Blending the science of reading into your assessments
A few short years from tracing s’s to finding main ideas

The years between kindergarten and fourth grade are few—how do students go so quickly from writing backward e’s to noticing sarcasm in a reading passage? Effective teaching practices grounded in the science of reading—including but not limited to systematic and explicit instruction of phonics and phonological awareness—can help all kids develop the reading skills they’ll need to succeed in school and in life.

During those elementary years, learning to read and reading with an increasing ability to comprehend are connected yet different parts of each student's learning journey. The foundational skills needed to become a fluent reader—decoding text and language comprehension—require specific, focused strategies to build. Simultaneously, even the youngest students are developing their ability to make meaning of text, even if it’s read aloud to them. Depending on which skills they are focused on building, teachers need different information about what students need.

And how do we know what our students need? By assessing their reading journeys holistically. Whether we liken the journey to staircases and interstates or a symphony of instruments, our instruction and assessment must support the entire ecosystem, grounded in the science of reading.

The science of reading: Debunking the myths

Many adults struggle to remember their learning-to-read journey—as we pontificate from our rocking chairs—but many do not remember explicit phonics instruction...likely because they did not have it. Lingering practices from whole-language approaches, labeled by some as “balanced literacy,” meant that phonetics and decoding were often taught incidentally in context when encountered in class readings. Let’s take a look at where the research has taken us.

What we used to think

1. **Reading could be absorbed through a natural process of context clues and educated guesses.** Students could use context clues, sentence structure, and pictures to guess the word. For example, a student sees “f-o-x” with a picture of a furry creature. The student might be prompted—by a teacher or by the text itself—to guess that the word means “fox.”

2. **We didn't need to explicitly teach symbols and sounds (phonics).** The fox scenario above is one example of three cueing, commonly referred to with the acronym MSV. In this approach, teachers encouraged students to engage in a guessing game, leveraging “meaning,” “structure,” and “visual” sources as three potential clues to a word’s meaning, rather than relying on decoding letters and sounds to assemble an unfamiliar word.

3. **Mini-lessons and just-in-time phonics instruction were enough.** Occasionally, sounding out a longer word was useful, but it was assumed that most children could intuit how to decode/sound out an unfamiliar word without explicit phonics instruction. Think of calling last-minute attention to the silent e when it emerged in a thematic book-of-the-week.
What the science shows

1. **Cueing sets struggling readers up for failure with increasingly complex text.** Yes, the student correctly guessed fox, but they didn’t necessarily form a relationship with the letters and sounds. Later, without a picture, the student might only know the “f” sound, and could guess any number of short words that begin with f, like fan or far.

2. **Anything but explicit decoding instruction produces readers who guess.** Readers who struggle survive on this kind of guessing until there are no more pictures and the text becomes more difficult. Their brain space is so saturated with trying to decode what word they’re reading that they cannot make any meaning. That’s when we see readers with low reading comprehension.

3. **Reading is not an innate skill set and must be taught explicitly.** For most of us, our brains were born ready to tell our lungs to breath, our hearts to beat, and eventually our ears and mouths to listen and speak. Reading is different. It’s an unnatural, complicated task involving many steps. Or, as Liberman and colleagues asserted, “Reading and writing are acquired skills for which the human brain is not yet fully evolved.” Reading needs to be taught directly, explicitly, and systematically, using an evidence-based approach.

The science of reading is the converging evidence of what matters and what works in reading instruction. When it comes to phonological awareness and phonics and word recognition, the evidence is clear: explicit and systematic instruction benefits all kids.
Scarborough’s Reading Rope

A 2000 report from the National Reading Panel found five pillars of reading instruction: phonological awareness, phonics (alphabet knowledge/word recognition), fluency, vocabulary, and comprehension. These skills often develop alongside each other.

Children’s understanding of language evolves from simpler to more complex syntax over time, but they may have to return to simple words like cat as they learn to read. Hearing phrases *read aloud* makes them easier to understand on the page, and decoding becomes increasingly automatic. An ecosystem indeed…or strands of rope.

A framework of the enmeshed skill sets of reading development is Scarborough’s Reading Rope, which illustrates the independent development of literacy “strands” until they are intertwined by increasing fluency, which leads to reading comprehension (“skilled reading”).
Making it simple with the Simple View of Reading

As Scarborough’s Rope demonstrates, reading is indeed a multifaceted journey. To simplify, Gough and Tunmer’s Simple View of Reading—a research-backed framework for how reading comprehension develops—distills two main factors:

1. **Decoding (D)**: phonological awareness and phonics to decipher the symbols and sounds in a word

2. **Language Comprehension (LC)**: knowledge of syntax, semantics, vocabulary, oral listening, and comprehension

**Simple View of Reading**

\[ RC = D \times LC \]

Reading Comprehension (RC) is the product of Decoding (D) and Language Comprehension (LC) proficiencies.


These factors multiplied together—not added, which would imply that a stronger skill set could compensate for a weaker one—indicate reading comprehension: the ability to independently read for meaning.

What does this mean for reading instruction and assessment? That decoding skills—those skills that educators previously believed could be absorbed—are a critical contributor toward a reader’s end goal: comprehending (and enjoying!) what they read. Thus, it is pivotal that these decoding skills are systematically taught in classrooms.

**EdWeek’s national survey** of educators shows that most believe “a child’s first response to an unfamiliar word should be to sound it out.” Yet those same educators responded that their teacher-preparation programs, classroom curriculum, and assessments did not support explicit decoding instruction.
The science guides our instruction, while assessment informs it

Shifts in instructional approaches, while still a work in progress, have generally followed the science. While there have been advancements in adaptive assessment for reading comprehension, traditional fluency assessments that rely on time-consuming one-to-one administrations have not evolved until very recently.

Most modern literacy curricula ground their instructional strategies in the research. Teachers are increasingly delivering explicit, systematic instruction to meet the needs of emerging readers. It’s critical assessments provide the insights teachers need to inform it.

With MAP® Reading Fluency™, that instruction is supported with a clear view of not only phonics and phonological awareness, but also language comprehension checks and fluency measures, ensuring educators can meet early readers where they are and guide where they’re going next in their instruction.

MAP Reading Fluency is a computer-adaptive, automatically scored assessment of early reading that allows for group administration, saving valuable teacher time and providing actionable data needed to support instructional decisions and early reading development for every student.

MAP Reading Fluency: A student’s experience

As the science supports (and Scarborough’s Rope illustrates), the interwoven skills of reading are captured by MAP Reading Fluency’s pathways: one for emergent readers that tests foundational skills, and one for fluent early readers that evaluates oral reading fluency, including rate, accuracy, and understanding. Let’s step through an example of what a student might see, and how the assessment adjusts to find their reading readiness.

Twenty minute adaptive oral reading test

The chart above illustrates an adaptive pathway through the assessment. Some test forms in MAP Reading Fluency adapt between passages and foundational skills to find the place of growth. Others limit the range of adaptivity to only foundational skills or oral reading passages.
In this example, all students first experience a **picture book warm-up** and a **sentence reading fluency** portion, designed to evaluate if a student is ready to move to connected text passages.
Readers who are ready for connected text go on to **passage reading**. They first receive a **grade-level passage**—which they read into a microphone—and then answer **questions** about what they just read. Based on their answers, students are provided an easier or harder reading passage. This is repeated twice, so students read a total of three passages: one beginning at grade level, and the other two adjusted for difficulty.
Students who are not yet ready to read connected text are routed to the **foundational skills** pathway, evaluating their proficiency with phonological awareness, phonics, listening comprehension, and vocabulary.
MAP Reading Fluency: A teacher’s reports

Objective, sortable class data is available immediately through the Benchmark Matrix report. In addition, individual student reports include reader profiles and recordings of students’ oral reading saved for playback or sharing with families. Teachers have information at their fingertips, as well as customized recommendations and reading activities ready for student interaction.

As seen in this example Benchmark Matrix, skills on the left are foundational, indicating how early readers relate to grade-level expectations in phonological awareness, phonics/word recognition, and language comprehension. On the right, emerging readers’ oral reading scores are captured, indicating their proficiency in rate, accuracy, level, and literal comprehension.

Just as with Scarborough’s Rope, all tendrils of reading skills—the upper and lower strands on the left, intertwining to form a skilled reading rope on the right—are discretely assessed for the clearest, most comprehensive snapshot of our youngest readers.

Looking for the basics? Here’s more information on MAP Reading Fluency.
A reader's journey: Constrained and unconstrained skills

Developing readers have different journeys to becoming confident, independent readers. Foundational skills, including language comprehension and more constrained skills like phonological awareness and phonics and word recognition, are critical to becoming fluent readers. Unconstrained skills, like vocabulary and reading comprehension, also develop early and continue to deepen and broaden over time.

These two aspects of a reader’s journey develop simultaneously, but the focus—both of standards and instruction—shifts gradually as the reader develops. Assessment data that informs instructional practice grounded in the science of reading helps all students develop and grow, whether they are focusing on constrained or unconstrained reading skills.

With data at their fingertips that helps them more holistically understand their students’ reading journeys, educators can meet students where they are, extend and support their learning, and ensure that they are cultivating confident, guess-free readers who love a new book.