THE READING LEAGUE

Sharing knowledge, inspiring change.

# Adolescent Reading Intervention Evaluation Guidelines (Grades 4-12)

2024

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**Use these guidelines to evaluate how well secondary intervention materials align with the findings from the science of reading. Interventions for older students are either comprehensive or designed to target specific skills where students need support. These guidelines detail components of a comprehensive intervention. They are not meant to negate interventions that target specific skills. These guidelines are not intended for interventions developed for students who have intensive needs that require more specialized interventions.**

## Introduction by Linda Diamond

In 2022, only 31% of eighth-grade students performed at or above the proficient level on the National Assessment of Educational Progress (NAEP). This is not significantly different from the 1992 NAEP results where 30% performed below basic, the lowest performance band on the NAEP. In California alone during a five-year span beginning in 2018, 85% of students who graduated from high school and took a 12th grade reading assessment did not pass, according to data from the Division of Juvenile Justice, the agency operating state youth facilities.

While the statistics are grim, it is never too late, as Dr. Louisa Moats explained in "Teaching Adolescents to Read." Many older students continue to need instruction in foundational skills. Others may have a language based learning difference such as dyslexia. The challenge of catching these students up is more difficult because many of them are demoralized due to having experienced reading failure for years (Moats, 2015).

Intervention is necessary and improved outcomes are possible. However, too often, school structure, schedules, and a lack of will to provide adequate time and instruction are barriers. It is essential for administrators to restructure the school day to provide sufficient time for intervention. Core English teachers cannot be expected to teach adolescents to read with the time and intensity needed to ensure they can read independently before they graduate—or drop out.

Older students are running out of time, and the pandemic made things worse. Too often, the solution is to read aloud and offer scaffolds, which fails to produce independent, proficient readers. Educators and educational decision makers are not to blame; they have not been prepared to work with students who are not reading proficiently in upper elementary, middle, and high school.

## What Can We Do?

Educators in upper elementary grades, middle school, and high school must align Tier I and intervention instruction to address the learning gaps that feature a lack of background knowledge, limited vocabulary, weak fluency, delayed English language development, and, all too frequently, difficulties with decoding. As shown in Table 1, it has been found that «in accordance with a wealth of research, decoding and reading comprehension ability are strongly related across all ages (García et al., 2014; Scammacca et al., 2015), yet the decoding/comprehension relationship does slightly decrease as students increase in age (García, et al., 2014).

*Note.* This table is from the CORE Teaching Reading Sourcebook (Honig et al., 2018). It illustrates the relationship between decoding and comprehension as grade levels increase (Shaywitz, S.E., & Shaywitz, B.A., 1999).

Scientific research also indicates that intensifying instruction in BOTH word reading and reading comprehension had larger effects because many students have deficits in both components (Filderman et al., 2022).

**Table 1**

*Correlation Between Decoding and Comprehension*

**Correlation Between Decoding & Comprehension** (in the Connecticut Longitudinal Study)

| COMPREHENSION / DECODING | GRADE 1 | GRADE 2 | GRADE 3 | GRADE 4 | GRADE 5 | GRADE 6 | GRADE 7 | GRADE 8 | GRADE 9 |
|---|---|---|---|---|---|---|---|---|---|
| GRADE 1 | .89 | | | | | | | | |
| GRADE 2 | .75 | .83 | | | | | | | |
| GRADE 3 | .70 | .74 | .77 | | | | | | |
| GRADE 4 | .64 | .71 | .74 | .73 | | | | | |
| GRADE 5 | .58 | .63 | .68 | .67 | .70 | | | | |
| GRADE 6 | .59 | .65 | .67 | .68 | .66 | .69 | | | |
| GRADE 7 | .53 | .61 | .65 | .65 | .67 | .68 | .69 | | |
| GRADE 8 | .49 | .58 | .62 | .62 | .64 | .65 | .65 | .63 | |
| GRADE 9 | .52 | .58 | .60 | .62 | .60 | .63 | .63 | .61 | .63 |

In light of this research, five actions are critical:

1. Alter the mindset that scaffolded grade-level curricula alone is sufficient to assist older students in need of additional support.
2. Restructure the school day to provide sufficient time for intervention and align intervention to the Tier 1 class content.
3. Support older students with a schoolwide effort that includes more time reading in all content classes and strong intervention when data show a need.
4. Equip middle and high school educators with the knowledge and skills to support students within content classes while also identifying and preparing interventionists to provide more focused intervention instruction.
5. Identify and select interventions for older students that include placement guidance and mastery-type measures to monitor learning. Keep in mind that not all interventions will benefit students who need targeted support (i.e., do not use a foundational skills intervention for all students if data show some of them do not need to work on foundational skills).

In short, what is required is a systems approach to teaching adolescents how to read. An educational triage model will provide "intensive care" for the most at risk, "specialized care" for those moderately at risk, and instructional techniques to benefit all older students within their subject matter classrooms.

# How to Use This Resource

- Assemble a review team that has knowledge of the science of reading as it relates to adolescent students. Building professional knowledge of evidence-aligned practices for adolescent literacy is recommended prior to the review and selection of intervention materials (see The Reading League Compass: Adolescent Literacy page for more information). Include school and district leaders, educators, special educators, and specialists (e.g., those with expertise in supporting English learners/emergent bilingual students, speech-language pathologists) who understand the terms within each section's glossaries.
- Gather and familiarize yourself with the intervention materials to be evaluated. Include scopes and sequences and, ideally, 5 weeks of lessons to allow tracing of spaced/distributed, cumulative/mixed, and retrieval practice (see Design and Delivery section). These practices are essential for enabling students with reading challenges to retain learning.
- Prioritize identifying red flags, which are practices that are not aligned with the science of reading. Progress through each section of these guidelines, one at a time, searching for red flags that will alert you if nonaligned practices are present in the intervention program. When red flag practices are found, decide to what level the red flag statement is true according to the following guidelines:

**01**
**Red Flag statement is false.**

**02**
**Red Flag statement is minimally true. Evidence is minimal or briefly mentioned.**

**03**
**Red Flag statement is mostly true. If applicable, evidence is in multiple places throughout the curriculum.**

**04**
**Red Flag statement is always true, pervasive, and/or integral to the curriculum.**

- A red flag in a non-negotiable section of these guidelines should eliminate the intervention program from consideration.
- If many or most red boxes are checked in a section, the intervention program is likely not aligned with the findings from the science of reading. Keep searching rather than trying to supplement such a program.
- If a red flag practice is found, use the notes section to describe how educators will use/build their professional knowledge and/or use supplemental materials to ensure the nonaligned practice will be avoided in instruction.
- (OPTIONAL) When you finish reviewing an intervention program for red flags and determine that it does not include enough red flag practices to remove it from consideration, you can review it to identify instructional practices that are evidence-aligned.

  a. Evidence-aligned practices can be thought of as "wish lists." Because there is no perfect intervention, a program should not be rejected for failing to feature all possible evidence-aligned practices—even in the non-negotiables sections. For any missing practices, use the notes section to describe how educators will use/build their professional knowledge and/or use supplemental materials in order to include those practices during intervention.

  b. If many or most of the evidence-aligned practices are included in an intervention program, it is likely aligned with the findings from the science of reading. Consider these along with the identified red flags to ensure instructional time is not wasted.

*Please note:* Evidence-aligned intervention materials are an essential component of successful literacy instruction. However, a system will not produce results by simply choosing evidence-aligned materials. It is critical to build educator and leader knowledge in the science of reading and evidence-aligned practices for supporting adolescent learners with reading and writing difficulties.

# Important Considerations

- If an intervention includes multiple red flags, it will be difficult to make the intervention as effective as it should be.

- If intervention materials have some gaps, and you can supplement those gaps effectively, it is a program to be considered.

- Intervention programs alone cannot remedy reading problems for older students. A school-wide systemic approach including all content area teachers as literacy teachers (e.g., English language arts, social studies, science, mathematics) is necessary. Although it takes additional time, when the strategies and content align across tiers of instruction, student achievement is accelerated.

- During intervention sessions, attention should be paid to building student motivation through successful experiences and positive feedback. Students' beliefs about their ability to achieve reading success play a major role in persistence during the intervention experience and willingness to apply intervention strategies in other reading contexts (Berkely et al., 2011).

- Assistive technology allows older students who are still developing decoding skills to access high-quality text to develop academic vocabulary and access subject-area content. This IDA fact sheet describes the potential benefits and fundamentals of instructional and assistive technology: https://dyslexiaida.org/instructional-and-assistive-technology-maximizing-the-benefits-for-students-who-struggle/

- As part of a whole-school approach, content area teachers deserve professional learning that includes practices that can be used with all students. By equipping social studies, science, English, and math teachers with a limited suite of strategies to use as a whole school to support content vocabulary learning, multisyllabic word decoding, sentence and paragraph building, writing to further comprehension, and evidence-aligned strategies to summarize content, all students—but especially those experiencing reading challenges—will benefit.

- Overall, schools should help students build knowledge and apply evidence-aligned strategies (e.g., getting the gist, summarization, vocabulary learning techniques) that are useful in both Tier I and intervention settings.

- While this resource›s structure is organized by skill, it is essential to integrate these skills when supporting overall reading improvement (e.g., verbal comprehension and reading comprehension, syntactic awareness for reading and writing, encoding and decoding).

- Research does not support a one-size-fits-all intervention that fails to consider students› individual needs or the grouping of students with different intervention needs.

# What Do We Know From the Science of Learning?

Before reviewing instructional materials for content, there are some general concepts from the science behind how students learn that must be taken into consideration. Professional development, instructional time, selection of materials, and who will deliver the intervention must be considered for the most successful learning outcomes. Both instructional quality and intensity are key elements that must be aligned with the research literature (Torgesen et al., 2001). Unfortunately, there are ample examples in the literature of adolescent interventions that yielded no benefit because the interventions lacked the quality and intensity required for effectiveness.

Research shows the important role of practice in the design of instructional materials, particularly for students who are behind their peers. Intervention materials should have many practice opportunities that are aligned with the instruction in the Tier 1 classroom.

Intervention materials should include multiple opportunities for student responses with built-in immediate corrective feedback (Burns, et al., 2014, Archer & Hughes, 2011). Intensified practice opportunities and many hours of intervention time are vital. Growth at this level is likely to be steady, but gradual (Scammacca et al., 2015; Wanzek et al., 2013). Important types of practice are explained in the following Design and Delivery section.

# Design and Delivery

To identify an effective literacy intervention for adolescents, the intervention must provide appropriate practice, age-appropriate materials, and guidance for appropriate scheduling and pacing. It is a red flag if the intervention does not attend to these important design and delivery components.

| RED FLAGS: PRACTICES NOT ALIGNED WITH THE SCIENCE OF READING | RED FLAG (RATE: 1-4) |
|---|---|
| **No evidence of deliberate and purposeful practice:** "These two terms refer to practice that goes beyond rote repetition and involves practicing for a purpose (e.g., fluent retrieval, generalization) with the deliberate goal of long-term improvement of skill performance" (Hughes & Riccomini, 2019, p. 406). | |
| **No evidence of retrieval practice:** Retrieval practice "consists of tasks requiring retrieval of targeted skills and knowledge from memory without prompts or cues" (Hughes & Riccomini, 2019, p. 407). "Retrieval practice is a strategy in which calling information to mind subsequently enhances and boosts learning" (Agarwal, Roediger, McDaniel, & McDermott, 2020, p. 2). | |
| **No evidence of spaced or distributed practice:** Spaced or distributed practice "involves taking a given amount of time devoted to learning and arranging that time into multiple sessions that are spread over time" (Carpenter & Agarwal, 2019, p. 3). | |
| **No evidence of cumulative practice:** Cumulative practice is "the systematic addition of a just-learned skill to previously learned and related skills, allowing them to be practiced together" (Hughes & Lee, 2019, p. 414; Archer & Hughes, 2011). "It requires that new (and usually related) skills are added to a practice activity as they are acquired, thus providing distributed practice for multiple skills within one session" (Hughes & Riccomini, 2019, p. 407). | |
| **No evidence of interleaved practice:** Interleaved practice "is similar to cumulative practice but involves mixing the order of skills and problems to be practiced by distributing them in a random fashion, causing the learner to have to discriminate" (Kirschner & Hendrick, 2020). | |
| **Materials and instructions are not age-appropriate:** The features of the intervention, including instructions and reading materials, should be appropriate for older students. For example, if the intervention teaches syllable types, it should use language such as "r-controlled vowels" as opposed to language adapted for younger students such as "bossy-R." | |
| **No recommendations for scheduling, pacing, or intervention time:** The teacher's guide should have recommendations for scheduling and pacing of the program, including intervention time necessary for effective implementation. Evidence shows that research-aligned interventions are effective in the upper grades, and the intensity and duration of the intervention will need to be persistent and consistent. The longer the intervention (sometimes up to 2 years), the greater the effect size (Wanzek et al., 2013). Scammacca et al. (2015) found that evidence-aligned reading interventions delivered 60-90 minutes a day, four days a week, were able to produce a year's worth of reading growth in less than an academic year for students with intensive literacy needs in Grades 6-11. | |

To continue inquiry in the area of design and delivery, consider reflecting on this set of questions, adapted by Joan Sedita, based on the IES Self-Study Guide for Implementing Literacy Interventions in Grades 3-8.

# What Do We Know From the Science of Reading?

Scientific research has been conducted on how to best address the instructional needs of adolescent students in reading. The following red flags and aligned practices are lifted directly from this research.

## Content of Intervention Non-Negotiables

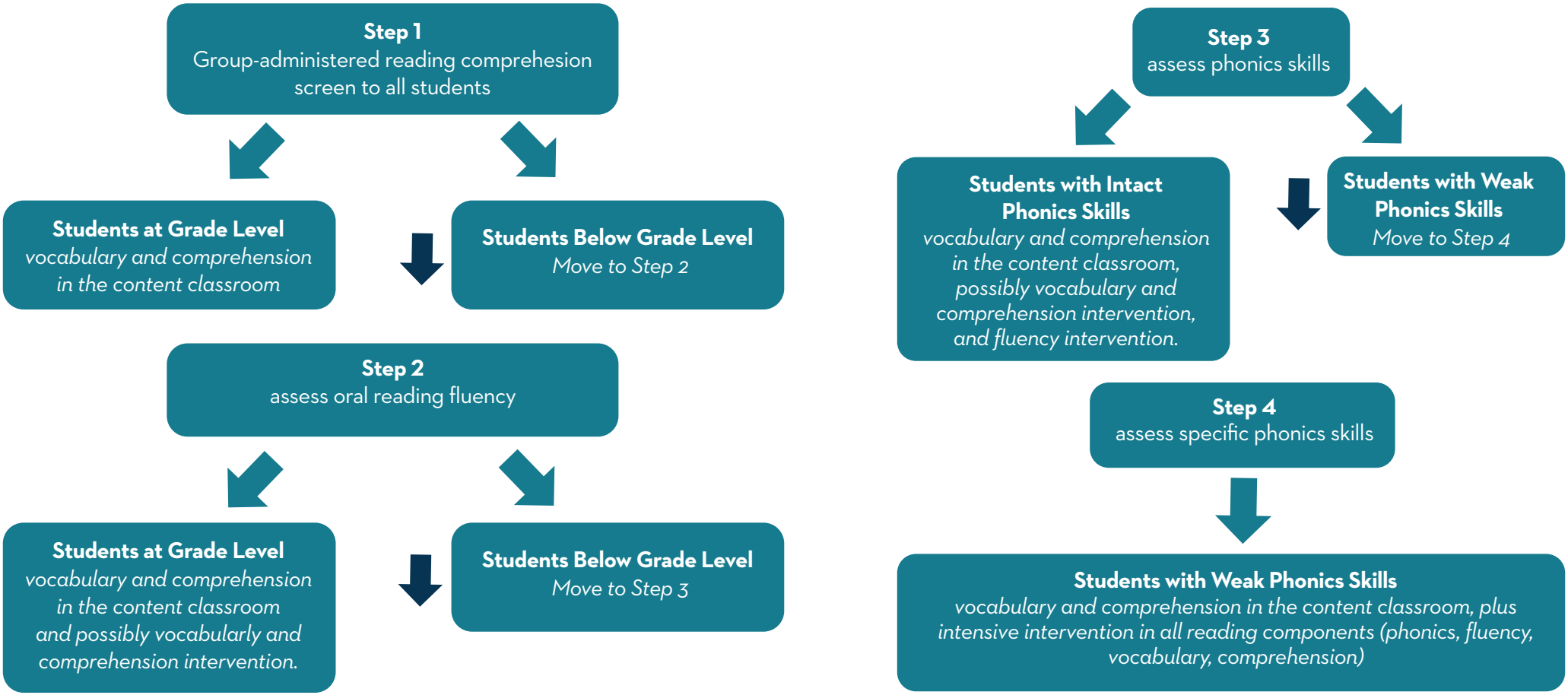
| RED FLAGS: PRACTICES NOT ALIGNED WITH THE SCIENCE OF READING | RED FLAG (RATE: 1-4) |
|---|---|
| Three-cueing approaches are used to teach decoding. (0.1) | |
| There is a lack of assessment and placement measures or guidance for placement decisions using external measures in order to identify student needs and starting points for intervention. (0.2) | |
| Assessments are based on a leveled-text gradient, and therefore do not provide sufficient data on students' specific word recognition and fluency needs or progress. (0.1) | |
| There is an absence of high-interest, motivating texts appropriate for older students. (0.3) | |
| There is a lack of guidance for the structure and time needed for the intervention. (0.4) | |
| There is an insufficient number of practice opportunities, including spaced, cumulative, and retrieval practice. (2.3) | |

# Section 1: ASSESSMENT

Intervention is complicated for older students who have complex learning needs. The first step is to determine who is in need of intervention. To understand student needs, first examine data from existing assessments such as standardized state tests or other comprehensive literacy tests given in most districts within the state (e.g., NWEA/MAP, PARCC, Smarter Balanced). If students are at grade level for these standardized group measures, intervention is not warranted. If students are behind by two or more grade levels, or if a student receives an "at-risk" identification on a reading comprehension or comprehensive assessment, additional assessment measures are needed, as seen in the following figure.

**Figure 1**

*Flowchart to Support Intervention Decision Making (Sedita, 2011)*



**Step 1:** Administer a reading comprehension assessment to determine which students are not able to comprehend grade-level text. If possible, use more than one assessment source (e.g., state ELA assessment combined with a norm-referenced reading comprehension subtest). Also consider informal, formative assessment data and input from teachers about students. Those who are not having difficulty benefit from Tier I content literacy instruction in all subjects.

**Step 2:** Assess oral reading fluency for those not reading at grade level. A normed, quick, curriculum-based measurement that measures the number of words correct per minute or a more formal oral reading assessment can be used.

Students who are reading fluently at grade level benchmark will most likely benefit from an intervention that focuses on vocabulary and comprehension (in addition to Tier I content literacy instruction).

**Step 3:** Assess phonics skills for students who are not reading fluently at grade level benchmark. A quick, informal phonics screener can reveal difficulties in phonic decoding that may be contributing to poor fluency.

Students who have phonic decoding skills will most likely benefit from an intervention that focuses on fluency, vocabulary, and comprehension (in addition to Tier I content literacy instruction).

**Step 4:** Those students who have phonics difficulties will most likely benefit from an intervention that focuses on phonics and advanced word study, fluency, vocabulary, and comprehension. A quality phonics intervention program will most likely include more in-depth phonics assessments.

Intervention programs that are designed to address all reading components sometimes include placement tests that provide data that suggest different entry points into the program. If your selected intervention includes a built-in placement test, that test can replace Step 2 in the flowchart and may reduce the need for further assessment. More information can be found in this document's Assessment section.

# Important Considerations for Assessment

- Group measures may be given to all newly entering students (e.g., from a different district or country) who arrive without appropriate data.
- In any assessment plan and intervention placement plan for English learners/emergent bilingual students and speakers of English language varieties, educators must be aware of how dialect and/or language differences may impact assessment results and the use of intervention programs (Lesaux & Kieffer, 2010).
- Continued progress monitoring is important to determine whether students are benefitting from the intervention and/or whether further diagnostic measures are needed.

# ASSESSMENT

| RED FLAGS: PRACTICES NOT ALIGNED WITH THE SCIENCE OF READING | RED FLAG (RATE: 1-4) |
|---|---|
| There is no reference or attention to previously assessed data for placement or decision making in intervention. (1.1) | |
| There is no internal placement measure or reference to how to use an external placement measure to determine the identification of student intervention needs, grouping, and starting points. (1.3) | |
| There is no internal progress monitoring tool or reference to how to use an external progress monitoring tool to determine the efficacy of intervention and student growth. (1.3; 1.4) | |
| Assessments include miscue analysis in running records for the purpose of identifying decoding errors as meaning, syntax, or visual errors. (1.2) | |
| Assessments result in benchmarks according to a leveled text gradient, and therefore do not provide specific data on students' needs. (1.3) | |

| INTERVENTION PRACTICES ALIGNED WITH THE SCIENCE OF READING FOR GRADES 4-12 |
| --- |
| Multiple data points from common (regularly administered) assessments are used to understand students' intervention needs (e.g., annual state assessments, district and school assessments, curriculum-based assessments, chapter tests, classroom projects). (1.3) |
| Internal (i.e., intervention program-based assessment) or external measures (e.g., state assessment, NWEA/MAP) are used to determine student need for intervention, grouping, and placement within an intervention program. (1.3) |
| Assessment procedures involve a two-step process: |
| 1. Initial screening measures identify students in need of an intervention. |
| 2. Further diagnostic measures indicate the specific area(s) of reading difficulty. (1.3) |
| An internal progress monitoring tool (e.g., a mastery measure) or an external progress monitoring tool referenced in the intervention is used to determine efficacy of intervention and student growth. (1.4) |
| Assessments do not include miscue analysis in running records for the purpose of identifying decoding errors as meaning, syntax, or visual errors. (1.2; 1.3) |
| Any included formal assessments are standardized, reliable, and valid for the intended purpose and are culturally and linguistically appropriate. (1.3; 1.5) |
| For multilingual learners, English language development data is gathered and used along with all other data to understand multilingual learners' instructional profiles and implications for intervention. (1.5; 2.8) |

## Glossary

**Diagnostic Assessments:** used to assess specific skills or components of reading (e.g., phonics, fluency) to help educators plan targeted and individualized instruction

**Mastery Measure:** measures the specific skills being taught—most often those from short-term instructional objectives—and requires that the test has enough tasks of the same skill to determine student mastery

**Progress Monitoring:** frequent assessments given to students receiving intervention that measure progress toward acquiring specific skills

- An internal progress monitoring tool (e.g., mastery measures) answers the question, "Are the students learning what I am teaching?"
- An external progress monitoring tool answers the question, "Are the students on the right trajectory to achieve grade-level norms?"

**Reliable:** the extent to which assessments are consistent over time, producing similar outcomes under the same conditions

**Screening/Screeners:** brief assessments given to all students to determine which students are at risk of struggling with reading

**Standardized:** administered and scored in a consistent manner

**Systematic Instruction:** the use of a planned, logical sequence to introduce elements taught, building from the simplest to those that are more complex

**Valid:** the extent to which an assessment is accurate (i.e., whether or not it measures what it is supposed to measure)

# Section 2: WORD RECOGNITION

## NON-NEGOTIABLES WORD RECOGNITION

| RED FLAGS: PRACTICES NOT ALIGNED WITH THE SCIENCE OF READING | RED FLAG (RATE: 1-4) |
|---|---|
| Three-cueing system strategies are taught to older readers who have difficulty decoding words (e.g., directing students to use picture cues, context cues, or to attend to the first letter of a word). (2.1) | |
| Guidance is given to memorize any whole words, including high frequency words, by sight without attending to the sound/symbol correspondences. (2.1) | |
| Supporting materials do not provide a systematic scope and sequence or opportunities for practice and review of elements taught (e.g., phonics, advanced phonics, decoding, encoding). (2.2) | |

| INTERVENTION PRACTICES ALIGNED WITH THE SCIENCE OF READING FOR GRADES 4-12 |
|---|
| Explicit instruction is given in word recognition (e.g., phonic decoding, blending and segmenting phonemes within words, encoding, morphology) when data shows this is a need. (2.2) |
| Systematic scope and sequence of skills is included, building from simple to complex. (2.2) |
| Curriculum and support materials provide opportunities for deliberate, purposeful practice and retrieval practice. (2.2; 2.3) |

# WORD RECOGNITION

*Students whose data indicate they show significant weaknesses in accurate word reading will require more explicit instruction and practice through an intensive intervention that provides additional support in the earlier foundational skills of phoneme awareness, phonics, phonic decoding, and encoding.

| RED FLAGS: PRACTICES NOT ALIGNED WITH THE SCIENCE OF READING | RED FLAG (RATE: 1-4) |
|---|---|
| Phoneme awareness is taught separately from decoding words and syllable grapheme units. (2.5) | |
| Prolonged oral-only phonological tasks are emphasized. (2.5) | |
| No attention is given to the articulation of phonemes. (2.6) | |
| There is no teaching of vowel and consonant letter sounds and combinations when data show this is a need for students. (2.2) | |
| Instruction encourages students to memorize whole words, read using only the first letter as a clue, guess at words in context using a "what would make sense?" strategy, or use picture clues rather than phonic decoding. (2.2) | |
| Instruction does not include pronunciation, blending, and segmenting of single-syllable and multisyllabic words. (2.2) | |
| Most phonics instruction is at the single-syllable level instead of more advanced word reading including multisyllabic words. (2.2) | |
| There is no routine modeled by the instructor and practiced by students to decode multisyllabic words (e.g., breaking words into syllables and/or morphemes and blending those parts together to sound out words). (2.2) | |
| There is no instruction in meaningful word parts (morphemes), such as prefixes, suffixes, and base elements as part of a multisyllabic word reading routine. (2.7) | |
| Decoding skills are introduced but with little to no application, short-term review, deliberate and purposeful practice, or retrieval practice. (2.3) | |
| The intervention does not include guidance for teachers to ensure students understand the meaning of accurately decoded words and/or the opportunity to apply them in context. (2.2) | |
| Connected texts and decodable passages are not age-appropriate and/or high-interest, motivating texts for older students. (2.4) | |
| Intervention is based on leveled readers that do not follow a phonics or advanced phonics scope and sequence (2.2) | |
| Intervention does not include advanced vocabulary or academic content for adolescent learners. (2.2; 2.7; 4.2) | |
| There is no evidence of embedded spelling instruction in word recognition lessons. (2.2) | |
| Previously taught spelling patterns are not practiced with words featuring the same spelling patterns (e.g., vowel patterns, letter-sound combinations, morphemes) in the same lesson and future lessons to ensure students are learning to the point of automaticity. (2.2; 2.3; 2.5-2.7) | |

## INTERVENTION PRACTICES ALIGNED WITH THE SCIENCE OF READING FOR GRADES 4-12

| |
|---|
| Attention is given to phoneme articulation and pronunciation in words when attaching phonemes to graphemes during decoding lessons. (2.2; 2.6) |
| Decoding instruction is systematic and sequential, building from simple vowel and consonant combinations to complex combinations in single-syllable words and working up to multisyllabic words. (2.2) |
| A routine is modeled by the instructor and practiced by students to decode multisyllabic words (e.g., breaking words into syllables and/or morphemes) and blending those parts together to sound out words. (2.2) |
| There is instruction in meaningful word parts (morphemes) as part of a multisyllabic word reading routine. (2.7) |
| Decoding and word recognition instruction provide deliberate and purposeful practice, including spaced, cumulative, interleaved, and retrieval practice. (2.3) |
| Decoding skills are practiced through word recognition work and application in text reading. (2.2) |
| Previously taught spelling patterns are practiced with words featuring the same spelling patterns (e.g., vowel patterns, letter-sound combinations, morphemes) in the same lesson and future lessons to ensure students are learning to the point of automaticity. (2.2; 2.3; 2.5-2.7) |
| Technology-assisted interventions are used to supplement practice opportunities following teacher-led interventions. (2.3) |
| Alongside work on accurately decoding words, supports for multilingual learners (e.g., descriptions, pictures, or gestures) are used to teach or confirm the meaning of the decoded word(s). (1.7; 2.8) |
| For multilingual learners, attention should be focused on the positive transfer of letters and sounds from their home language in addition to explicit attention to those not present in their home language. (1.7; 2.8) |

## Glossary

**Blending:** putting phonemes together to form a word

**Encoding:** understanding the spelling of words; a skill that develops reciprocally to decoding when explicitly taught

**Etymology:** the history of a word or word part that includes its origin

**High-Frequency Words:** words that appear most frequently in printed text

**Interleaving:** practice that is spaced out over time, consisting of two or more subjects or skills related to an instructional target within the same practice task ((e.g., having words with several recently taught phonics patterns on the same word list for decoding practice)

**Morpheme:** the smallest unit of a word that carries meaning (e.g., prefix, suffix, base element)

**Morphology:** the system of meaningful parts, or morphemes, that make up words

**Phonics:** instruction to teach how print/letters represent the sounds of spoken language

**Phonic Decoding:** the process of sounding out words using letter-sound knowledge and blending those sounds together to pronounce the word—in the research literature, this process is referred to as phonological recoding or simply recoding

**Segmenting**: breaking a spoken word into its individual phonemes

**Sound-Symbol Correspondences**: the relationship between a grapheme, or printed letter(s), and its corresponding phoneme, or individual speech sound (e.g., "c" can correspond to the phoneme /k/ or /s/)

**Spaced Practice:** practice that occurs over time

**Types of Text:** *Decodable:* texts with a high proportion of phonetically regular words matched to common letter-sound relationships previously taught in phonics lessons within accompanying teacher guides; *Leveled:* texts leveled according to a gradient of difficulty based on multiple supportive features of the whole text, which allow for an emphasis on meaning, such as text structure, themes and ideas, or language and literary features; *Predictable:* texts with predictable text structures, such as repetitive and predictable sentences, words, and phrases

**Variant Vowels:** groups of letters that produce the same vowel sound (e.g., ai, ay, eigh)

# FLUENCY

For fluency dosage, consider students' time in texts. If they read slowly, they will need additional fluency practice time. To attend to growth in a deep way, students should be provided with adequate time to practice fluency, no matter their reading rate (Make & Hammerschmidt-Snidarich, 2022).

| RED FLAGS: PRACTICES NOT ALIGNED WITH THE SCIENCE OF READING | RED FLAG (RATE: 1-4) |
|---|---|
| Fluency instruction focuses primarily on students' silent reading without activities to build accuracy, rate, and prosody. (3.2) | |
| Rate is emphasized over accuracy; priority is given to the student's ability to read words quickly. (3.2) | |
| Word- and phrase-level fluency practice to automaticity is not provided via repeated or continuous readings. (3.2) | |
| Timed readings are the sole strategy for fluency building, with the goal of increasing reading speed. (3.4) | |
| There is no evidence of multisyllabic word reading fluency. (3.2) | |
| Fluency assessment allows acceptance of incorrectly decoded words if they are close in meaning to the target word (e.g., reading "house" for "home"). (1.1; 1.4) | |
| Students do not read for a purpose during fluency reading (e.g., students are not asked the meaning of what they read, what occurred, or what was learned). (3.2; 4.3) | |
| There is no attention to phonology, morphology, or syntactic structures during fluency practice that may differ for students with linguistic differences (e.g., multilingual learners, speakers of English language variations). (2.7; 2.8) | |

| INTERVENTION PRACTICES ALIGNED WITH THE SCIENCE OF READING FOR GRADES 4-12 |
| --- |
| Reading accuracy, automaticity, prosody, and reading for meaning are emphasized as the hallmarks of fluent reading. (3.1) |
| Timed readings are one component of the intervention, but are not relied on as a sole intervention for fluency building. (3.2) |
| Word-level fluency practice is provided with words containing phonics, multisyllabic patterns, and morphological patterns that are the focus of instruction. (2.7) |
| Connected text fluency practice is provided to encourage students to read with prosody. (2.2) |
| Where appropriate, instruction includes interventionist-led modeling, peer oral reading by students, and opportunities for timely feedback. (3.2) |
| Additional support is included to ensure students understand the meaning of words when larger units of text are being read, especially for multilingual learners. (3.5) |
| Comprehension of what is read is emphasized alongside fluent reading. (3.2) |
| Students engage in repeated readings and/or continuous readings with a specific purpose (e.g., students understand the meaning of the words and texts, students are asked questions about what occurred and what they learned). (3.2; 4.3) |
| Instruction and assessment account for differences in phonology, morphology, and syntactic structures during fluency practice for students with linguistic differences (e.g., multilingual learners, speakers of English language variations). (3.5) |
| Interrelated sub-processes of fluent reading are applied to multi-component intervention as needed in order to develop fluency (e.g., phoneme awareness, letter knowledge, phonic decoding, orthographic knowledge, oral reading fluency, reading comprehension). (3.3) |

## Glossary

**Accuracy:** decoding words without any letter-sound errors

**Automaticity:** performing a reading task without conscious effort

**Connected Text:** text that includes multiple sentences that are related to one another

**Prosody:** reading smoothly with expression and intonation that represents the meaning and comprehension of connected text

# Section 3: LANGUAGE COMPREHENSION AND READING COMPREHENSION

IMPORTANT: The components of comprehension should be integrated rather than taught in isolation. The research for older students predominantly stems from comprehensive interventions that incorporate multiple interconnected components.

Research also clearly articulates the need for the reader to construct a model of the text, which facilitates understanding through the development of a situational, or mental representation. Especially in struggling readers, scaffolds for building this mental model are supported through a "before, during, after" approach to reading instruction. The interventionist should model each component for students, provide opportunities for guided practice with explicit feedback, and then gradually allow students to apply the strategies independently.

Some essential components of the before, during, and after approach include, but are not limited to, the following:

**Before reading:** build and activate background knowledge, provide explicit instruction on key vocabulary, preview complex syntactic structures, and set a purpose for reading

**During reading:** monitor comprehension to address misconceptions, use graphic organizers, summarize sections of text, and generate questions

**After reading:** respond to questions, generate questions of their own, encourage productive peer discourse about the text, and synthesize information from a passage into a summative statement

These examples are not exhaustive, as the research includes many nuanced activities. However, the synthesis of the research clearly supports a before, during, and after reading approach to comprehension intervention with the aim of assisting the reader in the construction of a situational model of text (Soto et al., 2023; Kintsch, W. 1988).

Reminder: Core classes are primarily responsible for knowledge building; intervention time should not take the place of essential, rigorous, grade-level content area instructional time.

# OVERALL NON-NEGOTIABLES LANGUAGE COMPREHENSION (LC) AND READING COMPREHENSION (RC)

| RED FLAGS: PRACTICES NOT ALIGNED WITH THE SCIENCE OF READING | RED FLAG (RATE: 1-4) |
|---|---|
| The instructional framework is primarily a workshop approach, emphasizing student choice and implicit, incidental, or embedded learning. | |
| The teaching focus is on isolated comprehension skills without including instruction about text structure, multiple comprehension strategies, or exposure to text that supports vocabulary growth and syntactic awareness (0.4; 4.1; 4.9:7.1) | |
| Students are not reading challenging "stretch" texts that expose them to academic vocabulary and complex texts. (4.2) | |
| Students are not taught specific routines for comprehending texts (e.g., asking and answering questions, getting the gist/summarizing, monitoring for understanding). (4.3) | |
| Student practice texts do not include high-interest topics or a combination of expository and narrative text. (4.3) | |
| There is limited teacher questioning and student-generated questions, particularly inferential and reasoning questions, as students read texts or listen to texts read aloud by a more proficient reader. | |

| INTERVENTION PRACTICES ALIGNED WITH THE SCIENCE OF READING FOR GRADES 4-12 |
| --- |
| A multicomponent intervention is used that integrates explicit and systematic instruction in academic vocabulary and syntactic awareness, along with instruction for developing comprehension and writing skills. (0.4; 2.2; 4.1; 4.2; 4.3; 4.5; 7.1) |
| Stretch texts that include rich vocabulary and complex syntax are incorporated into the intervention 2-3 times per week. (4.2) |
| Students are exposed to readings, including a combination of high-interest expository and narrative texts, that they read themselves or that peers, adults, or technology (e.g., text-to-speech) read to them. (4.3) |
| A multicomponent intervention is used to develop language comprehension that addresses exposure to and growth of academic vocabulary and syntactic awareness, along with instruction for developing comprehension and writing skills (2.2; 4.1; 4.9) |
| There are opportunities to use language productively for a variety of rich purposes, such as debates, discussions, and reasoning around ethical dilemmas. (4.1; 4.3) |
| There are multiple opportunities for teacher questioning and student-generated questions, particularly inferential and reasoning questions, as students read texts or during read-alouds. (4.3; 4.9) |
| Opportunities to write are provided to enhance reading comprehension (e.g., summary writing, note-taking, asking or answering questions). (5.0; 8.0) |
| For multilingual learners, instruction in English language development and acquisition is included to support reading comprehension and continued reading and writing development. (4.8; 5.0) |

## Glossary

**Stretch texts:** reading selections that are challenging for students to read on their own and are typically above students' independent reading levels; these texts are often at, or just below, students' grade level (Vaughn et al., 2022)

# LANGUAGE COMPREHENSION AND READING COMPREHENSION READING COMPREHENSION AND VERBAL REASONING

| RED FLAGS: PRACTICES NOT ALIGNED WITH THE SCIENCE OF READING | RED FLAG (RATE: 1-4) |
|---|---|
| Students are asked to independently read texts that are beyond their word recognition skills without scaffolding, including technology (5.0; 3.3). | |
| There is no evidence of the use of graphic organizers to support comprehension. (4.5) | |
| Students are not provided with opportunities to make sense of stretch texts (e.g., stop and discuss, clarify, focus on unknown words) to comprehend challenging ideas and information. (4.2; 4.3) | |
| There is no explicit instruction in using text evidence to find and justify student answers to different types of questions during and after reading. (4.7) | |
| There is no instruction in applying reading comprehension strategies to text (e.g., asking and answering questions, monitoring comprehension, teaching student marking, and underlining what does not make sense on the sentence and text level). (3.2) | |
| There is no evidence of students generating a gist or summary of what they have read. (4.1; 4.3) | |
| There is no instruction to support students' understanding of the author's purpose and important information within the text. (4.3) | |
| The teacher does not model questions for students to ask themselves in order to monitor their understanding of the text and reflect on what they just learned. (4.3) | |
| Inferencing strategies are not taught explicitly and practiced with complex, meaningful text. (4.9). | |
| Students do not learn about the role of background knowledge and literal comprehension in forming text-based inferences. (4.1; 4.9) | |
| There are no opportunities for debate and discussion around controversial texts that pose interesting dilemmas for the students' age group. (4.1; 4.3) | |
| There are limited opportunities to ask and answer questions, respond to teacher prompts, draw inferences, or engage in meaningful discussions about texts. (4.1; 4.3; 4.9) | |
| There are no opportunities for multilingual learners to leverage and practice comprehension skills in their home language. (2.8; 3.3; 4.8) | |

| INTERVENTION PRACTICES ALIGNED WITH THE SCIENCE OF READING FOR GRADES 4-12 |
| --- |
| Students are provided scaffolding to read texts that are beyond their word recognition skills, including technology-based scaffolds and support. (5.0; 3.3) |
| Materials for reading comprehension instruction include sufficiently complex literary and knowledge-building stretch texts in addition to texts students can read independently. (4.3) |
| Students are provided with opportunities to make sense of stretch texts (e.g., stop and have a discussion, clarify, focus on unknown words) to comprehend challenging ideas and information. (4.3) |
| Graphic organizers are used to support the process of reading comprehension. (4.5; 7.1) |
| There is explicit instruction of using text evidence to find and justify student answers to different types of questions during and after reading. (4.1) |
| There is evidence of instruction in applying a limited set of specific reading comprehension strategies to text (e.g., asking and answering questions, getting the gist of a short section of text, monitoring comprehension, marking text for a purpose). (4.3) |
| Students use text evidence to support assertions of what is being read. (4.1) |
| Comprehension strategies (e.g., main idea, inferencing, retelling, prediction) are explicitly taught using knowledge-building informational and narrative texts. (4.3; 4.9) |
| The teacher models questions for students to ask themselves in order to monitor their understanding of the text and reflect on what they just learned. (4.3) |
| There is instruction to support students' understanding of the author's purpose and important information within the text. (4.3) |
| Inferencing is explicitly taught within text, including opportunities for metacognition and the use of appropriate and accurate background knowledge. (4.1; 4.3) |
| Students are instructed on how to interpret inferential language (i.e., metaphors, symbols, and ideas beyond the immediate context of what they read) in a text and in conversation. (4.6; 4.9) |
| Opportunities for discussion and debate are integrated for students to engage in dialogue around controversial topics, texts, and interesting dilemmas appropriate for the students' age group. (4.3; 4.4) |
| There are opportunities to ask and answer questions, draw inferences, and engage in meaningful discussions about texts. (4.4; 4.9) |
| Instruction includes teacher prompts to develop a student's ability to be metacognitive (e.g., "Does what I read align with what I know?"). (4.6) |
| Multilingual learners are provided the opportunity to leverage and practice comprehension skills in their home language. (2.8; 3.5; 4.8) |

# BACKGROUND AND WORLD KNOWLEDGE

| RED FLAGS: PRACTICES NOT ALIGNED WITH THE SCIENCE OF READING | RED FLAG (RATE: 1-4) |
|---|---|
| No opportunities or scaffolds are provided for students to access challenging, stretch texts with topics related to content areas such as science, history, and current events.. (4.2) | |
| Texts read during intervention do not include informational text that is related to other content areas. (4.1; 4.4) | |
| Texts are primarily narrative. (4.2) | |
| There are no opportunities to bridge existing knowledge to new knowledge. (4.2) | |
| There are limited opportunities to build background knowledge necessary for comprehending the text selections (e.g., isolated reading of articles unrelated to content area knowledge building). (4.1; 4.2; 4.4) | |
| Materials do not include texts that are culturally responsive to the student population as students will be more motivated and engaged with text they can relate to. (5.1) | |

| INTERVENTION PRACTICES ALIGNED WITH THE SCIENCE OF READING FOR GRADES 4-12 |
|---|
| Opportunities and scaffolds are provided for students to access challenging stretch texts with topics related to content areas such as science, history, and current events. (4.2) |
| Texts read during intervention include informational text intentionally chosen to help build background knowledge around a content area topic. (4.2) |
| Opportunities are provided to make connections between a new word or concept and other known words or concepts, relating ideas to experiences. (4.2) |
| Stretch texts to build key vocabulary, concepts, and background knowledge are included in instruction. (4.2) |
| Materials include texts that are culturally responsive to the student population as students will be more motivated and engaged with text they can relate to. (5.1) |
| For multilingual learners, opportunities are identified for building background knowledge in a student's home language and/or using visuals and clarification whenever possible. (5.5) |

## Glossary

**Background Knowledge:** a specific subset of knowledge needed to comprehend a particular situation, lesson, or text

**English Language Development (ELD):** instruction that is specially designed for multilingual learners to develop their listening, speaking, reading, and writing skills in English

**Expository Text:** text that provides factual information about a topic

**Narrative Text:** text that relates a series of events; this can include both fiction and nonfiction

**Stretch Text:** reading selections that are challenging for students to read on their own, which means they are typically above students' independent reading levels; these texts are often at or just below students' grade level (Roberts et al., 2018; Vaughn, Roberts, et al., 2019)

**World Knowledge:** broad, general knowledge of the world that is the result of many sources of learning but not the specific knowledge you need to know to comprehend a particular situation, lesson, or text

# VOCABULARY

| RED FLAGS: PRACTICES NOT ALIGNED WITH THE SCIENCE OF READING | RED FLAG (RATE: 1-4) |
|---|---|
| Vocabulary worksheets and activities provide little opportunity for deep understanding of vocabulary words and lack activities designed to help students learn multiple meanings of words, connections to related words, and use of words in context. (2.7) | |
| Instruction includes memorization of isolated words and definitions out of context. (4.7) | |
| There is no evidence of teacher-student or student-student structured conversations in order to support a clear understanding of vocabulary words. (4.3) | |
| There is limited instruction and opportunities for practice in how to use contextual clues (e.g., surrounding sentences, appositives, signal words, synonyms, antonyms, definitions, examples) to derive the meaning of unknown words. (4.7) | |
| Academic vocabulary (also referred to as high-utility academic words) is not taught. (4.3) | |
| Explicit instruction in morphology is not present. (2.7) | |
| There is no instruction of morphological analysis or meanings of morphemes within words (e.g., prefixes, suffixes, roots, bases, combining forms). (2.7) | |
| Students are not asked to pronounce new vocabulary words in order to integrate phonology and meaning. (4.7) | |
| There is no evidence of previewing and teaching critical words necessary to comprehend a text selection. (2.4) | |

| INTERVENTION PRACTICES ALIGNED WITH THE SCIENCE OF READING FOR GRADES 4-12 |
| --- |
| Instruction includes robust teacher-student and student-student structured conversations in order to support a clear understanding of vocabulary words. (4.1; 4.4) |
| Vocabulary words are taught using activities designed to help students learn multiple meanings of words, connections to related words, and use of words in context. (4.7) |
| There is instruction and practice in how to use contextual clues (e.g., surrounding sentences, appositives, signal words, synonyms, antonyms, definitions, examples) to derive the meaning of unknown words. (4.4) |
| Vocabulary instruction is used to support both decoding and comprehension. (4.4) |
| Explicit instruction in vocabulary for Tier 2 and 3 words is evident. (4.7) |
| Tier 2 words are taught explicitly, and students are given multiple opportunities to use them in their speech, see them in print, and use them in writing when appropriate. (4.7) |
| Explicit instruction in morphology is provided with numerous opportunities for students to study words with multiple morphemes (e.g., prefixes, suffixes, roots, bases, combining forms). (2.7) |
| Morphology should be taught consistently over time with a long-term dedication to steadily building morpheme knowledge. (2.7) |
| Students are asked to pronounce new vocabulary words in order to integrate phonology and meaning. (4.7) |
| Previewing and teaching critical words necessary to comprehend a text selection are evident. (4.2) |
| For multilingual learners, instruction in ELD is included to support continued vocabulary development. (2.8; 4.8) |

## Glossary

**English Language Development (ELD):** instruction that is specially designed for multilingual learners to help develop their listening, speaking, reading, and writing skills in English

**Morphology:** the system of meaningful parts, or morphemes, that make up words
Morphological Analysis: how to identify meaningful word parts, or morphemes. to determine the meaning of unfamiliar, multisyllabic words

**Tiered Vocabulary Words:** a means of classifying words according to their level of difficulty and frequency of use; it is important to note that these tiers are not related to tiers of instruction in a Multi-Tiered System of Supports

**Tier 1 Vocabulary Words:** words students already know the meaning of (e.g., house, car, dog, school)

**Tier 2 Vocabulary Words:** words that are not likely to be familiar to young children but reflect a concept they can identify with and can use in conversation (e.g., shiver, excitement, remarkable); Tier 2 words can appear in multiple domains and content areas

**Tier 3 Vocabulary Words:** words that are low frequency and domain or content-area specific (e.g., words from math, science, history, music, art)

# KNOWLEDGE OF LANGUAGE STRUCTURES

| RED FLAGS: PRACTICES NOT ALIGNED WITH THE SCIENCE OF READING | RED FLAG (RATE: 1-4) |
|---|---|
| Students do not learn and practice recognizing various syntactic structures, including compound and complex sentences, clausal structures, and their corresponding punctuation. (6.2) | |
| Students do not learn and practice cohesive devices within and across sentences. (6.1) | |
| Instruction does not include teacher modeling or practice of varied syntactic structures. (6.1) | |
| Students are asked to memorize parts of speech as a list without learning in context and through application. (6.1) | |
| There is no deconstruction of sentence types and their corresponding clauses within text in order to develop syntactic awareness. (6.1) | |

| INTERVENTION PRACTICES ALIGNED WITH THE SCIENCE OF READING FOR GRADES 4-12 |
|---|
| Students learn and practice recognizing various syntactic structures, including compound and complex sentences, clausal structures, and their corresponding punctuation. (4.1; 6.2; 8.2) |
| Students learn and practice cohesive devices within and across sentences. (4.4; 7.2; 8.0) |
| Intervention includes sufficient time for discussion, including teacher modeling of varied syntactic structures. (6.1; 6.2) |
| Students deconstruct and reconstruct a variety of sentence types and their corresponding clauses to get to the meaning of the text. (6.2) |
| Students deconstruct a variety of sentence types and their corresponding clauses to develop syntactic awareness. (6.1; 6.2) |
| For speakers of English language variations, an asset-based approach is used to engage in a contrastive analysis between home and school language, including sentence structures, connectives, suffixes, and subject-verb agreement. (6.3) |

## Glossary

**Clause:** a group of words with a subject and predicate

**Cohesive Devices:** words used to connect ideas within a sentence or text (e.g., pronouns, synonyms, coordinate and subordinate conjunctions)

**Contrastive Analysis:** a systematic study of two languages (or language variations) with the intent of identifying their structural similarities and differences

**Syntax:** the arrangement of words to form sentences in a given language

# LITERACY KNOWLEDGE

| RED FLAGS: PRACTICES NOT ALIGNED WITH THE SCIENCE OF READING | RED FLAG (RATE: 1-4) |
|---|---|
| Genre types and features are not explicitly taught. (7.1) | |
| Genre-specific text structures and how to identify them are not taught. (7.1) | |
| Corresponding text structure signal words are not explicitly taught and practiced. (7.2) | |
| Graphic organizers are not developed and/or used to support student understanding of text and genre types. (4.5; 7.1) | |
| There is no evidence of teaching students to recognize syntactic structures that are particular to specific types of texts (e.g., nominalization within scientific and historical texts, passive voice, dense noun phrases with lengthy modifiers in math texts). (7.1; 7.3) | |

| INTERVENTION PRACTICES ALIGNED WITH THE SCIENCE OF READING FOR GRADES 4-12 |
|---|
| Genre types and features are explicitly taught and used to support comprehension and/or build content knowledge. (7.1) |
| There is explicit instruction of multiple text structures (e.g., cause and effect, problem/solution, sequence, description, compare and contrast) and how to understand and identify them. (7.2) |
| There is explicit instruction of signal words, or connectives, like because and as a result in cause and effect texts or in contrast and on the other hand in compare and contrast texts. (7.3) |
| Text structure instruction is directly connected to writing opportunities like note-taking, written responses to text questions, etc. (7.1) |
| Students learn to develop and use their own graphic organizers to support their understanding of text and genre types. (4.5; 7.1) |
| There is evidence of teaching students to recognize syntactic structures that are specific to particular types of texts (e.g., nominalization within scientific and historical texts, passive voice, dense noun phrases with lengthy modifiers in math texts). (7.1) |

## Glossary

**Genre:** a type of text or literature that has a particular form and style (e.g., poetry, fiction, nonfiction)

**Nominalization:** the use of a word, usually a verb, that is not a noun but appears as a noun; for example, "He submitted an application." vs "They required submission of an application."

# Section 4: WRITING

## A Note on Evaluating Writing

Adolescent reading interventions focus more on specific reading skills, perhaps due to intervention time constraints. However, the research literature does provide strong evidence of the reciprocal nature of reading and writing development on student comprehension outcomes. Writing in response to text (e.g., summarizing, getting the gist) should be integrated with reading comprehension.

For students whose data show they need support with writing, this may be a separate intervention from reading rather than a comprehensive intervention that includes both reading and writing. For more information on the research on writing interventions, see sections 8.0-8.2 of the reference section.

| RED FLAGS: PRACTICES NOT ALIGNED WITH THE SCIENCE OF READING | RED FLAG (RATE: 1-4) |
|---|---|
| Assigned writing tasks are unstructured, with minimal or no instruction about the use of pre-writing strategies or organizers. (8.0) | |
| There is no evidence of explicit instruction or practice of sentence construction and elaboration. (8.0) | |
| There is no evidence of explicit instruction or practice of structured paragraph writing. (8.0) | |
| Students are not taught to use transitions to connect sentences, paragraphs, and larger writing sections, or to signal specific text structures (e.g., description, sequence, cause and effect). (8.0) | |
| There is no instruction about writing structures (e.g., introduction, body development, conclusion, text features) for the 3 main types of writing (i.e., argument, informational, and narrative). (8.1) | |
| There is no evidence of the use and analysis of model text to explicitly teach a writing skill, strategy, or technique that students emulate. (8.0) | |
| Students do not practice writing with the different text structures (i.e., description, sequence, cause and effect, compare and contrast, and problem and solution). (8.0) | |
| There is no teaching of writing strategies used to write from sources (i.e., asking students to write about what they read) or to respond to writing prompts. (8.0) | |
| Students are not taught the writing process (i.e., thinking, planning, writing, revising, editing). (8.0) | |
| Students are not given opportunities to have dialogue and/or orally rehearse their thoughts prior to writing. (8.2) | |
| Writing is taught as a standalone subject and is not used to further content learning or reading comprehension. (8.0) | |

| INTERVENTION PRACTICES ALIGNED WITH THE SCIENCE OF READING FOR GRADES 4-12 |
| --- |
| The writing process (i.e., thinking, planning, writing, revising, editing) is explicitly taught and practiced. (8.0) |
| Students are given opportunities to have dialogue and/or orally rehearse their thoughts prior to writing. (8.2) |
| Writing skills and strategies are taught explicitly through a gradual release of responsibility (i.e., I do, we do, you do) and include sufficient time for brainstorming ideas, gathering information, using pre-writing planning tools, and writing and revising drafts. (8.0) |
| Intervention includes the use and analysis of model text to explicitly teach a writing skill, strategy, or technique that students emulate. (8.0) |
| Writing is structured; models and graphic organizers are provided frequently to support composition and promote executive functioning. (4.5; 8.0) |
| Structured paragraph writing is explicitly taught and practiced. (8.1) |
| Students are taught transitions to connect sentences, paragraphs, and larger writing sections. (7.2; 8.1) |
| There is explicit instruction about writing structures (e.g., introduction, body development, conclusion, text features) for the 3 main types of writing (i.e., argument, informational, narrative). (8.0) |
| There is explicit instruction of strategies for each stage of the writing process. (8.0) |
| There is explicit instruction about sentences, including syntactic awareness (i.e., knowledge of English grammar), writing complete sentences, and sentence reduction, elaboration, and combining. (7.2; 8.2) |
| Writing is integrated into reading instruction and is used as a tool to support content learning and reading comprehension. (8.0) |

## Glossary

**Syntax:** The arrangement of words to form sentences in a given language.

# REFERENCES

## INTRODUCTION


Agarwal, P. K. (2019). Retrieval practice & Bloom's taxonomy: Do students need fact knowledge before higher order learning? *Journal of Educational Psychology, 111(2)*, 189–209. https://doi.org/10.1037/edu0000282

Archer, A. L., & Hughes, C. A. (2011). *Explicit instruction: Effective and efficient teaching.* Guilford Press.

Burns, M. K., VanDerHeyden, A. M., & Zaslofsky, A. F. (2014). Best practices in delivering guidelines for determining intensive academic interventions with a skill-by-treatment interaction. In P. L. Harrison & A. Thomas (Eds.), *Best practices in school psychology: Student-level services* (6th ed., pp. 129-141). National Association of School Psychologists.

Carpenter, S. K. & Agarwal, P. K. (2020). How to use spaced retrieval practice to boost learning. *Retrieval Practice.* Retrieved from https://pdf.retrievalpractice.org/SpacingGuide

García, J. R., & Cain, K. (2014). Decoding and reading comprehension: A meta-analysis to identify which reader and assessment characteristics influence the strength of the relationship in English. *Review of Educational Research, 84(1)*, 74-111. https://doi.org/10.3102/0034654313499616

Honig, B., Diamond, L., Gutlohn, L., Cole, C. L., El-Dinary, P. B., Hudson, R., & Pullen, P. C. (2018). *Teaching reading sourcebook.* Core.

Hughes, C. A., & Lee, J.-Y. (2019). Effective approaches for scheduling and formatting practice: Distributed, cumulative, and interleaved practice. *TEACHING Exceptional Children, 51(6)*, 411-423. https://doi.org/10.1177/0040059919847194

Hughes, C. A., & Riccomini, P. J. (2019). Purposeful independent practice procedures: An introduction to the special issue. *Teaching Exceptional Children,* 51(6), 405-408. https://doi.org/10.1177/0040059919850067

Moats, L. C. (2015, June). Teaching adolescents to read: It's not too late. *Education Week.* https://www.edweek.org/teaching-learning/teaching-adolescents-to-read-its-not-too-late/2015/06

Scammacca, N. K., Roberts, G., Vaughn, S., & Stuebing, K. K. (2015). A meta-analysis of interventions for struggling readers in grades 4-12- 1980-2011. *Journal of Learning Disabilities.* 48(4)-369-90. http://doi.org/10.1177:0022219413504995

Smith, K. G., Dombek, J. L., Foorman, B. R., Hook, K. S., Lee, L., Cote, A.-M., Sanabria, I., & Stafford, T. (2016). Self-study guide for implementing literacy interventions in grades 3-8. (REL 2016–224). U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Southeast. Retrieved from http://ies.ed.gov/ncee/edlabs)

## NON-NEGOTIABLES

### 0.1

Adams, M. J. (1998). The three-cueing system. In J. Osborn & F. Lehr (Eds.), *Literacy for all: Issues in teaching and learning.* (pp. 73–99). Guilford Press.

Ehri, L. C. (2020). The science of learning to read words- A case for systematic phonics instruction. *Reading Research Quarterly,* 55(S1), 45-60.

National Reading Panel (U.S.) & National Institute of Child Health and Human Development (U.S.). (2000). *Report of the National Reading Panel: Teaching children to read: an evidence-based assessment of the scientific research literature on reading and its implications for reading instruction.* U.S. Dept. of Health and Human Services, National Institute of Child Health and Human Development.

### 0.2

Vaughn, S., Kieffer, M. J., McKeown, M., Reed, D. K., Sanchez, M., St. Martin, K., Wexler, J., Jayanthi, M., Gersten, R., Dimino, J., Taylor, M. J., Newman-Gonchar, R., Krowka, S., Haymond, K., Wavell, S., Lyskawa, J., Morgan, S., Keating, B., & Yañez, A. (2022). *Providing reading interventions for students in grades 4-9. Educator's practice guide. WWC 2022007.* Institute of Education Sciences, What Works Clearinghouse. https://ies.ed.gov/ncee/wwc/PracticeGuide/29

### 0.3

Guthrie, J. T., & Humenick, N. M. (2004). Motivating students to read: Evidence for classroom practices that increase reading motivation and achievement. In P. McCardle & V. Chhabra (Eds.), *The Voice of Evidence in Reading Research* (pp. 329-354). Brookes Publishing.

Toste, J. R., Didion, L., Peng, P., Filderman, M. J., & McClelland, A. M. (2020). A meta-analytic review of the relations between motivation and reading achievement for K–12 Students. *Review of Educational Research,* 90(3), 420-456. https://doi.org/10.3102/0034654320919352

### 0.4

Scammacca N. K., Roberts G., Vaughn S., Stuebing, K. K. (2015). A meta-analysis of interventions for struggling readers in grades 4-12- 1980-2011. *Journal of Learning Disabilities. 48*(4)-369-90. doi-10.1177:0022219413504995.

## ASSESSMENT

### 1.1 Decision Making

Hamilton, L., Halverson, R., Jackson, S. S., Mandinach, E., Supovitz, J. A., & Wayman, J. C. (2009). Using student achievement data to support instructional decision making (NCEE 2009-4067). National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. https://ies.ed.gov/ncee/wwc/PracticeGuide/12

Sedita, Joan. (2011). Keys to Adolescent Literacy. PowerPoint presentation. Keys to Literacy.

### 1.2 Effective Assessment Selection

Burns, M. K., Pulles, S. M., Maki, K. E., Kanive, R., Hodgson, J., Helman, L. A., McComas, J. J., & Preast, J. L. (2015). Accuracy of student performance while reading leveled books rated at their instructional level by a reading inventory. Journal of School Psychology, 53(6), 437–445. https://doi.org/10.1016/j.jsp.2015.09.003

### 1.3 Best Practices for Assessment

Kamil, M. L., Borman, G. D., Dole, J., Kral, C. C., Salinger, T., & Torgesen, J. (2008). Improving adolescent literacy: Effective classroom and intervention practices (NCEE 2008-4027). National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. https://ies.ed.gov/ncee/wwc/PracticeGuide/8

Vaughn, S., Kieffer, M. J., McKeown, M., Reed, D. K., Sanchez, M., St. Martin, K., Wexler, J., Jayanthi, M., Gersten, R., Dimino, J., Taylor, M. J., Newman-Gonchar, R., Krowka, S., Haymond, K., Wavell, S., Lyskawa, J., Morgan, S., Keating, B., & Yañez, A. (2022). Providing reading interventions for students in grades 4-9. Educator›s practice guide. WWC 2022007. Institute of Education Sciences, What Works Clearinghouse. https://ies.ed.gov/ncee/wwc/PracticeGuide/29

### 1.4 Progress Monitoring

Espin, C., Wallace, T., Lembke, E., Campbell, H., & Long, J. D. (2010). Creating a progress-monitoring system in reading for middle-school students: Tracking progress toward meeting high-stakes standards. Learning Disabilities Research & Practice, 25(2), 60-75. https://doi.org/10.1111/j.1540-5826.2010.00304.x

Tindal, G., Nese, J. F. T., Stevens, J. J., & Alonzo, J. (2016). Growth on oral reading fluency measures as a function of special education and measurement sufficiency. Remedial and Special Education, 37(1), 28–40. https://doi.org/10.1177/0741932515590234

### 1.5 Assessments for Multilingual Learners

Goodrich, J. M., Fitton, L., Chan, J., & Davis, C. J. (2022). Assessing oral language when screening multilingual children for learning disabilities in reading. Intervention in School and Clinic, 0(0). https://doi.org/10.1177/10534512221081264

Lesaux, N. K., & Kieffer, M. J. (2010). Exploring sources of reading comprehension difficulties among language minority learners and their classmates in early adolescence. American Educational Research Journal, 47(3), 596-632.

Mancilla-Martinez, J., Hwang, J. K., & Oh, M. H. (2021). Assessment selection for multilingual learners' reading development. The Reading Teacher, 75(3), 351– 362. https://doi.org/10.1002/trtr.2053 (Find online: https://ila.onlinelibrary.wiley.com/share/N5GD7CN83QA8I5QC6UEV?target=10.1002/trtr.2053)

## WORD RECOGNITION

### 2.1 Instructional Approach

Adams, M. J. (1998). The three-cueing system. In J. Osborn & F. Lehr (Eds.), *Literacy for all: Issues in teaching and learning* (pp. 73–99). Guilford Press.

Cirino, P. T., Romain, M. A., Barth, A. E., Tolar, T. D., Fletcher, J. M., & Vaughn, S. (2013). Reading skill components and impairments in middle school struggling readers. *Reading and Writing,* 26, 1059-1086.

Miles, K. P., Rubin, G. B., & Frey, S. G. (2018). Rethinking sight words. *The Reading Teacher, 71*( 6), 715– 726. https://doi.org/10.1002/trtr.1658

### 2.2 Phonics

Bhattacharya, A. & Ehri, L. C. (2004). Graphosyllabic analysis helps adolescent struggling readers read and spell words. *Journal of Learning Disabilities, 37*(4):331-48. doi: 10.1177/00222194040370040501. PMID: 15493405.

Ehri, L. C. (2014). Orthographic mapping in the acquisition of sight word reading, spelling memory, and vocabulary learning, *Scientific Studies of Reading, 18*(1), 5-21, DOI: 10.1080/10888438.2013.819356

Ehri, L. C. (2020). The science of learning to read words: A case for systematic phonics instruction. *Reading Research Quarterly,* 55(S1), 45-60.

O'Connor, R. E., Bell, K. M., Harty, K. R., Larkin, L. K., Sackor, S. M., & Zigmond, N. (2002). Teaching reading to poor readers in the intermediate grades: A comparison of text difficulty. *Journal of Educational Psychology, 94*(3), 474–485. https://doi.org/10.1037/0022-0663.94.3.474

Reed, D. K. (2008). A synthesis of morphology interventions and effects on reading outcomes for students in Grades K-12. *Learning Disabilities Research & Practice, 23*(1), 36–49. https://eric.ed.gov/?id=EJ787367.

Scammacca N. K., Roberts G., Vaughn S., Stuebing, K. K. (2015). A meta-analysis of interventions for struggling readers in grades 4-12. *Journal of Learning Disabilities, 48*(4), 369-90. doi-10.1177:0022219413504995.

Vaughn, S., Roberts, G. J., Miciak, J., Taylor, P., & Fletcher, J. M. (2019). Efficacy of a word- and text-based intervention for students with significant reading difficulties. *Journal of Learning Disabilities, 52*(1), 31-44. https://doi.org/10.1177/0022219418775113

Wanzek, J., Vaughn, S., Scammacca, N. K., Metz, K., Murray, C. S., Roberts, G., & Danielson, L. (2013). Extensive reading interventions for students with reading difficulties after grade 3. *Review of Educational Research, 83*(2), 163–195. http://www.jstor.org/stable/24434155

Wanzek, J., Petscher, Y., Al Otaiba, S., Kent, S. C., Schatschneider, C., Haynes, M., Rivas, B. K., & Jones, F. G. (2016). Examining the average and local effects of a standardized treatment for fourth graders with reading difficulties. *Journal of Research on Educational Effectiveness, 9*(sup. 1), 45– 66.

## 2.3 Practice

Adesope, O. O., Trevisan, D. A., & Sundararajan, N. (2017). Rethinking the use of tests: A meta-analysis of practice testing. *Review of Educational Research, 87*(3), 659-701. https://doi.org/10.3102/0034654316689306

Agarwal, P. K., & Bain, P. M. (2019). *Powerful teaching : Unleash the science of learning.* Jossey-Bass.

Agarwal, P. L., Roediger, H. L., McDaniel, M. A. & McDermott, K. B., (2020) How to use retrieval practice to improve learning. *Retrieval Practice.* https://pdf.retrievalpractice.org/RetrievalPracticeGuide.pdf

Brown, P. C., Roediger, H. L., & McDaniel, M. A. (2014). *Make it stick : The science of successful learning.* The Belknap Press of Harvard University Press.

Hughes, C. A., & Lee, J.-Y. (2019). Effective approaches for scheduling and formatting practice: Distributed, cumulative, and interleaved practice. *Teaching Exceptional Children, 51*(6), 411-423. https://doi.org/10.1177/0040059919847194

Hughes, C. A., & Riccomini, P. J. (2019). Purposeful independent practice procedures: An introduction to the special issue. T*eaching Exceptional Children, 51*(6), 405-408. https://doi.org/10.1177/0040059919850067

Jamshidifarsani, H. S., Garbaya, T. Lim, P. Blazevic, J. M. Ritchie (2019). Technology-based reading intervention programs for elementary grades: An analytical review. *Computers & Education, 128,* pp. 427-451, 10.1016/j.compedu.2018.10.003

McDermott, K. B. (2021). Practicing retrieval facilitates learning. *Annual Review of Psychology, 72*(1), 609–633. https://doi.org/10.1146/annurev-psych-010419-051019;

Roediger, H. L., & Karpicke, J. D. (2006). Test-enhanced learning: Taking memory tests improves long-term retention. *Psychological Science, 17*(3), 249–255. https://doi.org/10.1111/j.1467-9280.2006.01693.x

Verhoeven, L., Voeten, M., & Segers, E. (2022). Computer-assisted word reading intervention effects throughout the primary grades: A meta-analysis. *Educational Research Review, 37,* 100486.

## 2.4 Motivation

Guthrie, J. T., & Humenick, N. M. (2004). Motivating students to read: Evidence for classroom practices that increase reading motivation and achievement. In P. McCardle & V. Chhabra (Eds.), *The Voice of Evidence in Reading Research* (pp. 329-354). Brookes Publishing.

Toste, J. R., Capin, P., Williams, K. J., Cho, E., & Vaughn, S. (2019). Replication of an experimental study investigating the efficacy of a multisyllabic word reading intervention with and without motivational beliefs training for struggling readers. *Journal of Learning Disabilities, 52*(1), 45–58.

Toste, J. R., Didion, L., Peng, P., Filderman, M. J., & McClelland, A. M. (2020). A meta-analytic review of the relations between motivation and reading achievement for K–12 students. *Review of Educational Research, 90*(3), 420-456. https://doi.org/10.3102/0034654320919352

Wanzek, J., Vaughn, S., Scammacca, N. K., Metz, K., Murray, C. S., Roberts, G., & Danielson, L. (2013). Extensive reading interventions for students with reading difficulties after grade 3. *Review of Educational Research, 83*(2), 163–195. http://www.jstor.org/stable/24434155

## 2.5 Phonological Awareness

Lovett, M. W., Steinbach, K. A., & Frijters, J. C. (2000b). Remediating the core deficits of developmental reading disability: A double deficit perspective. *Journal of Learning Disabilities, 33*(4), 334– 358.

Rehfeld, D. M., Kirkpatrick, M., O›Guinn, N., & Renbarger, R. (2022). A meta-analysis of phonemic awareness instruction provided to children suspected of having a reading disability. *Language, Speech, and Hearing Services in Schools*. Advanced online publication. https://doi.org/10.1044/2022_LSHSS-21-00160

## 2.6 Articulation

Castiglioni-Spalten, M. L., & Ehri, L. C. (2003). Phonemic awareness instruction: Contribution of articulatory segmentation to novice beginners› reading and spelling. *Scientific Studies of Reading, 7*(1), 25-52.

Joly-Pottuz, B., Mercier, M., Leynaud, A., & Habib, M. (2008). Combined auditory and articulatory training improves phonological deficit in children with dyslexia. *Neuropsychological Rehabilitation, 18*(4), 402–429. https://doi.org/10.1080/09602010701529341

## 2.7 Morphology

Bowers, P. N., Kirby, J. R., & Deacon, S. H. (2010). The effects of morphological instruction on literacy skills: A systematic review of the literature. *Review of Educational Research, 80*(2), 144-179. https://doi.org/10.3102/0034654309359353

Goodwin, A. P. (2016). Effectiveness of word solving: Integrating morphological problem-solving within comprehension instruction for middle school students. Reading and Writing, 29(91-116). doi:10.1007/s11145-015-9581-0Reed, D. K. (2008). A synthesis of morphology interventions and effects on reading outcomes for students in Grades K-12. *Learning Disabilities Research & Practice, 23*(1), 36–49. https://eric.ed.gov/?id=EJ787367.

Savage, R., Maiorino, K., Gavin, K., Horne-Robinson, H., Georgiou, G., & Deacon, H. (2024). Contrasting direct instruction in morphological decoding and morphological inquiry-analysis interventions in Grade 3 children with poor morphological awareness. *Journal of Learning Disabilities, 57*(2), 120-136. https://doi.org/10.1177/00222194231161117

### 2.8 Multilingual Learners and Word Recognition

August, D. (2018). Educating English language learners: A review of the latest research. *American Educator, 42*(3), 4-9. https://www.aft.org/ae/fall2018/august

Lee-James, R., & Washington, J. A. (2018). Language skills of bidialectal and bilingual children: Considering a strengths-based perspective. T*opics in Language Disorders, 38*(1), 5–26. https://doi.org/10.1097/TLD.0000000000000142

Shanahan, T., & Beck, I. L. (2006). Effective Literacy Teaching for English-Language Learners. In D. August & T. Shanahan (Eds.), *Developing literacy in second-language learners: Report of the National Literacy Panel on Language-Minority Children and Youth* (pp. 415–488). Lawrence Erlbaum Associates Publishers.

## FLUENCY

### 3.1 Accuracy, Rate, and Prosody

Rasinski, T., Rikli, A., Johnston, S. (2009). Reading fluency: More than automaticity, more than a concern for the primary grades. *Literacy Research and Instruction, 48*(4), 350-361.

### 3.2 Instructional Practices to Promote Fluency

Hudson A., Koh P. W., Moore K A., & Binks-Cantrell, E. (2020) Fluency interventions for elementary students with reading difficulties: A synthesis of research from 2000–2019. *Education Sciences, 10*(3):52.

Kim, J. S., Hemphill, L., Troyer, M., Thomson, J. M., Jones, S. M., LaRusso, M. D., & Donovan, S. (2017). Engaging struggling adolescent readers to improve reading skills. *Reading Research Quarterly, 52(*3), 357–382.

Toste, J. R., Capin, P., Williams, K. J., Cho, E., & Vaughn, S. (2019). Replication of an experimental study investigating the efficacy of a multisyllabic word reading intervention with and without motivational beliefs training for struggling readers. *Journal of Learning Disabilities, 52*(1), 45–58.

Vaughn, S., Solís, M., Miciak, J., Taylor, W. P., & Fletcher, J. M. (2016). Effects from a randomized control trial comparing researcher and school-implemented treatments with fourth graders with significant reading difficulties. *Journal of Research on Educational Effectiveness, 9*(sup1), 23–44. https://doi.org/10.1080/19345747.2015.1126386

Wexler, J., Vaughn, S., Edmonds, M., & Reutebuch, C. K. (2008). A synthesis of fluency interventions for secondary struggling readers. *Reading and Writing: An Interdisciplinary Journal, 21*(4), 317-347.

Zimmermann, L. M., Reed, D. K., & Aloe, A. M. (2021). A Meta-analysis of non-repetitive reading fluency interventions for students with reading difficulties. *Remedial and Special Education, 42*(2), 78-93.

### 3.3 Multicomponent Layers of Fluency

Hudson, R. F., Pullen, P. C., Lane, H. B., & Torgesen, J. K. (2008). The complex nature of reading fluency: A multidimensional view, *Reading & Writing Quarterly*, 25:1, 4-32, DOI: 10.1080/10573560802491208

### 3.4 Dosage and Intensity of Fluency Intervention

Maki, K. E., & Hammerschmidt-Snidarich, S. (2022). Reading fluency intervention dosage: A novel meta-analysis and research synthesis. *Journal of School Psychology, 92*, 148-165.

Wexler, J., Vaughn, S., Roberts, G., & Denton, C. A. (2010). The efficacy of repeated reading and wide reading practice for high school students with severe reading disabilities. *Learning Disabilities Research & Practice, 25*(1), 2-10. https://doi.org/10.1111/j.1540-5826.2009.00296.x

### 3.5 Multilingual Learners and Fluency

Piper, B., Schroeder, L., and Trudell, B. (2016) Oral reading fluency and comprehension in Kenya: Reading acquisition in a multilingual environment. *Journal of Research in Reading, 39*: 133–152. doi: 10.1111/1467-9817.12052.

## LANGUAGE COMPREHENSION AND READING COMPREHENSION

### 4.1 Language Comprehension and Verbal Reasoning (A Multi-Component Approach That Is Explicit and Systematic)

Edmonds, M. S., Vaughn, S., Wexler, J., Reutebuch, C., Cable, A., Tackett, K. K., & Schnakenberg, J. W. (2009). A synthesis of reading interventions and effects on reading comprehension outcomes for older struggling readers. *Review of Educational Research, 79*(1), 262-300. https://doi.org/10.3102/0034654308325998

Filderman, M. J., Austin, C. R., Boucher, A. N., O'Donnell, K., & Swanson, E. A. (2022). A meta-analysis of the effects of reading comprehension interventions on the reading comprehension outcomes of struggling readers in third through 12th grades. *Exceptional Children, 88*(2), 163-184. https://doi.org/10.1177/00144029211050860

Kim, J. S., Hemphill, L., Troyer, M., Thomson, J. M., Jones, S. M., LaRusso, M. D., & Donovan, S. (2017). Engaging struggling adolescent readers to improve reading skills. *Reading Research Quarterly, 52*(3), 357–382. https://eric.ed.gov/?id=EJ1146095

Kintsch, W. (1988). The role of knowledge in discourse comprehension: A construction-integration model. *Psychological Review, 95*(2), 163–182. https://doi.org/10.1037/0033-295X.95.2.163

## 4.2 Stretch Texts

Vaughn, S., Roberts, G. J., Miciak, J., Taylor, P., & Fletcher, J. M. (2019). Efficacy of a word- and text-based intervention for students with significant reading difficulties. *Journal of Learning Disabilities, 52*(1), 31-44. https://doi.org/10.1177/0022219418775113

## 4.3 Before, During, and After Reading Approach to Reading Comprehension

### *Explicit Strategy Instruction*

Berkeley, S., Mastropieri, M. A., & Scruggs, T. E. (2011). Reading comprehension strategy instruction and attribution retraining for secondary students with learning and other mild disabilities. *Journal of Learning Disabilities, 44*(1), 18–32.

Paul, S. A. S., & Clarke, P. J. (2016). A systematic review of reading interventions for secondary school students. International *Journal of Educational Research, 79,* 116-127.

### *Student Dialogue Around Text*

Beck, I. L., McKeown, M. G., Sandora, C., Kucan, L., & Worthy, J. (1996). Questioning the author: A yearlong classroom implementation to engage students with text. *The Elementary School Journal, 96*(4), 385–414. https://doi.org/10.1086/461835

Elleman, A. M., Lindo, E. J., Morphy, P., & Compton, D. L. (2009). The impact of vocabulary instruction on passage-level comprehension of school-age children: A meta-analysis. *Journal of Research on Educational Effectiveness, 2*(1), 1–44.

McKeown, M. G., Beck, I. L., & Blake, R. G. K. (2009). Rethinking reading comprehension instruction: a comparison of instruction for strategies and content approaches. *Reading Research Quarterly, 44*(3), 218+.

Vaughn, S., Klingner, J. K., Swanson, E. A., Boardman, A. G., Roberts, G., Mohammed, S. S., & Stillman-Spisak, S. J. (2011). Efficacy of collaborative strategic reading with middle school students. *American Educational Research Journal, 48*(4), 938–964.

## 4.4 Knowledge Building

Elleman, A. M., Olinghouse, N. G., Gilbert, J. K., Compton, D. L., & Spencer, J. L. (2017). Developing content knowledge in struggling readers: Differential effects of strategy instruction for younger and older elementary students. *The Elementary School Journal, 118*(2), 232–256. https://doi.org/10.1086/694322

Lesaux, N. K., & Kieffer, M. J. (2010). Exploring sources of reading comprehension difficulties among language minority learners and their classmates in early adolescence. *American Educational Research Journal, 47*(3), 596-632.

Smith, R., Snow, P., Serry, T., & Hammond, L. (2021). The role of background knowledge in reading comprehension: A critical review. *Reading Psychology,* 42(3), 214–240. https://doi.org/10.1080/02702711.2021.1888348

## 4.5 Graphic Organizers

Edmonds, M. S., Vaughn, S., Wexler, J., Reutebuch, C., Cable, A., Tackett, K. K., & Schnakenberg, J. W. (2009). A synthesis of reading interventions and effects on reading comprehension outcomes for older struggling readers. *Review of Educational Research, 79*(1), 262-300. https://doi.org/10.3102/0034654308325998

Kim, A., Vaughn, S., Wanzek, J., & Wei, S. (2004). Graphic organizers and their effects on the reading comprehension of students with LD: A synthesis of research. *Journal of Learning Disabilities, 37*(2), 105-18. https://doi.org/10.1177/00222194040370020201

Sam, P. D., & Rajan, P. (2013). Using graphic organizers to improve reading comprehension skills for middle school ESL students. *English Language Teaching, 6*(2), 155-170.

## 4.6 Metacognition

Gutierrez de Blume, A. P. (2017). The effects of strategy training and an extrinsic incentive on fourth- and fifth-grade students' performance, confidence, and calibration accuracy. *Cogent Education, 4*(1), 1314652-. https://doi.org/10.1080/2331186X.2017.1314652

Sadeghi, B., Hassani, M. T., & Rahmatkhah, M. (2014). The relationship between EFL Learners' metacognitive strategies, and their critical thinking. *Journal of Language Teaching and Research, 5*(5), 1167-1175. https://doi.org/10.4304/jltr.5.5.1167-1175

Soto, C., Gutierrez de Blume, A. P., Rebolledo, V., Rodríguez, F., Palma, D., & Gutiérrez, F. (2023). Metacognitive monitoring skills of reading comprehension and writing between proficient and poor readers. *Metacognition and Learning, 18*(1), 113–134. https://doi.org/10.1007/s11409-022-09317-8

## 4.7 Vocabulary

Beck, I. L., McKeown, M. G., & Kucan, L. (2013). *Bringing words to life: Robust vocabulary instruction*. Guilford Press.

Elleman, A. M., Lindo, E. J., Morphy, P., & Compton, D. L. (2009). The impact of vocabulary instruction on passage-level comprehension of school-age children: A meta-analysis. *Journal of Research on Educational Effectiveness, 2*(1), 1–44.

Vaughn, S., Solís, M., Miciak, J., Taylor, W. P., & Fletcher, J. M. (2016). Effects from a randomized control trial comparing researcher and school-implemented treatments with fourth graders with significant reading difficulties. *Journal of Research on Educational Effectiveness, 9*(sup1), 23–44. https://doi.org/10.1080/19345747.2015.1126386

## 4.8 Multilingual Learners and Vocabulary Instruction

August, D., Artzi, L., & Barr, C. (2015). Helping ELLs meet standards in English language arts and science: An intervention focused on academic vocabulary. *Reading & Writing Quarterly, 32*(4),1-24. doi:10.1080/10573569.2015.1039738

Baker, S., Lesaux, N., Jayanthi, M., Dimino, J., Proctor, C. P., Morris, J., . . . Newman-Gonchar, R. (2014). Teaching academic content and literacy to English learners in elementary and middle school (NCEE 2014-4012). National Center for Education Evaluation and Regional Assistance (NCEE), Institute of Education Sciences, U.S. Department of Education. Retrieved from: ies.ed.gov/ncee/wwc/publications_reviews.aspx.

### 4.9 Inference

Clarke, P. J., Snowling, M. J., Truelove, E., & Hulme, C. (2010). Ameliorating children's reading-comprehension difficulties: a randomized controlled trial. *Psychological Science, 21*(8), 1106–1116. http://www.jstor.org/stable/41062341

Denton, C. A., York, M. J., Francis, D. J., Haring, C., Ahmed, Y., & Bidulescu, A. (2017). An investigation of an intervention to promote inference generation by adolescent poor comprehenders. *Learning Disabilities Research & Practice, 32*(2), 85–98

### 5.0 Metacognition

Sadeghi, B., Hassani, M. T., & Rahmatkhah, M. (2014). The relationship between EFL learners' metacognitive strategies, and their critical thinking. *Journal of Language Teaching and Research, 5*(5), 1167-.1175. https://doi.org/10.4304/jltr.5.5.1167-1175

Soto, C., Gutierrez de Blume, A. P., Rebolledo, V., Rodríguez, F., Palma, D., & Gutiérrez, F. (2023). Metacognitive monitoring skills of reading comprehension and writing between proficient and poor readers. *Metacognition and Learning, 18*(1), 113–134. https://doi.org/10.1007/s11409-022-09317-8

### 5.1 Varied Texts, Motivation, Cultural Relevance

Ebe, A. E. (2012). Supporting the reading development of middle school English language learners through culturally relevant texts. *Reading & Writing Quarterly, 28*(2), 179-198. https://doi.org/10.1080/10573569.2012.651078

Guthrie, J. T., & Klauda, S. L. (2014). Effects of classroom practices on reading comprehension, engagement, and motivations for adolescents. *Reading Research Quarterly, 49*(4).387–416.

Tan, D. N. L., & Mante-Estacio, M. (2021). Reader-text connection: Reporting the engagement of high school students with culturally relevant texts. *TEFLIN Journal, 32*(2), 342-361. https://doi.org/10.15639/teflinjournal.v32i2/342-361

## LANGUAGE STRUCTURES

### 6.1 Sentence Structure

Balthazar, C. H., & Scott, C. M. (2018). Targeting complex sentences in older school children with specific language impairment: Results from an early-phase treatment study. *Journal of Speech, Language, and Hearing Research, 61*(3), 713–728.

Sorenson Duncan, T., Mimeau, C., Crowell, N., & Deacon, S. H. (2020). Not all sentences are created equal: Evaluating the relation between children's understanding of basic and difficult sentences and their reading comprehension. *Journal of Educational Psychology, 113*(2), 268–278. https://doi.org/10.1037/edu0000545

### 6.2 Syntax

Brimo, D., Apel, K., & Fountain, T. (2017). Examining the contributions of syntactic awareness and syntactic knowledge to reading comprehension. Journal of Research in Reading, 40(1), 57–74. https://doi-org.ezproxy.oswego.edu/10.1111/1467-9817.12050

### 6.3 Multilingual Learners and Grammar Instruction

Crosson, A. C., & Lesaux, N. K. (2013). Does knowledge of connectives play a unique role in the reading comprehension of English learners and English-only students? Journal of Research in Reading, 36(3), 241–260.

### 7.0 Literacy Knowledge

Smith, R., Snow, P., Serry, T., & Hammond, L. (2021). The role of background knowledge in reading comprehension: A critical review. Reading Psychology, 42(3), 214–240. https://doi.org/10.1080/02702711.2021.1888348

### 7.1 Text Structure

*Graphic Organizers*

Bogaerds-Hazenberg, S. T. M., Evers-Vermeul, J., & Bergh, H. (2021). A meta-analysis on the effects of text structure instruction on reading comprehension in the upper elementary grades. Reading Research Quarterly, 56(3), 435–462.

*Writing*

Hebert, M., Bohaty, J. J., Nelson, J. R., & Brown, J. A. (2016). The effects of text structure instruction on informational text comprehension: A meta-analysis. Journal of Educational Psychology, 108(5), 609–629.

### 7.2 Signal Words

Cain, K., & Nash, H. M. (2011). The influence of connectives on young readers' processing and comprehension of text. Journal of Educational Psychology, 103, 429–441. https://doi.org/10.1037/ a0022824.

Meyer, B. J. F., Wijekumar, K., & Lei, P. (2018). Comparative signaling generated for expository texts by 4th–8th graders: Variations by text structure strategy instruction, comprehension skill, and signal word. Reading and Writing, 31(9), 1937-1968. https://doi.org/10.1007/s11145-018-9871-4

### 7.3 Nominalization

Liardét, C. L. (2016). Nominalization and grammatical metaphor: Elaborating the theory. English for Specific Purposes, 44, 16-29.

## 8.0 Writing

Graham, S., Bruch, J., Fitzgerald, J., Friedrich, L., Furgeson, J., Greene, K., Kim, J., Lyskawa, J., Olson, C. B., & Smither Wulsin, C. (2016). Teaching secondary students to write effectively (NCEE 2017-4002). National Center for Education Evaluation and Regional Assistance (NCEE), Institute of Education Sciences, U.S. Department of Education. Retrieved from the NCEE website: http://whatworks.ed.gov

Graham, S., Collins, A. A., & Rigby-Wills, H. (2017). Writing characteristics of students with learning disabilities and typically achieving peers: A meta-analysis. Exceptional Children, 83(2), 199-218.

Graham, S., & Hebert, M. (2011). Writing to read: A meta-analysis of the impact of writing and writing instruction on reading. Harvard Educational Review, 81(4), 710-744. https://doi.org/10.17763/haer.81.4.t2k0m13756113566

Graham, S., McKeown, D., Kiuhara, S., & Harris, K. R. (2012). A meta-analysis of writing instruction for students in the elementary grades. Journal of Educational Psychology, 104(4), 879–896. https://doi.org/10.1037/a0029185

Graham, S., & Perin, D. (2007). Writing next: Effective strategies to improve writing of adolescents in middle and high schools: A report to Carnegie Corporation of New York. Alliance for Excellent Education.

## 8.1 Explicit Instruction in Writing Text Structures

Hebert, M., Bohaty, J. J., Nelson, J. R., & Brown, J. (2016). The effects of text structure instruction on expository reading comprehension: A meta-analysis. Journal of Educational Psychology, 108(5), 609–629. https://doi-org.10.1037/edu0000082

## 8.2 Sentence Level Writing Instruction

Graham, S., Collins, A. A., & Rigby-Wills, H. (2017). Writing characteristics of students with learning disabilities and typically achieving peers: A meta-analysis. Exceptional Children, 83(2), 199–218. https://doi.org/10.1177/001440291666407

Saddler, B., & Graham, S. (2005). The effects of peer-assisted sentence-combining instruction on the writing performance of more and less skilled young writers. Journal of Educational Psychology, 97(1), 43–54. https://doi-org.ezproxy.oswego.edu/10.1037/0022-0663.97.1.43

Smith, R. A., Allen, A. A., Panos, K. L., & Ciullo, S. (2021). Sentence writing intervention for at-risk writers in upper elementary grades. Learning Disabilities Research and Practice, 36(4), 367–379. https://doi.org/10.1111/ldrp.12266

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## Influential Reports of Reading Research

August, D. and Shanahan, T. (2006). *Developing Literacy in Second-Language Learners: Report of the National Literacy Panel on Language-Minority Children and Youth*. Center for Applied Linguistics, Lawrence Erlbaum Associates.

National Early Literacy Panel (U.S.) & National Center for Family Literacy (U.S.). (2008). *Executive summary: Developing early literacy: Report of the National Early Literacy Panel*. National Institute for Literacy.

National Reading Panel (U.S.) & National Institute of Child Health and Human Development (U.S.). (2000). *Report of the National Reading Panel: Teaching children to read: an evidence-based assessment of the scientific research literature on reading and its implications for reading instruction*. U.S. Dept. of Health and Human Services, Public Health Service, National Institutes of Health, National Institute of Child Health and Human Development.

Rose, J. (2006). Independent review of the teaching of early reading: Final report. Department of Education & Skills, https://dera.ioe.ac.uk/5551/2/report.pdf

Snow, C. E., Burns, M. S., & Griffin, P. (1998). *Preventing reading difficulties in young children*. National Academy Press.

# Appendix A

## What is the science of reading?

The science of reading is a vast, interdisciplinary body of scientifically-based research about reading and issues related to reading and writing. This 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 and, therefore, improve student outcomes through prevention of and intervention for reading difficulties.

For more information, visit https://www.thereadingleague.org/what-is-the-science-of-reading/ to download the Defining Guide.

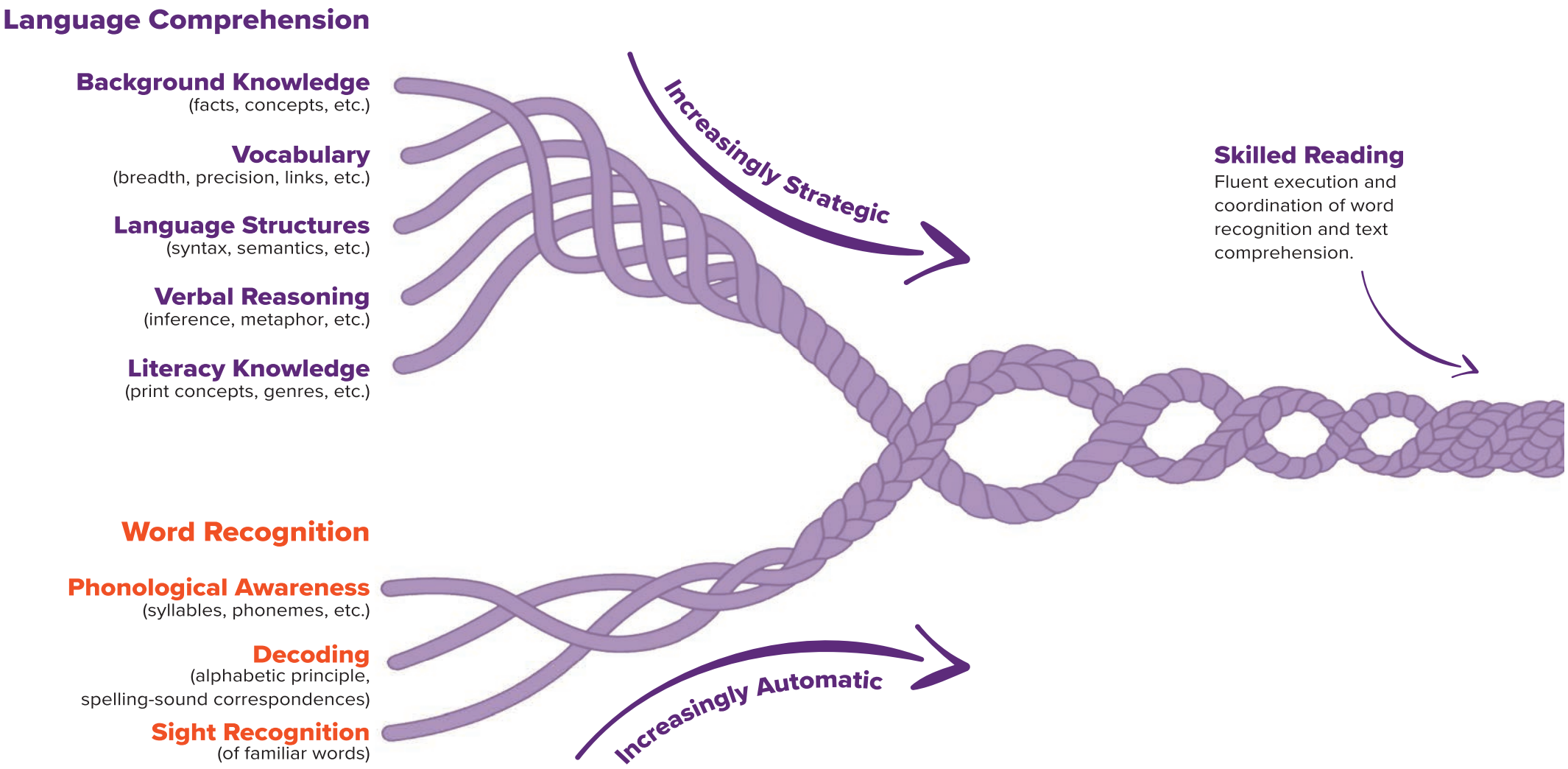
## Theoretical Frameworks

To understand how a student develops into a skillful reader (i.e., a fluent reader who can comprehend text), we look toward two theoretical frameworks aligned with science. We encourage all stakeholders to familiarize themselves with these frameworks as they should be used to inform reading assessment and instruction.

**The simple view of reading** has been empirically validated by over 150 scientific studies. It shows us that reading comprehension is not the sum, but the product of two components—word recognition and language comprehension—such that if either one is weak, reading comprehension is diminished.
For a more in-depth understanding of the subcomponents within word recognition (WR) and language comprehension (LC), we turn next to Scarborough's reading rope.

**The reading rope is a visual metaphor for the development of skills over time** (Scarborough, 2001). It breaks out the subcomponents of word recognition and language comprehension to expose their development as they intertwine and become increasingly strategic and automatic over time to develop fluent, skilled reading.

The simple view of reading and the reading rope are helpful to understand and refer to as you evaluate intervention materials.



# Appendix B

## What has the science of reading discovered about how skillful reading develops?

Unlike learning to speak and understand language, learning to read and write is not naturally acquired (Lyon, 1998). However, the vast majority of students can learn to read and write when provided with effective instruction. These guidelines have been developed to assist educators and decision-makers in selecting intervention materials that support maximally effective instruction for middle and high school students who have literacy challenges.

The foundation of effective instruction in word recognition is built upon explicitly, systematically, cumulatively, and diagnostically teaching how letters represent the sounds within spoken words, how letters are used to sound out printed words, and how to read words accurately, automatically, and fluently so that a lack of automatic word recognition doesn't impede comprehension. While not the only cause of reading difficulty, many middle and high school students have not developed word recognition skills to automaticity and have gaps in their decoding knowledge; thus, there needs to be an intentional focus within intervention settings for those students who do have decoding difficulties. This instruction might need to focus on filling in the gaps for basic decoding skills, or on advanced word study for reading multisyllabic words. However, other older students may have relatively strong word recognition but lack fluency, have limited vocabulary, little understanding of syntax or text structures, and/or inadequate background knowledge. Any of these difficulties will impede comprehension and the development of proficient reading and writing across upper elementary school grades and middle and high school content areas. Therefore, for students with reading difficulties, the first priority must be using data to identify their specific needs. Being able to directly target intervention is essential—especially for older students.

Reading ability must develop so that students can comprehend at increasing levels of sophistication—which is the whole point of reading. And with improved reading ability, writing ability will also increase in quality and clarity. Thus, intervention curricula and programs must emphasize foundational word recognition skills alongside language development (e.g., vocabulary, syntax, discourse, learning evidence-based comprehension strategies). Although the role of building knowledge sits primarily in content area classes, it can be supported in the intervention setting by vocabulary building and reading stretch texts.

As is true of all complex human behaviors, some Grade 4-12 students will require much more intensive instruction in building foundational skills, while others will require less. Not all intervention products will have the intensity required for students with a severe reading difficulty, including dyslexia. Instruction should be adjusted based on some type of assessment, such as a built-in placement measure, other accessible existing data, or an easy-to-use measure, providing more intensive skills instruction to those whose scores indicate they are exhibiting difficulties in developing basic foundational skills. For some, less intense but targeted instruction may focus on multisyllabic words, fluency, and vocabulary, and for others, the targeted need may be language development. Research shows that 84% of struggling readers in Grade 5 and above need word reading and fluency support (Cirino et al., 2013). Because time is limited, schools need to prioritize what can be accomplished within an additional intervention block in the school. That is best structured by skill need rather than grade, and it also must be supported within the Tier 1 core class(es).

Because the needs of older students are diverse, two approaches to intervention are needed. One approach is a comprehensive intervention that addresses building students› phonic decoding skills (especially for multisyllabic words), fluency, comprehension-building through vocabulary and syntactic knowledge, and the use of stretch texts to build complex ideas and information. A second approach is to use an intervention curriculum that targets specific skills such as word recognition and layers other supplemental interventions as needed. For some students, this latter approach can target a specific identified skill need sufficiently so that a strong Tier 1 provides enough support to build more language, vocabulary, and comprehension skills. It will be important in any intervention to ensure content is appropriate to support multilingual learners and speakers of English language varieties.

A note on writing: Although the primary focus of these guidelines is on reading intervention, consider the importance of integrating reading and writing instruction, both in Tier I content teaching and intervention. Even those interventions that focus on decoding instruction should have encoding instruction in the same lesson. Additionally, when comprehension is addressed, a good intervention program will offer the opportunity to write in response to a reading task (e.g., note taking, summarizing, responding to questions in writing).