



**Five Big Ideas on Early Brain Development: What Every Caregiver Should Know**

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*Our Vision: Every Child Becomes a Reader*

- Team of experts in brain science, language development, child psychology, reading development, children with special needs, and research
- Grounded by many years of hands-on experience in early childhood settings and with individual children and families
- Highly successful in creating tools and professional development that combine the best science with practical materials and concepts that ANY early childhood educator can use



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*Our Focus is on Children 0-8*

- Language and literacy foundation is built from birth, if not before
- 40% of entering kindergartners are behind, and half are behind by 2 years or more
- Science has proven what it takes for nearly every child to become a reader
- Nemours is lending expertise as a health imperative

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### Literacy Statistics

- Reading aloud to infants helps stimulate brain development yet only half of infants are routinely read to by their families
- By age 3, a **30 million word gap** is evident among children of diverse home environments
- 40% of children entering Kindergarten lack pre-literacy skills needed for success
- A child who finishes 2<sup>nd</sup> grade without being able to read has only a 1:4 chance of catching up by the end of elementary school
- A child who is not a fluent reader by 4<sup>th</sup> grade is likely to struggle with reading in adulthood.
- 64% of 4<sup>th</sup> graders nationwide scored "below proficient" and 2/3 of 8<sup>th</sup> graders do not read at grade level

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### Literacy/Health Connections

- Low literacy adds \$238 billion per year to U. S. health care costs
- Adults with low literacy are 3 times more likely to have an adverse health outcome than adults with higher literacy skills (Weiss & Palmer, 2004)
- For non-pregnant adult patients on Medicaid, those with <3<sup>rd</sup> grade reading skills had Medicaid charges >3.5 times higher than those with better reading skills (Weiss et al., 1992)

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### What Causes Reading Failure?

- Nature of reading process
- Genetics and neurobiology
- Environment




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### Reading Is An Unnatural Act!

- Humans are genetically and neurologically hard-wired for speech
- Not true for reading, which must be learned through conscious effort
- Reading makes high demand on brain's integration capacity



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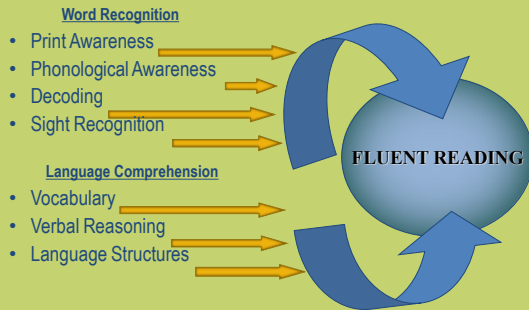
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### Learning to Read



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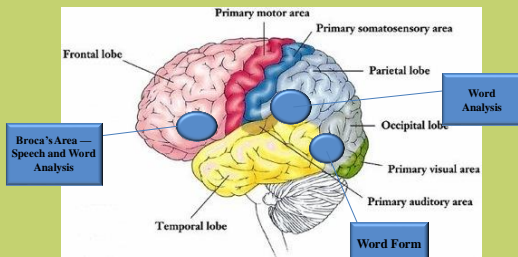
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### Reading Circuitry



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## Dyslexia

- Occurs in 15 – 20% of population
- Dyslexia clearly runs in families
- Each child of an affected parent has a 30-50% chance of being affected
- Twin studies show MZ twins are more likely to both have dyslexia than DZ



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### Big Idea 1

64% of America's 4<sup>th</sup> graders score "below proficient in reading (Nation's Report Card, 2015)

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*Why Is This Important for Early Childhood Providers?*

- The foundation for reading is built starting from BIRTH
- It is built word by word, song by song, book by book, through daily strategies and routines
- You have the power to change these statistics

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*What Can You Do About It?*

- Know this fact and why it happens
- Understand how reading skill development happens
- Be intentional every day in your programs
- Advocate for children in your communities

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Let's Reflect

**Nemours BrightStart!**

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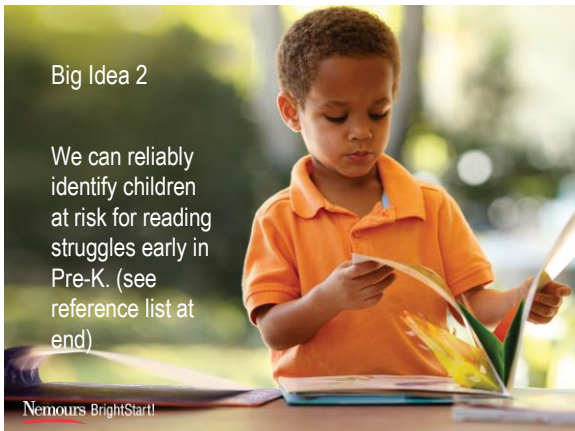
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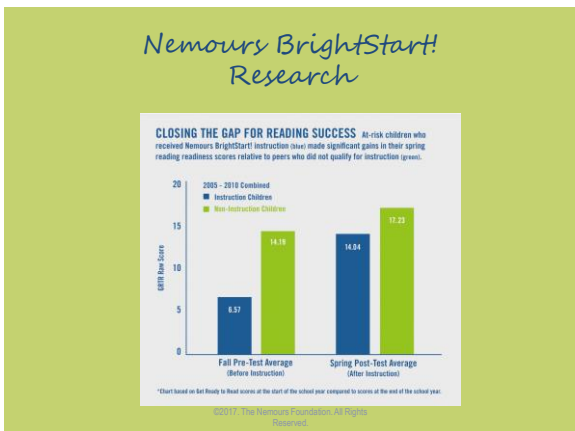
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Why Is This Important for Early Childhood Providers?

- You serve prekindergarteners
- You address educational needs
- You have great parent engagement opportunities



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What Can You Do About It?

- Be intentional and explicit with early literacy instruction
- Screen your children for reading readiness (Get Ready To Read, alphabet letter assessment)
- Teach small groups
- Use multi-sensory instruction
- Strive for 15-18 letters by end of Pre-K



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Hannah

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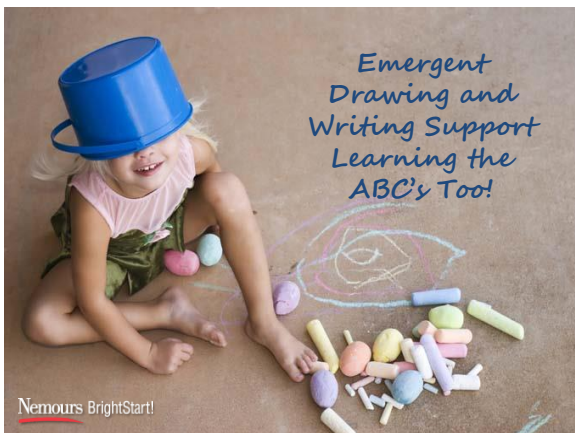
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Nemours BrightStart!

Emergent  
Drawing and  
Writing Support  
Learning the  
ABC's Too!

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**POLL**

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### Big Idea 3

By age 3, children from a language rich environment know about 1,100 words. Their peers from impoverished environments know only about 500.

<http://www.zerotothree.org/policy/images/zt3-word-gap.jpg>

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### Why Is This Important for Early Childhood Providers?

- Some of your children are likely to have lower vocabulary knowledge
- You have a great opportunity to build vocabulary
- Young brains are BUILT to learn language

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### What Can You Do About It?

- Talk, read and sing
- Use a variety of words (nouns, verbs, adjectives, adverbs)
- Explain how words relate to one another
- Provide lots of experiences and opportunities that encourage vocabulary

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**Why Is This Important for Early Childhood Providers?**

- You have a huge impact on lifelong outcomes of children you serve
- Every positive interaction builds brain strength and resilience

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**What Can You Do About It?**

- Understand how the brain develops, and when
- Be responsive and loving to your children
- Provide stimulating activities and materials

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*Let's Reflect!*

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# POLL



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## Big Idea 5

700-1,000 new neural connections form each second in a baby's brain.

(Harvard University, Cambridge, MA, Center for the Developing Child. Brain architecture. Retrieved November 30, 2015, from <http://developingchild.harvard.edu/science/key-concepts/brain-architecture/>).



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## Why Is This Important for Early Childhood Providers?

- You work with children and families starting from infancy
- You have as much opportunity to influence brain development as anyone
- If you don't know this fact, you will miss critical opportunities to enhance brain development



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### What Should You Do About It?

Recognize the opportunity and take advantage

Share key facts and ideas with parents

Learn to spot babies' communication cues



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### Lessons from Brain Science

- What gets "fired" gets "wired" (Use it or lose it)
- Movement helps learning and memory
- Multi-sensory learning is great for everyone
- Emotions impact learning – remove anything punitive or threatening, promote safe and supportive environment



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### Lessons from Brain Science

- The brain naturally seeks patterns and compares "new" to "existing" to determine if it "fits"
- Promote general and specific curiosity
- Encourage making predictions
- Highlight key features of what you want to teach



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### Lessons from Brain Science

- Use "parentese" freely with infants (highlights salient, distinguishing language and speech features)
- Color code, vary size or texture, for instructional target (e.g., letter of the week)
- Provide developmentally appropriate activities and solvable challenges to build problem-solving and resilience

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### Lessons From Brain Science

- Humans are inherently wired for socially contextualized learning and imitation
- Sleep is critical, for brain rest, and consolidation of experiences and new learning

(From Sousa, D. A. (2010). *Mind, brain and education*. Bloomington, IN: Solution Tree Press.)

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Unique Service. Extraordinary Results.

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