

# **18 Vision Development Milestones** From Birth to Baby's First Birthday

Kira Baldonado, VP public health and policy Prevent Blindness P. Kay Nottingham Chaplin, Education and Outreach Coordinator of the NCCVEH

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#### About this Tool: • This document is a vision screening tool for Early Head Start, Parents as Teachers, and other early care and education programs.

This tool is a table containing vision ٠ milestones in order of typical development. \*To calculate "corrected age", subtract the number of weeks born before 40 weeks of gestation from the chronological age. For example, chronological age = 6 months (24 weeks). Child born at 28 weeks gestation. 40 weeks minus 28 weeks = 12 weeks. Chronological age of 24 weeks minus 12 weeks equal 12 weeks (3 months). Corrected age is 3 months. You may find this age calculator helpful: https://mymonthlycycles.com/premature baby age calculator.jsp

- The 1<sup>st</sup> column lists the age.
- The 2<sup>nd</sup> column lists the milestones typically expected to occur for the age.
- The 3<sup>rd</sup> column lists the questions to ask.
- The 4<sup>th</sup> column lists Next Steps when a referral is required. It also provides activities that parents and caregivers can do to help with the milestones.
- Because each child develops differently and may meet the vision milestones at different ages, vision milestones may vary up to 6 weeks; some questions provide ages for rescreening before referring.
  - Although milestones may vary up to 6 weeks, if baby's eyes appear to be constantly misaligned (possible strabismus) at age 2 months or older, refer immediately for an eye examination.
- When using this tool with children who were born prematurely and have no health challenges, adjust chronological age to the corrected age\* and use this tool based on corrected age (see above box). Visual development milestones may be delayed if babies have health challenges (i.e., genetic syndromes, neurologic and metabolic conditions, etc.). For these children, use vision screening results from the baby's primary care provider or eye examination results from the baby's eye care professionals to meet your vision screening mandate.

#### Instructions:

- 1. Visual skills typically develop in a particular order. To determine if the baby has met all vision milestones, begin with Page 2 regardless of baby's age. Do not skip to the chronological or corrected age of the baby you are screening.
- 2. Check the appropriate boxes in the "Questions" column. Some will require rescreening if the vision milestone has not been met.
- 3. Complete the "Questions" column of the table before completing the Pass/Rescreen/Refer Documentation pages beginning on page 10. This tool and/or the Pass/Rescreen/Refer Documentation can be placed the baby's file for record-keeping purposes.
- 4. Use this tool throughout baby's first year to review vision development milestones.

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AGE (Milestones may vary up to 6 weeks.)	MILESTONE	QUESTIONS	NEXT STEPS
Birth through 1st monthImage from BabyCentre: https://www.babycentre.co.uk/It da954/how-your-baby-learns- to-explore-photosIbit of a final state of a final sta	<ol> <li>Baby begins to focus on lights, faces, and objects 8 to 15 (20.32 – 38.1 cm) inches away from his/her face.</li> <li>Baby begins to follow slowly moving lights, faces, and objects at near.</li> <li>NEXT MILESTONE DURING AGE 2<sup>ND</sup> AND 3<sup>RD</sup> MONTHS</li> </ol>	<ol> <li>Does baby focus on lights, faces, and objects 8 to 15 inches (20.32 – 38.1 cm) in front of his/her face?         <ul> <li>Yes (pass).</li> <li>Not Yet (rescreen within 6 weeks). Date for rescreen:</li> <li>If "No" after rescreening, move to Next Steps.</li> </ul> </li> <li>Is baby beginning to follow slowly moving lights, faces, and objects with his/her head and eyes?         <ul> <li>Yes (pass).</li> <li>Not Yet (rescreen within 6 weeks). Date for rescreen:</li> <li>If end and eyes?</li> <li>Yes (pass).</li> <li>Not Yet (rescreen within 6 weeks). Date for rescreen:</li> <li>If "No" after rescreening, move to Next Steps.</li> </ul> </li> </ol>	<ul> <li>Refer to baby's primary health care provider for further evaluation and to coordinate a referral for an eye examination.</li> <li>Refer to Birth to 3 Early Intervention program.</li> <li>Activities parents and caregivers can do:         <ul> <li>Hold your baby in front of you, look at your baby, and slowly move your head from side to side. Play together and have fun!</li> <li>Hold a patterned, high-contrast toy within 8 to 15 inches (20.32 – 38.1 cm) of your baby's face. Slowly move the object up and down or side to side. Play together and have fun!</li> <li>Place a small rattle or colorful, plastic right in your baby's hands in front of your baby's face. Play together and have fun!</li> </ul> </li> </ul>

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\_ Age:\_\_\_\_\_

AGE (Milestones may vary up to 6 weeks.)	MILESTONE	QUESTIONS	NEXT STEPS
During 2 <sup>nd</sup> and 3 <sup>rd</sup> During 2 <sup>nd</sup> and 3 <sup>rd</sup> State         State	<ol> <li>Baby begins to notice his/her hands.</li> <li>Baby makes eye contact with parent or caregiver.</li> <li>Baby follows moving lights, faces, people, and objects with both eyes together.</li> <li>Baby has a social smile.</li> <li>Baby has a social smile.</li> </ol>	<ul> <li>3. Is baby aware of his/her hands during the 2<sup>nd</sup> month?</li> <li>Yes (pass).</li> <li>No (refer and move to Next Steps).</li> <li>4. Does baby look directly at parent's or caregiver's eyes?</li> <li>Yes (pass).</li> <li>Not Yet (rescreen within 6 weeks). Date for rescreen:</li> <li>If "No" after rescreening, move to Next Steps.</li> <li>5. Is baby following moving lights, faces, people, and objects with both eyes together?</li> <li>Yes (pass).</li> <li>Not Yet (rescreen within 6 weeks). Date for rescreen:</li> <li>If "No" after rescreen within 6 weeks). Date for rescreen:</li> <li>S. Is baby following moving lights, faces, people, and objects with both eyes together?</li> <li>Yes (pass).</li> <li>Not Yet (rescreen within 6 weeks). Date for rescreen:</li> <li>If "No" after rescreening, move to Next Steps.</li> <li>6. Is baby smiling at his/her parent or caregiver by age 3 months?</li> <li>Yes (pass).</li> <li>No (Refer and move to Next Steps.</li> </ul>	<ul> <li>Refer to baby's pediatric primary health care provider for further evaluation and to coordinate a referral for an eye examination.</li> <li>Refer to Birth to 3 Early Intervention program.</li> <li>Activities parents and caregivers can do:         <ul> <li>Look at your baby with his/her face about 8 to 15 inches from your face, wait for your baby to look at your face; and smile, sing, or talk to your baby. Play together and have fun!</li> <li>Hold a favorite toy, bottle, or patterned and high-contrast object within 8 to 15 inches (20.32 – 38.1 cm) of your baby's face. Slowly move the object up and down or side to side. Play together and have fun!</li> </ul> </li> </ul>
Picture 6 – Baby turns head away from the parent.			

AGE (Milestones may vary up to 6 weeks.)	MILESTONE	QUESTIONS	NEXT STEPS		
During 3rd and 4th monthsSelection 1Selection 2Selection 2	<ol> <li>Baby watches his/her hand movements.</li> <li>Baby reaches for objects or parent's or caregiver's face.</li> <li>Baby grasps and holds objects in his/her hands.</li> <li>Baby brings objects to his/her mouth.</li> <li>Baby moves eyes from person to person or object to object.</li> <li>NEXT MILESTONE AT AGE 5 MONTHS</li> </ol>	<ol> <li>Does baby watch his/her hands?         <ul> <li>Yes (pass).</li> <li>Not Yet (rescreen within 6 weeks). Date for rescreen:</li></ul></li></ol>	<ul> <li>Refer to baby's pediatric primary health care provider for further evaluation and to coordinate a referral for an eye examination.</li> <li>Refer to Birth to Three Early Intervention program.</li> <li>Activities parents and caregivers can do:         <ul> <li>With baby's back on a flat surface, gently use baby's elbows to bring hands together at the middle of baby's chest. Play together and have fun!</li> <li>Use age-appropriate baby toys to help baby use his/her hands to explore. Play together and have fun!</li> </ul> </li> <li>Hold a toy in one hand toward the right side of baby's face and shake or activate the toy. Repeat with a different toy in the other hand toward the left side of baby face. Alternate between toys, shaking or activating one toy at a time.</li> </ul>		
Home-Based Visitor/Nurse Signature: Date:					

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Child's Name: \_\_\_\_\_

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Child's Name: \_\_\_\_\_

AGE (Milestones may vary up to 6 weeks.)	MILESTONE	QUESTIONS	NEXT STEPS
months       1         Image: state of the	<ul> <li>14. Baby purposefully reaches for objects.</li> <li>15. Baby follows objects with both his/her eyes at near (1 foot [30.48 cm]) and far (greater than 6 feet [182.88]).</li> <li>NEXT MILESTONE AT AGE 8 MONTHS</li> </ul>	<ul> <li>14. Does baby purposefully reach for objects baby wants?</li> <li>Yes (pass).</li> <li>Not Yet (rescreen within 6 weeks). Date for rescreen:</li></ul>	<ul> <li>Refer to baby's pediatric primary health care provider for further evaluation and to coordinate a referral for an eye examination.</li> <li>Refer to Birth to Three Early Intervention program.</li> <li>Activities parents and caregivers can do:         <ul> <li>Place favorite toy or other object close to, but slightly out of reach, of baby and encourage baby to reach for the toy or object.</li> <li>Give baby the toy/object after he/she reaches for it so he/she can play with the toy or object. Play together and have fun!</li> </ul> </li> </ul>

Home-Based Visitor/Nurse Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Child's Name: \_\_\_\_\_

DOB:\_\_\_\_\_ Age:\_\_\_\_\_

AGE (Milestones may vary up to 6 weeks.)	MILESTONE	QUESTIONS	NEXT STEPS
During 8 <sup>th</sup> , 9 <sup>th</sup> , or   10 <sup>th</sup> months <b>Figure 13 - Wearing glasses, or solution Figure 14 - Baby looks at small</b>	<ul> <li>16. Baby recognizes family and/or caregiver faces.</li> <li>17. Baby looks at small objects, such as cereal or a raisin.</li> <li>NEXT MILESTONE AT AGE 11 MONTHS</li> </ul>	<ul> <li>16. Does baby recognize family members and/or caregivers and have a welcoming smile before hearing his/her voices or seeing his/her smiles?</li> <li>Yes (pass)</li> <li>Not yet (rescreen at age 9 months) Date for rescreen:</li></ul>	<ul> <li>Refer to baby's pediatric primary health care provider for further evaluation and to coordinate a referral for an eye examination.</li> <li>Refer to Birth to 3 Early Intervention program.</li> <li>Activities parents and caregivers can do:         <ul> <li>Wear the same colorful blouse/shirt when greeting baby each morning.</li> <li>Use the same phrase when approaching your baby, such as "Here comes XXX" or "Hi XXX".</li> <li>Say the names of family members. Ask "Where is Mommy?" Give baby time to look and locate Mommy's face.</li> <li>Provide lots of face-to-face opportunities for interacting. Repeating these opportunities will help you baby visually tell the difference between faces and objects.</li> <li>Have your baby look at his/her own face in a mirror.</li> <li>Play Peek-a-Boo.</li> </ul> </li> </ul>
object. Home-Based Visitor/Nurse			Date:

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AGE (Milestones may vary up to 6 weeks.)	MILESTONE	QUESTIONS	NEXT STEPS
Up to 6 weeks.)         During 11th and 12th months         Image: Constant of the second seco	<ul> <li>Use this milestone if baby has been exposed to books:</li> <li>18. A. Baby uses his/her index finger to point to pictures in a book.</li> <li>MOVE TO NEXT MILESTONE IF BABY IS NOT EXPOSED TO BOOKS</li> </ul>	<ul> <li>18.A.</li> <li>When given a book with pictures, does baby use his/her index finger and point to pictures in the book?</li> <li>Yes (pass)</li> <li>No (refer and move to Next Steps).</li> </ul>	<ul> <li>Refer to baby's pediatric primary health care provider for further evaluation and to coordinate a referral for an eye examination.</li> <li>Refer to Birth to 3 Early Intervention program.</li> <li>Activities parents and caregivers can do:         <ul> <li>Look at a book with pictures with baby.</li> <li>Point to simple, high-contrast pictures in an ageappropriate children's book and name the picture. Remove hand. Ask your baby where is X (using same picture)?</li> <li>If your baby points to the same picture, praise baby.</li> <li>If your baby does not point to the same picture, again point to the same picture. Then, gently move baby's finger to the same picture and name the picture.</li> </ul> </li> </ul>
Home-Based Visitor/Nurse	e Signature:		in the first book. Date:

AGE (Milestones may vary up to 6 weeks.)	MILESTONE	QUESTIONS	NEXT STEPS
<text><text><text><text></text></text></text></text>	<ul> <li>Use this milestone if baby has not been exposed to books:</li> <li>18. B. Baby looks for object dropped in containers.</li> </ul>	<ul> <li>18.B. When an object (such as a toy block) is dropped into a container, does baby look in the container for the object?</li> <li>Yes (pass)</li> <li>No (refer and move to Next Steps).</li> </ul>	<ul> <li>Refer to baby's pediatric primary health care provider for further evaluation and to coordinate a referral for an eye examination.</li> <li>Refer to Birth to 3 Early Intervention.</li> <li>Activities parents and caregivers can do:         <ul> <li>Use a block or favorite toy with a container nearby. Talk with your baby about the block or favorite toy. Drop the block or favorite toy and ask your baby where the X went.</li> <li>If your baby does not look into the container, you look into the container and say "Here is X" and repeat 3 or 4 times. Make it a game.</li> </ul> </li> </ul>

Age:\_\_\_\_\_

Pass/Rescreen/Refer	Docume	ntation		
Birth through 1 <sup>st</sup> Month				
<ol> <li>Does baby focus on lights, faces, and objects 8 to 15 inches (20.32 – 38.1 cm) in front of his/her face?</li> </ol>	Screen Date		Rescreen Date:	
Comments/ Observations:	Pass	Rescreen	<ul> <li>Pass</li> <li>Refer health care provider</li> <li>Refer El</li> </ul>	
2. Is baby beginning to follow slowly moving lights, faces, and objects with his/her head and eyes?	Screen Dat	te:	Rescreen Date:	
Comments/ Observations:	Pass	Rescreen	<ul> <li>Pass</li> <li>Refer health care provider</li> <li>Refer El</li> </ul>	
During 2 <sup>nd</sup> and 2 <sup>rd</sup> Months				
During 2 <sup>nd</sup> and 3 <sup>rd</sup> Months3. Is baby aware of his/her hands during the 2 <sup>nd</sup> month?	Screen Dat	to:		
Comments/ Observations:	Dass Pass	Refer health care provider		
4. Does baby look directly at parent's or caregiver's eyes?	Screen Dat	te:	Rescreen Date:	
Comments/ Observations:	Pass	Rescreen	<ul> <li>Pass</li> <li>Refer health care provider</li> <li>Refer El</li> </ul>	
5. Is baby following moving lights, faces, people, and objects with both eyes together?	Screen Dat	te:	Rescreen Date:	
Comments/ Observations:	D Pass	Rescreen	<ul> <li>Pass</li> <li>Refer health care provider</li> <li>Refer El</li> </ul>	
6. Is baby smiling at his/her parent or caregiver by age 3 months?	Screen Dat			
Comments/ Observations:	Pass	<ul> <li>Refer health care provider</li> <li>Refer El</li> </ul>		
Home-Based Visitor/Nurse Signature:		D	ate:	

DOB:	Age:
	<b>U</b>

During 3 <sup>rd</sup> and 4 <sup>th</sup> Months				
7. Does baby watch his/her hands?	Screen Date:		Rescreen Date:	
Comments/ Observations:	Pass	Rescreen	Pass	<ul> <li>Refer health care provider</li> <li>Refer El</li> </ul>
8. Does baby reach for objects or parent's or caregiver's face?	Screen Dat	e:	Rescreen Date:	
Comments/ Observations:	Pass	Rescreen	Pass	<ul> <li>Refer health care provider</li> <li>Refer El</li> </ul>
9. Does baby grasp and hold an object in his/her hands?	Screen Dat	e:	Rescreen D	Date:
Comments/ Observations:	Pass	Rescreen	Pass	<ul> <li>Refer health care provider</li> <li>Refer El</li> </ul>
10. Does baby bring objects to his/her mouth by age 4 months?	Screen Dat	e:		
Comments/ Observations:	D Pass	<ul> <li>Refer health care provider</li> <li>Refer El</li> </ul>		
11. Does baby shift his/her eyes from person to person or object to object during age 4 months?	Screen Date:			
Comments/ Observations:	Pass	<ul> <li>Refer health care provider</li> <li>Refer El</li> </ul>		

DOB:	Age:

By 5 <sup>th</sup> Month				
12. Are baby's eyes straight?	Screen Date:			
Comments/ Observations:	Pass	Refer eye	-	
		care		
		provider		
		Refer El		
13. Do either of baby's eyes ever appear to constantly or intermittently	Screen Dat	e:		
turn up, down, in, or out beginning at age 5 months?				
Comments/ Observations:	Pass	Refer eye		
		care		
		provider		
		Refer El		
During 6 <sup>th</sup> and 7 <sup>th</sup> Months				
14. Does baby purposefully reach for objects baby wants?	Screen Dat	e:	Rescreen	Date:
Comments/ Observations:	Pass	Rescreen	Pass	Refer health
				care provider
				Refer El
15. Does baby follows objects with both eyes at near (1 foot [30.48	Screen Date:			
cm]) and far (greater than 6 feet [182.88]) by age 7 months?			-	
Comments/ Observations:	Pass	Refer		
		health		
		care		
		provider		
		Refer El		

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\_\_\_\_\_ Age:\_\_\_\_\_

During 8 <sup>th</sup> , 9 <sup>th</sup> , or 10 <sup>th</sup> Months				
16. Does baby recognize family members and/or caregivers and have a welcoming smile before hearing his/her voices or seeing his/her smiles?	Screen Date:		Rescreen Date:	
Comments/ Observations:	D Pass	<ul><li>Rescreen at age 9 months</li></ul>	Pass	<ul> <li>Refer health care provider</li> <li>Refer El</li> </ul>
	Screen Date:		9 month Rescreen Date:	
	Pass	<ul> <li>Rescreen at age 10 months</li> </ul>	D Pass	<ul> <li>Refer health care provider</li> <li>Refer El</li> </ul>
			10 month Rescreen Date:	
			Pass	<ul> <li>Refer health care provider</li> <li>Refer El</li> </ul>
17. Does baby look at small objects, such as cereal or a raisin?	Screen Date:		Rescreen Date:	
Comments/ Observations:	D Pass	Rescreen at age 9 months	Pass	<ul> <li>Refer health care provider</li> <li>Refer El</li> </ul>
	Screen Date:		9 month Rescreen Date:	
	Pass	<ul> <li>Rescreen at age 10 months</li> </ul>	Pass	<ul> <li>Refer health care provider</li> <li>Refer El</li> </ul>
			10 month Rescreen	Date:
			Pass	<ul> <li>Refer health care provider</li> <li>Refer El</li> </ul>

During 11 <sup>th</sup> and 12 <sup>th</sup> Months – If baby has been exposed to books					
18. A.	Screen Date:				
When given a book with pictures, does baby use his/her index finger and point to pictures in the book?					
	+				
Comments/ Observations:	Pass	Refer			
		health			
		care			
		provider			
		Refer El			
During 11 <sup>th</sup> and 12 <sup>th</sup> Months – If baby has NOT been exposed to bo	oks				
18.B.	Screen Date:				
When an object (such as a toy block) is dropped into a container,					
does baby look in the container for the object?					
Comments/ Observations:	Pass	Refer			
		health			
		care			
		provider			
		Refer El			

# **Expert Contributors:**

### Sandra Block, OD, Med, MPH, FAAO, FCOVD

- Member of National Expert Panel to the National Center for Children's Vision and Eye Health (NCCVEH) at Prevent Blindness
- Professor; Medical Director, School Based Clinics, Director of School-Based Research at Illinois College of Optometry

#### Deborah Chen, PhD

- Professor Emerita in Early Childhood Special Education, Department of Special Education, California State University Northridge
- Co-author with Gail Calvello and Clare Taylor Friedman of the Parents and Infants with Visual Impairments (PAIVI) Manual, created as a 3-year project of the Blind Babies Foundation with support from the U.S. Department of Education

#### Megan E. Collins, MD, Pediatric Ophthalmologist

- Assistant Professor of Ophthalmology, Wilmer Eye Institute, Johns Hopkins Medicine
- A Principle Investigator of BREDS, Vision for Baltimore, and Vision for Chicago

### Susan Cotter, OD, MS, FAAO

• Member of National Expert Panel to the National Center for Children's Vision and Eye Health (NCCVEH) at Prevent Blindness

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- Member of Advisory Committee to the NCCVEH
- Professor at the Southern California College of Optometry at Marshall B. Ketchum University

### Anne S. Nielsen, PhD

• Outreach Coordinator, Kansas State School for the Blind Manhattan Kansas Office

## **Resources Consulted:**

- Chen, D., Calvello, G., & Taylor, C. (2015). *Parents and his/her infants with visual impairments (PAIVI)* (2<sup>nd</sup> ed.). Louisville, KY: American Printing House for the Blind, Inc.
- 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. Retrieved from <a href="http://pediatrics.aappublications.org/content/pediatrics/early/2015/12/07/peds.2015-3597.full.pdf">http://pediatrics.aappublications.org/content/pediatrics/early/2015/12/07/peds.2015-3597.full.pdf</a>
- Hyvärinen, L., Walthes, R., Jacob, N., Lawrence, L., & Nottingham Chaplin, P. K. (2016). Delayed visual development: Development of vision and visual delays. American Academy of Ophthalmology, Pediatric Ophthalmology Education Center. Retrieved from <a href="https://www.aao.org/pediatric-center-detail/delayed-visual-development-development-of-vision-v">https://www.aao.org/pediatric-center-detail/delayed-visual-development-of-vision-v</a>
- Trubo, R. (2014). *The complete and authoritative guide. Caring for your baby and young child: Birth to age 5.* S. P. Shelov, T. R. Altmann & R. E. Hannemann (Eds.). (6<sup>th</sup> ed.). New York, NY: Bantum Books

#### Contact information for questions or comments:

P. Kay Nottingham Chaplin, EdD 304-906-2204 Nottingham@preventblindness.org

Donna Fishman, MPH 312-363-6036 dfishman@preventblindness.org

Prevent Blindness 225 West Wacker Drive, Suite 400 Chicago, Illinois 60606

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