/Albinism_Information_for_teachers_and_parents_French.pdf)

## 12. Including children with deafblindness

---

### What is deafblindness?

Deafblindness is a combination of visual and hearing impairments. Deafblindness is also described as multi-sensory impairment (MSI).

Some children are completely deaf and blind, but many have useful sight and/or hearing. Children with deafblindness may have other physical and learning disabilities as well.

Some children are born with deafblindness – for example, if their mother had German Measles/Rubella during pregnancy. Others may lose their sight/hearing gradually due to a genetic condition, while others may suffer an accident which causes sight and hearing loss.

Approximately half the countries in the world recognise deafblindness as a unique disability and provide an official definition for the condition.

### Barriers

Children with deafblindness face many barriers including:

- **Communication.** It can be hard for these children to express their needs and make themselves understood.
- **Isolation.** Communication barriers can lead to these children and their families becoming isolated and excluded.
- **Getting information.** If children with deafblindness are unable to access information due to communication barriers, they will find it difficult to understand what is going on around them.
- **Mobility.** These children often need support to move around safely.

### Assistive devices and support

Children with some remaining (residual) hearing or sight need functional and clinical assessments so that they can be fitted with appropriate assistive devices such as reading glasses and hearing aids. Some people with deafblindness use a red and white striped cane to aid their mobility and to identify themselves as having a combined visual and hearing impairment.

In some countries, professional interpreter-guide services are available to support people with deafblindness with their communication and mobility. Where trained interpreter-guides are not available, family members often provide this support.

### Communicating with children with deafblindness

Children with deafblindness and those working with them can use a range of different approaches to communicate, often in combination (known as 'total communication').

## Guide: Inclusive teaching and learning for children with visual impairments

Approaches include:

- Using hand signs and objects of reference such as holding out a mug to indicate that they are thirsty and want a drink.
- Tactile sign-language, including signs indicated in the palm of one hand, finger-spelling and tactile alphabet.
- Braille, including accessing the internet through a braille keyboard.

### Out of school

Global data shows that children with deafblindness are much less likely to be in school compared to children without disabilities, and are also less likely to be in school compared to children with other disabilities. In some countries, children with deafblindness are 23 times less likely to be in school than children without disabilities!

### Supporting children with deafblindness

With the right support, children with deafblindness can learn alongside their peers in local schools. Early identification and referral programmes for infants and young children with deafblindness can make a big difference to their educational outcomes.

Learners with deafblindness have different needs, so teaching and learning strategies may vary between different individuals. Sometimes children with deafblindness need to sit close to the front of the class to see the blackboard and hear the teacher. Children with deafblindness may also need enhanced lighting. A teaching assistant can make a big difference, supporting a child with deafblindness to take part in the lesson that the class teacher is leading.

### Case Study

Linda (name changed) in Tanzania was born with both visual and hearing impairments. Thanks to the dedication of local teachers, she now uses sign language and attends pre-school with her friends. Praising the teachers who supported her to develop her communication and life skills, her father said: “These teachers have done wonders for Linda’s life.” The picture on the right shows Linda (on the left), sitting next to her teacher and another pupil.



© Sense International.

## Sense International

Sense International is a specialist non-governmental organisation working to empower people with deafblindness around the world.

Sense International aims for all children with deafblindness to realise their right to education. Sense International has experience of working with Ministries of Education, teacher training institutions, curriculum development institutions, schools at all levels, and children and their families.

You can contact Sense International through: [www.senseinternational.org.uk](http://www.senseinternational.org.uk)

## Specimen learning activities

- 1. Video.** Watch the short video below. This is set in Brazil and shows three people, one of them deafblind, celebrating a goal in the recent World Cup. How do the three people in the video communicate effectively with one another? You will probably find you need to watch the video several times in order to understand what is happening. The URL is: <https://www.youtube.com/watch?v=MHsgWYt6l9g>
- 2. Role play.** Working in pairs with your colleagues, carry out a role play. One person will be the guide and the other person a child with deafblindness. Tie a soft cloth over the eyes of the person role-playing the child, so they cannot see, and give them ear-plugs to reduce what they can hear. Then the guide should give them safe everyday objects to identify by touch, smell and taste. The guide can then take them on a short walk so they can experience orientation without sight or hearing. You should use sighted guide technique for the last exercise – see pictures and instructions on pages 46-47 of this guide.
- 3. Ask the expert.** Ask the parents of a child with deafblindness to visit your school to talk to you and your colleagues about their experiences bringing up their child.
- 4. School visit.** Visit a school in which children with deafblindness are enrolled. It is important that you spend time sitting in lessons, talking to the teachers and pupils, and generally observing 'inclusion in action'. Report back to your colleagues after your visit.

## 13. Teaching and learning mathematics

---

In the next three chapters, we will discuss teaching **mathematics**, **geography** and **physical education** to children with visual impairments. Teachers sometimes avoid teaching these subjects to pupils with visual impairments, but these chapters will show that children with visual impairments can enjoy and succeed in these subjects, as long as teachers adopt the right approaches.

### Key issues

#### What do teachers need to do?

To teach maths to children successfully, teachers need to:

- i. Provide children with visual impairments with plenty of opportunities for hands-on work using real objects and simple equipment.
- ii. Understand children with visual impairments see less than other children or may not see at all.
- iii. Teach mathematics by step, building upon the child's existing knowledge.
- iv. Carry out the necessary planning and preparation
- v. Remember that these children will take longer than their classmates to complete certain tasks.<sup>16</sup>

#### What capacities do children need to possess?

Children need the following:

- Practical experience of the world around them
- Strong and nimble fingers
- Good sense of coordination
- Good skills in spotting the similarities and differences between objects, using their sense of touch or sight
- Ability to work independently
- Good organisational skills

#### What maths concepts do they need to grasp?

They need an understanding of:

- |          |                             |                   |
|----------|-----------------------------|-------------------|
| • Number | • Size And shape            | • Length/distance |
| • Height | • Volume                    | • Weight          |
| • Speed  | • Orientation <sup>17</sup> | • Maths Terms     |

---

<sup>16</sup> One way you can take this into account is by allowing the child with a visual impairment to do every other sum, rather than all the sums.

<sup>17</sup> For instance, they need to know the difference between left and right, up and down, in front and behind, and north and south.

## What maths skills do they need to acquire?

Children need skills in:

- Measuring
- Drawing
- Presenting data
- Understanding diagrams
- Estimation
- Weighing
- Geometry
- Understanding tables
- Calculation
- Data collection
- Using devices<sup>18</sup>
- Understanding graphs

## Equipment

### Specific equipment<sup>19</sup>

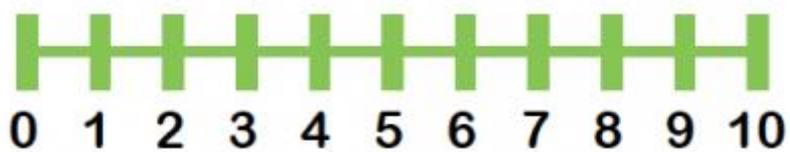
You don't need complicated, expensive equipment to teach mathematics to children with visual impairments. Below are some examples of simple equipment which can be made out of recycled materials, plastic, cardboard, string etc.:

- Solid three dimensional shapes of cubes, cylinders etc. of different sizes and textures
- Two-dimensional shapes cut out of cardboard of triangles, rectangles, etc.
- Pegboards of different sizes for counting and simple addition or subtraction. The boards, made of squares of wood, can be large (20cm x 20 cm), or small (10cmx 10cm). You should drill holes in the wood in lines at one or two centimetre intervals. You can make pegs for the board out of rivets or split pins.
- Geo-boards can be very useful for making shapes. These are wooden boards with small nails hammered into them at intervals of one centimetre both lengthwise and breadthwise (you can make the spaces two centimetres for younger children). Like pegboards, the geo-boards can be large (20cm x 20 cm), or small (10cmx 10cm). Rubber bands can be stretched around the nails to produced squares, triangles, rectangles and other shapes.
- Beads on threads for counting
- Wooden rods/sticks/cardboard of same and different lengths for measuring, comparing and making shapes
- Circles/squares made of wood or cardboard cut into segments/equal parts for fractions
- A number line 1 - 10
- A number square 1 - 100

---

<sup>18</sup> For instance, the abacus and the ruler.

<sup>19</sup> The cubarithm, an important piece of mathematical equipment, is discussed in Chapter 16.



1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

From top left, a pegboard, a geo-board, a number line and a number square.

## Adapting existing equipment

Some of the basic equipment designed for children who are fully sighted can easily be adapted for children with visual impairments. For example you can draw lines with a wax crayon. These can be felt by children who use braille.

You can make notches in a wooden ruler to indicate centimetres for a child who is blind, or you can paint squares over every second centimetre to make the centimetres easy to see for the child with low vision.

You can drill big holes in a plastic protractor every ten degrees and small holes for every five degrees. You can apply tiny drops of glue into the holes which will make them easier to feel. More ideas like these can be found in the ICEVI Publication **Mathematics Made Easy**, together with lots of information about using equipment like the abacus with children who are visually impaired. You can download this publication from:

[https://www.hadley.edu/Resources\\_list/Mathematics\\_Made\\_Easy\\_for\\_Children\\_with\\_Visual\\_Impairment.pdf](https://www.hadley.edu/Resources_list/Mathematics_Made_Easy_for_Children_with_Visual_Impairment.pdf)

Another useful website is [www.touchingmaths.net](http://www.touchingmaths.net)

## Teaching key skill areas

To show how you can teach maths to children with visual impairments, we will talk about a girl from Senegal called Salimata.

### Geometry

#### Understanding position words

The national curriculum for Senegal says children need to learn about the position of people and objects in relations to one another. For instance, they have to understand the meaning of: **left** and **right**, **high** and **low**, **near** and **far**, **in front of**, and **behind**.

To help teach this goal, the teacher asks all the pupils to close their eyes. The teacher then asks the children questions like, “Who is sitting **in front** of you? Who is sitting **behind** you? Who is sitting to your **left**? Who is sitting to your **right**? What is **above** you? What is **below** you?” Asking these questions develops the children’s understanding of these terms. Asking these questions also helps the teacher to find out what her pupils know and don’t know.

The teacher then asks each child to bring in some bottle tops and a cup. She asks the children to put three bottle tops **inside** the cup and then to take two bottle tops **out**. She then tells the children to put a bottle top **in front of** the cup and one **behind** it. She tells the children to put one bottle top to the **left** of the cup and one to the **right**. She tells them to turn the cup **upside down** and put two bottle tops **on top** of the cup and then two bottle tops **under** the cup. She keeps changing the instructions and checking that Salimata and the other children are following the instructions correctly.

## Guide: Inclusive teaching and learning for children with visual impairments

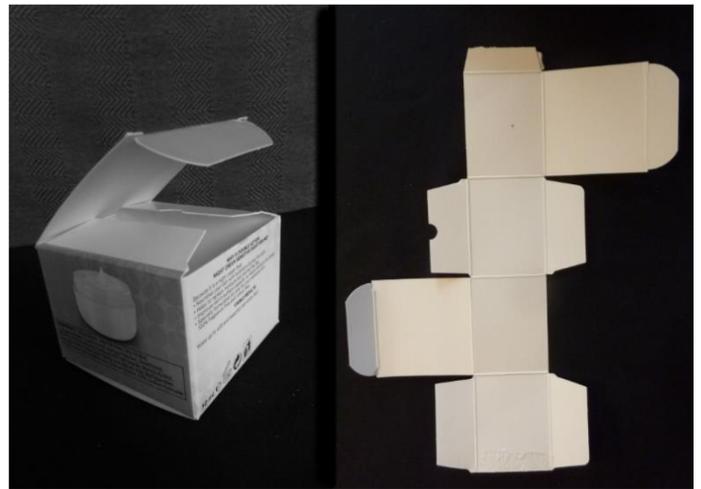
The teacher also asks children to talk about the school and their homes using words like **left** and **right**, **high** and **low**, **near** and **far**, **in front of** and **behind**. Salimata joins in these games with the other children.

### Understanding two dimensional pictures of things

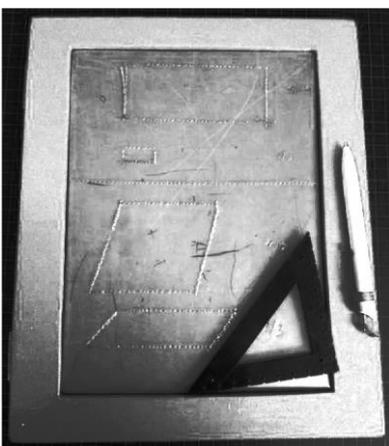
The national curriculum also says children have to understand solid forms and their representation in two dimensions. For instance, when children see a picture of a box they have to recognise that it is a box.

To begin with, the teacher brings a variety of objects into class. She brings in balls and round beads of different sizes, boxes of different shapes and size, and cans and cones. She asks the children about the shapes of the objects, using words like **round**, **flat**, **square**, **long**, **short** and introducing words like **rectangular**, **faces**, **edges** and **vertices**. She gives them to Salimata to feel and asks her to talk about the different 3D (three dimensional) shapes and their qualities. She asks all the children to find examples of things that have different shapes when they go home and to describe them when they come back to school.

Once she is satisfied that all the children understand the words they have learnt, the teacher moves to 2D shapes that represent the nets of 3D shapes (see picture on right). The teacher takes a large box and unfolds it so that pupils can see the flat shape (the net). She asks her pupils, including Salimata, to fold it back to make a cube. She asks them to find cardboard boxes or other 3D shapes that can be folded flat and to bring them into school to show to the class.



In another lesson the children are asked to draw a variety of shapes using pencils. They copy the shapes the teacher draws on the blackboard. The teacher provides Salimata with shapes cut out from card and discusses with her the number of sides (edges) they have and what they are called. Salimata makes the shapes on her geo-board with elastic bands (see page 62).



Salimata also needs to be taught how to draw like the other children. Salimata is given some card shapes – for instance, shapes of triangles and crayons. She draws around these using a wax crayon. Afterwards she can run her fingers along the marks left by the wax crayon and therefore understand what she has drawn. Alternatively, she can draw the shapes on thin plastic sheets given to her by her teacher (see picture on the left). To do this, she puts the card shapes on thin plastic sheets and then draws around these shapes using a biro. Afterward she is able to feel the raised lines on the plastic sheet.

## Understanding about straight lines

As part of the Senegalese national curriculum, children have to understand about straight lines and that they are shortest distance between two points.

The teacher brings a length of rope into class. She asks Salimata and her friend to come to the front of the class, Salimata and her friend each take one end of the rope and pull it tight. She asks the children whether the rope is straight. They all shout “Yes!” The teacher tells Salimata and her friend to let the rope go loose. Teacher then asks the children whether the rope is straight. They all shout “No!”

The teacher draws two houses on the blackboard. She then asks the children to draw the shortest possible path between the two houses. While the class are doing this, the teacher gets out Salimata’s pegboard. She puts two pegs in the board to represent the houses – one in the top right hand corner and another in the bottom left hand corner. She asks Salimata to use the pegs to make the quickest path between the houses. Salimata makes a diagonal line from one corner to the other with the pegs. The teacher praises her and explains that a straight line is always the shortest line between two points.

The teacher then draws two small squares for Salimata on her plastic sheet. She draws two lines connecting the two shapes, each line representing a path between two places. One line is straight. The other is crooked, with lots of twists and turns. The teachers asks Salimata to tell her which path is quicker. She then asks Salimata to feel the two lines and identify the shortest path. Salimata chooses the straight line. The teacher praises her and explains that a straight line is always the shortest distance between two points.

## Drawing straight lines

Salimata’s teacher gives her a wooden ruler to feel. The teacher has cut small notches in a wooden ruler to mark centimetres. She checks that Salimata can feel the notches. She asks Salimata to hold the ruler flat. She tells Salimata to keep one finger on the first notch and then count each notch as she feels it. She explains that each notch marks a centimetre. She then gives Salimata some straight sticks and asks her to measure them. Salimata’s friend helps her by holding the sticks steady for her while Salimata measures them. The teacher then gives Salimata a card. Lines of string of different length have been glued on the card. She asks Salimata to measure these lines as well. Later on, the teacher draws some lines for Salimata on the plastic sheet and asks Salimata to measure them. The teacher puts pins at the start and end of each line to help Salimata with this task.

As Salimata progresses through school she enjoys her geometry lessons. She uses her geo-board to learn about angles, as she can make angles of different sizes using rubber bands.

## Numbers

We will now discuss how Salimata’s teachers helped her with numbers as she passed through school.

As part of the national curriculum, pupils have to understand the following: **sets, subsets, little, a lot, nothing, more than, less than, as much as.**

## Guide: Inclusive teaching and learning for children with visual impairments

In order to help Salimata to understand **sets** and **subsets**, the teacher makes sure that Salimata has lots of experience putting things into groups. Every day Salimata's teacher brings in different everyday objects like coins, buttons, pebbles, sticks, nuts, dried beans and pasta shapes. She avoids choosing very small things which could be a choking hazard and will be difficult for Salimata to feel. She puts the objects on a tray, so that they do not fall on the floor. She mixes them together and asks Salimata to sort them into sets of different objects. She then asks Salimata to count the numbers of objects in each group.

In order to help Salimata to understand **size**, she asks Salimata to sort the pebbles by size (**large**, **medium-size** and **small**) or the sticks by length (from **long** to **short**) or she will ask her to sort them by material (wood or metal) or into things that are natural and things that are man-made. Sometimes she will ask Salimata to identify things that have two **qualities** – for instance, things that are smooth and round. Salimata enjoys this game and she sometimes plays it with her friends. Salimata's teacher knows that this will be good preparation for the more complex maths that Salimata will meet later in school – for instance, Venn diagrams.

As part of the national curriculum, Salimata has to learn about **addition**, **subtraction**, **counting** and **writing numbers**.

To help with **counting**, **adding** and **subtracting**, Salimata continues to use the objects that the teacher brings in each day. Sometimes the teacher takes the children out into the playground and asks them to make teams of three, or five, or twenty. She asks the children in Salimata's group to shout out their names so she can count how many children are in her group. She gets the children to stand in lines of six or twelve. She asks the children 'How many boys are in your group, how many girls?' She takes one or two children away from a group and asks the children how many are left. Each time she makes sure that the children shout out their names so Salimata can count them. Like all the children, Salimata really enjoys these games and they teach her a lot about number.

To **write numbers** Salimata will need to learn the braille number signs for numbers 1-20. She will also have to learn the signs for addition and subtraction. Salimata learns to write out numbers from 1-20 in rows on paper using her braille writing frame. She already knows the braille alphabet so finds it easy to write braille numbers. In order to help her, Salimata's teacher learns to read and write braille numbers.

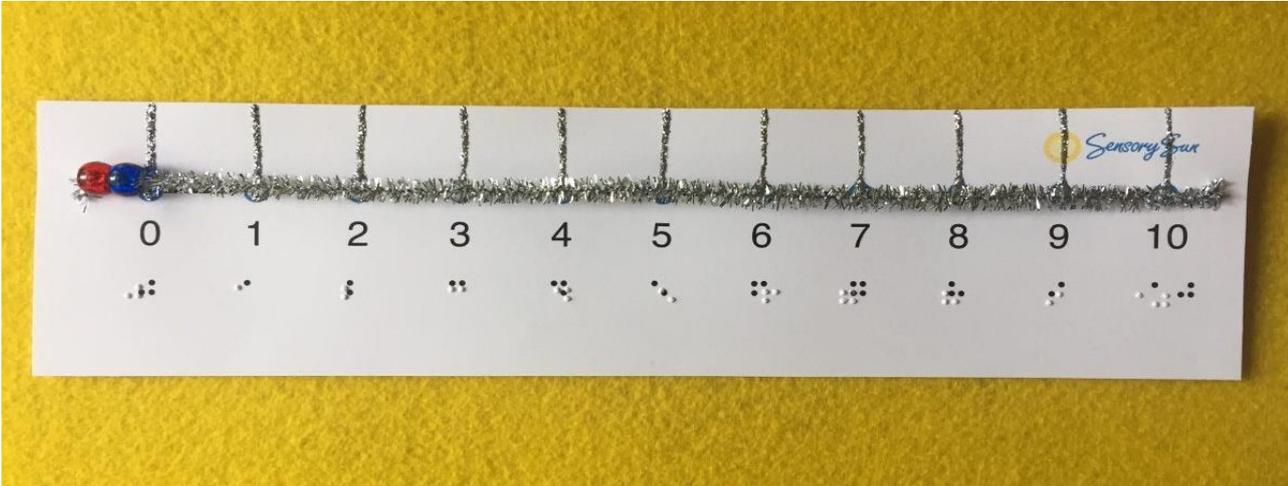


To help her understand **counting**, Salimata uses a simple abacus. Salimata learns to move the beads and count them as she slides them along. By the time Salimata reaches Year 4, she has learnt to show ('set') numbers on the abacus. She understands that some beads represent the number five and that two of these beads therefore represent the number ten. She can break down numbers into tens and units. She can show numbers up to 50 on the abacus and she understands how to use the abacus to add numbers together and take them away. (To learn

more about the abacus, see the ICEVI website **Mathematics Made Easy**.)

## Guide: Inclusive teaching and learning for children with visual impairments

Salimata's teacher makes a number line for Salimata. The number line is a strip of cardboard divided into sections with numbers written on it in braille at regular intervals. All the pupils in the class have a number line and they use it for counting, adding and subtracting. Pupils use the number line to work out the answers to maths questions and then write their answers on their slates. Salimata writes her answers using her writing frame, with her teacher checking her answers as she works.



To teach **odd** and **even** numbers, Salimata's teacher takes the children outside. She gets the children to line up and gives each child a number from 1-50 that they have to remember. She explains about odd and even numbers and asks all the children with even numbers to take two steps forward. She asks all the children in the front line to shout out their numbers – two, four, six, eight etc. Then she asks the children in the second line to shout out their numbers one, three, five, seven etc. She asks the children to move into small groups and asks each group if there is an odd or even number of children in them. Salimata's classmates help her to count the numbers of children in each group by calling out their names.

## Measuring

### Height and length

In this section we will describe how children with visual impairments can be helped to measure things for themselves. Salimata sometimes finds measurement harder than fully-sighted children. For example, the other children, unlike Salimata, can see that the mosque is taller than the palm trees that surround it. Someone therefore needs to explain to Salimata that the mosque is about twice as high as the trees or ten times taller than she is. If Salimata has a stick as tall as she is, her teacher can help Salimata work out how tall the mosque must be. If someone builds a simple model of the mosque and the trees made from boxes and plastic bottles, this will help Salimata understand the differences in scale even better.

Salimata learns how to measure length and distance in a range of ways. Her teacher begins by asking Salimata to carry out simple measurements – for instance, the width of her hand and the length of her arms. Salimata also measures the length of classrooms, other buildings and walls by pacing out the various distances. Her teacher shows Salimata how to use sticks, string and ropes

## Guide: Inclusive teaching and learning for children with visual impairments

with knots at one metre intervals to make measurements. She also shows Salimata how to use rulers, metre sticks and measuring wheels.

### Weight

In order to help Salimata to understand the difference between **heavier** and **lighter**, Salimata's teacher asks her to compare **weights**. She gives her a bag of rice and a bag of beans and asks her to say which one feels heavier. She then gives her a bag of crisps and a bag of sweets, and asks her the same question. Another time, the teacher gives Salimata a bag of stones and asks her to fill another bag with stones until the two bags weigh the same. The teacher then introduces the class to using scales for measuring. The teachers makes a pair of scales by balancing a piece of wood on a cylinder lying on its side. Weights are put on each end of the piece of wood. When a heavier weight is put on one end of a piece of wood, the wood dips downwards – Salimata can feel this with her hand.

As soon as Salimata and her classmates understand the terms heavier and lighter, her teacher introduces the idea of **grams** and **kilograms**. Pupils are asked to guess the weight of objects and then use the scales to get the right answer. The teacher uses everyday objects like one kilogram packs of sugar to help with the measuring. Salimata's teacher asks the children to fill plastic bags with one kilogram of sand so they weigh the same as the pack of sugar. Salimata and her friends always enjoy these lessons.

### Capacity and volume

In order to help Salimata to understand **volume**, Salimata's teacher collects empty plastic bottles of different sizes – one-litre bottles, half-litre bottles and quarter-litre bottles.

The teacher asks Salimata and her friends to fill the quarter-litre bottles with water. She then asks Salimata to see how many of the smaller bottles can be poured into the larger bottles. The teacher explains that water is measured in litres and that petrol for cars and motorbikes is sold in litres. The teacher brings in cooking pans and pots and asks her pupils to see how many litres can be fitted into the pans and pots. Later on, the teachers tells her pupils that a litre of water weighs a kilogram.

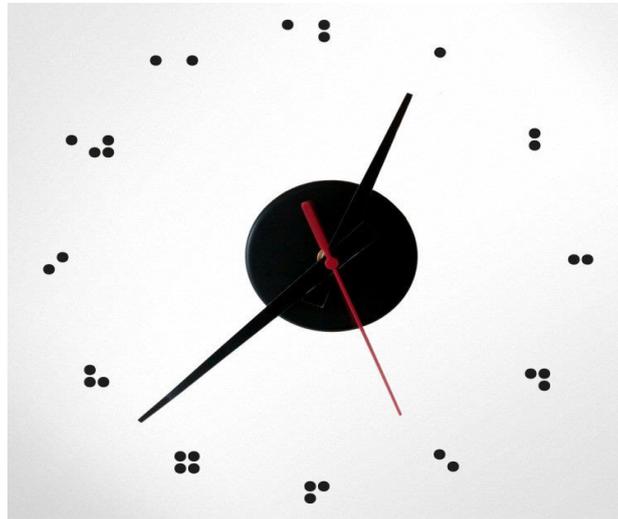
### Time

Salimata's teacher starts teaching time by introducing the **days** of the week. The teacher asks the children what days were school days and what days make up the weekend. The children also learn the months of the year and the teacher asks about the months that are holidays and the months they come to school. Salimata's teacher helps her make a braille chart of the months of the year and Salimata puts her birthday and other special days in the year on the chart with pins.

The teacher introduces **hours** by asking what time the children have to be in school and what time school finishes, and when the break times are and how long they last. The teacher introduces **minutes** by asking the children to guess how long a minute is. The teacher starts by explaining that a minute has sixty **seconds**. She uses her watch to count sixty seconds out loud to the class, with the children joining in with the counting. Then the teacher asks the children to count a minute. She asks the children to count silently to themselves and put up their hands when they think a minute has passed. Salimata is very good at this game and puts up her hand at just the right time. Once the children understand about hours and minutes, they learn about telling the time. The teacher helps

## Guide: Inclusive teaching and learning for children with visual impairments

Salimata make a clock face from card with the hands held in place by a drawing pin and the numbers labelled in braille. She asks Salimata to set times like nine o'clock, and to set the hour that school finishes. Once Salimata understands hours, she learns about half hours and quarter hours. At different times of the day, the teacher asks Salimata what time she thinks it is. As a result of her teacher asking these questions, Salimata can soon tell the time of day accurately.



Braille clock

## Money

Salimata's teacher realises that it is important for Salimata to learn about money. Once Salimata has learnt to count, the teacher uses real coins and notes in maths lessons to help Salimata understand about adding and subtraction. She asks Salimata and her friends how much they know about the price of different foods and different items that their parents buy. The teachers uses real coins and notes to help Salimata work out how much she needs to give to the seller to buy different items and how much change she will get back. The teacher encourages Salimata's parents to help her pay for things when they go to the market. The people in the market are very helpful when they know what Salimata is doing and help her learn about money. When she is older, Salimata goes to the market to buy things by herself.

## Fractions

In school, Salimata learns more and more about **fractions**.

Sometimes the teacher will give her two plastic containers and a pile of dried beans. The teachers asks her to share out the beans between the two containers and put half the beans in one container and half in the other.

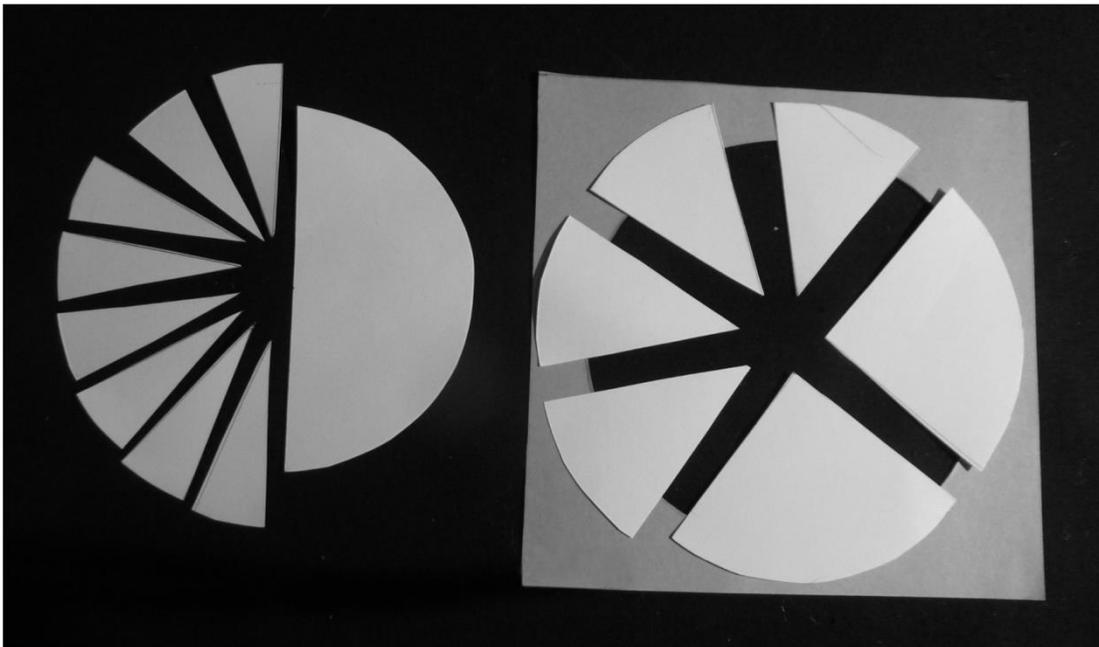
In the playground the teacher asks the pupils to divide their class into two **halves** and, later, to divide their class into smaller fractions. The teacher asks groups of twelve pupils to split their groups into **halves** (i.e. groups of six) and then **quarters** (i.e. groups of three). The teacher asks, "How many halves do we have?" and then "How many quarters do we have?" The teacher also

## Guide: Inclusive teaching and learning for children with visual impairments

asks, “How many are in each half?” and “How many are in each quarter?” Every time, the teacher asks Salimata to count the children in her group.

In the classroom the teacher uses cardboard shapes to teach Salimata about fractions. She gives her a cardboard square and tells her that it is a whole. She then cuts the square in two and gives the two halves to Salimata. She tells Salimata that they are halves. She then cuts the half in two and gives the quarters to Salimata. She tells Salimata that these are quarters. Soon Salimata is able to examine squares that have been cut into fractions and identify halves, quarters and even **eighths** and **sixteenths**. She is able to do the same with circles that have been cut into fractions. The teacher also uses the pegboard to teach Salimata fractions. The teacher puts pegs in the pegboard to make a line, and then asks Salimata to make a line half that size. The teacher makes several lines of different lengths on the pegboard. Under each line, she tells Salimata to make a line half that size.

Another time, the teacher asks Salimata to make a square of sixteen pegs and then to make a square on the pegboard that is half that size. Gradually the tasks become harder as Salimata learns about quarters and other fractions, but Salimata enjoys fraction work because she is learning about fractions in very practical ways. Once she understands how fractions work, she learns to how write fractions in braille and do sums involving fractions.



Circles that have been cut into fractions.

## Graphs

As she becomes older, Salimata learns about collecting and recording data in **tables** and **graphs**. To begin with, she uses her pegboard to create simple bar charts. She carries out a survey of her friends to find out what their favourite fruit is. Five of her friends choose mangos, three pineapples, and two papaya. Salimata makes three lines of pegs (one underneath the other) on her pegboard

## Guide: Inclusive teaching and learning for children with visual impairments

from left to right to show her friends' choices. The teacher tells Salimata that she has made a bar chart.

Salimata's teacher encourages her to make a bar chart on paper using her braille frame and stylus. After some practice this is easy for Salimata. She uses a braille cell of six dots to represent each child's choice.

Later Salimata is taught about axes using the pegboard and she learns how to plot positions on the pegboard, using a horizontal and a vertical axis.

Salimata carries out graph work using paper with raised lines on it that her teacher prepares for her. Her teacher used a spur wheel (see below) to make raised lines that go across the page and from top to bottom. Salimata puts the paper onto a cork tile and fixes it in place with pins in each corner. Salimata learns to plot positions on the grid of squares using pins.



### Symmetry

Salimata's teacher uses the pegboard to show symmetry. She divides the pegboard into two, using a column of pegs. The teacher makes a square on the left of the line with four pegs. The teacher gives Salimata four pegs, and asks her to make a square to the right of the line that matches the first square. Next, the teacher makes a rectangle with eight pegs on the left of the centre line, and asks Salimata to make a matching rectangle on the right side. The teacher is very pleased with Salimata and asks her to show her pegboard to the rest of the class and explain to them how she has learnt about symmetry.

### Conclusion

Teachers sometimes struggle to teach maths to children with visual impairments. These children also sometimes struggle to learn maths. This chapter has described ways in which maths can be made enjoyable, both for teachers and these children. Many of these activities will be interesting and exciting for the other pupils in your class. This chapter is not comprehensive. It has only described a few activities that can be carried out in your class. It is important therefore that you identify your own strategies for teaching maths to these children. You can find out more through exploring the website: <http://www.touchingmaths.net>. Please share your ideas with other teachers and, most importantly, have fun with your maths teaching!

## Specimen learning activities

1. **Make your own resources.** With your colleagues, find/make the resources listed on page 61 of this guide – e.g. geo-boards, peg-boards, number squares, number lines and beads on threads. Remember, these resources will be useful for teaching mathematics to all pupils, not just pupils with visual impairments.

## Guide: Inclusive teaching and learning for children with visual impairments

2. **Position words.** With a colleague, practise teaching position words to a pupil with a visual impairment, following the approach described on pages 63-64 of this guide.<sup>20</sup>
3. **Three-dimensional shapes and their nets.** Make some three dimensional shapes and their nets. You will be able to use these resources for teaching geometry to all the pupils in your class, not just the pupils with visual impairments.
4. **Fractions.** With a colleague, practise teaching fractions to a child with a visual impairment, using the approach described on pages 69-70 of this guide.<sup>21</sup>
5. **Ask the expert.** Invite an expert – for instance, a specialist teacher of the visually impaired – to visit your school to train you and your colleagues.
6. **Further research.** Find out more through exploring the website: <http://www.touchingmaths.net>. Report back to your colleagues.

---

<sup>20</sup> You can use this strategy to teach position words to other pupils in your class.

<sup>21</sup> Again, you can use this strategy to teach fractions to any pupil in your class experiencing difficulties with this subject, not just children with visual impairments.

## 14. Teaching and learning geography

---

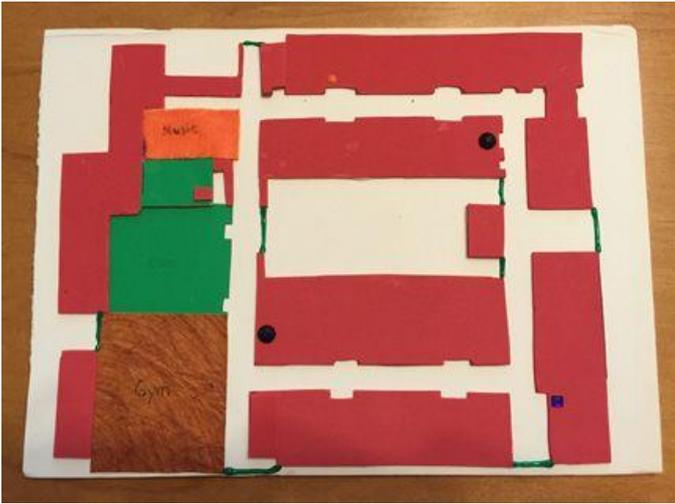
Geography is a very important subject for all pupils, as it helps them to understand the world around them. Unfortunately, pupils with visual impairments are often excluded from geography lessons because it is considered a subject too difficult for them. In this chapter, we will show this is not true.

### Maps

Pupils with visual impairments often find it hard to understand **maps** as they are not able to see maps or can only see them with great difficulty.

You can help the pupil with a visual impairment in your class to understand maps by asking the pupil to make a model of a familiar place, like the classroom. First, assist the child to explore the classroom so the child understands where the desks and benches are positioned and the location of features like the blackboard, doors and windows. You can then make a model of the classroom with the child, using stones, sticks, bottle-tops, cans, wooden blocks of different sizes, or anything which is to hand or can be collected from home. You have to make sure that the child understands that these items represent real things. You can then ask the child to arrange them on a tray. (It is useful for children who are blind in particular to use a tray because trays have edges that stops things falling off as you touch them. If you don't have a tray, use a flat surface like a desk or table top or even the floor.) Start with only three or four large objects. Encourage the child to touch the items very gently so that they don't move around. If you can find a way to stick the objects in place this makes the task easier for the child. You can ask the child to show you where things are on the model. For instance, you can ask, "Where is the teacher's desk?", "Where do you sit?" and "How do you get to the door?" Ask the child to walk from their desk to the door in the real classroom and then show the same journey on the model.

Once the child has made a model of the classroom, you can ask the child to make a model of the school compound, using real objects. Again, begin simply. For example, the child can use just a few objects representing (for instance) the child's classroom, the head teacher's office, the latrines and the fence around the school. The child can then add more objects representing other parts of the school. Alternatively, you can add these objects yourself, explaining to the child what they are. Again, ask the child questions about the model. For instance, you can ask, "Where is the head teacher's office?" and "How do you get from your classroom to the latrines?"



Once the child has understood these models, you can help the child to turn these three-dimensional models into two-dimensional maps (see picture on left). Cardboard can be used as the base of the maps. A child with low vision will be able to draw/colour places on these maps, while children who are blind will be able to use cardboard shapes to representing places (these shapes can be stuck on the map). Once the child has made a two dimensional maps, they will be able to make more two-dimensional maps of their village and other familiar places.

Once the pupil with a visual impairment understands maps, you can introduce concepts of **measuring** and **scale**. The pupil can measure their classroom in different ways: for instance, in steps or by using rope knotted at one metre intervals. The pupil can then transfer their measurements to scale drawings. If the pupil has squared paper, he or she can fill in a square to represent a footstep. If the pupils has a ruler, a line of 12 cm can represent 12 paces. If the pupil is a braille user, the pupil can begin by making the outline of the classroom using pegs on a pegboard to represent a metre. The pupils can leave gaps where doors are. After this the pupil can make an outline map of the classroom on braille paper using a braille writing frame and stylus. Each braille cell of six dots can represent a metre of the classroom wall.

You can continue to build up the pupil's knowledge of their **surroundings**. You can ask the pupil to list the important places in their neighbourhood and to collect further information about these places - for instance, shops, roads, mosques, churches, schools and rivers. You can partner the pupil with a fully-sighted child or a small group of classmates to collect this information. When they go back to school, the children can present their findings together. When making their presentation, they can use a big map or model of their community to help communicate their findings to their audience.

After learning about their neighbourhood, the pupil with a visual impairment, along with their classmates, can develop their knowledge of their own country and surrounding countries. For example, you can use a stick to draw a large outline map of the country in the sand outside your classroom. You can then ask the children in the class to stand on the edge of the map, holding hands to form a human chain representing the country. You can then organise other activities to increase children's geographical knowledge, as much as possible involving the pupil with a visual impairment. For instance, you can ask:

- Pupils to stand on the places on the map where the main towns can be found
- Lines of pupils to represent big rivers in the country
- Groups of children to represent mountain ranges, deserts or forests
- Pupils to point to the north, south, east and west

## Guide: Inclusive teaching and learning for children with visual impairments

- Pupils who have relatives from other parts of the country can talk about what they have learned about these places when visiting their relatives

After this activity, your pupils can go back to the classroom to copy the map from the board, labelling it appropriately. The pupil with a visual impairment can work with their friends who can help them with spellings of places and with placing labels in print or braille on the maps.

The teacher can cut out a large cardboard map of Senegal. This map can be a learning aid for the whole class. The pupil with a visual impairment can also add information to the map – for instance, print or braille labels with the names of rivers, major towns and regions on them. String can be used to represent rivers, soft material to represent forests, sandpaper to represent deserts, pieces of plastic to represent lakes etc.

A similar approach can be used to create representations of other countries, Africa or even other continents.



A child who is blind in Sierra Leone exploring a tactile globe. The project is supported by the European Union. © Sightsavers/ Peter Caton

## Models

Earlier in the chapter, we discussed models. Models can be very helpful for developing the understanding of pupils with visual impairments of geographical features such as mountains, valleys and rivers. This is because these pupils can explore these models through touch. While the pupils are exploring these models, the teacher should find time to explain the model to the child – for instance, point out the summit of the mountain, the mountain's ridges and slopes, and the valley at the foot of the mountain. You can create these models from cardboard, clay or other materials. It

is important to remember that all the children in your class, not just the children with visual impairments, will benefit from these models. You can learn more about this approach from:

<http://www.3dgeography.co.uk>

## Conclusion

There are many ways that you can teach geography to pupils with visual impairments. We have only discussed a few in this chapter. With a little imagination, you can make geography an enjoyable and accessible subject for these pupils – and indeed all the other pupils in your class.

## Specimen learning activities

1. **Tactile maps.** Make a tactile map of the country in which you live, using the instructions on page 75. Add braille labels to the map. You will be able to use this resource when teaching geography to pupils with visual impairments.
2. **Models.** Make a model of a mountain out of clay, cardboard or other materials, following the instructions on pages 75-76. Again, you will be able to use this resource when teaching geography to pupils with visual impairments.

## 15. Sports and games

---

Physical education is very important for children with visual impairments. Exercise and movement helps to keep them fit and healthy. Participation in sports also gives them a lot of pleasure, while giving them something they can discuss with their classmates. Furthermore, physical education can help children with visual impairments to develop the basic skills that are important for moving safely and confidently around their schools and communities. Unfortunately, many pupils with visual impairment are excluded from physical education because their teachers don't know how to include them. In this chapter, we will show you can include these pupils.

### General approaches

Physical education activities can help children with visual impairments to learn to control the position of their bodies and to move them through space in a safe and coordinated way. Children who can see are able to learn these skills by imitation. They can see the way other children run or jump or climb, and can try it for themselves, copying what other people do and practising to become better. Children who can see will learn to catch, throw, roll, hop and skip without being taught. Loss of vision can make it harder to develop and improve these basic skills, and many children with vision loss will need to be taught how to move their bodies in the right way and will need encouragement to build their confidence.

In order to learn to move with confidence in physical education lessons, children with visual impairments first need to know that they can move safely without fear of injury and they also need to understand the words that are being used to instruct them.

For example they will need to understand action words like **curl**, **stretch**, **twist** or **roll**. They will need to understand direction words like **forward**, **backward**, **sideways**, **diagonally** and **up and down**.

If you are teaching basic physical skills to a child with visual impairment, ask yourself the following questions:

1. Have I given the child a chance to explore and understand the area where the activity is taking place? Does the area need to be made smaller so the child can move around with more confidence? Does it need to be quieter so the child can hear what is happening? Does there need to be more light so the child can see what is around them?
2. What help will the child need? Who will provide it – an adult or other children? Do the helpers understand what they have to do and what they should not do?
3. What words does the child need to understand to do the activity? For example, does the child understand, **left**, **right**, **up**, **down**, **on**, **under**, **between** and **through**? Do they know what words like **bending**, **stretching** and **twisting** mean?
4. If the child is using equipment like a ball, can I make it easier for the child to see or hear the ball? Does the ball need to be bigger or softer or a brighter colour? Can I put something into the ball like dried peas or ball bearings so that it makes a sound?

## Guide: Inclusive teaching and learning for children with visual impairments

5. Have I explained, named and let the child explore any equipment that the child will be using like skipping ropes or bats?
6. How can I change the activity to make it easier to learn?
7. Can I break the activity down into small steps, to ensure the child experiences success from the start?

### Teaching key skill areas

#### Basic movements

Children with visual impairments may need one-to-one help to build and refine their movements, as they have not been able to watch and copy others. Even simple instructions like “Stretch like a star” or “Make a bridge with your legs” can be very confusing for a child who cannot see what you are doing when demonstrating the activity. Any instructions you give must be clear and precise. If you are talking to the child with visual impairment you also always need to say their name first – for example, you should say, “Fatmata I want you to...”

When you are demonstrating anything, the child should be close to you. If the child can still not see properly, you will need to give them extra help.

Sometimes this extra help will need to take the form of physical guidance.<sup>22</sup> For instance, the child with a visual impairment may need you, or a friend from their class, to move their arms or legs or head so they can understand what to do and how to move. When a teacher or a friend wants to use physical contact to help a child understand a particular movement, it is essential you obtain the child’s agreement before they are touched. The child needs to understand what is going to happen to them and why. You might say ‘Fatmata, I am going to touch your arm to show you how to move it for this exercise, is that alright?’ Younger children are usually happy with this teaching method, but older children may be uncomfortable with this approach. For these children, it may therefore be better for the child’s classmates to act as ‘PE buddies’ and show the child the correct position. It is important that PE buddies realise that the amount of assistance they give should only be as much as is required. Their purpose is to help the child to develop the capacity to perform the task independently.

Music or songs are really valuable in helping all children to develop smooth movement and rhythm. Simple action rhymes are ideal for early learners. They help to develop an awareness of body parts, and encourage independent movement and a sense of rhythm. Simple dances can help young children develop an understanding of both their own body movements and of their position in relation to children around them, and are useful warm-up exercises for team games for older children. Dances can help children learn to move in different directions and at different speeds. Tapping out rhythms on the floor, on your body or on an item of equipment are all good ways to develop a sense of rhythm and timing.

---

<sup>22</sup> In many cultures, it is seen as highly inappropriate for a male teacher to have any sort of physical contact with a female pupil. If you are a male teacher, it is important you observe these norms. If physical contact needs to be made (for instance, to show the female pupil with a visual impairment how to carry out a move in physical education), then another female pupil may be able to provide this assistance. Alternatively, a female teacher can be given sole responsibility for teaching physical education to female pupils in a school.

## Guide: Inclusive teaching and learning for children with visual impairments

Young children need to be involved in a range of activities that involve turning, rolling, jumping, pulling, pushing and balancing. These activities can be carried out individually, in pairs or in small groups. Before you introduce any child to complicated movements, the child needs to feel relaxed and confident carrying out simple basic movements.

### Throwing and catching

Children with visual impairments need opportunities to throw and catch objects. They can begin by rolling a ball to another child while sitting down. This can be done in pairs and then by a circle of children. The child receiving the ball will need to shout out their name to the thrower before the throw so that the thrower knows where they are. Begin by using a large ball – if possible, one that is brightly coloured and that makes a sound when rolled.

The child with a visual impairment can then learn to roll and throw objects at targets. For example, the child can roll a ball at a group of empty cans. You can make this a team game and get children to keep scores of how many cans they knock down. One of the classmates can bang or rattle one of the cans as the child with a visual impairment throws so the child knows where to aim.

To begin with you may need to adapt rolling or throwing at targets by putting the target close for the child with visual impairment, gradually increasing the distance as the child becomes more accurate.

Catching is difficult at first for a child with a visual impairment. They need to know when the ball is being thrown and when it is going to arrive. It is best to begin by calling out the child's name and then throw the ball so it bounces several times on the way to the child. This helps the child to locate the ball and track the ball's movement. After a while the child should be able to catch a ball after one or two bounces. If you can use a ball that makes a sound, this will help.

You can teach basic ball skills through team games. You can arrange children into two parallel lines several metres apart, with each child an arm's length from the one in front. Each team has a ball. The aim of the game is to pass the ball back along the line as quickly as possible. When it reaches the end of the line, the last person runs with the ball to the front of the line and starts passing the ball back again. The game continues until the person who started the game is standing at the front again holding the ball or object. The team that finishes first is the winner.

You can change the game each time to cover different types of passing. For instance, you can tell the children that they have to keep their feet still when passing and twist their backs to pass the ball back to the child behind them. The next time you play the game, the children can pass the ball backwards over their heads. Alternatively, you can ask them to pass the ball between their legs, all the time keeping their legs still.

### Running

Fully-sighted children learn to run in a straight line relatively easily, as they can see where they are and where they are going. However, children with visual impairments will find it harder to run in a straight line. They will also need practise to learn how to move their arms and legs efficiently, and they will need to be confident that they will not come to harm when they are running.

'Sighted callers' can help children with visual impairment to run confidently. The caller repeatedly shouts the runner's name. For example a young child with a visual impairment can be asked to run towards a caller who is just six paces ahead of them. Gradually the distance can be lengthened as

## Guide: Inclusive teaching and learning for children with visual impairments

the child's confidence increases. An older child might be encouraged to run 50 metres by having a caller standing at 25 metres and a second caller at the finish line. Gradually these distances can be increased. Running should take place on even, open ground where there are no obstacles.

At other times, children with visual impairments will need to run with a sighted guide, particularly when they are running in races.

Running helps these children to understand distances and speed, as well as being an exciting and challenging experience.

### Jumping

Some children with visual impairments will have had no experience of jumping forwards. It is probably easiest to start by teaching children to make a standing jump, jumping forward with both feet at the same time from a standing start. Some children need to learn about bending their knees at take-off and landing and they need to be shown how to jump forwards. They can then start jumping from behind a fixed line such as a piece of rope or a stick. This is useful because you can then start involving children in measuring their own jumps to help them understand distance and to see how they are improving.

### Team games

With the right adaptations, children with visual impairment can participate in most team games. There are two types of adaptation. First, you can adapt the **rules** of the game, and second, you can adapt the **equipment** used for the game.

For instance, when playing basketball:

- You can change the rules so that a team can only score if everyone in the team has passed the ball at least once in the build-up. (This will make sure the child with a visual impairment is included in the game.)
- You can say that players with visual impairment have a zone around them of a metre and no one is allowed into that zone. (This adaptation is called zoning and is useful in many team games. It allows the child with visual impairment to concentrate on the skills of catching and passing the ball without worrying about physical contact or interference.)
- You can say that every pass has to bounce once before it reaches the next player. (The child with a visual impairment will be able to hear the ball when it bounces.)
- You can play with a ball that makes a sound.
- You can make the 'basket' bigger – for instance, by using a bin as the target.
- You can make it easier for the child with low vision to recognise team-mates by providing one side with white tee shirts or white head bands made from strips of cloth.

Football is another game that children with visual impairments often enjoy. Here are some ways that you can develop their footballing skills.

#### a) Developing movement

To play football, children with visual impairments will need to be able to run, stop, start and change direction. To prepare for this in a training session, the child with a visual impairment can stand behind a skilful sighted teammate with their hands on their teammate's shoulders at arm's length. The child follows the partner's movement as they make short movements sideways, forwards and backwards without the ball as they would in a game. After doing this for a while, the child changes

## Guide: Inclusive teaching and learning for children with visual impairments

place with the partner who encourages them and gives them advice on their movements. The partner can shout directions like 'quick to the right' or 'back to the left'. The movements become gradually quicker and lengthen from one metre runs to three metre runs.



Blind football in action. All the players except the goalkeeper wear blindfolds, irrespective of their level of sight loss. Balls are used which make a rattling or jingling sound. Players are required to say "voy", "go", or something similar when going for the ball; this alerts the other players about their position.

### Working with the ball

Begin by rolling the ball just to the side of the child with a visual impairment. The teacher or coach shouts directions to the child, for example 'move to the left'. The child has to stop the ball with their hands and then roll it back. As the child's skill develops, the ball is rolled more quickly. When the child can do this confidently, you can roll the ball to the child's feet and teach the child how to stop and control the ball with their feet and then pass it back to the coach.

The child with a visual impairment can practise shooting from the penalty spot. If the child is blind, encourage the child to bend down and place the ball with their hands immediately before kicking it, standing with one foot next to the ball so that they know exactly where the ball is.

To help children with visual impairments participate in a football game, you can make all the players link arms with a partner and play in pairs. When you play like this, all the players have to work hard to match their movements to each other.

For more advice about simple team games that can be adapted for children with visual impairments look at the Sport and Development website which has pages in both French and English:

[https://www.sportanddev.org/sites/default/files/downloads/12\\_right\\_to\\_sport\\_french.pdf](https://www.sportanddev.org/sites/default/files/downloads/12_right_to_sport_french.pdf)

## Safety issues

While safety is important for all children in physical education lessons, you will need take special care of children with visual impairments. In particular, you will need to make sure that when playing sport there are no hazards they are in danger of tripping over or running into. You also need to be aware that a minority of children with visual impairments could lose the little sight they have as a result of a blow to their heads. This is, for instance, true of children with glaucoma or severe myopia. When teaching physical education to children with visual impairments, you should avoid activities where head injuries may happen. If possible, you should ask a doctor if there is any danger associated with the participation of a child with a visual impairment in sports activities.

## Specimen learning activities

1. **Video.** Watch this video from Canada about the participation of people with visual impairments in sports. Are people with visual impairments in your country involved in similar activities? If not, how can they be encouraged/assisted to take part in these activities?  
<https://www.youtube.com/watch?v=fkuApNCZAmY>
2. **Plan an activity.** Plan a PE activity for a class which has a child with a visual impairment, following the advice on pages 77-78 of this guide. Discuss your plan with your colleagues.
3. **Throwing and catching.** Pair off with a colleague. One of you will be the teacher and the other the child with a visual impairment. The teacher will help the child to learn how to throw and catch a ball, following the instructions on page 79 of this guide.<sup>23</sup> You will require a ball for this activity!
4. **Running.** Pair off with a colleague. One of you will be the teacher and the other child with a visual impairment. The teacher will assist the child to learn how to run, following the instructions on pages 79-80 of this guide.<sup>24</sup>
5. **Working with the ball.** Pair off with another participant. One of you will be the teacher and the other child with a visual impairment. The teacher will help the child to learn how to throw and catch a ball, following the instructions on page 81 of this guide.<sup>25</sup> You will require a ball for this activity!

---

<sup>23</sup> When you carry out this activity, the person playing the role of the child will need to close their eyes (unless they are visually impaired).

<sup>24</sup> See footnote above.

<sup>25</sup> See footnote above.

## 16. Assistive technology

In this chapter, we will discuss the various types of assistive technology for children with visual impairments – this technology ranges from very simple devices to sophisticated pieces of information technology.

### Assistive technology for children who are blind<sup>26</sup>



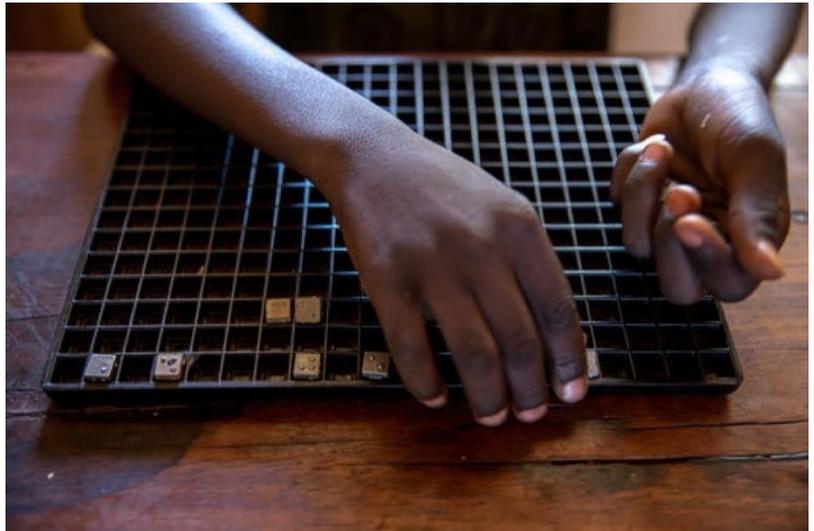
- **Braille slate/writing frame with stylus** (see picture on left). The braille slate/writing frame with stylus is widely used by blind pupils across sub-Saharan Africa. This equipment is light, robust and relatively affordable. However, pupils should not be asked to braille large quantities of text using this equipment, as they will find this task both physically demanding (as it places great demands on the fingers and wrists) and intellectually taxing (as braille has to be written back-to-front). You can find instructions for using this equipment on the following website: <https://www.louisbrailleonlineresource.org/slate-and-stylus.html>
- **Perkins Braille** (see picture on page 33). This is like a large braille typewriter and enables children who are blind to write braille quickly and relatively easily as long as they have sufficient strength and skills. Unfortunately, Perkins Braille typewriters are very expensive compared to braille slates and require periodic maintenance. You can find instructions for using this equipment from the following website:

<http://www.braille.org/intro/session02/perkins.html>

- **Braille paper** is needed for Perkins Braille typewriters.
- **Braille number line 1-10** (see illustration on page 62).
- **Braille number square 1-100** (see illustration on page 62).
- **Abacus** (see picture and discussion on page 66).
- **Pegboard and geo-board** (see illustration and discussion on page 62). Both of these can be made by the teacher.
- **Compass**
- **Tactile ruler** (see discussion on page 63).
- **Tactile protractor**
- **Spur wheel** (see picture and discussion on page 71).
- **Plastic sheets** (see discussion on page 64).
- **Three dimensional and two dimensional geometrical shapes** for mathematics (see discussion on page 64).

<sup>26</sup> Some pupils with low vision will need to learn to use these types of assistive technology if they have very little sight or will experience significant sight loss in the future.

- **Cubarithm** (see picture on right). This is a braille maths teaching aid which consists of arithmetic cubes and a board. It helps pupils to lay out and solve sums. The plastic cubes are embossed with braille signs using the upper four dots of the braille cell (dots 1, 2, 4 and 5). Calculations are made by placing the cubes into the appropriate spaces on the board with the braille uppermost. Due to the small size of the cubes, it is recommended that young children use the cubarithm under adult supervision. Instructions for using a cubarithm can be downloaded from the following website: <https://shop.nib.org.uk/cubarithm-board.html>



Arithmetic cubes and board. © Sightsavers/Javier Acebal

- **Talking calculator**
- **Ball with rattle** (for sport).
- **Tactile maps and diagrams** (these can sometimes be made by teacher – see discussion on pages 42-44 and 75).
- **Braille clock-face** (see discussion on page 69).

- **Long white cane** (see discussion on page 45 and picture on right). A long cane provides people with visual impairments (both people who are blind and people with low vision) with valuable information about the ground they are walking on and any potential obstacles in front of them. A white cane also informs other people that the individual using it has a visual impairment and can also provide some protection for the user in a busy and crowded environment. A white cane needs to be the correct length – generally it should extend from the floor to the underarm of the user, though some people prefer longer canes. People with visual impairments often prefer folding long canes as they are



seen as more convenient. People with visual impairments also use **symbol canes** and **guide canes**. For more information, see: <https://help.nib.org.uk/help/daily-living/transport-travel/need-cane>

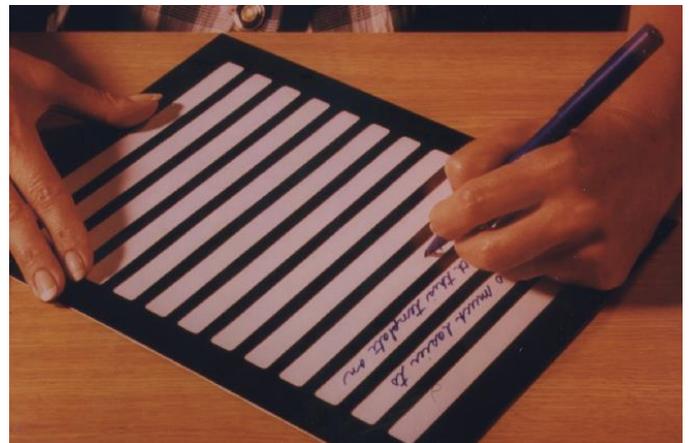
## Equipment for pupils with low vision<sup>27</sup>

- **Optical low vision aids** (as required by the pupil) – e.g. glasses, hand-held magnifier, stand-held magnifier, monocular – see selection of aids in picture below. For more information, see: <http://www.visionaware.org/info/overview-of-low-vision-devices/low-vision-optical-devices/45>



- **Non-optical low vision aids** (as required by the pupil) – for instance, thick-tipped pens, reading-stands, bold-lined paper, wide-lined paper. For more information, see: <https://www.teachingvisuallyimpaired.com/non-optical-low-vision-devices.html>

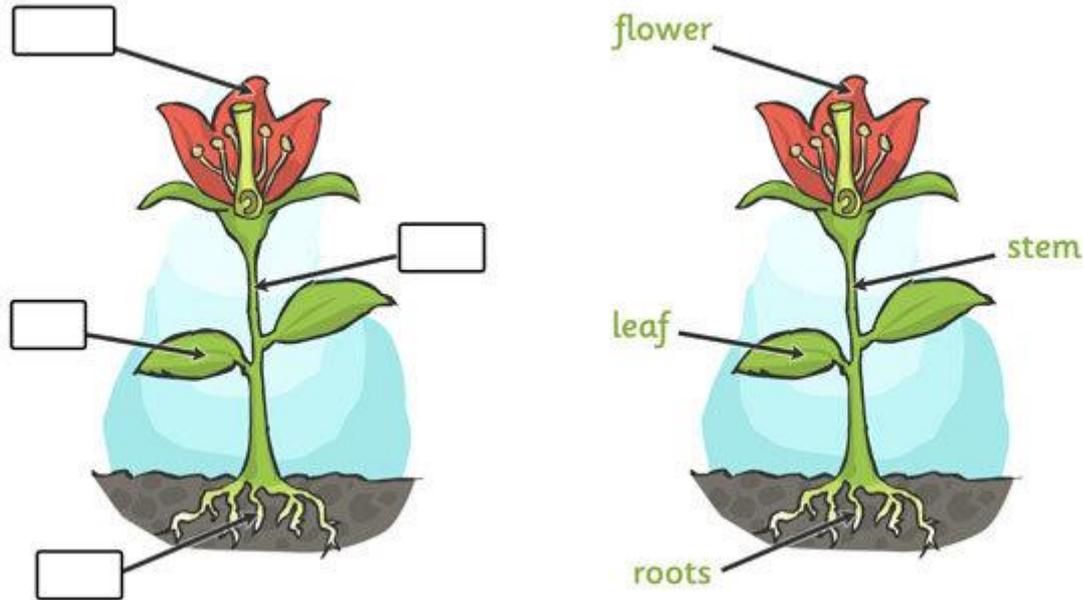
The picture on the right shows a writing guide – an example of a non-optical low vision aid. A writing guide is a piece of card with long rectangular slits cut out of it. The pupil puts a piece of unlined paper inside the writing guide and writes in the slits. Paper clips keep the paper in place. Writing guides are very useful for pupils with low vision who find it hard to see the lines on a piece of paper, and thus to write in a straight line. Other pupils in your class who also have difficulties writing in a straight line will also find writing guides useful. If you are unable to purchase writing guides, you can make writing guides for yourself out of card.



- **Large print text, including textbooks** – this material is desirable, but rarely available unfortunately.
- **Large print number line from 1-10** – see picture and discussion on page 62.
- **Large print number square from 1-100** – see picture and discussion on page 62.

<sup>27</sup> If a child with little vision has very little sight or will experience significant sight loss in the future, they will need to learn to use the assistive technology required by their blind peers. Both children who are blind and children with low vision will benefit from learning white cane skills.

- **Large print calculator**
- **Large print clock face**
- **Simplified diagrams, maps and charts** - see example below.



### Equipment for the classroom teacher

- **Perkins Braille with braille paper** – this will enable the teacher to braille material for the pupils and also regularly practise his/her braille writing skills. The Perkins Braille will need to be regularly serviced so a Perkins Braille repair service will need to be established.

### Equipment for a resource centre (providing outreach services for schools and children and their families)

The resource centre should have examples of all the assistive technology recommended for blind pupils, pupils with low vision and the classroom teacher (see above), as this technology can be used for training and demonstration purposes.

For producing braille texts, the centre should also have a **computer** with a dedicated **embosser** and **translation software**.

For producing raised diagrams and maps, the centre should have a **computer**, a **heat-infuser** (i.e. **thermoforming machine**) and **swell paper** for producing raised diagrams and maps.

The necessary arrangements should be made to ensure this equipment is properly maintained and stored once purchased. It is recognised that these issues can be challenging in some sub-Saharan African contexts.

## Looking to the future: mobiles, smartphone and computers

Access to the internet through **smartphones** and **computers** will increasingly become normal over the coming decades, throughout the world including sub-Saharan Africa.

As with all specialist equipment, the accessibility software necessary for computers or smartphones can sometimes be extremely expensive. However, often very capable software is built into the system, or free, open-source alternatives are available online. For instance, screen-reading software (which reads aloud the text on a computer monitor) is built in to almost all Android smartphones, and can be downloaded for free on Microsoft Windows computers, with the NVDA open-source software package.



A blind girl in Sierra Leone touch-typing using a computer with 'text-to-speech' software. © Sightsavers/Peter Caton

Once these devices are set up for pupils with visual impairments, they can access an enormous amount of material available online, and also tools which allow them to read, communicate, and write documents independently, on the same level as their sighted peers.

## Specimen learning activities

1. **Field visit.** Visit a resource centre or special school for children with visual impairments. This will give you the chance to see, touch and use assistive technology for children with visual impairments. The staff at the centre will be able to demonstrate the technology and help you to use it.
2. **Ask the expert.** A specialist teacher of children with visual impairments/ adult with a visual impairment can visit your school in order to demonstrate assistive technology for children with visual impairments. Alternatively, pupils/adults with visual impairments can demonstrate this technology to you.
3. **Home-made resources.** Make some of the resources discussed in this guide. These could include: geo-boards, pegboards, tactile maps, models, three-dimensional shapes and their nets, number lines, number squares, braille clocks, and simplified diagrams.

## Conclusion

---

In this guide, we have identified ways in which you can successfully include children with visual impairments in your school.

We end the guide by telling the inspiring story of Mafoune, an eleven year-old girl with low vision enrolled in a Sightsavers-supported school in Bamako, Mali.

Mafoune is a happy and self-confident girl, but she wasn't always like this. She used to struggle in school, staying late every afternoon to complete her work because she was slow in writing. Fortunately, an itinerant teacher, Mrs. Keita, noticed Mafoune was having problems. Mrs. Keita went home with Mafoune to discuss Mafoune's problems with her parents. She arranged for Mafoune's eyes to be tested and for her to be provided with a pair of glasses and a reading-stand. Mrs. Keita also spoke to Mafoune's class teacher who made some simple adaptations to help Mafoune – such as writing in large print on the blackboard and seating Mafoune near the front of the class.

Mafoune is now one of the top of the pupils in her class and much happier and self-confident. She says, "I like geography, arithmetic and science but my favourite subject is history, because I like to talk to my father about what I have learnt."

We hope that this guide will inspire you to follow the example of Mrs. Keita and ensure that children with visual impairments are happy and successful in your school.



Mafoune with her class teacher Mrs. Boro. The project is supported by USAID. © Sightsavers/Javier Acabal.

## Appendix 1: Specimen programme for five-day workshop on inclusive education for children with visual impairments<sup>28</sup>

### DAY ONE

Session 1: INTRODUCTION TO DISABILITY RIGHTS	
Objective: Participants will develop a better understanding of the educational rights of children with disabilities, the barriers that prevent these children enjoying their rights, and strategies for removing those barriers.	Activities: <ol style="list-style-type: none"><li>1. In plenary, ask participants to identify different groups of children with disabilities – e.g. children with visual impairments, deaf children, children with physical disabilities, children with intellectual disability. Ensure participants understand these categories. (20 minutes)</li><li>2. Show Plan International video on child rights: <a href="https://www.youtube.com/watch?v=mJggYdw3l0ka">https://www.youtube.com/watch?v=mJggYdw3l0ka</a> (5 minutes)</li><li>3. In plenary, ask participants why children with disabilities in their country a) often don't go to school and b) may have negative experiences if they go to school. The discussion will help participants understand that these children often face difficulties because of negative attitudes and practices, poor quality services, inadequate infrastructure, and inadequate policies. Explain social model of disability to participants. (30 minutes)</li><li>4. In groups, participants identify ways in which the situation can be improved in your country (i.e. all children with disabilities receive a good quality education) and report back in plenary. (45 minutes)</li></ol>
Duration: 1 hour 40 minutes	
Resources: Laptop; projector; flipchart; marker pens; Chapters 1 & 3 of this guide.	
Assessment method: Oral contributions from participants will reveal their levels of knowledge and understanding.	
Notes: Disability-rights activists/inclusive education specialists can help deliver this session. <b>Copies of the teachers' guide should be distributed to participants before the workshop.</b>	

<sup>28</sup> This is a training schedule for a five-day workshop. We recognise that this training may need to be delivered over a short period of time, or periodically over an extended period of time. In such circumstances, trainers will need to adapt this training programme or even develop their own. Trainers will also need to develop their own workshop documentation, e.g. evaluation forms.

## Session 2: INTRODUCTION TO INCLUSIVE EDUCATION

Objective: Participants will be able to define and describe inclusive education.

Duration: 2 hours

Resources: Laptop; projector; flipchart; marker pens; Chapters 1 & 3 of this guide; signs and associated statements.

Assessment method: Oral contributions from participants will reveal their levels of understanding.

Notes: See comment on previous session.

Activities:

1. Ask participants to define inclusive education. Write ideas on flipchart and then collectively agree on a definition. See suggested definition in Chapter 1 of the guide. (20 minutes)
2. Watch video on inclusive schools in Bangladesh: <https://www.youtube.com/watch?v=9fiNgjjKbA>  
Ask participants a) to identify the inclusive practices in the schools and b) if these practices could be introduced in their schools. (40 minutes)
3. Walking debate. Put the sign saying '**True**' on one wall of the room. On the opposite wall, put the sign saying '**False**'. Ask all the participants to stand. Then tell them you are going to read a number of statements related to inclusive education. After each statement, they must decide if the statement is true or false. They should then move to the side of the room marked True or False. (Sightsavers can provide you with a list of statements.) (30 minutes)
4. Reflection. Ask participants to reflect on their schools. In what ways are their schools inclusive? In what ways, can their schools become more inclusive? (30 minutes)

### Session 3: INTRODUCTION TO VISUAL IMPAIRMENT

Objective: Participants understand about the causes and effects of eye conditions.

Duration: 2 hours – 2 hours 30 minutes

Resources: Poster/slide of the eye; unlabelled diagrams of the eye; flipchart; marker pens; Chapters 2 & 6 of this guide; laptop; projector.

Assessment methods: Participants will demonstrate knowledge and understanding through labelling diagrams, taking part in the quiz, and contributing to plenary discussions.

Notes: If possible, invite an eye health professional to co-deliver this session.

Activities:

1. Explain how the eye works, using a poster or Powerpoint slide as a visual aid. Afterwards, ask the participants to label diagrams to test their understanding. (40 minutes)
2. Talk about the different ways eye conditions can impact on children's visual functioning. Afterwards, divide the participants into teams and give them the quiz on page 13 of this guide. (40 minutes)
3. Show participants the video on Fadzie, a young girl with a visual impairment:  
<http://www.vision2020uk.org.uk/blind-children-uk-releases-videos-to-raise-awareness-of-the-support-needed-by-children-and-young-people-with-vision-impairment/> Ask participants to identify Fadzie's condition and the problems she has overcome. (20 minutes)
4. In groups, participants reflect on any difficulties they have with seeing. See Reflection exercise on page 13 of this guide. (20 minutes)

Optional activity. An eye health professional discusses their work. (30 minutes)

## DAY TWO

Session 4: STRATEGIES FOR INCLUSION	
Objective: Participants will be able to identify and evaluate various strategies for inclusion.	<b>Activities:</b> <ol style="list-style-type: none"><li>1. Give participants a list of the strategies, numbered 1-20. Deliver a Powerpoint presentation on the strategies. (30 minutes)</li><li>2. Working in groups, participants select three strategies they consider particular important and in plenary justify their selections. (You should encourage groups to select different strategies to avoid repetition.) (30 minutes)</li><li>3. Ask participants to identify which of the 20 strategies:<ul style="list-style-type: none"><li>• They can implement immediately in their schools</li><li>• They can only implement with the necessary support/training</li><li>• Which are only beneficial for pupils with visual impairments</li><li>• Which are beneficial for all pupils</li></ul></li></ol> <p>During the above discussion, participants should become aware that a) they can implement many of these strategies immediately at little or no cost, and b) many of the strategies will benefit all pupils, not just children with visual impairments/disabilities. (30 minutes)</p> <ol style="list-style-type: none"><li>4. Participants watch video on an inclusive school in Senegal and in plenary identify the various strategies for inclusion shown in the video. The URL is on page 25 of this guide. (30 minutes)</li></ol>
Duration: 2 hours	
Resources: Laptop; projector; Powerpoint slides; flipchart; marker pen; numbered lists of strategies for inclusion (one per group); Chapter 4 of the guide.	
Assessment method: Trainer can assess oral contributions of participants to group and plenary discussions.	
Notes: In order to be adequately prepared, participants should read Chapter 4 of the guide before this session.	

### Session 5 : INTRODUCTION TO ORIENTATION & MOBILITY

Objective: Participants learn key principles of orientation & mobility and about sighted guide technique

Duration: 1 hour 30 minutes – 2 hours

Resources: Laptop; projector; flipchart; marker pen; Chapter 9 of this guide; poster – *Assisting Children with Visual Impairments* (optional). Blindfolds (optional). White cane/s (optional). The URL for the poster can be found on page 47 of this guide.

Assessment method: Observe participants as they demonstrate sighted guide technique.

Notes: Participants can choose to wear blindfolds when assuming the role of the person with a visual impairment. Activities should be carefully supervised by the trainers to minimise risk. If an orientation and mobility instructor is available, she/he can facilitate this session.

Activities:

1. Deliver a Powerpoint presentation on orientation and mobility. Demonstrate white cane technique to participants and then demonstrate sighted guide technique, including meeting and greeting. (15 minutes)
2. In pairs, participants practise sighted guide technique, following the illustrations and instructions on pages 46-47 of this guide. One participant should act as the sighted guide and the other as the person receiving sighted guidance. The participants should then swap roles. (40 minutes)
3. Participants practise going up and downstairs, passing through narrow spaces etc., following the guidance in Chapter 9. (20 minutes)
4. Participants reflect on their experiences as sighted guides/visually impaired people receiving sighted guidance. How can the person providing sighted guidance make the process as safe and easy as possible for the person with a visual impairment? (15 minutes)

Optional activity: Under the supervision of the instructor, participants can practise white cane skills. (30 minutes)

### Session 6: INTRODUCTION TO BRAILLE

Objective: Participants learn to braille the English alphabet and to read simple messages in Grade 1 braille – in the process, participants learn something about the challenges faced by braille users.

Duration: 1 hour 30 minutes

Resources: Laptop; projector; flipchart; marker pen; Chapter 7 of this guide; braille writing slates/frames with styluses (one per participant); paper for slates/frames.

Assessment method: Observation of pupils' participation in activities. Assessment of written work of pupils.

Notes: Adults who are blind will be valuable resource persons for this session.

Activities:

1. Powerpoint presentation on braille reading and writing. (20 minutes)
2. Participants write braille alphabet using braille writing frames/slates with styluses. Participants then practise writing their names. (40 minutes)
3. Participants write short messages to each other and read one another's messages. (20 minutes) (Participants will probably need to read these messages by sight rather than touch.)
4. Participants reflect on the session. What did they find easy/difficult about writing/reading braille? (10 minutes) If they had to read/write large quantities of braille text in a school day, what challenges would they face?

## DAY THREE

### Session 7: TEACHING MATHEMATICS TO CHILDREN WITH VISUAL IMPAIRMENTS

Objective: Participants learn about strategies for teaching mathematics to pupils with visual impairments.

Duration: 2 hours 30 minutes

Resources: Laptop; projector; flipchart; marker pen; Chapter 13 of this guide. Materials for constructing mathematics resources (e.g. glue, card, scissors).

Assessment method: Observation of participants' performance in group activities and plenary discussion. Assessment of quality of resources produced by participants.

Notes: This session will require particularly careful preparation.

Activities:

1. Powerpoint presentation on the principles of teaching mathematics to children with visual impairments. (20 minutes)
2. Participants make mathematics resources described in Chapter 13 of the guide. (1 hour)
3. Working in pairs, participants teach mathematics skills to one another, using the resources they have made. (One participant will perform the role of the teacher, the other the role of the child with a visual impairment.) Participants then swap roles and teach another skill, this time using a different resource. (40 minutes)
4. In plenary, participants discuss their experiences. (30 minutes)

## Session 8: CHILD SAFEGUARDING FOR CHILDREN WITH DISABILITIES

Objective: Participants will develop their understanding of child safeguarding issues and identify ways child safeguarding can be strengthened in their schools.

Duration: 3 hours 30 minutes

Resources: Laptop; projector; flipchart; marker pens; handouts; post-it notes; Sightsavers' child safeguarding module, child safeguarding handout, child safeguarding checklist and action plan, and child safeguarding code of conduct. Chapter 10 of this guide.

Assessment method: Observation of participant's performance in group activities and plenary discussions.

Notes: Trainer will need a copy of the Sightsavers' child safeguarding module. Trainer will also need to download the video Fairnsquare: Making the World Better for Kids from:

<https://www.youtube.com/watch?v=nlzMD1Kj6kE>

This session will discuss child safeguarding for all children with disabilities, not just children with visual impairments.

Activities:

1. Trainer defines child safeguarding. Participants provide examples of the different types of abuse. (20 minutes)
2. Plenary discussion of reasons why children with disabilities are particularly vulnerable to abuse, followed by video. (30 minutes)
3. Working in groups, participants identify child safeguarding strategies. (1 hour)
4. Working in groups, participants assess the child safeguarding systems in their schools. (1 hour 30 minutes)
5. Closing discussion. (10 minutes)

## DAY FOUR

### Session 9: SCHOOL VISITS: LESSON OBSERVATION

**Objective:** Participants develop their understanding of educational realities for children with visual impairments in particular mainstream schools.

**Duration:** 2 hours 30 minutes (excluding time travelling to and from schools). At least 3 hours with optional activity.

**Resources:** Participants should be provided with lesson observation sheets.

**Assessment method:** Review lesson observation sheets completed by the participants. Assess participants' contribution to plenary discussions at the start and end of school visit.

**Notes:** This session will involve a great deal of organisation, but will be worth it, as it will give participants a first-hand understanding of teaching and learning realities for children with visual impairments in particular schools.

**Activities:**

1. Head teacher/s of school/s describes educational arrangement for children with visual impairments in their schools. (30 minutes)
2. Participants observe a class in which pupils with visual impairments are taught alongside fully-sighted pupils. Participants complete lesson observation sheets. (1 hour)
3. Participants discuss educational provision for children with visual impairments in the school with the classroom teachers/head teacher. (1 hour)

**Optional activity:** If time allows, participants should tour the school accompanied by school staff. This will give them a broader understanding of educational realities for the children with visual impairments attending the school.

### Session 10: PROBLEM-SOLVING

Objective: To develop participants' ability to resolve challenging situations, re the inclusion of children with disabilities in mainstream schools

Duration: 1 hour 30 minutes

Resources: Flipchart; marker pen; case-studies (1 set of case studies per group). Chapter 5 of guide.

Assessment method: Observation of participants' contributions a) to group discussions and b) to plenary discussions at the start and end of the session.

Notes: Experienced teachers can be invited to attend this session, as they will be able to describe ways in which they have resolved similarly challenging situations in the past.

Activities:

1. Introduce session (10 minutes)
2. Present participants with case-studies of problematic situations. For instance:
  - A pupil with a visual impairment has dropped out of school
  - A pupil with a visual impairment is being bullied in school
  - A pupil with a visual impairment is not making expected educational progress
  - A pupil with a visual impairment in your class lacks necessary orientation and mobility skills/self-care skills/communication skills
  - You lack the necessary teaching and learning resources for the pupil with a visual impairment in your class
  - Your classroom environment needs to be made more accessible for pupils with disabilities
  - You feel professionally isolated and need assistanceWorking in groups of 4-5, participants identify strategies for resolving these situations. Participants write their strategies on flipchart paper. (50 minutes)
3. Feedback session in plenary. (30 minutes)

### Session 11 : TEACHING PHYSICAL EDUCATION

Objective: Participants will understand the principles of teaching physical education to children with visual impairments.

Duration: 2 hours

Resources: Laptop; projector; flipchart; marker pen; Chapter 15 of the guide; blindfolds; soft balls; footballs.

Assessment method: Observation of participants' performance in activities.

Notes: Participants can choose to wear blindfolds when assuming the role of a child with a visual impairment, as this will give them a better understanding of the challenges faced by these children. You will need to find a large outdoor space for this session.

Activities:

1. Show Canadian video on participation of people with visual impairments in sport (link below). Participants can then discuss if people with visual impairments in their countries have similar opportunities and, if not, how the situation can be improved. (20 minutes)  
<https://www.youtube.com/watch?v=fkuApNCZAmY>
2. In pairs, participants practise Throwing and Catching activity on page 79 of the guide. One participant will be the child with a visual impairment, and the other the teacher. (15 minutes)
3. In pairs, participants practise Running activity on pages 79-80 of the guide. (15 minutes)
4. In pairs, participants practise Working with the ball activity on page 81 of this guide. (15 minutes)
5. Again working in pairs, participants plan a PE activity for a class which has a child with a visual impairment and present their ideas to the rest of the group – see pages 77-78 of the guide. (45 minutes)
6. In plenary, participants discuss what they have learned from the session. (15 minutes)

## DAY FIVE

### Session 12 : PANEL DISCUSSION: ASK THE EXPERT

Objective: Participants deepen their understanding of inclusive education issues.

Duration: 1 hour 30 minutes – 2 hours

Resources: Panel of experts.

Assessment method: Assess contribution of participants to plenary discussions.

Notes: It is important that the panel-discussion addresses a range of issues, including stigma and discrimination towards people with disabilities. This session should stimulate debate and discussion among everyone present. However, the trainer will need to expertly facilitate this discussion in order to ensure it is both focused and wide-ranging. The trainer will also need to ensure that participants have prepared relevant questions.

Activities:

1. Assemble a panel of experts. Panel members can include: adults with visual impairments; other adults with disabilities; an experienced teacher of children with visual impairments; an eye health professional; a representative of the district education office.<sup>29</sup> At the start of the session, the experts should introduce themselves to the participants. (15 minutes)
2. Participants ask questions related to the education of children with visual impairments to the panel, and the panel responds to these questions. (1 hour plus)
3. Trainer (or selected participants) summarise key issues emerging from the discussion. (15 minutes)

<sup>29</sup> The other experts may of course also be people with visual impairments/people with disabilities.

### Session 13: ASSISTIVE TECHNOLOGY FOR CHILDREN WITH VISUAL IMPAIRMENTS

Objective: Participants learn about assistive technology for children with visual impairments.

Duration: 1 hour 40 minutes

Resources: Laptop; projector; flipchart; marker pens; selection of assistive technology for children with visual impairments; Chapter 16 of this guide.

Assessment method: Participant observation.

Notes: Tables can be reserved for different types of assistive technology. For instance, there can be tables for: braille reading and writing equipment; optical and non-optical low vision devices; tactile learning aids and equipment; mathematics resources. Selected experts from the previous session can be resource persons for this session.

Activities:

1. Trainer delivers Powerpoint presentation on assistive technology for children with visual impairments. (20 minutes)
2. Trainer displays assistive technology on tables. In groups of 4-5, participants tour the tables, learning about the different types of technology from resource persons. Participants should be provided with 'hands on' opportunities to use the technology. (1 hour)
3. Plenary discussion. (20 minutes)

### Session 14: ACTION PLANNING FOR INCLUSION

Objective: Participants develop the first drafts of action plans to be implemented over the next 12 months under the supervision/with the support of the trainer

Duration: 2 hours

Resources: Laptop; projector; flipchart; marker pen; pens and paper.

Assessment method: Make copies of the first drafts of the participants' action plans and monitor the implementation of the action plans over the next 12 months, providing the necessary support and supervision.

Notes: Participants should finalise their actions plans after the workshop has ended and they have had time to reflect on the plans. Ideally, over the next 12 months, the trainer should carry out follow-up visits to the participants' schools to review the implementation of the action plans. If this is not possible, participants can report back to the trainer, via email/texts.

Activities:

1. Trainer delivers Powerpoint presentation summarising content of preceding workshop sessions. (20 minutes)
2. Working in groups of 2-3, each participant identifies five objectives (to be achieved over the next 12 months) which will result in children with visual impairments being included in their classrooms/schools. These objectives should be SMART: i.e. specific, measurable, assignable, realistic and time-bound. These objectives can cover various areas, including:
  - Mobilising school and community stakeholders
  - Making schools physically more accessible
  - Adopting new teaching and learning approaches
  - Learning new skills (e.g. reading and writing Grade 1 braille)
  - Strengthening pastoral support for children with disabilities, including children with visual impairments
  - Referring children with seeing difficulties to eye health services.Participants should then include these objectives in the first draft of their action plans. (1 hour)
3. In groups and in plenary, participants review each other's action plans. (40 minutes)





## **Contact us**

If you have any questions about this guide or would like to find out more about Sightsavers' work in education, please get in touch with Guy Le Fanu at:

Email: [giefanu@sightsavers.org](mailto:giefanu@sightsavers.org)