

# **Teaching the Student with a Visual Impairment**

**A Primer for the Classroom Teacher**





# TEACHING THE STUDENT WITH A VISUAL IMPAIRMENT

A PRIMER FOR THE CLASSROOM TEACHER

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# *TEACHING THE STUDENT WITH A VISUAL IMPAIRMENT*

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# DEDICATION

To those teachers and parents willing to go the extra mile for the education of a student with low vision.

Thank you for your passion and commitment to excellence.

*Marcia Javers*

*Robert Murphy*



# *TEACHING THE STUDENT WITH A VISUAL IMPAIRMENT*

# FOREWORD

Few things are as precious or as fragile as the potential of a young child. What will that child accomplish in life? When we fail to adequately help the visually impaired child, we may doom that child to a life of less potential. Yet the needs of a visually impaired child are complex.

When the child with a visual impairment becomes a student, new and important responsibilities fall upon the classroom teacher. Few classroom teachers have been trained to fully handle the needs of a visually impaired child. Where do they begin? How will the classroom teacher meet those needs? How will the teacher understand the child's condition and its effects on schoolwork? How will the teacher be aware of the available resources? Faced suddenly with a visually impaired child in the classroom, where does the teacher start? That starting point has now arrived in *Teaching the Student with Visual Impairment: A Primer for the Classroom Teacher*.

Marcia Gevers and Robert Murphy have drawn on their personal experiences of vision loss and their experiences as educators to create a powerful resource for the classroom teacher. Not only will it serve to aid classroom teachers of visually impaired children, but it can also serve to suggest a model of low vision services in the school system. This book should be on the bookshelf of every teacher and low vision specialist.

Richard L. Windsor, O.D., F.A.A.O.

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# PREFACE

## THE VISION OF A GOOD EDUCATION.

Envision a world in which every child receives an excellent education. Leaders and adults across the earth embrace this goal. Yet students with disabilities consistently are excluded from information and participation which would grant them an equal education. Educators constantly walk the fine line between provision of services for the greatest number, and provision of services for the few exceptional students, at a time when schools are expected to do more with less.

Envision a time when students with visual impairments will have access to all the information so readily available to their peers. Envision a time when students with visual impairments will have a talented and interested teacher who has the time and the knowledge to make provisions for their special needs. Congratulations! The fact that you are reading this book indicates that you are one of those educators or parents who is willing to go the extra mile.

*Teaching the Student with a Vision Impairment: A Primer for the Classroom Teacher* was written with you in mind. It was designed to meet your need for information about how to educate and provide for the needs of your special student. Clearly, you CAN envision a quality education for your student and are willing to take the time to get the background and information which this book and associated materials offer. The American Printing House for the Blind brings you this product in an effort to assist you as you embark on the exciting challenge of teaching the student with a visual impairment.

## WHAT IS THIS BOOK ABOUT?

Low vision has unique sets of challenges not found in either extreme of vision: total blindness or good eyesight. This book intends to be a practical guide for teachers, parents, and others who teach, love, and live with the student with low vision.

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The primary focus of this book is to help the teacher in the all-inclusive classroom. The student is the key to solving the educational problems that low vision imposes. The student needs self-motivation and a positive self-image. Knowledge and understanding are essentials for the teacher and parent in meeting the student's needs. Through joint effort, the student with low vision can expect to have a successful educational experience.

Every eyesight problem is unique. One person with low vision, for example, may have the capability of riding a bicycle safely, while another may not. It is important, then, to understand the type of low vision impairment found in a student.

Good teachers know about child development, curricula development, motivation, methods, emotional needs, and a whole range of issues important to every student. All of these are equally important in the education and development of a student with low vision. Generally, teachers are passionate about teaching and accept every student as unique. Since every vision problem is also unique, every student with low vision will probably need accommodations in order to achieve educational success.

This book addresses these unique needs, which require support to ensure educational success. Practical and timely information is presented here to support teachers and parents in their work for the student's education in the all-inclusive classroom. The Passion Flower on the cover of this book reminds the reader of the uniqueness of each student and the teacher's passion for helping each one blossom.

## **WHO ARE THE STUDENTS?**

According to the provisions of federal legislation called the Individuals with Disabilities Education Act (IDEA), schools are responsible for students ages 3 through 21. This book addresses the needs of those serving students with low vision, kindergarten through twelfth grade in the public, private, and parochial schools. This book also contains some applications for homeschoolers.

## HOW DO I USE THIS BOOK?

Throughout the book, TIPS are printed in the sidebars between solid lines. These tips give practical suggestions and assistance to the teacher and to the parent. Some tips are also included in the text as part of explanations. Tips appear near explanatory text. These are intended to increase the knowledge and understanding of adults involved in the student's world, both teachers and parents.

MISCONCEPTIONS and TRUTHS are printed in the sidebars in bold between dotted lines. The many misconceptions concerning eyesight and abilities need to be addressed in order to provide proper education for the student.

The word "parent" includes parents, guardians, guardians ad litem, foster parents, and surrogate parents. Only the word "parent" will be used in the text. Odd numbered chapters will refer to the teacher or parent in the feminine gender and the student as masculine. Even numbered chapters will be the reverse. This avoids the constant use of the awkward phrase "he/she." By the use of clear, practical language, the text presents information in an understandable manner.

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### TIP

Tips appear in boxes like this one.

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### MISCONCEPTION

**Misconceptions and their corresponding truths appear in boxes like this one.**

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## ABOUT THE AUTHORS

### MARCIA GEVERS, M.S.

In 1992, Marcia Gevers began looking at life from a different perspective. From March to December of that year, she became legally blind with a profound vision loss due to a condition called pseudo-tumor cerebri.

With a B.S. in elementary education from Ball State University and an M.S. in education from Indiana University, she was teaching in an elementary school when she began losing her eyesight. Nothing in her education coursework had prepared Gevers for teaching with a vision impairment, nor had she been prepared adequately for teaching students with low vision. She recalls a student in one of her fifth grade classes who was a quiet, serious young girl. The student was too shy to mention it, but her parents told Gevers their daughter had a vision problem. They asked Gevers to allow the child to sit near the front so that she could see the chalkboard. Gevers did so, and the girl survived the year. In fact, she did very well. Gevers claims the student's success was due to her own hard work and perseverance, not due to any help or accommodation she received.

Currently, Gevers is an AER certified rehabilitation teacher. If she had known as an elementary education teacher what she knows now, perhaps she could have provided some accommodations and help. The student's school work might have been easier to manage. Maybe it would have been more enjoyable. Perhaps she would have had more time for fun. Her student might have been happier, Gevers muses.

Gevers states, "Of course, I'll never know *what if...* but perhaps, other students can benefit and other teachers can learn from my experience about coping with low vision. That's why I am committed to this book."

### ROBERT MURPHY, M.S.

While at Ball State University in undergraduate school, Robert Murphy became interested in education of people

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with special needs. Many years before IDEA, secondary teachers encountered these students in the all-inclusive classroom, usually in “remedial” classes. Special students, if attending school at all, were routinely relegated to these classrooms and then generally ignored by the system. At the time of his masters’ and post graduate work, specific studies of these students and their needs were not commonly available in colleges, except maybe as an “elective” class. After completing administrative licensing requirements at the University of Denver, Murphy became head of private schools specializing in the needs of special students, kindergarten through adult. Some stories stand out: The angry mother who refused to permit her “pretty” second grade daughter to have glasses because they would ruin her social future; the adult woman who dropped from college “for medical reasons,” meaning the college refused to accommodate her vision problem; the teacher who adamantly claimed that having a disability is an excuse for laziness and stupidity; the school system which refused help to a student because he was passing without any assistance (he achieved D’s and F’s, but was passed by social promotion), and, unfortunately, the list continues.

When his own vision began failing, Murphy experienced the same problem professionally that many students encounter educationally: a common misconception that a person with low vision is incapable of having or continuing a professional career. His life’s work, shaped by personal experience, has become a special study of the effects of low vision and blindness on an individual’s education. That study has led to this book.

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# CHAPTER 1:

## LOW VISION 101

- Does my student have low vision or is he blind?
- Who are the Vision Professionals?
- What will be in the Eye Report from the Vision Professionals?
- What are accommodations? And which ones are appropriate for my student?
- Is my student with Low Vision disabled?

When thinking about vision and blindness, people tend to think in extremes of either normal vision or total blindness. However, between the two extremes, an enormous gray area exists called LOW VISION. In her teaching career, most of the students with visual problems the classroom teacher will encounter actually have LOW VISION. Still, people may commonly refer to these students as “blind.”

### DOES MY STUDENT HAVE LOW VISION OR IS HE BLIND?

#### What is Low Vision?

Generally, the terms associated with blindness are these: low vision, vision impairment, legally blind, and totally blind.

Low Vision refers to loss that is severe enough to interfere with the person’s ability to perform everyday tasks and activities. Low vision cannot be corrected to normal vision with prescriptive lenses such as eyeglasses or contacts (Corn & Koenig, 2000). Another way of explaining low vision is the vision loss a person experiences creates a discrepancy between what a person wants vision to do and what others using standard correction lenses are able to do (Corn & Koenig, 2000). So, in a classroom, low vision creates a need for using a different methodology in teaching the same material other students receive through traditional means.

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#### TIP

Low vision by itself has no effect on a student’s innate ability, positive or negative.

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**MISCONCEPTION**

**"Blind" means  
total darkness.**

**TRUTH**

**Actually, most  
people considered  
"blind" respond to  
some visual  
stimulation and do  
not live in a world  
of total darkness  
(Scholl, p. 23).**  
-----

**What is Blindness?**

Blindness is a general term covering many different types of eye problems. The term "legal blindness" refers to acuity of 20/200 or less in the better eye with correction, or less than 20° field of vision in the better eye with correction. These accepted definitions were actually created by the American Medical Association (AMA) in 1934 and adopted by the federal government in the Aid to Blind Act of 1935. These definitions were then incorporated into the Social Security definitions of blindness as a disability. Vision problems, as defined by these groups, may occur in acuity, field of vision, or both.

**Acuity** is defined as the clarity or clearness of one's vision. It refers, in part, to the visual ability of a person to resolve fine detail. Acuity is measured by two numbers, such as 20/20, which is typical. However, in low vision or in blindness, this number changes drastically. Here is an example: If a person with low vision tests at 20/400, that means that what the "normal" eye sees at a distance of 400 feet, the eye with low vision sees only at a distance of only 20 feet. The numbers in low vision vary widely.

When the acuity in the better eye is reduced to 20/200 or worse, the person is **legally blind**. Low vision is generally considered to be from the 20/70 to 20/200 level of legal blindness in the better eye with best correction (Corn & Koenig, 2000).

Just knowing acuity doesn't give full information. It is possible that the central vision is impaired. "Spots" in the central vision may prohibit vision, no matter the acuity. This disability has a profound effect on the classroom performance of your student.

**Field of Vision** or **Peripheral Vision** problems are less common than acuity problems. These impairments are found in many eye diseases, especially in hereditary eye conditions. The normal field of vision for both eyes together is approximately 160°. When the vision is reduced to below 20° in the better eye, the person is **legally blind**. The term "**tunnel vision**" is associated with field of vision problems.

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Peripheral vision is often severely restricted as part of this eye impairment. The loss of peripheral vision (the inability to use sight from any of the sides of the eye) presents many problems for the student, even though the acuity may be good! So, even though the student may seem to “see” normally, the vision is so restricted that normal activities are compromised.

Some eye conditions may present both problems. Be aware that as the field of vision narrows, the acuity will likely decline. Vision problems are not static!

It is very important to note that no single definition takes into account the fluctuations in vision that occur in most vision problems. Random blind spots in vision may be present in central or peripheral areas. These may limit activities. Knowing where these spots occur will help you greatly in planning for your teaching. Fluctuations in vision occur sometimes, but may not remain as a constant or permanent problem. Vision can be affected by weather conditions and lighting as well as other factors. These fluctuations will not be found in the eye report. The main source of information about fluctuations will be the student and his parents.

Ironically, the term “**blind**” conjures up the image of a person who has absolutely no sight. Although the actual number of persons with total loss in the U.S. varies according to the reporting agency, all agree that it is likely that less than 10% of these persons are **totally blind**. For you, this means that your student may have low vision, but in all likelihood is not “blind.”

Other terms associated with blindness include **congenital blindness** and **adventitious blindness**. **Congenital blindness** is an impairment present at birth, whether it is manifested at that time. Therefore, hereditary blindness is congenital blindness no matter at what age the vision loss begins. **Adventitious blindness** is an impairment developed sometime after birth. This type of blindness results from an accident, a blunt trauma, or a non-congenital disease.

---

### TIP

Some “blind” people have attained great fame in business, sports, or arts, but be careful about using these individuals as your student’s model goal. Most students can benefit from modeling behaviors of a successful person they know personally.

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## **WHO ARE THE VISION PROFESSIONALS?**

The Eye Report is created and written by a medical vision professional after conducting a special examination. Professionals involved with students who have vision impairments fall into one of two categories: medical professionals and educators.

Medical vision professionals include:

- ♦ An **ophthalmologist** is a medical doctor (M.D.) who specializes in eye problems. The ophthalmologist can treat the eye both medically and surgically. Many agencies and states require a diagnosis from an ophthalmologist in order to determine legal blindness.
- ♦ An **optometrist (O.D.)** is an independent, primary health-care provider who examines, diagnoses, treats, and manages diseases and disorders of the visual system, the eye, and associated structures, as well as diagnoses related systemic conditions. An optometrist prescribes eyeglasses and contact lenses, optical devices, vision therapy, and medicines to treat eye diseases as well as performs certain minor surgical procedures (Courtesy of the American Optometric Association).
- ♦ A **low vision clinician** may be either an ophthalmologist or an optometrist. However, this professional has made a special study of low vision and is recognized as a specialist by this unique training. The low vision clinician will often prescribe sophisticated, high-powered devices to enhance vision. These specialists are more likely to work with electronic magnification systems and other technological devices, which may be unknown to other ophthalmologists and optometrists. Not all optometrists or ophthalmologists are low vision clinicians.

Educators of students with a vision impairment include:

- ♦ **Teacher of the Visually Impaired.** A Teacher of the Visually Impaired is someone who has expertise in teaching students with low vision and/or blindness. Usually these teachers have degrees or extra university credit hours in special education, vision, and the

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expanded core curriculum. Many teachers of the visually impaired have special certifications to do this kind of teaching. Some teachers of the visually impaired serve several schools or school districts. The Teacher of the Visually Impaired cannot generate the eye report but may be helpful in interpreting it.

- ♦ The **paraprofessional** assists the professional in the exchange of information between the teacher and the student. The paraprofessional, under the close supervision of the professional teacher, prepares materials, assists the students in study and drills, performs objective scoring tasks, and provides one-on-one follow up to instruction by the teacher. Additionally, the paraprofessional also reports her observations to the teacher as objectively as possible, carries back to the teacher student questions regarding new material, and relays other student concerns. Many paraprofessionals also assist in a variety of other duties, such as walking the students to the bus loading area and obtaining classroom supplies from the office.

While it can be appropriate for the paraprofessional to be intimately involved in the educational process, it is inappropriate for the paraprofessional to introduce new information to the student. This is the task of the teacher. Once new information is introduced and the student has a chance to have his questions answered by the teacher, the paraprofessional may provide help with follow-up study tasks. In this manner, under direct supervision, the paraprofessional acts as an extension of the teacher.

### **WHAT WILL BE IN THE EYE REPORT FROM THE MEDICAL VISION PROFESSIONALS?**

Many all-inclusive classroom teachers have limited knowledge of low vision. Don't be alarmed if you place yourself in this category. One of the best ways to familiarize yourself with your student's vision problem is to read the Eye Report. If the report is not available at school, ask the parent for a copy to study. Discussing the Eye Report with the parent and the student will yield insights not available on

paper. Some of the information already presented concerning definitions of blindness will be in this Eye Report. Even though the Eye Report may seem mysterious to non-medical people, not everything in it is completely necessary for your planning. Here is the most valuable information to you about your student with low vision:

1. Diagnosis: What is the nature of the impairment?
2. Examination date: Is existing report current?
3. Prognosis: Is his vision likely to deteriorate?
4. Needs: Does he wear glasses? Any restricted activities?
5. Prescription lenses (eyeglasses): What is acuity with and without glasses?
6. Low vision devices recommended: Hand held magnifiers, telescopes, or closed circuit TVs, for example.

Most importantly, first find the name of the diagnosis. Vision problems are not the same and may vary widely in characteristics. Knowing the diagnosis will assist greatly in formulating a successful educational plan. For example, if a student has glaucoma or retinitis pigmentosa, the student will likely have “tunnel vision” and is, therefore, unaware of objects or people on the periphery of his vision. These problems also may cause the student to have difficulty seeing in dark areas such as dimly-lit corridors or stairs. Night vision is often very poor. When the student walks down a hallway, he may miss an obstacle on the floor because he is looking straight ahead. The lack of peripheral vision may cause the student to stumble or fall. Students with these problems are helped greatly by the use of contrast, discussed in detail in a later chapter. Another example is this: If your student has albinism, an eye problem common among school-aged students with vision impairments, he may not recognize colors and will likely need his eyes shaded with some type of filters, cap, or visor, also discussed in Chapter 3. The student with albinism will also have acuity problems and problems reading the chalkboard.



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The diagnosis may tell you about fluctuations in vision. Very few low vision problems are static. What can be seen one hour or day, may change the next hour or day. Changes in weather conditions, other physical environments, or the student's level of stress or fatigue may prompt these fluctuations as well as the disease itself. The best approach is probably for you to assume nothing. Become informed by asking questions of those knowledgeable: the parents, the student, and your system's Teacher of the Visually Impaired.

Note how often the student has an eye examination. Annually is enough for some diseases, while others may call for more frequent examinations. The date of the eye examination is important. How recently did this exam take place? If the eye report is older than a year, encourage the parents to get a new exam. Vision often changes.

The student will usually be more knowledgeable than anyone else about his vision changes. Do not hesitate to ask him. The teacher's observations may help both the doctor and the parents understand the day-to-day living and coping skills of her student.

Offer your written observations to the parent to take to the doctor when the student goes for an exam. A form is included in the Materials Tote for this purpose.

Is the student on medication? For what reason? Some medications may cause temporary fluctuations in vision. Depending upon the time of day the student takes his medication, his performance may be affected.

From the Eye Report, note if the student should be wearing eyeglasses. Do not be too surprised if the Eye Report does not contain a prescription for eyeglasses or corrective lenses. Eyeglasses do not provide an automatic solution to low vision problems and may be of no help at all. Remember, your student, like any other student, may not like his eyeglasses and may avoid wearing them in school. The Eye Report can tell you what the doctor has recommended. If special low vision devices have been prescribed, these will be mentioned in the Eye Report.

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### TIP

Try to use "people first" language, which simply means to put qualifying modifiers *after* the noun. Ex: "the student who is blind," not "the blind student."

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### TIP

Direct your questions *about* the student *to* the student. Avoid discussing him in the third person when he is present.

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The Eye Report may or may not contain recommendations for academic success and for independent living. The eye care professional may have a personal philosophy for or against involvement in academics. Patients, parents, and teachers should not assume that every eye report contains every relevant detail. For example, some doctors may neglect to mention that a visual impairment is severe enough to be termed “legally blind.” Some doctors are not prepared to recommend braille training, preferring to rely on optical devices. The parent and client must ask relevant questions to gather information/recommendations on academic work. As the teacher, you can help the student make academic choices by giving suggestions for questions to the parents.

### **WHAT ARE ACCOMMODATIONS? AND WHICH ONES ARE APPROPRIATE FOR MY STUDENT?**

“**Accommodations**,” as defined by a dictionary, means something supplied for convenience or to satisfy a need. In education, accommodations are both. Materials and environmental arrangements serve best when they are both convenient for the student and satisfy the student’s need for an education. Accommodations for the student’s visual problem are often dictated by the Individualized Educational Program (IEP), discussed in Chapter 2. Accommodations are frequently quite simple arrangements of seats, lighting, or room objects. Some accommodations cost little or nothing and provide great benefits for the student. The cost of accommodations will be borne by the school, other agencies, and sometimes the parent as listed in the IEP. Much more information about accommodations appears throughout this book, in both TIPS and in the text.

### **IS MY STUDENT WITH LOW VISION DISABLED?**

The terms “**impairment**,” “**disability**,” and “**handicap**” are often used interchangeably. However, there are distinct and legal differences in definition and proper usage.

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An **impairment** is usually identified by the medical community. An impairment is a recognizable and identifiable defect in the basic functions of an organ or any part of the bodily system. An impairment can contribute to a disability in any area: health, social-attitudinal, mobility, or cognitive-intellectual. Your student with low vision has an impairment since his problem has been identified by a medical specialist.

A **disability** is a limitation, restriction, or disadvantage imposed on an individual's functioning as a result of an impairment. So, your student has a disability or is disabled due to the impairment.

A **handicap** is an actual or perceived disadvantage in the performance of normal life functions because of personal and societal expectations and attitudes toward an impairment (Scholl, 1986). Your student's disabilities are often called a "handicap" by other people. So, other people "handicap" a person with a disability by their attitudes toward him, their perceptions about his disability, and their treatment of him. In education, the student can be "**handicapped**" by attitudes of condescension, pity, or ignorance.

In other words, your student has a **disability** as a result of a **visual impairment**. He is **handicapped** by society around him when it limits his potential for development.

Once you have a general description of the student's specific eye impairment, you may merge specific knowledge from the student's Eye Report with the description.

Some of the more common visual impairments found in school-aged students include these: albinism, optic atrophy, nystagmus, rod-cone dystrophy, and blunt trauma (Fettig, 2000). This list is not meant to be definitive.

Refer to Chapter 2 for more information on these eye impairments.

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### TIP

Disabilities do not necessarily become handicaps (Scholl, 1986).

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## **Is it true that blind people...?**

There are many misconceptions regarding the ability of blind people. Some of these are simply fabrications, some are superstitions, some are derived from a person's contact with one or very few blind persons, and some are creations of the media. (Corn & Koenig, 2000).

### **MISCONCEPTION**

**Blind people have special talents in music and art.**

In spite of our misconceptions, students with low vision aspire to the same goals as other students. With adaptations and accommodations, and assuming normal intelligence, your student with low vision is normally quite capable of learning the material expected of his peers.

### **TRUTH**

**Actually, some are talented, some are not—no more, no less than the general population (Scholl, 1986).**

The following outline is a Basic Plan for teachers. It includes chapter references to help locate related topics in this book:

- A. Meet with the Teacher of the Visually Impaired
- B. Check the student's PAST history
  - 1. Check student files for information, Chapter 2
  - 2. Study the Eye Report, Chapter 1
  - 3. Study and Understand the IEP, Chapter 2
- C. Use PRESENT or current resources to begin planning for success
  - 1. Consult with the parent or guardian, Chapters 2-6
  - 2. Talk to the student directly, Chapter 5, 6
  - 3. Learn from other teachers and professionals in the field, Chapter 4, 7
- D. Begin preparations for FUTURE success
  - 1. Organize and chart the data, Materials Tote
  - 2. Decide on a course of action, Chapters 3-6
  - 3. Get busy and implement your plan

## **CHAPTER 1 SYNOPSIS**

1. Does my student have low vision or is he blind?
  - ♦ What is low vision?
  - ♦ What is blindness?
2. Who are the vision professionals?
3. What will be in the eye report from the medical vision professionals?
4. What are accommodations? And which ones are appropriate for my student?
5. Is my student with low vision disabled?
  - ♦ Is it true that blind people . . .



## **CHAPTER 2: WHAT CAN MY STUDENT SEE?**

- How can I learn about my student's history?
- How can I determine my student's near, distance, and peripheral vision?
- What does the American Printing House for the Blind (APH) have to do with my student?
- How can I really know what my student sees?
- How do I prepare for the future success of my student?
- What is an IEP?

It is not enough to know about low vision in general. To enhance the learning of a student with a vision impairment, some specific information about her eye condition is not only helpful, it is essential! The education of every student involves building on past experiences and knowledge, current learning, and planning for future success. Similarly, the education of a student with low vision involves past, present, and future experience with vision issues related to education. If you have a Teacher of the Visually Impaired in your district, arrange to meet him. He will be very helpful in getting you much of the information listed below, and in helping you implement your basic plan. This chapter details the information about vision that is needed and ways to obtain that data.

If you are reading this book because you have, or are about to have, a student with a visual impairment in your classroom, perhaps you can relate to one of the following scenarios:

- ♦ You've been informed a student with low vision has been assigned to your classroom. This could happen at the beginning of a term or anytime during the school year.
- ♦ A student in your room has been having unexpected difficulties. You think that some of the problems may be vision-related.
- ♦ You suspect a student's vision may be changing and that the change is affecting her work.



## **HOW CAN I LEARN ABOUT MY STUDENT'S HISTORY?**

It is helpful to know something about the student who is coming to your classroom. Information about past academic achievement and difficulties, what special interests and activities have been attempted, and how vision has impacted these endeavors will help you better understand your student and what accommodations are likely to be needed. A good place to begin is with school records.

### **What should I look for in the student files and records?**

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#### **TIP**

The school system's Teacher of the Visually Impaired, often an itinerant teacher and consultant, is a valuable resource for help in interpreting the Eye Report and the IEP.

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Begin the background check by studying the student's files and vision notebook. As you notice strengths and weaknesses, consider how her visual impairment might impact her behaviors, interests, and activities, as well as influence success and failure. A problem area might have more to do with lack of vision than other factors. For example, a student having trouble throwing a ball accurately may be manifesting low vision, not lack of muscle development. A poor attitude may mask the frustration caused by a constant, tiresome battle with low vision. The student's life experiences are limited because of low vision; therefore, the student with a visual impairment neither sees nor experiences what most persons take for granted.

Think critically about the various notations and teacher comments written about the student. Note areas indicating daily living and coping skills since these will directly impact your classroom. From this information, try to ascertain how the student learns, how she sees, how independent she is, and what coping mechanisms she has developed.

Pay special attention to notes regarding accommodations provided in the past that seemed to be helpful. Be careful not to overlook the simple ones. What has worked in the past may likely work again. Providing the same kinds of accommodations may contribute to a more secure environment and comfort level for your student. Keep in mind, however, that the student's vision may have changed; therefore, she may require additional, different, or new

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accommodations. As a student gets older, other factors deserve consideration:

- ♦ The student's current level of academic performance
- ♦ Maturity levels and general expertise
- ♦ Coping skills and adjustment to life with a disability
- ♦ Appreciation for the benefits of accommodations
- ♦ Confidence in using assistive devices
- ♦ Problems with social issues and sensitivity to peer pressure
- ♦ Desire to discount the effects of low vision or even to deny the impairment completely

### **Am I likely to find an Eye Report included in the school records?**

The importance of the Eye Report was discussed in Chapter 1. When terms like "low vision" and "legally blind" are associated with a student, there must be an Eye Report somewhere, perhaps a single copy in the office of the eye specialist. If there is no copy in the school records, ask for parental assistance in getting one. Most clinicians will release copies of the report upon parental request. The school can directly request a copy from the clinician if the school has paid for the examination. Many states mandate that parents must receive copies of their child's medical records upon request. Some parents may not know this and will appreciate this knowledge. Once the report is obtained, you can then study it as explained in the first chapter.

Check student files for an Individualized Educational Program (IEP). If the student has been labeled as a special education student, the written IEP must exist. "Special education" may be identified by various names in different states. Other common terms include "special needs students" and "exceptional children."

Look for a "functional vision assessment" and "learning media assessment" prepared by the Teacher of the Visually Impaired. These will help guide you as you get ready to teach your student. They will provide useful information about how your student uses her vision and what media she uses for learning.

Essentially, there are two objectives in preparing for the first day the student with low vision enters your classroom:

- ♦ to understand what and how the student sees
- ♦ to know what accommodations should be in place and ready for use

### **HOW CAN I UNDERSTAND MY STUDENT'S NEAR, DISTANCE, AND PERIPHERAL VISION?**

The eye report and functional vision assessment provided in the student's file by the clinician and the Teacher of the Visually Impaired are valuable. Make sure to read and understand them. Then, by taking advantage of other human resources, such as the student, her parents, and her Teacher of the Visually Impaired, the classroom teacher can expand his knowledge base of his student's condition.

To understand what and how your student sees, in addition to reading the eye report and the functional vision assessment, do personal observations. In addition, discuss appropriate findings with the student and the people most closely associated with her. To you, her classroom teacher, the immediate concern is how her near, distance, and peripheral eyesight functions in your classroom. Knowing the ranges of these functions has important practical applications in: planning effective seating arrangements, understanding why large print formats are/are not needed, and if so, knowing how large the print should be. This information will also help you understand the kinds of activities which may be especially difficult for your student. Answers to questions such as the following may be helpful:

- ♦ Does the student hold reading material closer than 13 inches?
- ♦ Does she bend low to peer closely at objects?
- ♦ Does she approach objects closely, such as the blackboard?
- ♦ How does she select books in the library?
- ♦ Can she read titles at 13-18 inches?
- ♦ Does she have difficulty reshelving unselected books?

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- ♦ Does she use a magnifier or minifier?
- ♦ Does she use a telescope?
- ♦ Can she see objects or activities at a distance without the use of a telescope? Some examples are these:
  - The outfield in a baseball game
  - Basketball action across the court
  - The action in a tennis match
  - Letters and pictures on a bulletin board across the room
  - A friend far away on the playground
  - The numbers on the school bus

Understanding the vision range also reveals how the peripheral field of vision and the central vision influence what the student sees or does not see. When peripheral vision seems weak, finding answers to questions such as the following may increase your understanding of how your student sees:

- ♦ Does the student sometimes run into the door frame?
- ♦ Does she often begin reading somewhere to the right of the actual beginning of the line?
- ♦ Does she sometimes miss the end of the line near the right margin?
- ♦ Does she sometimes start homework or tests at a point lower on the page than the actual beginning?
- ♦ Does she stop work before the end of a page?
- ♦ Does she frequently run into people or bump into objects?
- ♦ Does she seem startled when people approach from one side or the other?
- ♦ Does she have difficulty with athletic activities when objects or people are at the edges of the vision range?
- ♦ Does she seem to drop objects accidentally off edges of tables, and desks?

These are but a few of the observable behaviors which may indicate a peripheral vision loss, whether at the top, bottom, right, or left side of the central focus.

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**MISCONCEPTION**

**The eye report says it all; the student's vision is exactly what the report says.**

**TRUTH**

**Actually, any exam in a clinical setting may give misleading information. The specialist is looking for the person's "best" vision under controlled circumstances. Day-to-day vision will be worse than the clinical report indicates. (D'Andrea & Farrenkopf, 2000).**  
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Indications that central vision may be a problem might include the answers to the following questions:

- ♦ Does the student turn her head frequently?
- ♦ Does the student seem to be looking out the corner of her eye?
- ♦ Is magnification an important factor in how well the student sees?
- ♦ Does she prefer large print to the use of regular print with a magnifier?
- ♦ Does she write very large?

If you notice any of these behaviors, use the *Observing Vision* in the Materials Tote as a referral. Be sure to send copies to the parent, the school administrator, the Teacher of the Visually Impaired, and the child's eye specialist, keeping one for you as well as the student's portfolio.

**HOW CAN I REALLY KNOW  
WHAT MY STUDENT SEES?**

Although you cannot ever fully know what your student sees, simulations can be of help in promoting teacher understanding. Please actually try simulations, do not just imagine what you would see. The following generic simulations represent only mild forms of vision loss:

***Peripheral Loss or "Tunnel Vision"***

1. Form your hands into a "C" shape with thumbs at the bottom and fingers curved at the top.
2. Hold your "C"-shaped hands against your face so that the thumbs are just below your eyes and resting against the tip of your nose.
3. Put your curved fingers around the edges of your eye sockets, leaving quarter-sized openings.
4. Now sit in your classroom and look around at specific things.
5. Check the view from other positions in the room.

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## ***Central Vision Loss***

1. Shape both hands into fists.
2. Hold your fists with thumbs against the sides and tip of your nose, with the curled fingers forming the fists in front of your eyes, blocking central vision.
3. Focus your eyes on the fists and keep staring at them.
4. Turn your head, not your eyes, to see what you can at the edges of your usual vision range.
5. Change positions in the room, looking for specific objects.

## ***Other Simulations***

1. Cover one eye and look around you, noting what is not seen.
2. Look through a tube, one eye at a time. (The cardboard core from a roll of tissue works well.)
3. Smear hand lotion or cooking oil on the lenses of your own glasses or try looking through a lens of waxed paper. (Clouded vision is common as a part of many eye conditions.)

In all simulations, look at specific objects, comparing simulated vision with your “normal” vision. Think about some of these:

- ♦ Can you see the wall clock well enough to tell time?
- ♦ Can you see the writing on the chalkboard?
- ♦ Can you see the writing in different colors of chalk?
- ♦ How much of the chalkboard can you see at one time?
- ♦ Can you see bulletin boards adequately?
- ♦ Can you see the on/off switches and other controls on equipment students are expected to use independently?
- ♦ Is standard print in textbooks large enough and bold enough?
- ♦ Do you notice problems with color and contrast distinction?

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- ♦ Can you see exit and entrance signs and other signs in hallways?
- ♦ How do you manage to read or write on paper flat on your desktop?
- ♦ Can you see facial expressions and hand gestures clearly?

Using these simulations periodically in different lighting and weather conditions will add additional insight about eye conditions and your student's disability. This understanding will help you meet the challenges of educating your student.

### What about eyeglasses and optical devices?

Eye glasses and optical devices (sometimes referred to as low vision aids or LV devices) are generally prescribed by an eye care professional. Frequently, a low vision clinician prescribes the more powerful devices for patients with moderate and severe visual impairments. Patients with significant and permanent vision loss usually are referred to these low vision clinicians by other ophthalmologists and optometrists. At the very least, you should be concerned with two issues:

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#### TIP

The professional support personnel, teachers of the visually impaired, and O & M instructors may also provide consultative services to you.

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1. What glasses or optical devices does the student HAVE?
2. What additional optical devices does the student NEED?

An Eye Report will tell you what has been recommended. Parents and the student can tell you which optical devices have actually been provided. You may have a part in providing information to determine what the student needs. Your role may be especially important not only for students whose vision is changing, but also for students who have never before been diagnosed with a visual impairment. You may also be influential in encouraging a student to use the devices when she has chosen, for whatever reason, not to use them.

Be aware that optical devices are sometimes costly and purchasing them may be a significant financial burden for parents. Funding sources may be included in the IEP. As new technology develops, a greater variety of devices becomes



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available. Information about some special equipment follows in subsequent chapters.

Contact lenses and eye glasses are common and may not pose a big social problem for the student. Peers may react minimally. Bi-focals on young children, extra-thick lenses, or glasses with powerful microscopes embedded in one lens may get attention and lead to wisecracks, causing the student to be extremely self-conscious and defensive. Other optical devices may appear even more strange to the uninitiated. Your student may be acutely embarrassed to use them in public. Use of monoculars and telescopes, even hand-held magnifiers, attract attention. Peers and others may benefit from sensitivity training or from learning that these devices have some exciting uses for astronomers and photographers. This area of social development is covered in more detail in Chapter 6.

You should know what devices the student has used in the past and what is expected to help her currently. This information will assist you in anticipating what devices to expect and encourage, what space accommodations may need to be addressed, and what social issues may need attention. Your increased awareness and observations may also help your student and her parents recognize when another eye appointment and low vision evaluation would be beneficial.

### HOW DO I PREPARE FOR THE FUTURE SUCCESS OF MY STUDENT?

The Materials Tote contains a table called the *Informal Student Information Sheet*. The information sheet can be used to collect data about your special student and her visual impairment, especially as it applies to the educational process in your classroom. It is intended for the table to be useful throughout the year and in the future. Since the data is an INFORMAL collection and therefore cannot be an official part of a student file or school records, you may pass it directly to parents (or the student, if appropriate) so that it may be retained for future use. If the student has a vision

#### ----- **MISCONCEPTION**

**Sight must be "saved" and used sparingly.**

#### **TRUTH**

**This old myth has no validity in fact or in research. A person with low vision does not have a limited supply of sight.**  
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notebook, you may keep it there. These reports will probably change through the years for several reasons:

- ♦ Schools become more accommodating.
- ♦ The student develops better coping skills.
- ♦ Peers become more accepting of the disability.
- ♦ The student learns to use new and better devices.
- ♦ The student's vision changes significantly.

The data may be especially helpful when the teacher has no past records for the student. It will be extremely useful when a student's vision is changing. Comments and documented observations may be convincing to parents who have not realized their child has a significant problem. It may also prove helpful to the eye care professional if shared by the parents. Furthermore, the data should provide a welcome head start to educators in the student's future.

The purpose of the *Informal Student Information Sheet* in the Materials Tote is to collect information in a user-friendly form. As such, the chart is intended to do the following:

- ♦ Promote understanding about a student with low vision and her eye condition
- ♦ Generate ideas for better accommodation of the needs of a student with low vision
- ♦ Provide data to assist parents and eye care specialists in knowing when vision changes may be occurring

You know a great deal now about low vision and about your student's unique visual impairment. In the next chapter, we will begin to apply that important knowledge to your classroom and the teaching-learning environment that you establish for all of your students.

## **WHAT IS AN IEP?**

### **Mario's Story**

Mario is a serious, successful student who was treated for congenital cataracts. He does not excel in athletics, although he enjoys participating. His mother, Rosa, is grateful that Mario has teachers who seem understanding of his problem with low vision.

Mario has trouble using regular computer monitors. He has difficulty distinguishing the background and foreground colors on the monitor. He must hold his head very close to the monitor, and sometimes at odd angles, in order to see the print in focus. He has trouble reading small print, and even large print can pose some problems if it is not bold enough. Photocopied materials are usually hard for him to read. Mario seems to work best with a lot of light. This year, when shopping for school supplies, Mario asked Rosa for a protractor and ruler with bold markings.

The math teacher in Mario's fourth grade class approached Rosa, expressing concern that Mario seemed to be working much too hard in order to see. The teacher was aware that low vision can be a significant obstacle to success because of experiences with her own niece and nephew, both of whom had low vision. A meeting was held that included Rosa, the special consultant, the school system's Teacher of the Visually Impaired, Mario's regular teacher, two former teachers, and the math teacher whose concern had initiated the inquiry.

They all agreed that as Mario got older and moved through higher grade levels the print in standard texts was likely to get smaller and more difficult for Mario to manage. They also acknowledged that the problem of accessing the computer should be addressed. Rosa was pleased when the teachers seemed willing to explore some accommodations for Mario. The actual formulation and implementation of an

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Individualized Educational Program (IEP) needed to be put on hold, however, until the eye specialist's reports were received.

Even though Mario's parents requested the records from the vision clinician several times, the records arrived so late in the year, the school was unwilling to go forward with the IEP process. As a result, accommodations were not ready for the start of Mario's fifth grade year.

Ideally, Mario's parents or education professionals should have requested the eye reports from the vision clinician as soon as they knew Mario would be enrolled at the school. The head administrator in Mario's school should have been involved in the discussions from the beginning.

If no reports are available, a student showing signs of vision loss should be referred by the school to a vision clinician for an evaluation. The school administration is key to this process. The parent, classroom teacher, or Teacher of the Visually Impaired may enlist the help of the school administrator to secure the low vision exam. If the school does not follow through, a parent who suspects her child has a disability of any kind should explore every option to determine the child's disability and needs, even if it means taking on the financial responsibility. Once done, the parent needs to follow-up to ensure the results of the examination are forwarded to the school in a timely fashion. The classroom teacher can be supportive by sharing information with the parents about the best way to follow-up at the school.

When the evaluative data is available from the clinician, either the school or the parent may request a meeting to determine the disability. The meeting should be requested in writing. This should be done as early as possible to provide adequate time for acquisition of necessary materials and services by the school. Time is needed to provide the most accessible, accommodative environment

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possible for the child. Rosa didn't know she could have insisted the school hold the IEP meeting before the end of school so materials and services could have been located during the summer.

Once the IEP has been written, the school is obligated to provide the materials and services specified in the IEP. Most schools work hard to provide adequate accommodations. Still, the parent and the teachers should be persistent in their attempts to secure accommodative materials in time for the child to use them at the appropriate moment. For these reasons, the parents and teachers need to act as a team whose motivation is the best interest of the child. If all parties are sincere, patient, and willing to serve the needs of the student, the IEP serves as a very helpful guide to all.

Regardless that an evaluation of Mario's condition, an IEP, and services were not provided in the appropriate sequence, Rosa is optimistic. She was unaware of how an IEP could help her son until a caring teacher approached her. Rosa was grateful for her help. The technical language and IEP jargon was confusing to her, but she has appreciated the input and guidance of professional educators. She believes the accommodation process will be continued soon after school begins.

Many parents like Rosa do not understand the system and depend on the teacher to keep them informed. As you probably know, most children benefit when teachers and parents work cooperatively. This is true of the IEP process as well.

To understand the Individualized Educational Program and its process and implementation, let's look at the background of laws governing education of people with disabilities.

Special education in the United States is governed by several federal laws which all public schools must follow without changing either the letter or the spirit of the law.

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The Civil Rights Act of 1964 guarantees and protects the rights of certain minority groups, including people with disabilities. In 1973 the Rehabilitation Act was passed. Section 504 of the 1973 Act prohibits discrimination based on disability under any program or activity receiving federal financial assistance. All schools that receive any type of financial assistance from the federal government qualify as a program. Therefore, schools which receive federal dollars are obliged to comply with Section 504 of the Act. Section 504 is the principal section relied upon for litigation against schools who do not comply.

The particular rights of children with disabilities were named and protected by the Education for All Handicapped Act (P.L. 94-142) of 1975. Under this Act, each student receiving special education services must have a written plan.

In 1990, this Act was strengthened with very specific requirements and renamed the Individuals with Disabilities Education Act, commonly known as IDEA. IDEA mandates a free and appropriate education, called FAPE, to all children with disabilities ages 3-21, in the least restrictive environment (LRE). The Individualized Educational Program, the IEP, is the written plan for educational services mandated by IDEA. IDEA was reauthorized by Congress in 1997. According to law, the IEP must be developed by a team of specific school personnel (named later in this section) and the parents. Both the letter and the spirit of the law requires that parents must be included as equal partners in the entire process, from initial testing, to plan development, to implementation.

In 1990, landmark legislation called the Americans with Disabilities Act (ADA) passed Congress and was signed by President Bush. This legislation specifically guarantees the rights of all people with disabilities to participate fully in American society. It covers such diverse areas as education, careers, travel, access to public buildings, streets, sidewalks, and more.

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**All schools, public, private, or parochial, which receive federal funding for any purpose, must follow the guidelines of IDEA.** The public school district is responsible for the education of any child with a disability in its district. However, the public school is not required to seek out these students in schools other than its own. Therefore, it is the responsibility of the private or parochial school or the parent to ask for assistance for a specific child. In other words, the public school district cannot be accountable for the education of a child not attending a public school unless the family and the private or parochial school ask for assistance. Also, the public school may “pull out” the private school student to the public school building for such specialized services as physical therapy. Itinerant special education teachers may visit these students in their own schools to consult on or implement the IEP. Homeschoolers may or may not be served according to the various state laws and parental choice.

Before a full discussion of the IEP, let’s take a glance at the big picture of IDEA: the education of the child with disabilities from age 3 to age 21. The following is a quick overview of IDEA:

- ♦ If a child is identified before kindergarten, she will have a document labeled “Individual Family Plan,” “Individualized Family Service Plan,” or something similar; it varies from state to state. The name will switch to the IEP when the child enters regular school years, kindergarten-12<sup>th</sup> grade.
- ♦ The IEP will dictate and monitor the child’s educational progress through the regular school years.
- ♦ No later than the student’s age 16, a “transition plan” must be written by the school and parents. This service must include a coordinated set of activities designed within an outcome-oriented process, which promotes movement from school to post-school activities, including post-secondary education, vocational training, integrated employment (including supported employment), continuing and adult education, adult



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services, independent living, or community participation (Westling & Fox, 1995).

Remember many children do not begin school with an IEP. A trauma at any age may create a disabling condition resulting in an IEP. Transition plans are discussed more fully in Chapter 6. Also, see the Materials Tote for a Transition Plan Checklist you can use.

Next, let's look at the IEP process. The process begins officially with a parental or school request for an assessment of the student's abilities and possible disabilities. A teacher or school administrator may begin the process by advising a parent of a possible disability and ask the parent's permission to begin the process, or the parent may make the request. Often a parent does not know services are available even though they are aware of their child's needs. The school cannot conduct an assessment without the parent's permission or knowledge. The choice to assess the student remains the parent's decision. The public school system will use its own educational psychologist or contract with an outside educational psychologist to conduct the assessment. The parent may simultaneously engage the professional of her choice for an assessment. There are both pros and cons to assessment and subsequent labeling. Consider the following:

- ♦ A label may negatively impact the student's education over the long term.
- ♦ The student's own self-image may improve or conversely, suffer.
- ♦ Labeling is often permanent.
- ♦ Increased support services exist for a successful educational experience.
- ♦ Increased financial aid and services for post high school education exists with proof of a previous IEP.

Through your experience with the student, you may become the student's advocate. As with any student, a teacher tries to create the best learning environment



## *A PRIMER FOR THE CLASSROOM TEACHER*

possible for his students. With some students, the teacher may have to push a little harder.

After the request for an assessment is made, this procedure, dictated by IDEA, must be followed:

1. The student is assessed by a school psychologist for a disabling condition affecting her education. For physical disabilities, including visual disabilities, the school will usually rely on reports from appropriate medical specialists. The school has 45 days from the date of the written parental request to complete the assessment and convene a case conference. Limiting the time saves the student from further negative educational experiences.
2. Attending the case conference are members of the educational team who develop the IEP. The following members must be included:
  - ♦ A representative of the student's school district or an intermediate unit other than the student's teacher who is qualified in the area of need. This person could be the local head of special education, for example
  - ♦ The student's all-inclusive classroom teacher
  - ♦ The student's parent(s), guardian(s), or surrogate parent(s)
  - ♦ The Teacher of the Visually Impaired
  - ♦ The student, if appropriate. This often depends on age and maturity. However, any student may attend her own case conference regardless of age or maturity levels.
3. At the case conference, the IEP is developed by team named above. The IEP may not be written or prepared prior to the case conference. Instead, it must be written cooperatively between parents and school personnel. Reports and notes may be used, however. The IEP is defined as a written plan of instruction for a student

### ----- **MISCONCEPTION**

**Your student can read large print, and thus has no need for Braille, optical devices, or any other special accommodation.**

### **TRUTH**

**Your student may need special instruction in a variety of formats and using a variety of tools in order to maximize the use of her vision and to become efficient at her tasks.**  
-----

who receives special services and must include all of the following points:

- ♦ A statement of the student's present levels of educational performance
- ♦ Goals and objectives
- ♦ Statement relating the extent to which the student can take part in the regular educational program of the school
- ♦ Specific services needed by the student
- ♦ Dates when these services will begin and will be in effect
- ♦ Criteria and evaluation procedures to determine if the educational objectives are met (Scholl, 1986)

The exact printed form of an IEP may vary from school district to school district; there is no one standard form. However, the content listed previously in Point 3 must be present in an IEP, regardless of the form the school district creates.

4. The plan is undertaken by a team including the child's parents
5. There must be at least an annual case conference to review progress, renew, and/or renegotiate the IEP

In some instances placement in an all-inclusive classroom "less than full time" will allow the student to access support services such as the Teacher of the Visually Impaired and the O & M instructor. In these instances, to place the student in the all-inclusive classroom "full time" or "100%" of time means that the student may not leave the classroom for any other services. This is not always true. In some instances, when the student needs additional classroom instruction or consultation, the clause is not needed. However, O & M training, physical therapy, speech therapy, or other services outside the classroom do require this clause. Be sure to review the processes in your district and be informed during IEP discussions.

## *A PRIMER FOR THE CLASSROOM TEACHER*

Remember that the IEP is a blueprint for the FAPE (free and appropriate public education) of a student to take place in the LRE (least restrictive environment). In your student's case, it has been determined by the case conference committee that the LRE is your all-inclusive classroom. This is the reason she is in your classroom. Nevertheless, although present in the all-inclusive classroom, your student's IEP must be followed. The IEP states the goals of the student's education but allows you to use your personal creativity and knowledge. It provides you an opportunity to use your good ideas and be innovative! Many of the accommodations discussed in this book may appear in an IEP. It is not necessary to "reinvent the wheel." For example, if the IEP calls for the use of a CCTV, you simply find a safe, secure spot in your classroom and put it there.

Although an IEP meeting must be called at least annually to evaluate progress, any member of the team, including a parent, may call for a meeting at any time. Again, the parent must agree to the meeting no matter who called it or it cannot be held. There is a variety of reasons for calling IEP meetings other than annually. Here are two examples of reasons for calling a special IEP meeting:

- ♦ If the student's vision has changed significantly, altering her needs, a new meeting may rephrase her goals to match those new needs.
- ♦ If the student has progressed further ahead or fallen further behind than anticipated, an IEP meeting may be called to address these issues.

Of course, you may, at any time, have the same regular contacts with the parents that you always have.

Significantly, the committee who updated IDEA in 1997 inserted several points specifically to aid in the education of a student with a visual impairment. If you pay attention to these, they will provide your student with expanded services, thus relieving you of so much responsibility and helping you make appropriate choices for the student. These additions are the following: (Pugh & Erin, 1999)

## *TEACHING THE STUDENT WITH A VISUAL IMPAIRMENT*

- ♦ Instruction in Orientation and Mobility, an educational necessity for students with visual impairments, is listed in IDEA as a related service. (The student may have to leave your class at certain times to receive this instruction.)
- ♦ Braille instruction is given precedence over print until assessment of the learning media for each student is completed. Twenty-eight states have laws relating to instruction in braille reading and writing, stressing teacher competence in braille and equal access. (The IEP as developed by the team dictates which form of Learning Media will be used by the student.)
- ♦ Brailled materials and textbooks must be available and a preference given to braille as a reading medium.
- ♦ Students with visual impairments must be given a continuum of placement options.
- ♦ Students with visual impairments must be included in the state's district assessments.
- ♦ The assistive technology needs of students with visual impairments must be considered.

### **How do I use an IEP?**

The IEP lists the educational goals of the student as well as methods of meeting those goals. Look especially at what accommodations are required, once written into the IEP and signed by the parent. By listing the goals and accommodations needed to reach those goals, the IEP saves the teacher considerable time and research. You simply follow through with those written goals and accommodations. The administration, not the individual teacher, is responsible for supplying the materials necessary to meet these goals and accommodations. Remember that the goals present you with the same challenge as for any other student, to find the most effective method of teaching your student the required material.

A sample IEP is provided on the following page. IEP's vary from state to state, but this sample will provide you a look at what kind of information is to be included.

**SAMPLE**  
**Individualized Education Program**

**Student's Name** Sally Jensen **Birthdate** 3/24/88

**Today's Date** 8/28/01 **School** Brookside Middle

**Grade/Program** 8th grade + resource room **Teacher** Marie Holm

**Teacher of the Visually Impaired** Ian Turner

**Program Assignments** Reg. 8th grade home room, math, English,  
social studies, home ec.; Resource room 5 times a week 50 minutes  
for typing, computer skills, special media skills.

**Date to Begin** 9/12/01 **Duration of Services** 6/15/02

**Extent to which student will**  
**participate in regular education** 86%, 14% in resource room.

**Special media or materials** CCTV, computer with large monitor, large print  
books, optical devices as recommended.

**Services to be provided**

Bus transportation, begins immediately – end of school year

Orientation and Mobility instruction, begins immediately: 11/13/01

Low vision evaluation, begins 9/14/01, as needed

Educational aide, begins immediately – end of school year

**IEP Meeting Participants**

Dr. Ethan Swallow - Administrator

Dr. Lucy Eberhart - School Psychologist

Mrs. Cathy Jensen - Parent

Miss Marie Holm - Home Room Teacher

Mr. Ian Turner - Teacher of the Visually Impaired

Mrs. Elaine Kramer - Student Advocate

**Review Date** 6/05/02

## TEACHING THE STUDENT WITH A VISUAL IMPAIRMENT

### Excerpt from Educational Objectives from IEP for Sally Jensen

Short Term Objectives	Objective Criteria	Educational Procedures	Schedule
Open and use primary screens in Zoom Text	Student will independently use Zoom Text to open a text document and use it to read the document	3 lessons of 50 minutes each in opening and using Zoom Text for reading tasks	Projected Completion date: 9-30-01
Effectively use 4x dome magnifier	Student will independently use the 4x dome magnifier for desktop reading tasks while reading aloud	4 lessons of 50 minutes each using the ENVISION II optical device training materials	Projected Completion date: 10-14-01
Show grade level proficiency in math tasks	Student will score at least 60% on quarterly math tests	2 lessons per week during school term 50 minutes each using CCTV and Teacher of the Visually Impaired to practice math skills	Projected quarterly test dates: 10-29-01 12-17-01 3-16-02 5-28-02
Demonstrate ability to read recipes and perform tasks in home economics	Student will perform at least 60% of recipe reading, measuring, and weighing in Home Ec. using optical devices and alternate methods	6 lessons of 30 minutes each using optical devices and Teacher of the Visually Impaired to practice alternate recipe reading, measuring, weighing methods	Projected completion date: 11-28-01

**I accept this Individualized Educational Program:**

Parent signature \_\_\_\_\_

School Representative \_\_\_\_\_

Others \_\_\_\_\_

\_\_\_\_\_

## *A PRIMER FOR THE CLASSROOM TEACHER*

If you have questions, don't be afraid to ask your State Department of Education. While most administrators work hard to provide equal access to quality education in their districts, a few do not. Some motivated and creative teachers do not have the support of the administration in purchasing needed adaptive technology, providing O & M instruction, or acquiring a low vision exam. In these instances, the parent should contact the local advocacy and protection agency. These go by various names in different states, but a common one would be "Citizens' Advocacy and Protection," commonly called "CAP." These agencies advocate for the rights of persons with disabilities and work to see that the accommodations outlines in the IEP are met. In addition, public service clubs, such as the Lions Club and the Rotary Club, often provide glasses, magnifiers, canes, and even CCTVs to students who need them. A quick call to your community services registry may provide helpful information.

For additional information, contact the U.S. Department of Education and ask for a copy of the Federal Register explaining IDEA and the IEP. These are free. Also, each state may create its own rules to implement IDEA. However, no state may alter, change, or negate any part of IDEA in doing so. Contact your State Department of Education for a free copy of your state's administrative guidelines.

### **WHAT DOES THE AMERICAN PRINTING HOUSE FOR THE BLIND (APH) HAVE TO DO WITH MY STUDENT?**

"The federal Act to Promote the Education of the Blind was enacted by Congress in 1879. This act is a means for providing adapted educational materials to eligible students who meet the definition of blindness. An annual registration of eligible students determines a per capita amount of money designated for the purchase of educational materials produced by the American Printing House for the Blind (APH). These funds are credited to Federal Quota accounts, which are maintained and administered by APH and its Ex Officio Trustees throughout the country.

"In order for students to be eligible for registration in the Federal Quota Program, they must meet the following requirements:

- ♦ Meet the definition of blindness – 'central visual acuity of 20/200 or less in the better eye with correcting glasses or a peripheral field so contracted that the widest diameter of such field subtends an angular distance no greater than 20 degrees'



## *TEACHING THE STUDENT WITH A VISUAL IMPAIRMENT*

- ♦ Be enrolled in a formally organized public or private, non-profit educational program of less than college level
- ♦ Be enrolled with the registering school or agency on the first Monday in January

“There is no chronological age limit for eligibility.

“Adults to be registered must be receiving a minimum of twenty hours per week in an educational program. For these purposes, an adult is a student over school age as determined by respective state law.

“A Congressional appropriation, designated to provide educational materials for students who meet the definition of blindness, is made each October in the federal budget. This allotment is divided by the total number of eligible students in educational programs on the first Monday of the preceding January. This division results in a per capita amount that is then multiplied by the number of registered students in each Federal Quota account. This amount is credited to each respective account, thus establishing each account’s ‘quota’ for the federal fiscal year” (What is Federal Quota?, 1992).

The credit for each student can then be spent by the Ex Officio Trustee or their designee on behalf of each blind or visually impaired student who is registered. Your state’s Ex Officio Trustee may be the chief officer of your state’s School for the Blind or may be the person at your State Department of Education entrusted with the education of students with visual impairments. If you cannot find your Ex Officio Trustee’s name, contact APH at 1-800-223-1839. Ask for the Quota Fund officer and ask of the names of the Ex Officio Trustees in your state. You may write to the American Printing House for the Blind at P.O. Box 6085, Louisville, KY 40206-0085.

# Eye Conditions and General Information

## ACHROMATOPSIA (ROD MONOCHROMATISM)

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### *Description*

- ♦ Profound loss of color vision
- ♦ Total loss of color vision in complete cases
- ♦ Photophobia mild to severe
- ♦ Mild to moderate decreased visual acuity
- ♦ Reduced depth perception
- ♦ Nystagmus may occur

### *Simulation*

On a color TV, turn off the color, then look through clear film or lenses that have a small central area of nail polish applied to decrease the clarity centrally.

### *Suggestions*

- ♦ Bifocal lenses at school age
- ♦ Red–central filter contact lenses
- ♦ Sun filters
- ♦ Optical devices

## ALBINISM

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### *Description*

- ♦ Hereditary & Congenital
- ♦ Caused by total or partial lack of pigment
- ♦ Decreased acuity
- ♦ Nystagmus
- ♦ Photophobia
- ♦ High degree refractive error
- ♦ Astigmatism
- ♦ Variable fields
- ♦ Color vision usually normal
- ♦ Vision is stable, may improve from infancy to adulthood
- ♦ At-risk for sunburn
- ♦ May occur as a purely ocular form with normal skin pigmentation.

### *Simulation*

Use a bright lamp or window to shine at your eyes rather than the paper, while attempting to read. Then look through clear film or lenses that have a small central area of nail polish applied to decrease the clarity centrally.

### *Suggestions*

- ♦ Correct significant refractive error
- ♦ Optical devices may be helpful
- ♦ Control lighting
- ♦ Use filters/sun glasses
- ♦ In adult ages bioptic eyewear for driving may be appropriate

## CEREBRAL PALSY

*CP is a motor dysfunction but is often accompanied by other sensory impairments caused by the same brain injury that caused the CP.*

### **Description**

- ♦ Strabismus
- ♦ Loss of Depth Perception
- ♦ Impairments of Pursuits and saccadic eye movements
- ♦ Though a motor dysfunction mild to moderate loss of visual acuity may occur
- ♦ Impairments of focusing

### **Simulation**

Move book very quickly so you have difficulty tracking the words or pictures. Early visual stimulation matched appropriately to the child's ability to accept stimulation.

### **Suggestions**

- ♦ Vision therapy to improve eye movements
- ♦ Correcting farsightedness may be helpful
- ♦ Bifocals may be helpful in some cases

## COLOBOMA

### **Description**

- ♦ Hereditary, or parts of iris not developed or were deformed
- ♦ Decreased acuity
- ♦ Nystagmus
- ♦ Strabismus
- ♦ Photophobia
- ♦ Visual field loss – usually the superior visual field

### **Simulation**

Block out the vision at the top of a lens with opaque tape in a triangle with the point of the triangle facing down. Use nail polish to blur the central area of the vision.

### **Suggestions**

- ♦ Optical devices
- ♦ Filters/sun glasses
- ♦ Lighting accommodations

## CONGENITAL CATARACTS

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### *Description*

- ♦ Hereditary
- ♦ Decreased acuity
- ♦ Nystagmus
- ♦ Squint
- ♦ Photophobia
- ♦ Possible constriction in fields
- ♦ Post-surgery glare problems
- ♦ Increased risk of detached retina.

### *Simulation*

Look at bright light through opaque plastic or waxed paper. Try to read book through frosted glass.

### *Suggestions*

- ♦ Cataract surgery with intraocular lens or contact lenses
- ♦ Lighting accommodations
- ♦ Filters/sun glasses.

## CONGENITAL GLAUCOMA

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### *Description*

- ♦ Slow progressive loss of peripheral vision from increase pressure within eye
- ♦ Leads to optic atrophy
- ♦ A gene has been discovered as cause of some primary congenital glaucoma
- ♦ Headaches

### *Simulation*

Observe environment through two straws

### *Suggestions*

- ♦ Optical devices may be appropriate
- ♦ Sun filters
- ♦ Continued monitoring by ophthalmologist

## DETACHED RETINA

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### *Description*

- ♦ Often results from head trauma
- ♦ Associated with nearsightedness
- ♦ Appearance of flashing lights and cobwebs
- ♦ Visual field loss
- ♦ Micropsia
- ♦ Color defects
- ♦ Possible decrease in acuity

### *Simulation*

Place an opaque cloth partially across one eye or tape an area diagonally across the lens in a pair of glasses.

### *Suggestions*

- ♦ Optical devices
- ♦ High illumination
- ♦ Light filters

## MYOPIA (NEARSIGHTEDNESS)

---

### *Description*

- ♦ Hereditary
- ♦ May be degenerative
- ♦ Decreased acuity for distance
- ♦ Presence of vitreous floaters
- ♦ Metamorphopsia
- ♦ High risk for retinal detachment.

### *Simulation*

Try to read print which is far too small to be read without magnification.

### *Suggestions*

- ♦ Corrective lenses
- ♦ Optical devices
- ♦ High Illumination
- ♦ Careful monitoring for retinal detachment

## NYSTAGMUS

---

### *Description*

- ♦ Eyes develop a quivering eye movement
- ♦ Common when another eye condition is congenital
- ♦ Decreased acuity common
- ♦ Vision may vary with stress and emotional state

### *Simulation*

Demonstrate blurred vision by application of nail polish on an otherwise clear lens. (In congenital nystagmus, patients do not experience movement in their vision from the

nystagmus. In acquired nystagmus, the patient may experience a sensation of movement caused by the condition.)

### *Suggestions*

- ♦ Corrective lenses
- ♦ Bifocal lenses
- ♦ Optical devices
- ♦ Electronic optical devices
- ♦ Contact lenses may be helpful in reducing nystagmus in some cases
- ♦ Prism may be used to lessen nystagmus
- ♦ Surgeries to reduce nystagmus or shift the null position

## OPTIC NERVE ATROPHY

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### *Description*

- ♦ Reduced visual acuity
- ♦ Central scotomas (blindspots)
- ♦ In severe cases visual field impairments
- ♦ Vision loss may be mild to total

### *Simulation*

Use dark nail polish to coat the center of a lens or plastic film

### *Suggestions*

- ♦ Optical devices
- ♦ CCTV systems

## RETINITIS PIGMENTOSA

---

### *Description*

- ♦ Hereditary
- ♦ Decreased peripheral vision
- ♦ Possible decrease in acuity
- ♦ Progressive loss
- ♦ Photophobia
- ♦ “White out”
- ♦ Cataracts and hearing impairments if Usher’s Syndrome is present
- ♦ Night blindness

### *Simulation*

Look through pinhole. Also demonstrate the glare problems by trying to function near a bright window.

### *Suggestions*

- ♦ Optical devices
- ♦ Lighting accommodations
- ♦ Prism lenses
- ♦ Reverse telescopes
- ♦ Amber filters are helpful in bright areas
- ♦ At night, clear lenses may be required

## RETINOPATHY OF PREMATURITY (RETROLENTAL FIBROPLASIA)

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*Formerly a very common condition caused by administering oxygen to premature babies with severe respiratory problems. As technology has improved, incidence has been reduced.*

### **Description**

- ♦ Decreased acuity
- ♦ Visual field loss
- ♦ Serious refractive errors
- ♦ Nystagmus
- ♦ Retinal Detachments

### **Simulation**

Hold bundle of white thread in front of eye and try to look through it.

### **Suggestions**

- ♦ Corrective lenses
- ♦ Optical devices
- ♦ CCTV systems are often helpful due to the severe levels of vision loss often encounters

## ROD-CONE DYSTROPHY

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*(Broad category with includes retinitis pigmentosa)*

### **Description**

- ♦ Loss of peripheral vision
- ♦ Night blindness
- ♦ Photophobia
- ♦ Mild to severe central loss of visual acuity in later stage

### **Simulation**

View through a pinhole/tube.  
Demonstrate night blindness in dark

room and extreme glare with a very bright light (described as similar to glare off snow).

### **Suggestions**

- ♦ Optical devices
- ♦ Lighting accommodations
- ♦ Prism lenses
- ♦ Reverse telescopes
- ♦ Amber filters are helpful in bright areas

## STARGAARDT'S DISEASE (JUVENILE MACULAR DEGENERATION)

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### **Description**

- ♦ Loss of Central Vision eventually causing large central blind spots
- ♦ Photophobia
- ♦ Photostress
- ♦ Progressive decreased visual acuity

### **Simulation**

Use clear nail polish to coat the center of a lens or plastic film, while wet sprinkle pepper on nail polish.

### **Suggestions**

- ♦ Bifocal corrective lenses
- ♦ Optical devices
- ♦ Closed circuit television (CCTV)



## TRAUMA

---

### *Description*

- ♦ Adventitious blindness
- ♦ Common causes:
  - Blows to the head or eye
  - Auto, bike, accidents
  - Gun shots, B-Bs, missiles

### *Simulation*

Demonstrate the complete loss of an eye from an injury by covering one eye and using the other to see.

### *Suggestions*

- ♦ Protective safety eye wear
- ♦ If bilateral, optical devices and light filters

## ADDITIONAL VOCABULARY

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***Astigmatism:*** Unevenly focused vision caused by a cornea that is not perfectly spherical. This causes blurred vision and eyestrain but is usually correctable with eye glasses or contact lenses.

***Hyperopia (farsightedness):*** Distant objects unless the eye compensates. Near vision requires even more accommodation. Eyestrain and blurred near vision are common. Usually correctable with eye glasses and contact lenses.

***Metamorphopsis:*** Wavy, distorted vision much like a fun house mirror

***Photophobia:*** Light sensitivity

***Strabismus:*** The two eyes do not align for binocular vision. This may be an exotropia (eye turning out), esotropia (eye turning in), or hypertropia (eye turning up).

### ***Sources:***

*Understanding low vision* edited by Randall T. Jose, American Foundation for the Blind, New York, 1983

*Visual Impairment: an Overview* by Ian L. Bailey and Amanda Hall, American Foundation for the Blind, New York, 1990

Conversations with low vision clinicians.

## **CHAPTER 2 SYNOPSIS**

1. How can I learn about my student's history?
  - ♦ What to look for in student files and records
  - ♦ Gleaning useful information from the Eye Report
2. How can I understand my student's near, distance, and peripheral vision?
  - ♦ Using simulations as teaching tools
  - ♦ Questions to check in simulations
3. How can I really know what my student sees?
  - ♦ Peripheral Loss and Tunnel Vision
  - ♦ Eyeglasses and Optical Devices
4. How do I prepare for my student's future success?
  - ♦ How do I collect and keep information on my student?
  - ♦ Using the Materials Tote
5. What is an IEP?
  - ♦ Mario's story
  - ♦ History of laws concerning education of persons with disabilities
  - ♦ Parental permission to test the student
  - ♦ What if there is little cooperation?
6. What does the American Printing House for the Blind have to do with my student?
  - ♦ Quota Funds may help obtain supplies for my student
  - ♦ Who is my Ex Officio Trustee and how can he/she help me?
7. Eye Conditions and General Information

## CHAPTER 3: MAKING MY CLASSROOM ACCESSIBLE

- What is Orientation and Mobility (O & M)?
- What orientation is necessary outside my classroom?
- What are accommodations in the classroom?

### WHAT IS ORIENTATION AND MOBILITY (O & M)?

Orientation and Mobility, commonly referred to as O & M, is an essential for the student with low vision. Schools will usually have their own instructor or contract with an outside agency for such services as needed. An O & M instructor has special certification and licensing, and is called a “Certified Orientation and Mobility Specialist” or “COMS.”

Simply, O & M refers to the student’s ability to orient himself and move through his environment independently and with as much ease as possible. Orientation means knowing where you are in relation to your environment. Mobility refers to the physical movement in that environment. Although a student, especially an older student, may have received extensive O & M training previously, it is still necessary to orient the student to the new environment of your classroom.

As you consider the student’s needs in your room, ask the O & M instructor to help you. The instructor will not be present daily, so you should consider the smallest details. Use these and similar questions for classroom orientation:

- ♦ Is the doorway easy to identify and to find without sight?
- ♦ Is the student’s desk stationary, or can it be moved to a better spot?
- ♦ Is the seat assignment permanent, or can it be changed to a more accessible location?
- ♦ Is the route to the seat likely to change?

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#### TIP

A student with low vision not new to school will be able to help you acquaint the new student with the school. Ask the student what orientation techniques have worked in the past.

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## TEACHING THE STUDENT WITH A VISUAL IMPAIRMENT

- ♦ Is the pathway from the door to the desk clear of obstacles?
- ♦ Is the pathway from the student's desk to other work areas in the room easy to identify without sight?
- ♦ Where are the necessary educational materials in relation to the student's seat? Will this location change through the year, requiring re-orientation of the student?
- ♦ Can the student easily leave the room during fire drills?
- ♦ Can the student easily negotiate the space between his desk and the teacher's desk?
- ♦ Does the student know how to find the restroom independently?
- ♦ Will the location of the teacher's desk and activity centers change, requiring re-orientation of the student?
- ♦ Will locations of reference shelves and storage areas change during the year, requiring re-orientation of the student?
- ♦ Will he be able to see important things adequately? (e.g., teacher, chalkboard, and other students)
- ♦ Is his best position at the front, near middle, far left, or far right?
- ♦ Is his back to the window to reduce glare? Are other light sources adequate?
- ♦ Does he have access to an electrical outlet, if needed?
- ♦ Is an additional table or desk needed for extra equipment such as a CCTV? If so, is there room for the equipment in this location? Will he need a second desk?
- ♦ Can other students move around his area safely and easily?

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### TIP

Place and tighten a large rubber band on the classroom door handle for easy identification of the classroom.

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Consulting with an O & M instructor can be helpful in several ways:

- ♦ Help orient the student to the school environment
- ♦ Assist with planning for mobility in your classroom and on school grounds
- ♦ Instruct the student in proper techniques, care of O & M equipment, and other details

## A PRIMER FOR THE CLASSROOM TEACHER

- ♦ Advise the teacher so that she knows what is appropriate and safe
- ♦ Present information to other students to promote general understanding and safety
- ♦ Offer special help when there are additional mobility problems requiring use of crutches, a walker, or a wheelchair

People who are blind or have low vision use five basic methods of travel or mobility techniques. The following paragraphs describe them briefly. An O & M instructor can give you more complete details on the following:

1. White Cane
2. Electronic Travel Aids (ETAs) and Other Mechanical Devices
3. Dog Guide
4. Sighted Guide
5. Related O & M Issues
  - ♦ Sensory stimulation
  - ♦ Spatial relationships

### White Cane

The most common device used to assist a school-aged person in orientation and mobility is likely to be a white cane. White canes are very useful and relatively inexpensive. Travel with a white cane is normally included in formal O & M training. Commonly, a long, folding cane is used. Generally the cane's length is the distance from the ground to the student's sternum or chin, depending on the philosophy of the O & M instructor's training school. The student's cane length will increase as he grows. When folded, the cane can be holstered and fastened to a belt, kept in an over-the-shoulder pouch, stored in a desk, or left on the floor near the student. White canes are also available in telescoping models and sturdy, non-folding styles. Students who do not understand the white cane's importance and use may find it amusing to hide the cane, or play "Keep Away" from the student with a visual

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#### TIP

A reflective white cane with a red end is an international symbol of low vision or blindness.

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### TIP

Wherever the white cane is kept when not in use, it must always be easily accessible to the student.

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impairment. By anticipating where the cane should be kept in your classroom, you can plan to maintain everyone's safety and convenience. Because cane tips are in contact with the soil, canes should never be placed on top of the desk or table.

The student's white cane training will include instruction for trailing and how to move using an appropriate arc and width of swing.

- ♦ TRAILING involves using the cane to maintain contact with a surface. For example, a student may "trail" a curb, a wall, or bleachers in the gymnasium.
- ♦ The distances for WIDTH and ARC vary in different circumstances. The arc refers to the arch made as the cane taps and moves from side to side. Generally, the arc should remain low, near the ground. The width of the arc is how far the sweep of the cane extends as it moves from side to side. The arc and width determine how effectively the cane finds objects or conditions on the surface where the user is walking. The cane finds step edges, breaks in the sidewalk, and piles of books in the path.
- ♦ Books by Evertt Hill and Purvis Ponder are excellent sources of information regarding the teaching of orientation and mobility skills. *Orientation and Mobility Techniques: A Guide for the Practitioner* (ISBN 0891280014). The Teacher of the Visually Impaired probably has this book if you'd like to read it.

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### TIP

Directional compasses or Global Positioning Satellite receivers may help some students. Tactile and talking models are available.

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In open spaces, the width of the swing should probably be slightly larger than the width of the cane user's body. In smaller spaces, such as between rows of desks or narrow sidewalks, the width of the swing must be adjusted. Note, however, that a cane only helps with objects directly in its path, near ground level, sometimes as high as waist level. A student using a cane may still hit his head on low-hanging tree branches, mobiles, and other objects.

In elementary and middle school years, your student with low vision may be willing to share information about how he uses his cane and other devices with the members of his

class. If he is reluctant, ask the O & M instructor to visit your classroom to explain and demonstrate the use and concept of the white cane. This simple act helps create a positive atmosphere for peer relationships to develop.

### **Electronic Travel Aids (ETAs)**

Today's technology provides another method of mobility for the student with a visual impairment. Although expensive and still relatively uncommon, electronic travel aids (ETAs) combine some characteristics of both the white cane and the guide dog. An ETA device sends out signals within a certain distance range to sense the environment, processes the information received, and furnishes the user with this information. ETAs can warn the user of objects overhead and moving objects crossing his path. ETAs transmit data through sonar waves with a receiver attached to the chest, causing vibrations of the cane in the hand or producing audible signals. Special training is required for effective use. ETAs are rarely introduced until the student has reached his full height. Talk to the student, his parents, the O & M instructor, and/or the Teacher of the Visually Impaired for more information on ETAs.

### **Dog Guides**

Rarely will a school-aged student have a guide dog. Most guide dog schools and low vision clinicians resist recommending guide dogs with school-aged students. Prime concerns include the student's level of maturity and his ability to accept responsibility for the care and proper exercising of the dog. Another major issue is the time required away from home for training of the person in use of a guide dog. The student may simply be too young to be away from home for the training period required. Some students may receive a guide dog or training in the final year or two of high school, although this is also rare. More commonly, the student who has graduated from high school or has reached the age of eighteen may be considered for guide dog training and use.

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#### **TIP**

As a sighted guide, avoid the temptation to grasp the person with low vision by holding his hand or arm. Instead, allow him to grasp your arm just above the elbow.

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## Sighted Guide

Another method of travel, utilizing human help, is called "Sighted Guide." There are times when this kind of assistance is preferable to other travel methods, such as when moving through crowds at assemblies, in the cafeteria, or at sporting events. A sighted guide follows these guidelines:

### MISCONCEPTION

The other senses of a person with low vision improve when the person has lost vision.

### TRUTH

There is no difference between the senses of a person with low vision and a person with typical vision. What improves is skill in other areas.

- a) The student with low vision grasps the arm of the sighted guide just above the elbow with thumb toward the front and other fingers on the back of the guide's arm.
- b) The student should grasp firmly enough to maintain contact, but not with a circulation-stopping grip. The sighted guide leads, walking about one-half pace ahead of the person with low vision.
- c) Give verbal cues, if desired, such as "We're coming to a closed door which opens on the right," or "Just ahead are six steps going down."
- d) In a narrow space where single-file is more appropriate, the sighted guide bends his arm on which the unsighted companion has a grip, and positions the arm about waist-high across his back. The person with low vision slides his hand down to grasp the sighted guide's hand and moves behind the guide to walk single file. The person with low vision maintains physical contact the entire time.
- e) If the destination is a seat, the sighted guide may help by simply removing the hand of the person being led by the arm, and placing his hand on the top of the chair.
- f) If the sighted guide must leave for a short time, the guide leads the person to a place away from busy traffic paths, in contact with a corner, post, or landmark. This helps both with orientation.

An O & M instructor can provide more detailed information about sighted guide travel techniques. This method is easy when there is little time for complicated directions. It provides instant information about obstacles. It is especially effective for moving through crowds. Even though you want to encourage students to travel independently, unique situations

and circumstances do arise in which proper sighted guide techniques are more advantageous. Almost anyone can learn good sighted-guide skills, and students may be able to provide this service for their classmates who need it.

### **Related O & M Issues:**

#### ***Sensory Stimulation***

Students with low vision may rely on other senses to provide information that can no longer be gained reliably through vision. Everyone has that potential, but for students who are visually impaired, developing skills in processing information received through other senses is invaluable. O & M instructors teach students to listen to traffic to determine in which direction it is moving. Students can learn to move parallel to the flow of traffic, guided by the sounds, without needing to see a traffic light. The sense of smell can help a student find the cafeteria. Sawing and hammering sounds, as well as the smell of raw wood, can identify the woodwork shop. Smells of paint and glue mark the art room. Taste and tactile clues are important, too. A smooth, slippery gym floor feels different underfoot than other surfaces. Salty tastes can be discerned from sugary, sweet tastes at the dinner table. Feeling grass or asphalt with the foot identifies the edge of a sidewalk. Encourage all of your students, especially the one with low vision, to use sensory input as an important resource for orientation.

#### ***Spatial Relationships***

Spatial relationships are often problematic for a student with low vision. His orientation to the environment may often include mistaken concepts of distances, sizes, and shapes. If he has poor night vision, a student may never have seen a night sky clearly enough to understand science lessons about stars and planets. A student with poor distance vision is unlikely to grasp completely the concept of a mile or fifty feet. The size of a gymnasium, cafeteria, or library may be difficult for him to understand. The student may need to walk around these areas physically to experience the size. He may need to feel the shape of his desk or work area to identify space and limitations. Encourage these activities and allow repetition

until they are mastered. This is especially important in kindergarten and in early grades when concepts like above/below, in/out, small/medium/large, and other spatial relationships are being taught. To maintain your student's self-esteem, you may need to conduct some of these sessions alone with him, when no other students are present.

### WHAT ORIENTATION IS NECESSARY OUTSIDE MY CLASSROOM?

Of course, no student stays completely within one classroom's environs. The student's educational experience will include the total physical plant of the building, field trips, a school bus, and the school grounds. In addition, the school experience includes large movements of people such as in fire drills, assemblies, cafeteria lines, gymnasium activities, to name a few. Each of these areas requires an orientation, even though the student may use the same methods of mobility for each. The O & M instructor will be able to provide orientation to the whole building and perhaps provide a tactile map.

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#### TIP

Simulating the student's physical experience for yourself is an excellent way to identify what challenges the student faces. (For safety, have a sighted person travel closely by you.)

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### The School Building

Walk yourself out to the entrance of the school grounds and then observe the area carefully. Is the student arriving on foot, by bus, or by car? Each carries its own challenges. Remember that the student must reverse the arrival procedure when leaving the school.

#### *On foot:*

- ♦ Is the entrance to the school grounds easily identifiable, or is it simply a very wide area of the playground or lawn with no easily identified direction to the school door?
- ♦ Is there a sidewalk from the street to the door he chooses to use?
- ♦ Will there be moving cars or busses between the entrance to the grounds and the entrance to the building?
- ♦ How will the student maneuver himself safely to the building entrance he chooses to use?

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### ***By bus:***

Busses normally arrive at a designated door of the building. When leaving the bus, how does the student get from the bus door to your classroom? Where will the student be at the end of the day? The route he takes to the bus may be different, and he'll need O & M services/cues.

### ***By car:***

Cars often drop off students at a different door than the busses. How does your student get from the car to your classroom?

The path the student follows will become routine for him. If new to your school, more time needs to be spent on this orientation than if he has been a student there previously. Walking the route yourself and being observant will alert you to the student's needs.

Walk the route inside the building from the entrance to your classroom. Particularly if this is a middle school or high school, the hallway corridors may be lined with lockers. This also means that foot traffic and crowding may be a problem. For your student with low vision, a route must be created and maintained. While walking his route, imagine the hallways filled with other people. Also, ask yourself the following questions:

Can you orally describe the route? After being shown the route, can the student orally describe it back to you? Will the student need assistance in his travels? Be very specific. Use directions similar to these:

- ♦ After entering the building, turn left from the front entrance and walk to the end of the hallway. You can tell the end of the hallway by the change from tile to cement floors.
- ♦ Turn right at the end of the hallway and go past two classroom doors located on the right side of the hallway.
- ♦ There is a drinking fountain next, on the right.
- ♦ Across from the drinking fountain is your classroom entrance. This means you will probably have to cross the hallway against traffic.

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### TIP

When determining a workable route, tape record it for the student. Walk through it with him, showing him important distinguishing points.

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- ♦ But, your locker is not near this room. It is several classrooms down.
- ♦ After the drinking fountain, go past two more classrooms.
- ♦ The hallway intersects another hallway.
- ♦ At the intersection, turn left.
- ♦ Trailing along the right wall, the fifth locker from the intersection is yours.

Now, the student reverses his walk to his homeroom and will be on the correct side for the classroom door if he remembers the water fountain.

This example hopefully tells you what to look for and consider. Try to get the student's locker in a practical place for his safety and convenience.

### Bus Rides

The student with low vision may ride a bus to and from school. He may also need to ride a bus for a field trip. Either way, student orientation to the bus is critical.

With your help and guidance, let the student experience the bus separately from other students. Let him find the height of the steps, using the grab bar or his white cane to get on. Encourage him to explore the whole bus in order to understand its layout, including where the driver sits. Then reverse the procedure by having him leave the bus, going down the steps using the grab bar or white cane. If you are taking your class on a field trip, be sure to identify for his reference where others are sitting. It is always preferable to ask the O & M specialist along on field trips.

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### TIP

A charter or a city transit system bus may be different than a school bus. Ask the O & M instructors to orient the student to these, and any outdoor activity.

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Involve the driver in your orientation of the student. Whether a regular route driver or a field trip driver, this individual must also be aware of the needs of your student. This need not be complicated, just a simple introduction of your student to the driver and an explanation of the student's visual limitations that affect the bus ride. The student may wish to do this himself. The student and driver may decide to assign the student a regular seat, thus removing some daily stress.

### **Fire Drills**

Throughout the school years, the student will experience fire drills. He cannot rely on diagrams drawn on a poster near a door. Draw him a diagram of your classroom from his usual seat to the door and to the proper exit by using puffy paint, raised lines, large print, bold lines (if a print reader) or use Quick-Draw Paper™, available from APH. The same is necessary for all areas he may be using, such as the library, the cafeteria, and gymnasium. Walk through these with him or ask the Teacher of the Visually Impaired to do so, but do let him experience this in advance. Depending on his age and maturity, you or another adult may need to be his sighted guide for fire drills.

### **Field Trips**

Orient the student in advance by explaining where you are going and what he is expected to experience there. If you are going to a sit-down event, remember the student's best seating in your classroom and try to copy this at the event.

If you are attending an event involving random movements, the zoo for example, perhaps a "buddy" would work well. Ask the student to pick a friend to walk with. The buddy might help by describing what she is seeing. However, the student, depending upon the type of visual impairment, may sometimes do well on his own. Ask the student, don't assume he needs help! Remember to encourage the student to use his white cane wherever possible. In addition, make the student aware of the restroom locations, the walkways, and doorways. In short, think of everything you need to know for your own safety and enjoyment and transfer that knowledge to orienting the student.

### **Other School Areas**

Now comes the real challenge. Building areas not used as often by the student as the classroom, such as the library, cafeteria, gymnasium, auditorium, and offices all provide special challenges. The student will need practice in locating these areas from a specific starting point.

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#### **TIP**

Since the purpose of fire drills is to exit the building safely and quickly, use a sighted guide for this student. The student should still be required to have his cane with him during this time in case he becomes separated from his guide.

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### TIP

Choose a sighted guide who is good at description, who has a command of nouns, adjectives, and adverbs. Both students will learn from this experience.

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TIP: Make tactile maps of school areas. Use puffy paint or raised-line drawings for the student to keep and use.

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Use the same procedure. Simulate the route by yourself or with the student, alerting yourself and him to helpful landmarks along the way. Besides locating these areas, the student will need orientation to the inside of the room. When entering the library, for example, what is the student's destination? Is the student seeking a study room or the librarian's desk? The student needs to understand the layout of the library, the gymnasium, the cafeteria, the auditorium, and the offices. He will make as much use of these as any other student.

### *The Cafeteria*

The cafeteria has several challenges. If there is a serving line, remember that he has his white cane. He may have to fold it up and use a "sighted guide" to do this. Also, remember that a dark tray on a light top table provides better contrast than a light tray on a light table. If he brings lunch from home, it needs to be retrieved from its storage place. To help eliminate anxiety, practice going through the lines with a tray filled with food, before or after lunch is over. Walk with the student through the cafeteria line alone, the seating area, and the area for dumping trash. Then try it with other students around. After a short time, he will likely develop his own routine and workable methods.

### *The Playground*

The playground is a place for play. As such, it often has much random movement involving various physical activities. The playground presents a real challenge and puzzle. Orient the student to the playground by identifying the location of pathways, play equipment, and open areas to avoid accidents. The orientation could be anchored by the door to the area, the location of fences, gates, and shrubbery. If the door opens onto the usual broad play area, have the student move from the door to the side where he can locate the fence or some other physically stationary sign. From that point or from the doorway, describe the playground, maybe using a clock face plan: The student is at 6:00, the swings are at 9:00, and the door is at 4:00. Encourage him to listen for voices to identify clusters of



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people. If the playground offers your student danger and confusion, ask the O & M specialist to orient him.

### ***Restrooms***

In addition to the hallways, the student must find the restrooms. Include this route in your simulation. Where is the restroom in relation to your classroom? Can the student easily identify the men's restroom from the women's restroom? Remember that the last three letters, m-e-n, are the same and may cause confusion. Also, orientation to the inside area is just as important as the outside. The stall, a place to hang the student's cane, toilet paper, sink, soap, and the trash can are important items to locate.

### ***The Auditorium***

The auditorium presents fewer challenges than other areas because the aisles are usually defined by permanent seating. The student will be able to use his white cane to maneuver into the correct row and then be seated. If there is assigned seating, the student will need orientation to this seat. Use the student's regular seating arrangement in your classroom as your guide. If he sits on the left side of your classroom for better use of vision, then it is a good idea to place him on the left side of the auditorium facing the performing area. Make use of your knowledge of his limitations with near and distance vision, peripheral vision, and central vision. This information provides a helpful guide for you in offering good seating for the event.

### ***The Gymnasium***

The gymnasium presents numerous challenges. There are often bleachers to climb and crowds of students, often moving randomly. The student will benefit from orientation to the gymnasium for assemblies and P.E. class. If your class sits together in assemblies, the others can help to see that he gets to the correct area. The student will be able to climb and descend stairs using his white cane. For P.E. class, you and the P.E. teacher could orient the student privately by letting him walk around the areas he will use while one of you gives oral descriptions. Then let him

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#### **TIP**

Restrooms should be clearly marked with Braille or raised-line drawings or other tactile identification.

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#### **TIP**

Always enlist the help of an O & M specialist when student safety is a factor.

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explore by himself. If properly oriented, the student will be able to run within the gym during many activities. It is best if the P.E. teacher also knows the student's visual limitations so that expectations match the student's ability.

### **WHAT ARE ACCOMMODATIONS IN THE CLASSROOM?**

Obviously, O & M issues are important considerations for entering and exiting the classroom, finding one's seat, moving from activity to activity, and finding the teacher's desk. But there are many more classroom considerations to encourage success.

### **Classroom Arrangements and Accommodations**

First, why not give some thought to preferences and practicality of classroom furniture arrangement? What is preferred and what is practical may be entirely different. Having a student who has special needs in your room may cause you to alter your plans and compromise your preferences in order to help the student succeed. Unless you know this student personally and are familiar with his needs, you will have to rely on information from such sources as school records, the IEP, the eye report, and perhaps an interview with the student and his parents in order to acquire clues for planning an initial room arrangement. Consider again the questions at the beginning of this chapter when assigning seats. Seating is covered in greater detail later in this chapter.

Now let's think about what is meant by "classroom." In kindergarten, most activities take place in one room. Teachers set up activity centers, and small groups of students may move to reading circles or listening centers. As students progress through the elementary grades, special teachers come to the classroom, bringing with them materials and setting up activity centers such as music and art. Sometimes elementary students do move to other areas of the school for special instruction, such as P.E. or art. In each of these subject areas, ask yourself if the student is able to find the center of activity easily and safely.

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When students enter middle or high school, they generally move to different rooms for different subjects. It is not uncommon to have classrooms in which students are required to move from lecture areas to lab stations. There may be an assigned work station, but tools and materials must be retrieved from some other location. Frequently then, there are two or more separate environments within one classroom and each may present unique problems for a student with low vision.

A classroom used by this student may require a few special arrangements or accommodations. These may be as simple as being certain that there are no cords on the floors and that the student does not face the sun streaming through windows. Many accommodations can be grouped in the following categories:

- ♦ Lighting
- ♦ Filters
- ♦ Color
- ♦ Contrast
- ♦ Optical devices
- ♦ Labels
- ♦ Seating

### *Lighting*

Elementary science defines a rainbow as sunlight split into bands of light waves traveling at different rates of speed with different wave lengths. These bands of waves are perceived as different colors. In simple terms, when the fast waves, ultraviolet and blue light waves, reach the retinas of the human eye, they bombard the retinas very rapidly, increasing the problem of glare and contributing to eyestrain and fatigue. Blue light is the main component of light emitted by standard cool-white fluorescent tubes which illuminate so many classrooms.

Everyone is affected, to some extent, by the effects of ultraviolet and blue light, but the effect is more intense and presents a greater problem for students with low vision.

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### **TIP**

When setting up a classroom, ask the student with a visual impairment what she needs to feel safe and comfortable.

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### TIP

If “normal” lighting is a 50-watt bulb, the person with low vision may require a 150-watt bulb for comparable illumination.

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These individuals react with greater sensitivity to ultraviolet and blue light. Therefore, problems with glare and eyestrain are far more serious and affect daily activities of students with low vision to a greater extent than they do for typical students. Seating that faces a window, fluorescent lighting, and blue backgrounds on computer screens are some of the common sources of UV and blue light interference. They can cause intense eye fatigue and eyestrain.

Individuals with low vision still need light! In fact, it is estimated that, in general, they need three times more light than individuals with “normal” vision. While this rule of thumb is a good general guide, there are some exceptions. Some students with certain eye conditions, such as retinitis pigmentosa, albinism, achromatopsia, and photophobia are extremely sensitive to light (Kitchel, 1994). The problem is in getting the right kind of light, angled properly, from the right direction. Natural sunlight is usually acceptable, but looking into sunlight shining through a window is not wise. Ideally, students should have their backs to the window, with light streaming over their shoulders. Adjustable blinds work well. Light should not shine directly into the eyes. Glare from windows can also be reduced by applying a colored UV filtering film over the window panes. This works like the tint on the windshields of automobiles. Use glass companies or auto parts stores as resources. Incandescent (standard light bulbs) lighting also provides good task lighting for most students with vision impairments.

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### TIP

A small light, such as a penlight or a clip-on light, may be very helpful when overhead lighting is insufficient for this student.

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Blue light contributes little to visual acuity and visual perception. Images may actually lose sharpness and appear more blurred. There is increased energy expenditure when eyes are exposed to blue light and “there is mounting medical evidence that prolonged exposure to blue light may permanently damage the eyes, contributing to the formation of cataracts and to the destruction of cells in the center of the retina” (Kitchel & Evans, 2000). Every effort should be made to provide the student with adequate safe light and limit his exposure to sources of blue and UV light.

Despite research which suggests that fluorescent lighting has problems associated with it, this type of lighting, which

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utilizes “cool white” tubes that emit mostly UV rays and blue light, continues to be the most widely used source of lighting in schools, stores, and public places. Fortunately, there is help. It is easy to replace the “cool white” fluorescent tubes with General Electric’s SPX30, Sylvania’s SP30, or Philips’ P30. These tubes reduce photo stress and eye discomfort by emitting light rays from a different part of the color spectrum. Making this change may be helpful to others in the room as well as your student with low vision. Teachers, classroom aides, and other students who experience frequent headaches, including migraine, and persons who have multiple sclerosis, lupus, or epilepsy often benefit from the altered light.

Paracube, or egg-crate-style covers for fluorescent fixtures recessed in the ceiling, are also available and recommended. These covers direct the lighting down onto tasks and help reduce glare effects of light reflected off walls and windows.

Because many students with low vision need additional light, auxiliary lighting may be advisable. A variety of task lamps are available which may be useful in supplementing light in his immediate work area. Look for lamps with a weighted base or for styles that clamp on securely. They should be adjustable so that the light may be directed onto the task and not shine into the eyes. Shades should be vented to avoid burns. Pay attention to the bulbs used in these auxiliary light sources. Substitute “warm white” or “dawn pink” incandescent bulbs for “cool white” fluorescent bulbs. Because of the heat produced, most halogen lights are not recommended for students.

### ***Filters***

In situations where little can be done to alter the light source, filters may be used to alter the way eyes receive the light. Filters are often little more than colored glasses which may fit over regular eyeglasses or are worn alone. The resource section of this book lists a few of the companies that manufacture and sell filters. They are usually worn to combat the effects of direct lighting. Most colored filters are available in a variety of colors as well as a range of shades

(light, medium, dark). Light shades are often helpful indoors. Medium and dark shades are usually worn outdoors and in extremely bright light.

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### TIP

Yellow colored filters may brighten images on a cloudy day and in low light situations. Yellow filters provide excellent contrast.

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Filters eliminate most of the harmful rays, especially ultraviolet and blue light. It's important to acquire filters that eliminate or significantly reduce harmful rays and glare. These filters are NOT the same as look-alike "wraparound" styles available commercially in many outlets. Desirable filters resemble sunglasses but have special filtering properties. Be aware that the student who wears filters will not see colors accurately when using them.

Low vision clinicians usually have a variety of sample filters for their patients to try, and they make recommendations for colors and shades most suitable to the patient's eye condition and needs. Some rehabilitation teachers have a variety of filters in demonstration kits, as do many agencies and organizations that provide services for the blind and visually impaired. When students try the filtered glasses, they should judge them on eye comfort and enhanced contrast.

Certain colors of plastic acetate sheets may also provide a good light filtering system. Yellow seems to be the most widely used color, and packets of the yellow acetate sheets may be purchased through office supply sources. You and your student may wish to experiment with other colors. The see-through plastic side of common report covers can be used. Place these colored acetate sheets over a printed page or drawing to increase contrast and reduce glare.

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### TIP

If no tracking line appears on the acetate sheet, make one with permanent marker using a ruler to guide you.

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### *Color*

Color plays a role in most areas of education. Some aspects of color are also discussed in the sections on Lighting, Filters, and Contrast.

First, a cautionary note. Not all persons with low vision can identify every specific color or all color ranges. Some of your students who do not have significant vision problems may be color-blind. It is important to know about your student's ability to distinguish colors. Color-coding will probably have little value for someone who cannot identify colors. Colors



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on graphs and colored photographs in textbooks and art work involving color may be less meaningful when a student has little ability to distinguish colors. Many students with central vision problems will be red-green or blue-green color-blind. Most will be able to see dark blue and yellow, and these are recommended colors for displays and posters.

Another aspect of color is the influence it has on how well a student sees. White paper often produces glare. This problem, in turn, makes the print seem to blur against the background. Encouraging your student to use off-white or colored paper for class assignments, tests, and homework may make a significant difference for him. Reducing glare usually helps the student work longer, with less eye strain and more comfort. So stock up on pastel-colored paper.

Yellow, used in legal tablets, and light pink are two of the most preferred colors for paper. But whatever color is used, it should provide good contrast for the print or handwriting on the page. For this reason, it is best to avoid bold and dark colors such as red or blue for writing paper.

### *Contrast*

Good contrast is a constant and essential need for persons with low vision. Dark objects are seen more easily against light backgrounds; and conversely, light objects are better seen against dark backgrounds. There are many applications of this simple principle to help your student, including these examples:

- ♦ The level of milk can be seen better in a dark-colored beverage glass than in a clear one.
- ♦ A dark-colored marker can be seen better on a light-colored writing or drawing surface.
- ♦ A teacher wearing light-colored clothing is more easily seen against a dark chalk board or display.
- ♦ Dark-colored door frames against a light wall make the doorways easier to identify.
- ♦ Switch plates outlined with contrasting tape are easier to locate.

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#### TIP

Scented markers can help students identify colors for classroom use.

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#### TIP

Help the student organize class work by color codes. Ex: a blue folder for math, yellow for reading, orange for science.

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### TIP

Create a master template for writing paper by using a white piece of paper. Line the paper in bold lines set  $\frac{5}{8}$  of an inch apart. Using pale yellow or pink copy paper, make copies for the student's use.

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Difficulties that may be encountered as a result of low visual contrast may slow educational progress. Some examples are these:

- ♦ In art, the student may have difficulty distinguishing among various light-colored pastel shades or in distinguishing dark-colored shades such as navy blue from black, or black from purple.
- ♦ In P.E., the student may not see a light-colored ball against a light-colored sky or gymnasium ceiling. He also may have some difficulty in discerning the colors of uniforms, making it more difficult to identify team members.
- ♦ Light-colored trash or obstacles on a light-colored floor may be unseen by this student, perhaps causing an accident.
- ♦ A dark-colored cafeteria tray against a dark tabletop may be hard to distinguish.
- ♦ Figures approaching against a similarly-colored background may not be seen by the student.
- ♦ In science lab, the various chemicals in clear tubes may not be seen if pale in color. Granules and powders may not be visible in liquid.

Awareness and sensitivity will usually lead to practical solutions for problems involving contrast.

### *Optical Devices*

Eyeglasses and optical devices are generally prescribed by a low vision clinician. Although any informed professional, including the classroom teacher, may initiate a referral, the student is usually referred to a low vision clinician by the Teacher of the Visually Impaired, the ophthalmologist or optometrist. In turn, the low vision clinician will prescribe the necessary low vision devices or special eyeglasses needed by the student. The teacher is concerned with four issues:

- ♦ What glasses or optical devices does the student *have*?
- ♦ What optical devices or aids does the student *need*?

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- ♦ Where does the student *store* his devices safely with easy access?
- ♦ Does the student know how to use his optical devices?

What has been prescribed will be in the eye report as covered in Chapter 2. The teacher's role is especially important in noting behaviors which would indicate changing vision in the student as the school year progresses. The teacher also plays a critical part in facilitating the adjustment period for those students newly-diagnosed with low vision. Keep in mind that the information you collect will affect the future of the student beyond the time he is in your classroom.

As technology advances, a greater variety of devices has become available, and far more people are able to compensate for vision loss to a greater degree than ever before. The teacher need not be an expert in optical devices. It is important, however, to know that devices can help the student only if certain conditions exist:

1. The devices are prescribed appropriately by a low vision clinician.
2. The student has been provided with thorough instructions and training regarding the use and care of his optical devices.
3. The devices are *used*.
4. The use of the devices is initiated with sensitivity to related issues such as:
  - ♦ Peer reactions.
  - ♦ Comfort and convenience of student use.
  - ♦ Patience through initial difficulties.
  - ♦ Positive reinforcement and encouragement for the student.

Chapter 2 included a brief discussion about eyeglasses and optical devices. Sensitivity training may be beneficial to make the student with low vision and his classmates more accepting of unusual devices. Teachers can provide a service by helping the student determine how to keep devices such

## TEACHING THE STUDENT WITH A VISUAL IMPAIRMENT



as magnifiers, minifiers, and monoculars safe from falls. Teachers who need assistance in teaching the use of optical devices may wish to use the ENVISION program, which provides an array of devices and curricula for this purpose. The ENVISION program is available from APH.

Although the ENVISION program is designed primarily for use by the low vision clinician and the Teacher of the Visually Impaired, it contains many enrichment activities for use by the classroom teacher or parent. These enrichment activities reinforce the skills taught by the vision professionals and

give additional practice time to the student. No particular expertise is needed to guide the student in the enrichment activities, and nearly all the enrichment activities may be enjoyed by the entire class without their using optical devices. The ENVISION program is available from the American Printing House for the Blind.

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### TIP

The RollBuster II, available from APH, can help keep optical devices from rolling off the desktop.

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Many low vision devices are based on the principle of magnification. Magnifiers as powerful as microscope lenses may be built into eyeglass lenses. There are handheld magnifiers of all types, some of which are lighted. There is a huge range in power or strength of magnification. Interestingly, magnifiers get smaller as the power of the magnification increases. The most powerful magnifiers then, have small lenses and the field of vision is greatly reduced. Unfortunately, there is no getting around this principle of optics. This principle sometimes makes reading and examining objects slow because only a small portion can be seen at one time. In general, hand-held magnifiers provide valuable aid in reading.

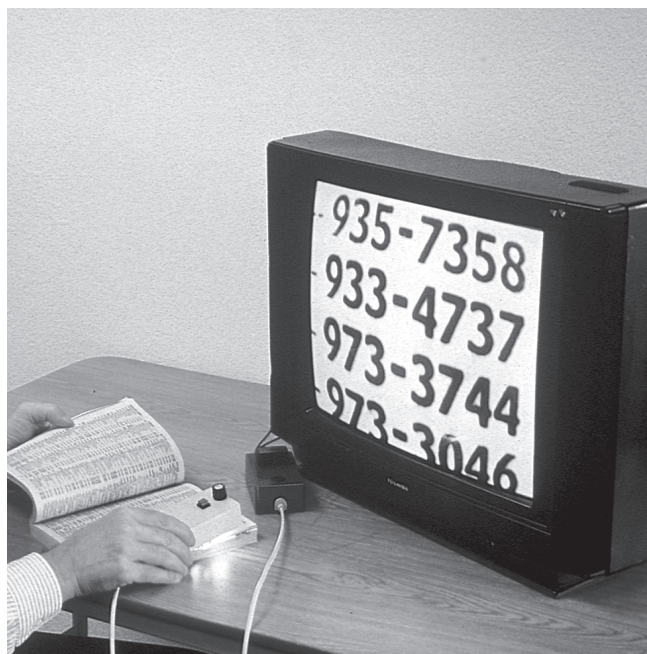


Telescopes, often called “monoculars” provide the student with access to viewing the chalkboard, the speaker at an assembly and a wide range of other targets. Telescopes are usually essential for outdoor travel.

## *A PRIMER FOR THE CLASSROOM TEACHER*

Minifiers do the opposite task of magnifiers. This small device, which looks similar to a small telescope, may be either hand-held or inserted into the glasses. As its name suggests, a minifier “minimizes” the field of vision being viewed. This allows those students with poor peripheral vision to see a wider area.

CCTVs (Closed Circuit Television) systems are electronic magnification systems. Traditionally they are large, about the size of a personal computer. Users place reading materials on an X-Y axis table that moves from side-to-side or forward and backward. A closed circuit television camera focuses on the material, magnifies it, and projects it onto a monitor. The field of vision is as large as the monitor. Magnification capabilities are tremendous. Newspaper print may be magnified to headline size. Reading, writing, looking at photographs, and producing graphics are possible for many students with low vision when using this device.



Technology is changing the look of CCTVs. Many more models are available, and predictably, there are advantages and drawbacks to each model. They are not a custom-ground optical device, so they are usually purchased from sources other than a low-vision clinician. However, low vision clinicians are excellent resources as providers and as sources of information. Some models are portable, some can be worn on the head, some are for reading only, some are full color, others are black and white only. When choosing a CCTV, consider the following:

- ♦ How will the student best be able to use this device?
- ♦ Is one needed both at school and at home?
- ♦ Can it be moved from room to room at school or home?
- ♦ Will color benefit the student?

A student who does not have a color perception problem probably still needs color on the CCTV. This allows the student the full impact of the material being placed on the CCTV. Remember also that many models are large. But, no matter what size or what color availability, all of them represent a significant financial investment.

Where to locate such devices is an important consideration. Plan so that the line of vision for your student and his classmates is not blocked. CCTV's should be located where the cords will not cause any problem for student traffic flow. Most models have a useful tracking line or lines on the screen.

Computers and Accessories system may also function as low vision devices for a student. Using a computer with assistive technology hardware and specialized software can help a student who has a visual impairment accomplish many reading and writing tasks that poor eyesight makes difficult. Computers and accessories are discussed in much greater detail later within Chapter 4.

### *Labels*

School may be an adventure for many students, but it may present an overwhelming number of adventures and challenges for the student with low vision. There are many unknowns for all students, and, without the benefit of good eyesight, there are so many more! It is easy to overlook the need for accessible signage and labeling, but they are important. Much progress has been made in recent years in the production and use of internationally recognizable symbols on signs, such as female and male figures on restroom doors and the figure in a wheelchair, which represent areas adapted to accommodate persons with disabilities. Unfortunately, most of these are visual. In order to accommodate people with low vision, it is advisable to add tactile markings.

Tactile markings may take on many forms. Braille, of course, is commonly associated with blindness and low vision. It is an effective form of communication and since the introduction of ADA, the Americans with Disabilities Act,



braille signage has been installed in many public areas, such as restrooms, elevators, and doorways. Braille signs and labels may be purchased through distributor catalogs or a braille label machine may be used. Perhaps a local person who uses braille proficiently will make braille labels on adhesive-backed tape or magnetic tape to apply on existing print or picture signs. The problem is that not every person who would benefit from using braille has, in fact, learned it. This is a consideration for schools, particularly in kindergarten and early primary grades when students with low vision may have neither the language nor the braille skills to identify certain signs. Voice chips on which messages may be recorded are available. One such device, Motion Pad, is available from APH. This product can be activated by a motion sensor.

“Puffy” paint or sponge paper may be used to produce raised-line drawings, figures, and letters. Distributor catalogs offer paints for sale with names like “Spot ‘n Line” and “Hi Marks,” which produce durable raised tactile marks. These are usually available in a variety of colors. The tip of the paint tube or bottle is designed to allow the user to draw or trace figures, symbols, or letters. You can also create your own marking symbols, such as the following:

- ♦ Make a raised plus or minus to indicate in which direction batteries should be inserted.
- ♦ Put a raised paint dot on the number “5” of a calculator key pad to help a student learn the arrangement of the number keys. Similarly, mark the “home row” keys on his computer or typewriter.
- ♦ Mark the math signs on a calculator to indicate addition, subtraction, multiplication, and division.
- ♦ Trace the figures on restroom doors, then outline them with the special paint. Tape them to the doors at appropriate heights so that the student can actually touch them in order to verify that he is entering the appropriate place. Be sure to include the words “Men” or “Women.”

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### TIP

Paint for making serviceable tactile markings is often found locally in hobby and craft shops, usually in a variety of bright colors. Use colors if the student retains color discrimination ability.

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### TIP

Use pieces of tape, Velcro® shapes, buttons, miniatures, or actual items taped on the outside of storage areas to create labels.

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Raised-letter labels may also be produced on magnetic tape or adhesive-backed vinyl tape, using a special labeling device. Typically, raised letters are not easily distinguished tactually.

A label near an on/off switch may be an important indicator. If the student helps put away clean flatware in the cafeteria, taping a spoon to the front of the spoon drawer may help him find the drawer easily and work more efficiently.

There are simplified recording devices which may be used to record identification and brief instruction information on cards. The cards may then be kept near or attached to the objects. Examples are the “Can-Do” recorder from Independent Living Aids and the “Magnetic Card Reader” from Maxi-Aids.

It is hoped, you are inspired to be creative in labeling. Be inventive in using whatever works. So let’s think about what needs to be labeled. If you understand the student and the nature of his vision impairment, you should have a pretty good idea about what kinds of problems might arise.

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### TIP

For everyone’s safety, be certain that no cords from any devices will trip anyone. This is also true for all devices used in your classroom, whether related to low vision or not.

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Undoubtedly, you have certain age appropriate behaviors in mind and expectations for the level of independence you wish all the students in your class to achieve. While the standards are probably equally appropriate for your student with low vision, the fact is that the student may need some special accommodations in order to function at the same rate as his peers. Usually, even a young student can identify a softball from a basketball, but will he remember which cupboard contains the sports equipment? How can he tell the difference between the art supply cupboard and the science supply cupboard? How can he identify which locker in the hallway is his?

Most students with visual impairments want to assume the same responsibilities as other students for accessing equipment or books, and putting them away. However, given his disability, how can that happen without wasting time, creating a disturbance, or embarrassing the student? Anticipate the difficulties as you try the simulations.



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Remember, individual differences among students with low vision will dictate how much and what kind of labeling is necessary. Teacher and student together can “fine-tune” the system.

Usually a young child requires more information and more labels than an older student in order to operate independently. Tactile marks that have a close association to the object are best. Remember the individual’s self-esteem, however. Don’t make the marks weird or embarrassingly large! Put big letters, B and G, on bathroom doors, or again, use the tight rubber band on the door handle to distinguish a specific door from others.

As a student matures and gains more experience in his school environment, he will probably not need to rely on so many labels. He will probably remember the basic shape and layout of classrooms in his school. Equipment that other students routinely handle should be made familiar to him, too. He knows what kinds of materials are expected for various subjects. After proper orientation, practice, and perhaps, a few reminders, his memory may suffice. Keep in mind, however, that rearrangement of seating, or a re-ordering of materials storage may disorient your student and another orientation will be necessary. All students experience some anxieties and need some orientation as they transition from primary grades to middle school, and on to high school. To “even the playing field” for a student with low vision, some extra attention to details, such as signage and labeling, can make an enormous difference in your student’s ability to function independently and with dignity.

### *Seating*

Where your student sits in the classroom is also very important. As with any student, consideration of the best seating arrangement for education must be part of your planning. Earlier, you read that understanding the student’s near and distance vision and his peripheral or central visual abilities is important in planning for the total educational process. Seating directly affects this student’s ability to use

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#### TIP

Awareness of the student’s most beneficial seating will carry over into other areas, such as field trips to concerts, the theater, and museums.

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his functional vision. Whether you know the student personally or not, ask yourself these questions:

- ♦ Does my student have good or poor near vision?  
If poor, the student may have to sit in the front.  
If poor, the student will benefit from sitting near the “action,” the teacher’s desk or the center of activity.
- ♦ Does my student have good or poor distance vision?  
If good, the student may be able to sit anywhere in the classroom. If poor, the student will again benefit by sitting near the “action.”
- ♦ Does my student use a telescope?  
If so, it is possible he may be able to sit anywhere in the class and still access information on the chalkboard.
- ♦ Does my student have good or poor peripheral vision?  
If good, the student might be able to sit anywhere in the room. If poor, try to place the student near at least one wall. This reduces the area the student must continually examine visually. If, for example, your student has poor peripheral vision on the left side, have him sit near a left wall.
- ♦ Does my student have good or poor central vision?  
Although the student may have good peripheral vision, he may have poor central vision. Likely, the student will benefit from being near the “action” at the front of the classroom, if he does not use a telescope. If the student has good central vision, or uses a telescope, he probably can sit anywhere.
- ♦ Does my student use assistive technology?  
If so, he will need to sit near a wall plug to use the large devices. If he uses a CCTV or computer, he may have two seats: One in the regular seating formation of the classroom and the other probably along a wall where the large technology can be kept for his use. Placing the two seats near each other will reduce the amount of movement required, the distraction to other students, and the possible embarrassment involved in being “different.”

## *A PRIMER FOR THE CLASSROOM TEACHER*

The student's desk, remember, may need to have a dark color to contrast with the light-colored paper in textbooks, worksheets, and other materials.

In arranging the classroom environment, you are already aware of potential hazards for all students and have plans to minimize them. The same is true for your student with low vision. You may use the simulations from the last chapter to explore your classroom physically. Whatever problems you have in navigating the classroom will most likely be present for the student with low vision and very likely for all students. For example:

- ♦ Is there a pattern to the seating arrangement that can be explained orally to the student?
- ♦ Does this pattern change occasionally? If so, for what purpose? Again, oral instructions will help.
- ♦ Are there any cords on the floor? Get rid of them. The assistive technology the student is using can be placed close enough to a wall plug so no one can venture between and trip over the cord.
- ♦ Are there any cords dangling from window blinds, door blinds, maps, walls and charts? If so, tape these together or place them high enough to remove the obstacle.
- ♦ Is your student's back to the window? Is the lighting adequate for his needs?

With good mobility skills and a safe, ergonomically sound environment, your student will navigate your classroom with ease and confidence.

## **CHAPTER 3 SYNOPSIS**

### **1. What is Orientation and Mobility (O & M)?**

- ♦ Sighted Guide: graceful leading
- ♦ White cane travel, including “trailing”
- ♦ Dog guides are not for everyone
- ♦ Electronic travel aids (ETAs)
- ♦ Devices
- ♦ Related O & M issues
- ♦ Sensory awareness
- ♦ Spatial relationships

### **2. What orientation is necessary outside my classroom?**

- ♦ The school building: a mysterious place without orientation
- ♦ Bus rides
- ♦ Field trips
- ♦ Other school areas
- ♦ Cafeteria: a particularly difficult place to navigate
- ♦ Playground
- ♦ Avoiding accidents in hallways
- ♦ Restrooms
- ♦ Gymnasium

### **3. What are accommodations in the classroom?**

- ♦ Lighting can really enhance my student’s visual experience
- ♦ Filters can control unwanted light
- ♦ Color is important to visual discrimination tasks
- ♦ Contrast: the most important visual cue
- ♦ Optical devices can be very useful
- ♦ Labels are necessary
- ♦ Seating can have an impact upon success

4. TIPS

5. What works for the student?

- ♦ Tactile ID for classroom door
- ♦ Tactile ID for restrooms
- ♦ Sighted Guide travel
- ♦ White cane, international symbol
- ♦ White cane, easily accessible
- ♦ Tactile and talking directional compasses
- ♦ Simulations
- ♦ State and end points for specific routes
- ♦ Tape record route plan
- ♦ Differences in bus travel
- ♦ Sighted Guide aid exiting in emergencies
- ♦ Sighted Guide language skills
- ♦ Challenge of “pull-out” bleachers
- ♦ Different lighting needs for different conditions
- ♦ Small individual lights
- ♦ Yellow filters
- ♦ Tracing lines on acetate
- ♦ Scented markers
- ♦ Color-coding
- ♦ Formats for bold-line writing paper
- ♦ Anchoring optical devices on desk
- ♦ Safety in managing electrical cords
- ♦ Paint for raised marks
- ♦ Materials for tactile marks
- ♦ Student’s most beneficial seating arrangement



## **CHAPTER 4: LET'S FOCUS ON ACADEMICS**

- How does low vision affect learning styles?
- How does low vision affect literacy skills?
- How does the computer help my student?
- How does low vision affect various curriculum content areas?
- What is the Expanded Core Curriculum?

A working knowledge of low vision and the student's eye condition will help you understand your student's needs. Planning and providing for the physical accommodations needed for O & M skills make an important foundation for the student's education. The next step is to examine academics. All of these areas come together in the Expanded Core Curriculum.

### **HOW DOES LOW VISION AFFECT LEARNING STYLES?**

Remember, intellectual ability or cognitive level is not affected by a visual impairment. If your student seems lacking in skills, the problem may be a lack of experience rather than a lack of ability. A student with low vision will probably have different experiences in life than other students. Example: If your student with low vision cannot see the clouds in the sky, her lack of experience, not her lack of ability, will make atmospheric science lessons more challenging. With adaptations and accommodations, she can learn the same material others learn. But it's helpful to be aware that learning style is most often dependent upon setting and may change with the setting. Learning styles are affected by various factors, including personality, subject matter, environment, relevancy of materials, the student (and teacher's) motivation, and type of disability.



### MISCONCEPTION

A student with low vision will be an auditory learner or a tactile learner.

### TRUTH

Actually no research exists to show that a student with low vision has any different learning styles from other students.

Therefore, you may be faced with the irony of a visual learner who has low vision.

The four commonly recognized learning styles are these:

1. Auditory
2. Kinesthetics
3. Tactile
4. Visual

Although an individual may have a combination of learning styles, one of these is often dominant. The student with low vision is no different than other students in this respect. However, the combination of vision loss and learning style may present unique challenges. Knowing the student's dominant learning style will help identify the student's needed adaptations and accommodations. The student with low vision is more likely to succeed in educational environments where a full array of program options are available (*Educating Students with Visual Impairments*, 1993). Learning is usually best accomplished through teacher-student interaction involving active participation of each.

### Auditory Learning Style and Vision Loss

The auditory learner remembers and learns best through what she hears. She enjoys word play. Example: This student will usually retain what is heard in teacher lectures. She may like to read aloud, either to herself or to you. She may do well in subjects such as languages and music.

Although she may learn from hearing your lectures and instructions, the student must still overcome the problem of using vision for practice exercises, class work, and home work. Reliance on technology may alleviate some of the problems encountered here. Allow the student to make considerable use of the tape recorder. The auditory learner will like hearing records and tapes, watching movies, and listening to the teacher. In short, listening is a prime learning method. This learner will benefit from speakers who speak distinctly and correctly. As with any student, give her adequate time to answer questions in oral lessons. Do you know that the average teacher allows only one second for an answer from a student (Quam, 1998)?

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### TIP

The auditory learner will benefit from use of a tape recorder for class work and for homework.

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## Kinesthetic Learning Style and Vision Loss

The kinesthetic learner learns primarily through concrete, hands-on experiences. If you are teaching a unit on early American settlements, for example, this student will love building the models and doing other hands-on activities. As with the other styles, kinesthetic style depends upon circumstances and settings, and that may differ from time to time. This student will enjoy making things, using computers, typewriters, and machines. She will enjoy field trips, taking pictures, and making sculpture. Like the tactile learner, she prefers learning by doing.

## Tactile Learning Style and Vision Loss

The tactile learner remembers and learns best through touching, handling, and/or manipulating. Tactile style is similar to kinesthetic. Example: If studying math, this student will enjoy and learn from using such items as counting cubes or Cuisenaire rods. Note that most students enjoy these learning methods, but the tactile learner will learn the lesson better this way. This student may enjoy art, playing musical instruments such as the piano or guitar, using computers, and participating in labs. Tactile learning style is often found in the person who puts an object together by feel and sense without reading the directions. The student with low vision and tactile learning style will benefit from learning to organize materials around her before working. Let her create the organizational structure of materials so that easy identification is possible.

## Visual Learning Style and Vision Loss

The visual learner must *see* information to process it. The visual learner must *read* the directions or see a picture of the completed item in order to understand what she is to do. This type of learner will try to take notes on what is heard because she remembers best what is seen. She may have difficulty remembering items recited orally to her, such as a phone number, a series of math numbers, or scientific formulas. She will probably do well in subjects requiring knowledge of abstract concepts such as algebra and social studies and any subject requiring knowledge of terminology.

### MISCONCEPTION

A student with low vision cannot operate machinery or use technology unaided.

### TRUTH

With proper instruction and precautions, there is little reason why a student with a visual impairment cannot operate machinery or use technology.

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### TIP

Provide tactile or auditory validation to the student who is a visual learner.

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This student may also benefit greatly from the use of technology: CCTV, print enlargement software, and computers. In addition to reading, the visual learner likes looking at pictures, watching movies, and viewing TV. She may also enjoy going to the library. Some visual learners actually picture the answers to questions by visualizing where printed words appeared on a page.

Visual perception involves several integrated factors of motor, perceptual, and cognitive systems:

- ♦ Examining an object
- ♦ Understanding the relationship among the parts of the object
- ♦ Integration of this experience into prior experiences for identification (Scholl, 1986)

In order to aid the student with low vision who is also a visual learner, provide actual objects for tactile examination along with an oral explanation of the object. Following-up with questions or other prompts will help the student integrate this new experience into her body of knowledge.

Low vision by definition tells you that your student's eyes or perceptual centers of the brain do not function in a typical way. Therefore, it follows that educational experiences based on vision alone will be incomplete. Knowing the extent to which a student's visual/perceptual problem affects her ability to benefit from the all-inclusive classroom instructions is more important than knowing the student's visual acuity (Torres & Corn, 1990).

An often quoted study has shown that we as learners retain the following (Quam, 1998):

- ♦ 25% of what we hear
- ♦ 45% of what we hear and see
- ♦ 70% of what we hear and see and do

Given this information, a teacher notices quickly that his student with low vision has a challenge! The teacher will

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want to provide alternate and/or substitute experiences for the student to achieve, at least, average progress. These experiences can be enhanced educationally in several ways:

- A. By optical devices: Provision of these devices often gives a student better access to visual information.
- B. By technology: A CCTV, computer, a cassette tape, or software program provides electronic access to print information.
- C. By experience: A walk around the area needed for spatial orientation and allowing the student to touch landmarks provides needed tactile and auditory cues.
- D. By vocal direction: An oral explanation gives the student what she needs to know to complete assignments.
- E. By any combination of these methods above

Once you know the student and her specific needs, your own creativity can fill in the rest.

Remember that a typical student may exhibit any or all of the learning styles in any given situation. The style may change with the setting. The same is true for the student with low vision.

Among the challenges facing both your student with low vision and you is how to use visual teaching methods for this student. So, let's examine the use of common visual learning methods.

### **Using Maps, Graphs, and Charts**

Throughout the years of education, a variety of subjects will require the use of "visual aids" such as maps, graphs, and charts. Mathematics, reading, science, industrial arts, and music are a few of the subjects which use these materials. The use of these aids permeates the learning environment. The student with low vision can be taught to benefit from maps, charts, and graphs if they are presented in a form which is accessible to her.

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#### **TIP**

Use oral descriptions while using a map, graph, or chart on the wall. The student will then be oriented to your discussion. Your oral descriptions will be helpful to all students in the class.

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It's beneficial to understand the student's specific eye problem. A student with tunnel vision may not be able to see the entire map, chart, or graph at once, especially if it is on a wall some distance away. The student with blurred vision may not be able to distinguish specific characteristics of these materials. A student with poor central vision may be able to see the perimeters of the materials better, but miss images in the center. In any case, a distorted idea of the content of the map, chart, or graph may occur.

One common method of making these visual materials more accessible is by using tactile materials such as "raised-line drawings." You can make your own, but be sure to allow yourself plenty of lead time. Remember that blocks, planes, and wire models can be very useful. Use the ideas from the previous section on labeling. Place a "home" row of push-pin dots along the top of a map or chart to help the student lay it out properly. As noted, these teaching aids can also be easily created with "puffy" paint or craft glue.

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### TIP

Rather than drawing a pyramid for math, history, or geography, provide a 3-D one for the student to examine tactually. Do the same for other shapes as needed in lessons.

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Encourage the student with low vision to use tactile materials to learn geographical concepts of mountains, seas, or plateaus. Topographical globes having tactile surfaces are available for general classroom use.

Along with labeling, braille can be of great assistance. Graphs can be prepared in braille. Maps could have braille print for names of countries, states, and cities. A handy guide to elementary braille is available from the American Printing House for the Blind.

A cautionary note: If you are enlarging a map, chart, or graph on a copier, trace over its lines to make them bolder before copying. Simply using an enlarger on a copier often makes lines fainter and distorted. A computer enlargement from an electronic file will usually be of better quality than from the copier. On a computer, enlarge the fonts to the desired size in bold, then print. Do not overlook your school system's Teacher of the Visually Impaired as a resource. He may have suggestions and materials already available. Some maps, charts, and graphs are available in

3-D as classroom teaching aids. If available, these materials may be quite effective with your student who has low vision and with your other students.

### **HOW DOES LOW VISION AFFECT LITERACY SKILLS?**

At all levels of your student's education, you are concerned for her ability to absorb what she is being taught. This usually involves retention of the following:

- ♦ Verbal instruction, including class discussion
- ♦ Information learned through interaction with peers
- ♦ Information gathered through reading text

How does a student with low vision retain information most efficiently? In many classrooms, teachers typically combine whole-class demonstrations with a great deal of one-on-one verbal support, asking students to check the examples displayed in the classroom. Obviously, this may be more of a problem for a student with low vision than for her sighted peers. The teacher may need to engage in more one-on-one and peer-on-one teaching with this student.

As the student progresses through school, she is encouraged to develop note-taking skills. Learning note taking skills is difficult for most students, but it is even more difficult for students with low vision. Consider the following:

- ♦ Because the physical writing of notes is more difficult and takes longer, your student may struggle with keeping-up with the flow of information. Certainly the student will feel varying degrees of stress according to the amount of information which needs processing.
- ♦ Reviewing tape-recorded class sessions allows the student to take notes at her own speed. However, this means the student has to repeat each class session later. Therefore, the assignments which follow will take still more time for her.
- ♦ Some teachers allow disabled students access to copies of lecture notes. This is usually very helpful if the student has appropriate optical devices to read the notes.



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- ♦ If the student has been taught keyboarding skills, there may be electronic devices to help her take notes or view teachers' notes. The computer allows better and more efficient access than other methods. Some helpful devices are laptop computers, Type 'N Speak, and Braille 'N Speak, and others.
- ♦ Sharing the notes of other students is unreliable at best. Students do not always agree that the same points are important, and not all students are willing to share. There may also be a problem with deciphering the notes of others, especially if the text size is small and/or handwriting is poor.

Note-taking is an important part of retaining the information offered during classroom discussion. Likewise, it is important in general study and homework when the student is expected to independently read the text material or supplementary information. The challenge low vision presents usually makes reading, note-taking, and doing homework slower. Even with optical devices, the eyes may become weary from the effort of visual accommodation. Even good students with a visual impairment will probably be delayed in completing assignments. Fatigue and stress are additional factors in the quality of work produced. Your student with low vision may take three or four times the amount of time that typical students need to complete a task.

Without appropriate magnifiers or telescopes, illustrations in the text, diagrams on the chalkboard, videos, films, and overhead projections present information that is difficult for the student with low vision to perceive. Without enhancement, these media may be a source of frustration and anxiety. Comprehension may actually be reduced. Since stopping videos or films for explanation can be disruptive, the student has only limited time to absorb the elusive material. You may ease the situation by providing advance copies of illustrations or notes. Modern technology suggests another alternative to films; in descriptive videos a narrator provides oral description of scenes and other relevant details. If your educational video is not available in this format, you or an aide might learn to provide the descriptive details as the film



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is shown. Many public libraries offer descriptive videos for loan. Check one out and learn from it how to give relevant description during the film.

The use of encyclopedias, library books, and other reference materials is expected from the early years of education. As you now know, this is even more difficult for students with low vision than for other students. Many of them tend to procrastinate and balk at doing research and just “looking up” information. Electronic technology can make the task easier. Computer technology, the Internet, software, and scanners can make information more accessible, provided the information is available in electronic format.

Reading is a problem for many students with low vision, even when they use special glasses or other optical devices. Some students simply cannot sustain adequate focus for very long. For some, the degree of magnification must be so great that they can see only one or two letters in their field of vision at once. This results in laborious reading of words one-letter-at-a-time, and therefore, comprehension suffers. For these students, lengthy sentences are a nightmare! It is a problem for the student who follows along in class and lags far behind the oral reader. She is probably also reading slowly during independent study sessions and at home, and may be embarrassed to read orally. Book reports, research assignments and term papers will probably require extra energy and time for many students with visual impairments, so patience from the teacher is helpful.

In both reading and writing, formatting is a critical factor. This too may be an area where consideration and compromise should prevail. For example, allow book reports to be in various formats: oral presentations, model building, display making, or tactile exhibit creation. An excellent way to address the problem of reading is to allow and encourage your student to use “Talking Books.”

Talking Books for the Blind is a program funded through the Library of Congress and other sources. The commonly used Talking Books program consists of fiction and non-

fiction, but sadly, most textbooks are not included. Using a headset, the student could use this resource in the preparatory steps for book reports and research in the classroom. If the student is not already registered for this program, the Teacher of the Visually Impaired will be able to supply an application. Talking Books applications are also available on-line at the National Library Services website.

The goal is for the student to learn successfully while teachers facilitate. The student must be able to access the material and information presented by the teacher. The teacher will find it a necessity to access the material the student produces in practice and testing. Fortunately, there are ways to accomplish the goal.

### **Informal Reading Speed Calculation**

Knowing the reading speed of any student is essential to the student's education. Use this informal assessment to determine the reading speed and adjust the reading level of the student with a visual impairment. This is not a formal assessment, but merely a guide to help you determine the reading capability of your student.

Choose reading material that you find to be grade and age appropriate. Be consistent. Use the format closest to the one the student customarily uses in the classroom. Use large print if it is the format the student is using. If your student uses braille, or regular print and a magnifier, be sure to allow it for this exercise.

Follow these steps:

1. Use published stories at the reading level of your student with a vision impairment. Have several passages of three hundred words each, ready.
2. Ask the student to read each group of three hundred words silently. Ask him to let you know as soon as he is finished. Ask 5 easy questions prepared previously about each 300 word passage before going on to the next one. Avoid "yes" and "No" answers. Score the responses as correct or incorrect. (Questions are to determine if he actually read the material.)

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3. In calculating, use only those passages on which the student scored at least 4 (80%) correct answers. Disregard scores of passages less than 80%.\*
4. Divide 300 by the number of seconds your student spent in reading each passage. Multiply the answer by 60. The answer is your student's reading rate per minute for each 300 word passage. You may take an average from the scores.

### *Using the Score*

Give the same informal assessment to several of the student's peers. Compare the reading rate of the student who has impaired vision with that of his classmates. Do not be surprised if his score is lower than his peers. Do not be surprised if his reading level is below that of his peers. (Longer and more complicated words require additional focusing effort. Since the student usually cannot see and focus on a word in its entirety, he must develop a strategy for remembering the first part of the word, which is out of focus, by the time he focuses in on the last part of the word.)

Most importantly, remember that a lower score does not represent lack of ability.

The lower score can represent the problems caused by low vision for this student, such as glare, eye fatigue, and the basic struggle to see and interpret the text in very small parts. Even though the score is not a formal, valid score, it nevertheless gives you a "ball park" idea of the student's reading rate. With this information in hand, it becomes easier for you to plan this student's homework assignments, classwork and other reading and writing activities.

\*If your student consistently fails to score 80% on a passage, you may have chosen material that is beyond his reading abilities. You may want to choose stories which are at a lower reading level. If you do this, remember to do peer testing at the same reading level as the student.

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#### TIP

Talking Books for the Blind, unlike recorded books available in libraries and bookstores, are rarely condensed.

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## **Literacy: Reading**

Literacy is the ability to read and write. These two “R’s” are fundamental to the education process. Traditionally, reading means seeing words produced on paper, recognizing them, and comprehending what they mean. Closely associated with reading, writing involves producing the letters, words, and symbols which are recognized by a reader and convey meaning. Without the ability to read and write, a person is considered illiterate. It seems obvious that a student with low vision or blindness is at a disadvantage if she cannot *see* to read and write in the traditional sense. Her literacy and educational success may depend on finding alternative methods or formats for reading and writing.

Professionals in the field of blind services sometimes disagree about the “best” way for students with low vision to deal with their reading and communication needs. Our federal government (IDEA, see Chapter 2) favors braille, but there are really three basic philosophies to meet this goal:

- ♦ Using braille
- ♦ Using large print
- ♦ Using low vision devices with regular print

Although there are strong arguments supporting each approach, using a combination of two or more of the above options may help most students. The Teacher of the Visually Impaired should be able to determine the best media for your student’s educational needs. A learning media assessment will provide answers for the question of which media is appropriate. There may be one in your student’s file. If not, be sure to request that a Learning Media Assessment be performed.

## ***Using Braille***

Law requires braille formats to be given serious consideration. According to provisions of IDEA (see Chapter 2), braille is the priority medium for use with students who have visual impairments. Research indicates that students with visual impairments who are braille users often have a better success rate in school and their careers than non-braille

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users with visual impairments. Proficiency in braille develops most easily when students learn braille at an early age. Consideration of this advantage for the student is required of teachers and her parents when she enters school or when the vision problem is diagnosed.

Teachers and school systems may feel concern about braille instruction and braille use because they lack knowledge and experience with braille. It is an issue that can be addressed successfully, however. An important motivator is your professional commitment to providing quality education for all students and your personal desire to help this student reach her potential. A Teacher of the Visually Impaired/consultant is a valuable resource to help with braille education.

The classroom teacher may have some of the following concerns.

### **Concern: I, the teacher, do not know braille and am not prepared to read or teach it.**

*Suggestion:* A special education teacher or a vision consultant may provide the needed instruction to the teacher. The teacher and the whole class could learn together. Most typical students think braille is fun.

Resources:

- ♦ The school system's vision consultant or teacher of the visually impaired
- ♦ Community service agencies for the blind
- ♦ Hadley School Distance Learning Program (see Chapter 7)

### **Concern: If the student submits homework in braille, I won't know how to check it.**

*Suggestion:* Technology has created a type of scanner which scans braille and translates it into voice or print, thus making braille accessible to a non-braille reader. Teachers who learn braille may also appreciate its standardization. All braille looks like all other braille so there are no problems with irregular or illegible handwriting.

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### TIP

A stylus necessarily has a very sharp point. For safety, allow only the special student to use it solely for its intended purpose.

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**Concern: Using a slate and stylus is too slow for my student to produce braille effectively.**

*Suggestion:* There are braille writers which operate much like a typewriter, and there are also electronic braille embossers that make braille from a computer command.

**Concern: Producing braille is noisy and may disturb my quiet classroom.**

*Suggestion:* Restrict the use of electronic embossers to a designated time period or areas. Adjust attitudes to acknowledge the clicks of a stylus on the braille slate and the thumps of a manual brailler as normal.

When a teacher allows and encourages the use of braille, he provides the student with an important tool. Braille is a communication system and tool to improve literacy skills, to provide opportunities for student choice, and to provide a usable system in the event your student loses more vision. Remember the year the student spends in your classroom is only a portion of her years of educational experience. Therefore, the student's success necessitates consistent reinforcement of communication skills.

### *Using Large Print*

Large print formats can also be an important accommodation. Some publishers provide "electronic books" to large print producers to aid them in providing large print books to students who need them. The U.S. government recognizes 14-point as large print, but the American Printing House for the Blind (APH) advocates 18-point as the new standard. Many people with low vision require an even larger print size in order to read efficiently, even with low vision devices. Electronic formats allow for individual differences, so the printed material may be produced in whatever size is most accessible for the individual student, within certain limits.

Font style is an important factor for access to reading print. In general, a simple, block-style font is easier to read than those with stylized curves and angles. Using the "bold"

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feature will enhance the print. APHont, a font specially designed for large print readers, is available from APH at no charge. You may download it free from the website, <http://www.aph.org>, or you may call 1-800-223-1839 to request a copy. Most students appreciate documents prepared with APHont.

Thick lines and letters can usually be identified more easily than thin ones. Therefore, your student may prefer to write with a felt marker rather than with a pencil or ballpoint pen. Lines that are too thin seem to disappear into the background of the paper. Materials “enlarged” on a copier tend to become more faint and less distinguishable. Tracing over the lines or print before copying will help, but using the computer will usually produce a more satisfactory result than the copier.

This is 12 point regular.  
(10 and 12 point are considered standard print)

This is 14 point bold.  
(Federal Government large print)

This is 18 point bold.  
(APH recommended large print)

This is 26 point bold.

This is 36 point bold.

This is 48 point.

The size of the document produced by large print textbooks and materials presents another problem. Large

### ----- **MISCONCEPTION**

**With proper eye glasses, a student should be able to read adequately.**

### **TRUTH**

**Some students need hand-held magnifiers, telescopes, and adequate training in their uses, in addition to eyeglasses, before they can read optimally.**  
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formats printed on large paper, that is, larger than 8 1/2" x 11" or other standard textbook size, may be unwieldy and hard for a student to handle. Materials of this size do not fit easily into notebooks, backpacks, or lockers. These materials may have to be folded to fit, or may require some other form of special handling. Organization is more difficult with oversized materials. Currently, many large print texts are so large that they do not fit comfortably under a CCTV, or in a student's desk or backpack. Students appreciate smaller books, but usually they are not available with large print inside. Accessible Textbook Initiative and Collaboration (ATIC), a program at APH, produces large print inside regular-sized books.

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### TIP

Provide two copies of materials, one for school and one for home, or try giving the student only sections of a book or materials to work on at one time, rather than the whole load at once!

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Large Print textbooks will contain more pages and will be heavier to carry than regular texts in standard print. The extra weight placed on a student's arm by carrying this load creates a problem, especially for the younger students. The student using a white cane and carrying this load will perform quite a balancing act! Most students with low vision are self-conscious already. Carrying around books and materials that look vastly different than those of other students may be a source of embarrassment. Do not be surprised if your student resists using large print books.

### *Using low vision devices with regular print*

Low Vision Devices are often critical to success. These devices may allow students with low vision to "read" in the traditional sense. As discussed earlier, they include a wide range of aids from eyewear and hand-held magnifiers to large pieces of equipment, such as a closed-circuit television set-up. Ask the Teacher of the Visually Impaired to help your student get optical devices if they are needed. If you do not have a Teacher of the Visually Impaired, you may want to try your local Lions Club. They often provide low vision evaluations, devices and glasses. In either case, the student should have a low vision eye exam before receiving an optical device. The device should be prescribed by a clinician with special training in low vision.

### **Literacy: Writing**

The same three major options for reading (braille, low vision devices, large print) are available with written communication. The act of writing is easier when the writer can see how she is forming the letters on the page. Low vision devices can assist with the task. Depending on the severity of vision loss, however, other related difficulties may not be easily resolved by the use of optical devices alone. For example, if a student is required to fill in a blank, she may read the question or statement and be able to locate the response line using a magnifier. But she must then hold the print very close to her lens. The problem occurs when she tries to hold the focal point while also holding the place on the line to write the answer. The shift of hands adds time to this exercise. Remember that the student's ability has nothing to do with the time involved in writing the answer! This process is awkward and time-consuming. The student may need to write without reading her text then check what she has written with a magnifier.

For a student with low vision, large print may be easier to write than smaller, more standard-sized letters and words. If the student uses a felt-tip marker for writing, the handwriting will be larger, easier to identify, and easier for the student to align on the page. This assumes, of course, that adequate space has been provided for large print responses. Some students may prefer to type or write small. There is plenty of room for individual choice.

### ***Handwriting***

Traditionally, students first learn to print upper and lower case letters, then learn cursive writing. Until recently, few young students learned typing and computer skills informally on home computers. More formal, organized instruction for typing and keyboarding often existed only at middle or high school levels. As home computers become more commonplace, schools have responded by providing keyboarding instruction at earlier ages. Still, there are many reasons to support instruction in all forms of written

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#### **TIP**

A progression for teaching writing may be this:

1. Touch and manipulate pre-formed plastic letters often sold as toys
  2. Form capital letters from clay
  3. Write capital letters using Quick Draw Paper
  4. Use templates to write letters, conforming size to space in the template
  5. Refine the process
-

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### TIP

All braille looks alike. Unlike handwriting, braille can be identified tactually without use of vision.

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communication, including braille. Consider seriously what the most practical methods for your student who is visually impaired may be. Discussions with the student, parents, and other faculty may clarify priorities and create consistency as the student progresses through school.

Is it important that your student with visual impairment have perfect handwriting? Keep the functional goals in mind. To accomplish them, accommodations may be beneficial. If the goal is for the student to be able to use a handwritten form of communication, then is it really important that she MASTER all the conventional forms taught? When deciding what is acceptable for homework and for grading purposes, some compromise might be reasonable. The goal is for the student to learn to produce written communication easily, efficiently, and legibly.

Often teachers use specially-lined paper featuring both light and bold lines to help students judge the size their letters should be. A student with low vision may have difficulty seeing the lines. Bold line paper is available from APH and Independent Living Aids. Even with bold line paper, learning the proper formation of the cursive alphabet letter may be extremely difficult for your student.

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### TIP

Create your own writing templates. Use cardboard, plastic, or very stiff paper. Cut out the appropriate areas for writing or drawing.

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There are some inexpensive assistive devices which may help your student learn to write. She may carry a signature guide with her throughout her entire lifetime. It is a template with a cut-out space where the signature should be written. A sighted person simply places it on the line or spot to be signed, and the person with low vision writes in the appropriate space. There are other templates for other purposes. Letter writing guides, envelope guides, and check-writing guides are just a few of the templates available. You can create templates yourself for school needs.

Teaching typing or keyboarding to a student with low vision at an early age is to her advantage. Because producing and accessing legible handwriting is often difficult and time-consuming for her, typing or keyboarding may be an important alternative. Reading a machine-printed

homework assignment might be much easier for the teacher to grade. As students develop note-taking skills, there are electronic devices to make the task more efficient. The Type 'n Speak, is one example of a small, portable device into which the student types notes, does an assignment, or writes an essay. It may be operated with an earphone so it will not disturb others. A synthesized voice announces each key as it is typed and there are commands to read back a line or a paragraph. The information may then be downloaded onto a computer or printer.

### *Spelling*

Spelling is closely related to both reading and writing. Spelling is often difficult for students with low vision because they may not see printed words accurately or have a good visual memory. Blurred images may make some individual letters hard to distinguish or impossible to read. The shape of a word may be perceived inaccurately by a student with low vision, so she cannot use this important clue as effectively as other students.

When a student relies on verbal cues more than on visual ones, proper spelling tends to be sacrificed for phonetic spelling. Your student must learn the rules and patterns for combining letters to represent sounds. Writing or orally spelling words over many times letter-by-letter is usually helpful. She may balk at the idea, but it is a good way to reinforce the proper spelling. For consistent accuracy, electronic dictionaries and other devices including computer features such as spell check and thesaurus are convenient. There are many special computer programs and audio tapes available to teach students, even very young ones, about typing and computers. Learning to use them efficiently, without looking at the keyboard, from at an early age will make accuracy and correctness possible. These habits will then become lifelong.

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#### TIP

The lengths of words in braille are often very different from their print counterparts. Some braille symbols represent groups of letters or an entire word.

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## **HOW DOES THE COMPUTER HELP MY STUDENT?**

### **Computers and Accessories**

We live in a computer-dominated society. As adults, most of our bills are generated by computers, as are our paychecks. Computers determine what's wrong with our automobiles. They regulate many forms of transportation. Few people can get by these days without computer technology touching some aspect of their lives. Students who are aware of computers are often fascinated by them. Many learn to play computer games, and they grow up with the technology. Many households today have computers in the home.

Most schools have entered into the "Age of Technology" and offer access to computers and computer instruction in computer labs and individual classrooms at nearly all grade levels. Because the technology is relatively new and still changing rapidly, there are not yet standardized curricula for computers in schools, as there are for other subject areas. There is no general agreement about how to provide computer access to all students who need it. Access varies widely from school district to school district, especially for the student with a disability.

A personal computer (PC) or laptop is a very useful piece of assistive equipment for a student with a visual impairment, and every effort should be made to see that your middle school or high school student has one for these reasons:

- ♦ Learning keyboarding at an early age will be an important life-long skill needed for efficient progression through high school, college, and other educational levels.
- ♦ Development of good computer skills may be an important, marketable job skill for later life.
- ♦ Assignments produced on a computer are more easily read and checked by a teacher or classroom aide.
- ♦ Accessing materials using a computer with related software and devices may be a more efficient system for students with low vision to do their work.

### **Computer Accessibility**

In order for a computer to be made truly accessible, however, some additional accessories, both software and hardware, may be needed:

#### ***Keyboard Labels***

Adhesive-backed labels are available featuring large print and/or braille. They are applied directly to the keys. Use contrast to your student's best advantage. Some labels are black on white, while others are light-colored on a black or dark background. These may be especially helpful while a student is learning the keyboard and finger reaches. However, remember to remove them before the student becomes dependent upon them. There is research to support the claim that typists who do not look at the keyboard type faster and with more accuracy.

#### ***Other Keyboard Modifications***

There are specially-designed keyboards to accommodate different needs. Some students who are visually impaired also have other disabling conditions. Some keyboard variations include color-coded keys, extra-large sized keys, one-hand designs, and ergonomically arranged keyboards. Distributor catalogs, rehabilitation teachers and therapists may offer suggestions.

#### ***Voice Input Devices***

Sony and Olympus are two manufacturers that offer recording devices which allow for speech-to-text transcription. Using a link to a PC, recorded messages can be downloaded onto a computer. Naturally Speaking, from Dragon Dictate, is one program that allows users to enter data into the computer using voice, instead of a keyboard.

#### ***Computer Screen Magnifier***

Generally these devices fit over the computer monitor. They are made from a frame and tempered glass or acrylic. Often the glass contains a filter which reduces glare problems. Similar devices are available to enlarge images on a television screen, but they are NOT usually interchangeable. ZoomView, an APH product, is interchangeable.



### ***Screen Content Enlargement Software***

Many software packages such as Microsoft Windows, have incorporated features which allow some adjustments for enlargement of icons and text on the monitor. When this is not adequate, there are other software programs such as Zoom Text, MAGic, and Magnum, which will enlarge the image on the monitor to 20 times its regular size. Programs such as these are sometimes available at local software outlets. Low vision specialists, rehabilitation teachers, and staff at centers where blind services are provided can probably supply resource information. Distributors such as those listed in the resource chapter of this book may also be helpful.

### ***Large-Screen Monitors***

When icons and text are enlarged, the field, or amount of text seen on the screen at one time, is reduced because of the larger print. When a high degree of magnification is necessary, the student may see only a few words or part of a long word. A larger monitor provides more space for the screen display so more text can be seen at one time. Standard-sized monitors of 12" are common. People with low vision usually find that 19" and 21" monitors better accommodate their needs. Often laptops can be plugged into large monitors at home or at school for more portability and a large image.

### ***Screen Reader Software with Earphones***

A student who uses screen content enlargement software may also benefit from having access to a screen reader. This becomes particularly important when she has difficulty sustaining focus or when her eyes tire easily. Students who are severely impaired may find the voice more useful than the magnified print. A synthesized voice announces what appears on the monitor screen. Technology has improved the quality of synthesized speech so that it is now easily understood. Using simple commands, the user can hear a whole word, line, sentence, or paragraph. Other commands will generate a verbal spelling of a word letter-by-letter. Using the screen reader, the student can access spell checking and other system features. Ear phones for private



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listening are strongly recommended for the school setting. Window Eyes, and JAWS, are two of the most popular screen reader programs. ZoomText, provides both screen content enlargement and screen reader in one software product.

### *Scanner Hardware and Compatible Software*

A scanner will be greatly appreciated when needing to provide access to textbook material, library books, standardized tests, and other printed materials when no human reader is available and no cassette has been produced. Currently scanner technology is limited to typed or printed text. Freedom Scientific, J. Bliss, Inc., and Kurzweil are three manufacturers of software programs specifically designed to be used with scanners. These programs are compatible with most scanners, but it may be wise to contact the manufacturers of your scanner about the scanner software they recommend. Scanners with OCR software utilize synthesized speech to read material that is scanned on the hardware device. Scanned material may also be downloaded into a computer file and enlarged on the monitor. Synthesized speech is not quite as human-sounding as a live reader or a cassette recording, but it can be very useful, and your student will soon become accustomed to the synthesized voice.

Some scanners are stand-alone models and can “read” materials independently of a computer. Other scanner models are designed to be used only with a computer. Having the ability to link to a computer is helpful, however, and offers more flexibility in manipulating the text for printing or embossing in braille once it has been downloaded.

### *Special Scanners*

Recently a new kind of scanner has become available. It scans braille and translates it into speech and/or print. This is especially important for teachers who do not have strong braille skills. When braille is the primary form of communication for a student, she may produce her work in braille, and using this new scanner, the teacher or aide can check her work more easily and accurately than ever

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### TIP

Memory required for handling the accessory equipment and software will dictate the total size of memory needed for the computer. The average computer salesperson is probably not qualified to judge this need. Ask the Teacher of the Visually Impaired, the technology accessibility expert, or follow the software manufacturer's recommendations.

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before. Remember, according to the mandates of IDEA, (see Chapter 2) students who are visually impaired should be provided with braille opportunities. Availability of equipment of this type makes braille less formidable for teachers.

### ***Braille Embosser Hardware***

Braille is not a print medium, but an embossed medium. Machines which produce braille are called braille embossers. They produce braille very rapidly. Text and documents entered into a computer may be embossed in raised-dot braille format using such a device. This technology is useful to students for whom braille is the primary form of communication. They are also helpful to school staff members who want to provide materials in braille. Text is entered into the computer using a conventional keyboard. Print appears on the monitor. Instead of sending the file to a regular printer, however, it is sent to the braille embosser to produce braille. Braille embossers tend to be noisy and sound like popcorn popping. Using a braille embosser in a classroom setting could be disruptive. Look for a more isolated location for it, or purchase a sound proof case, which is available from the embosser's vendor.

(There are other methods for producing braille that are discussed in the section on literacy formats.)

### ***Mouse: Haptic equipped***

Recently, *USA TODAY* presented a technology column on a newly developed product called the Haptic equipped mouse. Oddly enough, this technology was first developed for use in computer arcade games. This mouse gives a tactile sensation when passing over icons or other material. As the cursor passes over things on the screen, the user feels bumps. The bumps identify icons for the user. This new technology might be especially valuable to those students with blurred or unsteady vision.

### ***Other Computer-Linked Equipment***

Technology is changing and introducing new equipment so rapidly we can neither possibly list all of the equipment

available today, nor can we speculate about what may be available tomorrow. The possibilities are endless, and the potential is exciting. The success of a student with a visual impairment involves a number of people working together for her common good. The teacher, auxiliary school staff, parents, doctors, and resource people are needed to work with the student to make her success attainable.

Access to computers at school is a critical concern. Maximizing the effectiveness and efficiency of computer access may be enhanced by using other devices. The Braille 'N Speak, Type 'N Speak, and other similar devices are relatively small, lightweight, portable keyboards with speech output and earphones into which students may enter notes, or do assignments. Text from the device may be maintained in its files and/or downloaded into a printer or computer. These devices are critical in providing methods for note taking, and information retrieval when the student is away from the main classroom computer.

Because computer and related technologies are changing rapidly, it is difficult for most school systems to provide an ideal number of computers for all students who need them and still keep up with advancements and upgrades. Yet, computer access and training is critical for students who are visually impaired. Computers help alleviate frustration involved in producing work in a timely manner, and provide critical support to both teacher and student.

In summary, consider that written communication may pose a problem for a student with low vision. Think about her long-term goals and what method will prepare her best to communicate with the people in her life and progress in her academic environment. Then take the courageous step to implement those methods.

### **Tests and Homework**

In all-inclusive education, formats for classroom assignments, homework and tests often vary. However, this need not be an insurmountable problem for you or your student.

#### **MISCONCEPTION**

**Once the student has a computer with needed accessories, she should be able to function better in her environment.**

#### **TRUTH**

**She must be allowed the extra instruction and practice time needed to learn to use the programs efficiently.**

## TEACHING THE STUDENT WITH A VISUAL IMPAIRMENT

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### TIP

Give necessary information for student safety to all school personnel involved with your student.

Teachers, aides, cafeteria workers, librarians, custodians, office staff, all need to know how to safely assist the student with a visual impairment.

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Most states are now working to put standardized tests into accessible formats for students with visual impairments. These formats include large print, braille, tactile graphics, audio recording, and sometimes providing readers to read tests and record answers for the student. Every effort should be made to provide students with disabilities test environments that allow them to function as fully as possible, and not penalize them for their physical differences. This often involves allowing extra time for test taking.

Tests, homework and assignments in the classroom, initiated or conducted by the classroom teacher, need not present insurmountable problems. If your student uses a magnifier or other optical device, chances are he will be able to use the same blackboard or printed assignment/test sheet used by your other students. If your student is a user of large print, you may easily enlarge the text by enlarging the font on your computer word processing program. If this option is not available, you may enlarge the text on a photocopier. If the photocopy is blurry or faded, you may make a hand-printed copy with large letters from a black felt tip pen. You also have the option of using audiotape. You may record the questions or assignment on tape and give it to your student, who may respond in print or by taped message, whichever you prefer. Again extra time should be allotted for tests, and busy work should be reduced to a sample of questions or problems that represent the concepts to be learned.

Many textbooks now provide a CD containing worksheets, tests, and other materials. If you use the CD in your classroom computer for your student with a visual impairment, you may save considerable stress and time for both of you. If your student has a CCTV, she may use it to enlarge tests, class assignments and other materials. Be certain that text, pictures, graphs, maps and charts are bold enough for easy identification under magnification.

## **HOW DOES LOW VISION AFFECT VARIOUS CURRICULUM CONTENT AREAS?**

Your student will sometimes have to attend classes in other classrooms, especially in middle and high school years. In elementary grades, she may move to other classrooms for music, art, and P.E. The accommodations needed in various subjects are highly diverse. Allow the student to explore various media. Many students with visual impairments enjoy art and are good at it.

### **Art**

The student with a visual impairment may truly enjoy art as much as any other student. Art has many tactile elements like those found in sculpting, carving, weaving, model making, and bead stringing. A student with a visual impairment may not be able to distinguish colors as well as other students. Large print or tactile labels may be applied to paint pots, spools of thread or yarn, sculpting supplies, or bags of beads. Hazardous materials, such as paint thinner, should be also be labeled with large print or tactile markings and in addition should have the international symbol for poison applied.

Tactile markings can be made with puffy paint, swell paper, glue dots, Hi-Marks™. The markings can be as simple as or raised-line initials, braille made from glue dots. If your student is a user of some braille, she can easily make the labels on index cards using her braillewriter. The labels can then be attached to the materials with rubber bands.

The student with a visual impairment will appreciate projects such as building scale models, mobiles, sculpting with clay or paper mache'.

But it can sometimes be surprising how many students with low vision enjoy drawing, and painting in oil and watercolor and excel using those media. Allow your student to explore various art media.

## **Drivers' Education**

Drivers' education is a very sensitive subject. Students with low vision are as eager to drive as other teens. Driving launches a teen into the adult world and provides a level of independence beyond any previous experience. Driving is often linked with dating opportunities and social transition. Because driving requires additional responsibility, emotional issues are often involved. Your student might be fearful that she will not even qualify to learn. Her low vision clinician may offer valuable advice about whether to pursue drivers' education. In some states bioptic driving is permitted, and your student may actually obtain a driver's license.

Bioptic lenses are special devices, usually dispensed by low vision clinicians. These bioptics make driving possible for some individuals with visual impairments. In most states where bioptic driving is permitted, special, certified driving instructors provide training for the specific techniques needed to drive successfully using bioptics. It is generally true that, by law, all students who qualify must be provided the same opportunities for driving. Check with your State Department of Education for specific requirements to determine eligibility. The nature of your student's vision loss, your state's laws regarding vision requirements and bioptic driving, and your state's requirements for trainers will help make a determination.

## **Foreign Languages**

Foreign languages in spoken form do not present unusual problems for the student with a visual impairment, or his teacher. But the written form may call for a little creativity. As in other subjects, the student may benefit from large print, the use of a CCTV or other electronic enlargement device, or the use of standard print with hand-held magnification devices. If your student uses braille for written communications, he will use uncontracted braille for foreign language studies. He must also learn the alphabet of the language he is studying as well as symbols for those letters, which are accented or treated in a special way such as the accent symbol, or the umlaut.



## A PRIMER FOR THE CLASSROOM TEACHER

The Teacher of the Visually Impaired can be most helpful as part of the language-teaching team. He will be able to provide information about braille formatting for foreign languages. One good resource is a booklet published by the National Library Service for the Blind and Physically Handicapped called *World Braille Usage*. This resource gives braille rules and guidelines for several languages.

The language laboratory provides excellent access to the student with a visual impairment to pronunciation, emphasis and idiom of the spoken word. The use of synthetic or computer speech for the learning of language is discouraged because it sometimes excludes those necessary features.

If maps are a critical portion of foreign language studies, maps should be simple (not more than three layers of information on one map,) high contrast, and in color. If the map is converted to large print by photocopy enlargement, take the effort to appropriately color the map, then highlight political boundaries with a dark felt pen. This action can provide better access to your student with a visual impairment.

### Industrial Arts

With appropriate accommodations, subjects related to industrial arts such as woodworking, leather tooling, and small engine repair, can be provided quite successfully to your student. Accurate labeling of tools, workspaces, stored materials and parts, are critical to safety and success. You and your student can benefit from having the Certified Orientation and Mobility Specialist visit to help acquaint the student with the workshop, location of machinery and materials. Navigating in a workshop can often be tricky when other students are handling lumber, or when electrical wires run across the floor or other open spaces. Try to keep these hazards in mind when planning for the successful experience of your student.

If the student is to use any machinery, special care should be taken to acquaint the student with the machines. Special raised dot markings, or large print labels may be necessary to show the student where she may place her feet, hands, or

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#### TIP

Assist the student in giving a short demonstration of her equipment to the class.

Illustrate how it is helpful. Allow others to try out the equipment. This will help the student seem less mysterious.

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fingers. One-on-one teaching is preferred when acquainting the student with machinery which has movable parts that are exposed. Again, the Teacher of the Visually Impaired may be of assistance to you in this endeavor.

Specially adapted measuring devices, both tactile and vocalizing, exist to help persons with visual impairments. Also available are special switches, devices to cut and find edges. Additional products such as special guards for saws, nail guides, lighted and magnetic screwdrivers and talking levels can be found from vendors who sell products for the blind and visually impaired. Remember, even a student who cannot see the materials or machinery, may successfully and safely learn to use them if access, attention to safety, and careful training are given.

### **Home Arts**

This area of the curriculum may be identified by various names: home economics, life skills, and homemaking. Whatever the course, your student will benefit as much from this as any other student, and it will give her some important skills for independent living. Appropriate labeling of class materials, equipment, and storage areas is important. A wide variety of assistive devices are available for cooking, sewing, health and care-giving, and household maintenance. Don't overlook the usefulness of organizational equipment such as writing guides, templates, materials for financial planning, and other special areas incorporated in the home arts curriculum. If your student's home arts curriculum includes cooking and/or sewing, make sure the student receives one-on-one instruction with stoves, ovens, waffle irons, blenders, steam irons and sewing machines, all items for which safety is an issue. Make sure all items have tactile guides and markings on them. See the Materials Tote for diagrams related to making tactile markings.

### **Mathematics**

In modern math education, students move from general computation skills, to learn measuring, graphing, quantities, and the symbols to express these concepts.

Early research by Nolan (1959) and Brothers (1978) taught us that students with visual impairments often need more time than students without visual impairments to become skilled in math computation. The reasons for this are varied and complex. Two reasons emerge as things, which can be improved.

First, textbooks, especially those in math are often difficult to get in large print and braille. Textbooks in these formats can take months longer to arrive than textbooks in regular print. During that time, a student can lag far behind the others, or get lost entirely. For this reason, the student who is a user of optical devices has an edge. However, in the near future, the American Printing House for the Blind will be producing large print mathematics books much more promptly through the Accessible Textbook Initiative and Collaboration (ATIC) project. ATIC plans to also provide math books in braille thereafter.

The second reason that students with visual impairments take longer to learn math computation skills is that often mathematics books have books in which certain concepts are linked to the languages of color and spatial arrangement. Here's an example of a typical counting question: How many green birds are on the branch? One could expect the student with a visual impairment to answer this question wrong for several reasons:

- \* Most large print books have no color, only shades of gray, so if there are, say two blue birds and two green birds, the student might fail the question.
- \* If three of the birds are large and one is small, the student might not see the small bird or may not recognize it as a bird and may fail the question.
- \* The student's visual condition may mean that he has never had color vision and no concept of color, and thus may fail the question.
- \* The student may have no concept of "on" or "on the branch" and therefore may fail the question.

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### TIP

Graph paper and other special materials should have bold lines. Graph paper may help in lining up numbers for computation.

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Some students may not be able to use visual graphics to assist them in computations. Some students may need tactile representations of graphs, charts, or diagrams. This requires the help of a braille transcriber who is skilled in the development of tactile graphics. Providing a tactile graphic to a student, however, is not always the answer. The student needs to have been taught how to read and use a tactile graphic; otherwise it will have no meaning. Sometimes it is more feasible to substitute actual items, such as feather-and-foam birds from the fabric store. Using three-dimensional items that the student can experience tactually, visually, or both, usually leads to successful learning of concepts. For this reason, development of magnetic shapes, figures, numbers and letters are often helpful. Cuisenaire™ Rods, blocks, pegs, balls and sticks are also useful. Most computations can be arranged using print or braille symbols on magnetic tape affixed to a cookie sheet.

Many adapted aids such as geometric shapes, blocks, and pegs are available from the American Printing House for the Blind. Other non-adapted aids (such as Cuisenaire™ rods) are also useful sometime and may be found at stores that sell educational supplies.

As with most children, the student with a visual impairment must first learn to count and must realize the correspondence between numerical values and the objects he is counting. Numerous assistive aids, including the Number Line from APH, the standard abacus, the Cranmer abacus are available for this use. These aids are called manipulatives. Once counting is mastered the student may move on to measuring. Again, numerous devices are available to help the student measure temperature, volume, weight, and distance in both metric and non-metric values. Most of these devices have printed as well as tactile markings, so the teacher does not need to know braille to assist the student in their uses. (Scholl, 1986)

The cooperation between the classroom teacher and the Teacher of the Visually Impaired is often crucial to the success of the math student who has a visual deficit. The Teacher of the Visually Impaired can provide practice time

and one-on-one tutoring for the student, and can help the classroom teacher select representative samples of math computations and problems for the student to calculate, thus eliminating some busy work that might overwhelm the student. The Teacher of the Visually Impaired can also teach the student to use the abacus if necessary. Using the abacus, allows the students to manipulate values in a tactile way until mental math computation skills can be mastered.

For fractions, pie charts made of inexpensive foam, nested boxes, and various lengths of soda straws can all be employed as inexpensive tools to demonstrate the concept of fractions. These same tools can often be used to learn decimals. Soda straws are especially helpful because, within limits, they can be cut into smaller and smaller parts.

### **Computer Uses for Math**

Lots of software now exists for teaching and learning math on the computer. From a simple electronic calculator, to talking graphing calculators, to tutorials and educational games, all can be helpful in teaching math concepts to the student with a visual impairment. Since it is difficult to use optical devices with a monitor (though some minor display enlargement hardware exists), it is usually helpful for the computer used by the student with a visual impairment, to have a monitor that is at least 18" in diameter and display enlargement software. Special math computational software called "Math Flash" is available from APH, but much commercial software is also useful.

If your student is a braille reader she may need to use the braille code designed for math. This is called the Nemeth code. This code uses the basic braille cell arrangement (two columns of three dots each) but gives different meanings to the arrangements. This code is slightly different from computer math code. The Teacher of the Visually Impaired can help you understand the codes, if necessary, or can suggest different media for the student's answer sheets. Often students work their computations in code and record their answers on tape for their teachers to review.

In teaching math to the student with a visual impairment, individual attention to the student and excellent cooperation between the classroom teacher and the Teacher of the Visually impaired offers the student the best chance for success.

### **Music**

A student with a visual impairment can learn to read music and play an instrument. There are some differences. Music notation may need to be enlarged by using a computer, by writing it large on the chalkboard, or by projecting heavy, bold music up on the wall using an overhead projector. Optical devices are also useful for reading music. However, the student who needs these adaptations usually cannot read music fast enough to sight read, or to play on tempo while looking at the music. For this reason, the student will usually need to memorize the music before playing it in the band or orchestra, or even solo.

Lyrics can be viewed with optical devices, or by use of large print while singing. They can also be learned by listening to taped renditions. The music director can use a tap on the music stand to signal the tempo and can countdown to the beginning of the song so the voice student has an audio clue to begin singing.

There is braille music notation, but as with Nemeth code, it takes some time to learn the meanings of the cell arrangements, and to read. Some braille tablature exists for the student of guitar, bass, or certain other stringed instruments, and though there are some standards regarding braille tablature, there is no single "adopted" format. Some braille music and tablature is available from the National Library Service.

As with any beginner, the student with a visual impairment should be allowed to explore several instruments, including voice, to find the one which best suits her physical abilities and talents.

### **Science**

Modern science curricula usually center on the basics of scientific inquiry: hypothesis, experimentation and observation, collection of data, analysis, reporting and application of findings. Today's student must also be literate in modern technologies in order to access much of the scientific information, which is available to her.

The topics to which scientific inquiry is applied differ somewhat from state to state, and change with grade levels. Third graders in one state may study the climate, while those in a nearby state may study plant life. Today the National Academy of Science has written guidelines for the states to follow in educating their students in science curricula. High school graduates are expected to have basic understandings of physical science, life science, earth and space science, science and technology, science in personal and social perspectives, and the history and nature of science.

One thing is certain. Students with visual impairments need to use what vision they have, but to experience and learn from the process of scientific inquiry; other sensory channels should be employed. This technique is called "the multisensory approach" and should be used whenever possible. These students will find more meaning in handling magnets to feel magnetic attraction and repellant forces. They will understand better the concepts of evaporation and condensation if they have direct interaction with the materials and processes, which cause evaporation and condensation. Students with visual impairments rarely learn as much from distant observation as they do with direct interaction. This is true of most students. However it is much more critical for the education of a student with a visual impairment than it is for students with typical vision, especially if the student is to make quality judgements from her observations. All sensory channels should be employed in this effort.

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#### **TIP**

Don't move your materials or furniture without telling your student where everything is now located.

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## *TEACHING THE STUDENT WITH A VISUAL IMPAIRMENT*

As a classroom teacher, you can access the help of the Teacher of the Visually Impaired to:

- help you develop experiments, lessons, and processes that will employ other sensory channels along with the visual channel in teaching science concepts,
- assist you in designing materials to take advantage of your student's style of learning,
- help you label, mark or acquire accessible measuring instruments for your student with a visual impairment,
- help you acquire tangible objects, large print and high-contrast materials,
- recommend tactile textures and materials,
- assist you in the development of accessible formats, for reading and reporting (audiotapes, large print, posters, models, etc.)

In experiments that may be highly visual or have an element of danger, the student may benefit from individual instruction before and during the laboratory phase of the experiment. Remember to give olfactory, tactile, and auditory cues whenever possible. The more your student can interact with scientific principles and processes, the better window she has on the world.

### **Social Studies**

Social studies are usually textual in format with accompanying globes, maps, charts, pictures, diagrams and graphics from a wide array of graphical possibilities. Text should not present a problem to the student with a visual impairment. She may read it in whatever medium she is accustomed. But the other graphical material should be given a great deal of thought when being presented for a student with low vision.

Most graphics of the aforementioned types are in color. Some large print materials are merely black and white enlargements of pages from the social studies textbook. They do not contain the element of color. Yet, a study by the American Printing House for the Blind (Kitchel & Evans,



2000) shows that students with visual impairments, depend upon color to help them differentiate meaning in graphics, as do students with normal vision. Without the same color cues that her peers have, the student with a visual impairment is at a distinct disadvantage in interpreting graphs, charts, diagrams and other graphical material. Care should be taken to reproduce enlarged materials in color. Where this is not possible, color may be applied by hand after enlargement. Maps and globes are particularly difficult. Even with enlargement, some map elements are still too small, and many are too busy for the student to adequately interpret, even with magnification. Remember that good visual contrast and elimination of unnecessary information from the graphic are the goal. You may wish to white out elements of the map that are not used for a specific task, or you may want to make certain lines in the map bolder, or both. Guidelines for the production of maps for students who are large print users are under development at the American Printing House for the Blind. You may call there for advice or consultation in developing maps for your student with a visual impairment. (800) 223-1839.

A tactile globe, a large puzzle map of the United States and materials to develop map-reading skills are available from APH. If your student needs tactile elements added to her maps, charts or diagrams, a variety of helpful materials and techniques exist. The Teacher of the Visually Impaired can help you identify which ones would be most appropriate for your student. Be aware that even if your student can see or interpret separate sections or pieces of a graphic, she may or may not be able to understand the graphic as a whole without some individual assistance.

Social studies is one curricular area in which the format usually lends itself well to oral reports. Your student may appreciate the opportunity to turn in her homework, reports, or even essay exams on audiotape. This saves the student time and lessens her fatigue during the preparation phase. Still the work of the student with a visual impairment, though in a different format, should be held to the same accuracy standards as the work of sighted peers.

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### **TIP**

For a person with low vision, **EVERYTHING** takes more time and more energy! Helping your student accomplish her goals efficiently is a boost to her self-esteem.

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## **Recreation and Leisure**

At all ages, recreation and leisure activities are important for the physical, social, and emotional well-being of students. These activities support academic endeavors. It is inaccurate to assume that a student with low vision cannot participate. If asked, the student should be able to tell you what she will need in order to participate fully.

Flashcard contests are popular in many elementary classrooms. A teacher pulls up a card while two or more students compete to be first with the correct answer. As an accommodation, the teacher can move closer to the student or he can ask the competing students to come closer to the card. When a student's vision is too restricted, mark the cards with raised lines or braille and allow the student with low vision to "flash" the card. In either role, as contestant or "teacher," she will be reviewing the material.

Classroom games and supplemental materials may also be adapted to include the student with low vision. Use techniques discussed in the labeling section to outline game board spaces and to make tactile game pieces. Cards containing instructions to be followed, such as those found in Monopoly, may be adapted in a variety of ways: The cards may be brailled; instructions may be recorded on special cards with magnetic strips which can then be played in the Can-Do-Recorder, or cards may have raised characters added by using fabric paint or white glue. Glue squares of sandpaper to either the red or the black squares on chess or checker boards so that spaces may be identified tactually. Many games may be modified easily and inexpensively, thus allowing all students to play together. Some games, adapted commercially, are available in distributor catalogs. Some games like Skip-Bo, have very large, colorful numbers. Pre-adapted games like Scrabble, are available from various companies who make products for persons with visual impairments. Even computer games are now available for students with visual impairments. The American Printing House for the Blind has released its first arcade-style computer game, Termite Torpedo, for use by students with low vision and students with blindness. See the resource

## *A PRIMER FOR THE CLASSROOM TEACHER*

section in the back for contact information. These types of games are good for many players who are visually impaired.

Young children with low vision may need help orienting themselves in active physical games, such as circle activities. Teach them to keep oriented by finding identifiable landmarks. Similarly, some preparatory thought will be of benefit in helping the student participate in group games outdoors. For example, use balls with audible sounds and bright reflective tape, or “callers,” to mark bases.

Encourage your student to find friends by listening for their voices. By learning to listen, she can identify the games or activities around her. Listening to the sounds of playground equipment can help make decisions about safety. For example, many swings squeak a little as they move back and forth. By listening to the squeak and feeling the air movement, a student may judge a safe approach to the swings.

Recreation and leisure are important elements of education. Recreational activities stimulate the production of endorphins and are healthy for mind and body. Students learn to make choices about free play and discover how to socialize with other students during recreational periods. Many students with visual impairments excel at swimming and wrestling, two sports in which vision is not essential. Students who have had these opportunities are more likely to continue to be active as they mature. Learning to adapt games and activities is an independent living skill valuable throughout their lives. Sensitivity to your student’s needs and accommodations will promote success in any area of the curriculum, even recreation.

### **WHAT IS THE EXPANDED CORE CURRICULUM?**

At this point, you are aware that your student with a visual impairment will receive a quality classroom education *only with appropriate accommodations, technology, and specialized materials and equipment*. These areas address the special needs of your student in learning academic, social, recreational, and independent living skills. Together with

your state's required "core curriculum," these areas constitute the Expanded Core Curriculum. The Expanded Core Curriculum is addressed in Issue #1 of the National Agenda. The National Agenda, including the Expanded Core Curriculum, is the policy adopted by the National Association of State Directors of Special Education.

Let's examine the meaning and importance of the Expanded Core Curriculum. In a letter dated November 3, 1995, addressed to all Chief State School Officers, the Office of Special Education and Rehabilitative Services (OSERS), The U.S. Department of Education gives the states' Chief Officers guidance for programs relating to visual impairments and other disabilities. OSERS asserts in this letter that as a part of Free and Appropriate Public Education (FAPE) mandated by IDEA, students with visual impairments have a right to placement in the regular classroom with appropriate accommodations and specific support services. These accommodations and support services include braille instruction, O & M training, technology instruction and use, access to large print, optical devices, and other adaptive equipment.

Accommodations and support services are not limited to the core curriculum. In other words, the Expanded Core Curriculum includes both the core subjects plus an expanded curriculum covering the special needs of students with visual impairments or blindness in order to achieve success. The idea of an expanded curriculum is neither new nor innovative. Grooming skills are referred to in curriculum for the visually impaired dated as early as 1891. The need for learning social interaction skills appears in a curriculum literature of 1929 and 1948. Between 1953 and 1975, more than two dozen books and articles appeared concerning the teaching and learning of daily or independent living skills (Pugh & Erin, 1999).

While thinking about the expanded core curriculum, consider the following sample questions and how they relate to your student's success:

## *A PRIMER FOR THE CLASSROOM TEACHER*

- ♦ Assuming your core curriculum includes basics such as reading, writing, and mathematics, does your core curriculum address how your student with a visual impairment accesses those subject materials? How is your student to learn these subjects?
- ♦ In core subjects such as physical education and health, how does your student learn to orient herself to physical activities? The need for this kind of knowledge and ability goes beyond the classroom to the cafeteria, the playground, the whole building, the grounds, and even the student's recreational choices. Imagine your student trying to figure out where the ball is in a game of dodge ball.
- ♦ In core subjects such as fine arts and vocational areas, how does your student access the materials and the tools?

By considering these questions, you may quickly see that there is, for your student, a missing link. That is, the link between the student and the core curriculum is either flawed or missing completely. The Expanded Core Curriculum fills the void and provides a link.

The Expanded Core Curriculum consists of the following (Pugh & Erin, 1999):

1. Compensatory academic skills, including communication modes
2. Social interaction skills
3. Recreation and leisure skills
4. Use of assistive technology
5. Orientation and mobility (O & M)
6. Independent living skills
7. Career education
8. Visual efficiency skills

Think of this simple comparison. No teacher, parent, or student is born with the ability to print or write in cursive. This skill is taught and hopefully learned in the primary

grades. A student of any age with a visual impairment may be able to learn these skills only with special adaptations, such as a CCTV. Learning to use this adaptive equipment falls into the skills included in the Expanded Core Curriculum.

In years past, many students with low vision or blindness have been largely ignored. Schools seldom used an Expanded Core Curriculum in spite of the need for that essential link. The result of this neglect is evident today. Capable adults who have the potential to function fully in the world, lead troubled lives of isolation and loneliness. Note that the highest unemployment rate nationally for any minority is that of the blind or visually impaired. The unemployment rate has hovered around 70% to 80% for many years (U.S. Department of Labor Statistics, 1990). As a result of frequent educational neglect, this group of capable people have been shut out of employment, and by extension, society in general.

Let's examine briefly each area of the Expanded Core Curriculum and its application to your student.

### **Compensatory Academic Skills Including Communications Modes.**

"Compensatory" and "functional" are not the same. Your student probably needs compensatory skills in order to learn the functional skills that other students achieve. Involved here are the learning experiences that all other students receive: Concept development, spatial understanding, skills in studying, organization, speaking, listening, and all adaptations necessary to access the existing core curriculum.

Communication skills are necessary in all subject areas, as you know. For your student, communication may involve braille, large print, the use of special optical devices, regular print, tactile symbols, a calendar system, sign language, recorded materials, or a combination of these. The Expanded Core Curriculum not only includes use of these devices, but also training in their use. These compensatory methods are the key for your student to access the educational programs. Without these, she will likely flounder.



## **Social Interaction Skills**

Social interaction skills are another part of the Expanded Core Curriculum. Health, P.E., fine arts, industrial arts, even academic subjects such as English, languages, history, and science assume a student's ability to interact with others. Think of work groups, teams, pairs, class discussion and panels. Depending upon the vision diagnosis, your student may either have little skill in these areas or be awkward in interaction. If, for example, your student's vision is distorted, she may not recognize a smile, or hand raised in the classroom. Personally, she may be unaware that her hair needs combing, that her clothing doesn't match, or that she gets too close when speaking to others. These problems may lead others to ridicule her, damaging further the fragile self-image she may have. At any age, the whole class can benefit from learning appropriate social interactive skills without singling out the student whose need is probably greatest. At all levels, the Teacher of the Visually Impaired or the health/P.E. teacher may help by teaching grooming skills to your student independently and quietly. Certainly your student's parents will be heavily involved in this effort and should be an important part of her educational team.

## **Recreation and Leisure Skills**

Those of us with good vision are often unaware of the ease with which we choose from a huge variety of recreational and leisure activities. If we want to go bowling, we jump in the car and go. If we want to play basketball, we get a ball and find a basketball hoop. If we want to play checkers or chess, we set up the board, find a partner, and play. If we want to read a book, we take the book to a comfortable seat and begin. None of these are easy, and some are not even possible for your student. Regardless of age, she probably cannot drive a car. This limits both social interaction and independent living as well as recreational choices. She may not be able to identify easily the pieces of a board game and perhaps she cannot identify colors. To read a book for her relaxation, she may use books-on-tape, which have a limited selection.



Your student's choice of recreational and physical activities may last a lifetime. In order to enjoy this luxury so common to sighted persons, your student needs careful, sequential instruction. This obviously affects P.E. class. However, what is not so obvious is the amount of "game" playing that is used in actual classroom instruction: Reading skills, crossword puzzles, vocabulary lessons, and team challenges in the classroom all require training for the student with a visual impairment. The area of recreation and leisure, then, involves more aspects of learning than it does for many sighted students.

### **Use of Assistive Technology**

Technology, the use of computers, has recently appeared as an informal part of the core curriculum. Technology probably provides the major tools for your student with visual impairment. However, keep in mind that the instruction given to other students may not suffice for her. If she has a CCTV, she must be taught to use it. If she has a speech program, she will need to be taught to access it. These special technologies "assist" her in her educational goals. Your student, then, needs more instruction and more technology than others in order to keep on the same level with them. Let's repeat the important point: Technology of any type is useless to the student without careful instruction in its use. The school should employ an expert in assistive technology to recommend for your student the appropriate technology and provide training.

### **Orientation and Mobility**

Your student's O & M needs have already been discussed at length. Here, let us recall that O & M is an essential area covered by IDEA and must be provided by an instructor having an O & M certification or degree. As with any other student, your student with a visual impairment has a fundamental right to travel as independently as possible. Her mobility skills must extend to all areas of her experience, including in/out of your classroom and in/out of the school building and area.

### **Independent Living Skills**

Independent living skills, occasionally called daily living skills, generically cover all skills necessary to daily life. What many of us take for granted is, out of necessity, learned behavior for your student. Money handling and personal hygiene are only two examples from a long list of daily living skills. The student with impaired vision will need to learn to access keyboards, mail, bulletins, handouts, microwave panels, oven temperature knobs, and a myriad of other objects in a way different from her sighted peers. Only direct, sequential instruction from a knowledgeable person will benefit the student. Rehabilitation teachers and teachers of daily living skills are usually employed by rehabilitation centers. They can assist teachers and families of a student in transition.

### **Career Education**

Career education is not as simple as searching out jobs that a person with a visual impairment could do. In fact, teachers should assume that a student with a visual impairment has the whole spectrum of career choices available to him, just as with any other student. The student, with rare exception, is limited only by the strength of his intelligence, his work ethic and his likes and dislikes.

Primary to the career education of any student is a good self-concept. In order for a student to believe that she is employable, she must see herself as a capable person. This self-concept building begins in early childhood and should continue throughout a lifetime. Students with visual impairments often see themselves as less capable than their sighted peers because this is a subliminal message they receive frequently. Care should be taken to teach the student with a visual impairment the daily skills in self-care, self-advocacy, social interaction, etiquette and body language which will allow her to develop a healthy self-concept.

Students with visual impairments often miss the visual clues necessary to maintain social distance, to look at the person who is speaking, to smile and nod at appropriate times, to identify a myriad of finely-tuned non-verbal behaviors

necessary to “fit in” to pairs or groups. The student needs to understand the impact of her own behavior on others. The tragic outcome of overlooking this kind of education, is that many highly-skilled and appropriately educated persons with visual impairments, are not hired to jobs for which they are qualified because they are perceived as odd, goofy, or not able to fit in. Education in appropriate non-verbal behaviors is an essential part of career education.

Once the student has the strength of “self” to see herself as capable and has built skills in appropriate verbal and non-verbal behaviors, she begins to think of herself as a person who can succeed socially. When that thought is coupled with academic success, the student is nearing the point at which she can take the risks associated with planning a career, leaving home, and pursuing vocational training or higher education. This is the point at which a student can begin to develop the skills necessary to develop a career plan.

In addition to a healthy self-concept and social skills, the student will need to develop good study habits, housekeeping and money management skills, coping skills, stress management, strategies for identifying and seeking resources, personal advocacy skills, and an understanding of her own assets and strengths. Attention to these areas of need will, in the long run, help ensure a good career choice as well as a better chance at obtaining employment in the future.

The classroom teacher has cluster of other people who are also necessary to the successful career education of the student. The O & M instructor plays a vital part as do the parents, the Vocational Rehabilitation Counselor, the Teacher of the Visually Impaired and the guidance counselor. The best outcome occurs when all members of the team maintain good communication and make a coordinated effort for the benefit of the student.

### **Visual Efficiency**

Visual efficiency is a difficult term to describe. It was defined by Dr. Natalie Barraga in 1983 as “visual acuity at a distance and near range, control of eye movements, accommodative and adaptive capabilities of the visual mechanism, speed and filtering abilities of the transmitting channels, and speed and quality of the processing ability of the brain are all related to visual efficiency.” It is “unique to each child and cannot be measured or predicted clinically with any accuracy by medical, psychological, or educational personnel.” As you can see from the definition, cognitive and physical functions beyond just those of the eye are included in the term “visual efficiency.”

The Teacher of the Visually Impaired administers functional vision assessments to students of the visually impaired at certain landmarks during their schooling. These assessments determine how the student uses her vision when applied to specific tasks. Assessments of this type may be triggered by a change in the student’s vision, or may be scheduled every year or two regardless of changes in vision. The information gleaned from the functional vision assessment by the Teacher of the Visually Impaired will be very useful to you as you make decisions about how to teach the student with a visual impairment.

Let us say that the functional vision assessment has shown that your student cannot read print or see small objects beyond a distance of five inches. This would influence the distance at which you presented textual materials to your student. Now, let us say that over time, you notice that your student is holding her text at a viewing distance of only three inches. You might then ask the Teacher of the Visually Impaired if he might find it appropriate to perform another assessment, or refer the student to the low vision clinician.

The information gleaned from the functional vision assessment will not only help you in programming for your student with a visual impairment, it will provide you and the student with strategies, using her everyday school materials, which might actually help improve her functional vision,

especially if she is a young child. When the functional vision is improved, the visual efficiency also improves. The Teacher of the Visually Impaired will help you understand what your student can and cannot do visually. If your student is young, the Teacher of the Visually Impaired may use the "Program to Develop Efficiency in Visual Functioning," devised by Dr. Barraga and available from APH. Other materials, such as the Light Box Materials are also available from the same source. The Light Box Materials help a student to build and refine her visual functioning skills, with appropriate supervision by a professional trained in developing visual function.

An additional note here for those students with multiple disabilities: The Expanded Core Curriculum is just as important for these students as for the student having only a vision impairment. In the past, schools have often overlooked a vision impairment when other disabilities are present. If the full educational needs for the student remain unfulfilled, such inadequacy may contribute to a life of unrealized potential. You can be the key factor in assuring that your student has a complete educational experience through use of the Expanded Core Curriculum and by explaining its importance to others in the student's educational world.

The Expanded Core Curriculum, then, is essential for both you and your student. For you, teaching becomes easier and more fulfilling when you know that your student has both the training and the adaptations necessary to achieve the educational goals. You are free to concentrate on teaching your material. The student's special needs have been met. The consistent and sequential instruction provides the missing link to the path for your student to concentrate on learning the material you present. This is a definite "win-win" situation for both of you.

## **CHAPTER 4 SYNOPSIS**

1. How does low vision affect learning styles?
2. Enhancing educational experiences
  - ♦ Technology
  - ♦ Experience
  - ♦ Vocal direction
  - ♦ Combination
  - ♦ Using maps, graphs, charts
3. How does low vision affect literacy skills?
  - ♦ Study skills
  - ♦ Note-taking
  - ♦ Illustrations, diagrams, overhead projections
  - ♦ Films and descriptive videos
  - ♦ Research and use of reference materials
  - ♦ Sustained reading and recorded books
4. Literacy: Reading
  - ♦ Braille
  - ♦ Large print
  - ♦ Low vision devices to access standard print
5. Literacy: Writing
  - ♦ Producing large print
  - ♦ Handwriting
  - ♦ Typing and keyboarding
6. Spelling
7. The computer can help my student
  - ♦ Computers and accessories
  - ♦ Keyboard labels
  - ♦ Voice input devices
  - ♦ Computer text magnification software
  - ♦ Large screen monitors

## *TEACHING THE STUDENT WITH A VISUAL IMPAIRMENT*

- ♦ Screen reader software
  - ♦ Scanner hardware and compatible software
  - ♦ Special scanners
  - ♦ Braille embossers
  - ♦ Mouse: Haptic equipped
  - ♦ Other computer-linked equipment
8. Tests and homework can be done
9. Low vision affects varied curriculum areas
- ♦ Art
  - ♦ Drivers' Education
  - ♦ Foreign Languages
  - ♦ Home Arts
  - ♦ Industrial Arts
  - ♦ Mathematics
  - ♦ Music
  - ♦ Recreation and leisure
  - ♦ Science
  - ♦ Social Studies
10. What is the Expanded Core Curriculum?
- ♦ Compensatory academic skills and communication modes
  - ♦ Social interaction skills
  - ♦ Recreation and leisure skills
  - ♦ Use of assistive technology
  - ♦ Orientation and mobility (O & M)
  - ♦ Independent living skills
  - ♦ Career education
  - ♦ Visual efficiency
11. TIPS



## CHAPTER 5: HOW CAN I KNOW MY STUDENT'S WORLD?

- How do I help build self-esteem and socialization skills?
- What about interpersonal relationships?
- How does my student's low vision affect stamina?

Roosevelt, a thirty-year old gentleman, is finally realizing his potential. In grade school, he acted up in the classroom. Soon, merely annoying behavior gave way to playground fist fights that evolved into teenage brawls. Roosevelt's words describe those painful times, "I wanted to play sports like the other guys, but the ball hit me more often than anything else. I didn't get it. Everybody made fun of me."

During and after high school, he got into skirmishes with the law. These were mostly minor offenses, but a record was piling up. After a routine physical for a job, he was advised to have his eyes examined. He ignored the advice. A few months afterward, he was stopped by the police as drunk and disorderly. He pleaded that he didn't see the lamppost he had struck and that he couldn't see the policeman in the dark. He blamed his skin color for all of these problems. Fortunately, his probation officer ordered an eye exam. So, in his twenties, Roosevelt was diagnosed with advanced retinitis pigmentosa. He realized that the characteristics of retinitis pigmentosa, tunnel vision, reduced vision in dark areas, and depth perception problems, might have been responsible for his earlier problems.

When Roosevelt discussed his new diagnosis with his parents, he was shocked by their reaction. They told him that because of his many problems in school, a teacher had recommended an eye exam and retinitis pigmentosa was clearly diagnosed. Although the school and parents knew the diagnosis of retinitis pigmentosa, Roosevelt was never told the results of that exam. The school system told the parents that Roosevelt's self-esteem would suffer if he were

placed in special education. The parents, having no other resource, believed what the school personnel told them. As a result, Roosevelt struggled through school without the proper accommodations and his poor performance discouraged him and lowered his self-esteem. Ordered to finish high school by a court, he barely graduated with enough credits to qualify for a diploma. Even so, he had to attend summer schools to finish. At no point was he told of his visual impairment, nor was he offered any special help.

After learning his own history, Roosevelt placed himself in counseling. Tests revealed an intelligence level above average. He moved to another city far from his home where no one knew him. There, he enrolled in community college courses. He also received his first O & M instructions. With accommodations provided by the college, he obtained an associate's degree. He now works in public relations as a graphic artist/designer for a large company. In fact, Roosevelt has been promoted twice. His bitterness toward the school system and his parents has diminished with counseling, but he has a hard time not feeling resentful about what he calls his "wasted years." He does think that the school was more to blame than his parents, who did what the school told them was best. He was happy to discover his color had little to do with his experiences and was able to overcome most of his discontent.

"I have a steady girlfriend and plan to be married within a year," Roosevelt said recently. "I haven't been in trouble for over seven years and that's the way it's going to stay. Whenever I see students with white canes, I go up to them and tell them to keep at it and not let anybody tell them that they can't do it!"

Teachers impact the lives of their students, sometimes profoundly. They make a difference, not merely with the information they teach through the core curriculum, but also with the help, compassion, and support they provide emotionally. Teachers make lesson plans with objectives, strategies, and goals. Usually there are unstated goals for emotional development as well. There is rarely a time slot in

## *A PRIMER FOR THE CLASSROOM TEACHER*

the school day for self-esteem training and socialization. Seldom is there a curriculum for teaching responsibility.

Education is a critical component in helping students grow to be knowledgeable, healthy, principled and caring adults. Attitudes, discussions, and opportunities that are part of day-to-day school routines have far-reaching effects in the lives of individual students. Students frequently learn by experience the values of the following:

- |                          |                 |
|--------------------------|-----------------|
| ♦ support                | ♦ self-advocacy |
| ♦ empowerment            | ♦ honesty       |
| ♦ boundaries             | ♦ humor         |
| ♦ time                   | ♦ hard work     |
| ♦ commitment             | ♦ independence  |
| ♦ morals                 | ♦ friendship    |
| ♦ social competencies    | ♦ service       |
| ♦ positive self-identity | ♦ spirituality  |

The student is more likely to become healthy, happy, and responsible through daily, interactive, personal experiences. The development of skills related to values is important for students with low vision, as well as for other students. Too often, students with disabilities are treated as if they are exempt from practicing highly-developed attitudes and behavior. The student included in your classroom has a right to enter the mainstream of life. He probably needs extra help and encouragement to absorb these beliefs. His parents may also need help and encouragement. Sadly, in Roosevelt's case, no encouragement was offered by the school.

Search Institute, an independent, non-profit, nonsectarian organization has developed "Profiles of Student Life: Attitudes and Behaviors," a form to survey student assets. It applies to students in grades 6-12. The Materials Tote contains a copy of a chart titled "40 Developmental Assets" and "Asset Checklist." The checklist shows how the interaction of teachers, students, and parents in the community will contribute to success in life, as well as in school.

## **HOW DO I HELP BUILD SELF-ESTEEM AND SOCIALIZATION SKILLS?**

Having a student in your classroom who has a visual impairment or some other disability presents special challenges. Building self-esteem and socialization skills depends on individual personalities and group dynamics. Isolated incidents and experiences also contribute. Your attitude, the attitude of your special student, and the attitudes of the other students create the learning atmosphere and the emotional balance of your classroom.

“Loving Me,” an excellent program for building self-esteem in teens and adults is available from APH. This, or other good programs which foster self-acceptance are helpful to nearly everyone.

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### **TIP**

Call the student by his name, not some cute name, even if meant to be friendly: “four eyes,” “the monocular kid” will not be viewed as endearing terms.

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Peers will naturally be curious about disabilities and accommodation technology. However, peers can have normal relationships with any disabled student. Adults have essential roles in modeling appropriate behaviors and attitudes. Respect for differences is a cornerstone of teaching positive relationships. Remember that body language conveys as much or more meaning than spoken language. A sweet voice with a facial grimace when addressing the subject of disabilities sends a mixed message.

Sometimes other students may want to handle the magnification devices. However, the risk of damage to the devices increases when they are put in untrained hands. Most special optical equipment is quite expensive and not easily replaced. The student may need help addressing these situations. They want to please their peers, but at the same time protect the delicate optical devices. With your help, most students can be taught to respect individual differences and individual property rights.

Contact lenses and ordinary eye glasses are common and may not pose problems for the student. Peers will probably react minimally. Other devices and obvious special eyeglasses will receive more attention from classmates and friends. This attention can become embarrassing for the

## *A PRIMER FOR THE CLASSROOM TEACHER*

student with a visual impairment. Bifocals in young children, microscope lenses, minifiers mounted on glasses, use of monoculars and telescopes, and even hand-held magnifiers are not common. They will draw attention to the user unless care is taken to make magnification an acceptable option. This may be accomplished through a science lesson on astronomy, photography or another topic of interest to the general classroom, which does not set the student with a visual impairment apart.

Some common goals for all students, related to self-esteem and emotional well-being include the following:

- ♦ Developing a positive self-image
- ♦ Being a friend, having a friend(s)
- ♦ Being able and willing to accept responsibility
- ♦ Being conscientious about school work
- ♦ Developing good communication skills
- ♦ Respecting others and receiving respect from others
- ♦ Excelling at something
- ♦ Functioning independently (age appropriate)

Students who are visually impaired usually have a sense that they are “different.” Without appropriate accommodations, some tasks may be impossible. Even with accommodations and assistive devices, these students are typically slower at completing work than their sighted peers. They quickly become aware of differences, an acknowledgment that creates feelings of self-consciousness and inadequacy. These feelings can lead to negative behaviors which spawn embarrassment, frustration, and resentment. This can become a destructive cycle. It is best to prevent such a cycle before it begins by fostering an attitude in your classroom which embraces and celebrates differences among students. This attitude will create a spirit of acceptance and good will among all the students in your class.

Although some students with low vision are very intelligent and academically successful, their limited sight, high stress level, and tendency to fatigue may all contribute to a gap between ability and achievement. Often, these students

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### TIP

Just having optical devices or new eyeglasses does not by itself improve a student's social life or standing. By fostering a spirit of acceptance in the classroom, all students with differences may be helped.

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cannot even be tested accurately because test-makers have not made provisions in the development of the test to accommodate their needs. Sometimes these students excel at something such as music or math, but may appear excessively clumsy at sports. Feelings of failure may be reinforced when students with visual impairments are the last chosen for a team or are excluded from after-school activities.

When a student is ridiculed, he becomes more lonely and isolated. Few care to make friends with him because he's "different." It would not be surprising to see this comment on his grade card: "He does not make friends easily." Be aware of the tendency to blame the victim, instead look at circumstances which lead to his behavior. These circumstances may be overcome by proper socialization of the student with visual impairments, in a classroom which fosters acceptance.

Teachers play a vital role in building self-esteem and socialization skills among their students. Awareness that a problem exists is key. Develop your sensitivity and awareness to help when a student with low vision needs your assistance in finding his niche in the class. He needs to feel accepted as a real member of the class rather than as an outsider or guest. Public awareness activities with the class or even with the whole school may be helpful. Some specific ideas are included here. These activities encourage acceptance, not sympathy. Understanding can create more appropriate attitudes and motivate positive behaviors. Share information about what it means to have low vision, why your student uses a cane or other special devices, how he recognizes people, and how he maintains his independence. Use your imagination and remember, all students can benefit.

### Suggestion #1

March is the month of a national campaign for disabilities awareness, but you can sponsor an observance anytime. Most communities have agencies or rehabilitation centers with staff who can suggest ideas. Perhaps successful people with different disabilities could be invited to come "show



## *A PRIMER FOR THE CLASSROOM TEACHER*

and tell” about their experience with disabilities, sharing information about how they maintain independence. Shy students with a visual impairment probably will not feel so singled-out when their impairment appears within a larger context of other disabilities. This has been a successful all-school activity in many school districts.

### **Suggestion #2**

Your student’s classmates may benefit from a direct approach. Seek advice from your school system’s Teacher of the Visually Impaired or consult with the O & M instructor for ideas. Perhaps a staff person from a local agency that provides services to the blind could be invited to your classroom to discuss independent living skills and demonstrate some assistive devices. Items such as magnifiers and monocular telescopes can be made to look “cool” when linked with the fields of photography, astronomy, zoology, and archaeology. You may want to let all students use a generic selection of magnifiers and telescopes to experience the effects of magnification on shells, bugs, and crystals. Encourage thought about the possibilities of applications of magnification.

### **Suggestion #3**

Work on a presentation with your student. Choose a theme like, “WE ARE ALIKE, WE ARE DIFFERENT.” Make a colorful poster and distribute miniature posters on bookmarks for the class members to color. Build the presentation on the idea that people who are visually impaired do most of the same things other people do but may do them in a different way.

WALK Use a sighted guide or use a cane.

WRITE Use writing templates and guides.

READ Use magnifiers, a computer scanner, and recorded books.

DO MATH Use a talking calculator or an abacus.

TELL TIME Use a talking or tactile watch.

HANDLE MONEY Use tactile skills to identify coins, fold currency, use special money organizers.



### **Suggestion #4**

Let all the members of your class try a simulation of visual impairment. Instructions for making simulator glasses are included in the Materials Tote. Half the class wears homemade simulator glasses for a period of time, perhaps an hour. The other half of the class can serve as sighted guides and give instructions. Remember safety issues! Conduct regular class sessions while these other students are “impaired” in order to give them a real experience with a visual impairment. Then reverse the roles. Advise the students what to expect. They will experience some difficulties first-hand. They will also experience some frustration at not being able to escape the situation when the novelty wears off. Give them the chance to learn that with proper accommodations, they can accomplish assigned tasks. Make sure to keep this activity indoors.

### **Suggestion #5**

Provide simulator glasses for all students. Pass around a bag or box of objects to identify. They might also try using writing guides and templates to write a sentence or two. Ask them to work out a long division problem while wearing the glasses. Have them look around the room to find the answers to questions such as these:

- ♦ What time is it?
- ♦ What message is written on the chalkboard?  
(Be sure to write one!)
- ♦ How many books are stacked on the teacher’s desk?
- ♦ How many people are wearing tie-up shoes?

You may make your own list. Include some questions requiring use of contrast and special lighting.

### **Suggestion #6**

If the student is comfortable with the idea, focus some attention on the student himself. When appropriate, encourage your student to talk about himself and his accommodations. Allow him to have some classroom responsibilities such as collecting papers, watering plants,

## *A PRIMER FOR THE CLASSROOM TEACHER*

and tidying-up. If a task presents difficulties, allow him to practice alone with you in the classroom. Your patience will help him build confidence. Help him find a way to do his best, then expect his best.

Encourage the development of friendships. Ask your student to choose from among his friends or allow a student volunteer to help him get accustomed to a new space or a new routine. If he is new to the class, choose helpers for him who are inclined to be patient, caring, and friendly.

As your student gains confidence, you may want to encourage him to accept new challenges academically, socially, and emotionally. If you allow him to try leadership roles, he will soon take on new responsibilities. Encourage him to “Be all he can be.” Independence is the primary goal.

Society looks to schools to help provide socialization skills. Unfortunately, definitions of those skills are often unclear. All students will benefit from practice in making proper introductions, shaking hands, and observing table manners. Students imitate behaviors of their role models. Remember that students with low vision may not clearly see these behaviors in order to imitate them. Therefore, your student may need physical instruction to learn appropriate gestures and socially acceptable body language that will put others at ease. Statistics from the U.S. Department of Labor indicate that most persons with visual impairments do not lose jobs or fail to obtain them because of their lack of skill, but because they exhibit socially-unacceptable behavior.

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TIP: Be aware of a student expecting too much protection and help. Also, be aware of providing too much help yourself.

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### **WHAT ABOUT INTERPERSONAL RELATIONSHIPS?**

Most students want to be liked and respected by their teachers, but they do not wish to be labeled a “teacher’s pet.” A student with low vision may depend on you for special help academically, physically, and socially. He may need special accommodations to manage his academics. He may ask for help with orientation and mobility. He may also need assistance in developing personal relations with his peers and adults. Too much attention from you, however, may put him at odds with his classmates. The teacher’s

relationship with each student is important and fragile. This may be especially true, but nonetheless difficult for a student who is visually impaired because he usually needs more help than his peers. It is a fine line you walk with your student who is visually impaired. Your student knows this, too. Frank dialogue will help you both stay on the right heading.

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### TIP

Reshelving books can be easy!  
When removing a book from the shelf, place a book mark in the empty space or turn the book next to it sideways.

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Introduce your student to other school staff, teachers, and peer helpers. You may gently model the skill of introductions. It is an opportunity to share important information with staff. Create opportunities for your student to learn self-advocacy skills. Here is an example: Suppose students are expected to re-shelve books in the library. Your class is about to spend a period in the library to select and check out books. Talk privately to the student about what to anticipate and what kind of help he may need. When the class enters the library, listen to the librarian's general class instructions. When most of the students are occupied, introduce him to the librarian, mentioning that he has a visual disability. Suggest the librarian as a good source of help. Encourage him to explain his own needs to her. Suggest such questions as these: "If large print books are available, how can I find them?" or "I can see book titles and the call numbers up close, but I have trouble locating the kind of books I want. What should I do?"

Such exchanges teach the student proper communication skills and self-assertion. This approach allows the librarian to use her professional knowledge to assist the student.

This same kind of exchange will need to take place with other teachers, cafeteria staff, and auxiliary school personnel. A good general plan to follow is this:

- ♦ Anticipate the need for sharing information.
- ♦ Let a "natural encounter" occur, one that will not cause undue attention from your student's peers.
- ♦ Model good introduction and communication skills.
- ♦ Encourage your student to advocate for himself and to practice good problem-solving techniques.

All students need opportunities to form relationships with adults as well as other students. Interpersonal skills include learning the relationships of teacher-to-student, adult-to-child, and peer-to-peer. The student must learn to relate to students and other adult authority figures outside his classroom. Your student with low vision needs these same experiences, but because of past experiences, which may have been negative, he may need extra encouragement. He cannot always see facial expressions or body language that communicate how he is being received. A disability often forms a subtle, but effective barrier inhibiting communications and affecting attitudes about self-worth. Help build confidence in your student by providing him with information about social distance, eye contact, and other non-verbal behaviors. Give him feedback about his social skills. Encourage interaction among all class students.

Students with low vision are like other students, but with more potential “trouble spots.” Living with a disability is not an insurmountable problem. It does take a great deal of energy. There is more to think about, more to anticipate, more problems to solve. Everything seems to take longer. Many things are uncertain. The student can easily become tired, frustrated, and irritable. You can demonstrate empathy with your student by helping him work through his obstacles, and showing him that obstacles can be overcome. You will then provide him with good skills for an independent life.

### **HOW DOES MY STUDENT’S LOW VISION AFFECT STAMINA?**

Other aspects of low vision worthy of serious consideration are the student’s stamina and need for rest. Every teacher knows that almost every student needs rest at times. It is not unusual for primary students to fall asleep in the afternoons or for high school students to fall asleep in the mornings. The student with low vision has the same tendency, but may have additional needs for rest because of the extra energy he expends in coping with his disability.

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#### **TIP**

Staring at a computer screen too much causes problems. The eye does not blink as much, causing dry eye syndrome, eyestrain, and fatigue.

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Stamina is often a problem. Fatigue and stress have great effect on vision. As the level of fatigue or stress increases, the level of effective vision decreases (Corn & Koenig, 2000). There is an old wives' tale that maintains the person with low vision must "save" his vision. By using it too much, he may hasten the complete loss. Studies disprove this belief. Vision is not available in a quantity that can be used up. Nonetheless, the student may still experience fatigue or eyestrain. This is a real issue and deserves some attention. If a student is using optical devices or holding text very close to his face, the strain can be acute unless time spent reading is broken up by rest periods. A rest period can be as short as a minute or as long as an hour. Ask the student to tell you what he needs. There is no need for the student to spend 100% of his time staring at the material in front of him, no other student does!

The physical stamina of a student may limit the time he can spend on a task even if the task is understood (Chen, 1999). Finding the student's level of physical stamina should be part of the functional vision assessment. Some eye conditions will cause strain and fatigue more than others. Nystagmus, the tendency of the eyes to roll or jiggle (see Eye Conditions Chart), is very often present in other eye conditions. Therefore, its effects must be considered carefully (Windsor, 1999-2000). The student with low vision cannot be expected to remain on task any longer than his peers, and sometimes he cannot work as long.

Try to help your student find the proper balance of work and rest. He will be more productive and you will find his work product and attitude to be much improved.

## **CHAPTER 5 SYNOPSIS**

1. How do I help build self-esteem and socialization skills?
  - ♦ Self-development
  - ♦ Peer relationships
2. What about other interpersonal relationships?
  - ♦ Teachers and other school personnel may help facilitate good relationships
3. Will my student's low vision affect his stamina?
4. TIPS
  - ♦ Call the student by name
  - ♦ Low vision aids may affect socialization
  - ♦ Considerations regarding protection and help
  - ♦ Reshelving books
  - ♦ Problem with sustained focus requires practice and adequate rest





## CHAPTER 6: ENVISION THE FUTURE

- How do Independent Living Skills impact the future?
- What is a “Transition Plan”?
- What about career planning?
- What about post-secondary training schools and colleges?

“What’s it like to see with two eyes?” The question caught Mae Ling’s mother off guard completely. Mae Ling, an eighth grader, had never asked such a question before. Her mother, Riko, did not know the answer. All she could think to say was that probably none of us see the same way.

Mae Ling was born with “Peter’s anomaly,” a rare condition in which the eye does not form correctly during pregnancy and cannot be repaired. She has cloudy vision in one eye and cannot identify anything more than three feet away. The other eye is near normal. When Mae Ling was three months old, doctors tried laser surgery, but could not repair her eye. She has no depth perception, but she has learned to compensate.

Mae Ling is an outgoing, friendly young lady who has two big concerns, boys and learning to drive. In school, she has slightly above-average grades. The only accommodation she needs is to sit near the front of the class. Although she does not have an IEP, teachers in her public school have been helpful to her throughout her life. The eyeglasses she wears are actually safety glasses to protect her good eye. She wears these for all activities. Her parents are very satisfied with the attention given to Mae Ling by her teachers.

Mae Ling’s biggest problem arose only a year or two ago when other students on the playground began ridiculing her. Because of the nature of this eye condition, her eye has not grown beyond its size at infancy. The eyelid, which has grown normally, tends to fall over the eye. The droopy-looking eye was the subject of the teasing. Mae Ling told neither her teachers nor her parents, but called on her own

resources and ended the problem by confronting her tormentors. Only when her sister reported the incident did any adults learn of the problem. There have been no repeat instances. She enjoys a group of good friends and an active social life.

Mae Ling's determination has carried her through her problems well. The support of teachers and family have been crucial in creating a proper environment. Mae Ling, when questioned, said she does not think of herself as "disabled," but explains that she only wears "funny looking glasses." Mae Ling's healthy view of herself helps her maintain her personal equilibrium and sound attitude.

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TIP: Small letters and numbers, such as locker numbers, may be hard for the student to read. Use braille or a tactile, permanent label that will not be torn off easily to mark the number.

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Like Mae Ling, your student is bound to grow and mature as all students do. As she grows, she enters new grade levels and meets new challenges. A plan for growth is essential to your student's educational progress. At certain levels, the transition from one grade to another is dramatic. Most transitioning occurs from elementary to middle school, from middle school to high school, and certainly from high school to post-secondary education. Each of these transitions requires major adjustments from the student. When she leaves the relatively permanent elementary classroom, she will enter a middle school that requires regular physical movement from one classroom to another. Four major adjustments are now in order:

- ♦ Orientation and mobility skills necessary for frequent physical movement are needed.
- ♦ Creation of an accommodative learning environment in several different classrooms is imperative.
- ♦ Adjustment to varied teaching styles of several teachers is helpful.
- ♦ Organization of books, homework, and materials is important to success.

Your student would benefit if all her teachers could develop sensitivity to her physical, emotional, and social needs. The Teacher of the Visually Impaired may be the only one who has maintained direct contact with her over the years. This

teacher will be a support to you by being heavily involved in the transition.

### **HOW DO INDEPENDENT LIVING SKILLS IMPACT THE FUTURE?**

Developing independent living skills is a process, not a single event. Mae Ling is a living example of this principle. Independent living skills are as important to the student with low vision as academic topics. They should be taught as an integral part of this student's education, not as an afterthought. The Expanded Core Curriculum addresses this requirement for learning independent living skills. Remember, the two purposes of education for the student with visual impairments are these:

- ♦ To receive a good education in the all-inclusive classroom by use of accommodations and optical devices
- ♦ To develop independent living skills

A student needs a good foundation in independent living skills to organize and direct her own life. As she moves through various levels of education and maturity, she will still need assistance. Independent living skills are cumulative. If properly taught, the degree of assistance necessary will decrease over time. Planning for the future is necessary if a good, all-inclusive education is to be achieved. Using the Expanded Core Curriculum will help ensure your student will be prepared to meet her best future.

Independent living involves many personal skills, including studying, test taking, information access, social, emotional, and organizational skills. One common goal of education is to develop informed, responsible, and independent citizens. Mae Ling's inclination toward self-advocacy will help her to meet these goals.

Choosing a career is an important part of independent living. Your student with low vision has a right to make her own choice. She also has a right to the same exposure to career information that others receive. Her choice will be more meaningful to her if it is based upon her interests,

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#### **TIP**

Staff should be aware that, due to the student's limited vision, identifying new persons will take longer. Adults can help by stating their names until she seems confident.

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### TIP

Be sure to involve the student in the transition planning. By transition age, she will be able to voice her own needs.

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talents, and capabilities. In addition, she will need to learn about any accommodations necessary to implement her career choice.

As your student develops and matures, her interests will likely do the same. In preparing for higher education or employment, your student should know in advance two things. First, it is very important that she be informed of possible changes in the environment. Second, she needs to know and judge the adaptations she needs to achieve her goals. This preparation, commonly called a transition plan, is necessary to aid the student in a smooth change or transition between educational and work environments.

### WHAT IS A TRANSITION PLAN?

A formal Transition Plan will be written for this student when preparing to make the transition from high school to your state's Vocational Rehabilitation department. Different names are used for this federally funded agency in various states. The counselor from Vocational Rehabilitation will meet with the student, family, and current educational personnel to plan her post-high school experience, whether or not it involves post-secondary education. IDEA of 1990 requires schools to provide transition services to students with disabilities. A Transition Plan will be written at age 16 accordingly.

A Transition Plan is a document that specifies goals and provides strategies for meeting the vocational goals for your student with vision impairments. For example, if she plans to be an elementary teacher, certain strategies beyond those employed by other students must be engaged:

- ♦ What optical devices and support systems are needed for college?
- ♦ What attitudes and stereotypes may present problems?
- ♦ What orientation to the campus will be necessary?
- ♦ What realistic employment opportunities within chosen fields are available for this student?

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The Vocation Rehabilitation Counselor is key to the student in transition. He will help secure funding and technology to assure the success of the student. The greatest number of unemployed people in the United States is that of persons with vision impairments. Their numbers far outpace any other minority group. Creating early opportunities for these students to learn about careers is a major step in reducing unemployment.

The student has the same right to her personal career choice that any other student has. This student needs exposure to various options in careers just like other students. Making assumptions about her career choices, or even worse, making her choice for her, is a mistake. Accommodations are possible for almost any choice the student makes.

“Volunteering” is an excellent method of learning about future careers within the non-profit job market. With guidance and planning, this is a viable option for your student with low vision.

### **WHAT ABOUT CAREER PLANNING?**

As with all of your students, career planning for the student with vision impairments is important for the transition from high school to adulthood. As students enter the final years of high school, they are commonly exposed to more and more information and presentations concerning careers. Some students will be able to hold part-time work during high school and become acclimated to the world of work through that experience. Your student may not be able to take advantage of this opportunity. Her homework takes so much longer that she may not have extra hours for work. Nonetheless, some students with visual impairments do hold part-time jobs successfully.

Most students face the question: “What am I going to do after high school?” For your student with a visual impairment, the question is “What am I going to do to prepare for my career before school is over?”

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TIP: Working part-time may be more important for this student than for others. She establishes that she can hold a job successfully and begins a track record. Every success she makes lowers the possibility of future unemployment (Karen Wolffe, Ph.D., Texas Commission for the Blind, 1996).

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Career awareness involves several things. Attitudes, information, and self-understanding all interplay in the career choice decisions. The Expanded Core Curriculum, if used consistently, will help guide her progress in these areas.

Working at a fast food restaurant will teach skills useful in many careers. Such skills include the importance of punctuality, the use of varied equipment, money handling, and meeting the public. Most students, including your special student, do not intend to make lifelong careers of such positions. The student is developing a strong work ethic and demonstrating employability. Like other students, the special student may be saving her money for college or a career that has nothing to do with fast food.

### WHAT ABOUT POST-SECONDARY TRAINING SCHOOLS AND COLLEGES?

As with any student, your student with a visual impairment faces the choice of whether to obtain post-secondary education. This is her choice to make. Acceptance into colleges and training schools is now open to everyone who is an average student or better. If a student shows aptitude or interest in the health care field, it is extremely likely that her high school counselors would steer her in that direction. So it is with your student with low vision. Assume that she can fit into the career of her choice. Remember, that choice means the right to be wrong as well as to be right. She will most likely qualify for the career she wants when given the accommodations and training required for that career.

The Transition Plan allows for plenty of time before a student graduates from high school to study opportunities and interests. The student will be supported by providing her full information on her choice of careers. If she has several choices, she is much like other students.

Some college and training schools make special efforts to support the education of students with disabilities. Many colleges have an Office of Student Affairs for students with disabilities. Once your student has narrowed her choices to several schools, help her contact these offices. The counselor

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TIP: Get a variety of applications for the student to practice filling-out. Employment, college, and apartment applications can be useful.

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from Vocational Rehabilitation in your state may be willing to help make these contacts.

Vocational Rehabilitation is a federally funded agency available in each state, although not always by the same name. Here are some examples:

- ♦ In Indiana, Vocational Rehabilitation Services is part of the Department of Human Services.
- ♦ In Maryland, it is called the Division of Vocational Rehabilitation, part of the State Department of Education.
- ♦ In North Dakota, it is named the Disability Services Division, a branch of Vocational Rehabilitation.
- ♦ In Wyoming, look for the Division of Vocational Rehabilitation, part of Department of Employment.

But no matter the name, Vocational Rehabilitation is mandated to provide services to assist students in their transition to work or education and training.

As your student plans for her life after high school, encourage her to inventory her strengths and weaknesses. This inventory should include all independent living skills of a personal nature. Some states, including Texas, Indiana, and Alabama, to name a few, have state-sponsored “transition weekend” programs that include assessments of these skills. A copy of the checklist used in the Texas program is included by permission in the Materials Tote.

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TIP: If you have a class, invite a Vocational Rehabilitation counselor to come in weekly or every other week to provide information and suggestions to your students with visual impairments.

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## **CHAPTER 6 SYNOPSIS**

1. Mae Ling's story
2. How do independent living skills impact the student's future?
  - ♦ Independent living is a process, not a single event
  - ♦ Independent living skills are incorporated in the Expanded Core Curriculum
  - ♦ Independent living skills enable students to organize and direct lives
3. What is a "Transition Plan"?
  - ♦ A written plan is required for students with IEP
  - ♦ Vocational rehabilitation help is available for post-secondary planning
4. What about career planning?
  - ♦ Exposure to career information
  - ♦ Part-time and volunteer work experience
  - ♦ Information for leisure, social, and civic activities
5. What about post-secondary education?
  - ♦ Interests and abilities more important than class rank
  - ♦ Explore curriculum, training programs, accommodations, special offices at post-secondary schools
  - ♦ Potential help for vocational rehabilitation
6. TIPS
  - ♦ Money management
  - ♦ Two orientations needed
  - ♦ Making accommodations for small letters and numbers
  - ♦ Identification of school staff
7. Student involvement in transition planning
  - ♦ Part-time work experience
  - ♦ Unemployment statistics
  - ♦ Preparing applications for college, apartments, and others

## **CHAPTER 7: A VIEW OF RESOURCES**

- Who is the paraprofessional?
- How do I use the Materials Tote?
- What resources are available?

Recently, an advertising campaign promoted the idea that “a mind is a terrible thing to waste.” With proper accommodations, a visual impairment need not be an obstacle to receiving an education, or leading a full life. The Materials Tote contains forms and checklists to help gather and record specific information useful in getting to know the student, and understanding how his vision affects his educational experience. These materials also help in planning for the student’s accommodative needs. In addition, the forms will facilitate and expand the opportunities for communication between the classroom teacher, the Teacher of the Visually Impaired, the school administration, the parents, and the low vision clinician.

### **WHO IS THE PARAPROFESSIONAL?**

If your student with vision impairment does not have a Teacher of the Visually Impaired assigned to him, you and your teacher’s aide will have most of the responsibility for teaching the student braille and some of the other content areas from the expanded core curriculum.

Some school districts will hire a paraprofessional with the expectation that the paraprofessional will devote her complete time to the student for the teaching of braille and the expanded core curriculum. This move should be considered unfair to both the paraprofessional and the student.

Normally, paraprofessionals have received very little, if any, training in methods of teaching, foundations of education, or educational theory. They usually have no expertise in a

particular content area. They rarely have any experience in teaching from the expanded core curriculum or in techniques for teaching a blind student. If you have a Teacher of the Visually Impaired, he can offer the paraprofessional some assistance in developing skills in techniques for teaching blind students. However, the particular knowledge and skills needed for the teaching of braille and the preparation of braille materials go beyond those that can be reasonably expected of a paraprofessional. It would be similar to asking a paraprofessional to teach and prepare documents in Chinese.

The student is entitled to an education equal to that of his peers. This means the person or persons who provide him with an education are as well-educated as the teachers of his peers. If he is being taught primarily by the paraprofessional, then he is, by definition, not getting an equal educational opportunity.

Many students who are learning braille are also learning to read at the same time, it is of utmost importance that the person teaching the student the braille/reading program be educated and experienced in the teaching of reading. The habits developed at this time follow the student through his life. Because the paraprofessional may not have a background in the teaching of reading, it is easy for the paraprofessional to omit needed information and fall into methods and habits which are not necessarily in the best interest of the student. This often causes the student to develop poor study habits and pay insufficient attention, even when proper information and methods are offered later.

### **The Paraprofessional, the Classroom Teacher, and Braille**

There definitely is a place for the paraprofessional in the education of a student with vision impairment. A paraprofessional who is adequately oriented, informed, and supervised by the attentive classroom teacher can be a significant help to both the student and the teacher. The paraprofessional can even administer lessons in braille to the student. These lessons, however, should always be designed and overseen by the classroom teacher or the Teacher of the Visually

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Impaired. Both the classroom teacher and the paraprofessional should interact with the student daily, so the student comes to see them as a team involved in educating him and preparing him for life. In this manner the teacher remains in charge, the paraprofessional is supervised, and the best interest of everyone involved is served.

So what is the all-inclusive classroom teacher to do if a student needs to learn braille or needs braille materials? There are several programs designed to teach braille to adults. And these programs will be very useful to the classroom teacher. "The Braille Connection," by the American Printing House for the Blind is probably the best known. Another series "Reading with Feeling," which provides a manual with braille on one page and print on the facing page, is also popular. (See Resource section for more information.) These braille learning series are available by mail-order. They are very helpful to classroom teachers and paraprofessionals who need to learn the basics of braille in order to help a student. People with normal vision can read braille visually once they have learned the code, so there is no real need to spend time trying to decode it tactually. The braille code is easy to learn and many sighted students enjoy learning it along with their visually impaired classmate. It can be presented as a "secret code."

Braille can be embossed by machine using text from a computer. This makes the preparation of braille materials by a teacher or paraprofessional much easier than in the past when everything was done by hand. *Field Guide for the Sight Impaired Reader: A Comprehensive Resource for Students, Teachers and Librarians* by Andrew Leib, from Greenwood Press, will provide you with a complete list of resources for the learning and teaching of braille, and the production of large print and braille documents. While at the outset, it may seem a lot to ask of the classroom teacher, the learning, teaching, and production of braille have never been easier. With so much technology to assist you, it can easily become a part of your teaching repertoire.

### HOW DO I USE THE MATERIALS TOTE?

The Materials Tote accompanying this book will be very helpful in gleaning useful information for the education of the student

with low vision. The forms contained in the packet are the following:

### **Referral Form**

A simple form that a teacher might use to refer a student to a vision clinician. Add attachments to support the reason for your request. Keep copies for yourself and the student's vision notebook. (Reference Chapter 1)

### **Simulation Glasses Pattern**

These patterns may be copied for your use in your classroom to demonstrate light perception only, not visual acuity. (Reference Chapters 2 and 5)

### **Informal Student Information Sheet**

This sheet, never to be confused with IEP forms, is useful as a tracking instrument. It helps the teacher or parent keep an informal record of the student's eye condition. At the close of each year, it may be given to the parent to keep as a record. This sheet can be used, at least annually, to track changes in vision and changes in accommodations required. Copies of this form could also be attached to the referral form, and placed in the vision notebook. (Reference Chapter 2 and 7)

### **Student/Parent Interview Form**

This form may be freely adapted to help the teacher gain insights into the needs of the student. Involve the parent in this process! (Reference Chapters 2 and 7)

### **Observing Vision**

It is important to continue to observe the student's visual behavior. Using this checklist will help the teacher and parent understand the student's needs by observing his behavior, making notations, and asking a few questions of the student. Remember that vision is not static and periodic recording of observations is needed. (Reference Chapter 2)

### **Orientation and Mobility Checklist**

Most O & M instructors will have their own professional checklists and charts. The chart included here is for the use of the classroom teacher and the student. As a means of tracking improvements and changes, complete the chart through discussion with the student and observation of his current mobility techniques. Again, remember that vision is not static and may change daily or even hourly from various causes, such as weather, lighting, or health.

(Reference Chapter 3)

### **Classroom Considerations**

Planning for Safety and Independence. This important chart is created specifically for the classroom teacher so that she may prepare her own classroom for the safety and success of the student with a vision impairment.

(Reference Chapter 3)

### **Assets Checklist**

This checklist, created by Search Institute of Minneapolis, is reprinted by permission. It may help build a student's self-image if reviewed periodically, thus focusing on the positive assets he possesses. (Reference Chapter 5)

### **The Job Readiness Checklist for Visually Impaired Persons**

This is the creation of Eileen Humphrey of Texas and is reprinted by permission. A particularly useful part of the checklist focuses on daily living skills, such as personal hygiene and other issues. This form assists the teacher in covering topics that are not normally addressed in school classes. This checklist also provides an assessment tool for the transition from high school to college or career.

(Reference Chapter 6)

## WHAT RESOURCES ARE AVAILABLE?

A huge variety of resources for education and independent living are available for you and your student. Many organizations offer information and services. Other companies specializing in products for people with disabilities will be happy to send a catalog of their products. These products include materials for both the teacher and for the student. They include texts, games, technology, and assistive devices. The Teacher of the Visually Impaired probably has many of these catalogs. Teaching suggestions and other ideas may be available from such sources as local rehabilitation teachers and other special educators.

For your convenience, a partial listing of organizations specializing in aiding the person with low vision is included here. A comment or two is included where appropriate.

The American Foundation for the Blind also publishes *A Directory of Services for Blind and Visually Impaired Persons in the United States and Canada*. In addition to listing local services available for the blind, the directory contains a list of each state's Vocational Rehabilitation offices.

### **Adaptive Environments**

#### **374 Congress Street**

Suite 301,  
Boston, Massachusetts 02210,  
1-617-695-1225

[vfletcher@adaptenv.org](mailto:vfletcher@adaptenv.org)  
<http://www.adaptenv.org>

Adaptive Environments promotes accessibility. For this purpose it promotes the concept of universal design, technical assistance and training. Also available are consulting and advocacy services. The agency's mission is to promote international adoption of policies that will allow every individual, regardless of disability or age, to participate fully in his environment.

### **American Association of the Deafblind**

814 Thayer Avenue  
Silver Spring, MD 20910  
301-588-6545

The American Association of the Deaf-Blind is a consumer organization of deaf-blind individuals involved in advocacy activities and providing information on deaf-blindness to families.

### **American Council of the Blind**

1155 15<sup>th</sup> Street, N.W., Suite 1004  
Washington, DC 20005  
1-800-424-8666

The American Council of the Blind is an organization of persons with impaired vision that can provide assistance to school staff and to parents.



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### **American Foundation for the Blind**

11 Penn Plaza, Suite 300  
New York, NY 10001  
1-800-232-5463

In addition to collecting data nationally concerning the number of blind and visually impaired persons. APH produces Talking Books for the Blind, textbooks in large print and braille, and several other products designed for individuals who are blind or visually impaired and the instructors and parents who teach them. See Chapter 2 of this book for details on using "Quota Funds" for ordering materials for your student.

### **American Printing House for the Blind**

P. O. Box 6085  
1839 Frankfort Avenue  
Louisville, KY 40206-0085  
1-800-223-1839

APH publishes a catalog of products. See Chapter 2 of this book for details on ordering materials using "Quota Funds" for your student. APH produces products for persons who are blind or visually impaired, and for teachers, parents, and agencies. APH collects data nationally on the numbers of blind and visually impaired, including school-aged students. APH produces Talking Books for the Blind, many books and materials for the teacher, as well as textbooks in large print, and in braille.

### **Associated Blind, Inc.**

110 William Street, 9th Floor  
New York, NY 10038  
1-212-766-6800

MemberServices@eSightCareers.net  
<http://www.tabinc.org>

The Associated Blind, Inc. (TAB) is a privately-funded, non-profit agency that provides information resources, for blind and visually impaired people. It also promotes networking and career development.

### **Association for the Education and Rehabilitation of the Blind and Visually Impaired**

4600 Duke Street, #430  
P.O. Box 22397  
Alexandria, VA 22304  
(703) 823-9690  
<http://www.aerbvi.org>

This organization with an international membership is dedicated to rendering all possible support and assistance to professionals who work in all phases of education and rehabilitation of blind and visually impaired children and adults.

### **Braille Authority of North America (BANA)**

#### **c/o National Braille Press**

88 St. Stephen Street  
Boston, MA 02115  
1-617-266-6160 x17

[ecurran@nbp.org](mailto:ecurran@nbp.org)  
<http://www.Brailleauthority.org>

BANA's purpose is to promote the uses, and facilitate the teaching and production of Braille materials.

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### **Braille Institute Library Services**

741 N. Vermont Avenue

Los Angeles, CA 90029

1-213- 663-1111

reference@brailib.org

<http://www.brailleinstitute.org>

### **Council for Exceptional Children**

1110 North Glebe Road, Suite 300

Arlington, VA 22201

1-703-620-3660

The CEC publishes a magazine, newsletters, position papers, and hosts national meetings. The organization addresses parents and professionals, including teachers, about the needs of the child with disabilities, including those with vision impairments.

### **DB-LINK**

#### **Teaching Research Division**

Western Oregon State College

345 North Monmouth Avenue

Monmouth, Oregon 97361

1-503-838-8776 or 1-800-438-9376

[dblink@tr.wou.edu](mailto:dblink@tr.wou.edu)

<http://www.tr.wou.edu/dblink/>

DB-LINK identifies, coordinates, and disseminates free information related to children and youth who are deafblind. It is a federally-funded information and referral service.

### **Hadley School for the Blind (distance learning)**

700 Elm Street

Winnetka, IL 60093-0299

This institution offers accredited, tuition-free distance learning for persons with visual impairments who

are certified as legally blind. Lifelong learning in curriculum areas and independent living skills. Courses are mainly available to the blind and visually impaired, though some are also available to family members and to professionals in the field.

### **Helen Keller National Center for Deaf-Blind Youth and Adults**

111 Middle Neck Road

Sands Point, NY 11050

516-944-8900

This organization provides services and technical assistance to individuals and maintains a network of regional and affiliate agencies. Contact this address for regional sites.

### **Library of Congress**

#### **National Library Service of the Blind and Visually Handicapped**

1291 Taylor Street, N.W.

Washington, DC 20542

1-800-424-8567

Reading materials are made available to the blind and physically handicapped through 54 regional branch libraries. Talking Book machines and cassette players are available for long term loan upon completion of an application processed through the individual's regional office. Braille books and magazines and/or tapes are provided for those individuals certified as being unable to handle or read conventional print materials.

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### **Lighthouse International**

New York City Headquarters  
111 East 59th Street  
New York, NY 10022-1202  
1-212-821-9200 or 1-800-829-0500

This agency provides rehabilitative and educational services as well as providing sales of adaptive equipment.

### **National Association for Visually Handicapped**

22 West 21st Street  
New York, 10010  
staff@navh.org  
<http://www.navh.org>

This is a health agency serving people with low vision. They provide educational materials and counseling. They have a large print loan library of literature for professionals and non-professionals, as well as a large selection of visual aids and adaptive devices for the visually impaired.

### **National Association of State Directors of Special Education**

1800 Diagonal Road, Ste 320  
Alexandria, Virginia 22314  
703-519-3800

The NASDE provides assistance to state education agencies and offers consultative services, sponsors conferences, and publishes newsletters.

### **Office of Special Education and Rehabilitative Services**

330 C Street, S.W., Room 3006  
Washington, DC 20202  
202-205-5465

OSERS has federal oversight responsibility for special education

services and is part of the U.S. Department of Education.

### **National Federation of the Blind**

1800 Johnson Street  
Baltimore, MD 21230  
410-659-9314

NFB is a large national organization of persons who are blind. It can provide assistance to individuals, parents, and schools. Your student may be interested in its program, which provides information on careers for students with visual impairments. It operates a public education program, provides evaluation of existing programs and assistance in establishing new ones, and has a large network of state and local affiliates. These addresses may be obtained by contacting the national headquarters listed above.

### **Recording for the Blind and Dyslexic**

20 Roszel Road  
Princeton, New Jersey 08540  
1 609 4520606  
info@rfbid.org  
<http://www.rfbid.org/>

This agency serves individuals who, because of visual, perceptual or other disabilities, cannot read standard print. They house a lending library of academic and professional textbooks on audio tape from elementary to post-graduate level. They also sell dictionaries, reference material, and professional books on computer disk (E-Text) for no profit.

## **MATERIALS AND EQUIPMENT**

Here is a partial listing of commercial organizations that provide materials and equipment:

### **Ann Morris Enterprises**

551 Hosner Mountain Road  
Stormville, NY 12582

<http://www.annmorris.com>

1-800-454-3175

### **Independent Living Aids**

200 Robbins Lane  
Jericho, NY 11753

<http://www.independentliving.com>

1-800-537-2118

### **L.S. and S Group**

P.O. Box 673  
Northbrook, IL 60065  
1-800-468-4789

### **Sammons Preston, Inc.**

#### **Abilityone Corporation**

4 Sammons Court  
Bolingbrook, IL 60440

<http://www.sammonspreston.com>

1-800-323-5547

### **The Lighthouse International**

111 East 59<sup>th</sup> St., 12<sup>th</sup> Floor  
New York, NY 10022-1202  
1-800-829-0500

### **Maxi-Aids**

42 Executive Boulevard  
Farmingdale, NY 11735

<http://www.maxiaids.com>

1-800-522-6294

## **BRaille WRITING DEVICES**

### **The Perkins Brailier**

Howe Press of Perkins School f/t Blind  
175 North Beacon Street  
Watertown, MA 02172-2790

<http://perkins.pvt.k12.ma.us/index.htm>

1-617-924-3490

### **The NFB Brailier**

Materials Center  
National Federation of the Blind  
1800 Johnson Street  
Baltimore, MD 21230  
1-410-659-9314

## **BRaille TERMINAL**

### **Alva braille terminal**

Humanware, Inc.  
6245 King Road  
Loomis, CA 95650  
<http://www.humanware.com>  
1-800-722-3393

## **BRaille TRANSLATION SOFTWARE**

### **Adaptive Solutions**

1301 Azalea Road,  
Suite 101  
PO Box 191087  
Mobile, AL 36619-1087

Adaptive Technology Consulting, Inc.  
PO Box 778  
Amesbury, MA 01913  
1-978-462-3817  
Fax: 978-462-3928  
[gyarnall@adaptivetech.net](mailto:gyarnall@adaptivetech.net)

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### **BrailleMaster Division**

Robotron Group  
15 Stamford Road  
Oakleigh 3166  
Australia

### **Duxbury braille translator**

(for Windows or MS-DOS)/MegaDots  
Duxbury Systems, Inc.  
435 King Street  
P.O. Box 1504  
Littleton, MA 01460  
<http://world.std.com/~duxbury>  
1-978-486-9766

### **National Braille Association**

3 Townline Circle  
Rochester, New York 14623-2513  
1-585-427-8260  
1-585-42- 0263  
[nbaoffice@compuserve.com](mailto:nbaoffice@compuserve.com)

## **SCREEN READER**

### **G.W. Micro**

#### **Window Eyes**

725 Airport North Office Park  
Fort Wayne, IN 46825  
1-219-489-3671

### **Henter-Joyce**

#### **JAWS for Windows**

FREEDOM Scientific Blind/  
Low Vision Group  
11800 31<sup>st</sup> Court North  
St. Petersburg, FL 33716  
<http://www.freedomscientific.com>  
1-800-336-5658

## **BRILLE EMBOSSE**

### **American Thermoform**

1758 Brackett Street  
La Verne CA 91750  
909-593-6711; 800-331-3676 v  
909-593-8001 f  
[atc@atcbrleqp.com](mailto:atc@atcbrleqp.com)

### **Blazie Division of Freedom Scientific**

105 E Jarrettsville Rd  
Forest Hill MD 21050  
800-336-5658 or 561-223-6443 v  
727-803-8001 f  
[info@blazie.com](mailto:info@blazie.com)

### **Braillo, Norway AS**

PO Box 647, Storgaten 31  
3101 Tonsberg  
Norway  
+47 33 316622 v  
+47 33 316677 f  
[braillo@braillo.no](mailto:braillo@braillo.no)  
Sold in the U.S. by  
American Thermoform.

### **Enabling Technologies**

1601 Northeast Braille Place  
Jensen Beach FL 34957  
561-225-3687 or 800-777-3687 v  
561-225-3299 f  
[enabling@brailler.com](mailto:enabling@brailler.com)  
(interpoint), Marathon, Romeo (mid-range), and TED-600, Thomas (mid-range), and PED (plate embosser).  
Those not marked are professional.

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### **HumanWare, Inc.**

6245 King Rd.  
Loomis CA 95650  
916-652-7253 or 800-722-3393 v  
916-652-7296 f  
info@humanware.com

### **Index Braille Printer Company**

Hantverkavagen 20, Box 155  
S-954 23 Gammelstad  
Sweden  
+46 920 203080 v  
+46 920 203085 f  
info@indexbraille.com  
Sold in the U.S. by Sighted Electronics

### **Nippon Telesoft Co., Ltd**

Hanzomon MK Bldg 1-8-1 Kojimachi  
Chiyoda-Ku  
102-0083 Tokyo  
Japan  
+81-3-3264-0800 v  
+81-3-3264-0880 f  
info@telesoft.co.jp  
(print and braille on same sheet of paper)

### **Quantum Tech Pty., Ltd**

5 South Street, Rydalmere  
2116 Sydney NSW  
Australia  
+61 2-684-2077 v  
+61 2-9684-4717 f  
quant@quantech.com.au  
Sold in the United States by  
HumanWare.

### **Sighted Electronics**

69 Woodland Avenue  
Westwood NJ 07675  
201-666-2221 or 800-666-4883 v  
201-666-0159 f  
sighted@idt.net

### **Technol Eight Co., Ltd**

358 Katakura-machi, Hachioji City  
Tokoyo  
Japan  
+81 426 370591 v  
+81 426-37-0593 f  
They manufacture the Ohtsuki  
embosser sold by American  
Thermoform.

### **ViewPlus Technologies**

3223 NW McKinley Drive  
Corvallis OR 97330  
541-754-4002 v  
541-753-8286 f  
Sells the Tiger embosser which  
produces excellent tactile graphics  
directly from Windows

## **PORTABLE BRAILLE DEVICES**

### **Braille 'n Speak**

#### **Braille Lite**

Freedom Scientific  
11800 31<sup>st</sup> Court North  
St. Petersburg, FL 33716  
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### **National Braille Press**

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1-617-266-6061

### **Seedlings Braille Books for Children**

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Livonia, MI 48151-5924

<http://www.seedlings.org>

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## **SELECTED BOOKS**

### *Beginning Braille for Adults*

By Ramona Walhof

National Federation of the Blind

### *Braille Literacy: Issues for Blind Persons, Families, Professionals, and Producers of Braille*

By Susan J. Spungin

American Foundation for the Blind

### *The Bridge to Braille: Reading and School Success for the Young Blind Child*

By Carol Castellano and Dawn Kosman

National Federation of the Blind

### *Foundations of Braille Literacy*

By Evelyn J. Rex, Alan J. Koenig, Diane

P. Wormsley, and Robert L. Baker

American Foundation for the Blind

### *Guidelines and Games for Teaching Efficient Braille Reading*

By Myrna R. Olson in collaboration

with Sally S. Mangold

American Foundation for the Blind

### *Handbook for Learning to Read Braille by Sight*

By Leland Schubert

American Printing House for the Blind

### *The McDuffy Reader: Braille*

*Primer for Adults*

By Sharon Duffy

National Federation for the Blind

### *Reading by Touch*

By Susanna Millar

Routledge



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## **CHAPTER 7 SYNOPSIS**

1. How do I use the Materials Tote?
  - ♦ Contents of the Materials Tote
2. How do I obtain and use direct information from the student?
  - ♦ Interviewing the student
  - ♦ The Informal Information Sheet for your use
3. What resources are available?
  - ♦ Listing of several agencies and organizations serving the visually impaired
  - ♦ Listing of several commercial organizations with products for the visually impaired

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