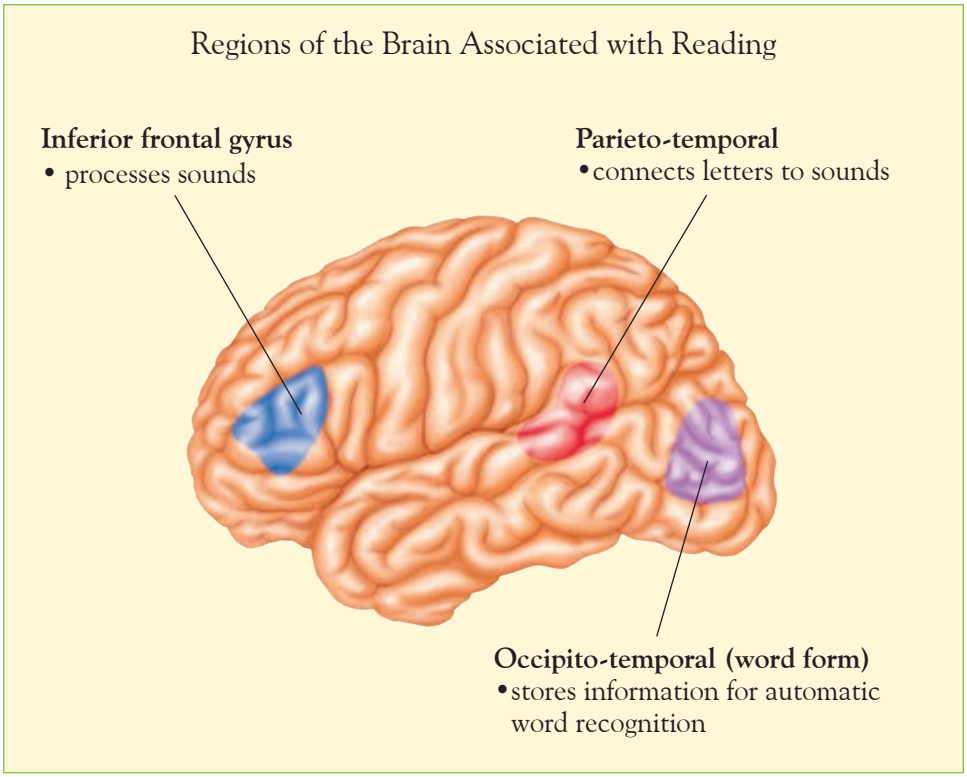
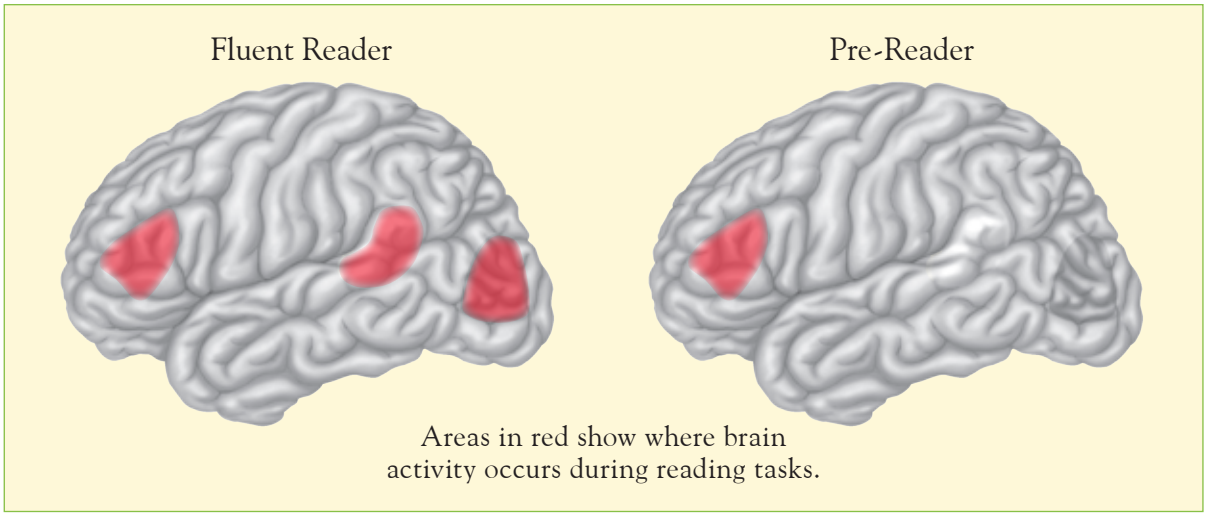
How Superkids Builds the Reading Brain

Decades of scientific research have given us a wealth of information about how children learn to read. Neuroscience in particular has provided insight into how the brain works during reading. Superkids, a comprehensive reading and language arts program, puts that brain research into practice to help young children become strong readers.

A Look Inside the Brain

Neuroscientists have used functional magnetic resonance imaging (fMRI) extensively to map the areas of the brain associated with language and reading. The research identifies three brain processing systems involved in the process of efficient, fluent reading (Sandak, Mencl, Frost, & Pugh, 2004; Houdé, Rossi, Lubin, & Joliot, 2010). An area on the left side, toward the front of the brain, is responsible for processing sounds in words. Another area on the left side, just above and behind the ear, is used for connecting letters to sounds. On the back left side of the brain is the word-form area which stores all information about words—how they look, how they sound, and what they mean.





Areas in red show where brain activity occurs during reading tasks.

In brain scans of skilled readers, the three areas on the left side of the brain are typically activated and working together during reading. The reader converts letters into sounds, blends the sounds to read words, and reads text fluently. This process happens incredibly quickly—in as little as 150 milliseconds for a word (Shaywitz, 2003). The extreme automaticity of these word assembly steps results in fluent, effortless reading.

Brain scans of pre-readers and struggling readers show different patterns of activity than those of fluent readers. This is because the neural connections in and between the regions associated with fluent reading are not fully formed in their brains. As research has revealed, the human brain is not hard-wired for reading. In other words, the neural circuity used for reading is not in place at birth—it has to be built, typically through successful instructional experiences (Hempenstall, 2006; Hruby & Goswami, 2011).

Implications for Reading Instruction

As a result of decades of brain research, we now know that learning to read is not as natural as learning to talk. Most children must be taught how to read, and how they're taught makes a difference. The right instruction can help develop the regions of the brain that are used to process sounds, connect letters to sounds, and recognize written words almost instantaneously. Research suggests the most efficient way to foster this process is through phonics instruction that teaches the relationship between letters and sounds explicitly and systematically (Hempenstall, 2006; Dehaene, 2009).

> "[The] process whereby written words are converted into strings of phonemes must be taught explicitly. It does not develop spontaneously, and must be acquired. [Reading instruction] must aim to lay down an efficient neuronal hierarchy, so that a child can recognize letters and graphemes and easily turn them into speech sounds. All other essential aspects of the literate mind—the mastery of spelling, the richness of vocabulary, the nuances of meaning, and the pleasures of literature—depend on this crucial step." (Dehaene, 2009, p. 219)

How Superkids Teaches Phonics

With phonics instruction as its foundation, the Superkids Reading Program provides exactly what young children need to build the neural network for efficient reading. Superkids teaches all major sound/symbol relationships explicitly and systematically in a sequence that progresses from easier to more difficult skills. Once letter-sounds are taught, they are continually reviewed and reinforced in combination with new letter-sounds being taught.

In kindergarten, Superkids teaches all the letters of the alphabet, one sound for each letter, and how to blend letter-sounds to decode words. In first grade, children learn more complex sound-spelling patterns with consonant diagraphs, long vowels, *r*-controlled vowels, vowel digraphs, and more. Second graders consolidate the phonics skills they've developed in previous years, while also learning less common sound-spelling patterns. Through Superkids' explicit and systematic phonics instruction, children emerge from the primary grades with the alphabetic principle firmly rooted in their brains.

The Importance of Decodable Text

The type of text used with beginning readers is also critical for strengthening areas of the brain best suited for reading. Research strongly supports using decodable text in the early grades (Mesmer, 2001; Cheatham & Allor, 2012). In decodable or phonetically controlled text, the majority of the words consist of only letters and letter-sounds that have been explicitly taught. Reading decodable text gives children practice applying the letter-sound associations they are learning. This reinforces their understanding of the alphabetic principle and the mapping of letters to sounds in their brains. As children have success reading decodable text, they learn to depend on decoding as their primary reading strategy. With lots of decoding practice, children develop the automaticity in word recognition needed for fluent reading.

In contrast, some types of texts can lead beginning readers to rely on ineffective strategies. When texts are made up of words with letter-sounds children have not yet been taught, they cannot apply the decoding strategy successfully and instead turn to contextual guessing. While context and pictures are useful for confirming meaning, they will not help children develop automaticity in word recognition. Similarly, when students read texts built around high-frequency sight words, they may rely solely on memorization for word identification, a strategy that will not sustain a reader very far into the process of reading. With patterned texts, children may appear to be reading the words, but they are simply memorizing the patterns and repetitive language without applying phonetic decoding skills. Routinely applying ineffective reading strategies may build neural pathways, but in areas of the brain less suited for reading (Hempenstall, 2006). As a result, students in programs that emphasize these other types of texts for early reading tend to fair poorly when compared to students in programs that employ decodable text (Foorman et al., 1998).

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Decodable Text in Superkids

In Superkids, texts for beginning readers are phonetically controlled to align with the sequence of letter-sound instruction in the program. This assures children develop the habit of decoding words based on letter-sound correspondences, thereby building the neural pathways needed for automatic, fluent reading. As children achieve automaticity, it frees up brain energy for them to focus on reading comprehension.

Decodable text is sometimes characterized as dull and stilted, but Superkids provides decodable fiction and informational texts that engage and motivate beginning readers. Children enjoy getting to know the Superkids' characters, 13 boys and girls and one dog, whose adventures are featured in decodable fiction at all grade levels. With fun facts and amazing photographs, Super-Duper decodable mini-magazines capture children's interest in real world science and social studies topics. Plus, the Superkids Libraries for kindergarten and first grade offer hundreds of decodable books in a variety of fiction and non-fiction genres.

Once the decoding habit is firmly in place, children can transition easily into texts that are not phonetically controlled. Second graders read popular trade book fiction in the Book Club for Super Kids, as well as fascinating informational articles in *SUPER* magazine. Children are able to read these texts successfully precisely because instruction in letter-sound correspondences and decoding in the early grades has shaped their brains for efficient reading.

Comprehensive Instruction with Superkids

While explicit, systematic phonics instruction is essential for building the brain for reading automaticity, it should not be taught in isolation. Superkids teaches the five components of reading—phonemic awareness, phonics, comprehension, vocabulary, and fluency—seamlessly integrated with other language arts. Through the program, children build skills in reading along with handwriting, spelling, writing composition, grammar, and speaking and listening. By the time children complete the Superkids Reading Program, they are strong readers and writers, ready to face the academic materials that await them in the intermediate grades.

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For more information about the Superkids Reading Program or early reading research, please call 888.378.9258 *or visit* superkidsreading.com.

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