COLORADO DEPARTMENT OF EDUCATION

Visual Screening Guidelines: Children Birth through Five Years

Developed for the Use of Child Find Personnel

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I. INTRODUCTION

The Importance of Vision Screening

There are four important points that support the need for early childhood vision screening.

1. Vision problems are not uncommon in young children. One out of every fifth child may have some type of vision concern.

2. Vision problems can have a major impact on the development of a young child, especially in the first years of life.

3. Early identification and intervention minimize the effects of a vision loss on a child's development.

4. Vision screening may identify concerns that require medical attention.

Purpose of the Guidelines

The purpose of these guidelines is to detail recommended early childhood vision screening practices to be used statewide by all agencies providing services to young children, birth though age five. The guidelines are for screening only; they are designed to identify children who need further testing. Children with known visual impairment (with medical documentation from an eye doctor) should be referred to a teacher certified in the area of visual impairment and should not be seen through a vision screening program.

The goal of the Vision Screening Guidelines for Children Birth through Five Years is to assist school personnel in determining a gross estimate of a young child's visual status. Screening instruments are not designed or intended to be a comprehensive assessment or a blueprint for educational programming. The screening process is designed to ask the simple question:

"Is there or is there not a visual problem that requires further examination?"

If there is an identified concern, the next step will be to pursue information about the exact nature of the problem (Mindes, Ireton, Mardell-Czudnowski 1996).

Role of Child Find Personnel in Vision Screening

The initial screening should be conducted by trained personnel, as determined at the local level, working with a parent/caregiver/teacher who is familiar with the child. For example, Child Find personnel, the school nurse or teacher certified in the area of visual impairment may provide assistance to the screening process. There are five primary roles for the personnel who will complete the vision screening:

1. To document the child's visual performance during the screening.

2. To determine whether the child passes or fails the vision screening.

3. To communicate the results of the screening to the family and appropriate professionals.

4. To ensure the continuation of the screening process, if needed, and make referrals (e.g. schedule a second screening, refer onto an eye care specialist).

5. To follow up on all referrals.

Colorado Laws Regarding Vision Screening

Colorado law mandates that public schools have a system of vision screening in place for its students. The current *Guidelines for School Vision Screening Programs* (Colorado Department of Public Health and Environment, 1991) reviews guidelines for annual vision screening of public school children of preschool, kindergarten, 1st, 2nd, 3rd, 5th, 7th, and 9th grade ages. The regulation citations below review the specific role of Child Find personnel in the vision screening process.

4.01(1) Child Find

4.01(1)(c) The child find process shall include specific strategies for children from birth through five years of age, children in school, and children out of school who are discontinuers or dropouts. It shall be available throughout the year and shall include the following components:

4.0(1)(c)(iii) Screening procedures for identifying from the total population of children ages birth to 21 years those who may need more in-depth evaluation in order to determine eligibility for special education and related services, or in the case of infants and toddlers early intervention services.

Follow up to vision and hearing screening shall interface with the vision and hearing screenings which occur for all children in public preschool, kindergarten, grades 1, 2, 3, 5, 7, and 9 yearly in accordance with C.R.S. 22-1-116. Appropriate educational or early intervention referrals shall be made if the child is suspected of having an educationally significant vision or hearing loss and parents shall be informed of any need for further medical evaluation.

The next section will detail the recommended procedures for vision screening of children from birth through five years of age.

II. RECOMMENDED VISION SCREENING PROCEDURES

SCREENING COMPONENTS	RECOMMENDATIONS	REFERRAL CONSIDERATIONS
History	Ask for history regarding the following: ✓ Family history of vision concerns ✓ Problems during pregnancy or delivery ✓ Medical history of child since birth ✓ Concerns regarding visual skills. ✓ Previous vision screening or testing by an eye doctor.	This information should be part of the referral and intake process. Vision concerns related to family history and/or the child's medical and developmental history should be noted, but may not be immediate grounds for failing the vision screening.
Visual Inspection of Eyes and Eyelids	Look for: ✓ Unusual shape and/or size of eyes ✓ Misalignment of the eye(s) (e.g. eye crossing) ✓ Unusual redness, tearing, cloudy appearance of eyes. ✓ Unusual jerky movements of the eyes. ✓ Drooping eyelids.	Any concerns about the appearance of the eyelids and/or eyes should be referred for medical attention.
Pupillary Response	Look for: ✓ Brisk constriction of both pupils with increased light. ✓ Brisk dilation of both pupils with decreased light. ✓ Equal response of both pupils to the changes in light.	Any concerns about the lack of a brisk pupil constriction / dilation or unequal response in both eyes are criteria for further evaluation.
Alternate Cover Test	Look for: ✓ Whether the uncovered eye has any significant movement from its original position ("redress movement").	Any concerns about obvious redress movement are criteria for further evaluation.
Corneal Light Reflex Test	Look for: ✓ Whether the light in each eye is reflected in a central position in both eyes.	Any concerns with the symmetry and/or positioning of the light reflection are criteria for further evaluation.

SCREENING COMPONENTS	RECOMMENDATIONS	REFERRAL CONSIDERATIONS
Near Fixation	Look for: ✓ Sustained fixation on a one inch object. ✓ Sustained fixation on a piece of cereal /cake decoration pellet (if child is over six months of age).	Any concerns about the child's lack of sustained fixation on objects are criteria for further evaluation.
Horizontal Tracking	Look for: ✓ Smooth continuous eye movements. ✓ Both eyes moving together at the same rate.	Any concerns about the quality of eye movements during horizontal tracking tasks are criteria for further evaluation.
Vertical Tracking	Look for: ✓ Smooth continuous eye movements. ✓ Both eyes moving together at the same rate.	Any concerns about the quality of eye movements during vertical tracking tasks are criteria for further evaluation.
Convergence	Look for: ✓ Smooth continuous eye movements up to 4 to 6 inches from the nose. ✓ Both eyes moving together at the same rate.	Any concerns about the quality of eye movements during convergence tasks are criteria for further evaluation.
Distance Acuity	Look for: ✓ By 2.5 – 3 years, an equivalent of 20/40 acuity in both eyes.	Any concerns with the acuity results in either eye are criteria for further evaluation.
Compensatory Visual Behaviors	Look for: ✓ Behavior signs suggesting vision difficulties such as unusual squinting, blinking, eye rubbing, head tilting, etc.	Any concerns with how the child is positioning his or her head or eyes during visual tasks, unusual squinting/blinking/ eye closing/eye rubbing etc. should be criteria for further evaluation.

III. VISION SCREENING PROCEDURES

Instructions

The purpose of visual screening is to get a gross observation of how well a child is seeing. The steps of taking a family/child history, visually examining the child's eyes, and completing specific screening tasks, may result in identifying a child that may require further evaluation. Screeners are looking for indications of visual problems, **not diagnosing** them.

The screening should take about 5-10 minutes to complete. If a child is obviously fatigued or stressed and cannot cooperate with the screening procedures, it will be necessary to reschedule another time to complete the vision screening.

Screening Tips

- ✓ Prior to the screening, be sure that you have gathered the correct forms and materials.
- ✓ Take a few moments to build rapport with the child. Greet and talk to the child before beginning of the screening activities.
- ✓ The order of the screening tasks does not affect outcome. Perform the least invasive and most fun tasks first.
- ✓ Make sure the child is securely and comfortably positioned throughout the screening. If the child has a motor challenge such as cerebral palsy or is very young, provide the needed head and trunk support (e.g., infant seat, special chair, parent's lap).
- ✓ Advise the parent not to cue the child in any way during the vision screening activities, if the child is sitting in his or her parent's lap.
- ✓ Use toys, lights, and objects that do NOT make sounds. You want the child to respond to visual stimulation only.
- ✓ Use a screening room environment that is quiet and free of unnecessary visual distractions such as people moving around the room.
- ✓ Be sure to monitor the lighting in the screening room. Light should not be overly dim or bright. Any sunlight coming in through a window should fall behind the child.
- ✓ Children who wear glasses should be screened with their glasses on unless the directions specifically indicate they should be removed.

The following information reviews the components of the vision screening process. Information is provided about what equipment is needed, the directions for completing the vision screening task, and criteria for passing or failing the task. **The forms that accompany these directions** can be found in Appendix A.

Parent Interview: Child and Family History

The first component of the vision screening is to gather a history of the child. There are several risk factors for visual problems. The Child Find intake information covers many of these areas. If not, it may be necessary to ask the family about any of the following high risk situations. If this information was not collected through the intake process, a Parent Interview Form can be found in Appendix A. The following factors should be considered by the vision screening team:

1. The child has a family history of eye crossing, color vision problems, and/or other types of congenital (at birth) visual impairments.
2. The child has a medical history that includes any of the following conditions:
   - ✓ prenatal virus (e. g., rubella, toxoplasmosis, cytomegalovirus, herpes)
   - ✓ prenatal exposure to drugs, alcohol, and/or environmental hazards
   - ✓ prematurity and/or low birth weight
   - ✓ administration of oxygen while hospitalized after birth
   - ✓ cerebral palsy or hearing loss or a syndrome (e.g., Down syndrome)
   - ✓ neurological problems such as a seizure disorder and/or hydrocephalus
   - ✓ traumatic brain injury (e.g., Shaken baby syndrome, accidents, child abuse)
   - ✓ postnatal (after birth) infection which results in a high fever (e.g. meningitis)
   - ✓ ongoing medication such as an anticonvulsant

In addition to the intake information that has been typically gathered, it is important to ask the following questions on the day of the interview.

- ✓ Do you have any concerns about your child's vision? If **yes**, please describe your concerns.
- ✓ If your child has motor coordination problems, do you feel these difficulties are tied to poor vision (e.g., not seeing steps or slight changes in floor surfaces)? *The purpose*

of this question is to note whether the child may have a depth perception concern that could go undetected in the vision screening.

✓ Has your child ever been seen by an eye doctor (optometrist or ophthalmologist?)

No _____
Yes _____ If yes, when:

If yes, what were the results of the exam?

Were glasses or other treatment prescribed?

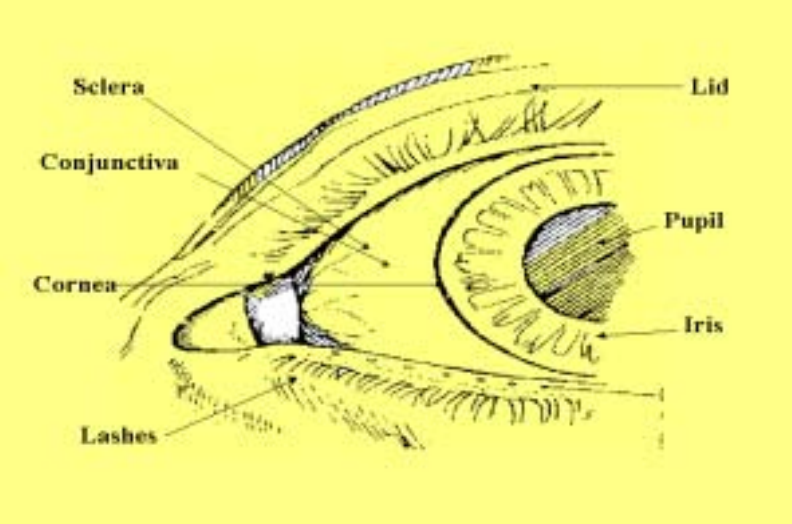
No _____
Yes _____ If yes, does your child wear the glasses? Yes ___ No ___

If glasses were prescribed, is the child wearing the glasses today? Yes ___ No ___

If not, what is the reason the child is not wearing his or her glasses?

Vision Screening Items

Visual Inspection of the Appearance of Eyes and Eyelids



Special Note:

An inspection of the child's eyes and eyelids can offer important information about the health and visual status of the eyes.

Equipment: There is no equipment needed for this item.

Instructions: Face the child at his or her eye level. Observe the child's eyes and eyelids to note whether or not there are any obvious problems with their symmetry, alignment, and general health. If the eyes and eyelids appear to be normal, check the first box and move onto the next section. If something does not appear normal, move to the items under "Concern Areas."

☐ **Pass:** Eyes appear symmetrical, aligned, and without evidence of problems.

OR

☐ **Fail - Concern Areas**

Right Eye	Left Eye	**All are grounds for referral:**
☐	☐	Eye(s) unusually red or irritated.
☐	☐	Eye(s) unusually teary.
☐	☐	Eye(s) are cloudy in appearance.
☐	☐	Eyes not aligned (eye(s) turns in, eye(s) turns out, etc.)
☐	☐	Eyes have involuntary jerky movements (nystagmus).
☐	☐	Eyes do not appear to move together,
☐	☐	Eyelid(s) is drooping.

Other concerns related to the appearance of the child's eye(s) and/or eyelid(s):

Special Photo Note:

Both eyes should be equally aligned and centered when looking at an object or a person.

(photo used with permission by www.visionsurvey.net)

Results: If there are concerns about the child's eye(s) and/or eyelid(s), the child will fail the vision screening and should be referred for further evaluation.

Pupillary Response (present from birth):

Equipment: Use a penlight that does not make a noise when it is turned on'

Instructions: If the child wears glasses, they should be removed. Face the child at his or her eye level. Direct the penlight four to six inches from the center of the child's forehead. Turn on the light for two to three seconds while observing the right eye for pupil constriction. Turn off the penlights and watch for pupil dilation. Wait a minute and repeat the procedure for the left eye.

Pupils should change size, getting smaller with the directed beam of a penlight and larger when the penlight is removed. Pupils should react equally to changes in light.

Right eye:	☐	**brisk**	☐	**absent / sluggish**
Left eye	☐	**brisk**	☐	**absent / sluggish**

Results:

☐ **Pass:** Both eyes respond quickly. ☐ **Fail:** Absent or sluggish response

Note: Seizure medications, neurological problems, and other medications can inhibit this response. If abnormal responses are noted, ask the parent about medications the child is taking. Regardless, an abnormal pupillary response would warrant failure of the vision screening.

***Muscle Balance* (slight muscle imbalance is typically okay before 6 months of age):**

Alternate Cover Test.

Equipment: occluder, penlight/monster penlight cap or small toy

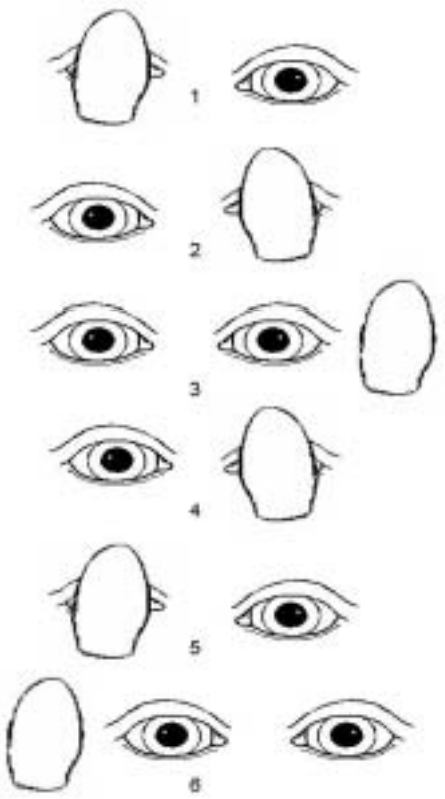
Instructions: Limit distractions in the room. Do not touch the child's face with the occluder at any time during the test. The target object (e.g., penlight with monster cap, small toy) may need to be manipulated or changed to maintain a young child's attention.

Position the child sitting in caregiver's lap or independently in a chair. The room should be quiet to reduce unnecessary distraction. Sit across from the child and align your eyes with the child's eyes. Hold the target object (e.g., penlight with monster cap) about 12 inches away directly in front of the child. Get the child to fixate on the object for 2-3 seconds – this can be checked by moving the object back and forth and watching the child's eyes follow.

- ✓ Cover the child's right eye with the occluder, watching the left eye for any movement.
- ✓ Leave covered for 2-3 seconds.
- ✓ Quickly move the occluder across the bridge of the nose to cover the left eye, watching the right eye for any movement.
- ✓ Wait 2-3 seconds after the cover is moved to permit fixation of the now uncovered eye.
- ✓ Move the cover from the left eye back to the right eye, across the bridge of the nose, watching the left eye for any movement.
- ✓ Allow 2-3 seconds for fixation. Repeat procedure several times to be assured of observations.

See the next page for a visual description of the procedures.

Procedure for Alternate Cover-Uncover Test



Step 1. When a child has fixated on object place occluder (printed side out, ear upward) in front of his right eye. Keep the eye covered long enough to allow fusion to be disrupted (you may count slowly to 3).

Step 2. Move the occluder across the bridge of the nose to the left eye and watch carefully for a monocular movement (right, left up, or down) of the eye being uncovered.

Step 3. Move the occluder to one side and watch for any monocular movement of the eye being uncovered.

Step 4. Cover the left eye.

Step 5. Move the occluder to the right eye and watch for nay monocular movement of the eye being uncovered.

Step 6. Move the occluder to one side and watch for any monocular movement of the eye being uncovered.

If no monocular eye movement is observed, the child passes the test.

If a definite monocular movement or shift is observed, the child is referred.

Important:

- Always allow sufficient time to disrupt fusion when you cover an eye.
- Hold the occluder far enough away from the child's eye so that you will not brush against the nose or eyelashes yet not so far away that the child will tend to look at the occluder.
- The test should be done while the child looks at something at 14 - 16 inches away and again while looking at something 20 feet or more in the distance.
- The object a child looks at during the near-point test should be no larger in size than a nickel.
- The testing procedure should be repeated until ;you are sure that there is or is not a movement of one eye while the other eye remains fixed.

Criteria for passing: If the child is over 6 months of age, the child passes the Alternative Cover Test if neither eye moves. The child over 6 months of age fails the test if the observed eye moves, horizontally or vertically.

Right eye: ☐ **Pass:** No Movement ☐ **Refer:** Obvious Movement

Left eye: ☐ **Pass:** No Movement ☐ **Refer**: Obvious Movement

Results: If there is no redress movement in either eye, the child will pass this screening indicator. If there is redress movement in either eye, the child will fail this indicator and should be referred for further evaluation.

Corneal Light Reflex Test

If the child passes the Alternate Cover test, it is not necessary to do the Corneal Light Reflex Test. If the results from the Alternate Cover Test are not clear, follow through with the Corneal Light Reflex Test.

Equipment: penlight

Instructions: Hold a penlight 12-13 inches away from the child's face directly in front of the eyes. Direct the light from the penlight at the hairline in the center of the child's forehead. The child needs to fixate either on the penlight or an object that may be held near the light. Observe the reflection of the penlight in the pupils of both eyes – the reflection should be centered or equally centered slightly toward the nose (nasal).

Special Photo Note:

The reflected light should be centered in both eyes, as shown in photo.

Photo used with permission from www.visionsurvey.net

☐ **Pass:** reflection is symmetrical ☐ **Fail:** reflection is not symmetrical

Results: If the reflection is symmetrical and centered in both eyes, the child will pass this screening indicator. The child does not pass this screening indicator if the reflection of the penlight does not appear to be in a centered position in the pupil of each eye. Sensitivity to light, rapid eye movement, and poor fixation observed during this test are also reasons for referral for further evaluation.

Fixation

Fixation is the ability to align both eyes on a visual target. By six months of age, an infant can direct his or her gaze to a target as small as a piece of cereal.

Equipment: 12 X 9 inch black mat; one inch silent toy or object; several pieces of cake decoration or cereal pieces such as Fruit Loops.

Instructions: Face the child at eye level. Place the black cloth on a table in front of the child. Place the one inch object on the mat and observe whether the child looks at the object. If the child does not look at the object, it can be picked up and shown to the child. If the child fixates on the object (looks with sustained gaze for 2-3 sections), then proceed to presenting a piece of cereal on the black mat. It may be necessary to drop a couple of cereal pieces on the mat. Again, look for sustained fixation.

For children between four and six months of age, complete only the item involving a one inch object. For infants younger than four months, neither item will be appropriate to complete.

Near Fixation (at 8-18 inches)

1-inch object *(4 months)*	☐	**Pass:** Sustained	☐	**Fail**: Fleeting/ Absent
Fruit Loop™ *(6 months)* or ¼ inch cake decoration pellet	☐	**Pass:** Sustained	☐	**Fail:** Fleeting / Absent

Results:

If a child of six months or older fixates on the one inch object and a small cake decoration pellet or piece of cereal, this is recorded as a pass. If the child does not fixate on either item or fixates with one eye only, the result is a fail.

Tracking **(smooth tracking skills should be evident by 6 months of age)**

Horizontal Tracking: Position the object or light about 12 inches from the child's eyes. Move the object to get the child's attention and let him or her look at it for 2-3 seconds. Slowly move the object in an arc of 180 degrees from one side to the other and back to the other side.

Vertical Tracking**:** Position the object about 12 inches in front of the child's nose. Move the object to get the child's attention and let him or her look at it for 2-3 seconds. Slowly move the object up to several inches above the child's head and then down to several inches below his or her chin.

If the tracking is described as "jerky" or "segmented", it means that the child visually tracks the object for a little distance, looks away, and then looks at and tracks the object the rest of the way.

Horizontal	☐	**Pass:** smooth/together	☐	**Refer**: jerky/segmented
Vertical	☐	**Pass:** smooth/together	☐	**Refer**: jerky/segmented

Results:

If tracking is smooth and demonstrated with both eyes moving together as they follow the target, the child will pass the tracking indicators. If one eye lags behind another eye or

tracking movements are jerky and incomplete, the child will fail this indicator and should be referred for further evaluation.

***Convergence* (ability of eyes to focus on objects at near range):**

Equipment: small toy

Instructions: Sitting in front of the child, attract attention with a toy held at eye level. From a distance of 12-16 inches, move the toy slowly toward the bridge of the nose. Eyes should continue to follow the toy to within a distance at least 4-6 inches from the nose.

☐ **Pass** Both eyes follow to at least 4-6 inches from the nose.

☐ **Refer:** One eye deviates or child looks away when object is more than 4-6 inches from nose.

Results: If both eyes maintain their gaze on the oncoming object at least 4-6 inches from the nose – pass. If one or both eyes break gaze farther than 4-6 inches from nose – fail.

Visual Acuity

Near Vision

The fixation tasks with the one inch object and the cake decoration pellet / piece of cereal should be used to gather information about a child's "near range functional acuity."

Distance Vision

For children developmentally older than two and a half years, attempts should be made to measure their distance visual acuity.

Equipment: Tape measure and Lea Symbol Cards

Instructions: The tape measure should be used to measure out a distance of ten feet between where the child is sitting and the Lea Symbol Cards are to be presented. Prior to beginning the acuity test, the evaluator should show the child the four picture cards up close and ask the child to give a name for each picture. It does not matter if the child does not give the exact name of the card, but rather it is important that the child has a consistent name for each of the four symbols.

One eye should be evaluated at a time. An occluder or eye patch can be used to occlude the child's vision in each eye during the two trials with the acuity symbols. In order to pass a particular acuity level, a child must correctly identify 3 out of the 5 symbols presented at that acuity rating. An acuity rating of 20/40 is passing criterion for a child between the ages of 2.5 to 5 years of age.

Right Eye ☐ **Pass** at 20/40 level (3 symbols correctly identified at this level)

☐ **Fail** child cannot correctly identify 3 symbols at the 20/40 level

Left Eye ☐ **Pass** at 20/40 level (3 symbols correctly identified at this level)

☐ **Fail** child cannot correctly identify 3 symbols at the 20/40 level

Results:

The visual acuity threshold is defined as the level (smallest symbol size) at which the child can correctly identify at least three out of five symbols. If the child only identifies two of the five symbols, report the visual acuity of the previous large size. Pass – three symbols at the 20/40 level. Fail – child cannot identify three symbols at the 20/40 level.

Compensatory Behaviors Related to Visual Problem(s)

Equipment: None needed

Instructions: Observe the child throughout the visual screening for any unusual viewing / looking behaviors that might suggest that the child has a visual problem.

- ☐ Rubs eye(s) / presses hands into eye(s) frequently.
- ☐ Squints, blinks, closes an eye(s) when looking at something.
- ☐ Squints, blinks, closes an eye(s) to changes in lighting**.**
- ☐ Turns or tilts head when looking at something.
- ☐ Appears overly interested in gazing at overhead lights.
- ☐ Looks away from visual targets, shows gaze aversion.
- ☐ Inattentive to a visual target unless it is has an accompanying sound cue.
- ☐ Takes longer than usual to focus on an object or face.
- ☐ Views objects at an unusually close distance from eyes.
- ☐ Over or under reaches for an object.

Results:

All checked behaviors will merit a referral if accompanied by any other item on the vision screening tool that has not been passed.

IV. MATRIX OF VISION SCREENING EQUIPMENT

Item, Age Range, and Equipment Needed for Screening Each Item

Item	Age Range	Equipment
Parent Interview	Birth – 5 yr.	Child Find Intake Form and/or Vision Screening Parent Form
Appearance of Eyes	Birth – 5 yr.	No equipment needed
Pupillary Response	Birth – 5 yr.	Penlight (without sound)
Alternate Cover Test	6 mo. – 5 yr.	Occluder / fixation toy
Corneal Light Test	6 mo. – 5 yr.	Penlight (without sound) and fixation toy
Fixation to pellet / cereal	6 mo. – 5 yr.	¼ cake decoration/small cereal. black mat
Fixation to small item	4 mo. – 5 yr.	1- 2 inch toy/ black mat or penlight with color cap
Horizontal tracking	6 mo. – 5 yr.	Penlight (without sound) with color cap
Vertical tracking	6 mo. – 5 yr.	Penlight (without sound) with color cap.
Convergence	6 mo. – 5 yr.	Penlight (without sound) with color cap or small toy
Distance Vision Acuity	2.5 yrs– 5 yr.	Tape measure, Lea Symbol Cards, occluder

V. SCREENING MANAGEMENT

Possible Outcomes of the Screening Process:

Outcome One: No problems are observed and there are no concerns of the parent/caregiver or screener. The child passes the screening and should be screened again at the next recommended age.

Outcome Two: One or more of the high-risk conditions have been identified, but there are no observable problems with visual performance. On the day of the screening, information may be given to the family and the local service provider about (a) high risk indicators of visual problems; (b) how to observe visual performance; and (c) resources to contact, if vision problems are observed at a later date. Child should be screened again, if concerns are noted at any time or at the next recommended age.

Outcome Three: If any of the three conditions below are noted, the child should be scheduled for a second screening or a prompt referral should be made to a next step medical (e.g. primary care physician, ophthalmologist, optometrist):

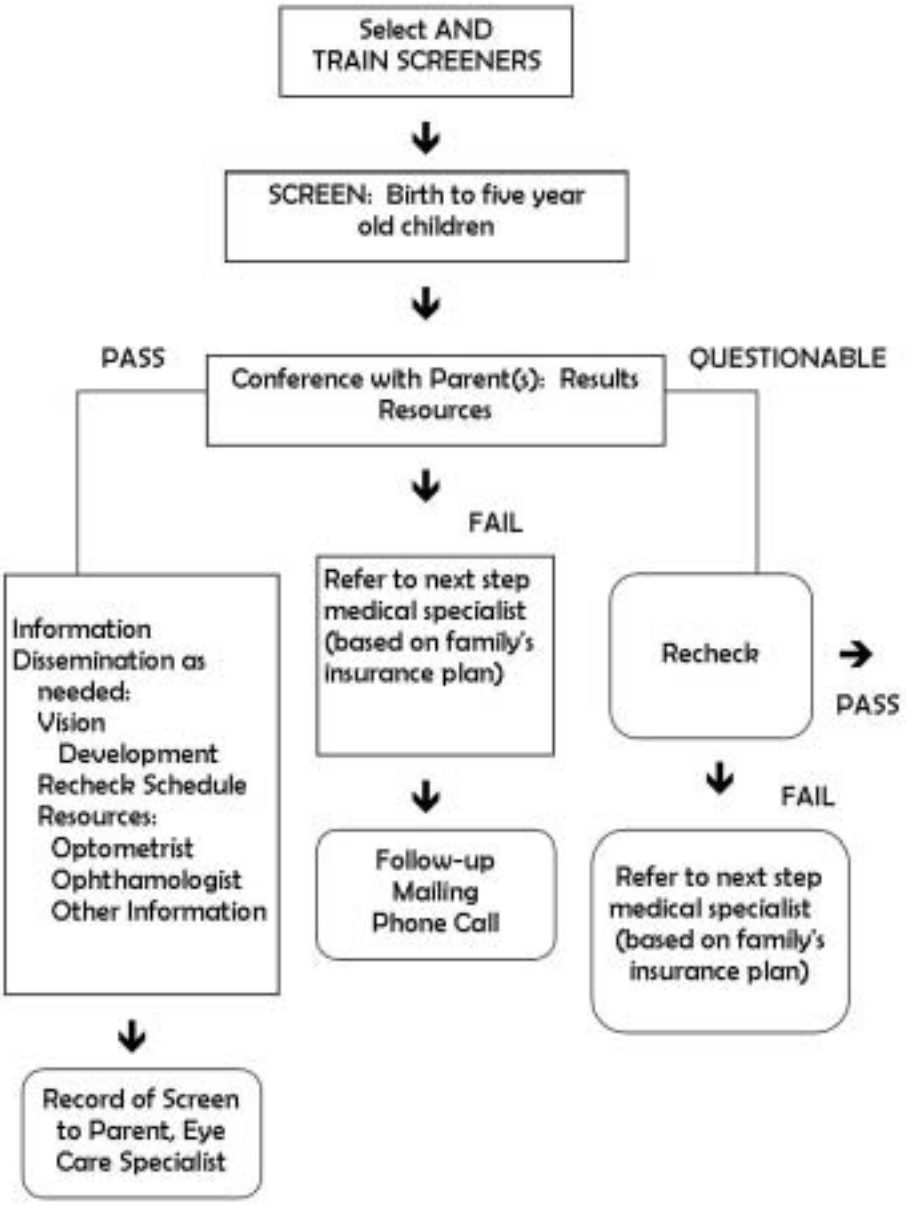
(a) The child has an observable eye problem such as excessive tearing, eye deviation, drooping eyelid, cloudiness of the eye, and so on. *(Prompt referral to the next step medical specialist such as a primary care physician or an eye care specialist – depending on family insurance).*

(b) The child has observable difficulty with one or more of the indicators on the screening tool. *(Schedule for second screening, if more information is needed to feel comfortable with the results of the vision screening. Refer if the screening personnel feel that more information than a second screening is needed to determine the child's visual health status.)*

(c) The parent/caregiver/teacher or screener still has questions and the team is unable to determine whether the child is having visual difficulty. Remember: This does not mean that the child cannot be screened. It does mean the screener is responsible for referring the child onto a medical specialist for more in-depth evaluation.

The flow chart on the next page will illustrate the sequenced process of the *Colorado 0-5 Vision Screening Guidelines*. Appendix A has several forms pertinent to the outcome and follow-up of the vision screening process, including an outcome form for parents, a *Decision Making – Action Taking Chart*, a letter for a doctor's referral, and a record of vision screening activities.

Flow Chart of Vision Screening Process



APPENDIX A

FORMS

Vision Screening Parent Questionnaire: Part I

Child's Name_____ D.O.B. _____

Date of Screening _____Child's Age at Screening _____

School District / BOCES: _____

Evaluator _____ Site of Screening _____

If information has not been gathered through the Child Find Intake Form that addresses possible high risk conditions for visual problems, this form may be used as part of the parent interview process.

General History: High Risk Populations for Visual Problems

	Yes	No
Is there a family history of early onset vision loss (e.g., cataracts, albinism)?	☐	☐
Is there a family history of vision problems such as eye crossing, color vision problems, and/or needing glasses?	☐	☐
Was your child exposed to any prenatal infections (e.g. rubella, toxoplasmosis, cytomegalovirus)?	☐	☐
Did your baby weigh less than three pounds at birth?	☐	☐
Was your child born prematurely?	☐	☐
Was your child exposed to alcohol or drugs before birth?	☐	☐
Has your child had meningitis or encephalitis?	☐	☐
Has your child experienced some form of head trauma?	☐	☐
Does your child have a seizure disorder?	☐	☐
Does your child have any difficulties with his or her hearing?	☐	☐
Has your child been diagnosed with a syndrome?	☐	☐
Has your child been diagnosed as having cerebral palsy?	☐	☐

Vision Screening Parent Questionnaire: Part II

Please complete this section of the Parent Questionnaire to either supplement the Child Find Intake information and/or the Part 1 portion.

1. Do you have any concerns about your child's vision? If yes, please describe.

2. If your child has motor coordination problems, do you feel these difficulties are tied to poor vision (e.g., not seeing steps or slight changes in floor surfaces)?

3. Has your child ever been seen by an eye doctor (optometrist or ophthalmologist?)

   No _____
   Yes _____ If yes, when: _____

   If yes, what were the results of the exam? _____

_____

_____

4. Were glasses or another treatment prescribed?

   No_____
   Yes_____ If yes, does your child wear the glasses? Yes _____ No ___

5. If glasses were prescribed, is the child wearing the glasses today? Yes ___ No ___

6. If not, what is the reason the child is not wearing his or her glasses:

Colorado Birth – Five Vision Screening Protocol

Child's Name_____ **DOB:** _____

Date of Screening: _____**Child's Age at Screening** _____

School District / BOCES: _____

Evaluator _____ **Site of Screening** _____

Appearance of Eyes and Eyelids

☐ **Pass:** Eyes appear symmetrical, aligned, and without evidence of problems.

☐ **Fail:** Concern Areas

Right Eye	Left Eye	**All are grounds for referral:**
☐	☐	Eye(s) unusually red or irritated.
☐	☐	Eye(s) unusually teary.
☐	☐	Eye(s) are cloudy in appearance.
☐	☐	Eyes not aligned (eye turns in, eye turns out, etc.)
☐	☐	Eyes have involuntary jerky movements
☐	☐	Eyes do not appear to move together,
☐	☐	Eyelid(s) is drooping.

Other concerns_____

***Pupillary Response* (present from birth):**

Right eye: ☐ **Pass: brisk** ☐ **Fail: absent / sluggish**

Left eye ☐ **Pass: brisk** ☐ **Fail: absent / sluggish**

***Muscle Balance* (slight muscle imbalance is typically okay before 6 months of age):**

Alternate Cover Test

Right eye: ☐ **Pass:** No Movement ☐ **Fail:** Obvious Movement

Left eye: ☐ **Pass:** No Movement ☐ **Fail**: Obvious Movement

Corneal Light Reflex Test

☐ **Pass:** reflection is symmetrical ☐ **Fail:** reflection is not symmetrical

Near Fixation (at 8-18 inches)

1-inch object *(4 months)*	☐ **Pass:** Sustained	☐ **Fail**: Fleeting/ Absent
Fruit Loop™ *(6 months)* or ¼ inch cake decoration pellet	☐ **Pass:** Sustained	☐ **Fail:** Fleeting / Absent

Tracking **(smooth tracking skills should be evident by 6 months of age)**

Horizontal	☐ **Pass:** smooth/together	☐ **Fail**: jerky/segmented
Vertical	☐ **Pass:** smooth/together	☐ **Fail**: jerky/segmented

Convergence **(ability of eyes to focus on objects at near range):**

☐ **Pass:** Both eyes follow to at least 4-6 inches from the nose.

☐ **Fail:** One eye deviates or child looks away where the object is more than 4-6 inches from nose.

Visual Acuity

Distance Vision

Right Eye	☐ **Pass** at 20/40 level (3 symbols correctly identified at this level)
	☐ **Fail** child cannot correctly identify 3 symbols at the 20/40 level
Left Eye	☐ **Pass** at 20/40 level (3 symbols correctly identified at this level)
	☐ **Fail** child cannot correctly identify 3 symbols at the 20/40 level

Behaviors Suggesting Visual Problems

All checked behaviors are merit a referral if accompanied by any other item on the vision screening tool that has not been passed.

- ☐ Rubs eye(s) / presses hands into eye(s) frequently.
- ☐ Squints, blinks, closes an eye(s) when looking at something.
- ☐ Squints, blinks, closes an eye(s) to changes in lighting.
- ☐ Turns or tilts head when looking at something.
- ☐ Appears overly interested in gazing at overhead lights.
- ☐ Looks away from visual targets, shows gaze aversion.
- ☐ Inattentive to a visual target unless it is has an accompanying sound cue.

☐ Takes longer than usual to focus on an object or face.

☐ Views objects at an unusually close distance from eyes.

☐ Over or under reaches for an object.

Screening Outcome:

☐ **Outcome One**: No problems are observed and there are no concerns of the parent/caregiver or screener. The child passes the screening and should be screened again at the next recommended age.

☐ **Outcome Two**: One or more of the high-risk conditions have been identified, but there are no observable problems with visual performance. On the day of the screening, information may be given to the family and the local service provider about (a) ABCs of visual problems; (b) how to observe visual performance; and (c) resources to contact, if vision problems are observed at a later date. Child should be screened again, if concerns are noted at any time or at the next recommended age.

☐ **Outcome Three:** One or more of the three conditions below have been noted, the child should be scheduled for ***(check one)*** a second screening _____or a prompt referral _____should be made to a medical specialist (e.g. primary care physician, ophthalmologist, optometrist):

(a) The child has an observable eye problem such as excessive tearing, eye deviation, drooping eyelid, cloudiness of the eye, and so on. *(Prompt referral to the next step medical specialist such as a primary care physician or an eye care specialist – depending on family insurance).*

(b) The child has observable difficulty with one or more of the indicators on the screening tool. *(Schedule for second screening, if more information is needed to feel comfortable with the results of the vision screening. Refer, if the screening personnel feel that more information than a second screening is needed to determine the child's visual health status.)*

(c) The parent/caregiver/teacher or screener still has questions and the team is unable to determine whether the child is having visual difficulty. Remember: <u>This does not mean that the child cannot be screened.</u> It does mean the screener is responsible for referring the child onto a medical specialist for more in-depth evaluation.

_____ _____

Signature of Person Conducting Screening Date

DECISION-MAKING AND ACTION-TAKING
Action Worksheet

	COLUMN I	COLUMN II
DECISION:	**I am referring.**	**I am not referring.**
ACTION:	Record of Referral and Follow-up ❑ Write YES on the Record of Referral and Follow-up form.	Record of Referral and Follow-up ❑ Write NO on the Record of Referral and Follow-up form.
	Eye Examination Referral Letter Completed ❑ Copy the content of the YES responses from the 0-5 Vision Screening into the problem boxes on the top of the Early Childhood Eye Examination Referral Letter.	Not Applicable.
	Discussion with Parent ❑ Talk to the parent/caregiver about vision concerns identified: ❑ Give the Early Childhood Eye Examination Referral Letter to the parent and ask him/her to tell you when the eye examination is scheduled (as appropriate) *Date of eye examination:*	Discussion with Parent ❑ Let parent know that problems were not noted at this time
	Referral and Follow-up ❑ Using the Record of Referral and Follow-up form, record: ❑ dates of referral ❑ date of examination ❑ the visual acuity ❑ any treatment ❑ vision problem specified by the eye doctor, and ❑ date of referral for evaluation for vision impairment services (if necessary)	Referral and Follow-up ❑ Continue to observe or screen later: *Anticipated date for repeating 0-5 Vision Screening*

Form adapted from form found on www.visionsurvey.net

OUTCOME FORM FOR PARENTS

Child's full name: _____ Date: _____

Parents name: _____ Telephone: _____

Screener: _____ Telephone: _____

Your child passed the screening because:

_____ Your child demonstrated no observable visual problems.

Your child did not pass the screening because:

_____ There was concern about the appearance of his/her eye(s)/eyelid(s):

_____ There was observable difficulty with one or more of the behavioral items on the *Colorado 0-5 Vision Screening Guidelines* tool, including

_____ You and/or the screener still have questions; we were unable to make a determination of whether or not the child is having visual difficulty

It is recommended that your child be:

_____ Re-screened. Date for rescreening _____

____ Referred to an eye care specialist

Screener: _____ Phone Number: _____

Date: _____

RELEASE INFORMATION

Information about your child's vision screening may be appropriate to share with other individuals or agencies. This is especially true if visual problems were noted during the screening and more evaluation may be needed to identify and possibly correct the visual concern.

I hereby agree to have the results of vision screening shared with the following individual or agencies. Please initial the agencies that you wish to receive the screening results

_____ Copy to parent/legal guardian (this copy may be shared with any person or agency at the parent's or guardian's discretion)

_____ Copy to primary care provider _____

_____

_____ Copy to eye care specialist _____

_____

_____ Copy to other individual(s): _____

_____

_____ _____

(Full Name of Child) (Date of Birth)

_____ _____

(Parent or Guardian) (Date)

EXAMPLE DOCTOR LETTER

Dear Doctor,

(Child's name) has been screened through the (district's) Child Find Program. This child is being referred to you because:

_____ The child had a noted concern with the appearance of his/her eye(s)/eyelid(s):

_____ The child had observable difficulty with one or more of the behavioral items on the *Colorado 0-5 Vision Screening Guidelines* tool, including

_____ The parent, caregiver, or screener has questions and the team was unable to make a determination of whether or not the child is having visual difficulty

Please complete the lower half of this form and return to it us at the following address:

I examined _____ on ___/____/____

The visual acuity with best correction is: **20/**_____ in the **right eye** and

20/_____ in the **left eye**.

The diagnosis(es) is (are):_____

The treatment I am recommending is:_____

_____

Upon completion of any needed eye care treatment, I expect there will be:

[ ] No significant visual problem that may interfere with learning.

[ ] Visual problems that may interfere with learning.

This child should **return** for a **follow-up examination** on ____/____/____

Remarks or recommendations:_____

_____

Printed Name of MD or OD:_____

Signature of MD or OD_____**Date**:_____

VISION SCREENING RECORD OF REFERRAL AND FOLLOW-UP

School Year _____ - _____

District: _____

Child	**DOB**	**Eye Exam Referral** **YES/NO DATE**	**Date of Eye Exam**	**Eye doctor's report:** Indicate acuity: with (W) or without (W/O) glasses, if known		**Treatment** **Glasses** **YES/NO**	**Other Medical Findings**	**Treatment** **Medical/ Surgical**	**Vision Related Impact on Learning YES/NO**	**Referral date for VI evaluation**
				L Eye	R Eye					
				20/	**20/**					
				20/	**20/**					
				20/	**20/**					
				20/	**20/**					
				20/	**20/**					

APPENDIX B

Handouts / Resources

- Policy Statement of American Academy of Ophthalmology
- Equipment Resources
- Glossary of Terms
- Visual Development Milestones
- ABCs of Vision Problems
- How to Prepare a Child for an Eye Exam

POLICY STATEMENT
From the American Academy of Ophthalmology

Vision Screening for Infants and Children

Policy

The American Academy of Ophthalmology recommends timely vision and eye health screening for the detection and early treatment of eye problems in America's children. This includes institution of vision screening during the preschool years. Screening by lay people mainly detects reduced vision in one or both eyes from errors of refraction, amblyopia, and strabismus. Other eye health screening is carried out during infancy, and depends in a large part on parental awareness as well as on detection of eye disease by primary care physicians. Very early detection of treatable eye disease in infancy and childhood can have far reaching implications for vision and, in some cases, for general health.

Background

Good vision is essential for children as they develop physically and move through the process of education. The visual system in the young child is immature and requires equal input from both eyes for brain vision centers to develop normally. If an eye is not used properly, visual acuity declines in that eye resulting in abnormal binocular function and absence of stereoscopic depth perception. Early detection of defective vision provides the best opportunity for effective, inexpensive treatment.

Vision screening programs permit widespread testing in preschool and early school-age children.

Many school systems have regular vision screening programs that are carried out by volunteer professional screeners, school nurses, and/or lay persons. Screening can be done quickly, accurately, and with a minimum expense. The screener should not have a vested interest in the screening outcome. While screening can identify many visual problems, it is not a truly diagnostic procedure and will not necessarily detect all problems or identify their causes. School vision screening has a degree of inaccuracy that is inherent in any screening process. The inaccuracy should be accepted as unavoidable.

Among those conditions which can be detected in children by vision screening using an acuity chart beginning in the preschool years are: reduced vision in one or both eyes from amblyopia, uncorrected refractive errors or other eye defects and, in most cases, misalignment of the eyes (called strabismus).

Amblyopia is poor vision in an otherwise normal appearing eye. Two common causes are crossed eyes and a difference in the refractive error between the two eyes. If untreated, amblyopia can cause irreversible visual loss. The best time for treatment is in the preschool years. Effective treatment after the child is 8 or 9 years of age is rarely achieved.

Strabismus is misalignment of the eyes whether the eye turns in, out, up or down. If the same eye is habitually misaligned, amblyopia may develop in that eye. Early detection of amblyopia resulting from strabismus, followed up by treatment with patching and any necessary glasses, can be effective in restoring vision. The eyes can be aligned in some cases with glasses and in others with surgery, but neither of these treatment techniques replaces the need for patching when it is indicated.

Refractive errors cause decreased vision, visual discomfort ("eye strain"), and/or amblyopia. The most common form, nearsightedness (poor distance vision), is usually seen in school-age children and is treated effectively, in most cases, with glasses. Farsightedness (poor near vision) can cause problems in seeing close work and is also treated with glasses. Astigmatism (imperfect curvature of the front surfaces of the eye) also requires corrective eye glasses if it produces blurred vision or discomfort. Uncorrected refractive errors can cause amblyopia in some cases.

Vision screening can only detect a child's visual problem. An effective screening program should have some mechanism for follow-up treatment for parents to access.

Recommendations

The American Academy of Ophthalmology recommends that infants and children be screened as follows:

1. A pediatrician or family physician should examine a newborn's eyes for general eye health in the nursery. An ophthalmologist should be asked to examine all high risk infants, i.e., those at risk to develop retinopathy of prematurity (ROP), those with a family history of retinoblastoma, congenital glaucoma, cataracts, or diseases associated with eye problems, or when any opacity of the ocular media or nystagmus (purposeless rhythmic movement of the eyes) is seen. Examination of these infants should be performed whenever questions arise about the eye health of a child at any age.

2. All infants by six months of age should be screened for ocular health by a pediatrician, family physician or an ophthalmologist.

3. Each child at age approximately 3 ½ should be screened for eye health by a pediatrician, family physician, or an ophthalmologist. Emphasis should be placed on testing of visual acuity.

4. Children at age 5 should have vision evaluated and alignment assessed by a pediatrician, family physician, or an ophthalmologist. Those children who fail either test should be examined by an ophthalmologist.

5. Further screening examinations should be done at routine school checks or after the appearance of symptoms. Routine professional eye examination of the normal child has no medical benefit.

Most serious ocular conditions, which can be found at screening and are treatable, are identified in the preschool years. Many of these conditions are associated with a positive family history. Screening emphasis should, therefore, be directed to at risk infants and to those children in the early preschool years.

Approved by: American Association for Pediatric Ophthalmology and Strabismus, May 1991
American Academy of Ophthalmology Board of Directors, June 1991

Revised and
Approved by: American Association for Pediatric Ophthalmology and Strabismus September 1996
American Academy of Ophthalmology Board of Trustees, September 1996

Equipment List and Sources for Purchase

Colorado Department of Education
(http://www.cde.state.co.us/earlychildhoodconnections/early.htm)

- ✓ Parent Interview Form
- ✓ Screening Protocol Forms
- ✓ 0-5 Vision Screening Guidelines

Local Supermarkets

- ✓ ¼ inch colored cake decoration pellets
- ✓ boxed cereal such as Cheerios or Fruit Loops

Local Retail Store

- ✓ nonclick penlight
- ✓ small one to two inch toys
- ✓ tape measure
- ✓ black 12 x 9 inch (or thereabouts) piece of fabric or foam mat

Vision Associates (www.visionkits.com)

- ✓ nonclick penlight
- ✓ colored penlight monster caps
- ✓ Lea Symbol distance visual acuity cards
- ✓ Fixation stick / occluder

Glossary Pertaining to Vision Screening

Acuity	Clarity or sharpness of vision that is measured and recorded using an internationally recognized two figured indicator such as 20/20 (numerator = specific size of symbol used in acuity testing and denominator = distance in feet from child).
Amblyopia	Lack of development of vision because an eye was not used in early childhood. Amblyopia may be caused by a strabismus.
Astigmatism	Defect in the curvature of the cornea or lens of an eye; causes the light rays entering the eye to spread irregularly to the retina. Astigmatism can be corrected with a prescribed lens such as glasses.
Binocular Vision	The ability to use both eyes at the same time to focus on an object and to combine the individual images in each eye into a single three dimensional image.
Color Deficiency	Partial or complete inability to discriminate colors.
Congenital	Present at birth.
Conjunctiva	The membrane covering the anterior portion of the globe of the eye.
Convergence	Turning the direction of the gaze of the two eyes inward.
Depth Perception	The ability to distinguish the relative distance of objects in visual space.
Divergence	Turning the direction of the gaze of the two eyes outward.
Eye Examination	An evaluation of the health and visual status of the eyes, including measurement of visual acuity, binocular vision, color vision, an external inspection of the eyes, and a dilated inspection of the interior eye.
Eyelids	Skin structures, including lashes, that cover the exposed parts of the eye, serve as a protective cover of the eyes and to distribute tears over the exposed surfaces.
Field of Vision	The entire area which can be seen at one time without shifting the head or eyes.
Fixate	The ability to focus one's gaze on an object.

Follow-Up	To maintain contact with a person who requires services beyond screening in order to learn whether additional evaluation services were obtained.
Hirschberg's Test	A gross test for the presence of or approximate magnitude of strabismus, completed by comparing the positioning of reflected light of a single source from the corneas of the two eyes. This test is also referred to at the Corneal Light Test.
Hyperopia	A refractive error in which the eyeball is too short to focus the light rays entering the eye on the retina. The result is difficulty seeing objects at a close range or farsightedness. Glasses with a convex (plus) lens will typically correct hyperopia.
Iris	The colored center of the eye, controls the amount of light transmitted to the inside of the eye through its opening, the pupil.
LEA Symbols	A visual acuity test for children who are not yet familiar with alphabet letter shapes. The test uses the symbols circle, square, house, and heart instead of letters. The test is administered at 10 or 20 feet depending upon the version.
Monocular	Pertaining to the use of one eye.
Myopia	A refractive error in which the eyeball is too long to focus the light rays entering the eyes on the retina. The result is difficulty seeing objects that are far away or nearsightedness.
Nystagmus	The rapid involuntary movement back and forth of the eyes.
Occluder	Any device used to block the vision in one eye; often a stiff piece of paper or paddle-like instrument.
Ophthalmologist	A licensed physician, who specializes in the diagnosis and treatment of defects and diseases of the eye, performs surgery when necessary or prescribes other types of treatment such as medication, glasses, contact lenses, and optical aids.
Optician	A person who grinds lenses and prepares eyeglasses and fits contact lenses from prescriptions from ophthalmologists and optometrists.
Optometrist	A non-medical practitioner specializing in vision, who examines the eye and vision system, prescribes or provides treatment including glasses, prisms, contact lenses, or visual therapy.
Peripheral Vision	Ability to perceive presence, motion, or color of objects outside the direct line of vision.

Photophobia	An abnormal vision intolerance and/or discomfort to light.
Ptosis	A paralytic drooping of the upper eyelid.
Pupil	Opening in the iris (colored part of the eye) that allows light to reach the retina at the back of the eye.
Refraction	A test performed by an eye doctor to determine the need for glasses.
Refractive Error	A defect in the eye that prevents light rays from being brought to a single focus exactly on the retina. Nearsightedness (myopia), farsightedness (hyperopia), and astigmatism are all refractive errors.
Sclera	White, tough outer layer of the eye that is visible around the iris.
Strabismus	The misalignment of the eyes.
Syndrome	Group of medical signs and symptoms occurring together.
Tracking	Uniform movement of the eyes as they follow a moving object or a light source.
Visual Acuity	The sharpness or clearness of a person's vision.
Visual Field	The entire area that can be seen without shifting the eyes or moving the head.

VISUAL DEVELOPMENT GUIDELINES

The following questions may be used to determine the child's visual skill development. *All age guidelines given above were taken from several different sources and where differences of opinion were found, the average is given. The age notations are meant to be used as* guidelines of when the child has demonstrated this skill.

	Yes	No
Does the child…		
… look at your face? *(momentary looking by 1 month)*	☐	☐
… smile at others? *(3 months)*	☐	☐
… look at own hands? *(3 months)*	☐	☐
… watch you as you enter/cross the room? *(6 feet away by 3 months)*	☐	☐
… reach out and bat at objects? *(3 months)*	☐	☐
… try to reach out and grasp at objects/toys? *(6 months)*	☐	☐
… notice something (e.g., a raisin) when it is 12 inches away? *(6 months)*	☐	☐
… pick up or attempt to pick up a Cheerio, raisin, or lint? *(8 months)*	☐	☐
… attempt to move toward an object that is at least 5 feet away? *(7 months)*	☐	☐
… stare at or try to grab your jewelry or glasses? *(9 months)*	☐	☐
… react to facial expressions of others (e.g., frown, smile)? *(10-12 months)*	☐	☐
… look for dropped toys? *(9 months)*	☐	☐
… show an interest in picture books? *(12 months)*	☐	☐
… reach into a container and pull objects out easily? *(12-18 months)*	☐	☐
… name one picture of a familiar item *(18-22 months)*	☐	☐
… find detail in picture book (e.g. eyes, tail) *(24 -27)*	☐	☐
… match two items that are the same color. *(26-42 months)*	☐	☐

The ABCs of Vision Problems

Appearance

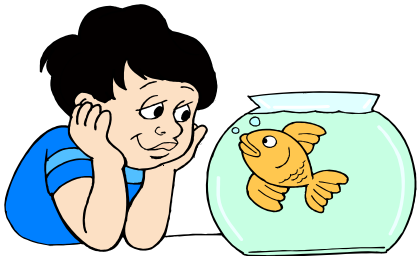
1. One or both eyes turn inward or outward, or one is slightly higher or lower than the other eye (strabismus)
2. Crusty or red eyelids (conjunctivitis or blepharitis)
3. Eyes that are in constant, rapid motion (nystagmus)
4. Drooping eyelid(s) that may or may not interfere with vision (ptosis)
5. Pupils of different sizes, or different reactions to light and accommodations (hippus or neurological compromise)
6. Glands that are enlarged, inflamed, or otherwise infected (blocked tear duct)
7. Excessive tearing, light sensitivity, lid spasms (glaucoma)

Behavior

1. Lack of or reduced eye contact.
2. Shows poor eye muscle coordination
3. Covers or closes one eye for critical seeing
4. Tilts head to one side for critical seeing
5. Thrusts head forward to see distant objects
6. Tries to “brush away” a blur
7. Rubs eyes often or blinks often while reading or looking at books
8. Frowns or squints when looking at or trying to see distant objects
9. Stumbles often over objects, is awkward
10. Holds book, toy, or picture too close or too far away

Complaints

1. Sensitivity to light
2. Burning or itching of eyes or eyelids
3. Seeing double, or blurred vision
4. Headaches, usually after a critical visual task
5. Nausea or dizziness



HOW TO PREPARE FOR AN EYE EXAM OF A YOUNG CHILD

1. Schedule the appointment at a time of the day that is good for your child – when he or she is usually awake, alert, and happy.

2 Be prepared to provide a family history of visual and health problems. Be prepared to give a medical and developmental history of your child.

3. Be prepared to tell the eye doctor about your observations of your child's visual skills. What are your concerns?

4. Bring a snack and "entertainment" items for your child, as well as toys that she/he visually prefers.

5. Be prepared that parts of the eye exam may be uncomfortable for your child (eye drops, bright lights).

6. Write your questions down in advance.

7. Whenever possible, bring your spouse, a friend, or a trained teacher to help listen to the doctor's impressions.

AVAILABLE RESOURCES

Information about recommendations for early vision screening:

- ✓ American Optometric Association
  www.aoa.org
- ✓ American Academy of Ophthalmology
  www.aao.org
- ✓ American Academic of Pediatrics
  www.aap.org
- ✓ Colorado Association of School Nurses
  www.c-a-s-n.org

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Hudson, P. B., Anthony, T., Greeley, J., & Humphrey, L. (1999). *Colorado Vision Screening Guidelines for Infants and Toddlers*. Denver, CO: Colorado Department of Public Health and Environment.

Levack, N. (1991). *Low Vision: A Resource Guide with Adaptations for Students with Visual Impairments*. Austin, TX: Texas School for the Blind.

Mindes, G., Ireton, H., & Mardell-Czudnowksi, C. (1996). *Assessing Young Children*. New York, NY: Delmar Publications.

Wisconsin Early Childhood Vision Survey - http://visionsurvey.net