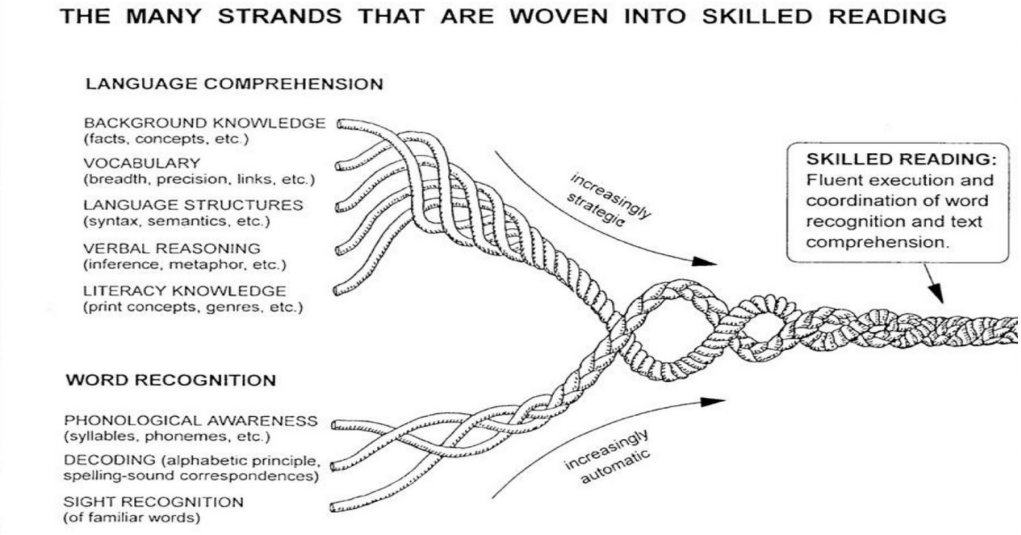
Science of Reading: Syntactic Awareness

At Colors of English, we are proponents of the Science of Reading. In 1986, Gough and Tunmer proposed the concept known as the "simple view of reading," wherein the notion of "reading comprehension" is broken down into a simple equation: WR (word recognition) X LC (language comprehension) = RC (reading comprehension). Word recognition is the ability to apply sound-symbol relationships to read words. Language comprehension is the ability to understand spoken and written language. In 2001, Dr. Hollis Scarborough, an American psychologist and literacy expert, devised what has come to be known as the Scarborough Reading Rope, which clearly details and depicts the specific elements within the broader strands of word recognition and language comprehension. The Science of Reading is supported by solid research in literacy instruction.



Our program focuses on the Language Comprehension side of the reading equation and helps students develop syntactical awareness. Our materials empower students to fully comprehend how words work within the structure of sentences, enhancing their syntactic skills. In her book *Speech to Print*, literacy expert

Louisa Moats defines syntactic awareness as "the ability to recognize, interpret, and generate word combinations that conform to underlying rules of sentence structure" (2020, p. 181). In a research study by Low and Siegel (2005), syntactic awareness was the *second-best predictor* of reading comprehension after word reading.

Experts suggest that these concepts, like phonics, should be taught in an explicit and systematic manner, as structured in the Colors of English. Research has suggested that explicit instruction on the components of language comprehension—vocabulary and semantics, morphology, and syntax—are also critical for language and reading comprehension (Moats, 2020). Even the youngest students can and should be introduced to these concepts to ensure a strong foundation.

There is a clear connection between syntactic comprehension and awareness and reading comprehension, with the clearest evidence of a large effect for syntactic awareness (MacKay et al., 2021). Our program provides explicit and systematic instruction on word order, organization, and meaning in sentences to enhance syntactic comprehension. A study on syntactic awareness and how it contributes to reading comprehension demonstrated that elementary students' (grade 3) syntactic awareness impacted their reading comprehension levels and was a predictor of future gains in reading comprehension, specifically in the next grade level (grade 4). These findings suggest that syntactic awareness influences reading comprehension levels in children, and increasing students' syntactic awareness will positively impact their reading comprehension (Deacon and Kieffer, 2018).

A study done by the United Kingdom Literacy Association found that adolescent students' reading comprehension was both directly and indirectly impacted by their syntactic knowledge and syntactic awareness. Results of the study suggest that providing students with direct instruction on syntactic awareness in order to increase their syntactic knowledge will subsequently improve their reading comprehension (Brimo, Apel, and Fountain, 2015).

Science of Reading Research

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MacKay, E., Lynch, E., Sorenson Duncan, T., & Deacon, S. Hélène. (2021). Informing the Science of Reading: Students' Awareness of Sentence-Level Information Is Important for Reading Comprehension. *Reading Research Quarterly*. https://doi.org/10.1002/rrq.397

Moats, L. C. (2020). *Speech to print*: *language essentials for teachers* (3rd ed.). Paul H. Brookes Pub. Co.

Moats, L. C. (2020). *Teaching reading is rocket science*: *What expert teachers of reading should know and be able to do*. American Federation of Teachers.

Poulsen, M., Nielsen, J. L., & Christensen, R. V. (2022). Remembering sentences is not all about memory: Convergent and discriminant validity of syntactic knowledge and its relationship with reading comprehension. *Journal of Child Language*, *49*(2), 349–365. https://doi.org/10.1017/S0305000921000210

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Reading & Writing Connection

Research shows proficiency in constructing simple sentences is an important and foundational skill for continued writing growth (Datchuk & Kubina, 2017). Our program's systematic approach to composing sentences enhances writing growth in students. Students learn the role of parts of speech within sentence patterns to build strong foundational skills to build upon throughout their writing journey.

At Colors of English, we recognize the reciprocal relationship between writing and reading. Writing and writing instruction improve students' reading and vice versa. In a meta-analysis of research experiments, researchers concluded students' writing improves when they acquire greater knowledge about writing through instruction on the functions and elements of different types of text, studying and emulating model text and providing and receiving feedback to improve text quality. Increasing how much students wrote and how much writing instruction they received each statistically significantly affected reading comprehension. Additionally, sentence and spelling instruction had a moderately significant impact on improving word-reading skills (Graham, 2020).

Sentence Construction is a crucial foundational skill to support students' ability to read fluently and comprehend. Our program's comprehensive approach to teaching sentence patterns involves vocabulary, parts of speech instruction, and English grammar rules that enhance students' foundational writing skills. The theory supporting this is that if a writer can effectively produce simple sentences, this knowledge will aid their ability to compose more complex sentences, paragraphs, and essays (Datchuk and Kubina, 2017). When students become better writers, they become better readers.

Reading & Writing Connection Research

Datchuk, S. M., & Kubina, R. M. (2017). A Writing Intervention to Teach Simple Sentences and Descriptive Paragraphs to Adolescents with Writing Difficulties. *Education and Treatment of Children*, *40*(3), 303–326. https://doi.org/10.1353/etc.2017.0013

Graham, S. (2020). The Sciences of Reading and Writing Must Become More Fully Integrated. *Reading Research Quarterly*, *55*(S1). https://doi.org/10.1002/rrq.3

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Metalinguistic Awareness

Our program materials are designed to develop metalinguistic awareness, providing teachers and students the knowledge that they need to discuss the sentences they read and write. Broadly speaking, metacognition is an awareness about the process of thinking. Metalinguistic awareness, more specifically, is the ability to think about language as an abstraction by focusing on form, structure, and use of language systems. According to Louisa Moats, "metalinguistic or conscious knowledge of the structures of language is usually developed through formal study and reflection" (2020, p. 27).

While metalinguistic knowledge is critical for teachers who are focused on developing phonemic awareness among their students, it is also crucial for teachers and students when developing a foundational understanding of syntax and structure. In order to effectively discuss authorial choices (in reading and writing), teachers and students must have the requisite metalinguistic knowledge to effectively discuss word, phrase, and clause choices within the structure of a sentence. When teachers and students share the same linguistic terminology and knowledge, literacy levels at all ages and in all content areas improve.

"Metalinguistic awareness can be defined as the ability to manipulate language out of context. Semantic and syntactic awareness allows students to disambiguate larger concepts within texts, thus increasing students' language comprehension" (Zipke, 2021 p. 93).

According to Nagy (2007), "Metalinguistic awareness can be thought of as a subset of metacognition; that is, it is metacognition that involves language structure in some way. Metacognition is acknowledged as being *essential to reading comprehension*; what may not be as widely recognized is how much of the

metacognition that goes on during reading has a metalinguistic component. In any case, sensitivity to sentence structure is essential" (p. 60-62).

Metalinguistic Awareness Research

Nagy, W. (2007). Metalinguistic awareness and the vocabulary-comprehension connection. *Vocabulary acquisition: Implications for reading comprehension*, 52-77.

Moats, L. C. (2020). *Speech to print : language essentials for teachers* (3rd ed.). Paul H. Brookes Pub. Co.

Zipke, M. (2021). *Playing with Language: Improving Elementary Reading Through Metalinguistic Awareness*. Teachers College Press.

Multisensory Learning & Support of Neurodiverse Students

Colors of English uses a multisensory approach to meet the diverse needs of learners and enhance learning outcomes. Research shows that multisensory exposure can result in superior recognition of objects compared to unisensory exposure (Shams & Seitz, 2008).

The term multisensory teaching is defined as "a way of teaching that requires students to activate their full faculties—seeing, hearing, smelling, tasting, moving, touching, thinking, intuiting, enjoying—in a variety of situations" (Baines, 2008, p. 21). Our program's multisensory approach *appeals to all children* through auditory, visual and tactile learning. Our games and activities make learning enjoyable, thus making the learning experience more memorable and impactful.

At Colors of English, we meet the needs of diverse learners through a multisensory learning approach. Students handle our colorful Word Birds and tactile class materials, hear language through rhythmic and auditory activities, and see sentence structure through color coding and graphic organizers. Every student gets all of these, because presenting ideas in several ways helps all learners.

Our multisensory approach enhances students' reading skills. Research supports multisensory learning. From Ahuja & Ahuja (2007), reading is a visual and mental phenomenon. In other words, the reading process is both a sensory process that

depends on certain visual skills, such as the identification of symbols, and a perceptual process that involves the interpretation of what is sensed. Through Colors of English, visual skills are supported through graphic organizers, colorful word birds, color coding, and visual sorting activities to help students retain information.

Research on multimedia learning finds that students learn better from words and pictures together than from words alone (Mayer, 2009). Our Word Bird stories, illustrations, and color-coded sentences pair every concept with a picture.

Multisensory Learning & Support of Neurodiverse Students Research

Shams, L., & Seitz, A. R. (2008). Benefits of multisensory learning. *Trends in Cognitive Sciences*, *12*(11), 411–417. https://doi.org/10.1016/j.tics.2008.07.006

Celik Korkmaz, S., & Karatepe, C. (2018). The Impact of Multi-sensory Language Teaching on Young English Learners' Achievement in Reading Skills. *Novitas-ROYAL (Research on Youth and Language)*, *12*(2), 80–95.

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Mayer, R. E. (2009). *Multimedia learning* (2nd ed.). Cambridge University Press.

Ahuja, G. C., & Ahuja, P. (2007). *How to read effectively and efficiently*. Sterling Publishers.

Baines, L. (2008). *A teacher's guide to multisensory learning: Improving literacy by engaging the senses*. Association for Supervision and Curriculum Development.