

## EVIDENCE-BASED VISION SCREENING TOOL EXAMPLES



States, and even separate school districts within states, have varying vision screening procedures and protocols. The following information provides examples of evidence-based tools.

For answers to questions – [nottingham@preventblindness.org](mailto:nottingham@preventblindness.org)



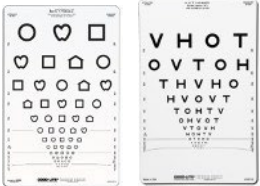
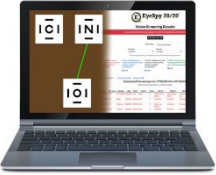





### OBSERVATION / CHECKLIST APPROACH




March 2023

TEST	AGES	TOOLS	OPTOTYPES	PASS	NOTES AND TIPS
18 Key Vision Developmental Milestones	Birth to 1 <sup>st</sup> Birthday	<p>18 Vision Development Milestones From Birth to Baby's First Birthday</p>  	Observation/ checklist tool	Follow instructions	<p>Available in English and Spanish.</p> <p>Begin with 1<sup>st</sup> milestone regardless of infant's age to determine all milestones were met.</p> <p>Use tool monthly.</p> <p><b>English</b> <a href="https://nationalcenter.preventblindness.org/wp-content/uploads/sites/22/2020/05/18-Key-vision-questions-to-ask-in-year-1_version-5.27.2020.pdf">https://nationalcenter.preventblindness.org/wp-content/uploads/sites/22/2020/05/18-Key-vision-questions-to-ask-in-year-1_version-5.27.2020.pdf</a></p> <p><b>Spanish</b> <a href="https://nationalcenter.preventblindness.org/wp-content/uploads/sites/22/2020/06/Spanish_18-Key-vision-questions-to-ask-in-year-1_version-5.27.2020-1.pdf">https://nationalcenter.preventblindness.org/wp-content/uploads/sites/22/2020/06/Spanish_18-Key-vision-questions-to-ask-in-year-1_version-5.27.2020-1.pdf</a></p> <p><b>Poster for Parents/Guardians</b></p> <p><b>English</b> <a href="https://nationalcenter.preventblindness.org/wp-content/uploads/sites/22/2020/05/18visiondevelopmentmilestones_FINAL_4.20.20.pdf">https://nationalcenter.preventblindness.org/wp-content/uploads/sites/22/2020/05/18visiondevelopmentmilestones_FINAL_4.20.20.pdf</a></p> <p><b>Spanish</b> <a href="https://nationalcenter.preventblindness.org/wp-content/uploads/sites/22/2020/07/ESPmilestones8.5x11.pdf">https://nationalcenter.preventblindness.org/wp-content/uploads/sites/22/2020/07/ESPmilestones8.5x11.pdf</a></p>


# OPTOTYPE-BASED SCREENING APPROACH

TEST	AGES	TOOLS	OPTOTYPES	PASS	NOTES AND TIPS
<p>Distance Visual Acuity</p>	<p>3, 4, 5, and 6 years</p>	<p>Single, surrounded optotypes in wheels or flip charts at 5 feet.</p>  <p>LEA SYMBOLS® portion of Sight Line at 10 feet in critical line format.</p>  <p>9 x 14 charts</p>  <p>Screening software with single, surrounded optotypes at 10 feet.</p> 	<p>LEA SYMBOLS® or HOTV letters</p> <p>Response panels for playing matching game.</p>  	<p>3yo – 20/50 line</p> <p>4 and 5yo – 20/40 line</p> <p>6yo and older – 20/32 line</p>	<p>Screen annually.</p> <p>Measure 10-foot screening distance between chart and child's eyes.</p> <p>Place arch of child's foot on the line when measuring the 10-foot distance, not heels or toes.</p> <p>Screen one eye at a time.</p> <p>Rescreen as soon as possible and no later than 6 months with the same screening tool.</p> <p>Refer to an eye care provider (pediatric optometrist, optometrist, pediatric ophthalmologist, or ophthalmologist) with experience examining young children.</p> <p>Use 9 x 14 Sloan Letters chart in an illuminated cabinet (e.g., ESV1200 below) or place on a wall in a well-lit room.</p> 

## OPTOTYPE-BASED SCREENING APPROACH (Continued)

TEST	AGES	TOOLS	OPTOTYPES	PASS	NOTES AND TIPS
<p>Distance Visual Acuity</p>	<p>Beginning at ages 6 or 7 years, depending on when children can identify letters in random order</p>	<p>Tests of visual acuity at 10 feet, using standardized format.</p> <p>If you draw a line around the outside of the optotypes, the line will resemble an upside down pyramid and not a rectangle.</p> <p>No more than 5 optotypes per line, unless using a 9" x 14" chart.</p> <p>Test of visual acuity should be 10 feet, not 20 feet, AND should have a 20/32 (10/16) line, not a 20/30 line.</p> 	<p>Sloan Letters</p> <p>Response panel of Sloan Letters for students who use English as a second language and may need to match optotypes.</p> 	<p>More than half of optotypes on 20/32 line with each eye (e.g., 3 of 5 optotypes)</p>	<p>Bright Futures recommends vision screening for well-child medical visits at ages 8, 10, 12, and 15 years.</p> <p>Measure 10-foot screening distance between chart and child's eyes.</p> <p>Place arch of child's foot on the line when measuring the 10-foot distance, not heels or toes.</p> <p>Screen one eye at a time.</p> <p>Rescreen as soon as possible and no later than 6 months with the same screening tool.</p> <p>Refer to an eye care provider (pediatric optometrist, optometrist, pediatric ophthalmologist, or ophthalmologist) with experience examining school-age children.</p> <p>Use 9 x 14 Sloan Letters chart in an illuminated cabinet (e.g., ESV1200 below) or place on a wall in a well-lit room.</p> 

**OPTOTYPE-BASED SCREENING APPROACH (Continued)**

TEST	AGES	TOOLS	OPTOTYPES	PASS	NOTES AND TIPS
<p>Distance Visual Acuity</p>	<p>All ages beginning at age 3 years</p>	<p>Tests of visual acuity at 10 feet for threshold and critical line screening.</p> <p>AAPOS Basic Vision Screening Kit</p> 	<p>LEA SYMBOLS<sup>®</sup> and Sloan Letters</p> <p>Also available with HOTV and Sloan Letters</p>	<p>Follow instructions in kits</p>	<p>Measure 10-foot screening distance between chart and child's eyes.</p> <p>Place arch of child's foot on the line when measuring the 10-foot distance, not heels or toes.</p> <p>Screen one eye at a time.</p> <p>Rescreen as soon as possible and no later than 6 months with the same screening tool.</p> <p>Refer to an eye care provider (pediatric optometrist, optometrist, pediatric ophthalmologist, or ophthalmologist) with experience examining preschool- and school-age children.</p>

## Instrument-Based Screening

- Vision screenings for toddlers ages 1 and 2 years can be conducted via instrument-based screening or a screening conducted by a primary health care provider.
- Instrument-based screening is appropriate as an alternative to optotype-based screening for ages 3, 4, and 5 years.
- Instrument-based screening can be used for children ages 6 years and older only if they cannot participate in optotype-based screening.<sup>1</sup>
  - All individuals screening children ages 6 years and older – including volunteer community groups – should follow this guideline until additional research emerges.
  - This age range may expand as high quality, peer-reviewed, published research emerges.

<sup>1</sup>Donahue, S. P., Baker, C. N., & AAP Committee on Practice and Ambulatory Medicine, AAP Section on Ophthalmology, American Association of Certified Orthoptists, American Association for Pediatric Ophthalmology and Strabismus, American Academy of Ophthalmology. (2016). Procedures for the evaluation of the visual system by pediatricians. *Pediatrics*, 137(1), e20153597. <https://publications.aap.org/pediatrics/article/137/1/e20153597/52806/Procedures-for-the-Evaluation-of-the-Visual-System>






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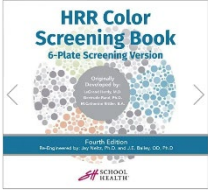


## INSTRUMENT-BASED SCREENING APPROACH

TEST	AGES	TOOLS	OPTOTYPES	PASS	NOTES AND TIPS
Screens for estimates of refractive error and eye misalignment	1, 2, 3, 4, and 5 years	<p>Welch Allyn Spot Vision Screener</p>  <p>Plusoptix S12C, S12R, and S16 without visual acuity component (C model shown here)</p>  <p>Righton Retinomax</p> 	None	According to device settings	<p>Vision screening instruments do not measure visual acuity.</p> <p>Insufficient data exist to support visual acuity functions of instruments.</p> <p>Instrument results cannot be converted to visual acuity values, such as 20/20.  <a href="https://journals.lww.com/optvissci/Fulltext/2021/01000/Position_Statement_on_the_Relationship_between.15.aspx">https://journals.lww.com/optvissci/Fulltext/2021/01000/Position_Statement_on_the_Relationship_between.15.aspx</a></p> <p>Monitor this webpage for additional approved devices:  <a href="https://nationalcenter.preventblindness.org/vision-screening-guidelines-by-age/#1587738048879-51c0c8e9-cd5c">https://nationalcenter.preventblindness.org/vision-screening-guidelines-by-age/#1587738048879-51c0c8e9-cd5c</a></p>
	Ages 3, 4, and 5 years	<p>GoCheck Kids without visual acuity component</p> 	None	According to device settings	<p>Insufficient data exist to support visual acuity functions of instruments.</p> <p>Instrument results cannot be converted to visual acuity values, such as 20/20.  <a href="https://journals.lww.com/optvissci/Fulltext/2021/01000/Position_Statement_on_the_Relationship_between.15.aspx">https://journals.lww.com/optvissci/Fulltext/2021/01000/Position_Statement_on_the_Relationship_between.15.aspx</a></p>

**RECOMMENDATIONS FOR MISCELLANEOUS MANDATED SCREENING COMPONENTS**

TEST	AGES	TOOLS	OPTOTYPES	PASS	NOTES AND TIPS
Near visual acuity	All	<p>LEA SYMBOLS® LEA NUMBERS® near chart with cord</p> 	<p>Ages 3, 4, and 5 years:</p> <p>LEA SYMBOLS® or HOTV letters</p>	<p>3yo – majority of optotypes on 20/50 line with each eye separately or both eyes open</p> <p>4yo – majority of optotypes on 20/40 line with each eye separately or both eyes open</p>	<p>Plus lens testing is <u>not</u> a near visual acuity test.</p> <p>Can conduct full threshold screening (starting at top line and moving down the chart) one eye at a time OR critical line screening with each eye individually, or with both eyes open.</p> <p>Hold cord at child's temple.</p> <p>Ensure cord remains tight to prevent child from moving closer to or farther away from the chart.</p>
		<p>Sloan Letters near chart with cord</p> 	<p>Ages 6 years and older or when children know letters in random order:</p> <p>Sloan Letters</p>	<p>5yo – majority of optotypes on 20/40 line with each eye separately or both eyes open</p> <p>6yo and older – majority of optotypes on 20/32 line with each eye separately or both eyes open</p>	
		<p>LEA SYMBOLS® near chart with cord</p> 	<p>Ages 3, 4, and 5 years:</p> <p>LEA SYMBOLS® or HOTV letters</p>		



TEST	AGES	TOOLS	OPTOTYPES	PASS	NOTES AND TIPS
Stereoacuity	All	PASS Test™ 2 	NA	3yo – pass Card B (no testing with Card C)  4yo – pass Card B (no testing with Card C)  5yo and older – pass Cards B and C	If student wears prescription glasses and you do not know the reason, place polarized glasses over prescription glasses when screening. You may need a larger set of polarized glasses. If the child cannot see the 3-D image, then try conducting the test without the child wearing their glasses.  Ensure no glare or shadow on cards. Hold cards with edges of fingertips. Tilt cards slightly backward – about a 10-degree tilt.
Color Vision Deficiency Screening	Upon entry to school system	Book with pseudoisochromatic plates. 	Symbols and numbers	Follow manufacturer instructions	Replace book every 7 years; colors desaturate over time.  Use cotton swab or brush for pointing or tracing the image as oil from fingertips will desaturate colors.  Ensure tool selected is for screening purposes only vs. a diagnostic tool.
Occluders	3 years to 10 years	Occluder glasses 	NA	NA	<u>Preferred</u> occluders = adhesive patches, 2-inch-wide hypoallergenic surgical tape, or occluder glasses.  <u>Unacceptable</u> occluders include: Tissues, hands, paper or plastic cups, paper occluders, adults holding occluders over child's eyes, and occluder paddles.
Occluders	10 years and older	“Mardi Gras mask” or “Lollypop” occluders. 	NA	NA	<u>Unacceptable</u> occluders include: Tissues, hands, paper or plastic cups, paper occluders, adults holding occluders over child's eyes.  Hold “lollypop” occluders with handle toward temple, not chin.





# Vision Screening Certification

Information for Prevent Blindness nationally recognized online vision screening certification course that you can complete online at your own pace.

Earn 3-year national certification and 5 contact hours for professional development.

## Prevent Blindness Children's Vision Screening Certification Course

<https://nationalcenter.preventblindness.org/prevent-blindness-childrens-vision-screening-certification-course/>

Questions? [nottingham@preventblindness.org](mailto:nottingham@preventblindness.org) [800] 331.2020



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