



Teaching Reading *Really* Is Rocket Science!

The Science of Reading defined and explained by experts in the field of reading and literacy.

<https://www.aft.org/ae/summer2020/moats>

The Science of Reading defined by the

Reading League “The *science of reading* is vast, interdisciplinary body of *scientifically – based* research about reading and issues related to reading and writing. The research has been conducted over the last five decades across the world, and it is derived from thousands of studies conducted in multiple languages. The science of reading has culminated in a preponderance of evidence to inform how proficient reading and writing develop; why some have difficulty; and how we can most effectively assess and teach, therefore, improve student outcomes through prevention of and intervention for reading difficulties.”

The Reading League. (2022). *Science of Reading: Defining Guide.*

www.thereadingleague.org/what-is-the-science-of-reading

What is the Science of Reading? “The *Science of Reading* is a comprehensive body of research that encompasses years of scientific knowledge, spans across many languages, and shares the contributions of experts from relevant disciplines such as education, special education, literacy, psychology, neurology, and more. The *Science of Reading* has evolved from a wide span of research designs, experimental methods, participants, and statistical analyses. This conclusive, empirically supported research provides us with the information we need to gain a deeper understanding of how we learn to read, what skills are involved, how they work together, and which parts of the brain are responsible for reading development. From this research, we can identify an evidence-based best practice approach for teaching foundational literacy skills called Structured Literacy. David Kilpatrick stated, “We teach reading in different ways; they [students] learn to read proficiently in only one way.” The *Science of Reading* (SoR) has demystified any wonder of how we learn to read and offers evidence backed by science to confirm that there is one right way to teach reading.”



The Science of Reading: What We Know

- The SoR helps us to understand the cognitive processes that are essential for reading proficiency. It describes the development of reading skills for both typical and atypical readers.
- The SoR has debunked various methods used over the years to teach reading that were not based on scientific evidence.
- Most reading difficulties can be prevented in young, at-risk students. In other grades, studies have demonstrated the effectiveness of intensive phonemic awareness training, intensive phonic decoding training, and opportunities for repeated practice with reading controlled text. Intervention in these skills leads to efficient orthographic mapping and the highest degree of success.
- Teaching whole word memorization is limited, and learning phonics empowers students with an exponential effect.
 - If a child memorizes ten words, then the child can read ten words. But, if the child can learn the sounds of ten letters, the child can read...
 - 350 three-sound words
 - 4,320 four-sound words
 - 21,650 five-sound words

Foundational Skills needed to become a fluent reader:

Letters and sounds: Letter-sound knowledge is essential for both phonic decoding and sight-word learning.

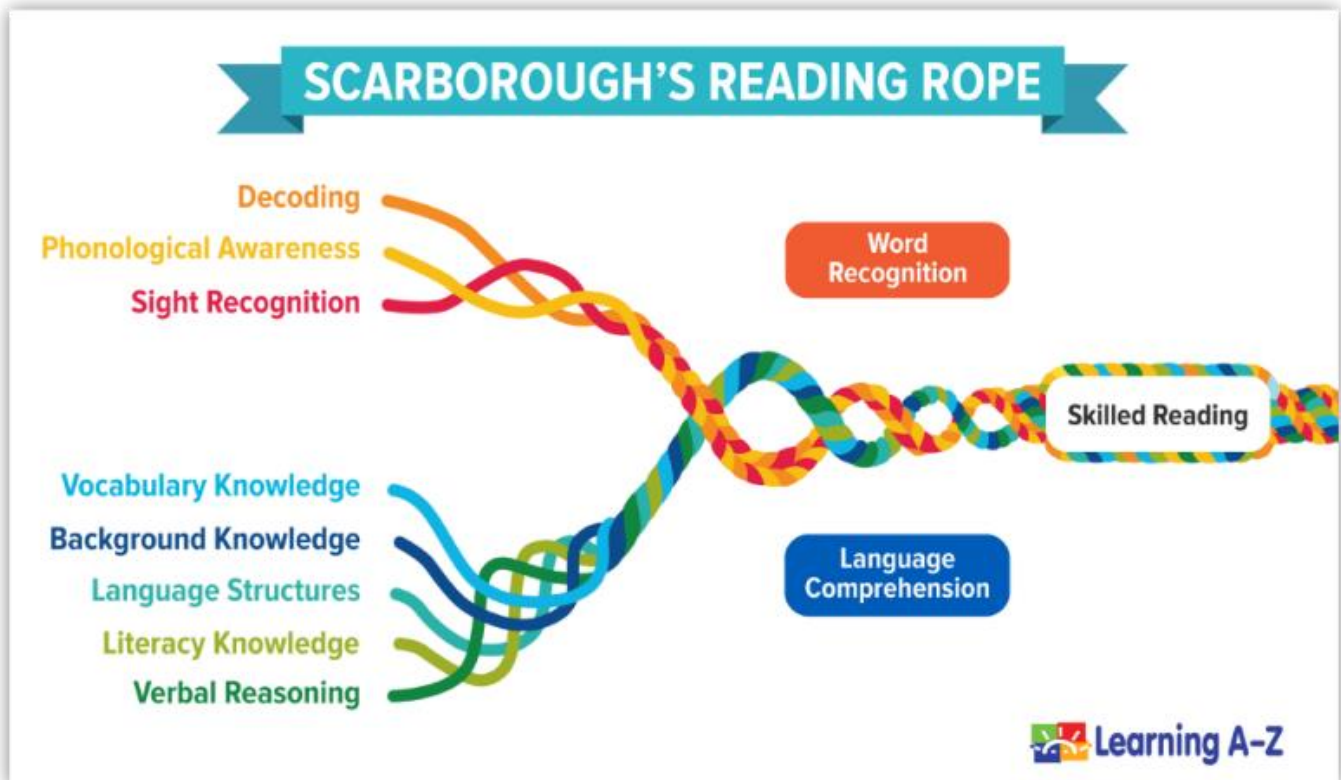
Phonic decoding: Early phonological awareness skills enable the development of letter-sound knowledge and should be targeted for direct instruction through first grade. Advanced phonological awareness skills should continue to be assessed and practiced through third grade to ensure that a solid orthographic lexicon is established.

Phonics and phonemic manipulation: must be proficient to allow for students to build a sight word bank or orthographic lexicon. To support this, students need sufficient practice and review in decoding and encoding, knowledge and application of concept skills, and exposure to decodable text.



Orthographic mapping: Orthographic mapping is the process that occurs when unfamiliar words become automatic sight words. The research on orthographic mapping explains how students develop this vast sight word bank for accurate and automatic word retrieval and also why students with reading problems struggle to develop this skill.

Learning to spell: Encoding (spelling) is a developmental process that impacts fluency, writing, pronunciation, and vocabulary.



Scarborough's Reading Rope is a visual metaphor that highlights the essential components of reading and the development of skills over time. Skills become increasingly strategic and increasingly automatic. Skilled reading is fluent execution and coordination of word recognition and text comprehension.

Science of Reading Defining Guide pps. 18-19

Students with reading difficulties present on a continuum of severity. Effective instruction must begin in Pre-K and Kindergarten. Intervention when needed must be targeted and specific to the needs of the student. ISME *Institute for Multi Sensory Education* <https://journal.imse.com/what-is-the-science-of-reading/>

