



Adult and Children's Vision Screening Manual

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Introduction

Welcome to the Lions team of trained adult and child vision screeners! You are now a part of an incredibly important team. With thorough screening, visual defects can be found early and the needed correction and treatment can be recommended.

District 25F Vision Screening Program, Inc. appreciates your interest in the visual health of both adults and children. We are a non-for-profit organization dedicated to providing quality vision screening to men, women and children across the state. More than a thousand Hoosiers lose their eyesight every year. But 50% of these cases can be prevented with early detection and treatment.

Our job is to reach people in time – before blindness strikes. The success of our program depends upon financial contributions and the commitment of thousands of volunteers like you! District 25F Vision Screening Program, Inc. appreciates your interest and support.

Adult Vision Screening Manual

District 25 F Vision Screening Program, Inc. has established a list of tests and procedures that must be performed when screening adults:

*** Perform Registration/Risk Assessment**

To gather information that indicates if the person is suspect or at risk for eye disorders or diseases.

*** Distance and Near Visual Acuity**

These visual acuity tests are performed to check visual clarity at near and far distances.

*** Visual Field Test**

This examination measures the person's peripheral field of vision. It is recommended for those 40 years and older. It is also required for those who, on the Registration/Risk Assessment form, have indicated a family history of Glaucoma or eye injuries.

*** Exit Interview**

At this point during the screening, a certified screener conveys the test results and recommends any needed referrals to eye care professionals.

Screener Responsibilities

A screener is expected to:

- * Assist in the scheduling and set up of the screening
- * Conduct the required tests and procedures for a screening
- * Guide the person to the next screening station
- * Explain testing results during the exit interview

Registration

Registration is the person's initial meeting with screeners. It is important that the person feels comfortable and welcomed by the screeners. During the registration the screener will:

- * Welcome the person
- * If the person is not wearing glasses – **ASK** – Do you wear glasses or contacts?
- * If the answer is yes, the person should wear the glasses/contacts during screening. (Inform them that, if they don't, results will not be accurate.)
- * Have the person complete the Registration/Risk Assessment form and assist the individual if needed.

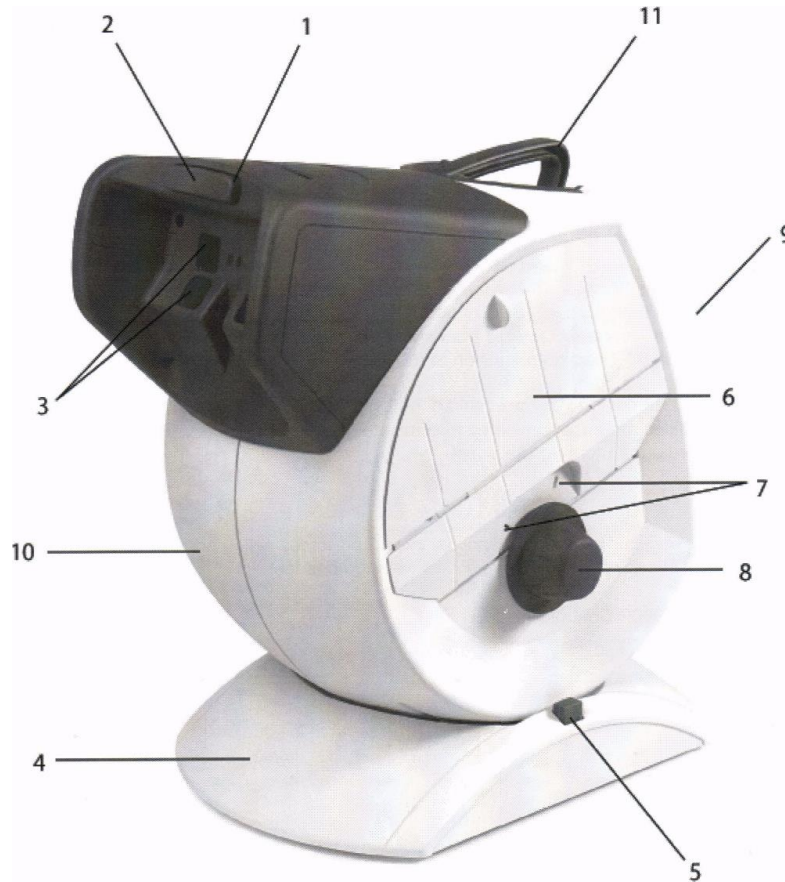
The registration form contains 5 sections:

- * **Personal information** – Name and Age – to be completed by the subject.
- * **Risk Assessment** – To be completed by the subject.
- * **Statement on screening** – MUST BE READ BY INDIVIDUAL AND SIGNED BEFORE ANY SCREENING TESTS ARE CONDUCTED.
NOTE: Some individuals may require help to complete the form
- * **Visual testing** – To be completed and recorded by the screener.
- * **Exit Interview and testing results** – To be completed by designated screener. (See p. 12)

If certified screeners are not available, non-certified volunteers with training may conduct the registration process.

Optec 5000

Acuity Vision Screening Machine



- 1 Forehead Activator
- 2 Headrest Tissue Holder
- 3 Lens System
- 4 Instrument Base
- 5 Elevation Adjustment
- 6 Observation Door

- 7 Far and Near Indicators
- 8 Test Dial & Knob
- 9 Electronic Control Panel
- 10 Instrument Body
- 11 Carrying Handle

Distance Vision Screening using the Optec 5000

1. Turn power button on.
2. Testing always begins with the right eye.
3. Put the **FAR/NEAR** button in the **FAR** position.
4. Check the dial to make sure it is set at **1** and **3**.
5. Using the alcohol wipe, clean the front of the machine where the subject's face makes contact – **DO NOT CLEAN THE LENS WITH ALCOHOL**. If the lenses need to be cleaned, use a tissue and water or lens cleaner.
6. The distance test is conducted with glasses on or contacts in. If the subject has multi focal lenses, instruct him or her to look through the top part of the lens.
7. Tell the person to keep both eyes open throughout the test.
8. Ask the subject to lean into the machine depressing the forehead trigger. Adjust the machine to the subject's height by tilting it if needed (have person lean back while you make the adjustments). Remind him or her to look through the distance part of their glasses.
9. **FOLLOW THE SCRIPT ON THE MACHINE!!!!!!** This directs the person where to look in the machine and what line to read.
10. Record the right eye acuity on the Registration form.
11. Release the **RIGHT EYE** button and press the **LEFT EYE** button
12. Repeat the procedure for the left eye.
13. Record the left eye acuity on the Registration form.

Near Vision Screening using the Optec 5000

1. Testing always begins with the right eye.
2. Put the **FAR/NEAR** button in the **NEAR** position.
3. Check the dial to make sure it is set at **1** and **3**.
4. The near test is conducted with glasses on or contacts in. If the client has multi focal lenses instruct him or her to look through the bottom part of the lens (they may have to tilt head back to see through the bottom of the lens).
5. **FOLLOW THE SCRIPT ON THE MACHINE!!!!!!** This directs the person where to look in the machine and what line to read.
6. Record the right eye acuity on the Registration Form.
7. Release the **RIGHT EYE** button and press the **LEFT** button.
8. Repeat the procedure for the left eye.
9. Record the left eye acuity on the Registration Form.

Score chart for Optec

Visual Acuity “Far” Make sure dial is at #1

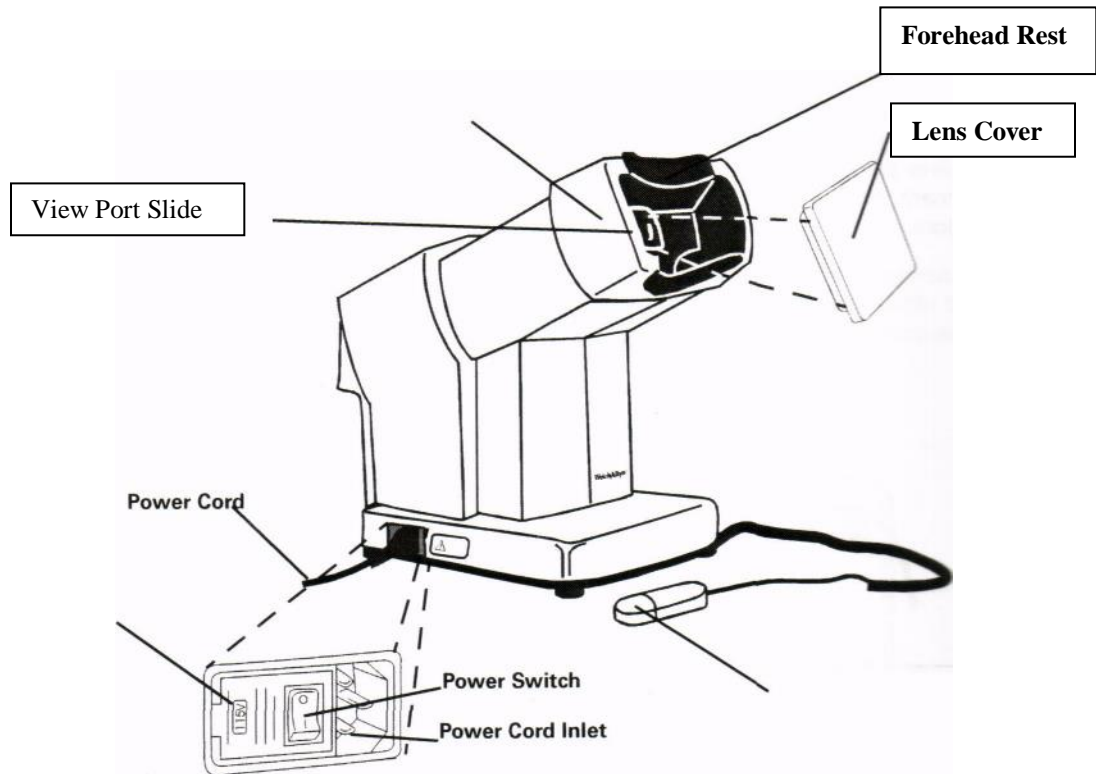
Line	Right	← Score →	Left
1	HK	20/200	ZN
2	ZOD	20/100	RKS
3	RNDS	20/70	HCDV
4	VZKN	20/50	ZROD
5	DNVC	20/40	KHSC
6	KDSON	20/30	ONRZV
7	HSNRD	20/20	SDCHN

Visual Acuity “Near” Make sure dial is at #3

Line	Right	← Score →	Left
1	HZO	20/100	SVC
2	CSZN	20/70	RNZH
3	DOHC	20/50	CKVD
4	NZCS	20/40	VHRN
5	ZSHNK	20/30	HSKRC
6	VKCDS	20/20	ZONVR

Visual Field Testing

Humphrey System FDT



Setting up the FDT machine for operation:

Before turning power for machine on, make sure lens cover is in place. Turn machine on and listen for a “Beep”, this will indicate the machine has calibrated. You may now remove the lens cover.

BEFORE EACH TEST, CLEAN THE MACHINE WHERE PERSON’S FACE TOUCHES.

Show person a sample sheet and explain they are to look into the machine and fixate on the black square during the entire test. Explain they will see a series of flickering bars present in different locations on the screen and that they should push the clicker each time a bar is seen.

1. Press the Green button to reset the machine. Have client hold clicker and lean into the machine. Make sure view port slide is set to RIGHT EYE.
2. Press RUN PATIENT TESTS button.
3. Enter subject’s age using +/- buttons. Patient may practice clicking until test starts.
4. When age is entered correctly, press ACCEPT SETTINGS button.

5. Press SCREENING TEST MENU (top button)
6. Press C-20- (top button). THIS IS THE ONLY TEST TO BE DONE.
7. Machine will run self-set up test.
8. Instruct subject to begin test when slide bar appears on LCD screen.
9. Machine will indicate when test is complete.
10. Have subject lean back and move view port to the LEFT EYE position.
11. Have subject lean back into the machine.
12. Press C-20- screening button.
13. Machine will self-set up test.
14. Instruct subject to begin test when slide bar appears on LCD screen.
15. When test is complete machine will print result tape.
16. **If any of the fields have a darkened square or squares, staple the tape to the Registration form and give to the person for reference by an eye doctor.**

Determine if the testing procedure was reliable

If testing was not reliable, re-testing is necessary. Two indicators of an unreliable test: fixation error ratio and false positive error ratio – determine test reliability. The need for re-testing is determined by the number of fixation or false positive errors.

Fixation Errors

Flickering bars were presented three times in the subject's natural blind spot. Pressing the clicker during fixation check indicates a problem with the test. The subject may have been:

- * Looking somewhere other than the square, black dot during part or all of the test.
- * Improperly aligned in the brow rest.
- * Unclear concerning test instructions – person did not understand or follow instructions during testing.

The ratio of fixation errors to fixation checks prints just below the box on the results tape. Re-testing is required for a ratio of two or more errors out the three presentations. For example:

Fixation Errors 2/3 or 3/3

During two of the three times the flickering bars appeared in the natural blind spot or every time the bars appeared in the blind spot, the subject responded that he or she had seen the bars. Repeat the test for that eye.

Fixation Errors 1/3

During one of the three times the flickering bars appeared in the natural blind spot the subject responded that he or she had seen the bars. No need to repeat the test for that eye.

Fixation Errors 0/3

During none of the three times the flickering bars appeared in the natural blind spot did the subject respond that he or she had seen the bars. Do not repeat the test.

False Positive Errors

Random pauses in the presentation occur three times. Pressing the clicker during a pause is a false positive error. False positive errors indicate a problem with testing. The subject may have:

- * Pressed the response button out of habit or rhythm.
- * Pressed the response button when the subject thought he or she might have missed a stimulus.
- * Not understood the test adequately.

The false positive error ratio is printed just below the Fixation Errors line on the result's tape. Retesting is required for two or more response out of three pauses. For example:

False Positive Errors 2/3 or 3/3

Two of the three times or each time that the test was paused, the subject pressed the response button even though no flickering bars were presented. Repeat the test for that eye.

False Positive Errors 1/3

During one of the three pauses the subject pressed the response button even though no flickering bars were presented. There is no need to repeat the test for that eye.

False Positive Errors 0/3

The subject did not press the clicker during pauses. Do not repeat the test.

Exit Interview

The results of the vision screenings are shared with the subject during the Exit Interview. A certified screener conducts the Exit Interview. Attention to detail is very important.

The responsibilities of the exit interviewer are many. After careful evaluation and the interpretation of the risk assessment questions, acuity, and visual field testing, the exit interviewer determines if the referral to an eye care professional is appropriate. He or she explains the results and provides a recommendation for scheduling a professional eye exam. Counseling about the urgency or frequency of recommended eye exams may be necessary but the exit interviewer must be careful **NOT** to suggest a diagnosis.

Valuable public education is provided at the Exit Interview. The screener underscores the importance of regular eye examinations to each subject regardless of the screening results. It is also important that the subject be given the opportunity to ask questions. Questions frequently arise concerning screening tests and results, specific eye diseases or vision problems, and general eye health and safety. The screener **MUST NOT** offer medical advice in response to questions. He or she can offer available literature and suggest the subject speak with his or her eye care professional.

Exit Interview Process:

Check the registration form of completeness

- * Legible name
- * Age included
- * Screening site and date indicated
- * All questions answered
- * Form is signed by person screened
- * Entries for all appropriate tests
- * Screeners initials are by the screening results

Reasons for immediate referral:

- * Persistent pain in or around eye area
- * Missed stimuli during visual field test (FDT – Darkened squares on printer tape)

See an eye doctor as soon as possible:

- * Change in vision in the last 12 months (unless the subject is already seeing an eye doctor).
- * Diabetic and no dilated eye exam within the last 12 months.
- * 20/50 or worse in either eye during the visual acuity testing.

Good judgment suggests referral:

Sometimes multiple risk factors suggest the need for a comprehensive eye examination even if the eye tests do not warrant a referral.

- * It has been longer than two years since the last dilated eye exam.
- * History of Glaucoma in the family but no eye exam in the last two years.
- * If the screener has a question with regard to the vision/health of the subject it is better to err on the side of referring the subject for a professional eye examination than doing nothing. The cost of an eye exam cannot be compared against the possible loss of vision.

What is Glaucoma?

Glaucoma is a group of diseases usually associated with an increased pressure within the eye. Types of Glaucoma include primary open angle, angle-closure, secondary, congenital, juvenile and low tension. This pressure can cause damage to the cells that form the optic nerve, the structure responsible for transmitting visual information from the eye to the brain. The damage is progressive; resulting in loss of peripheral vision first, followed by reductions to central vision, and potential blindness.

Who is at the highest risk of developing Glaucoma? You are at greatest risk if you:

- * Are African-Americans and Hispanics
- * Are related to someone with Glaucoma
- * Are Over 40 years of age if Caucasian, and 35 years of age if African-American or Hispanic.
- * Are Very nearsighted
- * Have had eye surgery or an eye injury
- * Are diabetic
- * Are taking steroid medications for an extended period of time

What is Diabetic Retinopathy?

Diabetic Retinopathy is an eye disease that affects the blood vessels in the retina. It can occur among diabetic patients. The proliferative form can lead to blindness. Swelling in the central area of the retina (macula) can cause visual impairment.

Who is most at risk of developing Diabetic Retinopathy?

People who have been diabetic for many years are most likely to develop Diabetic Retinopathy, but this eye disease is a threat for all individuals with diabetes. Among subjects with juvenile-onset diabetes, 25% will have Diabetic Retinopathy after 5 years. This number rises to almost 60% after 10 years and 80% after 15 years.

Is race a factor in determining the risk of Diabetic Retinopathy?

Yes. Both Hispanic-Americans and African-Americans develop diabetes more frequently than Caucasian Americans. Consequently they also have a higher rate of Diabetic Retinopathy. However all respond to early diagnosis and treatment.

Refractive Problems – What is 20/20 vision?

20/20 vision is a term that is often misunderstood. Many people think that it means perfect vision when, in actuality, 20/20 vision only refers to the sharpness or clarity of vision at a distance of 20 feet.

Four Common Refractive Errors:

- * Myopia (nearsightedness)
- * Hyperopia (farsightedness)
- * Astigmatism (distorted vision)
- * Presbyopia (aging eye)

The first three conditions are caused by differences in the length or shape of the eye; the fourth (Presbyopia) occurs when the lens inside the eye can no longer focus on nearby objects. All refractive errors can cause decreased vision, eye fatigue and discomfort. However, in nearly all cases, through regular eye examinations these symptoms can be totally corrected with glasses and contact lenses.

What is Myopia?

“Myopia” means nearsighted and comes from the Greek word meaning “closed eyes” because the condition often causes people to squint in order to see objects at a distance. Myopia is inherited and is usually caused by an eyeball that is shaped longer than usual. The condition tends to become noticeable just before puberty, can increase through the teenage years and levels off in adulthood.

What is Hyperopia?

Hyperopia (farsightedness) is usually caused by an eyeball that is shorter than normal, making it difficult to light objects close-up onto the retina. In some rare instances, Hyperopia can be caused by a flattening of the cornea or thinning of the lens of the eye. Young children are normally farsighted but the Hyperopia gradually decreases as the child grows, especially throughout the teen-age years. Like the other refractive errors, Hyperopia is usually inherited.

What is Astigmatism?

Astigmatism is usually caused by an uneven surface on the cornea (the “window” of the eye). Normal corneas are smooth and equally curved so light entering the eye is evenly distributed to the optic nerve. People who have astigmatism have corneas that are more curved in one direction than another, causing wavy vision, much like the images you see in a rippling pond. Like most refractive errors, Astigmatism is usually inherited and the amount of unevenness remains constant throughout life.

What is Presbyopia?

Presbyopia is a condition that usually occurs after the age of 40 when many people have trouble focusing on objects close by. As we grow older the lens of the eye becomes less flexible and the ability to focus on near objects is impaired.

What is Age-Related Macular Degeneration?

Age-Related Macular Degeneration is a disease caused by damage to tissues that provide physiological support to the light-sensitive cells in the retina. There are two major forms: the “dry” and the “wet” (or exudative) form. The dry form is much more common but the wet form is responsible for the majority of severe vision loss due to macular degeneration.

What are the symptoms?

*Macular Degeneration is characterized by a loss of central vision usually in both eyes. The affected individual will find it difficult or impossible to see clearly for either near or distant tasks. In the wet form of the disease, the edges of doorframes or other objects may appear bent and distorted.

What is a Cataract?

A Cataract is an opacity (clouding) of the eye’s lens which blocks or changes the passage of light needed for vision. Cataracts related to age are the most common type but cataracts can also result from hereditary factors, disease, medication, or injury. Although it is rare, cataracts can also affect children and young adults.

What are the signs of Cataracts?

- * Blurred or double vision, ghost images or the impression of a film over the eyes.
- * Problems with light (too much or too little), or sensitivity to bright light and glare.
- * The need for frequent changes of eyeglass prescriptions that do not seem to help.

Children’s Vision Screening Manual

The purpose of performing vision screening upon children is to identify early those children who may need eye correction or treatment. This screening **DOES NOT** take the place of a professional eye examination. Trained volunteer teams work using either a Snellen E chart or SIFIMAV Electronic charts to test a child’s overall visual acuity. For older children, an Optec 5000 may be used. This manual refers mainly to screening conducted in schools.

The Stereopsis test is used to test depth perception. If a child fails a screening, the parents are urged to take the child for a professional eye exam.

Why screen?

One out of every 20 preschoolers and one out of every four school age children has an eye problem needing treatment or correction. Since children do not know how well they should see, they will not complain about poor vision. Eye disorders, if they are not discovered, can prove a detriment to a child’s personality, learning ability, and the adjustment to formal schooling.

One of the prime targets of the children’s vision screening program is to identify **amblyopia** or “lazy eye.” If not found and treated by age six, it can cause visual impairments and even blindness in the eye.

Vision Screening Supplies

- * One set of “Feet”
- * Snelling Chart or SIFIMAV computer
- * Allen Symbol Chart
- * Stereopsis test kit
- * Masking Tape
- * Dixie Cups
- * Alcohol Wipes
- * Registration form (See p. 21)

Setting Up the Screening Area

1. Allow 30 minutes for setup.
2. Tape the chart on a light-colored, uncluttered, well-lit wall at the following heights, depending on the average age of the child:

3 year olds	36 inches to the 20/40 line
4 year olds	42 inches to the 20/40 line
5 year olds	45 inches to the 20/30 line
6 and up	45 inches to the 20/30 line

3. Or set up the SIFIMAV computer on a table.
4. Place the heels of the “Feet” 20 feet away from the SIFIMAV, Snelling letter chart, or 10 feet away from the symbol chart. Mark the position with masking tape, then, cover the “Feet” with the plastic protector and tape it down.
5. For the Stereopsis test, measure and mark a spot 20 inches from the front edge of the table.
6. Position any tables, chairs and wastebaskets the screening team will need.

How to Vision Screen

The screening team consists of trained volunteers, each with specific responsibilities.

Team Captain (selected within the screening team)

Before screening:

1. Select a screening date with input from the school.
2. Meet with the school nurse and the principal to discuss preparations for the screening. Provide the nurse with Registration Forms.
3. If planning on using the “E” side of the chart, give an “E” card to each teacher and explain the “E game” so that the teacher can practice with the children prior to screening.
4. Ask the teacher/secretary to fill out the Name and Age on the Registration Form for each child to be screened.
5. Select a quiet screening site with a 22-foot lane, good lighting and one plain wall for the chart, or a table near an electrical outlet for the SIFIMAV computer.
6. As a team, choose code words to use during the screening. All code words should be positive for both correct and incorrect answers.
7. Be sure all screening supplies are at the screening site.

During screening:

1. See that all team members perform their responsibilities.
2. If necessary, remind the team of code words to be used.

Greeter/Runner (optional)

1. Bring children from the classroom to the screening area.
2. Practice the E-game or symbols with the children outside of the screening room .
3. Take children into the screening room.

Screener (must have 20/20 vision or 20/20 corrected vision)

1. Ask the child to stand with his/her heels on the feet.
2. Show the child the chart and chart attendant, and ask him to show you which ways the “E” is pointing or identify the symbol or letter, depending on the chart being used.
3. Cover the left eye with the cup and screen the right eye starting on the critical line based on the child’s age. Repeat with the other eye.
5. Signal the chart attendant when to display the letter or line through the predetermined code words.
6. Tell the team recorder the last line the child passes after screening each. **To pass a line the child must correctly identify more than half of the symbols/letters on the line.**

Chart Attendant

1. Sit or stand at the chart or SIFIMAV.
2. For all school-age children (5 and up), the critical line is 30
- 2a. For under school-age children (3 & 4), the critical line is 40
3. Listen to the screener’s signals to establish:
 - * Which line to display
 - * Which symbol to display
 - * When to repeat a line
5. Look at the chart or SIFIMAV at all times, not back and forth from the chart to the child.

Recorder

1. Sit halfway between the chart and the child, facing the child.
2. Look for symptoms of eye trouble (see page 20) and record them in the remarks area of the registration form.
3. If the child indicates he/she wears glasses or contacts, record that information on the form, even if not worn, making a note of it in the remarks area..
4. Make sure the child is standing on the FEET correctly and is not peeking around the cup.
5. Record the visual acuity of the child on the Registration Form when signaled by the screener.
6. Decide if the child passed or failed screening (see page 20). If the child failed, check “referred” on the registration form.
7. For children who are too inattentive or uncooperative, write “Unable to screen.” Do not refer these children as they are not considered screened.

Stereopsis (test children 3-9)

1. Sit in the chair and have the child stand at the front edge of the table.
2. Hold up the practice card and ask the child if he/she sees a letter on it. Ask him or her to point to the letter. If the child does not know the letter E, describe the symbol as a magic picture.
3. Put the polarized glasses on the child. Make sure the glasses do not tilt as that can interfere with the test. (They may be worn over the child’s glasses)
4. Hold up the “stereo blank” and “E” card next to each other at the child’s eye level. Show the E card with word “raised” in the upright position for the E to appear to stick out to the child. In this position, the screener’s view will read “raised” on the E card and “stereo blank” on the blank card. **Avoid tilting the cards as this will make it difficult for the child to see the pictures clearly.**
5. Tell the child to look at both cards. Suggest that he or she might see something on these cards and then say “If you see something on a card, point to it.”
6. Put the cards behind your back to randomly change the position of the cards. You can also hold the cards next to each other or one above the other. This helps prevent guessing. Make sure you do all four quadrants, Left, Right, Up and Down.
7. Repeat this process at least four times. The test is complete when the child answers correctly four

times out of a maximum six attempts.

8. A child is referred if the Stereopsis test is failed, regardless of the results of the chart, *as long as they are at least five years old.*

Reasons for referral

A child fails the screening if:

1. He or she does not pass the critical line for his or her age group with either eye. Critical lines are as follows:

3-5 years.....	.20/40
6 and up20/30

Remember a child must read one more than half the symbols on the line to pass.

2. There is a two line difference between the results of the right eye and the left eye even if the child passes the critical line for one eye.
3. The recorder observes certain “Signs of Eye Trouble” and these symptoms are severe.
4. If a child is five or over and does not correctly identify four of the six Stereopsis plates.

Signs of Eye Trouble

Behavior

- * Rubs eyes excessively
- * Shuts or covers one eye, tilts head or thrusts head forward
- * Has difficulty or is irritable when reading or doing close work
- * Holds books close to eyes
- * Is unable to see distant things clearly
- * Squints eyelids together or frowns
- * Blinks more than usual

Appearance

- * Crossed eyes
- * Red-rimmed, encrusted or swollen eyelids
- * Inflamed or watery eyes
- * Recurring styes

Complaints

- * Eyes itch, burn or feel scratchy
- * Cannot see well
- * Dizziness, headaches, or nausea following close work

* Blurred or double vision

Points to Remember

1. Only a trained volunteer can serve as the vision screener.
2. Screening is a serious business but to the children it is a game. Be cheerful, but do not give the children hints.
3. Screen quickly and efficiently as young children especially tend to have short attention spans.
4. Encourage the child to play the game but if the child is uncooperative, stop before he/she reaches the frustration point.
5. If the child wears glasses or contacts, screen with them on.
6. Say “good,” “fine” or some other predetermined positive “code word” after every response, whether the child is correct or not.
7. Never use words such as “test,” “failed” or “passed.”
8. Use a new cup for each child and throw it away after the child is screened.
9. If a child fails the screening, a referral is made.
10. Screener must have 20/20 vision, or 20/20 corrected vision

