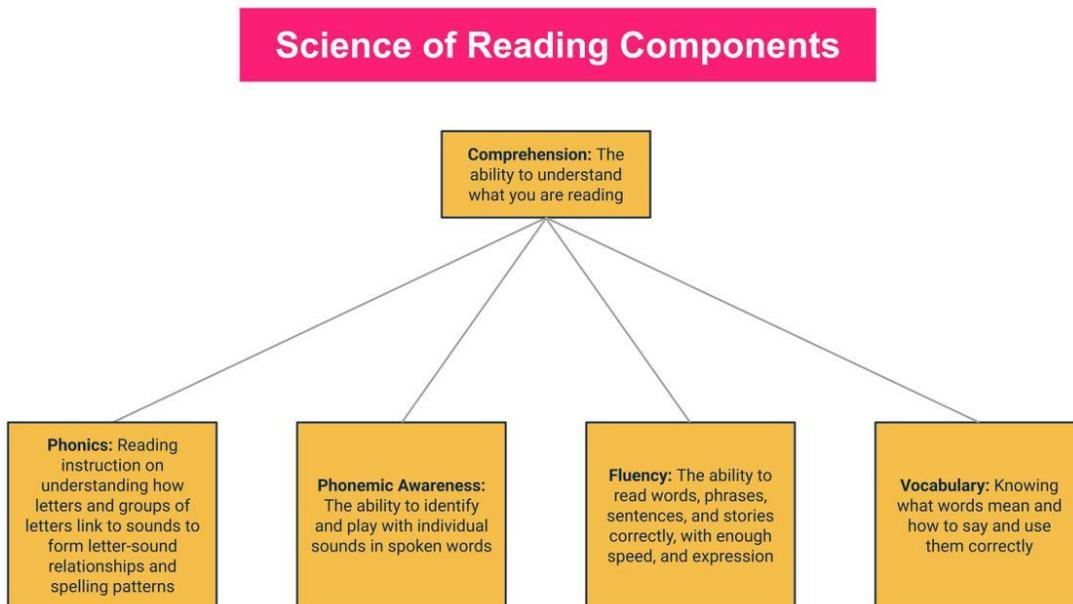




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## Raising a Reader Massachusetts and The Science of Reading

The “science of reading” is not one set curriculum, but rather an approach to formal and explicit reading instruction based on decades of research into how the brain learns to read. There are five major components to the science of reading.



Definitions courtesy of the National Center on Improving Literacy, 2024. <https://improvingliteracy.org/brief/science-reading-basics>.

In a discussion of Raising a Reader Massachusetts (RAR-MA) and our relevance to literacy instruction, it is important to first note that *RAR-MA is not intended to teach children to read*. Rather, the goal of RAR-MA’s evidence-based model is to **coach parents and caregivers** to use books **to prepare their children to read**. Our families include adults with low literacy – some of whom may have been exposed to previously touted, now discredited reading approaches like “whole language”, “whole word”, or “look-say”, which focused on the recognition, memorization, and understanding of whole words instead of building students’ ability to identify and manipulate phonemes, or parts of words, in order to derive meaning.

The accessibility of RAR-MA lies in its focus on family literacy routines to promote the building of prerequisite skills that are foundational to reading, while not yet relying on the ability to read to develop those abilities. Given that “[s]ome of the largest teacher preparation programs in Massachusetts received Ds and Fs for not spending enough time on foundational reading skills, according to a syllabus review conducted by the National Council on Teacher Quality”, RAR-MA’s intervention in communities with significantly lagging reading skills maximizes learning

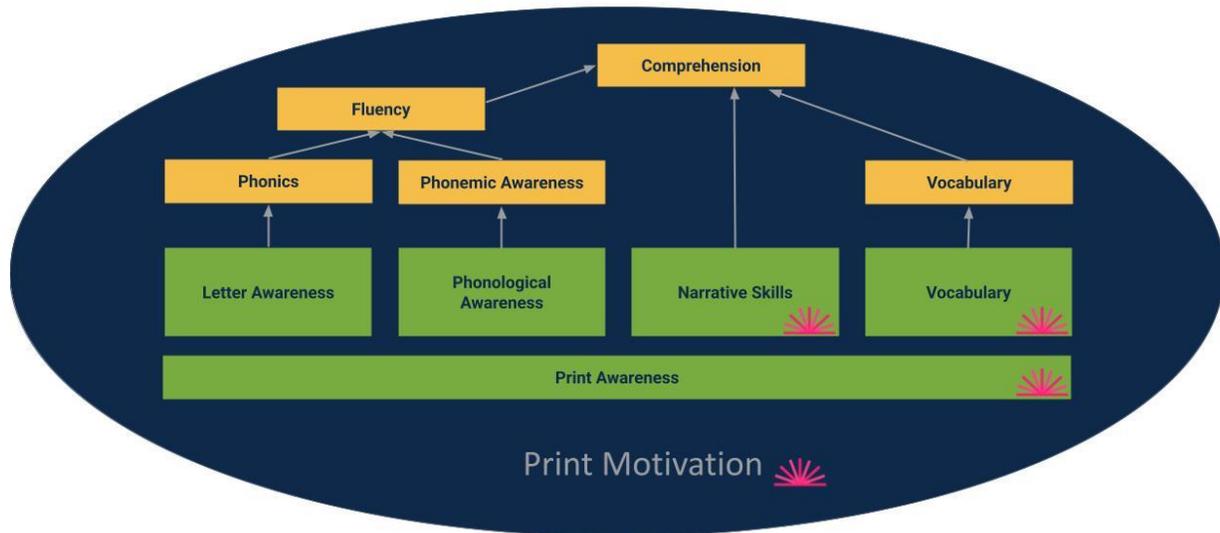


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opportunities for students in our program – and the earlier the better (Watson and McLaren, 2023). "[A state-commissioned] report suggests schools are not helping most struggling readers catch up: 60 percent of students [in kindergarten through third grade] who began the school year at risk of reading difficulties ended the school year in the same concerning position. But it found that younger students are much more likely to improve with extra help than older students are, a powerful argument for early intervention" (McLaren, 2023).

### How RAR-MA Supports Science of Reading Instructional Approaches

- Instructional components to the science of reading
- Prerequisite skills to support literacy acquisition
- Optimal environment for student learning
- Prerequisites to literacy embedded in RAR-MA



**Vocabulary:** Young children whose caregivers read them five books a day enter kindergarten having heard, on average, 1.4 million more words than kids whose caregivers did not ([Journal of Developmental & Behavioral Pediatrics, 2019](#)). For families who utilize dialogic reading strategies, this translates to children who increase their rate of verbal responses, give longer responses, and demonstrate broader vocabulary than children whose caregivers do not implement dialogic reading ([Hargrave and Sénéchal, 2000](#); [Lonigan et al., 1999](#); [Lonigan and Whitehurst, 1998](#); [Opel et al., 2009](#); [Sim and Berthelsen, 2014](#); [Wasik and Bond, 2001](#); [Whitehurst et al., 1988](#)) – and these benefits are true across language background ([Brannon and Dauksas, 2014](#)), socioeconomic status ([Whitehurst, Epstein, Angell, Payne, Crone, Fischel, 1994](#)), and neurodivergence ([Dale, Crain-Thoreson, Notari-Syverson, and Cole, 1996](#); [Diehl and Vaughn, 2010](#); [Kaderavek, Pentimonti, and Justice, 2013](#); [Towson, Gallagher, and Bingham, 2016](#)).

**Narrative Skills:** A [2015 study in the journal Pediatrics](#) found that listening to stories and greater home reading exposure in the preschool years are positively associated with activation of



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brain areas supporting mental imagery and narrative comprehension. A major factor in narrative comprehension seems to be children’s own ability to produce a narrative following a dialogic reading interaction; one study to assess the intervention’s effect on oral narrative construction found that “the dialogic reading children included more structure components in their production narratives than the alternative treatment children. Furthermore, the dialogic reading children mentioned internal thoughts and emotions more than the alternative treatment children on both the retelling and production tasks” ([Lever and Sénéchal, 2011](#)). [Zevenbergen et al. \(2003\)](#) demonstrated that children from their dialogic reading group were able to verbalize more inferences about the narrative, such as internal states of characters, than the control group.

**Print Awareness:** Students who enter school aware of how to hold a book, the right direction to turn pages, and the understanding that within the pages is a story that can be enjoyed and discussed, are primed for learning to a much greater degree than children not exposed to those ideas. RAR-MA’s program supports this development; the same study of dialogic reading with Head Start families referenced above showed that the “[e]ffects of the intervention were significant across all children in the domains of writing and print concepts” ([Whitehurst, Epstein, Angell, Payne, Crone, Fischel, 1994](#)).

**Print Motivation:** Children’s interest in literacy and sense of academic agency is activated by having their very own Red Book Bag – a key part of RAR-MA’s child-centered theory of change. A partner implementer notes of her students that “Many...are not used to having resources available to them on a consistent basis, so they get nervous that the engaging and exciting books they see throughout the RAR-MA Red Bag Rotation program might not be there tomorrow.” RAR-MA’s program achieves those goals within the context of reading as a playful exchange between child and caregiver; a caregiver’s ability to provide a hospitable emotional environment coupled with responsive and interactive book talk has strong and positive impacts on a child’s engagement, attention, and task persistence – and this holds true for typically developing children as well as their neurodivergent peers, such as those with Autism Spectrum Disorder or communication impairments ([Diehl and Vaughn, 2010](#); [Kaderavek, Pentimonti, and Justice, 2013](#); [Arnold, Lonigan, Whitehurst, Epstein, 1994](#); [Fielding-Barnsley and Purdie, 2003](#); [Lovelace and Stewart, 2007](#)). Less specific to literacy but no less predictive of later success in school, further studies have shown that early caregiver involvement has positive, lasting benefits on early student achievement and motivation ([School Psychology International, 2013](#)), and leads to subsequent caregiver involvement and students’ educational attainment ([NHSA Dialog: A Research-to-Practice Journal for the Early Intervention Field, 2013](#)).

**Link Between Language and Literacy:** The Association of Psychological Science reported that children’s picture books are a source that is associated with improved language outcomes for children, with children who are read to more often by caregivers exhibiting better language skills ([2014](#)). A 2023 study in the *Journal of Neuroscience* examined brain scans of children age 2 or younger and found that the number of conversational turns in caregiver child interactions, such



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as those promoted by RAR-MA's core strategy of dialogic reading, predicted the growth of a component in the brain called myelin – results which “suggest that early, interactive experiences with language uniquely contribute to the development of white matter associated with long-term language ability” (Huber, Corrigan, Yarnykh, Ferjan Ramírez, and Kuhl). Ultimately, “[L]anguage skills have indirect and direct impacts on the acquisition of reading skills in the early years of schooling, and a direct impact on reading comprehension in the later years of schooling” ([Kotaman, 2008](#)).

RAR-MA's model is supported by over 35 years of research that shows that **being regularly read to by a parent or caregiver before kindergarten is a significant factor that impacts a child's academic success**. Independent evaluations show that **the RAR program improves academic outcomes for all children, with a particular focus on children of low-income households, immigrants, and children whose first language is not English**:

- Gains in vocabulary, language development and literacy skills for children from immigrant families
- Significant increase in the number of children's books in minoritized households, particularly Black families, and children in classes with high subsidized care enrollment
- Significant increase in regular reading routines, number of books and perceived importance of reading and sharing books in Native American homes
- Significantly higher performance in book knowledge, comprehension, and pre-reading knowledge of both English- and Spanish-speaking children on the Head Start Family and Child Experiences Survey compared to national norms

By providing formulative vocabulary exposure, encouraging textual understanding through serve-and-return interactions, and promoting shared family enjoyment of books, RAR-MA's programming provides children and families with a strong foundation for lifelong literacy learning so that, upon arriving in school, the addition of phonemic awareness and phonics instruction can be layered for a seamless approach to rapidly attain reading fluency.