Preschool Children with Visual Impairments

by
Virginia E. Bishop, Ph.D.

1991

Written in collaboration with
REGION XIII
EDUCATION SERVICE CENTER
Dr. Roy C. Benavides, Executive Director
roy.benavides@esc13.txed.net

Revised 1996
for Texas School for the Blind and Visually Impaired

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Introduction

This booklet is written for Early Childhood Teachers who have (or may have) a visually impaired child among their students. It is not meant to be a comprehensive text; it is intended to be an introductory guidebook to help Early Childhood Teachers understand what a visual impairment is, how a visual impairment affects early development, and why early intervention is so critical to these children.

Early Childhood Teachers should always seek advice from a Teacher of Children with Visual Impairments (VI Teacher) for more specific information about eye defects or diseases, developmental delays related to visual impairments, and available resources.

A VI Teacher should **always** be a member of the assessment team for these children, and should **always** be consulted for programming suggestions and materials/environmental modifications.

It is hoped that this guidebook will introduce Early Childhood Teachers to visually impaired children, and to the professionals who can help make teaching these children an exciting, challenging, and thoroughly enjoyable experience.

V.B.

What Is A Visual Impairment?

A visual impairment occurs when any part of the optical system is defective, diseased, or malfunctions. If the visual impairment is the result of a defective part (or parts), it is usually present at birth (congenital). These include missing parts (e.g., absence of an iris; absence of the eyes themselves), defective systems (e.g., dislocation of the lens; holes in the retina; drainage systems that are stopped up), and hereditary conditions (e.g., refractive errors due to eyeballs that are too short or too long; improperly shaped corneas; albinism). Diseases can be pre-natal (e.g., insult to the fetus in utero), at birth or post natal (e.g., damage shortly thereafter), or adventitious (acquired later) (e.g., diseases that develop gradually such as diabetes and some types of retinal diseases). Malfunctions can be due to defective parts or, secondarily, to body diseases such as rubella. There are hundreds of eye problems (and combinations of problems) located in the optical system itself The eye specialist (ophthalmologist/optometrist) is qualified to identify or diagnose these problems, and the VI Teacher can interpret what they mean and how they relate to educational programming.

A visual impairment can also occur when the central nervous system is damaged, since the brain not only governs and coordinates the optical system but also interprets (i.e., "processes") the visual stimuli sent to it by the eyes. Sometimes this brain-based disability is mild (e.g., poor visual perception) and sometimes it is severe (e.g., cortical visual impairment, or "CVI"). If the optical system is intact (and this is the case with many learning disabled children who have visual perceptual problems), the VI Teacher may defer programming responsibilities to the LD Teacher. (An exception to this is in the case of CVI, where the VI Teacher remains involved.) However, if the optical system is defective in any way, in **addition to** the cortical damage/malfunction, the VI Teacher will be a member of the professional team. If brain damage is causing a delay in visual development (as with multiply handicapped-visually impaired children), the VI Teacher may act as a Consultant, giving suggestions for programming and demonstrating techniques, but may visit less often for direct services. Each situation is different, and these decisions must be made on the basis of each child's individual needs.

Texas State law and rules require that visually impaired children be served from birth by the VI Teacher (or as early as the visual diagnosis can be made). VI Teachers often serve infants and their families at home, and provide direct services to the children. If this is the case, the VI Teacher may have insights and information about the child and his/her family that can be shared with other professionals. An interdisciplinary team (that includes the VI Teacher) should conduct assessments jointly when possible, to facilitate communication among all professionals involved.

The Team can then develop a global view of the whole child, and can make more appropriate program recommendations.

The term "legal blindness" does not accurately describe visual functioning. It only reflects a measure of central acuity **at twenty feet**, OR severely restricted peripheral visual fields. The definition of legal blindness is: "20/200 or worse, central visual acuity, in the better eye, corrected if applicable, OR restricted fields of 20 degrees or less in the better eye." This definition is used primarily for economic purposes, such as Social Security benefits, and for Federal Quota allotments at the American Printing House for the Blind. Since most educational tasks occur at nearpoint, an **educational** definition of visual impairment is used. In Texas, this is: "Students whose sight is so impaired that they cannot be adequately or safely educated in the regular classes of the public schools without the provision of special services." The Texas State Board of Education further requires that there be an eye specialist's report on file, and that a Functional Vision Evaluation be done by a VI Teacher or an Orientation & Mobility Instructor (0 & M Instructor). This Functional Vision Evaluation collects data to determine how much useful vision is present and how efficiently it is used.

Texas state law and rules also require a Learning Media Assessment (done by the VI Teacher), to determine which sensory channel is the child's preferred learning sense, and whether learning media should be visual, auditory, tactual, or a combination of any of these. For children who will be able to learn to read and write, the Learning Media Assessment also collects data to help in determining the literacy media - print, braille, recorded materials. A Learning Media Assessment must be conducted for all visually impaired students, including preschoolers. Programming recommendations are then based on the information gathered by both the Functional Vision Evaluation and the Learning Media Assessment.

The term "visually impaired" is used to describe a student who has a visual impairment severe enough to interfere with learning. The term is the designation required for a child to receive services from a VI Teacher. When the Functional Vision Evaluation and Learning Media Assessment have been performed, the sub-category may then become "functionally blind," "low vision," or simply "visually impaired." A child who is functionally blind will depend on senses other than vision (e.g., hearing and touch) for learning purposes, and will most likely become a braille reader. The child who has low vision may use a variety of optical devices (e.g., telescopes, special glasses, or magnification), but is primarily a visual learner; print of some size will probably be the preferred reading medium. Some children may have impaired vision but will not use optical devices; modified materials or environmental adaptations may be sufficient. Decisions for programming will be based on how efficiently that vision is used, and on what sensory channels are preferred. The VI Teacher will be able to recommend how much programming is needed (e.g., direct services, modified materials or environment, or additional tools or devices). The ARD committee will act on those recommendations.

How Does Vision Work?

Vision is a highly complex, finely tuned, organized process. It is composed of the optical system (eyes, eye muscles, optic nerve) and the perceptual system (brain). **All** parts must be intact and functional for perfect vision to occur.

The visual system is intended to be an information-gathering and motor-monitoring system. optical component collects visual stimuli and sends them to the brain, where they are identified, classified, and filed in memory. The brain builds a collection of images through which it understands the world, and which are ultimately used for formal reasoning (the manipulation of mental images). Based on the brain's processing of the information sent to it by the eyes, the brain sends instructions to the body about how to move in order to retrieve, avoid, or further examine an object or situation.

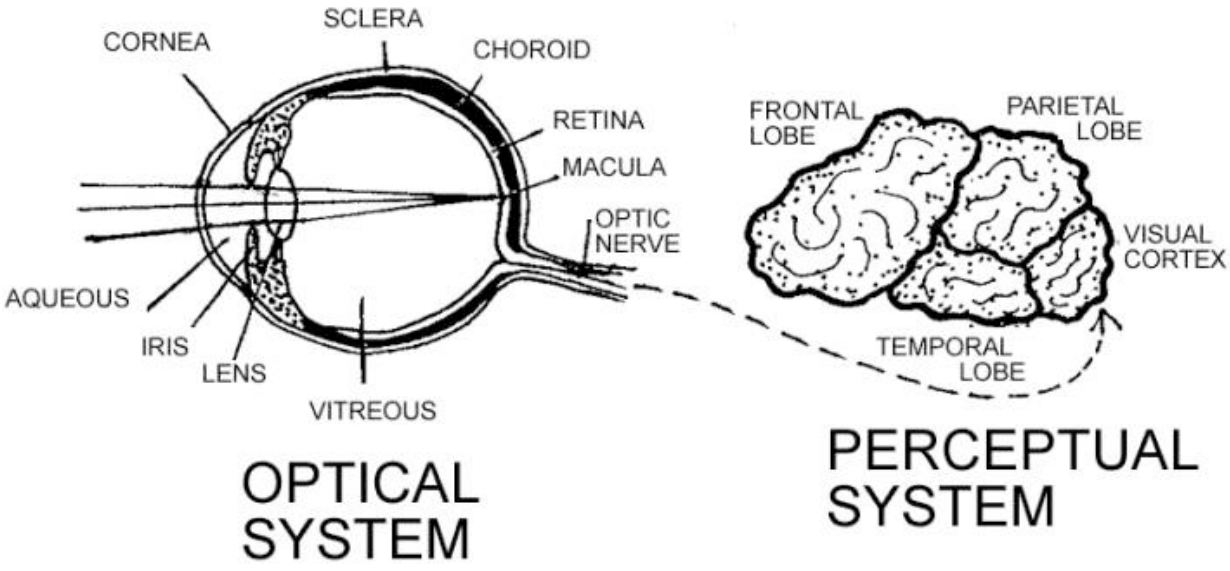
In order for images to be transmitted by the optical system, a number of conditions must be met:

1. The eyes must be in alignment.
2. The pupil size must be adjusted for lighting conditions.
3. The shape of the eyeball and cornea must be correct, allowing focusing of the image precisely on the macula (a small area of the retina responsible for sharpest vision).
4. The lens must adjust its shape to provide the proper refractive curve for light passing through it.
5. The transparent parts of the eye must be clear (cornea, aqueous, lens, vitreous).
6. The retina must be functional (i.e., the photo-receptor cells must be working).
7. The optic nerve must be capable of transmitting the image to the visual cortex (area of the brain responsible for visual processing).

In order for the optical system to function correctly, the brain must be capable of monitoring the adjustments (i.e., the eye alignment, pupil response, lens adjustment). It must also be capable of processing the received images. Brain malfunction can also cause malfunctions in both optical and perceptual systems, resulting in a visual impairment.

Light rays pass through the cornea (where they are bent slightly, or refracted), continue on through the aqueous, then through the lens (which makes additional refractive adjustments) and finally through the vitreous, where they are focused on the macular area of the retina. The retina then begins the sorting process and sends the images (in the form of electrical impulses) through the optic nerve to the brain. Any defect or malfunction at any stage of the visual process can result in impaired vision.

(See accompanying diagram.)



- VISUAL SYSTEM -

What Does It Mean In The Learning Environment?

Functional vision (i.e., how a child uses whatever vision is present) depends on a variety of factors. These may be loosely grouped into three categories:

1. Medical/Visual
2. Psychological
3. Environmental

Among the medical/visual factors are: the integrity of the visual system (whether all the parts are there and working properly), the intactness of the central nervous system (including the brain), and the coordination level of motor abilities. In order for the visual system to function at its optimum level, brain, body, and eyes must work together smoothly. Also included among the medical/visual factors are the severity of the visual impairment and the age of onset; the child whose vision is minimal will have more need for modifications in program, materials, and environment, and may need more concrete experiences to build a knowledge base of his/her world. The child who is born with a severe visual impairment has little spatial reference, but the child whose vision deteriorates over time (or who begins life with vision and then loses it suddenly - e.g., children who have had their eyes removed because of tumors) has visual memory upon which to base spatial concepts. Age of onset may also affect the self-image of a child; congenitally totally blind children are often unaware that they have a disability!

Psychological factors may play a significant role in functional vision. If a child's other senses are depended upon for information gathering, then sensory integration (the ability of the brain to

make sense out of **all** sensory input) will be important. If the child has sufficient vision to use optical aids (e.g., magnification or telescopes) or to read print, then visual perception (the ability to make sense of visual information) will be critical. Cognitive ability can provide incentive to learn, and understanding of more abstract concepts. Personality factors such as curiosity, motivation, and perseverance can contribute a great deal towards the development of efficient functional vision.

Environmental factors include color, contrast, time, space, and illumination. These are the most easily manipulated in enhancing visual functioning. The type of modification required for each factor may vary according to the child's individual needs. Some children may depend on color cues, while others need good contrast in printed or graphic materials. Many children need good lighting (and a few may need minimal illumination) in order to see at optimal levels. Some children will need extra time when using vision for functional tasks, and still others may find visual concentration easier when pictures, words, or numbers are spaced well apart. The VI Teacher can make suggestions for visual comfort and efficiency, based on each child's individual visual needs.

It is impossible to know exactly how a child sees his/her world because we cannot see it through their eyes. Moreover, the child is unaware that he/she sees things any differently than other people. Evaluating functional vision requires careful observation of the child's behaviors. Does he/she squint or lean forward? Are materials or objects brought closer to the child's face for viewing? Is there a head-tilt or head-turn (either because one eye sees better than the other, or because a different part of the retina is being used)? Does the child cover or close one eye, and under what conditions? Some children may see things blurred or indistinct, while others may see only parts of objects. Some children may see only light, or a light source, while others may see shadows or large forms. Some children see movement of objects better than stationary objects. Some children have good central ("straight ahead") vision but fall over objects in their path because they have poor peripheral (side, upper, lower) vision. The child with a visual impairment can behave in unusual ways because he/she is attempting to use whatever vision is available, in whatever way it can be used best. The VI Teacher can help to interpret unusual visual behaviors, and may be able to suggest ways to alleviate some of them; the VI Teacher is always interested in helping visually impaired children to use their available vision in the most efficient manner. Children will usually use whatever vision they have, and this should be encouraged! Vision cannot be "conserved" or "saved;" it needs to be used to become as efficient as possible.

How Does A Visual Impairment Affect Early Development?

Development "norms" are based on observations of sighted, intact children. Although it appears to be true that the more sight a visually impaired child has, the more likely he/she is to develop at a normal rate, there is little research to support a direct comparison of blind children to sighted norms. In fact, current research suggests that blind children may have their own set of norms (i.e., they may not follow all of the same sequences, in the same order, at the same time, as sighted children). Therefore, what may appear to be a "delay" for a blind child may, in fact, be normal for him/her. There are no developmental norms for blind children because of the low prevalence and because there is a lack of any regional or national database from which to draw

inferences. Until norms become available, therefore, visually impaired children will continue to be compared developmentally to sighted children, and "delays" may continue to be noted.

The most noticeable delay in development for visually impaired children is in motor areas. Since vision is a motivating sense, many of the motor milestones (e.g., head control, erect posture, reach, locomotion) may fail to occur when expected. Early intervention has been able to minimize these delays in many cases.

The refinement of motor skills is another area of concern, since vision monitors practiced improvement. "Visually-directed reach" is one of the first refined movements developed in this manner; it begins with the asymmetric tonic neck reflex, when the child's eyes are forced to look at his/her hands. If insufficient vision exists, this reflex may not serve its purpose-, instead of disappearing, it may persist past the time it should have disappeared. "Hand regard" and "engaging hands at midline" are also visually-based; when vision is impaired, they may not serve their intended purpose of refining the movements. Hearing is not an equal motivator for reaching, since it develops later in the first year (in intact normal infants as well as intact visually impaired infants). Therefore, reach-on-sound is not an equivalent behavior to "reach-on-visual-cue" (though it should certainly be encouraged in blind babies).

Locomotion (e.g., creeping/crawling and/or walking) may be delayed by six months or more in young blind children, since vision is the sense that lures babies to move beyond arm's reach. Intervention has been shown to be effective in minimizing these delays. If attempts are made to substitute touch or hearing for vision, however, as behavior initiators, it should be remembered that touch is **sequential** (i.e., tactual experiences occur one-at-a-time), as is hearing, to a large extent (sounds may occur simultaneously, but attention is focused on one primary sound at a time). Vision is capable of integrating a great many bits of information, **all at once** (e.g., color, texture, size, shape, position in space, movement). No other sense sends as much information to the brain as quickly as does vision.

Fine motor skills may develop more slowly for visually impaired children, since vision allows both imitation and refinement of skills. Grasp patterns may progress more slowly (inhibiting the use of spoons, crayons, etc.), and "school skills" such as block building, pasting, coloring, and using scissors may appear to be delayed. The lack of these skills should not be used as an indicator of retardation, however, since such delays might be expected (especially of blind children); these skills are usually acquired satisfactorily, although somewhat later.

Cognition may appear to be delayed in severely visually impaired (but otherwise intact) children. "Object permanence" is usually the first measure of intelligence and is a visual skill; people permanence" often develops before object permanence in blind children. Cause-effect events provide the next problem area since vision is required to observe "what happens when..." A great deal of concrete experience with cause-effect toys or actions can help alleviate this delay. The less vision a child has, the greater this problem will be, and the more concrete experience will be needed.

Concept development may be the most critical cognitive area for young visually impaired children, since such concepts will form the basis for all further cognitive growth. Intelligence measures are heavily concept-based, and absence of concepts can give a depressed view of a visually

impaired child's cognitive ability. Since the foundations of intelligence are laid in the first three or four years of life, it is essential (and perhaps **urgent!**) that basic concept development be begun as early as possible for visually impaired children. The VI Teacher can offer suggestions to families about how to begin this intervention, and to other service providers about how to continue the emphasis.

Cognitive factors such as classification, conservation, and one-to-one correspondence are based on adequate concept development. If delays in these areas are evident, the VI Teacher may suggest going back to basic concepts and giving supplementary experience to strengthen them further.

In totally blind children (who lack visual memory and visual imagery - the basis for formal reasoning), the mechanisms for developing intelligence are not clearly identified. The other senses do not provide the rich supply of information about the world that vision does, and are not totally adequate substitutes. However, blind children **do** construct their world, and **do** develop intelligence. The provision of many and varied concrete experiences (i.e., "hands on" and interactive), early in life and continued through the preschool years, can help totally blind children (and most visually impaired children) achieve their cognitive potential.

Language development can be misleading for visually impaired children. Initially (in the babbling, pre-verbal stages), visually impaired infants show little delays. Even at the beginning verbal stages, visually impaired children are generally able to imitate words and syntax. It is when language begins to have **meaning** that visually impaired children begin to exhibit delays. They have difficulty attaching meaning to objects or actions they cannot observe clearly (or not at all). Because they may fail to separate the "me" from the "not-me" (as late as kindergarten or first grade), pronoun usage may be inappropriate or delayed. Describers (adjectives or adverbs) may be added to their vocabulary more slowly. Echolalia may persist as a auditory feedback of sound (without meaning), however, delayed echolalia (where echoed words are used in a later time period) can be an attempt to use language to communicate. Sometimes, a visually impaired child is able to use many words and proper syntax but has no idea what he/she is talking about (i.e., may use "proper" sentences/words which have minimal meaning to the child; this type of language is usually spontaneous, and should not be confused with echolalia, which is not spontaneous language). "Proper" but meaningless language can earn good grades and high scores on tests, but it does not provide a language base for reasoning purposes. It is vital that concrete experiences, early in life, build conceptual foundations for meaningful language.

Self-help skills (e.g., eating, dressing, grooming, toileting) are primarily imitated skills. When vision is impaired, a child does not have the ability to observe how others behave or care for their own needs. Most self-help skills must be specifically **taught** to visually impaired children, and blind children require the most time and attention given to these skills. Since independence is always a primary goal for visually impaired children, attention to self-help skills at the preschool level is an urgent consideration. The VI Teacher can usually give suggestions or demonstrate techniques for such instruction.

Self-concept and a sense of identity are difficult areas for the visually impaired toddler. The less vision a child has, the more likely it is that he/she will wait for a stimulus; the passivity often seen in a blind child is related to his/her inability to be stimulated by the environment. This can

result in over-dependence on others. The visually impaired child needs to act upon his/her environment in such a sway as to receive self-initiated feed-back; he/she needs to learn that some degree of control over the environment can be achieved. This locus of control issue is a vital one in building confidence and positive self-image - both critical to later success in school and in the work.

Social skills are a particular challenge for children with visual impairments. The initial social skill of maternal bonding may be affected by impaired vision; eye contact may not be made between the infant and its mother, and the intimate interaction may be lost unless intervention is provided. The VI Teacher can provide ideas for alternatives (e.g., nuzzling, tickling, talking). As the child gets older (becomes a toddler), a great many social gestures may not be learned because the child does not observe them spontaneously. Actions such as waving "bye-bye," head-nodding/head-shaking to mean "yes" or "no," or facing the speaker during conversation may have to be taught specifically to the visually impaired child. Negative behaviors such as nose picking, eye poking, thumb sucking, "finger flicking," or rocking may have to be extinguished through reminders or behavior modification planning. Imitative self-help skills may have to be taught, step-by-step. An orientation away from egocentricity and toward others may need to be included in special programming. Since social skills are a primary factor in mainstreaming success, they need to be taught early and continuously.

One aspect of social skills is often overlooked - that of play. Visually impaired children may not know how to play because they do not observe how objects are used by others or what models of objects (e.g., cars, dolls, miniature tools) mean. Exploratory behaviors (e.g., mouthing, waving, shaking, hanging) may persist beyond appropriate ages. Since play is imaginative behavior based on observed actions, specific efforts may have to be made to demonstrate (preferably with real objects) how things work and how they are used. Until the visually impaired child understands the functions of objects (and tools), he/she cannot imitate these functions (i.e., "pretend" or play).

Another facet of social skills that is often underemphasized is conversation. Visually impaired children sometimes have difficulty initiating, maintaining, and bringing closure to conversations. Some of these difficulties are due to the inability to observe facial expressions and body language, but the child's lack of experiences and egocentricity may also contribute to the problem. Specific attention may need to be given to conversational skills (e.g., talking about events, people, objects, and encouraging the child to talk about them as well; reading a story and asking the child to fill in details or even retell the story). If these skills are practiced in early childhood, they may be less trouble-some later, in school and in life.

What About Additional Disabilities In The Young Visually Impaired Child?

A great deal depends on the kinds of additional disabilities. The combination of both hearing and visual impairments can be a serious handicap; if both disabilities are moderate to severe, the child is considered "deaf-blind" (most deaf-blind children have **some** hearing and **some** vision). Highly specialized services are usually needed, most of which concentrate on communication

skills. The Texas School for the Blind and Visually Impaired can offer concentrated residential programming, or outreach services to school-based placements.

When brain damage or severe cognitive delays co-exists with a visual impairment, the effects become more complex. Disabilities interact: brain f6ction affects both vision and motor development, and may also affect language; visual impairments affect motor skills and can delay communication; combined motor and visual impairments impede a child's interaction with his/her environment, which, in turn, can interfere with cognitive development. No single professional can provide adequate intervention alone; there must be an interdisciplinary team who share information and plan strategies jointly. The Early Childhood Teacher may implement a great many of these strategies, with the ongoing support of the special team.

The most common concern of Early Childhood Teachers about multiply handicapped-visually impaired children seems to be the potential for improvement (particularly in visual ability). It should be noted that the visual system's developmental level is more closely related to the child's overall developmental level than to chronological age (i.e., a child of 3 or 4 who is functioning more like a 6 month old infant may have a visual system that is also at about the 6 month level). The reason for this is the primary role of the brain in visual functioning. This fact cannot be overemphasized in any discussion of multiply handicapped-visually impaired children, since it may affect the prognosis over time for such children.

A final note should be added about cortical visual impairment (CVI), since it may occur along with other disabilities. Current research suggests that these children are capable of being over stimulated, and commonly used "visual stimulation" activities may be inappropriate. The VI Teacher should be aware of a diagnosis of CVI (or the potential for such, as in damage to the occipital lobe of the brain) and will program accordingly.

What Is "Orientation & Mobility" For The Young Visually Impaired Child?

Orientation is the ability of the visually impaired child to perceive and understand his/her position and location within a given environment. Mobility is the ability to move about within a given environment. These abilities do not suddenly appear at a specific time or age, but have an underlying conceptual foundation which begins at birth. For visually impaired infants, many factors contribute to the quality of these emerging conceptual foundations: the quantity/quality of available vision; whether that vision will remain the same, improve, or deteriorate; whether there are other disabilities (hearing, motor, tactual defensiveness, impaired senses of smell or taste); alertness/receptivity. Initial mobility factors are largely motor-based, and depend to a great extent on the development of the motor system. Milestone skills such as head control, sitting unsupported, independent hand/arm use (as in grasping and reaching), creeping/crawling, standing alone, and walking independently are all pre-mobility skills.

Once upright posture and balance have been achieved, a higher level of development can occur. Body image/body control (the child's perception of his/her own body and what it can do, and the understanding of other people's similar capabilities) combines emerging cognitive abilities and

spatial recognition (that there is space "out there"). When this level of understanding has been reached, there can be coordinated and purposeful movement in the environment (towards or away from people, objects, sounds, etc.). This environmental interaction provides opportunities for the orientation of the child within his/her world (concept development) and mobility.

When a child begins to "move out" into the world, initial 0 & M evaluation and instruction (by a qualified/certified 0 & M Instructor) can begin. Such instruction might include the enhancement of basic concepts, the use of trailing and/or protective techniques, emphasis on the skill of following directions, and practice to improve gait and/or posture. Some 0 & M instructors teach or encourage the use of push toys or adapted mobility devices as soon as a child begins to walk with some confidence. Although adapted mobility devices may be used as early as 2-3 years of age (e.g., push toys, hoops, T-bars), structured cane use does not usually begin until about age 4-5. The 0 & M instructor provides this instruction, and should become a part of the special program team. Each visually impaired child is unique, and the 0 & M instructor can design an individual program to meet those unique needs.

Adult sighted guide technique (the use of a sighted person as a guide for a visually impaired person) is not usually taught to very young children because of the height difference between guide and follower. ("Correct" sighted guide technique involves the visually impaired person's holding of the elbow of the guide in a precise way, in order to maximize coordinated movements between guide and follower; see Appendix for a description of this procedure.) Alternative methods for using a sighted guide can be taught to children as young as 2-3 years,

however; such methods might include having the child hold an adult's two fingers or wrist. It is important that the child holds onto the adult (not the adult holding onto the child),- this establishes good habits for later sighted guide instruction. The 0 & M instructor should always be consulted for suggestions in teaching adapted sighted guide techniques for young children.

How Should Young Visually Impaired Children Be Tested?

The Functional Vision Evaluation and Learning Media Assessment are part of the child's comprehensive individual assessment and are usually the first assessments in a visually impaired child's evaluation for service needs. Both are done by the VI Teacher. Although the 0 & M instructor is **qualified** to do the Functional Vision Evaluation, it is usually the VI Teacher who actually does it. The VI Teacher is the only one qualified to do the Learning Media Assessment. Both of these assessments are required by Texas State Law, and precede any other structured evaluation, so that the VI Teacher can assist/advise the diagnostician with any subsequent testing. (The VI Teacher must document that the diagnostician has been given a description of the visually impaired child's unique visually-related needs and functional behaviors.)

Specific-skills testing (e.g., basic concepts, sensory awareness, listening skills, self-help skills, social skills, etc.) should be done by the VI Teacher, who has access to materials and techniques for those purposes. When in doubt about which specific skills the VI Teacher should evaluate, contact him/her and ask. The 0 & M instructor will perform any evaluation involving mobility skills.

Below about age 4 (and for children with multiple disabilities, who are also visually impaired), developmental scales are commonly used. It should be recognized, however, that there are shortcomings inherent in such scales. "Delays" may be the result of the visual impairment, not cognitive problems. If developmental scales such as the Bayley or Denver are used, evaluators should be alert to missed items which may be caused by the visual disability; the test report should note that difficulty and any other deviation from standard procedures in evaluation. Other developmental scales may be oriented to visually impaired infants and young children (e.g., Oregon Project or "Growing Up"); these can be substituted for, or used in addition to, the standard scales. It is important to note that there are no "norms" for young visually impaired children's development, and that even Oregon Project and "Growing Up" compare development to sighted norms. The VI Teacher should be able to offer suggestions to diagnosticians and other evaluators about appropriate instruments, modifications, and reporting procedures.

Adaptive scales or "social maturity scales" (e.g., the Maxfield-Buchholz Social Maturity Scale) should be used with caution. It should be recognized that visual impairments can delay self-help skills and independent functioning to the extent that adaptive scales may show depressed results for visually impaired children. Moreover, the Maxfield-Buchholz Social Maturity Scale was standardized on a population of visually impaired children, a high number of whom had a unique type of visual diagnosis (RLF/ROP). These children may not be representative of most visually impaired children.

As with **all** young children, cognitive testing for children with visual impairments below the age of 4 is probably inappropriate. Moreover, there are no intelligence tests normed for visually impaired children above that age. Although the Stanford-Binet scale is sometimes used, one of the Wechsler scales (usually the WPPSI) is preferable because of its split-scale format (verbal and performance). A visually impaired child's cognitive ability may be better estimated by a verbal evaluation than a performance test, despite the danger of over-rating verbal responses (i.e., accepting rote answers that may or may not have a firm base in meaning). When an estimate of cognitive abilities is desired, "ranges" should be reported rather than scores (e.g., "average," "low average," "superior"). At the preschool level, the DASI-II (Developmental Activities Screening Inventory) can give additional information to support the Wechsler data, since there are specific suggestions in the DASI-II Manual for testing visually impaired children.

The Texas School for the Blind and Visually Impaired (TSBVI) can offer informational assistance with pupil evaluation, both directly and indirectly. Assessment personnel can evaluate children at their facility or can offer consultation on an outreach basis.

What Do I Have To Do In The Classroom For A Visually Impaired Child?

It is important to see the visually impaired child first as a child (with all of the growing-up problems of other children), and secondarily as a child with a visual impairment. There will be pretty visually impaired children and some who are not so pretty (as with all children); some visually impaired children will be shy and some will be aggressive (as with all children); some will be passive and dependent and others will want to do things "all by myself' Oust like all children).

Some visually impaired children will be "brats" and some will be "angels" Oust as among all children). The visually impaired child needs to adhere to the same standards of behavior expected of his/her peers, and needs to learn that actions have consequences Oust like other children). The visually impaired child needs to be accepted but not coddled, loved but not "petted," and understood not "tolerated" Oust like most children). The Early Childhood Teacher must think of the visually impaired child as a child who is eager to learn, but who may need some modified techniques.

The Early Childhood Teacher can use most of the good teaching methods applicable to children with normal vision. At the preschool level, there are few adaptations needed, since the concept-building experiences needed by all children are also essential for the visually impaired child; he/she may need more of them, presented at very concrete levels, but such an approach will be good for the other children in the class as well. The VI Teacher can suggest alternative activities or materials, if needed for substitutions during times when the other children are performing visual tasks; the need for substitutions will depend on the severity of the visual impairment, and should be discussed with the VI Teacher.

Below are a few specific suggestions that can enhance an Early Childhood Teacher's interactions with the visually impaired child.

1. Address the visually impaired child by name when talking just to him/her.
2. Touch his//her arm or shoulder if you feel he/she is not attending, so that he/she will know you are including him/her in whatever you are discussing.
3. Avoid using facial expressions (e.g., a frown) as class behavior management techniques, unless you accompany the facial expression with a verbal statement.
4. Emphasize listening skills in the visually impaired child (e.g., for following directions, listening for details in a story, or simply to improve receptive language).
5. Make as many experiences as possible concrete (sensorily oriented and/or interactive).
6. If a child has some useful vision, don't be afraid to ask what an object looks like **to him/her;** it may help you understand what the world looks like through the child's imperfect eyes. It may also help the child to understand what he/she is seeing.
7. Be alert for situations in which the visually impaired child may have had little or no experiences, or for which the child has no prior reference. Common examples are foods in altered form (e.g., eggs that are fresh, soft-boiled, hard-boiled, scrambled; dried corn, corn-on-the-cob, popcorn; watermelon in neat, de-seeded chunks vs slices with seeds), sources of materials (e.g., wood comes from trees - trees are wood; ice, steam, and condensation are all forms of water; milk comes from cows; ingredients in a cookie recipe), occupations (what people do), and "what happens when"
8. If a visually impaired child seems to be testing you or your limits, it may be because he/she is unaware of the consequences or results of his/her behavior. Take time to find out if this is the case.
9. Avoid using isolation (e.g., a "time out" room) as punishment except as a last resort. The child with a severe visual impairment may feel abandoned if he/she cannot at least hear your voice. Isolation may also act as a negative reinforcement for some visually impaired children with underdeveloped social skills. For young children, the existence of a visual impairment is frequently an inherently isolating factor. A major focus for children with

visual impairments is to encourage them to interact with people and the environment, not to be isolated.

Ideas for Activities

Most of the activities suggested below will appear to be very much like standard nursery school/ kindergarten activities. Visually impaired children need many of the same kinds of tasks and experiences, but may need more **of** them, and more emphasis on the concrete (sensory) aspects of them. The VI Teacher can suggest many more specific activities that will be most appropriate for the child in your classroom.

Motor Activities

Gross motor:

- marching, running, jumping, hopping, climbing, rolling, stretching, twisting
- circle games (where children hold hands, follow directions, do directed movements, e.g., "The Hokey Pokey") and action songs

Fine motor:

- finger plays (e.g., "Where is Thumbkin," "Two Little Blackbirds," "Eensy, Weensy Spider," etc.)
- pounding (play dough, clay, bread dough) and kneading
- block play (cubes, Lego, "bristle blocks," etc.)
- finger painting and "pudding painting"
- "school skills:" coloring, cutting, pasting, tracing stencils (both with fingers and with a writing tool)

Sensory Activities

Using Vision:

- Easter Egg Hunt, Treasure Hunt (using large or brightly colored objects)
- talking about what things look like (shape, size, color, weight, texture)
- looking for things in the environment that resemble circles, squares, triangles, rectangles

Using Hearing:

- listening games (e.g., "Simon Says")
- listening for details in stories read to him/her
- singing songs (especially songs with actions), using rhythm band instruments
- listening for sounds in the environment (e.g., birds, traffic, airplanes, voices, motors)
- following directions (beginning with simple one-step and progressing to more difficult two-step)

Using Touch:

- sorting by touch (e.g., texture blocks, cloth samples)

- talking about what things feel like (e.g., smooth, rough, soft, hard, furry, "picky," bumpy, etc.)
- "Feely Meely" box (guess what's in the box, purely through touch)
- tracing raised lines (avoid raised-line pictures at this point; they usually contain too much detail; following a line with the index finger is sufficient)
- sorting shapes blindfolded (WI the children, not just the visually impaired child)

Using Smell:.

- talking about how things smell (e.g., "good" and "bad")
- pointing out particular and specific smells when on walks or trips (e.g., the bakery, a paper mill)
- "sniff cans" (used film cans, filled with things that have unique smells, e.g., chocolate, vanilla, vinegar, orange peel, mint, licorice)

Using Taste:

- pointing out special tastes (e.g., sweet things, sour things, salty things)
- playing a "tasting game" ("Guess what this is?" by taste; limit foods to familiar ones, so that identification is relatively easy)

Cooking Activities

Note: This is one of the best ways to demonstrate physical changes.

- Make: popcorn, Jello, fudge, applesauce, meatloaf, hamburgers, hard-boiled eggs, cookies, s'mores, Rice Krispies squares
- Bake: a cake, gingerbread, potatoes, slice'n'bake cookies, a pie
- Show the different forms of eggs (fresh, soft and hard boiled, scrambled), fruit (apples vs applesauce; oranges fresh and orange sections; watermelon from uncut to sliced to chunks); meat (fresh hamburger vs hamburgers or meatloaf), etc.
- Use "stirring" as a fine motor activity (e.g., dry beans, macaroni, rice, mud, pancake batter).
- Use "decorating" cookies as one-to-one correspondence practice (e.g., placing one M&M on each cookie).
- Use setting the table as one-to-one correspondence practice and self-help training.

Science Activities

Note: This area is especially good for demonstrating physical change and conservation of matter.

- Plant seeds and watch them grow; make daily observations.
- Check the weather every day; talk about forms of precipitation.
- Boil water; evaporate water in a dish on the window sill.
- Freeze water into ice, melt ice into water.
- Have live animals in the room; feed and care for them. (Be sure the visually impaired child has a chance to touch them.)
- Talk about temperature; relate it to weather, personal comfort, needs of plants and animals.

- Dissolve solids into liquids (e.g., sugar, salt); stirring with fingers allows contact with the process and tasting during the activity; the dissolved solution tastes different than plain water.

Play

- Dress-up, using oversized clothing.
- Use a toy telephone for conversation.
- Get into and out of a small rowboat.
- Use a sand table or water table for "messing" and pouring.
- Perform housekeeping activities with real but small-sized implements (e.g., broom, iron & iron board, dishes, etc.)
- Make a "mailbox" from a cardboard box and paint it to look like a real comer mailbox; "send letters." ("Letters" should be identifiable, and "delivered" to the right recipients.)
- Act out stories; devise original dialogue when needed.

Field Trips and Visits

Note: Trips should be as practical and "hands-on" as possible. Field trips and nature walks should have advance preparation (i.e., previous discussion). Follow-up activities may include: displaying anything collected, building a pond; planting seeds, etc.

- Visit as many community resources as possible (e.g., grocery store, bakery, firehouse, airport, post office, farm where children can touch the animals). Talk about the variety of transportation options available.
- Nature walks (with interaction with the environment, such as putting arms around a tree trunk, wading in a stream, collecting leaves or shells or stones, comparing the shapes of leaves, smelling pine trees, etc.)

The IFSP and IEP

Both the Individual Family Service Plan (IFSP) and the Individual Education Plan (IEP) are required documents for preschool visually impaired children, but they differ in both content and applicable age ranges. The IFSP focuses primarily on the needs of the family of the visually impaired child, which the EEP focuses primarily on the educational program for the child him/herself The IFSP is appropriate for preschoolers up to age 3, while the IEP will be the document for children from 3 to 21 - the years when these children will receive special services from a local education agency (LEA) and its special education personnel.

The format of both documents may vary from state to state, and from district to district, but the content is set at minimum by federal law. (States may provide more but may not provide less.) The IFSP must contain statements that include:

1. The child's present levels of development in the areas of physical, cognitive, speech and language, psychosocial, and self-help skills;
2. The family's strengths and needs, as they relate to enhancing the child's growth and development;

3. Major outcomes anticipated for both child and family, in terms of criteria, procedures, and timelines (these will be used to determine progress and whether changes in the plan are needed);
4. Specific early intervention services needed, in terms of frequency, intensity, and service delivery method;
5. When services will begin and how long they are expected to last;
6. A designated "case manager" from the "profession immediately relevant to the child's or family's needs" (20 U.S. C. 1477(d)); the case manager is responsible for seeing that the IFSP is carried out, and acts as the coordinator with other agencies/persons involved in service delivery; and
7. A plan for transition to Part B services when and if they become appropriate.

The IEP must contain, at a minimum:

1. The child's current level of educational performance;
2. Annual goals and short-term objectives;
3. Specific special education and related services to be provided;
4. The extent to which the child can participate in regular education programs;
5. When services will begin and how long they are expected to last;
6. Objective measurement procedures/criteria for determining at least annually whether goals and objectives have been met; and
7. A plan for transition services when students leave the school setting (applicable to students no later than age 16 and then annually).

In the state of Texas, there are additional requirements for a visually impaired student, regardless of age:

1. A VI Teacher must be part of the IFSP/IEP team when a visual impairment is suspected-,
2. There must be documentation that the VI Teacher had consulted with the diagnostician (or other assessment specialists) about appropriate assessment instruments, techniques, and interpretation, prior to comprehensive testing.
3. A list and explanation of other service/resources within the community and state must be provided to the student and his/her family.
4. Detailed descriptions in the IEP must reflect the extent of O & M instruction, braille instruction, access to special media/tools/appliances/aids/services and other training to compensate for visual loss.
5. There must be a plan for any contacts or services needed during out-of-school time periods.

(Reference: T.A.C. 30.002)

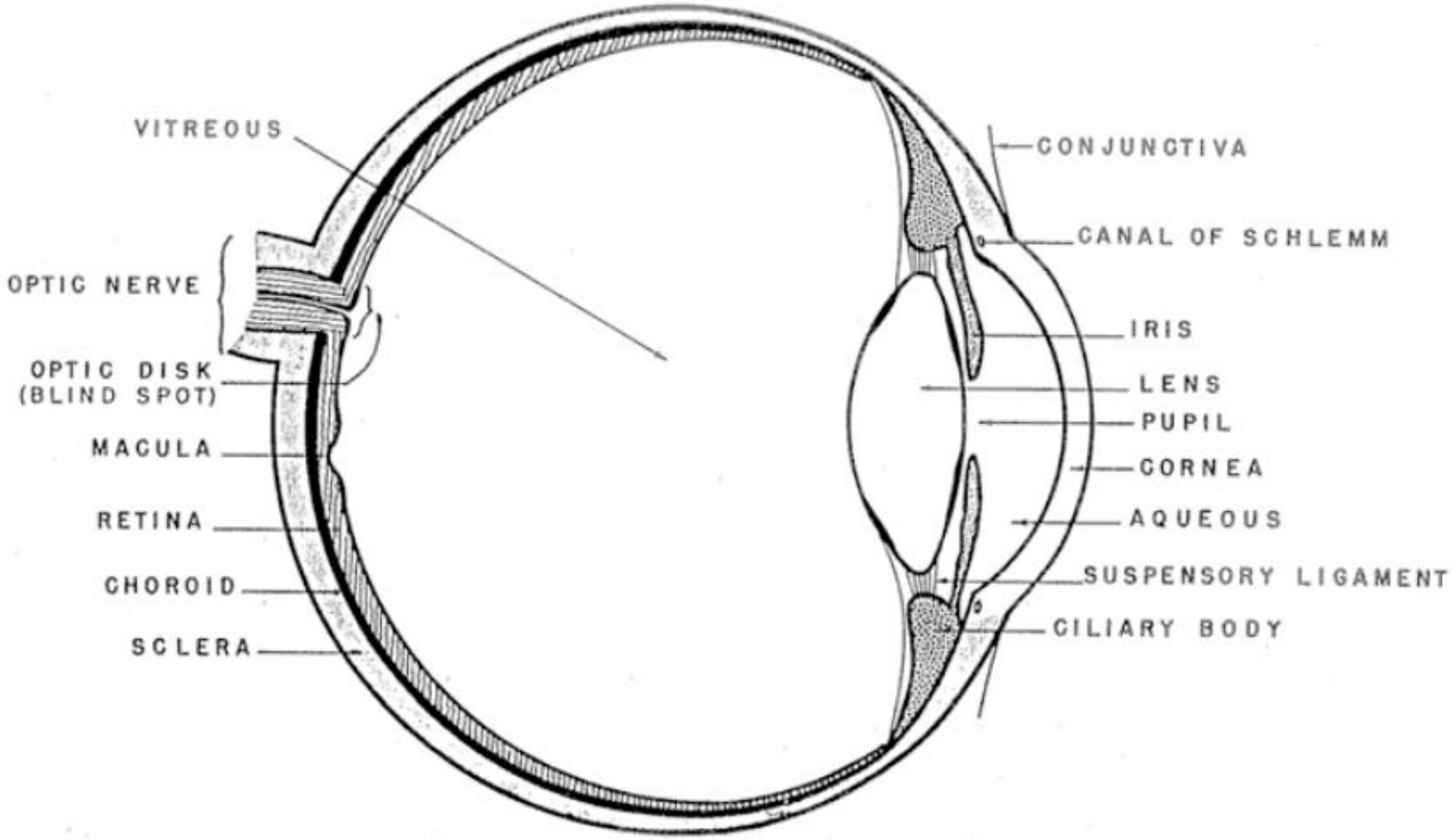
The importance of family in the life of a visually impaired child is reflected not only in the IFSP for such a child, but also in the many IEP's that will follow during the visually impaired student's educational years.

During the earliest years of a visually impaired child's life (from birth up to age 3), early childhood intervention (ECI) personnel will maintain the primary records, but the LEA should have a parallel file on that child. Although the ECI file may contain additional documents, both ECI and LEA files should include many of the same documents.

Appendix

Horizontal Section Of A Right Eyeball

HORIZONTAL SECTION OF A RIGHT EYEBALL



Selected Eye Conditions

(with emphasis on preschool children)

Achromatopsia:
congenital defect of or absence of cones in the retina; results in defective color perception and poor acuity.
Albinism:
congenital lack of pigmentation; if oculocutaneous type, pigment is lacking in eyes, hair, and skin; if ocular type, pigment is lacking in the eyes only; ocular type is X-linked (i.e., females are carriers, while males exhibit the characteristics; both types have lowered visual acuity, nystagmus, and light sensitivity (photophobia).
Amblyopia:
loss of vision in one eye, due to the braids suppression of one of the two images it receives; suppression is due to a difference in refractive error in the two eyes, or to eyes that are not straight; should be diagnosed and treated around age 2-3; by around age 8, it becomes essentially untreatable. (also called lazy eye")
Aniridia:
congenital lack of or incomplete formation of the iris; often accompanied by glaucoma, nystagmus, photophobia, and lowered visual acuity.
Anophthalmia:
congenital absence of the eyes.
Aphakia:
absence of the lens of the eye, usually following cataract surgery.
Astigmatism:
improper curvature of the cornea. (see also refractive errors)
Cataracts:
opacity of cloudiness of the lens; may be congenital, caused by trauma, or by disease; if congenital (and not caused by maternal rubella), the lens is removed soon after birth, to allow the retina to be stimulated by light; in the case of rubella, the lens is left in place until the virus is no longer active; if the lens is opaque/cloudy and not removed, visual acuity will be reduced, even if the cataract is removed later.
Coloboma:
congenital cleft in some part of the eye,. caused by incomplete closure during fetal growth; usually affects the iris, but can also affect other parts, including the retina.
Cortical Visual Impairment (CVI):
apparent loss of or lack of vision in eyes that appear normal; the defect is in the cortical function (i.e., occipital lobe of the brain); there is no nystagmus.
Cytomegalovirus (CMV):
viral infection causing lesions in the retinal and choroid tissues; wherever there are lesions, the retina is non-functional, and blind areas exist.
Dislocated lens:
(also called "subluxated lens") partial or complete dislocation of the lens; usually associated with a syndrome (such as Marfan's).
Glaucoma(in infants, called "buphthalmos" or infantile glaucoma):

increase in the intraocular pressure of the eye (a "plumbing problem," since it is related to the drainage of the aqueous fluid); if untreated, can cause blindness by damaging the retina through excess pressure on the optic nerve and retinal tissue.

Hyperopia:
"farsightedness" (see also "refractive errors").

Keratitis:
inflammation of the cornea, caused by drying or from infection (e.g., syphilis).

Leber's Congenital Amaurosis:
reduced retinal functioning, often resulting in severely reduced visual acuity; may be accompanied by nystagmus, photophobia and sunken eyes.

Microphthalmos:
abnormally small eyeballs.

Myopia:
"nearsightedness" (see also "refractive errors).

Nystagmus:
involuntary movements of the eyes; appears to be a jumpiness or jerkiness of movements; can be horizontal, vertical, or undulating.

Optic Atrophy:
lack of or poor functioning of the optic nerve; eye report may say "pale disc," results in reduced visual acuity; acuity may fluctuate for no identifiable reasons.

Optic Nerve Hypoplasia:
optic nerve has regressed during its fetal formation, usually due to an insult to the central nervous system; optic disc appears small, and has a "halo" around it; visual acuity may range from normal to severely impaired.

Persistent Hyperplasia of the Primary Vitreous (PBPV):
embryological malformation caused by a failure of the hyaloid vascular system to regress; affected eye may be slightly smaller than normal; cataract may be present.

"Pink Eye":
inflammation of the conjunctiva (mucous membrane that covers the white of the eye and the inner surface of the eyelids); eye looks red, has a discharge, and appears "gritty;" contagious, usually viral.

Ptosis:
drooping of the upper eyelid; if severe enough to occlude vision, may need surgical treatment.

Refractive errors:
when the light rays do not focus precisely on the macula, due to an improper curve of the cornea (astigmatism), an eyeball that is too short (hyperopia), or an eyeball that is too long (myopia); these are basically the only eye defects that can be corrected with glasses or contact lenses; the most common eye defects in the general population; in severe refractive errors, it may be impossible to provide a full correction (i.e., there is still reduced vision, even with glasses).

Retinal detachment:
separation of the retina from the pigment epithelium (and, subsequently, from the underlying choroid layer which nourishes the retina); usually caused by a tear or hole in the retina, but can be caused by being pulled away, as in RLF/ROP; if surgical treatment is feasible, it must be almost immediately; visual acuity is markedly reduced (and can result in total blindness if the detachment is severe).

Retinitis Pigmentosa (RP):

a group of retinal diseases in which the retina deteriorates over time; most types are hereditary; "night blindness" may be the first symptom, followed by a loss of peripheral vision; can result in "tunnel vision;" among the group of RP diseases are: Leber's disease (not to be confused with Leber's Congenital Amaurosis), Usher's syndrome, centro-peripheral dystrophy); differentiation of types is best done by a retinal specialist.

Retinoblastoma:
malignant intraocular tumor; chemotherapy is usually tried first, and, if unsuccessful, the eye(s) is enucleated (surgically removed); life-threatening if untreated, since the tumor can spread to the brain via the optic nerve.

Retinopathy of Prematurity:
formerly Retrolental Fibroplasia (RLF/ROP). destructive retinal changes that can result in mild to severe visual impairment, depending on the Stage of change; has been associated with the administration of oxygen to premature infants, but the exact cause is, as yet, unknown; some full-term infants have also been identified as having RLF/ROP; intensive research is currently in progress, to identify the cause; current treatment is cryosurgery, with apparently positive results, but no longterm conclusions have yet been made.

Septo-optic Dysplasia:
term often used to mean the full group of associated effects of optic nerve hypoplasia (e.g., associated brain-structure defects and endocrine problems).

Strabismus:
term used to describe the full range of eye muscle problems (e.g., "cross eyes"); includes esotropia (one or both eyes turn inward), exotropia (one or both eyes turn outward), hypertropia (one or both eyes turn upward), hypotropia (one or both eyes turn downward); eye muscle problems can result in amblyopia if untreated; normal eyes are straight by the age of 6 months, so any deviations after that age should be seen by an eye specialist.

Toxoplasmosis:
systemic disease caused by a protozoan, which can affect the lungs, liver, brain and eyes; when the retina is involved scarring results from the inflammation, and blind areas occur wherever there is scarring; if a pregnant female becomes infected, the fetus may also be infected and be born with scarred retinas, the protozoan is suspected to be found in cat feces, therefore, pregnant women should avoid contact with cat litter.

Ocular Effects Of Selected Syndromes/diseases

(with emphasis on preschool children)

Alport syndrome:
a group of hereditary kidney diseases; in the juvenile forms (Types I, II & VI): cone-shaped or spherical lens surface; cataracts; retinal macular flecks or fundus albipunctatis, myopia.

Batten-Mayou disease:
Pigmentary retinopathy, involving the macula most severely; loss of central vision; optic atrophy.

C.H.A.R.G.E. Association:
Colobomas, ranging from an isolated iris coloboma, without visual impairment, to clinical anophthalmia; retinal coloboma is most common.

Coats disease:

Malformation of the retinal blood vessels, causing aneurysmal dilations in the peripheral retina; the dilated vessels can leak, and the exudate accumulates behind the retina, often leading to a retinal detachment; cry6therapy.or photocoagulation may prevent a retinal detachment.
Cri-du-chat Syndrome:
Chromosomal defect of at least three types; effects can include strabismus, aniridia, glaucoma, foveal hypoplasia, nystagmus, ptosis, coloboma, cataract, microphthalmia, retinoblastoma.
DeGrouchy Syndrome:
Chromosomal defect; effects include ptosis, strabismus, myopia, glaucoma, microphthalmia, coloboma, optic atrophy, corneal opacity.
Down Syndrome (Trisomy 21):
Chromosomal abnormality; high refractive errors; esotropia; cataracts.
Duane Syndrome:
Unilateral or bilateral eye muscle problem.
Edward Syndrome (Trisomy 18):
Chromosomal abnormality; ptosis; corneal opacities; microphthalmia; glaucoma; uveal colobomas; most children die within the 1st year.
Galactosemia:
Autosomal recessive deficiency of galactose-1-phosphate uridyltransferase; causes sugar cataracts; can be reversed if treated early with a galactose-free diet.
Hurler Syndrome:
Inherited disorder (autosomal recessive); corneal clouding; possible retinal pigmentary degeneration and optic atrophy.
Juvenile rheumatoid arthritis (JRA):
Iridocyclitis, with resulting cataract, glaucoma, band keratopathy, and synechiae.
Laurence-Moon-Biedl Syndrome:
Retinitis pigmentosa.
Lowe's syndrome:X-linked recessive:
severe eye involvement, including, microphakia, and congenital glaucoma.
Marchesani's syndrome:
Dislocated lenses; myopia; glaucoma (which resists treatment); poor visual prognosis.
Marfan syndrome:
Autosomal dominant; dislocated lenses; strabismus; severe refractive errors; cataracts; secondary glaucoma; uveal colobomas.
Marshall's syndrome:
myopia; cataracts; strabismus (hypertropia); retinal detachment; glaucoma; wide space between the eyes gives appearance of larger eyes.
Norrie disease:
X-linked recessive; bilateral and complete retinal detachments; occasionally, the retinal detachments occur in infancy rather than at birth.
Patau Syndrome (Trisomy 13):
Short life expectancy (only a few months); ocular effects are severe and include microphthalmia, colobomas, cataracts, retinal dysplasia, corneal opacities, optic nerve hypoplasia.
Peter's anomaly:
Central corneal opacity; iridocorneal adhesions which usually result in glaucoma.
Refsum disease:
Retinal pigment epithelium degeneration; nystagmus; ptosis; small pupils.

Rubella syndrome:
Nuclear cataract; microphthalmia; congenital or infant glaucoma; hazy corneas; "speckled" retinitis.
Scheie syndrome:
Autosomal recessive; corneal clouding; sometimes, retinal pigmentary degeneration and optic atrophy.
Spielmeyer-Vogt disease:
Cerebromacular degeneration; pallor of the optic disc; early death.
Stargardt disease:
Macular degeneration
Stickler syndrome:
dominant genetic disorder; myopia; astigmatism, optic disk changes; cataracts, detached retina and blindness can occur within first decade; a form of glaucoma (glaucoma simplex) may also occur.
Still's disease:
(see Juvenile rheumatoid arthritis)
Sturge-Weber syndrome:
Port-wine stains on the eyelids; conjunctival and episcleral lesions; glaucoma; choroidal hemangiomas; multicolored irises.
Tay-Sach's disease:
Deteriorating vision, from about 6 or 7 months of age, to blindness by 18 months; death by age 3.
Turner syndrome:
Chromosomal abnormality; ptosis; strabismus; bluish sclera; pupils that are "off center;" cataracts; colobomas; retina looks like some kind of retinitis pigmentosa; males may be red-green color blind.
Usher syndrome:
Autosomal recessive; retinal dystrophy. (Deafness often accompanies.)
Zellweger syndrome:
"Leopard spot" peripheral retinal pigmentation; cataracts, congenital glaucoma; optic nerve hypoplasia.- life expectancy under a year.

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Vaughan, D. & Asbury, T. (1980). **General Ophthalmology.** (9th Edition) Los Altos, CA: Lange Medical Publications.

Signs Of Eye Trouble In Children

What to look for:

- eyes that are red-rimmed, crusty-looking or swollen
- inflamed or watery eyes too often
- eyes that do not look straight
- recurring sties

Child behaviors:

- attempts to brush away a blur
- rubbing eyes excessively
- constant frowning
- shutting or covering one eye for visual tasks
- head-tilt or head-turn when looking at something
- leaning forward to see better
- excessive blinking
- undue sensitivity to light
- excessive irritability during close work
- stumbling or tripping over objects
- Clumsiness in reaching

Note: These behaviors assume that there are no other problems such as motor difficulties.

What the child might say.

- "I can't see that."
- complains of dizziness, nausea, headaches after close work
- see two of them" (when there is only one)

Note: Most children, especially ones, do not complain of being unable to see, they do not know that other people see better than they do.

Medical emergencies:

- complaint of pain in the eyes
- foreign object in the eye (e.g., dirt, sand, "speck")
- being hit in the eye with some object
- any puncture wound to the eye
- any chemical injury to the eye (e.g., splashing caustic materials such as lye)
- eyes that look infected

Note: When in doubt, call the eye doctor. (An ophthalmologist will be able to treat eye emergencies: an optometrist will not.)

Normal Visual Development

Normal Visual development

At birth:

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corneal reflex to touch; pupils react to light; rudimentary fixation; acuity estimated at about 20/400

1-3 months: Â Â

1 month:

follows moving object to midline; regards faces

2 months:

eyes fixate, converge, and focus; follows vertical movements; prefers faces to complex patterns; attends to objects up to 6 feet away; becomes aware of bright lights (stares) and colors (yellow, orange red)

3 months:

eye movements become smoother; glances at I " object; anticipates feeding via visual stimulus

3-5 months: Â

4 months:

hand regard (15 weeks); eyes begin to shift focus; recognizes familiar faces (smiles); visually explores new environment; follows objects past midline; capable of horizontal, vertical, circular eye movements, though may still be somewhat uncoordinated; unsuccessful reach for dangling object; regards object in hand, and mouths

5 months:

eye-hand coordination developed and successful; gazes at objects close to eyes; can fixate at 3' and then shift gaze to nearpoint

5-7 months: Â

6 months:

eye movements coordinated and smooth; shifts visual attention easily; recognizes faces up to 6' away; form discrimination emerges; transfers object from hand to hand with visual monitoring; may anticipate position of falling object; fixates where object has disappeared; acuity approximately 20/200

7 months:

manipulates objects; acuity near normal; depth perception developing

7-11 months: Â

7-8 months:

turns object in hand and explores visually

9-10 months:

can see tiny (2-3nim) objects nearby; observes facial expressions and tries to imitate; looks for object seen hidden; visually alert to new objects, persons, places; vision monitors hand and body movements

12 months:

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far and near acuity good; binocular vision stronger; has focus and accommodation; depth perception good; discriminates geometric forms; scribbles spontaneously; vision monitors movement in space

12-18 months:

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vertical orientation (walking; building block towers); matches identical objects; points to pictures in a book; scribbles vertically, horizontally, and in circular motions; identifies forms

18-24 months:

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inspects objects visually (alone); imitates movements of others; increased visual memory; all optical skills smooth; matches color and form

3 years:

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matches simple forms (formboard); can do simple puzzles; can draw crude circle; places 1" peg in holes

Â 4 years:

Â

discriminates size (matching); good depth perception (accurate); discriminates length of lines; copies cross; discriminates most forms; eye-hand coordination precise

5 years:

Â

picks up and releases objects precisely; colors; cuts; pastes; gross motor control better than fine; can draw a square; nests blocks with visual judgment; perceives detail in pictures
(Adapted from materials developed by Dr. Natalie C. Barraga)

Sighted Guide Technique

The use of a sighted guide is a means of assisting a visually impaired person to move from one location to another. Although it is most commonly used with adults and older children, some adapted techniques have been developed for use with young children. Although sighted guide technique may appear to place the visually impaired person in a dependent position, it may actually be encouraging independence; the visually impaired person can orient and move more confidently when accompanied by a sighted guide, since both verbal (guide's oral descriptions/ commentary) and non-verbal information (sense of coordinated body movements, walking-surface sensory feed back) are available to the visually impaired person. Some guidelines for using sighted guide technique follow:

1. Be sure to ask the visually impaired person if assistance is needed. Some visually impaired people prefer to use their own mobility techniques.
2. Never grab the visually impaired person's arm; allow him/her to hold your upper arm above the elbow.
3. Walk at a natural and relaxed pace, providing any descriptive advance warnings as needed (e.g., "We're approaching some steps going down." or "There's a one-person doorway just ahead.").
4. Just before passing through narrow, one-person spaces (e.g., doorways, crowded halls), the sighted guide should reposition his/her held arm behind his/her back. This signals the visually impaired person to walk behind the guide. When the narrow space has been passed through, the guide should bring his/her arm back to the original position at his/her side, signaling the visually impaired person that it is safe to resume a side-by-side walking position.

5. The guide should pause just before going up or down stairs, and again at landings. It is also wise for the guide to be one step ahead of the visually impaired person, to minimize tripping over each other's feet. This also allows advance warning of the end of the steps.
6. Verbal descriptions of approaching terrain changes are helpful (e.g., pavement to grass or gravel, slopes or ramps, curbs).
7. To seat a guided person in a chair, either guide him/her to the front, side, or back of the chair and stop when the guided person's leg touches the chair, or place the guided person's hand on the back of the chair and allow him/her to orient independently. Verbal descriptions also help ("You have someone sitting on each side of your chair." or "This is like a movie theater seat.").

General Teacher Guidelines For Preschool Visually Impaired Children

1. Lack of vision, in itself, does not inhibit learning, but lack of opportunity to function does.
2. The less interaction (socially, and with objects) there is, the less cognitive growth there will be.
3. The child must act upon, not be acted upon.
4. If you can't take the child to the world, bring the world to the child.
5. Critical to the visually impaired child is his/her inability to observe the results of actions ("what happens when..."). Help to alleviate this potential problem by providing verbal, tactual and concrete experiences.
6. Motoric experience/development teaches spatial orientation and spatial imagery.
7. "Motor" the visually impaired child through actions, to teach him/her the imitation of movement. Use hand-over-hand, arm-to-arm or leg-to-leg motion to help communicate.
8. Use play as a teaching technique, but you may have to teach the visually impaired child how to play. Use real things; manipulate objects; structure experiences to permit the child to discover for himself/herself "what happens if..." You can't play until you have mental imagery, which is acquired through experience.
9. Representations of things (pictures, models, etc.) must follow concrete experience, and they precede mental imagery.
10. Language is the manipulation of symbolic representations (words). Echolalia is speech without language; verbalisms are a kind of echolalia.
11. Concrete reasoning precedes abstract thought.
12. When internalization of things/objects (mental imagery) occurs, the child is ready to begin to think, and NOT BEFORE!
13. Provide an explanation of what will happen next; because the child cannot see visual cues, she/he may be unaware of activities to follow.
14. If there are visitors (e.g., observers) in the classroom, make a casual statement to this effect (e.g., "We have some visitors today who want to see how nicely we work.

Critical Areas Of Development For Visually Impaired

Preschoolers (Birth through 5 years)

Motor:

- Mobility (encourage exploration)
- Body Image (play body games)
- Body in Space (MOVE to learn spatial concepts such as up, down, over, under, on top, underneath, above, behind, in front, in back, etc.)

Cognitive:

- Object Permanence (that objects continue to exist even though they are not visible)
- Cause-Effect (use toys, blocks, etc.)
- Environmental Events ("motor" the child through the motions)
- Sensory Awareness/Discrimination (developed through manipulation)
- Seriation (nesting toys, rows or "lines" of objects)
- Comparisons (size, shape, height, weight, etc.; grouping and classification)
- One-to-one Correspondence ("one for you and one for me")

Self-Help: (vital!)

- Eating (it's messy; be patient)
- Dressing (practice with large fasteners first)
- Grooming (washing/drying hands; combing/brushing hair)

Social/Personal:

- Social Interactions ("me" vs "not-me")
- Imitation (gestures; manners)
- Play (experience with real things first)
- Conversation as a Social Skill

Language:

- Nouns and Verbs (must have meaning! Provide labels for things and experiences.)
- Pronouns (separation of "me" from "not-me")
- Adjectives/Adverbs (concepts and comparisons can help here)
- LOTS AND LOTS OF CONCRETE EXPERIENCES! Words need meaning. Meanings may not be observed automatically and labeled incidentally.

IEP

Note: IEP formats vary considerably from program to program, school to school, and state to state. The emphasis in the EEP is, therefore, on goals and objectives generally appropriate for a visually impaired preschool child. Each area goal will be followed by selected objectives, not written in measurable terms. These goals and objectives are not meant to be entered as written on IEP's but are a guide to the concepts and skills most visually impaired 3-5 year olds should acquire.

AREA #1: To develop basic concepts through alternative senses.

1. Identify properties by finding the one object in a group of two that is:
    - big/little
    - soft/hard
    - wet/dry
    - smooth/rough
    - hot/cold
    - long/short
    - wide/narrow
    - fat/thin
    - round
    - square
2. Identify location by placing an object:
    - in/out
    - over/under
    - on top/underneath
    - in front/in back
3. Identify weight by finding the one object in a group of two that is:
    - light/heavy
4. Identify sound tones as:
    - high/low
    - loud/soft
    - fast/slow
5. Identify by taste:
    - sweet/sour
    - hot/cold
6. Identify:
    - one/more than one
    - few/many
7. Determine like or different by selecting from a group of three, either two the same, or one that is different.

AREA #2: To compare by properties (i.e., "classify")

1. Sort groups of objects by properties:
    - Size: big/little, long/short
    - Shape: circle, square, triangle
    - Texture: soft/hard, smooth/rough
    - Temperature: hot/cold
    - Weight: light/heavy
    - Taste: sweet/sour
    - Smell: "good" odors/"bad" odors
2. Sort groups of objects by use:
    - Foods, toys, clothing, tools, fruits, shoes

3. Sort objects by double properties:
    - Shape & color, shape & size, shape & texture, size & color, size & texture

AREA #3: To acquire one-to-one correspondence

1. Match one peg to one hole.
2. Match nut to bolt by size.
3. Distribute objects to containers, one per container.
4. Distribute objects to people, one per person.
5. Count people, one by one, touching each as counted.
6. Count objects, one by one, touching each as counted.
7. Count objects, one by one, by pointing to each as counted.

AREA #4: To refine motor skills

1. Demonstrate gross motor skills of jumping, hopping, running, climbing
2. Demonstrate fine motor skills by using implements efficiently:
    - writing/coloring implement
    - scissors
    - paste
    - eating implements
3. Demonstrate independent finger movement:
    - by wiggling each finger separately
    - by using each finger independently to point
    - by using each finger independently to poke

AREA #5: To improve language skills

1. Use gestures appropriately:
    - shaking head "yes"
    - shaking head "no"
    - using facial expressions to indicate emotions
    - pointing with index finger
    - shaking hands
2. Expand vocabulary by understanding the meaning of
    - things (nouns) actions (verbs)
    - pronouns (he, him; she, her; it; we, us; they, them; you; me; I)
    - simple describers (adjectives/adverbs)
    - Note: "understand" means to demonstrate through appropriate use and/or explanation
3. Demonstrate listening skills by
    - following one-step directions
    - following two-step directions
    - re-telling events/simple stories in proper sequence
4. Use proper grammar/syntax:
    - noun-verb sentences

- use of pronouns as subjects
- descriptors
- agreement of pronoun form (with verb; as subject)

5. Initiate a conversation by asking a question.
6. Listen to a question and give a relevant response.
7. Use "polite words" appropriately.

AREA #6: To acquire age-appropriate social skills

1. Demonstrate the use of appropriate gestures.
2. Play with peers cooperatively.
3. Take turns.

AREA #7: To acquire age-appropriate mobility skills.

1. Move independently in familiar environments.
2. Demonstrate trailing technique (if appropriate for level of functional vision).
3. Demonstrate the use of a sighted guide (if appropriate for level of functional vision).
4. Demonstrate appropriate use of a T-bar cane (if appropriate for level of functional vision).

AREA #8: To decrease inappropriate/self-simulative behaviors

1. Hold head up when sitting or standing/walking.
2. Use echo-locator skills only when not disturbing others.
3. Decrease/eliminate: thumb-sucking, eye-poking, rocking, "finger flicking" (if applicable).

AREA #9: To adhere to age-appropriate behavior expectations

1. Follow the rules of the classroom.
2. Take turns.
3. Stay in line when required.
4. Recognize that behaviors have consequences.
5. Use "good manners" in social situations.

AREA #10: To increase the level of independence in self-help skills

1. Eating:
    - Use a spoon/fork for self-feeding.
    - Use a napkin appropriately.
    - Drink from a cup and/or use a straw as appropriate
    - Clean up after own spills.
2. Dressing:
    - Remove all of own clothing independently.
    - Put on specific items of clothing independently:
        - pull-on shirt or sweater
        - coat or jacket
        - pull-on pants
        - hat/mittens, if applicable

        - socks shoes (may need help tying)
    - Manipulate fasteners:
        - buttons
        - snaps
        - hook/eyes
        - zippers (may need help with jacket or coat zipper
3. Grooming:
    - Wipe own face with a napkin.
    - Wash/dry hands.
    - Brush teeth.
    - Comb hair (may need help with final touches).
4. Toileting:
    - Indicate the need to use the bathroom.
    - Handle own clothing in the bathroom (off/on).
    - Wipe self after a bowel movement.
    - For a boy, use a urinal.
    - Wash/dry hands after bathroom use.

AREA #11: To acquire pre-braille skills

1. Acquire concepts; start/stop; begin/end; go/stop; first/last; side, comer-, center/middle; dot, line, page; book; follow/trace; find; that words can be written down and read.
2. Acquire skills:
    - Following a raised line with one or more fingers.
    - Following the line from left to right.
    - Finding the next line.
    - Turning pages in a book, one at a time.
    - locating the position of the page number (for a right-hand page: upper right; for a left-hand page: upper left.

Reminder: These objectives apply primarily to visually impaired preschool children who are in the 3-5 year age range. If it is appropriate to use any of these objectives for a very young child (B-3) in an IFSP, they should be infused into family routines rather than written as isolated goals. For example, "independent finger movement" might become part of a play routine with family members.

Examples Of Professionals Who Work With Visually Impaired Children

VI Teacher:
a teacher who has specialized training (usually beyond a Bachelor's degree) to teach children with visual impairments; the state of Texas requires a special certification for this. Instructional areas might include: concept development, special communication skills, sensory development, self-help/daily living skills, the use of low vision devices, and social skills.

Orientation & Mobility Instructor:
a specially trained and certified person who can teach visually impaired children to travel independently. Instructional areas might include: the use of a cane, conceptional development, body image, spatial awareness, directions, and familiarization to new environments.
Ophthalmologist: Â
a medical doctor who has specialized in the diagnosis and treatment of eye defects/diseases; can perform eye surgery and prescribe drugs.
Optometrist:
a non-medical but licensed practitioner who can measure refractive errors and prescribe glasses; may also prescribe optical devices in special cases.
Optician:
A specially trained technician who makes glasses; grinds the lenses to prescriptions fits them into frames, and adjusts frames to the wearer.

Some Common Misconceptions About Vision

1. Glasses do not always help to correct limited vision. Some kinds of eye disorders are not correctable with glasses, and sometimes visual impairments are not completely correctable: the glasses help, but do not correct to normal vision.
2. Holding a book close to the eyes will not harm the eyes. In young children, bringing materials closer sometimes makes it larger and easier to see. Allow children to hold materials at whatever distance is comfortable for them.
3. Sight cannot be "saved" or "conserved." Unless there is some special reason (usually medical), it is safe to encourage a child to use whatever vision is present.
4. Dim light will not harm children's eyes; adequate lighting makes vision more comfortable. Some visually impaired children will need more light than others; some visually impaired children will see best under minimal lighting conditions. Adequacy of lighting will vary by child, task and environment.
5. Lack of vision in one eye does not reduce vision by 50%. It will result in a loss of depth perception (and, in some cases, the ability to judge distances). It does not make vision less clear in the better eye, unless there is a defect in that eye as well.

Resources

For Materials:

American Printing House for the Blind
1839 Frankfort Avenue
Louisville, KY 40402

Special books and materials for visually handicapped children

Howe Press of Perkins School for the Blind
175 North Beacon Street ,
Watertown, MA 02172

Fragrance Book Series; braille/vision books for preschoolers

Touch Aids
P.O. Box 1711
Albany, NY 12201

Adapts materials for visually handicapped children

Twin Vision Books
18432 Topharn Street - Suite 210
Tarzana, CA 91356

Provides adapted materials for visually handicapped children

Vision Center
1393 North High Street
Columbus, OH 43201

Offers adapted materials for visually handicapped children

For Help on Classroom Activities:

Alonso, Lou. "What the teacher can do for the child with impaired vision, **National Education Association Journal. Nov.** 1967, 56, 42-43 (contains practical suggestions for mainstream classroom teachers)

Barraga, Natalie, Dorward, Barbara, and Ford, Peggy. **Aids for teaching basic concepts of sensory development.** Available from the American Printing House for the Blind. (a manual of teaching aids and how to construct them)

Bishop, V. (1996). **Teaching visually impaired children.** Springfield, IL: Charles C. Thomas. (contains information on how visual impairment affects learning and the special instructional approaches used with visual impaired learners)

Cleary, Margaret. **Please know me as I am: A guide to helping children understand the child with special needs.** Sudbury Public Schools, Sudbury, MA 01776. (a resource guide for teachers, to help them help non-handicapped children accept handicapped children)

Groves, Doris and Griffith, Carolyn. **Guiding the development of the young visually handicapped.** Ohio School for the Blind, 5220 North High Street, Columbus, OH 43085. (a selected list of sensory training activities for visually handicapped children, listed by age level)

Halliday, Carol. **The visually impaired child - growth, learning, development: Infantry to school age.** Available from the American Printing House for the Blind. (includes specific suggestions regarding activities and learning materials; organized on a developmental basis)

Naughtoon, Franziska, and Sacks, Sharon. **Hey what's cooking? The kitchen curriculum for parents of visually impaired children**. South Metropolitan Association for Low Incidence

Handicapped, 250 Sibley Blvd., Dolton, P.O. Harvey, EL 60426. (describes kitchen activities for children 3 mos. to 12 years)

Preschool learning activities for the visually impaired child: A guide for parents. Available from National Association for Parents of the Visually Impaired (NAPVI). (includes a comprehensive, illustrated listing of games and activities for parents and teachers; emphasis on helping visually handicapped children develop and gain skills in independence)

How to fill your toy shelves without emptying your pocketbook: 70 in inexpensive things to do or make. CEC Information Center, Special Education IMC/RMC Network, 1920 Association Drive, Reston, VA 22091. (gives information about games, activities, and instructions for making manipulative learning equipment from inexpensive and recycled materials; for preschool and handicapped and non-handicapped children; contents grouped by sensory modality, language and concept development)

Especially for Parents

The Hadley School for the Blind
P.O. Box 299
Winnetka, IL 60093
1-800-323-4238

Free correspondence courses for parents, in: Child Development, The Human Eye, Knowing the System, Hope for Parents of Blind Children; continuing education credits; free copies of Reach Out and Teach to parents; correspondence braille course and others.

National Association for Parents of the Visually Impaired (NAPVI)
P.O. Box 317
Watertown, MA 02272
1-800-562-6265

National organization for parents of visually impaired children; Newsletter; publications

Blind Children's Fund
2875 Northwind Drive Suite 211
East Lansing, MI 48823

Organization for parents and professionals; Newsletter; publications

American Foundation for the Blind
11 Penn Plaza Suite 300
New York, NY 10001
1-800-232-5463

Many publications of interest to parents and professionals; send for Publication Catalogue

Federal Alliances:

U.S. Department of Education
Office of Special Education Programs
330 C Street, SW, Room 3086
Washington D.C. 20202
(202) 732-1007

U.S. Department of Health and Human Services
Administration for Children, Youth, and Families
Donahoe Building
400 6th Street, SW
Washington D.C. 20024
(202) 755-7762

Social Security Administration
6401 Security Boulevard
Baltimore, MD 21235
(301) 965-1234

Region VI Office
1200 Main Tower
Dallas, TX 75202
(214) 767-3301

Library of Congress National Library
Services for the Blind and Physically Handicapped
1291 Taylor Street, NW
Washington D.C. 20542
1-800-424-9100

Conducts national correspondence courses to train sighted persons as braille transcribers; administers a national network of libraries. (See also Texas State Library under State Organizations.)

National organizations:

American Diabetes Association
P.O. Box 25757
1600 Duke Street
Alexandria, VA 22313
(703) 549-1500

American Foundation for the Blind
11 Penn Plaza - Suite 300
New York, NY 10001
1-800-232-5463

American Printing House for the Blind
1839 Frankfort Avenue (P.O. Box 6085)
Louisville, KY 40402
(502) 895-2405

Eye Research Institute of the Retina Foundation
20 Stanford Street
Boston, MA 02114
(617)742-3140

Foundation for Glaucoma Research
490 Post Street - Suite 1042
San Francisco, CA 94102
(415) 986-3162

Lions Club International
300 22nd Street
Oak Brook, IL 60570
(312) 571-5466

March of Dimes Birth Defects Foundation
1275 Mamoroneck Avenue
White Plains, NY 10605
(914) 428-7100

National Easter Seals Society
70 East Lake Street - Suite 1500
Chicago, IL 60601
(312) 726-6200

RP Foundation Fighting Blindness
(National Retinitis Pigmentosa Foundation, Inc.)
1401 Mt. Royal Avenue - Fourth Floor
Baltimore, MD 21217
1-800-638-2300

State Organizations:

Texas Education Agency
William B. Travis Building - Room 5-120
1701 North Congress Avenue
Austin, TX 78701
(512) 463-9414

Texas State Library
Division for the Blind and Physically Handicapped
P.O. Box 12927
Capitol Station
Austin, TX 78711
1-800-252-9605

American Foundation for the Blind
Regional Office - Southwest Region
260 Treadway Plaza
Exchange Park
Dallas, TX 75235
(214) 352-7222

Texas Society to Prevent Blindness
Austin Branch
4501 Spicewood Springs Road 1049
Austin, TX 78759
(512) 338-9668

Low Vision Clinics:

Low Vision Specialists in Texas

Lighthouse of Houston Low Vision Clinic
3530 West Dallas Avenue
Houston, TX 77019
(713) 527-9561

Santa Rosa Low Vision Clinic
P.0. Box 7330, Station A
San Antonio, TX 78285
(512) 228-2587

Note: Some communities, LEM, and/or Regional Education Service Centers also conduct low vision clinics. Check with the VI Teacher for more information.

Education Service Centers

Other Resources

Texas School For The Blind And Visually Impaired Outreach Department
1100 West 45th Street
Austin, Texas 78756
(512) 454-8631
Fax: (512) 458-3395

Texas Material Center For The Visually Impaired
1100 West 45th Street
Austin, Texas 78756
(512) 206-9270
Fax: (512) 458-3395

Texas Department of Assistive and Rehabilitative Services (formerly known as Texas Commision for the Blind)
Administrative Building, Suite 200
4800 North Lamar Boulevard
P.o. Box 12866
Austin, Texas 78711
(512) 459-2500
Fax: (512) 459-2685

Additional Reading

Alonso, L., Moor, P. & Raynor, S (1978). **Children with visual handicaps. Mainstreaming preschoolers.** (Department of Health, Education and Welfare Publication No. 78-31113). Washington, DC: U.S. Government Printing Office.

Bishop, V. (1996). **Teaching visually impaired children.** Springfield, EL: Charles C. Thomas.

Blakely, K., Lang, M., & Hart, R. (1991). **Getting in touch with Play**. N.Y.: The Lighthouse, Inc.

Brennan, M. (1982). **Show me how: A manual for parents of preschool visually impaired and blind children**. New York, NY: American Foundation for the Blind.

Bromwich, R. (1981). **Working with parents and infants: An interactional approach**. Baltimore, MD: University Park Press.

Ferrell, K. (1994). **Parenting preschoolers: Suggestions for raising young blind and impaired children**. New York, NY: American Foundation for the Blind.

Harrell, L. & Akeson, (1987). **Preschool vision stimulation: It's more than a flashlight!** New York, NY: American Foundation for the Blind.

Holbrook, C. (Ed.) 1996). **Children with visual impairments: A Parent's guide.** Bethesda, MD: Woodbine House, Inc.

Kastein, S., Spaulding, I & Scharf, B. (1980). **Raising the young blind child: A guide for parents and educators.** New York, NY: Human Science Press.

Lydon, W. & McGraw, M. (1973). **Concept development for visually handicapped children**. New York, NY: American Foundation for the Blind.

Maloney, P. (1981). **Practical guidance for parents of the visually handicapped**. Springfield, IL: Charles C. Thomas.

Moore, S. (1985). **Beginnings: A practical guide for parents and teachers of visually impaired babies**. Louisville, KY: American Printing House for the Blind.

Muste, J. & Fellows, R. (1982). **Moving and doing: How to help visually impaired children know their world**. Columbus, OH: Comprehensive Eye Center, Children's Hospital.

Nuttall, E., Romero, I., & Kalesnik, J. (1992). **Assessing and screening preschoolers Psychological and educational dimensions**. Boston: Allyn & Bacon.

Pogrund, R., Fazzi, D., & Lampert, I (eds.). (1992). **Early focus: Working with young blind and visually impaired children and their families**. New York: American Foundation for the Blind.

Scott, E., Jan, J. & Freeman, P. (1977). **Can't your child see?** Baltimore, MD: University Park Press.

Simmons, S. & O'Mara Maida, S. (1992). **Reaching, crawling, walking... Let's get moving**. Los Angeles, CA: Blind Children's Center.

Stratton, 1 (1977). **The blind child in the regular kindergarten** Springfield, IL: Charles C. Thomas.

Tooze, D. (1981). **Independence training for visually handicapped children**. Baltimore, MD: University Park Press.

Frief, E. (1992). **Working with visually impaired young students: A curriculum guide for birth -3 year olds**. Springfield, IL: Charles C. Thomas.

UIrich, S. (1972). **Elizabeth**. Ann Arbor, M: University of Michigan Press.

Warren, D. (1984). **Blindness and early childhood development.** (revised 2nd Edition). New York, NY: American Foundation for the Blind.

Wurster, M. & Mulholland, M. (Eds.) (1983). **Help me become everything I can be**. Proceedings of the North American Conference on Visually Handicapped Infants and Young Children. New York, NY: American Foundation for the Blind.

Parent Brochures

Blind Children's Center

- Talk to me: A language guide for parents of blind children
- Talk to me II: Common concerns
- Heart to heart: Parents of blind and partially sighted children talk about their feeling
- Move with me: A parent's guide to movement development for visually impaired babies
- Learning to play: Common concerns for the visually impaired preschool child
- Dancing cheek to cheek: Nurturing beginning social. play and language interactions
- Let's eat
- Reaching crawling, walking

Blind Children's Fund

Parent publications from NAPVI:

Parent Publications from The Children's Medical Center:

Children's Medical Center
mail: Perinatal Team Office, One Children's Plaza, Dayton, OH 45404-1815 U.S.A.
voice: 937-226-8468

Sells pamphlets: A Parents' Guide for Baby's Discovering His Hands for Visually Impaired Infants and A Parents' Guide for Grasp and Hand Skills for Visually Impaired Infants.

SEE/HEAR (TSBVI outreach newsletter; available to both parents and educators)

This document is a Resource for the Expanded Core Curriculum. Please visit the 

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Agency Contact Information | Texas State Homepage | Texas State Wide Search

Please complete the comment form or send comments and suggestions to: Jim Allan (Webmaster-Jim Allan)

Last Revision: April 28, 2005