IES Institute of Education Sciences

What Works Clearinghouse™

Providing Reading Interventions for Students in Grades 4-9

Educator's Practice Guide

WWC 2022007
U.S. DEPARTMENT OF EDUCATION

A publication of the National Center for Education Evaluation (NCEE) at IES

Providing Reading Interventions for Students in Grades 4–9

March 2022

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WWC 2022007
U.S. DEPARTMENT OF EDUCATION

IES Institute of Education Sciences

This report was prepared for the National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, under the What Works Clearinghouse contract to Instructional Research Group (Contract 91990018A0006/91990019F0399).

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MARCH 2022

Vaughn, S., Gersten, R., Dimino, J., Taylor, M. J., Newman-Gonchar, R., Krowka, S., Kieffer, M. J., McKeown, M., Reed, D., Sanchez, M., St. Martin, K., Wexler, J., Morgan, S., Yañez, A., & Jayanthi, M. (2022). *Providing Reading Interventions for Students in Grades 4–9* (WWC 2022007). Washington, DC: National Center for Education Evaluation and Regional Assistance (NCEE), Institute of Education Sciences, U.S. Department of Education. Retrieved from **https://whatworks.ed.gov/**.

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Introduction to Providing Reading Interventions for Students in Grades 4–9

Virtually every teacher works with at least some and sometimes many, students who struggle to read on grade level. The 2019 National Assessment of Educational Progress (NAEP) reported that over a third of fourth-grade students and a quarter of eighth-grade students read at a level below NAEP Basic. Low reading scores in these grade levels are particularly troublesome when considering that so much of the curriculum in grades 4–9 (and beyond) requires the ability to read and understand increasingly complex texts. To understand the content taught in subject-area classes, students need to engage with and gain information from complex texts.

Recent research has demonstrated success in improving the reading level of students in grades 4–9 with reading difficulties. This practice guide, developed by the What Works Clearinghouse™ (WWC) in conjunction with an expert panel, distills this contemporary research into easily comprehensible and practical recommendations for educators to use when providing reading interventions. The recommendations outline evidence-based practices that can help teachers meet the needs of their students with reading difficulties. These recommendations will also help educators address the requirements of two federal laws, the Elementary and Secondary Education Act (ESEA) and the Individuals with Disabilities Education Act (IDEA), that favor the use of relevant evidence-based instructional practices relevant to students' needs.

For the purposes of this guide, reading interventions include both supplemental programs provided in addition to regular classroom English language arts instruction as part of a multi-tiered system of support (MTSS) and reading courses or electives that are provided to students in middle or high school. In general, elementary schools tend to provide supplemental reading interventions, and middle and high schools tend to provide additional or elective reading courses, although policies do vary by state, district, and school. Group size typically varies, with smaller groups in grades 4 and 5 than in elective reading courses in middle and high schools.

This guide refers to the students in these settings as students or students with reading difficulties. These students may have language, attention, behavioral, working memory, or processing difficulties. Some may have disabilities such as learning disabilities, emotional and behavioral disorders, or autism spectrum disorders. Some may be English learners. Generally, the material in this guide should be appropriate for students with reading difficulties. However, additional accommodations or supports may be needed. The specific additional accommodations and supports, however, are beyond the scope of this guide.

See the **Glossary** for a full list of key terms used in this guide and their definitions. These terms are underlined and hyperlinked to the glossary when first introduced in the guide.

Recommendation 1 and **Recommendation 2** focus on practices to improve students' ability to read words accurately and automatically, while **Recommendation 3** and **Recommendation 4** focus on practices for helping students to understand the text they read. Each of these recommendations helps improve reading and comprehension.

Who might find this guide useful

This guide is designed for educators providing reading intervention or those who oversee MTSSs in reading. These educators include special educators, intervention teachers, reading specialists, reading coaches, and trained volunteers. These educators are referred to as "teachers" in this guide.

This guide is also for school, district, or state personnel involved in adopting intervention curricula for their schools, and for parents seeking to understand what reading assistance might be helpful for their children.

Using evidence to develop the recommendations

This practice guide grounds the four recommendations (multisyllabic word reading, fluency building, comprehension-building practices, and stretch texts) in high-quality evidence based on research studies focused on reading interventions. Each recommendation includes instructional practices and a short summary of the research evidence that supports the recommendation.

A panel of experts in reading research and practitioners who deliver or oversee delivery of reading interventions was selected and formed to review the evidence for this practice guide. After considering the evidence, the expert panel drafted the recommendations and assigned a level of evidence to each. The four recommendations and the panel's determination of the strength of evidence are shown in **Table I.1**.

Levels of evidence

Strong: There is consistent evidence that meets WWC standards and indicates that the practices improve outcomes for a diverse student population.

Moderate: There is some evidence meeting WWC standards that the practices improve student outcomes, but there may be ambiguity about whether that improvement is the direct result of the practices or whether the findings can be replicated with a diverse population of students.

Minimal: Evidence may not meet WWC standards or may exhibit inconsistencies, but the panel determined that the recommendation must be included, and the practices are based on strong theory, are new and have not yet been studied, or are difficult to study with a rigorous research design.

More detailed information can be found in **Appendix A** and **Appendix C**.

Table I.1. Recommendations and corresponding levels of evidence

Practice recommendation	Level of evidence		
	Minimal	Moderate	Strong
1. Build students' decoding skills so they can read complex multisyllabic words.			✓
2. Provide purposeful fluency-building activities to help students read effortlessly.			✓
3. Routinely use a set of comprehension-building practices to help students make sense of the text.			✓
4. Provide students with opportunities to practice making sense of stretch text (i.e., challenging text) that will expose them to complex ideas and information.		✓	

How to use this practice guide

The panel suggests that the practices recommended in this guide be used selectively to meet students' individual needs to help them improve their reading. Users are encouraged to adapt the guidance as needed to accommodate varied reading levels, intervention programs, and settings in which they work.

For each of the four recommendations in this guide, we include the following:

- **Recommendation:** This guide includes details about each of the recommended practices and a summary of the evidence supporting the recommendations. Appendix C contains a detailed rationale for the level of evidence with supporting details from individual studies.
- **How to carry out the recommendation:** This guide outlines specific steps teachers can use to implement the recommended practices. This guidance is informed by the studies that support the recommendations in concert with the panel's expertise and knowledge of reading instruction and intervention. Examples are included to give the reader ideas for how to implement the recommended practices. Examples are not intended to endorse specific products for purchase.
- **Potential obstacles and the panel's advice:** The guide offers guidance for addressing potential challenges to implementation.

Recommendation 1: Build students' decoding skills so they can read complex multisyllabic words

As students progress in school, words that appear in grade-level texts become more difficult to read.[1] In early-elementary grades, texts often include monosyllabic words, such as *bat* and *ball*, as well as simpler multisyllabic words, such as *outside* and *under*. By upper-elementary and middle school grades, texts include more complex multisyllabic words, such as *disorganization* and *equilibrium*.[2] Many of these difficult multisyllabic words are essential for understanding the meaning of the texts.[3] For that reason, adequate word-reading skills are essential for understanding the more complex texts that appear in these higher grade levels.[4]

When confronted with unfamiliar and complex multisyllabic words, students with reading difficulties often read words incorrectly.[5] Students may, for example, recognize the beginning letters and guess the rest of the word, rather than sounding out the entire word. A student might see ambi- in the word *ambiguous* and read *ambitious* or see disapp- in the word *disappoint* and read *disappear*. Students need to learn how to tackle the difficult task of reading an unfamiliar word.[6] Successfully tackling difficult words will improve students' ability to read and understand texts, build students' confidence in reading grade-level texts, and improve students' interest and motivation in reading.[7]

The WWC and the expert panel assigned a strong level of evidence to this recommendation based on 32 studies examining the effectiveness of multisyllabic word-reading instruction.[8] Seventeen of the studies meet WWC standards without reservations,[9] and 15 studies meet WWC standards with reservations.[10] See **Appendix C** for a detailed rationale for the Level of Evidence for **Recommendation 1**.

The goal of this recommendation is to prepare students with the skills needed to break apart and accurately sound out multisyllabic words. Steps 1 and 2 in this recommendation provide the knowledge students need to accurately sound out words. Step 3 involves spelling practice to solidify students' understanding of the vowel and consonant letter-sounds and combinations that make words. Step 4 ensures that students have adequate opportunities to practice reading words not only in isolation, but also in sentences and in passages, to build increasingly automatic word recognition skill. Together these steps will help students accurately read multisyllabic words.

How to carry out the recommendation

1. Identify the level of students' word-reading skills and teach vowel and consonant letter-sounds and combinations, as necessary.

It is important to gauge students' word-reading abilities to determine where to begin instruction. Ideally students' word-reading skills would be assessed prior to the intervention, and information from the assessment would be used to place students with similar needs in intervention groups.

Use students' performance on a word-list reading measure to get a sense of the word-reading skills of the students in each intervention group.[11] If students' scores on a word-list reading measure are not available, ask students to read a list of regular and irregular words. Many intervention programs provide lists to help teachers gauge students' reading abilities and determine where they should start in the program. An oral reading fluency measure will provide more information about how words with the same kinds of vowel and consonant letter-sounds and combinations are read in the context of sentences and paragraphs.[12] Use the performance of the students in the group to determine which intervention groups need additional work in common vowel and consonant letter-sounds and combinations, and which do not.[13]

- For students who are having difficulty identifying sounds that are made by common vowels and consonants and their combinations, spend more intervention time reviewing or reteaching common vowel and consonant letter-sounds and combinations.[14]
- For students who have mastered the simpler common sounds and combinations, teach advanced vowel and consonant combinations, such as -dge in *dodge* and vowel teams with 3 or 4 letters standing for a single sound such as -ough in *thorough*. For students who can apply these understandings to complex two-syllable words, introduce three-syllable words to expand their application.
- If a student demonstrates mastery of both simple and advanced letter combinations, they do not need a word-reading intervention. These students may still benefit from remediation in vocabulary and/or comprehension.

Students need a solid mastery of vowel and consonant letter-sounds and combinations to read longer, more difficult words.[15] **Resource 1.1** provides a list of important sounds students need to learn.

Resource 1.1. Common vowel sounds and vowel combinations

long vowel sound	vowel sound as in *me, labor, polar*
short vowel sound	vowel sound as in *cap*, *digger*
vowel-consonant-e	"e" makes the vowel sound long as in *cake, mistake*
vowel combinations oa, ea, ee, ai	long vowel sounds as in *boat*, *remain*, *teachable*
vowel diphthongs oi, oy, ou, ew	vowel sounds as in *toy*, *destroy*, *newsworthy*
r-controlled vowels	vowel sound as in *car, fur, personable*
consonant-le	consonant sound as in *battle, belittle*

When teaching word-reading, introduce vowel and consonant letter-sounds and combinations one at a time, building on what students already know.[16] Review previously taught sounds and combinations before beginning the lesson.[17] Briefly pronounce the new sound and then demonstrate how to use it to sound out simple monosyllabic words at first and then later multisyllabic words.[18] Start with two-syllable words and work up to words with three and more syllables.[19]

Keep in mind that students have likely been introduced to these vowel and consonant letter-sounds and combinations and decoding rules in primary grades. To ensure that the students do not feel like they are being treated like early-elementary students, introduce the sounds and combinations using the formal names (such as *r-controlled vowels*, *schwa* sound, or *diphthong*), rather than choosing terms that are informal (such as "*bossy r*"). There is no need for them to learn these formal names; the goal is only for students to feel self-assured and respected as more mature learners than they were in early-elementary grades.

2. Teach students a routine they can use to decode multisyllabic words.

The panel recommends choosing one routine to teach students to read a multisyllabic word. There are numerous routines[20] that can be used to break down and decode multisyllabic words, but the panel recommends choosing one routine to teach students during the intervention. Rather than teaching a wide array of rules, choose a routine that provides simple steps for breaking words into parts and blending those parts together to sound out the word.[21] The routine can be used flexibly across different multisyllabic words.

Explicitly teach students the routine to use when they encounter unfamiliar multisyllabic words. Briefly demonstrate how the word-reading routine can be helpful in sounding out words.[22] Guide students through the steps of the routine and discuss how they would apply them to an unfamiliar word. To help students keep in mind that the words they are reading have meaning, briefly explain the meaning or use of the word in a sentence, such as "If you misinform someone you give them the wrong information." Guide students through applying the routine to several words before asking students to practice applying the routine on their own.[23]

In **Example 1.1**, the teacher has chosen a common routine for breaking words into parts. This routine not only focuses on using vowel combinations, but also builds on students' knowledge of prefixes and suffixes.[24] Over the course of several lessons, the teacher briefly reviews prefixes and suffixes, what they mean, and examples of words that include them. The teacher begins the lesson by explaining the routine and what it is used for, and then demonstrates applying the routine to one multisyllabic word. Then the teacher guides students through using the routine to read two different multisyllabic words before asking the students to try applying the routine themselves.

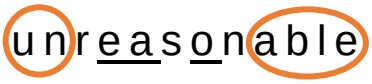
Example 1.1. Teacher demonstrating how to identify prefixes, suffixes, and vowel combinations to decode a multisyllabic word

The teacher refers to the following steps that are posted in the classroom:

1. Look for prefixes and suffixes. Circle prefixes and suffixes in the word.
2. Underline the remaining single vowels and vowel or vowel-consonant combinations.
3. Loop under each word part as you say it.
4. Say the whole word by blending the parts together, making it into a word you recognize.

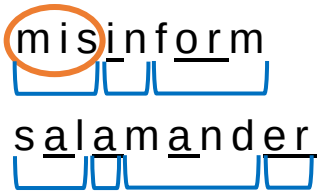
Teacher: *Today we are going to learn a routine for breaking longer words into parts so we can easily sound them out. In this routine there are four steps. In the first step, we circle the prefixes and suffixes in the word. The first word is* unreasonable*. I am going to circle un- because it is a prefix and -able because it is a suffix. Remember un- means not and -able means capable of being.*

Teacher: *In Step 2, I am going to underline the vowel sounds that are left. I am going to underline ea and o. I am doing this because each syllable has a vowel sound.*



Teacher: *In Step 3, I am going to use my pencil to loop under each word part as I say it: un rea son able. Now, in Step 4, I am going to blend the parts together:* unreasonable*.* Unreasonable *means not capable of reason or explanation.*

The teacher follows the same procedure for two more examples, *misinform* and *salamander*. In the word *misinform* the single vowel, *i*, and the *r*-controlled combination, *or*, are underlined. The teacher reminds students that mis- means wrong and that the word *inform* means to tell someone. *Misinform* means to tell someone something wrong. In the word *salamander* the three single vowels, *a,* and the *r*-controlled combination, -er are underlined. Note that -er is not a suffix in the word *salamander*. "Salamand" is not a word on its own. Therefore, -er in *salamander* is not circled. The teacher explains that a salamander is an amphibian that looks like a lizard.



Resource 1.2. Most frequently used prefixes and suffixes

Prefixes		Suffixes	
un-	pre-	-s, -es	-ity, -ty
re-	inter-	-ed	-ment
in-, im-, il-, ir-	fore-	-ing	-ic
dis-	de-	-ly	-ous, -eous, -ious
en-, em-	trans-	-er, -or	-en
non-	super-	-ion, -tion, -ation, -ition	-er
in-, im-	semi-	-able, -ible	-ive, -ative, -tive
over-	anti-	-al, -ial	-ful
mis-	mid-	-y	-less
sub-	under-	-ness	-est

Resource 1.2 includes a list of most frequently used prefixes and suffixes that students can identify in multisyllabic words.

Example 1.2 depicts a teacher working with students to apply a different routine that does not rely on prefix and suffix identification. The teacher has previously modeled the routine using a different set of words. In this example, the teacher is working with students to apply the routine to multisyllabic words. This routine focuses on identifying the number of syllables by finding the vowel sounds. Vowel sounds refer to single vowels and vowel combinations that are separated by consonants.

Example 1.2. Teacher working with students to apply a routine to identify syllables and sound out unfamiliar words

The teacher posts the steps of the routine on the board before providing an explanation:

1. Underline single vowels and vowel or vowel-consonant combinations.
2. Count the number of vowel sounds to determine how many syllables are in the word.
3. Break the word into parts, with every syllable having a vowel sound in it.
4. Blend each part together to form a word you recognize.

Teacher: *Today we are going to learn a routine for breaking words into parts and sounding them out. In this routine there are four steps. In the first step, we underline single vowels and vowel combinations. Remember, a lot of the time two vowels together sound as one. The first word is* unreasonable*. I am going to underline the u, the ea, the o, the a, and the e.*

unreasonable

Teacher: *Now we will count the number of vowel sounds to determine how many syllables are in the word* unreasonable*. Count them with me.*

Teacher and student: *1… 2… 3… 4… 5.*

Teacher: *So how many syllables are in this word?*

Student: *Five!*

Teacher: *Yes, we have five vowels or vowel combinations, so we have five syllables. In Step 3, I am going to use a slash mark to break the word into parts so that every syllable has a vowel sound in it. For the word* unreasonable*, we broke the word into these parts: un/rea/son/a/ble.*

un/rea/son/a/ble

Teacher: *Now let's blend the parts together.*

Together the group, reads un reas on a ble, and then blends the sounds to read *unreasonable*. The teacher tells students the word *unreasonable* means not capable of reason or explanation.

The teacher works with the students in applying the same routine for two more words, *misinform* and *salamander*.

mis/in/form
sal/a/mand/er

3. Embed spelling instruction in the lesson.

Spelling words will help reinforce the vowel and consonant letter-sounds and combinations students are learning.[25] Include practice in spelling monosyllabic and multisyllabic words. This activity is called encoding practice. Begin by asking students to read the word aloud and spell it. Encourage students to think about the different parts of the word and how many parts or syllables are in the word before they write it.[26] Give students additional words to spell that include the same vowel and consonant letter-sounds and combinations.

For example, after teaching the pronunciation of the suffix -ly and the "or" sound, the teacher writes *normally* on the board. The teacher asks the students to use the routine they learned to read the word aloud. The teacher then asks

students to think about the three syllables (nor/mal/ly) in the word before having them write it. Then, the teacher asks students to spell other multisyllabic words that include the -ly suffix and the "or" sound. After practicing several words with these sounds, have the students write the words from memory.[27]

4. Engage students in a wide array of activities that allow them to practice reading multisyllabic words accurately and with increasing automaticity.

Provide multiple opportunities for students to apply the routine to build automaticity: the ability to recognize words instantly and effortlessly.[28] Before starting, ensure that abbreviated versions of the steps of the routine (e.g., Step 1: Look for prefixes; Step 2: Look for suffixes; Step 3: Find single vowels, etc.) are readily available by posting them on the board or providing each student with a prompt card.[29] Reminders of the steps will help students remember the routine.

Initiate practice by reading word lists out loud as a group.[30] Include words with the vowel and consonant letter-sounds or combinations in that day's lesson, as well as previously taught sounds.[31] Also include high-frequency words in the word lists.[32] Continued practice with the words on the word list will help students begin to read them fluently.[33]

Students will need multiple exposures to the words they are learning to read.[34] Practice should include more than word lists. Equally important is having students read multisyllabic words in sentences and brief paragraphs.[35] Ask students to read the words in sentences repeatedly to build automaticity.[36] If sentences are not readily available, write sentences that include multisyllabic words the students are learning. Also have students read the words in longer texts. Choose age-appropriate texts used in upper-elementary and middle school grades that include the words or sounds students are working on. Ask students to read the passage and stop to apply the word-reading routine to unfamiliar words.

Knowing the meanings of words can also help students read words in the future. If the students are unsure of the word's meaning, briefly discuss the meaning after students have used the routine to read the word.[37] Use this opportunity to also explain the meaning of prefixes and suffixes briefly.[38] See **Recommendation 3, Part A** for information on vocabulary instruction.

Example 1.3 presents an array of word-reading activities that can be used during an intervention lesson to build automaticity with multisyllabic word reading. Note that each of these activities is brief. Select activities depending on the goal of the lesson.

Provide frequent feedback and support to help students persevere.[39] As students apply the routine, consistently provide feedback that affirms what they did well and explain how the students can improve their use of the routine.[40] If they read a word incorrectly, review how the routine should have been applied and how the word should be read, and briefly explain its meaning to further assist students with committing the word to memory. Have students try again using a new word so that they can end the lesson having correctly applied the strategy.[41]

Example 1.3. Practice activities that can build students' automaticity with multisyllabic word reading

1. As a warm-up provide practice in vowel combinations in the multisyllabic words that students are going to encounter in a word list or section of text for the session.
2. Read a list of high-frequency prefixes and suffixes aloud as a group (in unison or by taking turns).
3. Ask students to underline prefixes and suffixes in each word in a word list, and then read the prefixes and suffixes aloud as a group (in unison or by taking turns).
4. Ask students to write words by adding a prefix and/or a suffix to a base word.
5. Ask students to read a list of words once with their partner, noting any words students have difficulty reading. Then ask them to try to read more words correctly when they read the list to their partner a second time.
6. Read a list of words (up to 20 words) aloud as a group (in unison or by taking turns).
7. Time students as they read a list of words. Ask them to read the list again to meet or beat their previous time.
8. Dictate words for students to spell that contain the targeted prefixes and suffixes or sounds in the lesson.
9. Read sentences containing multisyllabic words aloud as a group (in unison or by taking turns) or with the teacher reading first and then the students reading next.
10. Ask students to read the passage containing the words they are learning at least twice.

Source: Toste et al. (2019).

Potential obstacles and the panel's advice

OBSTACLE: *My students report having difficulty reading multisyllabic words in their core subject-area classes.*

PANEL'S ADVICE: The panel recommends including words from core subject-area classes during intervention time. If the week's American history topic is the aftermath of the Civil War, then words like *Reconstruction* and *suffrage* would be critical. Words like *gravity* and *momentum* would be excellent words for a unit on gravity in science. A teacher or the team leader for social studies or science departments may be able to provide a list of words. It is also possible to locate lists of important words in the students' textbooks.

OBSTACLE: *A few of my students can read multisyllabic words pretty effortlessly but perform poorly on reading tests because of weak vocabulary and difficulties in comprehension.*

PANEL'S ADVICE: These students need additional work on language and vocabulary development. Therefore, teachers should minimize decoding and fluency instruction and maximize comprehension instruction. When possible, group these students in an intervention that focuses on oral language and reading comprehension. Activities should include experiences that increase world knowledge and word knowledge and provide ample opportunities to engage students in meaningful discussion about the text they are reading.

Recommendation 2: Provide purposeful fluency-building activities to help students read effortlessly

Fluency is the ability to read text accurately, with ease, expression, and appropriate pacing.[42] This recommendation focuses on improving students' ability to read text with increased ease, while **Recommendation 1** focuses on reading multisyllabic words accurately and fluently. When students read fluently, they can turn their attention from sounding out the individual words to making sense of what they are reading.[43]

Fluent reading can be developed using a variety of activities. Timed readings are often used to build fluent reading or as a measure of students' progress toward becoming fluent readers. Timed readings, however, should be used with caution. Timed readings can be overused and can be a detriment to student engagement and motivation, especially when used solely to increase reading speed. Fluency-building activities can also focus on other important elements of fluent reading such as reading effortlessly, also referred to as reading with automaticity, and reading with expression or prosody.[44] Other fluency-building activities can provide extensive practice while also engaging students and building their confidence in reading.[45]

The WWC and the expert panel assigned a strong level of evidence to this recommendation based on 33 studies of the effectiveness of fluency-building activities.[46] Nineteen of the studies meet WWC standards without reservations,[47] and 14 studies meet WWC standards with reservations.[48] See **Appendix C** for a detailed rationale for the Level of Evidence for **Recommendation 2**.

The steps in this recommendation describe three fluency-building activities: repeated reading with a specified purpose, prosody (i.e., reading with expression) instruction, and extended opportunities to read a variety of texts. These activities can be accomplished by having students read to themselves aloud or silently (with teacher monitoring and guidance), or by having students read in pairs or small groups. The panel suggests varying the formats with some silent reading, some partner reading, and some reading aloud as a group, either in unison with the teacher or after the teacher models reading the passage.

How to carry out the recommendation

1. Provide a purpose for each repeated reading.

Reading the same passage several times can build fluency, but if not structured well, it can be perceived as a dull and discouraging task, especially for students in upper-elementary and middle school grades.[49] Rather than merely asking students to reread the same passage orally several times to increase their speed, the panel suggests providing students with a purpose for each reading of the same passage. Although the primary goal is to build effortless reading, rereading a piece of text with a purpose will often lead to increased understanding.[50]

The panel recommends having students reread the same passage a total of 3–4 times, each time with a different purpose. Purposes for rereading can focus students' attention on reading at an appropriate pace and with expression, answering questions, identifying words they do not know, or reflecting on what students learned from the text or why they think the group is reading the passage.

Purposes for rereading can vary depending on the reading ability of the students in the group.[51] For example, for students who are working on word-reading, the purpose could be focusing on identifying multisyllabic words or reading with accuracy.

If the purpose is to answer questions, begin with questions for which the answers are evident in the passage. As students demonstrate confidence with questions for which the answers are evident in the text, consider asking more difficult questions that require students to make connections with information in the text. **Example 2.1** contains examples of questions that help provide students with a purpose for reading.

Before students read the passage, ask them to quickly scan the passage to find words that are difficult to read or understand. Guide students as they attempt to read the unknown words in isolation and provide brief meanings of words they do not understand before they read the passage.

After each reading, briefly discuss student responses to the proposed questions. This will hold students accountable for rereading the passage.[52] Provide feedback that affirms what they did right and clarifies any misconceptions students shared or anything they need to correct.

In **Example 2.2**, the teacher provides a different purpose for each reading of a short paragraph about what it is like to go shopping with very little money. The paragraph they are reading is at their instructional level.

Example 2.1. Questions that provide students with a purpose for reading a passage

Examples of questions for which answers are evident:

- What happened in the passage you just read?
- What did you learn about _____?
- What were the first two things that happened in this section?

Example 2.2. Interventionist asking a small group of students to read a paragraph on issues related to poverty and feeding a family

Teacher: *Scan the paragraph and underline any words you can't read or don't understand.*

The teacher briefly reviews any words in the passage that the students identified, as well as any that the teacher deemed difficult, including proper nouns. The teacher pronounces each word, asks students to repeat the pronunciation, and provides a short, clear definition or explanation.

Teacher: *Now I want you to read this passage silently and explain what the passage is about to your partner.*

The students read the passage and turn to their reading partner to explain what the passage is about.

Teacher: *For this reading, the purpose will be to answer questions about the text that are listed on the board. I would like the first reader to read the paragraph aloud. If you are the second reader, read along silently and help your partner when they get stuck on a word by saying the word and asking them to repeat the word before they continue reading the rest of the paragraph.*

When the first reader is done, answer questions 1 and 2. Then it is time for the second reader to read the passage while first reader assists. After the second reader is done, answer questions 3 and 4.

The following questions are on the board:

1. *Who is going to the market in this story?*
2. *How did the main character get to the market?*
3. *How long did it take to get there?*
4. *How was the main character able to feed their family?*

The teacher and students briefly discuss the students' answers to the questions after questions 1 and 2 and after questions 3 and 4. The teacher asks students to read the sentences that helped them answer the questions. The teacher clarifies any misconceptions.

Source: Toste et al. (2019); Vaughn et al. (2016).

Students with reading difficulties may also benefit from hearing how the passage sounds when it is read fluently.[53] The teacher can read the passage fluently aloud or share an audio recording of the passage being read fluently to show students how it should be read.[54] In **Example 2.3**, the teacher reads the passage aloud before asking the students to read it.

Example 2.3. Interventionist asking a small group of students to read a passage on coal mining multiple times to build fluency

Teacher: *We are going to work on reading with ease now. This means you are going to read the same short passage several times. Each time I am going to ask you to do something different. First, I want you to skim the passage and tell me which words do not look familiar to you or any words you do not know the meaning of.*

The students identify six words, and the teacher briefly reviews how to read them and what they mean.

Teacher: *Now I want you to read along in your copy of the text while I read this passage. Listen to how I read because I want you to read this paragraph after me.*

The teacher reads the passage with appropriate expression and pacing.

Teacher: *Let's read this paragraph together now.*

The students and teacher read the passage aloud together.

Teacher: *Now I want the first reader to read this passage to the second reader. The second reader will follow along as the first reader is reading the passage.*

The students read the passage.

Teacher: *Now I want the second reader to read this passage to the first reader. The first reader will follow along as the second reader is reading the passage. Then I want you to discuss how coal mining impacts our environment.*

The teacher and students briefly discuss the impacts of coal mining on our environment that are described by the author, and the teacher clarifies any misconceptions.

Source: Vadasy and Sanders (2008).

For these purposeful repeated reading activities, choose short, content-rich passages at the students' instructional level that include multisyllabic words, vowel and consonant sounds and combinations, or vocabulary the students have previously been taught.[55] Using this approach, fluency-building activities provide a cumulative review of the multisyllabic words, word-reading skills, and vocabulary that were previously taught.[56]

Whenever feasible, choose texts on topics students are learning about in their subject-area classes, such as a short biographical paragraph on a historical figure related to the social studies content in their class. Choose progressively harder passages on a specific topic to help students develop content knowledge and build reading stamina.[57]

2. Focus some instructional time on reading with prosody.

Prosody refers to reading with expression, appropriate pitch and tempo, and pauses at the right places.[58] Pauses, tempo, and emphasis placed on different words can help readers understand what they are reading.[59]

Draw students' attention to what prosody entails by dramatizing why prosody is important. Read a short paragraph aloud twice. The first time, read it quickly without expression and without stopping at

punctuation marks. Then read the passage again, this time at a conversational pace and with prosody. After reading, discuss which rendition of the passage was easier to understand. Teach students to pause at commas, stop at periods, raise or lower their voice when encountering a question mark, and show emotion when encountering an exclamation point.

Include activities that offer students opportunities to practice reading with prosody. For example, students can listen to an audio recording of a TV announcer reading fluently and with prosody, and then practice reading like a TV announcer. Another prosody activity would be the teacher first reading a sentence or two with prosody and then asking students to read the same sentences with the same prosody. Students can also read with prosody in unison with the teacher before trying to read the passage independently.

It can be helpful to show students where to pause when they are reading.[60] Present a passage on the board and mark where the sentences and phrases end with slashes. For example, this sentence includes slashes where students should pause briefly while reading:
A colorfully dressed dancer / in South Korea / reflects certain customs / that are important to her. //

Read the passage aloud as a group. Provide students the same brief passage with slashes and allow them to practice in pairs or individually by audio-recording their reading to listen to later. If students are audio-recording themselves reading, they can compare recent to previous recordings to hear their progress.

Circulate around as students practice reading the text and provide feedback when necessary. Remember to provide feedback on what students have done well and how they could improve, for example, their expression or tempo. After practicing with the slashed copy, give students an unmarked version of the passage to read.

3. Regularly provide opportunities for students to read a wide range of texts.

Reading a wide range of texts counterbalances the limitations of repeatedly reading the same brief passage by exposing students to a variety of sentence structures and text topics.[61] As students explore a wider range of texts, they are exposed to unfamiliar words and syntax, and their reading becomes more fluent.[62] For that reason, the panel suggests that intervention classes devote some time each week to reading a wide variety of texts on a range of topics and with varying writing styles.

Choose texts at the higher end of students' instructional reading level. When possible, choose texts that align to grade-level content or other topics of high interest to the group of students. Periodically let students choose what they would like to read about for this portion of the lesson. Often topics connected to students' experiences can be especially interesting to them.[63]

Example 2.4 illustrates how reading a wide range of texts can be done with a partner. Each passage is read only once, which distinguishes this activity from the type of partner activity that would be done for repeated reading. The passages cover a topic of interest to the group: for example, a popular video game.

Example 2.4. Procedures for reading a wide range of texts with a partner

To begin, the teacher takes a long passage and divides it into six smaller passages, labeled A–F. The teacher pairs students and identifies which student is the first reader and which is the second reader. The first reader reads Passage A while the second reader follows along, underlining errors. Then the second reader reads Passage B while the first reader follows along, underlining errors.

For the next two passages, the teacher explains that the student following along should correct any errors the reader makes by saying the word and asking the reader to repeat the word. The first reader reads Passage C while the second reader follows along, underlining errors. After the first reader finishes, the second reader corrects any errors the first reader made. Then the second reader reads Passage D while the first reader follows along, underlining errors. After the second reader finishes, the first reader corrects any errors the second reader made.

For the final two passages, the teacher explains that the reader will summarize the passage when done reading using the sentence starter, "After reading this passage, I learned…." The first reader reads Passage E while the second reader follows along, underlining errors. The first reader summarizes the passage read. Then the second reader reads Passage F while the first reader follows along, underlining errors. The second reader summarizes the passage read.

Source: Wexler (2016).

Potential obstacles and the panel's advice

OBSTACLE: *Partner work doesn't seem productive. When I pair students for fluency-building activities, the student who is struggling does not know when the better reader makes a mistake.*

PANEL'S ADVICE: Working on rereading with partners can be particularly motivating for adolescents, who are much more oriented toward their peers than toward adults.[64] Pairing students for fluency work should be done with student skill level in mind.[65] To create appropriate partners, rank order the students from most able to least able reader and split the ranked list in half. Pair the first student in the first half with the first student in the second half. For example, if there are eight students in the group, pair student 1 with student 5: student 2 with student 6, etc.[66] If there is an odd number of students, the teacher or a volunteer can be paired with a student. Although none of these students will be strong readers, a student who reads one year below grade level will be able to detect many of the decoding errors of a student reading several years below. Similarly, the lower-performing student will benefit from hearing a model of the passage read relatively fluently that they can try to recreate when it is their turn to read. Both students will read silently and orally with a purpose and will benefit from the partner time, even if neither is able to detect every decoding error.

Teach students how to read with a partner to help students work productively with their partner.[67] This can include identifying the roles and responsibilities of the first and second reader and modeling and practicing procedures for correcting errors. Once students begin to work in pairs, monitor and assist them throughout the activity. Scan the pairs to make sure students are actively participating. Focus on one group for a few minutes to assist them with any difficulties

they may be having. Praise students for what they are doing well and help students who are not recognizing errors and correcting their partners. Move on to other groups as time permits.

OBSTACLE: *Students don't like timed readings, and they often focus on reading so fast they don't understand what they're reading.*

PANEL'S ADVICE: Students may have previously encountered many frustrating experiences with timed repeated readings with only one "purpose": speed. Experiences reading only for the purpose of increasing speed may have made some students averse to any type of repeated reading or timed reading.[68] Students like to be told why they are doing something. Remind students that they now will only read with a purpose and that rereading the passage is not meant to make them faster readers. The goal is to help them read with ease and gain confidence in their reading and understanding of the text. Tell them to read just like they talk—not too quickly and not too slowly—rather than saying, "Read as fast as you can." Explain that when they read too fast, they will have trouble understanding what they are reading. Remind students that they are now reading with a purpose. Remember to use timed readings sparingly as an instructional activity. When timed readings are done sparingly and mixed with other fluency activities that require students to reread for a different purpose, students may enjoy seeing the progress they make in understanding the text and in their rate and accuracy.

OBSTACLE: *When I give my students a purpose for rereading, they spend so much time trying to find the answer that they don't have time to read the passage again.*

PANEL'S ADVICE: The goal is for students to read the passage multiple times, with a clear purpose for each rereading. Therefore, during fluency-building activities, the students should not spend a lot of time digging into the passage to determine the answer to a complex question. Start with questions that can be answered with information evident in the text. As students demonstrate confidence with those questions, consider asking more difficult questions that require students to draw conclusions. **Example 2.1** provides a few examples that establish a clear purpose for rereading a text.

OBSTACLE: *Sometimes students avoid finding words they do not know because they feel embarrassed or have concerns that the teacher will ask them to do more work.*

PANEL'S ADVICE: In these cases, teachers can address these concerns through remarks such as: "There are at least two words that I think are very difficult. See if you have the same two words as me." Another option is to motivate students by having them work in pairs to choose difficult words. This may make them feel more comfortable and ease their concerns about appearing less able to respond to the task.

OBSTACLE: *It is hard to find materials that include the words or patterns the students are learning, relate to subject-area topics, are age-appropriate, and increase in difficulty.*

PANEL'S ADVICE: Often published programs contain word lists and passages for fluency instruction. If a published program is not available, choose words and passages from a variety of sources, including subject-area textbooks, novels, newspapers, or electronic resources, that emphasize the sound patterns, words, or content of the lesson. Schedule time during grade-level or department meetings to collect and develop materials to address the skills you are teaching. Over time you will have materials that span a wide range of topics and vary in difficulty.

Recommendation 3: Routinely use a set of comprehension-building practices to help students make sense of the text

Students with reading difficulties often have difficulty understanding what they read. Many of these students view reading as a frustrating task and may rush through a passage, rather than try to figure out its meaning.[69]

By the time students are in upper-elementary grades, reading material in all subject areas conveys information and ideas that students are expected to learn and understand. When students are unable to understand these texts, they miss crucial opportunities to learn grade-level content. The goal of this recommendation is to provide teachers with ways to support students as they learn and practice routines and develop reading habits that enable students to understand what they are reading.

These supports can be gradually withdrawn as students gain competence in making sense of the text.

Instruction during intervention needs to be more explicit than is typical in Tier 1 instruction. Whenever feasible, the words and comprehension practices taught and used during intervention instruction should align with those used in Tier 1 instruction.

This recommendation focuses on improving both world and word knowledge (**Recommendation 3, Part A**) and comprehension-building practices (**Recommendation 3, Parts B, C,** and **D**). **Table 3.1** delineates the four parts of this recommendation.

Table 3.1. Parts of Recommendation 3

Recommendation 3 Routinely use a set of comprehension-building practices to help students make sense of the text.
Part A: Build students' world and word knowledge so they can make sense of the text.
Part B: Consistently provide students with opportunities to ask and answer questions to better understand the text they read.
Part C: Teach students a routine for determining the gist of a short section of text.
Part D: Teach students to monitor their comprehension as they read.

The panel believes that while the routines and practices presented in this section need to be introduced and explicitly taught at first, lessons can quickly incorporate a more collaborative approach. For example, after explicit instruction, students may work in pairs or small groups to develop world and word knowledge, generate gist statements, or ask and answer questions, while teachers monitor for understanding. An example of several parts of this recommendation integrated in a collaborative lesson is presented at the end of this recommendation. See the section on **Putting Together the Comprehension Practices**.

The panel also believes that instruction can begin with teachers explaining and demonstrating the comprehension-building practices, but should shift over time so that students are using these practices. Teachers can guide students in using the practices and gradually reduce their guidance as students demonstrate they can use them independently.

The panel believes all four comprehension-building practices are necessary for students to read with understanding.[70] Each lesson can focus on one or two or even three of the practices depending on student needs. The example presented in the section **Putting Together the Comprehension Practices** demonstrates how several of the practices can be used in a single lesson.

The WWC and the expert panel assigned a strong level of evidence to this recommendation based on 34 studies of interventions for improving reading comprehension in students with reading difficulties. Twenty-three of the studies meet WWC standards without reservations, and 11 studies meet WWC standards with reservations. See **Appendix C** for a detailed rationale for the Level of Evidence for **Recommendation 3**.

Recommendation 3, Part A: Build students' world and word knowledge so they can make sense of the text

This part of **Recommendation 3** focuses on developing both knowledge of the topics discussed in texts (referred to here as world knowledge) and knowledge of word meanings (referred to here as word knowledge). World and word knowledge have reciprocal relationships with reading: world and word knowledge can help students understand what they are reading, and reading with understanding will improve students' knowledge of word meanings and of the world.[71] Teaching new words and their meanings can support students in learning new concepts and ways of thinking that help students make sense of sophisticated content.

Some students may have difficulty comprehending text not because they struggle to read, but because they have limited knowledge of the topic of the text or do not know the meanings of words.[72] Students may not be able to, for example, combine the information from two sentences to answer a question because they don't understand the content of one or both sentences.[73] To support students in their reading, the panel believes that lessons should include brief instruction on both topics and word meanings, as well as instruction on how to make connections between information in the text (see **Recommendation 3, Part B**).

The goal of this part of the recommendation is to explicitly build students' world and word knowledge. The first action step outlines a variety of ways to build world knowledge briefly before reading a text. The next four steps outline ways to build different aspects of word knowledge and skills so that students can determine the meanings of words.

The panel recommends briefly developing world and word knowledge before reading (3–5 minutes for each).[74] Longer activities to reinforce world and word knowledge can be done after reading. Some activities may be done while reading but should be brief to keep the focus on reading.

How to carry out Part A of the recommendation

1. Develop world knowledge that is relevant for making sense of the passage.

Students need enough knowledge about a topic to read and understand a text on that topic. For example, to comprehend a passage about Malala Yousafzai, the woman who won a Nobel Peace Prize at 17 years old, students may need to know about Pakistan and how its laws impact women. Students may understand her triumphs and struggles more after learning about other people's experiences with gender and racial inequality. Additionally, understanding the purpose of the Nobel Peace Prize and learning about the accomplishments of previous honorees may help students understand the significance of Yousafzai's win.

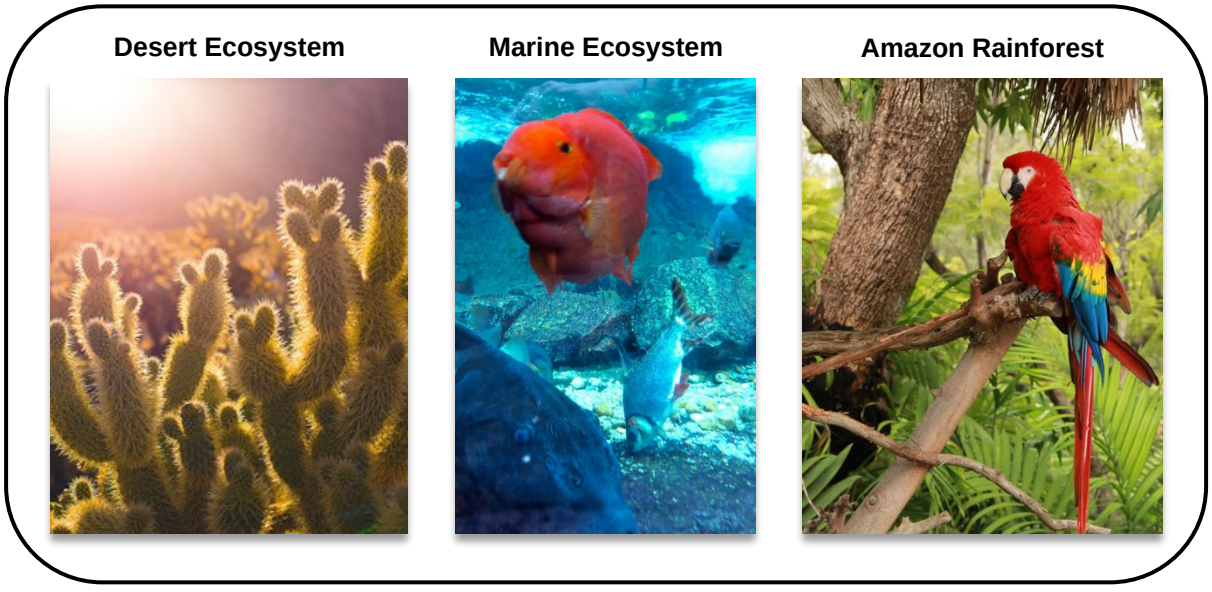
Provide a brief 3–5-minute introduction on the topic before reading to help students develop knowledge that might help them understand what they are reading. This can be done by asking students to read an easier, brief passage before presenting the higher-level text on the

same topic.[75] For example, students can be provided with easier-to-read informational descriptions and illustrations of the history of the Harlem Renaissance before reading a young-adult novel on the same topic.[76]

Another way to prepare students for reading about a topic is to present a short 2–4-minute video clip, podcast, or brief informational lecture with illustrations.[77] For each resource, provide a purpose, such as asking students to look for two things they learned about the topic from the video or podcast that they will share with the group or with a partner when the video or podcast ends. The teacher can summarize the most important ideas that were shared and clarify misunderstandings.

Another way to develop world knowledge before reading is to ask students questions about the topic.[78] Not only will this provide students with an opportunity to think about what they have read or learned about before, but it can also potentially pique their interest in the topic. For example, prior to reading a text on ecology (a topic currently being taught in the students' science class), the teacher explains that they will be learning about different ecosystems on Earth. The teacher tells students that every ecosystem is full of life and activity. The teacher starts by showing pictures of three different ecosystems. **Figure 3A.1** depicts three example pictures that could be used to discuss what students know about different ecosystems. The teacher asks students: What kind of plants and animals might live here? Which plants and animals could not live here? How does the weather affect what lives in this environment?

Figure 3A.1. Pictures of three different ecosystems



Source: The Meadows Center for Preventing Educational Risk (2015).

To ensure that students remain on topic, ask them whether their answers help them to understand the topic better.[79] With practice, students will get better at determining whether the information they share is helpful or is distracting them from focusing on the topic of the text. Tell students when they have correctly evaluated the usefulness of the information they shared and provide suggestions when they misunderstand the information they shared or the topic. For example, as the group shares their answers about the pictures of different ecosystems, the teacher periodically asks students whether their answer contributes to the group's understanding of ecosystems.[80] The teacher provides feedback on whether the students' contributions and evaluations are correct. With time and practice, students will get better at sharing useful information.

2. Teach the meaning of a few words that are essential for understanding the passage.

Identify words that are critical and conceptually central for understanding the passage but are likely to be difficult for students. In this document, these words are referred to as essential words. These are words that appear early or frequently in the passage, and might include bolded words. Write these words somewhere for all students to see, such as on a whiteboard. Briefly teach the meaning of a couple essential words before the lesson and quickly provide the meaning of other essential words during reading.[81]

Select one or two of the essential words to teach before reading the passage.[82] Since the goal of understanding the meaning of these words is to help students access the information in the text, provide a brief simple definition that relates to the content of the passage before reading.[83] Provide an example, non-example, and/or visual representation of the word to help students understand the meaning.[84]

During reading, stop intermittently to briefly provide the meaning of additional essential words that are critical for understanding the passage.[85] Provide a simple definition of the word or rephrase the sentence with a known synonym for the word. For example, a teacher could quickly clarify the word *effortless* by replacing the word with the synonym *easy* when reading the sentence a second time. The goal is to provide the meaning of the word quickly and ensure that the unfamiliar word does not disrupt comprehension.

If students are reading independently or in pairs, ask students to look up and make eye contact when they get to the sentence with the essential word you would like to discuss. Ask students if they know the meaning of the word. If they do not, provide a quick definition in the context of the sentence or rephrase the sentence with words they know. The goal is to provide the meaning without disrupting reading too much.

In **Example 3A.1**, the teacher chose three words to discuss. The teacher taught the meaning of the words based on the context of the passage. The teacher continued reading and stopped as needed to briefly rephrase the sentences to provide the meaning of several more words that would help students understand the text.

Example 3A.1. Teacher briefly providing the meaning of a few words that will help a group of students understand the meaning of the passage

After preparing students to read about the American Revolution, the teacher proceeded with building students' word knowledge.

> The American Revolutionary War was a time when the colonists had a **conflict** and fought Great Britain. The colonies got their freedom and became an independent country called the United States of America. One of the reasons that the colonists had a conflict with Great Britain is that they felt they were not represented in the British government. The British government was making new laws and making the colonists pay more taxes, but the colonies had no say in them. The colonists said, "No taxation without representation." They wanted to have some say in the British government if they had to pay excessive taxes and live by British law. The war did not happen right away. First, there were protests and arguments. Then there were some small fights between the colonists and the local British army. Things just got worse and worse over the years until the colonies and Great Britain were at war.

The teacher chose the bolded word *conflict* to teach before reading because it is conceptually central and appears early in the text. Prior to reading, the teacher says, "*conflict* means a disagreement or argument. The American Revolution happened because the Americans and the British had a disagreement about who should run the government." The teacher reinforces the meaning of *conflict* during reading by explaining the meaning in the context of the information in the text.

In addition, while reading this paragraph, the teacher quickly provides the meaning of the two underlined words based on the context of the passage: *excessive* and *local*. The teacher reads the sentence again, replacing the word *excessive* with *too much*: "They wanted to have some say in the British government if they were going to pay too much in taxes and have to live by British law. *Excessive* means too much." The teacher reads the sentence by rephrasing the part of the sentence with the word local: "Then there were some small fights between the colonists and the British troops that were stationed nearby. Local means the area near or around where you are."

Giving students information about a word is important to initiate word learning. However, students will need to work with the words and their meanings to remember them. Once or twice a week, provide additional opportunities for students to work with the words and their meanings after reading. For example, ask students to provide examples of the words, discuss non-examples of the words, or use the words to answer questions about the text or topic either orally or in writing.[86] Include previously taught words to reinforce their meanings.[87] Have students write the words and definitions in a log.[88] These logs can help students keep track of their learning and review words they previously learned.

Example 3A.2 depicts some activities that a teacher did to reinforce the meaning of the word *conflict*.

Example 3A.2. Teacher engaging students in activities to solidify the meaning of the words that appeared in the passage they just read

Teacher: *We are going to talk about some of the words you learned today. You will work with a partner. Be ready to share your discussion with the group. The first word is* conflict*. A conflict is a serious disagreement or argument about something important. Talk with your partner about a conflict that two groups of people had in American history and how the conflict was resolved.*

Next, the teacher asks students to talk to a partner about the words *excessive* and *local*. Students share examples of each word.

3. Teach students how to derive meanings of unknown words using context.

In some circumstances, the sentences surrounding an unknown word can help students determine its meaning. Teach and explicitly model how to find clues in the surrounding sentences to help students determine the meanings of words they do not understand.[89]

Demonstrate three steps for determining the meaning of unknown words using surrounding sentences. First, mark the word the students do not understand.[90] Second, have the students reread the sentence with the unknown word and look for clues in that sentence to figure out the word's meaning. Third, if the sentence with the unknown word does not provide enough information, have students reread the sentences before or after and look for clues to figure out the word's meaning.

Be sure to tell students that sometimes they will read the sentence or the sentences around the word and still have difficulty figuring out the meaning of the word.[91] If the surrounding sentences do not provide enough information to determine the meaning, students can ask for help or look up the word.

Example 3A.3 illustrates a teacher modeling how to determine the meaning of a word through context.

Guide students by prompting them through the steps and having them explain the reason for their responses. Tell students when they have answered and reasoned correctly. When the answer is incorrect, provide support through prompts and clues to get them closer to the correct meaning. **Example 3A.4** illustrates how a teacher guides students in determining a word's meaning through context.

Example 3A.3. Teacher modeling how to use the surrounding sentences to figure out the meaning of the word *obstacles*

> In 1922, Howard Carter and his crew found King Tut's tomb. Many archaeologists searched for the tomb, but Carter and his team were the first to find it. They came across many obstacles while trying to find the tomb. One was that the daily temperature reached as high as 120 degrees. Another was that the tomb is in the desert, where nothing grows, and there is nothing to protect people from the extremely hot sun. To make things worse, there was a lot of sand and rock around the tomb that were difficult to remove because the summer sun made them very hot to touch.

Teacher: *I do not understand what the word* obstacle *means in this paragraph. So, I am going to try to use the surrounding sentences to try to figure out what it means. Let's look at the steps that are on the bulletin board.*

1. Underline the unknown word.
2. Reread the sentence with the unknown word and look for clues in that sentence to figure out the word's meaning.
3. Reread sentences surrounding the sentence with the unknown wording and look for clues to figure out the word's meaning.

Teacher: *First, I'll underline the word. Then I will reread the sentence with the word* obstacle *in it and look for clues to what it means. "They came across many obstacles while trying to find the tomb." That sentence just tells us that they came across obstacles but does not tell us what an obstacle is.*

Now, I'll go to Step 3 and reread the sentences near the word to look for clues about the meaning: "Many archaeologists searched for the tomb, but Carter and his team were the first to find it." That doesn't give me any clues. "They came across many obstacles while trying to find the tomb. One was that the daily temperature reached as high as 120 degrees."

Ah, here the author tells us that one obstacle *was very high temperatures. Being that hot would stop or slow down their work. In the next sentences, the author gives us two other obstacles: no shade from the sun, and rocks and sand that were hard to move because they were too hot to touch. With all this information, I think* obstacles *means anything that makes it difficult for you to do something because the examples the author gave us were things that made it difficult to explore King Tut's tomb.*

Example 3A.4. Teacher guiding students in using context to figure out the meaning of the word *remote*

> Seabirds or marine birds spend most of the time at sea. They also live on *remote* islands in the ocean. There are no humans or animals on the island or nearby. The island is so far away that it is a place where the birds can rest, build their nests, and incubate their eggs. This is one reason why seabirds have survived for 60 million years.

The teacher asked students to share the words they did not know and underlined with a partner. The teacher then chose one pair to share the words with the group. The students did not understand the word *remote*. The teacher guided the students using context to understand the meaning of the word *remote*.

Continued on the next page…

Example 3A.4. Teacher guiding students in using context to figure out the meaning of the word *remote* (continued)

Teacher: *We don't know what the word* remote *means. What do we do first?*

Dakota: *Underline the word and reread the sentence with the unknown word to figure out the word's meaning.*

Teacher: *Read the sentence for us, Emerson.*

Emerson: *They also live on remote islands in the ocean.*

Teacher: *Is the author helping you to understand what* remote *means?*

Emerson: *No.*

Teacher: *What is the author telling us?*

Emerson: *The author is just saying that they live on remote islands.*

Teacher: *Does the author give you any clues about what* remote *means?*

Emerson: *No.*

Teacher: *Okay, what do we do next, Riley?*

Riley: *Reread sentences surrounding the unknown word, looking for clues to figure out the word's meaning.*

Teacher: *Great. Will you read them for us?*

Riley: *They also live on remote islands in the ocean. There are no humans or animals on the island or nearby. The island is so far away that it is a place where the birds can rest, build their nests, and incubate their eggs.*

Teacher: *There is a lot of information in those sentences. Is there anything the author says that will help us learn the meaning of* remote*?*

Riley: *Well… I think* remote *means safe.*

Teacher: Remote *does have something to do with safe, but it doesn't mean safe. You know often there is a lot of different information in the passages, and I bet you thought it was safe because of the clues that talked about the birds resting and incubating their eggs. That would make you think that the island is safe. Let's look at the sentences after. Can anyone figure out how those sentences might help to figure out the word's meaning? This sentence says there are no humans or animals on the island or nearby and the island is so far away that it is a place where the birds can rest, build their nests, and incubate their eggs. These are good clues. Does this give you an idea of what* remote *means?*

Riley: *That no one is around?*

Teacher: *That's excellent, Riley. Sometimes it is difficult to get a word's meaning from context because of all the different information the author has provided. But here,* remote *means far away from everything. Excellent! Did you ever hear the phrase, "in the middle of nowhere"? If we say a place is "in the middle of nowhere" it means it is in a remote location because it is far away from everything! Now you can figure out how to learn the meaning of words by reading and thinking through a text.*

4. Teach prefixes and suffixes to help students derive meanings of words.

Knowledge of prefixes and suffixes will help students in reading multisyllabic words (**Recommendation 1**). Knowing the meaning of prefixes and suffixes will help students understand the meaning of these multisyllabic words.[92]

Teach the meanings of prefixes and suffixes, especially those that students will encounter in the text.[93] If the intervention curriculum does not have a sequence for teaching prefixes and suffixes, start by teaching commonly used prefixes (e.g., un-, re-, dis-) and suffixes (e.g., -s, -es, -ed). If students know the common prefixes and suffixes, move on to less frequently used prefixes (e.g., trans-, under-, anti-) and suffixes (-ial, -eous, -ence) or on to ones that are more difficult.[94] **Resource 3A.1** and **Resource 3A.2** provide a list of the meanings of frequently occurring prefixes and suffixes.[95]

Resource 3A.1. Frequently occurring prefixes

Rank	Prefix	Meaning
1	un-	not
2	re-	again
3	in-, im-, il-, ir-	not
4	dis-	not
5	en-, em-	to make or put into
6	non-	not
7	in-, im-	not
8	over-	too much
9	mis-	wrong
10	sub-	below
11	pre-	before
12	inter-	between
13	fore-	toward
14	de-	down
15	trans-	across, changed
16	super-	above, beyond
17	semi-	half
18	anti-	against
19	mid-	middle
20	under-	not enough

Resource 3A.2. Frequently occurring suffixes

Rank	Suffix	Meaning
1	-s, -es	plural
2	-ed	past tense
3	-ing	act of
4	-ly	having the qualities of
5	-er, -or	person who
6	-ion, -tion, -ation, -ition	state, quality of being
7	-able, -ible	capable of being
8	-al, -ial	related to
9	-y	characterized by
10	-ness	state of being
11	-ity, -ty	quality of
12	-ment	condition of
13	-ic	of/related to
14	-ous, -eous, -ious	full of
15	-en	made of
16	-er	comparative
17	-ive, -ative, -tive	having the nature of
18	-ful	full of
19	-less	without
20	-est	superlative

Resource 3A.3 provides a list of other prefixes and suffixes that are frequently used in academic words.[96] Use this list with students who are familiar with the prefixes and suffixes in **Resources 3A.1** and **3A.2**.

Resource 3A.3. Other prefixes and suffixes that are frequently used in academic words

Prefixes	Suffixes
con-	-ate
ad-	-ize
ex-	-ism
e-	-ent
pro-	-ary
ob-	-ist
a-	-ure
per-	-ant
ab-	-logy

Source: Lane et al. (2019).

Teach students to isolate the base word, prefix, and/or suffix and determine the meaning of each separately. Show students how putting the meanings of each of the parts together can help them determine the meaning of a word.[97]

Include practice on determining the meaning of words with a base word and prefix or suffix.[98]

In **Example 3A.5**, the teacher guides students in dividing *advantageous* into parts, figuring out the meaning of each part, and putting those meanings together to determine the meaning of the word.[99]

Example 3A.5. Teacher guiding students in dividing a word into parts to determine its meaning

The teacher writes *advantageous* on the board and then shows students where the word appears in the reading selection.

Teacher: *What is the base word?*

Suzie: *Advantage.*

Teacher: *What prefix or suffix do you see attached to the word* advantage*?*

Malika: *-ous.*

Teacher: *What does* advantage *mean?*

Isaiah: *Benefit.*

Teacher: *What does -ous mean?*

Leslie: *Full of.*

Teacher: *Who can put those 2 together and tell me the meaning of* advantageous*?*

Suzie: *Full of benefits.*

Teacher: *Who can tell me what this sentence means? The trade arrangement could be advantageous for all parties involved.*

Isaiah: *The trade deal may be full of benefits for everyone involved.*

The teacher promotes deeper understanding of *advantageous* by asking students to work with their partner to discuss the reasons why it is *advantageous* to eat healthy food. To keep students on topic, the teacher monitors by listening to each pair's discussion, affirms correct answers, and asks leading questions to guide students who are misunderstanding.

Provide instruction on words that are related and are helpful for understanding the text.[100] Show students a group of words that share a base word and have different combinations of prefixes and/or suffixes. Explain that these words are related in meaning and that the different prefixes or suffixes change the word's meaning and part of speech. For example, approachable (adjective), approached (verb), approaches (verb), approaching (verb), and unapproachable (adjective) are all related to the word *approach*. For example, when the suffix *-able* is at the end of the word *approach*, it becomes an adjective. Read each word aloud with the group or ask students to take turns reading the list with a partner. Discuss the meaning of each word. Ask students to pick one of the related words and think of how the word can be used in a sentence. Have students tell a partner their sentence.[101] A word map can be used to show how the words are related by a common base word (see Step 5 for more information).

5. Teach the meaning of Latin and Greek roots.

Latin and Greek roots appear frequently in words in math, science, and social studies textbooks (e.g., micro: microbiology, microscope, microbe; equi/equa: equivalent, equation, equal, equator, equalizer).[102] Lists of Latin and Greek words can be found on the following websites: **yourdictionary.com** and **wikipedia.org**.

Spend some time explicitly teaching the meaning of the roots, how these roots contribute to the meaning of a word, and how words with the same root are related. Start by providing a definition of a root. For example, ambi- means both or both sides.

Share two or three examples of words that have the root and explain how the meaning of the root is part of the meaning of the entire word. For example, ambi- is part of the words *ambidextrous*, *ambiguous*, and *ambivalent*. The meaning of all three words includes both sides of something. Ambidextrous means having the ability to use both hands; ambiguous means open to both sides or more than one side, choice, or meaning; and ambivalent means having both feelings, mixed feelings, or contradictory ideas. Knowing the meaning of the root ambi- helps clarify the meaning of these words.

Work with students to develop a word map for each root.[103] Word maps provide a graphic display of a group of words that are meaningfully related. Have students add words to the word map, as they come across them during their lessons. Integrate these words into other activities, such as writing and spelling, to provide continued exposure to the words.[104] See **Example 3A.6** on how a teacher provides instruction in using roots.

Example 3A.6. Teacher helping students understand the meaning of words with the root *bio-* using a word map

Teacher writes *bio-* on the board.

Teacher: *Bio- means life*.

Teacher writes *biology* on the board and underlines *bio* in the word *biology*.

***Teacher**: I know that bio- means life, and so this word has to do with life. We learned before that -ology means study of, so biology is the study of living things, like plants, animals, and humans.*

Teacher writes *biography* on the board.

Teacher: *Now let's look at another word,* biography.

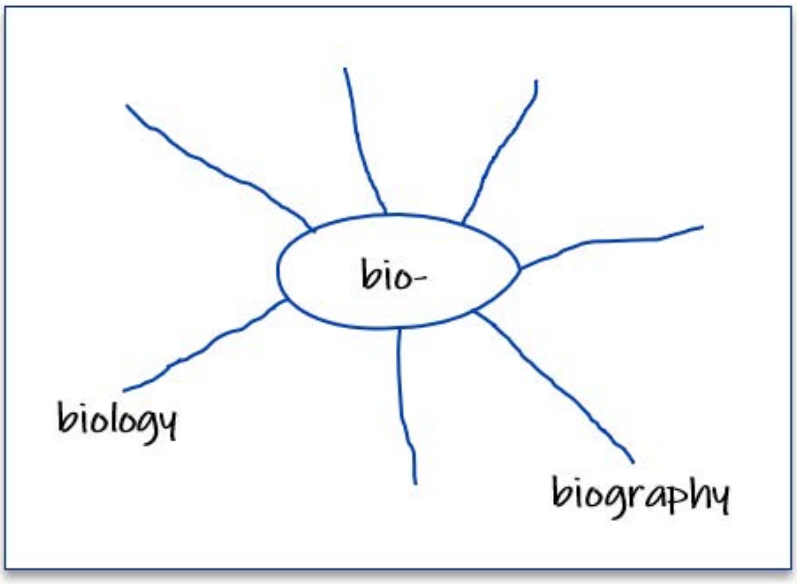
Teacher underlines *bio-* in *biography*.

***Teacher:** Biography. What do you think this is about now that we know the meaning of the root bio-?*

Stanley: *It has something to do with life.*

Teacher: *Yes, we know that this word has something to do with life because it includes the root bio-. The second part -graphy is related to writing.* Biography *means writing about someone's life. The common root in both these words is bio-. Both words have to do with life. One word*—biology—*is the study of living things, and the other*—biography—*is about writing about someone's life*

Teacher draws the word map.



Teacher: *When we come across more words that include the root bio-, we can add them to this word map*.

Students copy the word map in their log. In subsequent lessons the teacher asks students to add more words to the word map. They add the words *biofeedback*, *biographical*, and *biodegradable*. Each time a word is added the teacher asks the students to separate the word into parts. The teacher talks about the other part of the word and its meaning. The students put the two parts together to determine the meaning and then use the word in a sentence.

Source: The Meadows Center for Preventing Educational Risk (2015).

Potential obstacles and the panel's advice

OBSTACLE: *I do not know what my students know about a topic, so I don't know how to plan for teaching them world knowledge.*

PANEL'S ADVICE: Poll students briefly to see what they know about a topic before teaching world knowledge related to the passage. If students know little about the topic, use a brief video clip or podcast closely related to the specific objective of the lesson to build world knowledge and pique students' interest.

OBSTACLE: *There are so many words my students do not know. Working on word knowledge could take up the entire lesson.*

PANEL'S ADVICE: There are too many words to teach in depth. Students will also be learning words and their meanings in their subject-area classes. Focus on words that are essential to understanding the passage and those that students will encounter frequently in their readings. If not knowing the meaning of a particular word becomes a barrier to understanding the meaning of the text for some students, quickly provide the meaning of the word and continue reading. For example, "Here in this sentence, *massive* means very large and heavy. Jose was having a hard time carrying his massive backpack."

Also, it can be helpful to show students how to use dictionaries and thesauruses, including web-based ones, and functions within Word and in common internet browsers. These tools allow students to quickly locate the meanings of words or their synonyms. However, the definitions that appear can be difficult for students to understand. Students may need help figuring out how the definition applies to the text. Thesauruses may help students understand the meanings of words by providing words that make more sense to them.

OBSTACLE: *My students cannot find a word's meaning using the sentences surrounding the word because they don't know so many words in the passage.*

PANEL'S ADVICE: Students may not be able to use the surrounding sentences to determine the meaning of words when the reading level of the text is too high. Choose texts for which students will know more words when asking them to practice using surrounding sentences to determine the meaning of words.

Recommendation 3, Part B: Consistently provide students with opportunities to ask and answer questions to better understand the text they read

Learning to ask and answer questions will enable students with reading difficulties to integrate information from the passage with the knowledge they have gained from earlier lessons or their reading.[105] These connections will enable students to draw text-based interpretations or inferences about what the author implied. By asking and answering questions about text, students can better interpret its meaning.

This part of **Recommendation 3** includes practices for teaching students how to answer different types of questions and how to develop and answer their own questions about text. Ultimately, the goal of this recommendation is for students to ask and answer questions to draw inferences and engage in meaningful discussions about text.

How to carry out Part B of the recommendation

1. Explicitly teach students how to find and justify answers to different types of questions.

Teaching students to answer questions and justify their answers prepares students to read independently.[106] By understanding common types of questions that may be asked, students develop habits for sifting through the information in the text or connecting to their world knowledge to figure out the answers. Teaching students how to answer different types of questions helps them find information that is either directly stated in or inferred from the text. **Resource 3B.1** describes the three common question types.

Resource 3B.1. Types of questions

Question type	Description
Right There Question	The information needed to answer the question is considered "right there" because often the words in the question and the words used to answer the question are in the same sentence. This type of question can also be referred to as a text-dependent question.
Think and Search Question	The information needed to answer the question is in different parts of the text so the student needs to "think and search" to figure out the answer. This type of question can also be referred to as a text-dependent question.
Author and Me Question	To answer the question, the student must connect information in the text with information they learned or read previously. This type of question can also be referred to as an inferential question.

Source: **corestandards.org;** Raphael and Au (2005); Ritchey et al. (2017); Vaughn, Cirino, et al. (2010); Vaughn, Wanzek, et al. (2010).

Teach students to answer each type of question one at a time. Begin by modeling how to answer Right There questions by locating the words in the question in a sentence in the text.[107] Show students how to justify the answer by reading the sentence from the text that provides proof of the response.[108] Gradually include students in locating the sentence with the words from the question and answering the question with information from that sentence. Model for students how to use evidence from the text to justify the answers. **Example 3B.1** provides a brief model of a teacher answering a Right There question based on the sample passage: *War on Poverty*.

Example 3B.1. Teacher modeling how to answer a Right There question

The teacher and students are reading about President Johnson's *War on Poverty*. Before reading, the teacher explains that *poverty* refers to the experience of being poor or lacking enough resources to provide the necessities of life—food, clean water, shelter, and healthcare. Some people have a decent job, but still cannot afford quality housing, food, and healthcare. The teacher stops after the first paragraph to model how to answer a Right There question.

War on Poverty

> President Johnson was a young man during the Great Depression when many people did not have enough money for food or a place to live. During that time, he saw how the United States government could create jobs for many people to do important things like build dams and bridges and make enough money to live. When he became president in 1964, he developed his own ideas about how to help people who were poor. He called his ideas about how to provide more access to quality food and healthcare and access to training for better-paying jobs "a war on poverty." He believed that government programs like education, social services, and food stamps would help many people find jobs and have enough to eat. Though imperfect, his *War on Poverty* reduced poverty a good deal and dramatically reduced the number of families who went to bed hungry.

Teacher writes on the board: *What did President Johnson call his ideas about how to help people who are experiencing poverty?*

Teacher: *I am going to show you how to find the answer to this Right There question. To answer this Right There question, the words used to make up the question and the words used to answer the question are in the same sentence in the text. I see that the words used to make up the question like ideas and how to help people experiencing poverty are in one sentence.*

The teacher directs students to the part of the text that contains the answer and reads the sentence aloud.

Teacher: *"He called his ideas about how to provide more access to quality food and healthcare and access to training for better paying jobs a war on poverty." The answer to this Right There question is: He called his ideas "a war on poverty."*

Once students show some facility answering Right There questions, explain that the answers to Think and Search questions are usually not right next to each other; the answers to the questions are separated by other information that does not answer the question. Model how to answer Think and Search questions several times before gradually including students in searching for the information that can help answer the questions. Show students where each piece of information needed to answer the question was found and how the information was put together to form an answer.[109] Prompt students with guiding questions to help them locate information and put different pieces of information together to answer the question. In **Example 3B.2**, the teacher continues to the second paragraph in the *War on Poverty* passage to model how to locate the parts of the text that help answer the question and how those parts were put together to come up with the answer.

Example 3B.2. Teacher modeling how to answer a Think and Search question

The teacher and students continue reading about President Johnson's *War on Poverty*. The teacher stops after the second paragraph to model how to answer a Think and Search question.

> President Johnson worked with Congress to pass laws to create programs to help people who were poor. Many of these programs are still here today. A major program was Head Start. Head Start was a pre-school program for students who were poor to prepare them for school. The Head Start grant office also paid people to make educational television shows such as Sesame Street, The Electric Company, and Reading Rainbow. Anyone with a television could watch these shows. The food stamps program helped those who made little money to buy food. It is still here, but now called SNAP. Other programs were also started that provided jobs and job training. The Job Corps program prepared people to be auto mechanics, cooks, nurses, and emergency medical technicians.

Teacher writes on the board: *What are three programs that were made available to reduce poverty?*

Teacher: *Sometimes when a question asks about naming multiple things, you might have to look in different places in the text for the answer. In other words, you are not likely going to find the answer in one sentence, like a Right There question. This is a Think and Search question. To answer a Think and Search question, you have to put together information from different parts of the text. In the first sentence, the author states that President Johnson worked with Congress to pass laws that would make many programs to help people who were poor. The third sentence says that one program was the Head Start program.*

The question says to name three programs, but I have not come across another one yet. So, I will keep searching for more.

As I read further, I see that television shows such as Sesame Street and The Electric Company were made, but not to reduce poverty. So, I am going to skim past these to find another program. As I read, I see other programs like food stamps and Job Corps programs. So, I found one program, Head Start, in the third sentence. Then I had to skim through further in the passage to find other programs such as the food stamps and Job Corps programs.

Move on to Author and Me questions only after providing ample practice opportunities with Right There and Think and Search questions. Demonstrate how to answer Author and Me questions. Begin by telling students that the answers to Author and Me questions go beyond what is explicitly stated in the text.[110] Show students how to integrate the information from the text with their knowledge to formulate an answer.[111]

Gradually include students in thinking about connections to the text that could help them answer the Author and Me questions. Use guiding questions to lead students to connect information in the text with what they learned or read previously to answer the question. The students will need to use the clues the author gives them and what they already know to answer the question. Students may have to use what they just learned or what they learned in the past.

Example 3B.3 showcases a teacher modeling how to link prior knowledge to appropriate information from the text from the *War on Poverty* from **Example 3B.1**.

Example 3B.3. Teacher modeling how to answer an Author and Me question

Teacher writes on the Board: *How did the Job Corps help people who were in poverty?*

Teacher: *This is an Author and Me question. The answer to the question is not in the text we just read. I will have to think about the information the author gives and what I already know to answer the question. The author's information provides clues to help me answer the question.*

This question says: How did the Job Corps help people who were experiencing poverty? Hmm… I am not sure if the answer to this question is in the text or if I need to determine the answer in another way based on information I already know. Well, I don't remember the text saying how the Job Corps helps people. I am going to skim the text again and make sure. The author said that the Job Corps prepared people to be auto mechanics and nurses. But how does that actually help people? This might help them get a job, which can probably help people who are experiencing poverty.

The teacher reads a sentence that gives these clues.

Teacher: *I am going to think about what we read about poverty last week and what I already know. We learned that people who are in poverty have very little money. I also know that my friend's family owns an auto repair shop and that my dad is a nurse and both of them earn pretty good money. So, the information or clues the author gave me said that the Job Corps program prepared people to do auto repair and nursing. These are jobs that provide more money. So, I'm thinking that if you learn a skill of some kind like nursing or auto repair, then you would probably be able to earn enough money so you would no longer have to live in poverty. In a story we read last week, we learned that you have to learn how to repair cars before you can get a job fixing them, or you have to learn how to take care of people who are sick or are injured to help them get better. So, I think that the Job Corps helped people by teaching them the skills they needed so that they could get jobs and make money so they can probably have a better life.*

2. Provide ample opportunities for students to collaboratively answer questions.

Provide opportunities for students to work collaboratively to answer each type of question.[112] Begin with Right There questions, move to Think and Search questions, and finally to Author and Me questions, as students demonstrate that they can answer each type. Make sure to include previously learned question types as each new type is added. Guide students through the process of answering each question type by reminding them of what each type of question requires. For example, "Remember it is a Right There question and we are looking for words that appear in the question."

If needed, also direct students to the part of the text where the answer could be found, without pinpointing the exact sentence or sentences that will help them arrive at the answer. For a Think and Search question, point out the paragraph where the first piece of information can be found. Ask students to find the information they will need to answer the question. Write the information on a whiteboard or chart paper for the group to see. Continue this process until all the information students need to answer the question is identified and documented. Remind students that not all information in the paragraphs will be useful in answering the question. Guide the students in sorting through relevant and irrelevant information.

Have students practice justifying their answers for each question type by indicating the portion of the text that helped them answer the question.[113] In addition, for Author and Me

questions, ask students to explain their connections within and between texts and how what they have read or learned before helped them answer the question.[114]

In **Example 3B.4**, the teacher guides students in answering Author and Me questions.[115] The teacher tells students to look for clues in the text and prompts them to connect relevant portions of the text with their previous reading and learning.[116] The teacher also asks questions to guide discussion to help the students answer the Author and Me questions.

Example 3B.4. Teacher guiding students in answering Author and Me questions

The teacher and students read the following passage:

> I live on Whidbey Island in the state of Washington. Every Sunday, my family and I visit my grandmother. The five of us pile into our car and drive to the waterfront, where there are many boats in the water. We drive onto a ferry and the ferry takes us across the beautiful blue water of the Puget Sound. We always have a good time when we visit our grandmother. This time was different. Nothing could have prepared us for what we were about to see and what was about to happen.

Teacher: *Let's read the first three sentences again. Tell me in your own words what is happening.*

The students respond that a family of five is going for a car ride to their grandmother's house, which is near the water.

The teacher: *Read the next three sentences. What does the author mean by "This time was different"?*

The teacher asks students to reread the last three sentences and identify clues in the text.

The students respond by saying that at the start of the day, things seemed to be going well and the family was taking their usual trip across the water to grandma's house. Then, the author said that they usually have a good time when they visit their grandmother but this time it was different.

Teacher: *Do you think* different *is in a good way?*

Fran: *No.*

Teacher: *Could it be in a good way?*

Stace: *No.*

Teacher: *How do you know that?*

Students connect two ideas in the text that say that "we always have a good time," and "this time was different" to make the implication that something bad was about to happen. Students read the rest of the paragraph.

Teacher: *Think back to your own experiences or other things you may have read when someone says, "Nothing could have prepared us for what we were about to see and what was about to happen." What does that usually suggest?*

Students respond with something surprising or different.

Continued on the next page…

Example 3B.4. Teacher guiding students in answering Author and Me questions (continued)

Teacher: *What does the author mean by "Nothing could have prepared us for what we were about to see and what was about to happen"? Remember when we answer Author and Me questions we need to connect something in the text with something we read or previously learned. What we know should help us make a decision about what the author meant. Do you think the author meant something good or something not so good is about to happen?*

Students respond with whether they think it is something good or not good.

Teacher*: It could be something devastating or something exciting like brand-new bikes for all of the kids. Based on what we discussed earlier, though, the author probably wants us to think that they are about to witness something that is not good.*

To facilitate independence in answering Author and Me questions, provide students with prompt cards that include the actions necessary for answering Author and Me questions and justifying their answers. See **Resource 3B.2** for a sample prompt card. Ask students to identify which sentences and paragraphs contain helpful pieces of information for answering the questions.

Resource 3B.2. Prompt card for answering Author and Me questions teachers pose

1. Read the paragraph.
2. Make connections between the text and something you have learned or read about or experienced.
3. Decide what you think the author meant.
4. Justify your answer by identifying information in the text that supports what you are thinking.

Source: The Meadows Center for Preventing Educational Risk (2014).

Monitor students as they work with a partner to answer questions about the text.[117] When students complete a task correctly, tell them what they did well.[118] When students misunderstand a question or portion of text, guide them in understanding the task or material.[119] Be aware that when working with a more difficult text, students will need more support and guidance.

3. Teach students to ask questions about the text while reading.

When students develop questions about the content of the text, they can gain a deeper understanding of the text's meaning. Developing and answering questions about text will help facilitate students' independence in gaining information from text. Students will gain confidence in digging into the information in the texts they read to figure out the author's meaning. Developing questions to ask about a text can also help students engage in meaningful discussions with their peers.

As students get more comfortable answering different types of questions, ask them to think of their own questions about the text.[120] Ask students to develop their own Right There questions before moving on to Think and Search and Author and Me questions.[121] Students can find the answers to the questions they develop themselves or work with a partner.

To facilitate independence, provide students with prompt cards that include question stems to help students develop various question types. **Resource 3B.3** provides a list of question stems that can be provided to students in small groups.

Resource 3B.3. Question stems for students to use when asking questions about the text

- Who is (are) _____?
- What happens (happened) when _____?
- What is (was) _____?
- Why did (does) _____?
- How do (does) _____?
- How do _____ and _____ compare?
- What can you say about _____?
- What would happen if _____?

Source: Anderson and Krathwohl (2001).

With guidance from the teacher, the students and their partners can use the question stems provided in **Resource 3B.3** to generate the following questions for the *War on Poverty* passages described in **Examples 3B.2** and **3B.3**: What is the War on Poverty? (What is [was] __?) How did the War on Poverty reduce poverty? (How do [does]___?) What can you say about the about the War on Poverty programs? (What can you say about ___?)

As students get more comfortable figuring out how to ask and answer questions, provide opportunities for them to discuss questions with their peers with little or no assistance from the teacher. Working with a partner or in small groups requires students to take a leadership role by raising questions and keeping the discussions moving. At times, the teacher may need to intervene when discussions become stale or veer off-topic or when only some students do most of the talking. Consistent monitoring will help groups function effectively.

Potential obstacles and the panel's advice

OBSTACLE: *My students are having difficulty formulating justifications for their answers.*

PANEL'S ADVICE: This is a difficult task for students. Ask students probing questions to help them think about the reason for their responses. It may be necessary to briefly model how to go back to the text and find the material to support the response. Be sure to keep this interactive so that students stay engaged and the justification can be developed jointly. Students will need support when they practice justifying their answers. Sentence starters can help students formulate justifications for their answers (e.g., "Terry was unhappy because…").

OBSTACLE: *When the questions use words that don't exactly match the text, my students are stumped.*

PANEL'S ADVICE: In some cases, the question has different wording than the precise wording in the text. Students may need help understanding the meanings of the words. Integrate a brief explanation of how the words mean the same thing even though they are not the same. For example, if the text explains how someone was *appalled* at the scene and the question asks why someone was *disgusted* by the scene, briefly explain that when someone is appalled, they are disgusted or horrified by what is happening.

Students may also experience difficulty following as pronouns appear in the text. It may be useful to help students identify, for example, who "he" or what "it" is referring to in the text. Clearly understanding the pronouns used in the text can clarify many ideas that were confusing earlier. For example, it is unclear who "he" is in the sentence: "Hector told Malke that the teacher thought *he* had cheated on the history exam." Similarly, "it" is unclear in the sentences: "Sasha wrapped up her burrito and a bug appeared on the counter. She smashed *it* with her hand before she ate."

OBSTACLE: *My students still can't answer Author and Me questions even after I have modeled how to do it.*

PANEL'S ADVICE: It could be that students do not have the world knowledge necessary to make connections between the text and what they have read or learned. Be sure to use texts that cover topics students have read or have

learned about previously. Students may also need several opportunities to practice connecting what they learned or read previously with information from the text. Alternate between teacher modeling, peer work, and independent practice with simpler texts before moving on to more complex texts. Provide more support at first by asking guiding questions and gradually transfer more responsibility to the students. It also may be necessary to help students remember something they read about or learned previously or something they experienced.

OBSTACLE: *My students sometimes make seemingly irrelevant connections to their world knowledge.*

PANEL'S ADVICE: It is common for students to share experiences that, at least at the outset, are not well related to the topic. Ask students to consider whether what they learned or read previously is relevant to the topic before sharing and, if so, how. The discussion needs to address why a particular experience is relevant. Ask leading questions to help students evaluate the relevancy of the information to the topic of the text.

OBSTACLE: *My students are really struggling with generating questions as they read.*

PANEL'S ADVICE: One way to get students started with generating questions is to begin with Right There who or what questions. Then move on to Think and Search who or what questions. Questions that begin with why and how are sometimes harder, and instruction on those types can be saved until after students have a solid understanding of the simpler questions. It is helpful to provide question stems to support students as they practice writing questions of their own. It can also be helpful to read the passage aloud and ask students to generate questions orally before asking them to do it in writing or on their own.

Recommendation 3, Part C: Teach students a routine for determining the gist of a short section of text

Generating the gist of a short portion of text is an essential component of building students' comprehension. A gist statement is a synthesis of the most important information in a short one- or two-paragraph section of the text. Some refer to it as the main idea.[122] Gist statements can help students understand what they read and remember the most important information. Generating the gist provides an opportunity for students to separate important information from irrelevant information and to integrate important ideas and connections in the text to determine what the author meant.[123]

Students may also benefit from recording their gist statements in their log to keep track of the important information as they read.[124] Keeping track of the gists of a text can help students study or complete work related to the text.

This part of **Recommendation 3** discusses a routine for figuring out the most important information in the text and generating a gist statement. The recommendation also includes ways to use the structure of the text to inform the gist statement.

How to carry out the recommendation

1. Model how to use a routine to generate gist statements.

Having several easy steps to follow in a routine will help students break the process of generating a gist into manageable tasks. Identifying the important information in the text can help students with other tasks, such as answering comprehension questions.[125] **Resource 3C.1** includes a routine that students can use to generate a gist statement.[126] **Resource 3C.2** clarifies how to mark important information in the text.

Teach students a routine they can use to generate gist statements. Most routines will include a step for determining who or what the passage is about and the most important information. Determining who or what the passage is about can be difficult. It might be helpful to tell students to look for words that appear frequently in the text and to look at the words that appear in the title, headings, and charts or diagrams. To determine which information is most important, it might be helpful to tell students to look for information related to who or what the passage is about.

Resource 3C.1. Routine for generating a gist statement

1. Identify and mark the most important person (referred to as the *who*), place, or thing (referred to as the *what*) in a section of text.
2. Mark and then list the important information about the most important person, place, or thing.
3. Synthesize or piece together the important information to formulate a gist statement.
4. Write the gist statement in your own words.
5. Check that the gist statement includes all the important information in a short, complete sentence that makes sense.

Resource 3C.2. Marking the text

In this practice guide, the panel recommends marking words or phrases that students do not understand or cannot read. The panel also recommends marking important information in the text, so it is easy to find and refer back to. Marking can be done by circling, underlining, highlighting, or any other method a teacher prefers. Choose any method for marking. Ensure that one method is used for difficult words or phrases and a different one is used for important information. Use the same methods consistently in all lessons. When students use electronic texts, the platforms may allow for consistently marking the text.

At first teachers can mark the text for students to see. Students can mark their text as the class works together. Over time, the responsibility of marking the text can shift to students, so they can learn to mark text when they are reading independently.

Model how to generate the gist using the routine for several different types of text. Explain the reasons why information in the text is identified as important for generating the gist. **Example 3C.1** outlines how a teacher would model generating a gist statement with the routine in **Resource 3C.1**. The teacher gradually involves students in completing each step by asking the students what they would do next and their reasoning for each decision. At the end of the example, the teacher asks students to write the relevant information in a graphic organizer.

Example 3C.1. Teacher modeling how to generate a gist statement for a group of students

Teacher: *Today I will be teaching you how to generate the gist statement of a paragraph.* Gist *is another word for main idea. Spending time figuring out the gist of the paragraph will help you remember the important information that you read. Let's look at the routine again. First, we will determine who or what the paragraph is about. Then we will identify the most important information about the who or what. Then we will synthesize that information. Synthesizing is when we put the information together. Then we can write one short gist statement that helps us remember the most important information in a section of text.*

We don't have to use the exact language that the author used to do this. In fact, it is usually helpful to come up with our own words to describe the gist. Finally, we will check the gist statement to make sure it includes the important information and is a short, complete sentence that makes sense.

The teacher reads the passage aloud.

> Mohandas Gandhi was born October 2, 1869, in India. He went to college in London, England, to become a lawyer. Gandhi was dismayed with the way England treated the people of India. He believed that the government of England could be persuaded to change without violence or force. For example, when England taxed Indian salt in 1930, Gandhi and thousands of Indians walked more than 100 miles to the sea to make their own salt so they wouldn't have to pay the taxes on salt if they bought it in the market. When Gandhi reached the sea, he was arrested. Gandhi spent years of his life in jail. Because he wanted to be a good role model for his country's people, whenever he heard his followers were acting violently, he stopped eating. When he stopped eating, some people paid attention and stopped acting violently.

Teacher: *First, I need to figure out who or what this paragraph is about. I see Gandhi mentioned five times, and I think the "he" in four other sentences refers to Gandhi.*

The teacher circles the five places where Gandhi appears.

Teacher: *Gandhi must be who this paragraph is about because he is mentioned so frequently. This paragraph is about Gandhi because most of the sentences include his name or information about him. My next step is to list the most important information about Gandhi. I need to look for information that is repeated or emphasized and relates to Gandhi.*

The teacher lists the important pieces of information on the board and explains that the information was described in several sentences. The teacher highlights each statement that contains important information. The teacher also discusses why other ideas in the paragraph are not important or central to the gist of the paragraph.

Most Important Information:

1. Gandhi was upset that the people of India were not being treated well by England.
2. Gandhi believed that changes could happen without violence or force.
3. Gandhi spent time in jail and stopped eating.

Information that is not Important:

1. Gandhi was born October 2, 1869, in India.
2. He went to college in London, England, to become a lawyer.

Pointing to the most important information, the teacher synthesizes all this information.

Continued on the next page…

Example 3C.1. Teacher modeling how to generate a gist statement for a group of students (continued)

Teacher: *This information is important because most of the sentences in the paragraph are talking about how Gandhi resisted the English in a nonviolent way. Instead of fighting with the English, he made his own salt or went on a hunger strike. I know that the information about where he was born or where he went to college is not important because it does not relate to Gandhi acting nonviolently to show how upset he was at the treatment of people in India.*

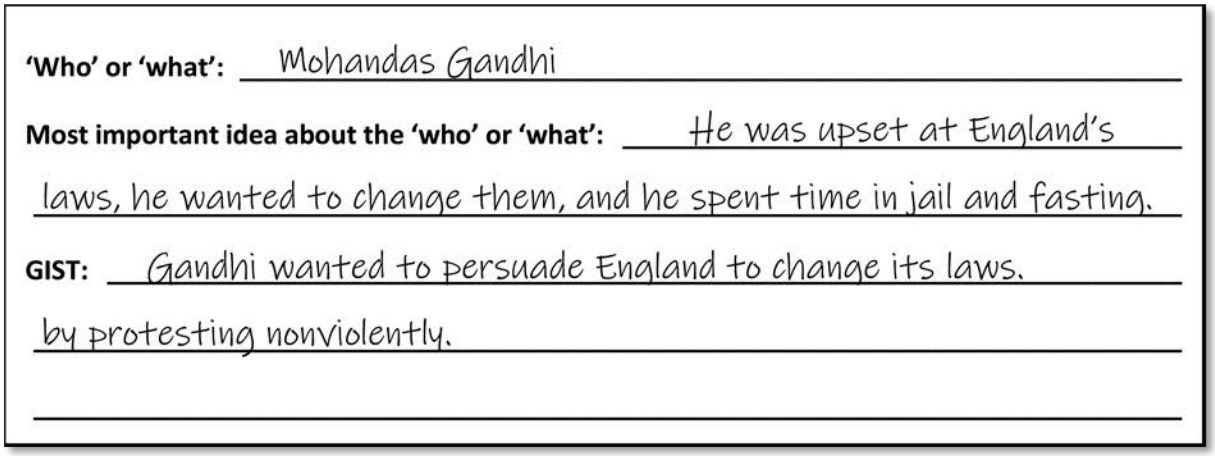
So, I am going to ask myself "How can I synthesize this important information to tell what this paragraph was about?" The who is Gandhi. What did he do? He tried to use nonviolence to make positive change. One gist statement is: Gandhi helped make changes for the people of India without violence.

The teacher writes the gist statement on the whiteboard.

Teacher: *Now I need to check my gist statement. Does it include the important information, and is it a short, complete sentence that makes sense? Yes, I think this statement helps me understand who Gandhi was. It is good to remember that Gandhi tried to make change by acting nonviolently. We can take this information and say the gist in other ways. Two other ways might be:*

- *Gandhi acted nonviolently and wanted others to act nonviolently too.*
- *Gandhi wanted others to use nonviolence to persuade England to change its laws.*

The teacher asks students to add information from their discussion to a graphic organizer. The students begin by adding who the passage was about – Mohandas Gandhi. Then the students summarize the important information and write a gist statement.



2. Teach students how to use text structures to generate gist statements.

Text structure refers to how information in a written piece of text is organized. Text structures can help students focus on what the text is about and help them generate gist statements.

Three common text structures are cause and effect, problem and solution, and compare and contrast.[127] To use text structure as a tool for generating gist statements, students will need an understanding of the three common text structures listed in **Resource 3C.3** and how to recognize them. If students do not understand the three text structures or are not able to recognize them, then teach or review the three text structures. Introduce each text structure one at a time. Show students how each text structure has a different organization. Model how to identify and discriminate among the text structures, providing a rationale for the text structure identified. Have students read a short passage and ask them to identify the text structure. Provide additional practice in identifying and discriminating among the text structures as needed.[128]

Explain that paragraphs in a passage may have different text structures. For example, one paragraph in the selection may have a problem/solution text structure, while another has a compare/contrast text structure. Guide students in identifying the text structure in each paragraph and proceed with determining the important information.

Also help students understand that cause/effect and problem/solution text structures can be tricky to distinguish. The problem could be similar to a cause and the solution similar to an effect. The panel suggests acknowledging that the text structures can often appear quite similar and that authors sometimes use both in one text. In such instances, the panel suggests acknowledging the similarity, but focusing on one text structure to create gist statements.

Students may notice that some paragraphs do not use one of the common text structures. In some cases, passages do not have a clear text structure. Instruct students to use the routine in **Resource 3C.1** when a text structure is not evident.

After students are proficient in identifying text structures, show students how to use a text structure to generate gist statements. Demonstrate how answering the questions listed in **Resource 3C.3** related to the text structure can help students generate a gist.

Resource 3C.3. Types of text structures and the related questions that help identify the gist

Problem/solution text structures are used to describe a problem and how it was solved.

Question: *What is the problem? What is the solution?*

Cause/effect text structures are used to explain how one thing or event led to or caused another thing or event to happen.

Question: *What happened? What happened as a result?*

Compare/contrast text structures are used to explain how topics are alike or different.

Question: *How are the topics the same? How are they different?*

The goal is to show students how these related questions can be a useful tool to identify the most important information in the passage. For example, answering the question "What is the problem?" will help students determine who or what the passage is about.[129] The important information about the who or what can be determined by answering the question, "How is/was the problem solved?" Answering these questions will lead to generating the gist by identifying who or what the passage is about and the important information the author wants you to know. After modeling how these questions help generate a gist, guide students through using these questions to generate a gist statement.

Example 3C.2 depicts a teacher modeling how to use a text structure to generate a gist statement.

Example 3C.2. Teacher modeling how to use a text's structure to generate a gist statement for a group of students

Before reading, the teacher briefly explains where Wuhan, China is located on a map and the meaning of the words *virus* and *global pandemic*. The teacher stops once while reading to rephrase a sentence, replacing the word *vaccine* with "medicine that protects you from getting too sick."

COVID-19: A Dangerous Virus

> In December 2019, a virus identified as COVID-19 began to spread from the Wuhan province in China. By March 2020, COVID-19 had caused a global pandemic, which means the virus had spread to all parts of the world. The COVID-19 virus is dangerous because it attacks the cells in the lungs, and it is easy to catch. By February 2021, half a million people in the United States had died from the virus.
>
> During the COVID-19 pandemic, health care professionals strongly advised us to change the way we live. They asked that people wear face masks and stay at least six feet away from other people in public places. They also recommended that people stay home to control the number of people who would get sick from the virus. Instead of going to their local school, students across the United States went to school online. Several drug companies quickly developed vaccines that could be used to protect people from the COVID-19 virus. With effective vaccines, the number of people catching the COVID-19 virus will get lower and lower, and people will be able to live more normally.

After reading the short section of text aloud, the teacher gives the students the following explanation.

Teacher: *I think this section of text has a problem-solution text structure. The problem is the virus and all the sickness and death it is causing.*

The teacher circles the word virus.

Teacher: *I know the virus is a problem because it says here that it has spread to all parts of the world, that it is easy to catch, that it attacks the lungs, and that many people have died from the virus. The COVID-19 virus was in almost every sentence. Next, I ask myself, what is the solution? In this case, there were many solutions. People changed the way they lived by wearing masks, staying home, and attending school online.*

The teacher highlights the three solutions.

Teacher: *The development of the vaccine to prevent people from getting the virus is also a solution. I know that because it says here that the vaccines will make it so that fewer people get sick from the virus.*

The teacher reminds students that figuring out the type of text structure can help them to write a gist statement. The teacher reminds students that the problem is who or what the passage is about, and the solution is the most important information about the person, place, or thing. Next, the teacher shows students how to develop the gist using the text structure.

The teacher writes "The problem is the COVID-19 virus, and one solution is the vaccine" on the board.

Continued on the next page…

Example 3C.2. Teacher modeling how to use a text's structure to generate a gist statement for a group of students (continued)

Most important information:

1. The COVID-19 virus was very dangerous, and many people died.
2. Health professionals said we should wear masks and stay away from other people to stop people from spreading the COVID-19 virus.
3. Drug companies developed COVID-19 vaccines to help protect people.

The teacher formulates the following gist statements and writes them on the board.

Possible gists:

1. We changed our lives to stop spreading the COVID-19 virus, but vaccines will help us live more normally.
2. The COVID-19 virus made people sick, but vaccines will keep people safe.

Teacher: *Now I need to reread my gist statement to see if it makes sense. Did I identify the who or what this section is about? Yes, the what or the problem is the COVID-19 virus. Did I identify the most important information about the COVID-19 which is the solution? Yes. The most important information about the COVID-19 virus is that vaccines were developed, which is the solution. The solution is the vaccines, which will bring us back to normal. Did I write this in my own words and not copy them directly from the text? Yes. I don't see sentences exactly like mine.*

3. Work collaboratively with students to generate gist statements.

After modeling generating a gist statement using a routine or text structure once or twice, include students in collaboratively generating gist statements by prompting them through the steps of the routine. Have students provide rationales for their decisions and point to the portions of the text that support their thinking. Also, have students identify irrelevant information and provide their reasoning for why they consider the information to be irrelevant. This may be difficult for students at first. Affirm what they do well and provide ideas for improving when they need help.

Guide students by asking leading questions as the group works together to synthesize the most important information into a gist statement. Write the gist statement that is collaboratively developed on an easel or whiteboard, so that the group can keep track of the gists for each section of text. Have students write the gists in their logs and refer back to the gist statements for previous sections to determine if the gist they just wrote makes sense. Check whether it makes sense by filling in the statement: "This makes sense because in the last paragraph, I learned that _____."[130]

In each lesson, repeat the process of discussing the important information and generating a gist statement for each section for a total of 3–4 sections of the text.[131] Students will need a lot of support at first, but as they become more proficient in applying the routine, gradually reduce the amount of support provided.[132] **Example 3C.3** outlines how a teacher worked with a group of students to identify the gist of a section of text.

Example 3C.3. Teacher and students collaboratively generating a gist statement

Before reading, the teacher briefly develops students' knowledge of genetics and DNA by showing a short video clip. The teacher explains the meaning of *genes* and *traits* in the context of the passage. The students share traits they have in common with their parents or siblings.

> Genes play an important role in determining how you look and other traits you have that have been passed to you from your parents. Your genes include instructions that tell your cells to create certain traits or characteristics, such as whether you have curly or straight hair or how you smile. These instructions are called deoxyribonucleic acid (DNA). Each of your biological parents passes on half of their genes. That means that half the instructions in your body come from your biological mother and half from your biological father. Each gene has a special job, and the instructions or DNA tell your genes what to do. Because you share some of the same instructions in your genes as your parents, the instructions in your body will tell your genes to create some traits that are like your parents' traits, and you can end up looking like your parents. Your brothers and sisters who have the same biological parents may also have some traits like your parents.

The small group of students reads the text together. The teacher stops the reading briefly to clarify the meaning of *biological*. The teacher reviews the steps of the routine in **Resource 3C.1** for generating gist statements.

Teacher: *Let's generate a gist statement together. What is the first step?*

Students: *We need to figure out who or what this is about.*

Teacher: *Right. Who or what do you think this passage is about?*

Jordan: *Families looking alike!*

Sammy: *I think it is about genes.*

Teacher: *So, it looks like we have two different thoughts about who or what this passage is about. Let's talk about this. Why do you think it is families looking alike, Jordan?*

Jordan: *I think so because it says families look alike because they share the same genes.*

Sammy: *But it's talking about genes too. We read that genes make our traits.*

Teacher: *Let's read what it says. The first sentence says, "Genes play an important role in determining how you look and other traits you have that have been passed to you from your parents."*

The teacher highlights the sentence with these two ideas.

Teacher: *What does it seem like this sentence is about?*

Lupe: *Genes.*

Teacher: *Let's continue with the next sentence: "Your genes include instructions that tell your cells to create certain traits or characteristics such as whether you have curly or straight hair or how you smile." What are they talking about here?*

Jordan: *Traits*

Teacher: *We have to decide what it is mainly about.*

Continued on the next page…

Example 3C.3. Teacher and students collaboratively generating a gist statement (continued)

Sammy: *It says that genes are how traits are passed on, and everything we read talks about traits. So, I agree, it is about genes.*

The teacher circles all the places *genes* and *traits* appear.

Teacher: *It mainly talks about genes, but sometimes it is hard to figure out what the passage is about. But for now, do you all agree that this passage is about genes or how traits are passed on? Turn and talk to your partner and decide if you agree or disagree.*

Students talk to their partner briefly and then the teacher asks them to raise their hands if they agreed. All the students raise their hands.

Teacher: *So, this section mentioned that half of our parent's DNA is passed on to us. If you are talking about things that are passed on that are characteristics, what do you suppose they are talking about here?*

Jordan: *They might be talking about a child having the same hair as their dad*.

Teacher: *Yes, they talked about genes and DNA, so they could be talking about characteristics you see. How can we put that all together?*

No response.

Teacher: *Children inherit many things. What can we call them?*

Aria: *Traits.*

Teacher: *Let's put that all together. The main "what" is...?*

Aria: *Genes?*

Teacher: *What do they do? Let's list the most important information about them.*

The teacher elicits responses from students, highlights the important information in the text, and writes it on the board.

1. Traits are passed on.
2. Our genes have instructions called DNA, which tell our body to develop certain traits or characteristics.
3. Half of each parent's DNA is passed to their child.

After this, the teacher lists all of the important information. The teacher then synthesizes the information to tell what this paragraph is about.

Teacher: *What is all of this important information telling us?*

Jordan: *Genes and traits we get from our parents.*

The teacher tells students to work with a partner to generate gist statements. The teacher reminds students to check that their gist statement includes the most important information and is a short complete sentence that makes sense. Afterward, students share the following gists:

1. Genes play a part in how children get traits from their parents.
2. Genes include instructions for traits passed on from parents to children.
3. Genes include DNA that makes traits that are passed down in families.

As students become more confident generating gists as a group, provide them with additional practice by generating gist statements with a partner. Provide a prompt card listing the steps in the routine in **Resource 3C.1** or display the routine on a poster. Ask students to share the gist statements they wrote with their partner with the group. Explain that there can be more than one correct gist for a passage. It is important for students to know that when generating gist statements, there are often many ways to state the same information correctly.[133]

For students, certain portions of the passage will be more difficult than others. They may have a harder time generating a gist statement for difficult paragraphs. Provide more support for difficult passages. This might include prompting students to explain their responses or elaborating on what students say to clarify what the students believe the author is trying to tell them. Sentence starters may be particularly helpful with explaining their reasoning.

Potential obstacles and the panel's advice

OBSTACLE: *My students are having a really hard time generating gist statements. What can I do?*

PANEL'S ADVICE: Generating a gist statement can be hard depending on the difficulty of the text. Breaking the task of generating a gist into smaller pieces can be helpful. Begin by focusing on the main *who* or *what* using short paragraphs or paragraphs that are not as difficult. In subsequent lessons, focus more on identifying the most important information. As students get more comfortable with the idea of identifying who or what is most important and the important information about the who or what, increase the length and/or difficulty of the text they are working with.

Teach students how to mark (e.g., highlight, underline, or circle) parts that may be important so they can distinguish the important information from the irrelevant information. Graphic organizers can be particularly helpful in sorting relevant from irrelevant information. Students can make their own graphic organizers. Discuss with students their ideas for which information is relevant and which is irrelevant. Ask students to justify their answers. Through discussion help students understand their reasoning for determining which information is relevant and which information should not be marked. Ask students to work in pairs to mark relevant information in a short paragraph and discuss their reasoning. One of the toughest parts of generating a gist for students will be connecting ideas and merging those ideas into a new, single sentence. It can be helpful to present completed gist sentences at first. Show students 2-3 options for gist statements and discuss which is the best match and why. Ask students to work with a partner to discuss another paragraph and potential gist statements. Ask students to defend which sentence they thought was the best synthesis.

It can be hard for students to write a gist in their own words, rather than copying words from the text. Have students practice putting the ideas into their own words. As students get more comfortable using their own words, ask students to work in pairs to develop their own gist statements. Walk around the room to provide support to the pairs, as necessary.

This is tricky, and students will need multiple opportunities to work on these statements with support.

OBSTACLE: *Students get tired of doing gist statements day after day.*

PANEL'S ADVICE: Including a variety of activities can be helpful. After spending some time devoted primarily to learning how to generate a gist statement, spend time on other areas of comprehension, such as word knowledge or asking and answering questions.

OBSTACLE: *I am not sure what text to use with students when teaching them how to generate the gist.*

PANEL'S ADVICE: Vary the topics and genres of texts students are reading for gist statements. Generating gist statements for informational text related to science and history can be balanced with generating gist statements for texts on other topics that relate to interests they express, as well as fiction and nonfiction passages or short stories, including some material that relates to their lives. Students can also bring their core subject text and the group can work on gist statements with a current passage. This could be helpful in preparing students for the next day's lesson, which could help them feel more motivated to learn with their peers.

OBSTACLE: *Sometimes, I think my students have finally learned how to generate gist statements. But then, a few days later, we get to a new piece of reading material, and it all falls apart. Will they ever learn how to do it?*

PANEL'S ADVICE: As texts get more difficult or students encounter unfamiliar topics, generating gist statements becomes more challenging, and students will need more support and discussion. Also, students may have trouble with a harder text when they do not have enough world and/or word knowledge. Continue to ask students to generate gist statements so they can continue to work the skill with harder and harder text.

OBSTACLE: *I seem to spend too much time talking at my students when we work on gist statements.*

PANEL'S ADVICE: Teachers can model the process for generating a gist statement at the onset. However, soon after the model, students can play an increasingly larger role in the process. For example, after providing a model of how to use the routine for generating a gist statement for an initial section of text, read another section of the text and work collaboratively with students through the process of generating a gist statement. Guide discussion to identify who or what the section is about and the important information and to synthesize the important information into a gist statement. Throughout this process, remember to ask students to justify their responses. If students' responses are not on target at first, ask follow-up questions. Ask students to reread the text and continue the discussion. Acknowledge that generating a gist is not easy, but it will help them when they read on their own.

Recommendation 3, Part D: Teach students to monitor their comprehension as they read

Students may not know when they do not understand what they are reading. For some students, reading has always felt like a task to complete, but not a task that helped them learn about a topic. However, in grades 4–9, students need to gain information from what they read. Students need to learn to be aware of their own comprehension and determine whether a section of text is making sense to them. One of the first steps in building awareness is being able to say, "I don't understand this."

When students monitor for understanding as they read, they can recognize whether the text is making sense to them.[134] There are several actions students can take when they figure out that they are not understanding the text.[135] These actions can help students make sense of the text.[136]

This part of **Recommendation 3** focuses on teaching students to determine if they are understanding the text,[137] to ask themselves questions to check their understanding, and to take actions to make sense of the text.[138] The recommendation also teaches students to reflect on their learning.[139]

How to carry out Part D of the recommendation

1. Help students determine when they do not understand the text.

To help students become more comfortable with acknowledging when portions of a text do not make sense to them, have students practice with isolated sentences. **Example 3D.1** illustrates this type of exercise. This activity includes some nonsensical sentences to help students get in the habit of asking themselves, "Does this make sense to me?" The teacher asks students to read a sentence and determine if it makes sense. If the sentence does not make sense, the teacher tells students to mark (e.g., underline or highlight) the word they cannot read or do not understand or the portions of the sentence that do not make sense.[140] Discuss the statements students were not able to understand and which parts caused the problem. Help students think through what they can do when they do not understand a word or phrase.

After students have practiced identifying whether or not what they read makes sense at the sentence level, move on to longer pieces of text with multiple sentences.

Example 3D.1. Sample student sheet: Does it make sense?

1.	The Olympic games began almost 3,000 years ago on the sun.	Yes	(No)
2.	When the first Europeans arrived in North America, native Americans played grapes like football.	Yes	(No)
3.	At the library you can find books on any sport you are interested in.	(Yes)	No
4.	Many people watch sports on TV for their exercise.	Yes	No
5.	A student athlete goes to school and practices every day.	Yes	No
6.	If you can do a cartwheel, a handstand, or the splits then you can do gymnastics.	Yes	No
7.	Basketball and skateboarding are two fairly new stores that began in the United States.	Yes	No
8.	Many schools have a gym from students of exercise.	Yes	No

Source: The Meadows Center for Preventing Educational Risk (2013).

2. Teach students to ask themselves questions as they read to check their understanding and figure out what the text is about.

When students ask themselves questions, they have an opportunity to check their understanding.[141] Asking themselves questions about their understanding helps students see what they know and do not know, so they can think about what they should do to better understand the text.

This type of questioning is different from students asking questions about the text to gain a deeper understanding of the text content (see Step 3 in **Recommendation 3, Part B**). For example, asking questions about the text is not an opportunity to check students' understanding, but rather an opportunity to think about the content of the text and make connections between the text and what they have read or learned recently.

Teach students to stop periodically and ask themselves what the section of text is about or what the gist statement is for the section of text. When they think about what the section is about, they can figure out whether what they are reading is making sense. If they do not understand, they can reread the section slowly and carefully, if necessary.[142] They can also figure out which words are stumping them or try to think about what they know about the topic. **Resource 3D.1** provides a list of questions students can use to help them figure out what they understand.

Resource 3D.1. Possible questions students can ask themselves as they read

First, I ask myself: *What was that section of text about? What is happening in this section?*

Then I ask myself:

1. If I am not sure what this section is about, I ask: *Are there any words I cannot read or do not understand? Are there any phrases or sentences that do not make sense? Should I reread that section carefully?*
2. If a word or phrase doesn't make sense, I ask: *How am I going to figure out what that word or phrase means?*
3. If I am not sure what this section is about but it reminds me of something, I ask: *What else do I know about this topic?*
4. If I think I know what this section is about, I ask: *What are the main points so far? Do I need to reread and mark the main points so that I can remember them?*

Model how you would read a passage and ask yourself questions aloud as you read.[143] This will help students hear how asking questions and thinking about the words in the text can help them make sense of the text. In **Example 3D.2**, a teacher stops periodically to ask questions and identify what makes sense and what to do when the text does not make sense.

Example 3D.2. Teacher demonstrating how to ask questions to monitor comprehension

Teacher and students are reading a biography of Mary Winston Jackson.

Teacher: *To keep track of what I am reading, I am going to ask myself questions. After this first paragraph, I ask "What was this section of text about?" I read that Mary Winston Jackson loved science and that she volunteered by helping youngsters in a science club at a local community center. They built wind tunnels and conducted experiments. I think I understand this part of the passage.*

The teacher goes on to read more and realizes that the students might struggle with the next paragraph, so models how to figure out what the section of text is about.

Teacher *I am going to ask myself, "What was this section of text about?" I know it is about a woman, a scientist. But I can't figure out what she did. I am not sure. I realize now that I do not understand this section. I ask myself, "Do I need to reread this section? Should I reread the section slowly?" Yeah, I need to reread this section slowly. Maybe that will help me.*

The teacher rereads the sentences aloud slowly.

Teacher: *Oh…I see, here the text talks about how she helped young people.*

The teacher goes on to explain that students can monitor for understanding as they read by asking themselves questions. If they do not understand something, they can reread the text or seek more information from a peer, teacher, or online resource.

Read the text as a group and stop periodically to ask the group to think about whether they are understanding the text and what they can do to address their misunderstandings. Ask students the questions they should ask themselves in **Resource 3D.1** and support them in answering the questions. Use prompts and questions to help students move toward independence in asking themselves questions.[144] When necessary, prompt students by pointing out specific sentences that might be confusing.

As students become more comfortable asking themselves questions, have them work in pairs or small groups to read the next paragraph and share how they asked themselves questions during the reading. Have students talk about the questions they asked and whether those questions prompted them to do something to address their understanding.

3. Provide opportunities for students to reflect on what they have learned.

Giving students opportunities to note what they have learned not only helps students integrate their learning and take stock of what they are understanding, but it also helps teachers prepare for the next lesson. Depending on what students have learned, teachers can plan to include additional practice or move on to more challenging activities.

Before the end of the intervention session, ask students to write down what they learned in the day's lesson, what they are still confused about, and what they might have done to help themselves understand better. This will help them to remember new information and think about what could help them in the future.

Sentence starters can help students write about what they learned. Have students choose 2–3 sentence starters to complete at the end of class. **Resource 3D.2** provides a list of possible sentence starters.

Alternatively, ask students to answer some comprehension questions instead.[145] **Example 3D.3** depicts a sample list of questions a teacher can ask students to answer as a way of reflecting on what they read. Ask students to mark any answers in which they are not confident. This will help students practice identifying when they do not understand what they read.

Resource 3D.2. Possible sentence starters to complete after reading

1. Today I learned…
2. I was surprised by…
3. The most useful thing I will take from this lesson is...
4. One thing I am not sure about is…
5. The main thing I want to find out more about is…
6. After this session, I feel…

Example 3D.3. Sample list of questions that will help students reflect on what they read

1. How do humans contribute to greenhouse gases?
   a. Burning fuel, such as gasoline in a car.
   b. Playing video games.
   c. Watching TV.
   d. All of the answers above are correct.
2. What does the word *gradually* mean as it is used in the passage?
   a. Does not change
   b. Quickly
   c. Slowly
   d. Related
3. What could happen if sea levels rise?
   a. Earth's temperatures may rise.
   b. Homes near the sea could be flooded.
   c. There will be more sea life.
   d. There will be more fresh water for dry land.

Source: The Meadows Center for Preventing Educational Risk (2013).

Potential obstacles and the panel's advice

OBSTACLE: *My students are reticent to share what they did not understand.*

PANEL'S ADVICE: Helping students feel comfortable sharing when they are not understanding what they are reading may take time. Some students may not feel comfortable at first. They may want to hide their confusion, or they may not be accustomed to identifying when they are stuck. Repeatedly and gently, encourage students to share when they need help and remind them that you are there to help.

OBSTACLE: *I keep stopping every two minutes to make sure they are understanding what they read. This does not seem to be working well.*

PANEL'S ADVICE: It can be hard to follow along with the text if you are stopping too often. If this technique is not working well, interrupt their reading after longer sections of text. Ask students to continue to mark (e.g., underline or highlight) any problem areas in the text as they read and share what they marked at stop points further along in the text.

OBSTACLE: *Students like to preview the text to determine how difficult it is, but this doesn't seem like a good use of their time.*

PANEL'S ADVICE: Previewing text can prepare students for reading and can help them monitor their understanding.[146] Students can check the title, subheadings, and figures to get a sense of what they will be reading and to quickly check in with themselves to see if the passage's topic is something they know about or if it is a topic that is unfamiliar to them.[147] Teach students to think about whether the text will be difficult for them and how much they will read before checking their understanding.[148]

OBSTACLE: *My students mark too many words that they cannot read. How do I help them?*

PANEL'S ADVICE: If students underline profusely, check the difficulty level of the text. It could be that the text the students are reading is not at an appropriate level. If the text is at the students' instructional level, ask students to pick a few words or phrases that made it hard for them to understand the passage and focus on those. Consider modeling for students how you got stuck and choose a few words or phrases to mark for further exploration or discussion. If this remains a chronic problem, reconsider the reading material being used. It may be too difficult.

Recommendation 3, Summary: Putting together the comprehension-building practices in Parts A–D

Example 3E.1 depicts how a lesson can incorporate several comprehension-building practices from **Recommendation 3**–developing world and word knowledge, generating a gist statement, and monitoring for understanding–in a lesson using partner work.

Example 3E.1. Putting it all together

In previous lessons, the teacher taught students how to generate a gist, monitor for understanding, and follow procedures for working with a partner.

World knowledge (2 minutes): The teacher asks students if they have plants at home or if they have ever tried to grow plants. The teacher asks the students to think about what they need to do to make sure the plants live and grow. If students do not say, "water them and put them in the sun," the teacher can provide that information. The teacher explains that they are going to be learning about a plant called the Venus flytrap, which grows in a difficult place and has an unusual characteristic. The teacher tells the students that they will learn that this plant grows on the East Coast of the United States. The teacher points out the east on a map, indicates that the plant grows mostly in the southeast, and asks students to read several of the state names in that area, for example, Florida, Georgia.

Word knowledge (2 minutes): The teacher writes *nutrients* on the board and explains that the essential word they will learn today is *nutrients*. The teacher asks them to repeat the word. The teacher explains that nutrients are chemical substances like vitamins and minerals that plants and animals need to live and grow. The food we eat—like fruit, vegetables, and meat—contains nutrients. That's why a good diet keeps us healthy. Plants get their nutrients from sunlight, water, and soil. The teacher asks how plants get nutrients from the soil. If students do not say that "they can pull them up or absorb them through their roots," the teacher is prepared to provide that information.

Generating a gist, developing word knowledge, monitoring for understanding (20–25 minutes): The teacher reads the passage aloud while the students follow along.

> The Venus flytrap lives mostly in swampy areas along the East Coast of the United States. These swampy areas have soil that does not provide many nutrients. It is hard for plants like the Venus flytrap to get nutrients from such poor soil. Venus flytraps have evolved to find nutrients in other ways. They get some nutrients from the soil, but they also catch and eat insects. They are carnivorous plants.

The teacher pauses briefly after the first sentence to say that *swampy* means that the ground is very wet and soft. The teacher stops after reading a couple sentences to clarify the meaning of the word *evolve*. The teacher tells the students that evolve means to change over long periods of time. Then the teacher rereads the sentence: *Venus flytraps have changed over time to find nutrients in other ways*. The teacher also stops to clarify the meaning of the word *carnivorous* by saying that carnivorous plants are plants that eat insects.

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Example 3E.1. Putting it all together (continued)

Generating a gist, developing word knowledge, monitoring for understanding (20–25 minutes) (continued): At the end of the paragraph, the teacher asks students to pause a moment and ask themselves if they understood the passage so far, and if there were any parts that did not make sense. Pointing to the chart on the wall that lists sample questions (see list of questions students can ask themselves as they read in **Resource 3D.1**), the teacher reminds students of the questions they can ask themselves to monitor their understanding, for example, what was the section about? Do I need to reread the section? If students have questions, the teacher responds to them briefly.

Then the teacher asks the students to talk to their partner to identify who or what the passage is about. The teacher reminds students to look for what most of the sentences are talking about and reread the title, headings, and captions for the image for clues. The teacher gives the pairs 30 seconds to discuss and asks a couple of pairs to share their ideas with the small group. Several pairs say the paragraph is about the Venus flytrap. The teacher asks students to count how often they see Venus flytraps mentioned. The teacher reminds them to include instances where the Venus flytrap is referred to with a pronoun such as *it* or *they*. The group confirms that Venus flytraps are what the passage is about. The teacher writes Venus flytrap on the whiteboard.

The teacher asks students to share what they think is the most important information about Venus flytraps. The teacher encourages students who read from the text word-for-word to restate the information in their own words. The teacher lists the most important information that is shared on the whiteboard: *It eats insects; The Venus flytrap does not get nutrients from soil; It is a carnivorous plant; They are found on the East Coast*. The teacher reminds students that the gist statement is one sentence that combines important information. The teacher tells the students to think about what is on the board and underline the most important information they will include in their gist statements. The teacher then asks students to work with their partner to write a gist statement in their own words combining the Venus flytrap—that is, the "what"—with the most information left on the whiteboard.

The teacher asks two pairs to share their gist statements with the group. The teacher writes the two gist statements on the board: The Venus flytrap is a carnivorous plant that gets nutrients from insects; The Venus flytrap gets its nutrients mainly by eating insects. The teacher discusses how the gist statements are slightly different, and that is acceptable. The group discusses whether the statements make sense, are paraphrased, and complete. Through discussion, the group fixes any gist statements that are incorrect or do not make sense. The teacher asks students to write the gist statement they like best in their log.

The teacher asks students to pick one student to be the lead reader for the next section of text and the other will whisper read as their partner reads the paragraph.

> The Venus flytrap has three short, stiff hairs on the ends of its leaves. These hairs can detect when an insect passes over them, signaling the leaves to snap shut. When the leaves snap shut, they trap the insect inside. Some insects can get free, but many cannot, and the more they struggle, the tighter the leaves become around them. The leaves remain slightly open so that smaller insects can wiggle free because those smaller insects do not provide enough nutrients. The leaves can also detect whether what is trapped is an insect, rather than a nut or stone. After 12 hours, it will spit out anything that is not an insect.

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Example 3E.1. Putting it all together (continued)

Generating a gist, developing word knowledge, monitoring for understanding (20–25 minutes) (continued): As students finish reading, the teacher first pauses to check on students' monitoring, asking if they understood and if they have questions. Then the teacher asks them to follow the steps of the gist routine (see routine for generating a gist statement in **Resource 3C.1**) and write a gist statement with their partner. The teacher monitors how the groups are doing and provides praise when they do a step correctly. The teacher guides students as needed by asking: How does it know there is an insect passing by? What does it do when an insect lands on its leaves? What happens to the insect after the leaves close? What happens to small insects? Is that information important for figuring out the gist? Why?

Again, the group discusses who or what the paragraph is about, the important information, and the gist statements they developed. They evaluate the gist statements to make sure they make sense given the gist for the previous paragraph and that they are short and complete.

The teacher asks the partners to take turns reading and to generate gist statements for two more paragraphs. After working with the group to evaluate the gist statements for the next two paragraphs, the teacher reads the gist statements for the four paragraphs to review what they have read and learned.

World and word knowledge (3–5 minutes): The teacher shows pictures of a lush forest and a desert and asks students where plants would have a harder time getting nutrients. The teacher discusses how other plants have adapted to live in these areas, such as ferns and cacti. The teacher also reviews the word *nutrients* and says that *nutrition* is a related word that means eating the kinds of foods that keep plants or animals in good health. The teacher also explains the broader definition of *carnivorous*, so students understand that it means to eat animals or meat.

Monitoring for understanding (3–5 minutes): Before leaving for the day, the teacher asks students to jot down what they learned and what they were still confused about. The teacher also asks students what they could have done to help themselves understand better. The teacher monitors the students as they work and ask students follow-up questions when they could provide richer answers.

Source: **readworks.org**; Wexler (2020–2024).

Recommendation 4: Provide students with opportunities to practice making sense of stretch text (i.e., challenging text) that will expose them to complex ideas and information

Stretch text refers to reading selections that are challenging for students to read on their own, which means they are typically above students' independent reading level. These texts are often at or just below students' grade level.[149] With appropriate teacher supports, and on occasion technological supports, students can read and understand challenging texts. Working through these texts in small groups will give students the confidence and skill they will need to approach similar texts in subject-area classes.

Stretch texts can provide students with exposure to sophisticated vocabulary, more intricate sentence structures, and complex ideas.[150] Exposure to these higher-level vocabulary words, sentences, and ideas can help students develop confidence, deeper knowledge, and richer perspectives on the texts they read in the future.[151]

The panel recommends using activities like those described in **Recommendation 3**, on comprehension, while working with stretch texts. However, because stretch texts are often far more challenging for students, teachers will need to provide significantly more support than when students read texts at their instructional level. Teachers will play two equally important roles in the process of students reading stretch texts. Teachers will guide students as they work through challenging text and frequently provide encouragement as students complete these reading activities.

This recommendation aims to provide teachers with ways to enable students to meaningfully access grade-level content. The first step is to prepare for the stretch text lesson, which will be useful in providing the supports that will be used when implementing the lesson. The second step is to provide the supports students will need as the group works with stretch text together. In the third step, teachers can also provide students with electronic supports to use while reading independently, when they are ready.

The panel recommends working on stretch text 2–3 times a week for periods of 6–10 weeks. Then taking a break to read material at their instructional levels for a couple weeks to give students a break from this demanding work.

The WWC and the expert panel assigned a moderate level of evidence to this recommendation based on 15 studies of the effectiveness of instructional practices for using stretch text in interventions for students who are struggling with reading. Seven of the studies meet WWC group design standards without reservations, and eight studies meet WWC group design standards with reservations. See **Appendix C** for a detailed rationale for the Level of Evidence for **Recommendation 4**.

How to carry out the recommendation

1. Prepare for the lesson by carefully selecting appropriate stretch texts, choosing points to stop for discussion and clarification, and identifying words to teach.

Consider texts that are at the upper range or somewhat above the upper range of students' independent reading levels.[152] Sequence the stretch text passages so that the difficulty and passage length gradually increase. This may mean starting with one or two paragraph selections at the outset and gradually increasing the difficulty and length of the texts.[153] This gradual progression will help build students' confidence and persistence.[154]

Some reading intervention curricula include a wide array of stretch texts as part of the program, or as a supplement to the program. Stretch texts can also be found on websites like **newsela.com** and **readworks.org**.

Choose texts related to topics students are studying in their subject-area classes when possible, rather than isolated passages or excerpts from the subject-area textbooks, which students often do not find interesting or motivating. Using related materials can help build students' world and word knowledge for later reading in their subject-area classes.

Look for texts that are engaging and that discuss interesting ideas or perspectives.[155] Include texts that will pique students' interest and keep them engaged and motivated. Students are often interested in topics that relate to their culture or personal experiences.[156] Students might also be interested in complex concepts such as justice or fairness, the joy of accomplishment, struggles faced by accomplished individuals, dilemmas faced by groups of people, interesting phenomena in the natural world, or biographical sketches about influential young people such as Amanda Gorman or Greta Thunberg.

Before the lesson begins, read through the text to choose logical points to stop for group discussion. This guide refers to these points as stop points. This work can be done by teams of teachers and/or interventionists.

Some intervention curricular materials may provide designated stop points. Many will provide an array of questions to ask at specific points. However, if the curricular materials do not contain designated stop points, plan when to stop to discuss the text before beginning to read with students. During the early phases of stretch text instruction, these stop points should be frequent. Consider stop points where the text may be difficult to comprehend, where the author has finished making a comparison, or where the author seems to be making a tentative conclusion.[157] Use a sticky note or marking to note where to stop.[158] Jot down a question that could be used as a discussion starter and a couple of follow-up questions when appropriate.

Also create a list of difficult multisyllabic words, proper nouns, and essential words to discuss before and during reading.[159]

- Prepare a brief explanation of the proper nouns related to the context of what students will be reading. Understanding what proper nouns mean can greatly enhance students' understanding of the text as they are reading.[160] Students can get lost if they do not know basic information about people and places. For example, if

Paris is the setting for the passage, be prepared to say, "Paris is a city in France where this exciting event takes place."

- Mark multisyllabic words that reinforce their new reading skills and help them read the passage. These markings will be a good reminder that these are words for which students can use the skills they have recently acquired. Spending some time on how to read these words will help the group to read the passage smoothly.
- Prepare 2-3 essential words to briefly discuss before reading. Essential words are those that are critical for understanding the information and ideas in the passage (see **Recommendation 3, Part A** for more information on essential words). Be prepared to provide brief explanations of the other essential words during the stop points.

Example 4.1 depicts a teacher's preparation to read a short passage about novelist Louise Erdrich.

Example 4.1. Teacher preparing to read a short section from a grade-level text about noted novelist Louise Erdrich

Louise Erdrich Wins Pulitzer Prize in Literature

The Pulitzer Prize is one of the highest awards that writers can receive. In June 2021, the novelist Louise Erdrich won the award for her novel *The Night Watchman*. *The Night Watchman* is based on the life of her grandfather who fought to ensure the Ojibwe tribe could keep their land.

Erdrich writes frequently about life on and near the reservations. Louise's mother was Ojibwe. Although her father was not Ojibwe, both her parents attended a boarding school run by the Bureau of Indian Affairs. The boarding schools were intended to assimilate Native American children into the "American way of life" and to train them for low paying jobs.

Erdrich won the equally prestigious National Book Award for her novel *LaRose*. Like all her novels, *LaRose* explored the rich traditions of Ojibwe people and the struggle of children being forced to attend boarding schools many miles from their families. The novel explored the cruelty of separating children from their families and their traditions.

Erdrich's books describe horrors but are also full of humor. They include many fascinating people. Some are very wise and caring, some thoughtless, and many in between.

The teacher marks the following sections and words before beginning to read with the group. This is grade-level material for the English language arts class.

Stop points and discussion starters:

- Stop after paragraph 1 – What is this paragraph about?
- Stop after paragraph 2 – What was the purpose of the boarding schools for Native Americans?
- Stop after paragraph 3 – What happened in her novel *LaRose* that was disturbing?
- Stop after paragraph 4 – What are some positive aspects of her novels? What do you think the author means when describing people who fall in between being wise and thoughtless at the same time?

Continued on the next page…

Example 4.1. Teacher preparing to read a short section from a grade-level text about noted novelist Louise Erdrich (continued)

Proper nouns:

- Pulitzer Prize
- Louise Erdrich
- Ojibwe
- Bureau of Indian Affairs
- Native American

Multisyllabic words using previously taught word-reading skills:

- frequently
- reservation
- attended
- assimilate
- traditions

Essential words:

- novel
- reservation
- assimilate
- boarding school

2. Provide significant support as the group works through a stretch text together.

Students will need teacher support to read and understand stretch texts. Work through stretch texts as a group with teacher support, rather than assigning stretch texts to students to work on independently or with a partner.[161] Students will need ongoing support and direction to make sense of the more challenging words and sentences so that they can articulate and discuss the ideas in these stretch texts. With adequate support, students will be able to make sense of these texts and gradually develop habits for grappling with stretch texts that appear in their subject-area classes. Vary the degree of guidance provided depending on the students' reading level, the text complexity, and student interest in the text.

Before reading, help students understand that stretch text activities will be very difficult at times. Explain to them that all readers (including their teachers) read material that includes words that are difficult to read or understand, or about topics for which they lack relevant world knowledge. Explain (and then remind them often) that, as in athletics or learning to play a musical instrument, readers need to challenge themselves to build their skills. Explain that the goal is to keep trying to make sense of challenging texts together, so students develop the habit of sticking with difficult passages. This habit will help them when they read difficult passages in their subject-area classes and outside of school.

Prior to reading, write the words identified in Step 1 on a whiteboard or equivalent display.

Provide a brief explanation of the proper nouns and the meaning of 2–3 essential words. Briefly work with students to read the difficult multisyllabic words.

Use an array of approaches for reading the passage aloud as a group. For example, read aloud and ask students to read along quietly; read a couple of sentences and have a student read the next couple sentences; or read aloud together. Pause at the stop points prepared before reading to discuss what the section of text is about or the essential words that appeared in the previous paragraph(s). Discuss any words or phrases students did not understand or know how to read.

Example 4.2 demonstrates a teacher working through stretch text with a small group of upper-elementary students. The book tells a story about a dinosaur skeleton that is stolen. The bones were originally uncovered in Mongolia, but the seller was trying sell them as bones found in Great Britain. The teacher is at a stop point and begins with a broad question about what the students just read. Note how the teacher provides hints but does not provide the answer to the question. The students must use the text to find the answer but knows the teacher will provide support.

Example 4.2. Teacher assisting students in working through text

Teacher: *First, I will read this aloud. But you follow along by reading in a quiet voice.*

After they reach the designated stop point, teacher asks them to reread to themselves, asking themselves what the text is about and how the pieces connect.

Teacher: *Tell me what this part is about.*

Bindu: *About a dinosaur.*

Teacher: *What did you learn about the dinosaur skeleton (or bones) in this part? Go back to the text to find the answer.*

Bindu: *The dinosaur bones were for sale.*

The teacher then guides Bindu to read the next sentence to find out where they found the dinosaur skeleton.

Sam: *In Great Britain.*

Teacher: *Look at the last two sentences starting with the words, "This type of dinosaur..." in this paragraph. Read the last two sentences with me.*

The teacher reads with Sam.

Teacher: *It tells us that this type of dinosaur would have been found a long time ago in Mongolia, so the dinosaur skeleton could not have been found in Great Britain. Are these two countries close to each other?*

Jaz: *No. The book told us that Mongolia is on the other side of the world from Great Britain.*

Teacher: *So, Bindu, what do you think happened to the dinosaur fossils?*

Bindu: *The fossils were stolen. Someone found them in Mongolia and stole them. I guess they figured they'd be able to sell them in Great Britain.*

Teacher: *That's it!*

Source: The Meadows Center for Preventing Educational Risk (2015).

Some lessons can focus on determining what a passage is about, while others focus on asking and answering questions or monitoring for understanding. For lessons that focus on determining what the passage is about, explain that with challenging texts, essential words can serve as a place to start to figure out what the author is trying to say. Show students how essential words can help them understand the text. At the onset, students will need support figuring out how essential words help them understand the main points in the passage.

Begin with shorter sections of text and gradually increase the length of text. Also, gradually reduce the guiding questions as students get comfortable with the task.

In **Example 4.3**, a teacher works with a small group of students on making sense of text that addresses a science topic. In this lesson, the teacher works with students to look back at the text to locate additional essential words. The teacher guides students in using the words to determine what the text is about and answer comprehension questions.

Example 4.3. Teacher leading students through using essential words to determine what the text is about and respond to comprehension questions

After reminding students that they are building reading confidence and persistence and that their motto is "stick with it," the teacher asks them to quickly scan the passage and let the teacher know of any words that they cannot read or don't know. The teacher then reads those words correctly for the group and defines them.

Next, the teacher tells students that the text has two essential words in bold—*climate* and *warming.*

Teacher: *Two essential words were in bold,* climate *and* warming*. These are words that are really important for understanding what this passage is about. The section is about how Earth's climate is getting warmer*.

The teacher writes the essential words on a whiteboard.

Teacher*: As we read, find two other essential words.*

After the teacher and students have completed reading, the teacher asks why the word *glaciers* was not an essential word.

Jess: *It only has that word once in the paragraph.*

Teacher: *That's a good clue. Often, essential words are words that you see several times in a section, like* climate *and* warming*.* Glacier *isn't an essential word because it was a detail and not the most important word for helping us to understand what is going on in the section. What essential word did you underline and why?*

Guadalupe: *I underlined* Earth *because it talks a lot about* Earth*'s climate.*

Teacher: *Good choice!* Earth *is an important word. We are talking about the Earth warming. I will put it on the whiteboard.*

After adding one or two additional essential words, teacher asks students to connect them together.

Teacher: *I will start to connect the essential words to identify the most important information in this passage.*

The teacher writes "The Earth…" on the whiteboard.

Teacher: *I have written the beginning of a sentence. Use the essential words to finish the sentence about the most important information in this section.*

After students articulate how they completed the sentence starter about the Earth, the teacher provides the students with three comprehension questions that relate to the text reading purpose. The teacher reminds them it is fine to reread parts of the passage before or as they answer the questions. She reminds them that they may be asked to justify their responses by reading the sentence that supports their answer.

The questions are:

1. How do humans contribute to greenhouse gases in the atmosphere?
2. What does the word *gradually* mean as it is used in the passage?
3. What happens when sea levels rise?

Source: The Meadows Center for Preventing Educational Risk (2015).

3. After students demonstrate comfort with reading stretch texts with the group, provide students with electronic supports to use when independently reading stretch text to assist with pronunciation of difficult words and word meanings.

Over time, students will demonstrate increased comfort in working with stretch texts. When this happens, in addition to providing students with challenging text to grapple with in a supportive small-group setting, students can work with stretch texts during independent reading using electronic supports available on tablets, laptops, and other devices.[162] Most of these devices include electronic dictionaries that can help students understand difficult words. Some devices may contain software that reminds students about their knowledge of word parts to help discern a word's meaning.

Some intervention materials include an audio feature that allows students to hear the text read aloud as they follow along silently with a hard copy of the book or while reading an e-book. Some programs provide an option where students can have the computer read a word out loud that they cannot read on their own.

Stretch text lessons should include some comprehension work. Some programs provide comprehension questions and strategy reminders that are integrated into the software.[163] Spend some time discussing the comprehension work students have completed.

Potential obstacles and the panel's advice

OBSTACLE: *Stretch text is just too frustrating for my students. They tend to give up far too easily.*

PANEL'S ADVICE: Remind students that this challenging task is just one part of their lesson and that they will be guided and fully supported throughout the lesson. Begin with very brief 1–2-sentence stretch texts and then build up to longer selections. Also, consider engaging students prior to reading by reminding them that the text is very difficult and that they likely will not be able to read it with ease. Yet, they will see improvement with practice.

OBSTACLE: *Grade-level science and history texts are typically many years above the instructional level for some of my intervention groups.*

PANEL'S ADVICE: In general, avoid material from textbooks. Students are often not as motivated or interested in textbooks as they are in other sources of information. Use trade books, articles, short magazine pieces, and other selections that cover grade-level content, but are only somewhat above students' current instructional level. It is also helpful to start with slightly challenging text and then move to more advanced text as the students become familiar with the process of grappling with stretch text. However, be aware that grade-level texts sometimes include very informative, student-friendly graphics and charts that can be very useful in learning the material. Therefore, it may be appropriate to use those selections for stretch text lessons.

OBSTACLE: *I get confused between what is considered stretch text or challenging text, and how this all fits into Lexile levels.*

PANEL'S ADVICE: There is conflicting terminology used in different reading materials and by different authors, with no clear distinctions between what is challenging text and what is stretch text. Some refer to stretch text as 1-2 years above a student's current independent reading level. Others refer to stretch texts as at or near a student's highest Lexile range. Regardless of the specific definition used, the goal for this recommendation is increasing students' persistence in making sense of the text and building the students' world and word knowledge. Also, remember that stretch texts allow for discussion of sophisticated ideas and perspectives that contribute to students' knowledge base for later reading and content classes.

OBSTACLE: *My students would prefer reading short stories and novels for their stretch text rather than informational text.*

PANEL'S ADVICE: Reading fiction is valuable but reading only novels and short stories is not sufficient to adequately build the academic and content vocabulary and world knowledge students need.[164] One option is the use of hybrid texts, texts aimed to provide students with a good deal of information about history, science, or economics but are couched in the form of narrative text. Short biographical sketches such as those on **Newsela.com** can be useful. However, occasional use of short stories and novels would be appropriate, especially if they have interesting themes or raise interesting issues.

Glossary

A

Author and Me questions are questions for which answering requires connecting information in text to information from prior experience or prior learning.

B

Base word refers to a word that can appear on its own in the English language (e.g., *honor* is the base word for *honorable* and *dishonor*).

C

Conceptually central words are words that are essential for comprehending the key concepts in a selection.

Content-rich texts are texts on important topics in academic subject areas (such as social studies and science) that provide access to key concepts and information and build knowledge in those areas.

Cumulative review is review of previously learned material that builds to include a variety of material from each lesson.

D

Decoding is the process of applying knowledge of letter-sounds to correctly pronounce written words.

E

E-book refers to an electronic, digital form of a book that includes text and sometimes images.

Encoding practice is practice that involves students applying knowledge of letter-sound relationships to identify the letters that make up a word in order to spell it.

Essential words are words that are conceptually central for understanding the topic of the text.

Explicitly refers to teaching with clear objectives, tasks broken into manageable chunks for learning, modeling with clear explanations to verbalize thinking processes, opportunities to practice with decreasing levels of support, and useful affirmative feedback.

Expression refers to reading with feeling that matches what the text means. In order to match the proper expression to each word or phrase, the reader has to understand the meaning of the words and the grammar of each sentence.

F

Fluency is the ability to read aloud with speed, accuracy, and proper expression.

G

Gist statements are concise sentences that convey the most important information in a passage.

Graphic organizers refers to visual teaching tools that can illustrate the relationships between concepts and ideas.

H

High-frequency words are words that appear most often in printed text.

Hybrid texts are texts that weave together fiction and nonfiction text.

I

Independent practice is practice that involves students working with little to no assistance.

Independent reading level refers to the reading level of material that is easy for a student to read with few word identification problems and high comprehension.

Inferences are conclusions reached by combining known facts, background knowledge, and experiences.

Informational text is nonfiction text that informs the reader about the natural or social world. Also referred to as expository text.

Instructional level refers to the reading level of material that is challenging but not frustrating for the student to read successfully with regular classroom instruction and support.

Interventions are used to provide focused, often more intense, instruction to students who are falling behind in core instruction, usually provided one-on-one or in small groups.

L

Latin and Greek roots are components of a word that typically do not stand alone, originating from the Latin or Greek language.

M

Monosyllabic words are words with only one syllable.

Multiple exposures refers to multiple opportunities for students to encounter and engage with new knowledge and skills.

Multisyllabic word refers to a word with more than one syllable.

N

Narrative text refers to text that is a spoken or written account of a connected series of events; includes both fiction (e.g., novels, short stories) and nonfiction (e.g., memoirs, biographies, news stories).

Non-example refers to something that is not an example of the word and is used to further clarify a word's meaning.

O

Oral reading fluency measure refers to a measure of the ability to accurately read connected text in a specific amount of time, usually 1 minute.

P

Peer work is an opportunity for students to collaborate with each other to complete a task.

Pitch is the highness or lowness of a sound.

Prefixes refer to one or more letters placed before a base word that change the meaning or form of the word.

Prompt card refers to a card that visually presents the steps students need to follow to complete a task.

Prosody refers to the timing, phrasing, emphasis, and intonation that readers use to help convey meaning and to make their oral reading lively.

R

Right There questions are questions for which the answers are specifically stated in one sentence in the text.

S

Sentence starters are parts of a sentence used to help students begin to express their ideas.

Sentence structures refers to the way sentences are organized to convey a desired effect. There are four sentence structures: simple sentences, compound sentences, complex sentences, and compound-complex sentences.

Stretch texts are texts above a student's instructional level.

Subject-area refers to domains of knowledge including disciplines such as English language arts, mathematics, science, and social studies.

Suffixes refer to letters added at the end of a word to form a new word or change the word form.

Syntax is the order of words or phrases used to create well-formed sentences in a language.

T

Teacher modeling is an instructional technique where teachers talk through the thinking process they use to demonstrate a skill or strategy.

Tempo is the pace at which someone reads orally.

Text structure is the pattern of ideas that are in the organization of text. Common text structures are cause/effect, compare/contrast, problem/solution, and description.

Think and Search questions are questions for which the answers appear in more than one sentence in the text.

Tier 1 instruction refers to core, whole-group instruction designed for and differentiated to meet the needs of all learners.

V

Visual representation refers to a figure such as a word map, concept map, or graphic organizer that illustrates a concept, text structure, or a word's meaning. This also includes illustrations, gestures, charts, graphs, etc.

W

Word knowledge refers to knowledge of the meaning of words.

Word-list reading measure is a graded word list used as a quick way to assess a student's reading ability.

Word map is an illustration that depicts the relationship among ideas, words, or topics.

World knowledge refers to the understanding of concepts and information about phenomena and events in the world, such as historical events, political debates, and scientific systems.

Appendix A: Postscript from the Institute of Education Sciences

What is a Practice Guide?

The What Works Clearinghouse (WWC) within the Institute of Education Sciences (IES) publishes practice guides to share expert recommendations addressing a key educational challenge. Each recommendation in the practice guides is explicitly connected to supporting evidence from studies that meet WWC standards.

How are Practice Guides Developed?

To produce a practice guide, the WWC first selects a topic based on the needs of the field. Next, working with a WWC contractor, the WWC selects a panel chair who is a national expert on the topic and panelists to co-author the guide. Panelists are selected based on their expertise in the field and the belief that they can work together to develop relevant, evidence-based recommendations. Panels include at least two current educators who are actively working in the field.

The WWC contractor conducts a systematic literature search and consults with the panel to identify relevant research studies. These studies are then reviewed using the WWC standards to assess the internal validity of each study.[165] The WWC contractor works with panel to synthesize the studies that meet WWC standards into recommendations and to draft the practice guide.

The practice guide is then peer-reviewed. This review is independent of the panel and the federal and contractor staff who supported the development of the guide. A critical task of the peer reviewers is to determine whether the evidence cited in support of each recommendation is up to date and that studies of similar or better quality with contradictory results have not been overlooked. Peer reviewers also evaluate whether the level of evidence assigned to each recommendation is appropriate. The WWC contractor revises the guide to address concerns identified by the external peer reviewers and IES.

Levels of Evidence for What Works Clearinghouse Practice Guides

The level of evidence represents the quality and quantity of existing research supporting each recommendation. The panel assigns each recommendation one of the following three levels of evidence: strong evidence, moderate evidence, or minimal evidence.

A *strong* level of evidence rating refers to evidence from two or more well-designed, well-implemented experimental studies that the recommended practices improve relevant outcomes for the population of students relevant to the practice guide. In other words, this level of evidence indicates that there is strong causal and generalizable evidence to support the panel's recommendation.

A *moderate* level of evidence rating refers either to evidence from well-designed, well-implemented, quasi-experimental design studies; studies where the sample does not represent the population of students relevant to the practice guide; or only one well-designed, well-implemented experimental

study. In other words, this level of evidence indicates that the relevant research may not be generalizable or that the WWC has some reservations about the quality of the research for causal inferences because of the study design or implementation.

A *minimal* level of evidence rating suggests that the panel cannot point to a body of evidence that demonstrates the practice's positive and statistically significant effects on student outcomes. In some cases, this simply means that the recommended practice would be difficult to study using an experimental or quasi-experimental research design; in other cases, it means that researchers have not yet studied this practice, or that there is a lack of evidence or conflicting evidence about its effectiveness. A minimal evidence rating does not indicate that the panel views the recommendation as any less important than other recommendations with strong or moderate evidence ratings.

To determine these evidence ratings, the WWC contractor first conducts a careful review of the studies supporting each recommendation. For each recommendation, the WWC contractor and the panel examine the entire evidence base, taking into account the following considerations:

- The extent of evidence meeting WWC standards.
- The weighted mean effect size from the fixed-effects meta-analysis for each relevant outcome domain, including its sign and statistical significance.[166]
- How well the studies represent the range of participants, settings, and outcomes relevant to the recommendation.
- Whether findings from the studies can be attributed to the recommended practice.
- The panel's confidence in the effectiveness of the recommended practice.

The WWC contractor and the panel determine the level of evidence rating for a recommendation based on each of the criteria in **Table A.1**. For a recommendation to get a strong rating, the research must be rated strong on each criterion. If at least one criterion receives a rating of moderate and none receives a rating of minimal, then the level of evidence for the recommendation is determined to be moderate. If one or more criteria receive a rating of minimal, then the level of evidence for the recommendation is determined to be minimal.

Appendix A

Table A.1. IES Levels of evidence for What Works Clearinghouse practice guides

Criterion	STRONG Evidence Base	MODERATE Evidence Base	MINIMAL Evidence Base
Extent of evidence	For each key outcome domain, the research includes two or more studies that meet WWC standards, and the studies include more than one setting and a sample of more than 350 individuals.	For each key outcome domain, the research includes only one study that meets WWC standards, or more than one study meets WWC standards but the studies either include only one setting or a sample of fewer than 350 individuals.	For each key outcome domain, the research does not include at least one study that meets WWC standards.
Effects on relevant outcomes[a]	For at least half of the key outcome domains[b] with findings meeting WWC standards, the following conditions are met: • The mean effect from a fixed-effects meta-analysis[c] is statistically significant and positive; AND • More than 50.0 percent of the fixed-effects meta-analytic weight comes from studies that Meet WWC Standards Without Reservations. The mean effect from a fixed-effects meta-analysis is not statistically significant and negative for any outcome domain relevant for the recommendation.	For at least half of the key outcome domains with findings meeting WWC standards, the following conditions are met: • The mean effect from a fixed-effects meta-analysis is statistically significant and positive; AND • More than 50.0 percent of the fixed-effects meta-analytic weight comes from studies that Meet WWC Standards With Reservations. Contradictory evidence from a fixed-effects meta-analysis that is statistically significant and negative is considered with regard to relevance to the scope of the recommendation.	For at least half of the key outcome domains with findings meeting WWC standards, one of the following conditions are met: • The mean effect from a fixed-effects meta-analysis is NOT statistically significant and positive, OR • No studies meet WWC standards.
Relevance to scope	The research has direct relevance to scope—relevant settings, populations, comparisons, and outcomes evaluated.	Relevance to scope may vary. At least some research is directly relevant to scope.	No research relevant to the scope of the recommendation could be located.
Relationship between research and the recommendation	The recommendation is directly tested in the studies, or the recommendation is a major component of the interventions evaluated in at least half of the studies.	The recommendation is directly tested, or the recommendation is a major component of the interventions evaluated in less than half of the studies.	The recommendation is not tested in the studies, and the panel provides references to one or more peer-reviewed publications that expound theories that support the recommendation.

Criterion	STRONG Evidence Base	MODERATE Evidence Base	MINIMAL Evidence Base
Panel confidence	Panel has a high degree of confidence that a given practice is effective.	Panel may not be confident about whether the research has effectively controlled for other explanations or whether the practice would be effective in most or all contexts.	In the panel's opinion, the recommendation must be addressed as part of the practice guide; however, the panel cannot point to a body of research that rises to the level of moderate or strong.
Role of expert opinion	Not applicable.	Not applicable.	The recommendation reflects expert opinion based on reasonable extrapolations of research.

[a] Outcome domains relevant to the scope of the practice guide are defined by the protocol.

[b] Key outcome domains are those that are most relevant to each specific recommendation.

[c] If the finding in the relevant outcome domain is from only a single study, then the effect size from that study takes the place of the mean effect from a fixed-effects meta-analysis.

A Final Note About WWC Practice Guides

Expert panels try to build a consensus, forging statements that all panel members endorse. Practice guides do more than find common ground; they create a list of actionable recommendations. Where research clearly shows which practices are effective, the panelists use this evidence to guide their recommendations. However, in some cases, the research does not provide a clear indication of what works. In these cases, the panelists' interpretation of the existing, but incomplete, evidence plays an important role in developing the recommendations.

Appendix B: Methods and Processes for Developing This Practice Guide

Phase 1: Selecting the Panel; Establishing a Review Protocol

Expert Panel. The WWC established a seven-member expert panel to advise on the development of this practice guide. The panel consisted of researchers who were at the forefront of reading intervention research and practitioners with experience in implementing reading interventions with students with reading difficulties.

Practice Guide Review Protocol. The WWC contractor worked with the panel to develop the practice guide review protocol, available at **https://ies.ed.gov/ncee/wwc/Document/1295**, which states the practice guide's purpose and scope. The protocol guided the literature search and review effort.

The time frame for the literature search was 15 years, from January 2005 to March 2020. The eligible sample included students in grades 4–9 with learning disabilities in reading or those considered at risk for failure in reading—that is, students with reading difficulties. Eligible study designs included randomized controlled trials (RCTs), quasi-experimental studies (QEDs), and regression discontinuity designs (RDDs). Eligible interventions could be implemented with any number of students and could occur during school, outside of a school setting, or outside of the normal school day and year. Interventions implemented in class-wide general reading classes were excluded, as the guide focuses on interventions directly targeting students with reading difficulties. Only outcomes that fit into one of seven outcome domains addressing aspects of reading proficiency were eligible for inclusion. The seven domains are:

1. Listening Comprehension
2. Measures of General Reading Proficiency and English Language Arts
3. Passage Reading Fluency-Oral
4. Passage Reading Fluency-Silent
5. Reading Comprehension
6. Reading Vocabulary
7. Word and Pseudoword Reading

For additional details, the **protocol** is available on the WWC website.

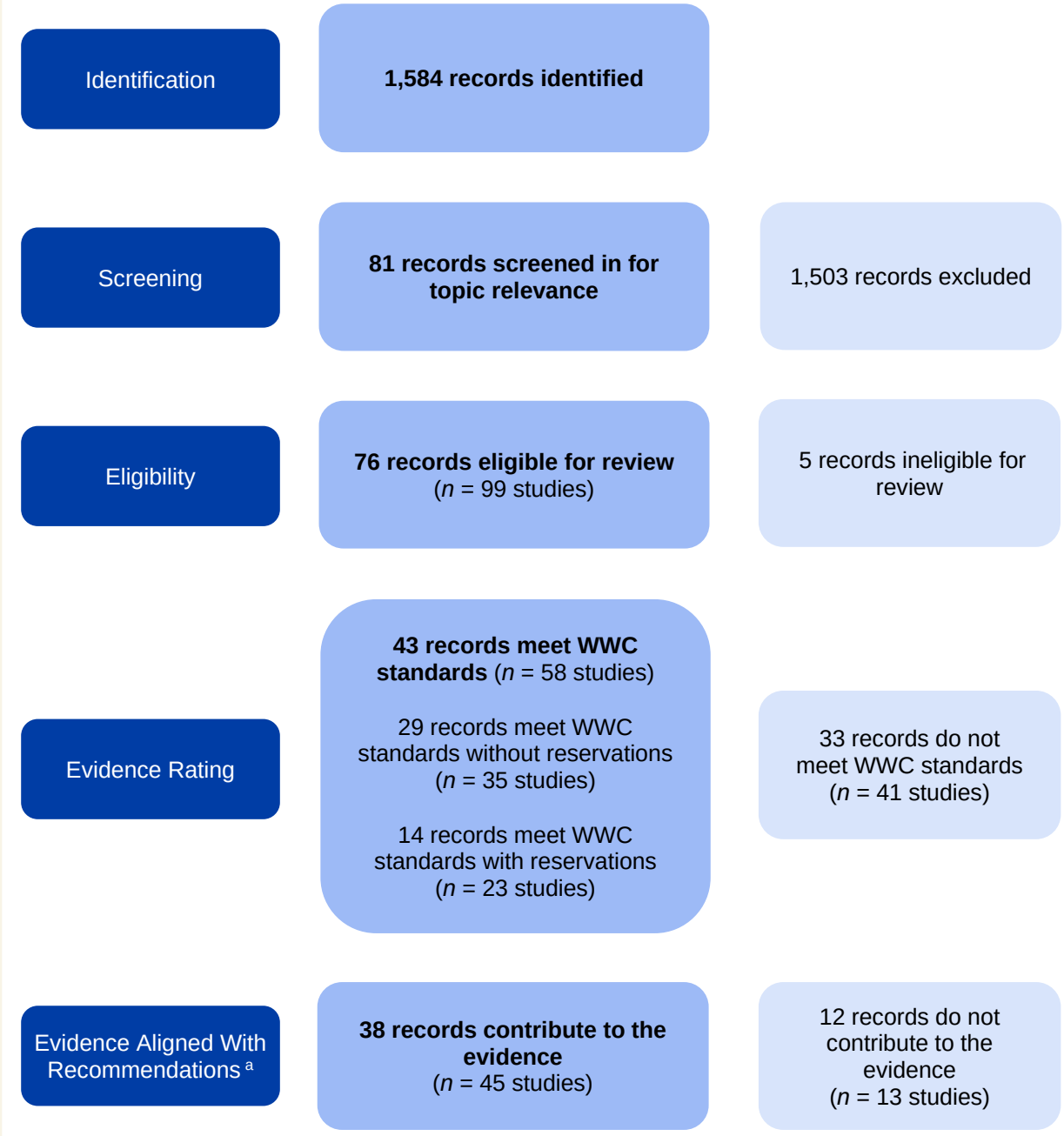
Phase 2: Literature Search and Review

A targeted yet comprehensive search of the public ERIC search engine (**https://eric.ed.gov/**) was conducted using the keywords *reading intervention* and *reading tutoring*, with searches limited by the descriptor *reading difficulties*. Panel members also recommended studies that could potentially contribute to the guide.

Appendix B

A total of 1,584 records were identified and screened using a multi-stage screening process to determine whether they focused on reading interventions and met the eligibility criteria described above. This screening process produced 76 eligible records. Of these, 12 records examined the impact of more than one reading intervention and one record examined the impact of a reading intervention on more than one cohort. The WWC review team selected one or more studies from these records for review based on their relevance to the practice guide. Thus, from the 76 records, a total of 99 experimental comparisons were reviewed using **WWC 4.0 group design and RDD standards**. In this practice guide, each experimental comparison is being referred to as a study and has a unique WWC study review. See **Figure B.1** for the number of records that went through the screening and eligibility processes, and the number of records and studies that were reviewed with the corresponding WWC evidence ratings.

Figure B.1. Studies identified, screened, and reviewed for this practice guide



[a] The number of records contributing to the evidence aligned with the recommendations (*n* = 38) combined with the number of records that include studies that do not contribute to the evidence (*n* = 12) does not total to 43 because some records include studies that contribute evidence to the recommendations as well as studies that do not contribute evidence to the recommendations.

Phase 3: Generating the Recommendations

The WWC contractor conducted a detailed examination of the studies that meet WWC standards to identify instructional practices that played a role in each intervention. The panel identified four recommendations based on the evidence presented by the 45 studies that meet WWC standards. The panel then suggested steps for carrying out the recommendations, guided by the evidence base.

Phase 4: Drafting the Practice Guide

The WWC contractor worked with the panel to further expand and clarify each recommendation and delineate how to implement each recommendation. The team then used an iterative process to draft the recommendations, soliciting feedback from the panel, and revising as needed at each stage. The WWC contractor compiled the level of evidence for each recommendation and drafted the technical appendices. The practice guide underwent several rounds of review, including an IES external peer review (as described in **Appendix A**).

Appendix C: Rationale for Evidence Ratings

Conducting Reviews of Eligible Studies

WWC-certified staff reviewed 99 studies from 76 records to assess the quality of evidence supporting education programs and practices using WWC standards version 4.0. Of these 99 studies, 58 studies meet WWC standards. Of these 58 studies, 45 studies were used to provide evidence for the recommendations in this practice guide.[167] These 45 studies come from 38 unique records. The references section lists all records and delineates the studies that provided supporting evidence for the recommendations, as well as the studies that were reviewed but did not provide supporting evidence. The WWC's summary of each of the 99 studies reviewed for this practice guide are available on the WWC website at **https://ies.ed.gov/ncee/wwc/ReviewedStudies/ForPracticeGuide/29**.

Two additional studies that are within the scope of the literature review were not captured in the multiple phases of the literature search conducted for this practice guide.[168] These two studies were therefore not reviewed for this guide and were not included in the meta-analysis but are cited to support relevant instructional practices and are listed in the **Reference** section.

Determining Relevance to Recommendations

The WWC contractor mapped the 45 studies in the evidence base to one or more of the four recommendations. Twelve studies provide evidence for one recommendation.[169] Thirty-three studies provide evidence for more than one recommendation, as the interventions in these studies include more than one practice (or component) for improving student outcomes.[170] For example, one multi-component intervention might include practice of multisyllabic word reading (**Recommendation 1**), fluency-building activities (**Recommendation 2**), and comprehension (**Recommendation 3**), and thus be used as evidence for three recommendations in this guide. It was not possible to identify whether a singular component or a combination of components within a multi-component intervention produced an effect. Thus, the calculated effect sizes reflect the effect of each full intervention. The WWC contractor and panel determined which instructional components were likely to cause an effect based on their prominence in the intervention program investigated in each study that meet WWC standards. Then, each study was assigned to the evidence base for a recommendation based on its relevant instructional components. **Table C.1** presents the mapping between each study and the four recommendations.

Table C.1. Mapping between studies and recommendations

Study	Map to the recommendations			
	Multisyllabic word reading	Fluency building	Comprehension	Stretch text
Barth & Elleman (2017)			✓	✓
Barth et al. (2016)			✓	✓
Borman et al. (2009)	✓	✓		

Appendix C

Study	Map to the recommendations			
	Multisyllabic word reading	Fluency building	Comprehension	Stretch text
Connor et al. (2018)			✓	
Denton et al. (2008)	✓	✓	✓	
Dimitrov et al. (2012)	✓	✓	✓	
Fogarty et al. (2017)	✓	✓	✓	
Hall et al. (2019)			✓	
Heistad (2008)		✓		
Hock et al. (2017)	✓		✓	✓
A. Kim et al. (2006)			✓	
J. Kim et al. (2010)	✓	✓	✓	✓
J. Kim et al. (2011)	✓	✓	✓	✓
J. Kim et al. (2017)	✓	✓	✓	
Meisch et al. (2011)	✓	✓	✓	✓
Ritchey et al. (2017)			✓	
Roberts et al. (2018)	✓	✓	✓	✓
Schenck et al. (2012)	✓	✓	✓	
Somers et al. (2010) *Reading Apprentice Academic Literacy (RAAL)* vs. business as usual	✓	✓	✓	
Somers et al. (2010) *Xtreme Reading* vs. business as usual	✓	✓	✓	
Sprague et al. (2012)	✓	✓	✓	✓
Stevens et al. (2020)			✓	✓
Swanlund et al. (2012)	✓	✓	✓	✓
Thames et al. (2008)			✓	
Therrien et al. (2006)		✓		
Torgesen et al. (2006) *SpellRead PAT* vs. business as usual	✓			
Torgesen et al. (2006) *Corrective Reading* vs. business as usual	✓	✓		
Torgesen et al. (2006) *Wilson Reading* vs. business as usual	✓	✓		

Appendix C

Study	Map to the recommendations			
	Multisyllabic word reading	Fluency building	Comprehension	Stretch text
Torgesen et al. (2006) *Failure Free Reading* vs. business as usual	✓	✓		
Toste et al. (2019)	✓	✓		
Vadasy & Sanders (2008)		✓		
Vaden-Kiernan et al. (2012)	✓	✓	✓	
Vaughn et al. (2016)	✓	✓	✓	✓
Vaughn, Cirino, et al. (2010)	✓	✓	✓	
Vaughn, Martinez, et al. (2019)	✓	✓	✓	
Vaughn, Roberts, et al. (2019)	✓	✓	✓	✓
Vaughn, Wanzek, et al. (2010)	✓	✓	✓	
Wanzek & Roberts (2012) Reading intervention with word study emphasis vs. business as usual	✓			
Wanzek & Roberts (2012) Reading intervention with comprehension emphasis vs. business as usual			✓	
Wanzek & Roberts (2012) Reading intervention with word study plus reading intervention with comprehension emphasis vs. business as usual		✓		
Wanzek et al. (2016)	✓	✓	✓	
Wanzek et al. (2017)	✓	✓	✓	
R. White et al. (2005)	✓	✓	✓	✓
R. White et al. (2006) *READ 180* (Cohort 1) vs. business as usual	✓	✓	✓	✓
R. White et al. (2006) *READ 180* (Cohort 2) vs. business as usual	✓	✓	✓	✓
Note: The WWC review for each study that provides evidence for the recommendation can be accessed by clicking the hyperlink on the citation in the **References** section.				

Determining Relevant Outcomes

To simplify and focus the synthesis of evidence, the WWC contractor worked with the panel to identify which outcome domains were relevant for each recommendation. The panel and WWC contractor considered only the findings in the predetermined relevant domains when determining the level of evidence for each recommendation. Only findings in relevant domains are presented in this appendix. The relevant domains for each recommendation are listed in **Table C.2**.

Table C.2. Relevant domains for each recommendation

Outcome domains	Recommendations			
	Multisyllabic word reading	Fluency building	Comprehension	Stretch text
Measures of general reading proficiency and English language arts	✓	✓	✓	✓
Passage reading fluency–oral	✓	✓		
Passage reading fluency–silent	✓	✓		
Reading comprehension	✓	✓	✓	✓
Reading vocabulary			✓	
Word and pseudoword reading	✓			

The goal of all components of a reading intervention, particularly in grades 4-9, is to improve students' ability to read with understanding. The purpose of all general reading proficiency tests and the primary, if not exclusive, goal of state-administered English language arts measures is to assess students' ability to read with understanding. Thus, both the general reading proficiency and English language arts domain as well as the reading comprehension domain are considered to be relevant for all the four recommendations.

The domain of word and pseudoword reading is relevant only to **Recommendation 1,** as this is the only recommendation that focuses primarily on effective approaches for reading at the word level.

The two fluency domains, passage reading fluency-oral and passage reading fluency-silent, are relevant for Recommendations 1 and 2. These domains were deemed relevant to **Recommendation 1**, as effortless, accurate reading of multisyllabic words is likely to have an impact on accurate fluent reading of sentences and passages. **Recommendation 2** focuses on fluency-building instructional activities.

The reading vocabulary outcome domain is relevant only for **Recommendation 3** because the recommendation addresses ways to improve student knowledge of essential words, which is critical for comprehending text.

The listening comprehension domain is not relevant to any recommendations because none of the interventions examined had a major focus on improving students' listening comprehension skills.

Estimating Fixed-Effects Meta-Analytic Effect Sizes

As discussed in **Appendix A**, the determination of the level of evidence for each recommendation relied on the extent of the evidence from the supporting studies. To synthesize the evidence across studies for each recommendation, the WWC contractor calculated a weighted fixed-effects meta-analytic mean effect size for each relevant outcome domain in which at least two studies had findings.[171] This pooled estimate means the WWC contractor did not rely on a "vote counting" approach to assess the evidence on relevant outcomes. To calculate the meta-analytic effect size, studies were weighted by the inverse of the variance of each study's effect size. Thus, studies that tested an intervention with a large number of students received more weight than studies with small numbers of students. The statistical significance of each effect size for each outcome domain was calculated using a *z* test. For additional information on this process, see Appendix H of the WWC Version 4.1 WWC Procedures Handbook.

To ensure that the resulting effect sizes were statistically independent, the analysis included only studies with non-overlapping samples from each record.[172] If a record had two relevant studies with non-overlapping samples, the analysis included both. In the case of overlapping samples across relevant studies, the meta-analysis included only the study most relevant to the recommendation.

For consistency, the meta-analysis for each domain is based on effect sizes from outcomes measured closest to the end of the intervention. All other outcomes (delayed or follow-up measures and measures for subgroups of linguistically diverse students and students with reading difficulties) were not included in the meta-analysis and instead are presented as supplemental evidence at the corresponding study pages on the WWC website. The meta-analytic mean effect sizes for each outcome domain and recommendation are listed in **Tables C.4**, **C.6**, **C.8**, and **C.10**. Additional information for the purposes of meta-analysis replicability is listed in **Tables D.1**, **D.2**, **D.3**, **D.4**, and **D.5**.

Recommendation 1: Build students' decoding skills so they can read complex multisyllabic words.

Rationale for a Strong Level of Evidence

The WWC contractor and the expert panel assigned **Recommendation 1** a strong level of evidence based on 32 studies.[173] Seventeen studies meet WWC group design standards without reservations because they were RCTs with low sample attrition.[174] Fifteen studies meet WWC group design standards with reservations because they were either compromised RCTs, RCTs with high sample attrition, or QEDs, but the analytic intervention and comparison groups in each satisfied the baseline equivalence requirement.[175] In addition, the study samples collectively included 17,175 students and 267 schools across multiple states.[176]

There were findings in five relevant outcome domains for this recommendation (**Table C.3**). Three domains had statistically significant, positive meta-analytic effect sizes: measures of general reading proficiency and English language arts ($g = 0.13$, $p < 0.01$), word and pseudoword reading ($g = 0.07$, $p < 0.05$), and reading comprehension ($g = 0.09$, $p < 0.01$). The other domains (passage reading fluency-oral and passage reading fluency-silent) were not statistically significant.

Table C.3. Domain-level effect sizes across the 32 studies supporting Recommendation 1

Domain	Number of studies (*k*)	Effect size [a]	95% Confidence interval	*p* Value	Percentage of weight from studies that meet WWC standards without reservations
Measures of general reading proficiency and English language arts	16	**0.13**	[0.09–0.17]	< 0.01	56.02
Passage reading fluency–oral	10	0.08	[−0.01–0.18]	*ns*	59.24
Passage reading fluency–silent	6	0.04	[−0.05–0.13]	*ns*	60.71
Reading comprehension	22	**0.09**	[0.05–0.12]	< 0.01	61.96
Word and pseudoword reading	17	**0.07**	[0.00–0.13] [b]	< 0.05	65.56

Note: All effect sizes were calculated using a fixed-effects meta-analytic effect size across studies. *ns* = statistically nonsignificant findings; *k* = number of studies with at least one outcome in the relevant domain that contributed to the meta-analytic effect size. Thirty-two studies contributed to at least one domain's meta-analytic effect size.

[a] Statistically significant findings are bolded.

[b] The lower limit of the confidence interval is positive, but is reported as 0.00 due to rounding.

The collection of studies demonstrates a large extent of evidence and a preponderance of positive effects. In the studies supporting this recommendation, the interventions were closely aligned with the practices outlined in the recommendation. Consequently, the panel assigned a strong level of evidence to this recommendation. This rating is supported by the strength of the evidence according to the following criteria:

- **Extent of evidence.** Each outcome domain average is based on more than one study with a total sample size of at least 350 individuals.
- **Effects on relevant outcomes.** Three of the five outcome domains (measures of general reading proficiency and English language arts, reading comprehension, and word and pseudoword reading) have effect sizes that are positive and statistically significant, with more than 50 percent of the meta-analytic weight from studies that meet WWC standards without reservations. These three domains represent at least half of the relevant outcome domains for this recommendation. No outcome domain has negative and statistically significant results.
- **Relevance to scope.** The evidence supporting this recommendation had relevant settings, populations, comparisons, and outcomes. The evidence included samples of students in grades 3–9, examined interventions that were implemented as a supplement to Tier 1 instruction or in a resource room, and measured outcomes in relevant domains. The interventions ranged from roughly three weeks to three years in duration. Most interventions were substantial in length. In 13 studies, the interventions lasted between 13 and 28 weeks;[177] in 17 studies, the intervention lasted one year or longer.[178] A majority of the interventions were implemented 5 times per week (24 studies)[179] and sessions were 40–60 minutes in duration in 20 studies.[180]
- **Relationship between the evidence and recommendation.** The 32 studies supporting this recommendation exhibited a strong relationship between the evidence and recommended practices. Instruction in these studies focused on various ways to support students' reading of complex multisyllabic words that are typically encountered in these grade levels. The instructional practices included:
  - Teaching foundational decoding skills such as vowel and consonant letter-sounds and combinations.
  - Teaching routines that provide simple steps for breaking multisyllabic words into parts and blending those parts together to sound out the word.
  - Providing practice in spelling words to reinforce learning of letter and sound combinations.
  - Teaching routines for breaking up words into syllables.
  - Supporting students in reading high-frequency sight words.
  - Providing multiple exposures to multisyllabic words through practice with corrective feedback.

Supplemental Findings for Recommendation 1

Supplemental findings (delayed or follow-up measures and measures for subgroups of linguistically diverse students and students with reading difficulties) for six studies are available at the corresponding study pages on the WWC website.[181]

Table C.4. Studies providing evidence for Recommendation 1: Build students' decoding skills so they can read complex multisyllabic words

Recommendation 1: Multisyllabic Word Reading				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
Borman et al. (2009) *Meets WWC standards with reservations*	Design: RCT Contrast: *Fast ForWord* vs. business as usual Participants: 180 grade 7 students with reading difficulties • Race/Ethnicity: ▪ 65% Black ▪ 32% White Setting: 8 schools in Baltimore, Maryland	Duration: 100 minutes per day, 5 days per week, minimum of 20 days Group size: Individual computer intervention Content: Not reported Type of text: Not reported Relevance to recommendation: Instruction focused on word reading	Business-as-usual instruction, which generally did not consist of supplemental literacy instruction	Measures of general reading proficiency and English language arts: 0.00
Denton et al. (2008) *Meets WWC standards without reservations*	Design: RCT Contrast: Reading intervention on word reading, comprehension, vocabulary, and fluency vs. business as usual Participants: 38 grade 6–8 students with reading difficulties • Race/Ethnicity: ▪ 23% Black ▪ 77% Hispanic Setting: 1 school in an urban district in the southwestern region of the U.S.	Duration: 40-minute sessions, 5 days per week, 13 weeks Group size: 2–4 students Content: Not reported Type of text: Narrative Relevance to recommendation: Instruction focused on decoding, encoding, and sight words	Business-as-usual supplemental reading intervention	Passage reading fluency–oral: 0.05 Word and pseudoword reading: 0.07 Reading comprehension: 0.00

Recommendation 1: Multisyllabic Word Reading				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
Dimitrov et al. (2012) *Meets WWC standards without reservations*	Design: RCT Contrast: *Passport Reading Journeys* vs. business as usual Participants: 514 grade 9 students with reading difficulties • Race/Ethnicity: ▪ 58% Black ▪ 5% Hispanic ▪ 30% White Setting: 6 schools in 4 districts in Illinois	Duration: 50-minute sessions, 5 days per week, 1 year Group size: 7–16 students Content: Science and social studies Type of text: Informational Relevance to recommendation: Instruction focused on phonics, phonemic awareness, spelling, and sight words	Business-as-usual instruction, which generally did not consist of supplemental literacy instruction	Measures of general reading proficiency and English language arts: −0.06
Fogarty et al. (2017) *Meets WWC standards without reservations*	Design: RCT Contrast: *Comprehension Circuit Training* vs. business as usual Participants: 197 grade 6–8 students with reading difficulties • Race/Ethnicity: ▪ 30% Black ▪ 26% Hispanic ▪ 27% White Setting: 3 schools in 2 districts in Texas	Duration: 50-minute sessions, 3 days per week, 50–70 days, 39 sessions Group size: Individual Content: Not reported Type of text: Narrative and informational Relevance to recommendation: Instruction focused on affixes, root words, and strategies for reading multisyllabic words	Business-as-usual supplemental reading intervention	Passage reading fluency–oral: −0.14 Passage reading fluency–silent: 0.29 Word and pseudoword reading: −0.09 Reading comprehension: 0.13
Hock et al. (2017) *Meets WWC standards with reservations*	Design: QED Contrast: *Fusion Reading* vs. business as usual Participants: 37 grade 6 students with reading difficulties • Race/Ethnicity: ▪ 65% White Setting: 3 schools in 1 urban district in the midwestern region of the U.S.	Duration: 50 minutes per day, 5 days per week, 1 year Group size: 3–8 students Content: Language arts, science, social studies, and math Type of text: Narrative and informational Relevance to recommendation: Instruction focused on phonics, decoding, and strategies for reading multisyllabic words	Business-as-usual supplemental reading intervention	Measures of general reading proficiency and English language arts: 1.28*

Appendix C

Recommendation 1: Multisyllabic Word Reading				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
J. Kim et al. (2010) *Meets WWC standards with reservations*	Design: RCT Contrast: *READ 180* vs. business as usual Participants: 264 grade 4–6 students with reading difficulties • Race/Ethnicity: ▪ 52% Black ▪ 21% Hispanic ▪ 22% White Setting: Afterschool at 3 schools in 1 district in southeastern Massachusetts	Duration: 60 minutes per day, 4 days per week, 23 weeks Group size: Small groups for teacher-directed lessons, independent reading, individual computer-directed lessons Content: People and culture, science and math, and history and geography Type of text: Narrative and informational Relevance to recommendation: Instruction focused on word reading and spelling	Business-as-usual instruction, which generally did not consist of supplemental literacy instruction	Measures of general reading proficiency and English language arts: 0.01 Passage reading fluency–oral: 0.02* Word and pseudoword reading: −0.07
J. Kim et al. (2011) *Meets WWC standards without reservations*	Design: RCT Contrast: *READ 180* vs. business as usual Participants: 297 grade 4–6 students with reading difficulties • Race/Ethnicity: ▪ 54% Black ▪ 12% Hispanic ▪ 28% White Setting: Afterschool at 4 schools in 1 urban district in southeastern Massachusetts	Duration: 60 minutes per day, 4 days per week, 23 weeks Group size: Whole-class and small groups for teacher-directed lessons, independent reading, individual computer-directed lessons Content: Topics included people and cultures, science and math, history and geography Type of text: Narrative and informational Relevance to recommendation: Instruction focused on word reading and spelling	Business-as-usual instruction, which generally did not consist of supplemental literacy instruction	Passage reading fluency–oral: 0.10 Reading comprehension: 0.33*

Recommendation 1: Multisyllabic Word Reading				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
J. Kim et al. (2017) *Meets WWC standards without reservations*	Design: RCT Contrast: *Strategic Adolescent Reading Intervention* vs. business as usual Participants: 401 grade 6–8 students with reading difficulties • Race/Ethnicity: ▪ 20% Black ▪ 24% Hispanic ▪ 50% White Setting: 8 schools in 4 districts in the northeastern region of the U.S.	Duration: 50 minutes per day, 3–5 days per week, 1 year Group size: Whole-class groups (ranging from 9–21 students) Content: Topics included sports in society, war in Iraq, immigration debate Type of text: Narrative and informational Relevance to recommendation: Instruction focused on decoding, spelling patterns, and morphological analysis	Business-as-usual supplemental reading and/or general academic intervention	Word and pseudoword reading: 0.20* Reading comprehension: 0.14
Meisch et al. (2011) *Meets WWC standards with reservations*	Design: RCT Contrast: *READ 180* vs. business as usual Participants: 1,023 grade 6–8 students with reading difficulties • Race/Ethnicity: ▪ 55% Black ▪ 43% Hispanic Setting: 19 schools in Newark, New Jersey	Duration: 90 minutes per day, 5 days per week, 1–3 years Group size: Whole-class and small groups for teacher-directed lessons, independent reading, individual computer-directed lessons Content: Not reported Type of text: Not reported Relevance to recommendation: Instruction focused on word reading and spelling	Business-as-usual English language arts instruction	Measures of general reading proficiency and English language arts: 0.07 Reading comprehension: 0.06

Recommendation 1: Multisyllabic Word Reading				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
Roberts et al. (2018) *Meets WWC standards without reservations*	Design: RCT Contrast: Text processing with foundational reading skills intervention vs. business as usual Participants: 240 grade 3–5 students with reading difficulties • Race/Ethnicity: ▪ 36% Black ▪ 6% Hispanic ▪ 42% White Setting: Afterschool at 7 schools in 2 districts in the southwestern region of the U.S.†	Duration: 60 minutes per day, 4–5 days per week, 6 months Group size: Individual computer intervention and small-group tutoring (3–6 students) Content: Not reported Type of text: Narrative and informational Relevance to recommendation: Instruction focused on foundational reading skills such as phonemic awareness and phonics	Business-as-usual instruction, which generally did not consist of supplemental literacy instruction	Measures of general reading proficiency and English language arts: 0.02 Reading comprehension: 0.00
Schenck et al. (2012) *Meets WWC standards without reservations*	Design: RCT Contrast: *Passport Reading Journeys* vs. business as usual Participants: 634 grade 7–8 students with reading difficulties • Race/Ethnicity: ▪ 68% Black Setting: 9 schools in 3 urban districts in Virginia	Duration: 50 minutes per day, 5 days per week, 1 year Group size: 9–21 students Content: Science and social studies Type of text: Informational Relevance to recommendation: Instruction focused on sight words, spelling, affixes, letter-sound correspondence, and decoding multisyllabic words	Business-as-usual English language arts or elective instruction	Measures of general reading proficiency and English language arts: 0.06
Somers et al. (2010) *Meets WWC standards without reservations*	Design: RCT Contrast: *Reading Apprentice Academic Literacy (RAAL)* vs. business as usual Participants: 2,255 grade 9 students with reading difficulties • Race/Ethnicity: ▪ 47% Black ▪ 30% Hispanic ▪ 17% White Setting: 17 schools in 10 districts in the U.S.	Duration: 45 minutes per day, 5 days per week, 1 year Group size: 10–15 students Content: Not reported Type of text: Not reported Relevance to recommendation: Instruction focused on phonics and phonemic awareness	Business-as-usual English language arts instruction	Measures of general reading proficiency and English language arts: 0.16* Reading comprehension: 0.12*

Recommendation 1: Multisyllabic Word Reading				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
Somers et al. (2010) *Meets WWC standards without reservations*	Design: RCT Contrast: *Xtreme Reading* vs. business as usual Participants: 2,329 grade 9 students with reading difficulties • Race/Ethnicity: ▪ 46% Black ▪ 32% Hispanic ▪ 16% White Setting: 17 schools in 10 districts in the U.S.	Duration: 45 minutes per day, 5 days per week, 1 year Group size: Whole-class teacher-directed lessons, paired-student practice, independent practice Content: Not reported Type of text: Not reported Relevance to recommendation: Instruction focused on phonics and phonemic awareness	Business-as-usual English language arts instruction	Measures of general reading proficiency and English language arts: 0.09 Reading comprehension: 0.06
Sprague et al. (2012) *Meets WWC standards with reservations*	Design: RCT Contrast: *READ 180* vs. business as usual Participants: 456 grade 9 students with reading difficulties • Race/Ethnicity: ▪ 27% White Setting: 5 schools in 2 districts in western Massachusetts[†]	Duration: 90 minutes per day, 5 days per week, 1 year Group size: Whole-class and small groups for teacher-directed lessons, independent reading, individual computer-directed lessons Content: Not reported Type of text: Not reported Relevance to recommendation: Instruction focused on phonics, word study, and spelling	Business-as-usual English language arts instruction and/or supplemental reading intervention	Measures of general reading proficiency and English language arts: 0.18*

Recommendation 1: Multisyllabic Word Reading				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
Swanlund et al. (2012) *Meets WWC standards without reservations*	Design: RCT Contrast: *READ 180* vs. business as usual Participants: 619 grade 6–9 students with reading difficulties • Race/Ethnicity: ▪ 70% Black ▪ 19% Hispanic ▪ 7% White Setting: 5 schools in 1 district in Milwaukee, Wisconsin	Duration: 90-minute sessions, 5 days per week, 1 year Group size: Whole-class and small groups for teacher-directed lessons, independent reading, individual computer-directed lessons Content: Not reported Type of text: Narrative Relevance to recommendation: Instruction focused on phonics, phonemic awareness, and spelling	Business-as-usual instruction, which generally did not consist of supplemental literacy instruction	Measures of general reading proficiency and English language arts: 0.14*
Torgesen et al. (2006) *Meets WWC standards with reservations*	Design: RCT Contrast: *SpellRead PAT* vs. business as usual Participants: 104 grade 5 students with reading difficulties • Race/Ethnicity: ▪ 28% Black ▪ 72% White Setting: 50 schools in 27 districts outside of Pittsburgh, Pennsylvania†	Duration: 50 minutes per day, 5 days per week, 6 months Group size: 3 students Content: Not reported Type of text: Not reported Relevance to recommendation: Instruction focused on phonemic awareness and phonics	Business-as-usual English language arts instruction and/or supplemental reading intervention	Passage reading fluency–oral: 0.08 Word and pseudoword reading: 0.19 Reading comprehension: 0.00
Torgesen et al. (2006) *Meets WWC standards with reservations*	Design: RCT Contrast: *Corrective Reading* vs. business as usual Participants: 86 grade 5 students with reading difficulties • Race/Ethnicity: ▪ 16% Black ▪ 85% White Setting: 50 schools in 27 districts outside of Pittsburgh, Pennsylvania†	Duration: 50 minutes per day, 5 days per week, 6 months Group size: 3 students Content: Not reported Type of text: Not reported Relevance to recommendation: Instruction focused on decoding, vowels and basic sound combinations, root-plus-suffix structures, and difficult consonant blends	Business-as-usual English language arts instruction and/or supplemental reading intervention	Passage reading fluency–oral: 0.10 Word and pseudoword reading: 0.10 Reading comprehension: 0.12

Recommendation 1: Multisyllabic Word Reading				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
Torgesen et al. (2006) *Meets WWC standards with reservations*	Design: RCT Contrast: *Wilson Reading* vs. business as usual Participants: 91 grade 5 students with reading difficulties • Race/Ethnicity: ▪ 43% Black ▪ 57% White Setting: 50 schools in 27 districts outside of Pittsburgh, Pennsylvania†	Duration: 50 minutes per day, 5 days per week, 6 months Group size: 3 students Content: Not reported Type of text: Not reported Relevance to recommendation: Instruction focused on word study and spelling	Business-as-usual English language arts instruction and/or supplemental reading intervention	Passage reading fluency–oral: −0.01 Word and pseudoword reading: 0.08 Reading comprehension: 0.09
Torgesen et al. (2006) *Meets WWC standards with reservations*	Design: RCT Contrast: *Failure Free Reading* vs. business as usual Participants: 126 grade 5 students with reading difficulties • Race/Ethnicity: ▪ 19% Black ▪ 81% White Setting: 50 schools in 27 districts outside of Pittsburgh, Pennsylvania†	Duration: 50 minutes per day, 5 days per week, 6 months Group size: 3 students Content: Not reported Type of text: Not reported Relevance to recommendation: Instruction focused on reading sight words	Business-as-usual English language arts instruction and/or supplemental reading intervention	Passage reading fluency–oral: −0.01 Word and pseudoword reading: 0.02 Reading comprehension: −0.04
Toste et al. (2019) *Meets WWC standards without reservations*	Design: RCT Contrast: Multisyllabic word reading intervention (with or without motivation) vs. business as usual Participants: 108 grade 4–5 students with reading difficulties • Race/Ethnicity: ▪ 6% Black ▪ 85% Hispanic Setting: 3 schools in 1 district in the southeastern region of the U.S.	Duration: 40 minutes per day, 4 days per week, 40 sessions Group size: 3–4 students Content: Not reported Type of text: Informational Relevance to recommendation: Instruction focused on vowel patterns, affixes, segmenting multisyllabic words into parts, and encoding	Business-as-usual supplemental reading intervention	Word and pseudoword reading: 0.43* Reading comprehension: 0.13*

Recommendation 1: Multisyllabic Word Reading				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
Vaden-Kiernan et al. (2012) *Meets WWC standards without reservations*	Design: RCT Contrast: *Passport Reading Journeys* vs. business as usual Participants: 1,042 grade 6–7 students with reading difficulties • Race/Ethnicity: ▪ 71% Black ▪ 24% White Setting: 10 schools in 4 urban, suburban, and rural districts in Louisiana	Duration: 50-minute sessions, 5 days per week, 2 years Group size: 15 students Content: Science and social studies Type of text: Informational Relevance to recommendation: Instruction focused on affixes, sight words, decoding multisyllabic words, and spelling	Business-as-usual instruction, which generally did not consist of supplemental literacy instruction	Measures of general reading proficiency and English language arts: 0.14*
Vaughn et al. (2016) *Meets WWC standards without reservations*	Design: RCT Contrast: Reading intervention on word reading, vocabulary, and comprehension vs. business as usual Participants: 445 grade 4 students with reading difficulties • Race/Ethnicity: ▪ 22% Black ▪ 68% Hispanic Setting: 17 schools in 3 districts in the southwestern region of the U.S.	Duration: 35 minutes per day, 5 days per week, 16 weeks Group size: 4–5 students Content: Social studies topics Type of text: Informational Relevance to recommendation: Instruction focused on phonics skills for reading multisyllabic words	Business-as-usual English language arts instruction	Passage reading fluency–silent: −0.14 Word and pseudoword reading: 0.02 Reading comprehension: −0.11
Vaughn, Cirino, et al. (2010) *Meets WWC standards with reservations*	Design: RCT Contrast: Reading intervention on word recognition, vocabulary, fluency, and comprehension vs. business as usual Participants: 325 grade 6 students with reading difficulties • Race/Ethnicity: ▪ 46% Black ▪ 40% Hispanic ▪ 12% White Setting: 7 schools in 3 urban districts in the southwestern region of the U.S.	Duration: 50 minutes per day, 5 days per week, 1 year Group size: 10–15 students Content: Social studies Type of text: Narrative and informational Relevance to recommendation: Instruction focused on letter sounds, letter combinations, affixes, and a strategy for decoding and spelling multisyllabic words	Business-as-usual English language arts instruction	Measures of general reading proficiency and English language arts: 0.18 Reading passage fluency–silent: 0.13 Word and pseudoword reading: 0.19* Reading comprehension: 0.13

Recommendation 1: Multisyllabic Word Reading				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
Vaughn, Martinez, et al. (2019) *Meets WWC standards without reservations*	Design: RCT Contrast: *Reading Intervention for Adolescents* vs. business as usual Participants: 318 grade 9 students with reading difficulties • Race/Ethnicity: ▪ 89% Hispanic Setting: 3 schools in 1 urban district in the southwestern region of the U.S.	Duration: 50 minutes per day, 4–5 days per week, 2 years Group size: 10–15 students Content: Science and social studies Type of text: Informational Relevance to recommendation: Instruction focused on a strategy for decoding multisyllabic words	Business-as-usual English language arts or elective instruction	Passage reading fluency–silent: 0.13 Word and pseudoword reading: −0.03 Reading comprehension: −0.18
Vaughn, Roberts, et al. (2019) *Meets WWC standards without reservations*	Design: RCT Contrast: Reading intervention on word reading and comprehension vs. business as usual Participants: 252 grade 4–5 students with reading difficulties • Race/Ethnicity: ▪ 40% Black ▪ 47% White Setting: 9 schools in 3 districts in the southwestern region of the U.S.	Duration: 30–45 minutes per day, 5 days per week, 68 sessions Group size: 3–6 students Content: Science topics Type of text: Narrative and informational Relevance to recommendation: Instruction focused on spelling and decoding of words, including multisyllabic words, sound patterns, and word parts	Business-as-usual English language arts instruction and/or supplemental reading intervention	Measures of general reading proficiency and English language arts: 0.11 Passage reading fluency–oral: 0.42* Passage reading fluency–silent: 0.02 Word and pseudoword reading: 0.12 Reading comprehension: 0.09

Recommendation 1: Multisyllabic Word Reading				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
Vaughn, Wanzek, et al. (2010) *Meets WWC standards with reservations*	Design: RCT Contrast: Reading intervention on word study, vocabulary, fluency, and comprehension (large group) vs. business as usual Participants: 420 grade 7–8 students with reading difficulties • Race/Ethnicity: ▪ 40% Black ▪ 43% Hispanic ▪ 14% White Setting: 6 schools in urban settings in the southwestern region of U.S.†	Duration: 45–50-minute sessions, 5 days per week, 1 year Group size: 10–15 students Content: Not reported Type of text: Informational and narrative Relevance to recommendation: Instruction focused on a strategy for decoding multisyllabic words, affixes, letter-sounds and combinations, and spelling	Business-as-usual English language arts instruction	Passage reading fluency–silent: −0.02 Word and pseudoword reading: 0.07 Reading comprehension: 0.03
Wanzek et al. (2016) *Meets WWC standards without reservations*	Design: RCT Contrast: *Passport to Literacy* vs. business as usual Participants: 196 grade 4 students with reading difficulties • Race/Ethnicity: ▪ 41% Black ▪ 40% Hispanic ▪ 21% Native American ▪ 32% White Setting: 10 schools in 4 districts in 2 states	Duration: 30-minute sessions, 4 days per week, 1 year Group size: 4–7 students Content: Not reported Type of text: Narrative and informational Relevance to recommendation: Instruction focused on strategies for reading multisyllabic words, letter/sound identification, sight word, affixes, roots, and spelling	Business-as-usual supplemental reading intervention	Passage reading fluency–oral: 0.04 Word and pseudoword reading: 0.05 Reading comprehension: 0.21

Recommendation 1: Multisyllabic Word Reading				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
Wanzek et al. (2017) *Meets WWC standards without reservations*	Design: RCT Contrast: *Passport to Literacy* vs. business as usual Participants: 404 grade 4 students with reading difficulties • Race/Ethnicity: ▪ 35% Black ▪ 46% Hispanic ▪ 17% Native American ▪ 44% White Setting: 16 schools in 6 districts in 3 U.S. states	Duration: 30-minute sessions, 5 days per week; 25 weeks, 120 sessions Group size: 4–7 students Content: Not reported Type of text: Narrative and informational Relevance to recommendation: Instruction focused on a strategy for decoding multisyllabic words, spelling, sight words, affixes, roots, and letter-sound identification	Business-as-usual English language arts instruction and/or supplemental reading intervention	Word and pseudoword reading: −0.04 Reading comprehension: 0.16
Wanzek & Roberts (2012) *Meets WWC standards with reservations*	Design: RCT Contrast: Reading intervention with word study emphasis vs. business as usual Participants: 44 grade 4 students with reading difficulties • Race/Ethnicity: ▪ 93% Hispanic ▪ 5% White Setting: 5 schools in 1 district in the southwestern region of the U.S.	Duration: 30-minute sessions, 5 days per week, 28 weeks Group size: 2–4 students Content: Science Type of text: Informational Relevance to recommendation: Instruction focused on decoding multisyllabic words, breaking words into syllables, and other skills such as phoneme segmentation, blending of sounds, suffixes, and open syllables	Business-as-usual supplemental reading intervention	Word and pseudoword reading: 0.28 Reading comprehension: 0.27

Recommendation 1: Multisyllabic Word Reading				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
R. White et al. (2005) *Meets WWC standards with reservations*	Design: QED Contrast: *READ 180* vs. business as usual Participants: 448 grade 4–8 students with reading difficulties • Race/Ethnicity: ▪ 85% Black ▪ 15% Hispanic Setting: 16 schools in 1 district in Brooklyn, New York	Duration: 90 minutes per day, 5 days per week, 2 years Group size: Whole-class and small groups for teacher-directed lessons, independent reading, individual computer-directed lessons Content: Not reported Type of text: Not reported Relevance to recommendation: Instruction focused on word reading [a]	Business-as-usual English language arts instruction	Measures of general reading proficiency and English language arts: 0.18
R. White et al. (2006) *Meets WWC standards with reservations*	Design: QED Contrast: *READ 180* (Cohort 1) vs. business as usual Participants: 1,652 grade 9 students with reading difficulties • Race/Ethnicity: ▪ Not reported Setting: 1 district in Phoenix, Arizona	Duration: 90 minutes per day, 5 days per week, 1 year Group size: Whole-class and small groups for teacher-directed lessons, independent reading, individual computer-directed lessons Content: Not reported Type of text: Not reported Relevance to recommendation: Instruction focused on word reading [a]	Business-as-usual instruction	Reading comprehension: 0.13*

Recommendation 1: Multisyllabic Word Reading				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
R. White et al. (2006) *Meets WWC standards with reservations*	Design: QED Contrast: *READ 180* (Cohort 2) vs. business as usual Participants: 1,630 grade 9 students with reading difficulties • Race/Ethnicity: ▪ 85% Hispanic Setting: 1 district in Phoenix, Arizona	Duration: 90 minutes per day, 5 days per week, 1 year Group size: Whole-class and small groups for teacher-directed lessons, independent reading, individual computer-directed lessons Content: Not reported Type of text: Not reported Relevance to recommendation: Instruction focused on word reading [a]	Business-as-usual instruction	Measures of general reading proficiency and English language arts: 0.27*

Note: Race and ethnicity categories under the *Participants* heading in each row may not add to 100 percent due to rounding, exclusion of categories smaller than 5%, and/or non-mutually exclusive categories of race and ethnicity; some studies did not report this information.

[a] As no details about the intervention were included in the manuscript, this description is based on other studies on *READ 180* that were reviewed for this practice guide.

*Statistically significant at $p \leq 0.05$. .

Recommendation 2: Provide purposeful fluency-building activities to help students read effortlessly.

Rationale for a Strong Level of Evidence

The WWC contractor and the expert panel assigned **Recommendation 2** a strong level of evidence based on 33 studies.[182] Nineteen studies meet WWC group design standards without reservations because they were RCTs with low sample attrition.[183] Fourteen studies meet WWC group design standards with reservations because they were either compromised RCTs, RCTs with high sample attrition, or QEDs, but the analytic intervention and comparison groups in each satisfied the baseline equivalence requirement.[184] In addition, the study samples collectively included 17,385 students and 280 schools across multiple states.[185]

There were findings in four relevant outcome domains for this recommendation (**Table C.5**). Three domains had statistically significant, positive meta-analytic effect sizes: measures of general reading proficiency and English language arts ($g = 0.13$, $p < 0.01$), passage reading fluency-oral ($g = 0.10$, $p < 0.05$), and reading comprehension ($g = 0.09$, $p < 0.01$). The other domain (passage reading fluency-silent) was not statistically significant.

Table C.5. Domain-level effect sizes across the 33 studies supporting Recommendation 2

Domain	Number of studies (*k*)	Effect size [a]	95% Confidence interval	*p* Value	Percentage of weight from studies that meet WWC standards without reservations
Measures of general reading proficiency and English language arts	17	**0.13**	[0.09–0.17]	< 0.01	55.45
Passage reading fluency–oral	11	**0.10**	[0.00–0.19] [b]	< 0.05	59.32
Passage reading fluency–silent	6	0.04	[−0.05–0.13]	*ns*	60.71
Reading comprehension	22	**0.09**	[0.05–0.13]	< 0.01	65.94

Note: All effect sizes were calculated using a fixed-effects meta-analytic effect size across studies. *ns* = statistically nonsignificant findings; *k* = number of studies with at least one outcome in the relevant domain that contributed to the meta-analytic effect size. Thirty-three studies contributed to at least one domain's meta-analytic effect size.

[a] Statistically significant findings are bolded.

[b] The lower limit of the confidence interval is positive, but is reported as 0.00 due to rounding.

The collection of studies demonstrates a large extent of evidence and a preponderance of positive effects. In the studies supporting this recommendation, the interventions were closely aligned with the practices outlined in the recommendation. Consequently, the panel assigned a strong level of evidence to this recommendation. This rating was supported by the strength of the evidence according to the following criteria:

- **Extent of evidence.** Each outcome domain average is based on more than one study with a total sample size of at least 350 individuals.
- **Effects on relevant outcomes.** Three of the four outcome domains (measures of general reading proficiency and English language arts, passage reading fluency-oral, and reading comprehension) have effect sizes that are positive and statistically significant, with more than 50 percent of the meta-analytic weight from studies that meet WWC standards without reservations. These three domains represented at least half of the relevant outcome domains for this recommendation. No outcome domain has negative and statistically significant results.
- **Relevance to scope.** The evidence supporting this recommendation had relevant settings, populations, comparisons, and outcomes. The studies included samples of students in grades 3 through 9, examined interventions that were implemented as a supplement to Tier 1 instruction or in a resource room, and measured outcomes in relevant domains. The interventions ranged from roughly three weeks to three years in duration. Most interventions were substantial in length. In 14 studies, the interventions lasted between 13 and 28 weeks;[186] in 17 studies, the intervention lasted one year or longer.[187] A majority of the interventions were implemented 5 times per week (22 studies)[188] and sessions were 40–60 minutes in duration in 18 studies.[189]
- **Relationship between the evidence and recommendation.** The 33 studies supporting this recommendation exhibited a strong relationship between the evidence and recommended practices. Instruction in these studies focused on various fluency-building activities to support students' ability to read text accurately with ease, expression, and appropriate pacing. The instructional practices included:
  - Providing opportunities for students to engage in repeated reading of text.
  - Emphasizing reading with prosody.
  - Supporting students as they read a wide range of texts.
  - Having students read routinely with a partner.

Supplemental Findings for Recommendation 2

Supplemental findings (delayed or follow-up measures and measures for subgroups of linguistically diverse students and students with reading difficulties) for six studies are available at the corresponding study pages on the WWC website.[190]

Table C.6. Studies providing evidence for Recommendation 2: Provide purposeful fluency-building activities to help students read effortlessly

Recommendation 2: Fluency Building				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
Borman et al. (2009) *Meets WWC standards with reservations*	Design: RCT Contrast: *Fast ForWord* vs. business as usual Participants: 180 grade 7 students with reading difficulties • Race/Ethnicity: ▪ 65% Black ▪ 32% White Setting: 8 schools in Baltimore, Maryland	Duration: 100 minutes per day, 5 days per week, minimum of 20 days Group size: Individual computer intervention Content: Not reported Type of text: Not reported Relevance to recommendation: Instruction included fluency-building activities	Business-as-usual instruction, which generally did not consist of supplemental literacy instruction	Measures of general reading proficiency and English language arts: 0.00
Denton et al. (2008) *Meets WWC standards without reservations*	Design: RCT Contrast: Reading intervention on word reading, comprehension, vocabulary, and fluency vs. business as usual Participants: 38 grade 6–8 students with reading difficulties • Race/Ethnicity: ▪ 23% Black ▪ 77% Hispanic Setting: 1 school in an urban district in the southwestern region of the U.S.	Duration: 40-minute sessions, 5 days per week, 13 weeks Group size: Individual Content: Not reported Type of text: Narrative and informational Relevance to recommendation: Instruction included fluency-building activities such as repeated reading of texts	Business-as-usual supplemental reading intervention	Passage reading fluency–oral: 0.05 Reading comprehension: 0.00
Dimitrov et al. (2012) *Meets WWC standards without reservations*	Design: RCT Contrast: *Passport Reading Journeys* vs. business as usual Participants: 514 grade 9 students with reading difficulties • Race/Ethnicity: ▪ 58% Black ▪ 5% Hispanic ▪ 30% White Setting: 6 schools in 4 districts in Illinois	Duration: 50-minute sessions, 5 days per week, 1 year Group size: 7–16 students Content: Science and social studies Type of text: Expository Relevance to recommendation: Instruction included fluency-building activities such as rereading of text with a partner	Business-as-usual instruction, which generally did not consist of supplemental literacy instruction	Measures of general reading proficiency and English language arts: −0.06

Recommendation 2: Fluency Building				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
Fogarty et al. (2017) *Meets WWC standards without reservations*	Design: RCT Contrast: *Comprehension Circuit Training* vs. business as usual Participants: 197 grade 6–8 students with reading difficulties • Race/Ethnicity: ▪ 30% Black ▪ 26% Hispanic ▪ 27% White Setting: 3 schools in 2 districts in Texas	Duration: 50-minute sessions, 3 days per week, 50–70 days, 39 sessions Group size: Individual Content: Not reported Type of text: Narrative and informational Relevance to recommendation: Instruction included fluency-building activities such as reading a passage with a partner	Business-as-usual supplemental reading intervention	Passage reading fluency–oral: −0.14 Passage reading fluency–silent: 0.29 Reading comprehension: 0.13
Heistad (2008) *Meets WWC standards with reservations*	Design: QED Contrast: *Read Naturally* vs. business as usual Participants: 178 grade 3–5 students with reading difficulties • Race/Ethnicity: ▪ 35% Black ▪ 39% Hispanic ▪ 22% White Setting: 4 schools in Minneapolis, Minnesota	Duration: 1 year Group size: Individual computer intervention Content: Not reported Type of text: Informational Relevance to recommendation: Instruction included fluency-building activities such as rereading passages until a predetermined rate was reached	Business-as-usual English language arts instruction	Measures of general reading proficiency and English language arts: 0.24
J. Kim et al. (2010) *Meets WWC standards with reservations*	Design: RCT Contrast: *READ 180* vs. business as usual Participants: 264 grade 4–6 students with reading difficulties • Race/Ethnicity: ▪ 52% Black ▪ 21% Hispanic ▪ 22% White Setting: Afterschool at 3 schools in 1 district in southeastern Massachusetts	Duration: 60 minutes per day, 4 days per week, 23 weeks Group size: Small groups for teacher-directed lessons, independent reading, individual computer-directed lessons Content: People and culture, science and math, history and geography Type of text: Narrative and informational Relevance to recommendation: Instruction included fluency-building activities	Business-as-usual instruction, which generally did not consist of supplemental literacy instruction	Measures of general reading proficiency and English language arts: 0.01 Passage reading fluency–oral: 0.02*

Recommendation 2: Fluency Building				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
J. Kim et al. (2011) *Meets WWC standards without reservations*	Design: RCT Contrast: *READ 180* vs. business as usual Participants: 297 grade 4–6 students with reading difficulties • Race/Ethnicity: ▪ 54% Black ▪ 12% Hispanic ▪ 28% White Setting: 4 schools in 1 urban district in southeastern Massachusetts	Duration: 60 minutes per day, 4 days per week, 23 weeks Group size: Whole-class and small groups for teacher-directed lessons, independent reading, individual computer-directed lessons Content: People and culture, science and math, history and geography Type of text: Narrative and informational Relevance to recommendation: Instruction included fluency-building activities, along with modeling of fluency	Business-as-usual instruction, which generally did not consist of supplemental literacy instruction	Passage reading fluency–oral: 0.10 Reading comprehension: 0.33*
J. Kim et al. (2017) *Meets WWC standards without reservations*	Design: RCT Contrast: *Strategic Adolescent Reading Intervention* vs. business as usual Participants: 401 grade 6–8 students with reading difficulties • Race/Ethnicity: ▪ 20% Black ▪ 24% Hispanic ▪ 50% White Setting: 8 schools in 4 districts in the northeastern region of the U.S.	Duration: 50 minutes per day, 3–5 days per week, 1 year Group size: Whole-class (ranging from 9 to 21 students) Content: Topics such as sports in society, war in Iraq, immigration debate Type of text: Narrative and informational Relevance to recommendation: Instruction included fluency-building activities such as repeated reading of passages with partner discussion activities	Business-as-usual supplemental reading and/or general academic intervention	Reading comprehension: 0.14

Recommendation 2: Fluency Building				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
Meisch et al. (2011) *Meets WWC standards with reservations*	Design: RCT Contrast: *READ 180* vs. business as usual Participants: 1,023 grade 6–8 students with reading difficulties • Race/Ethnicity: ▪ 55% Black ▪ 43% Hispanic Setting: 19 schools in Newark, New Jersey	Duration: 90 minutes per day, 5 days per week, 1–3 years Group size: Whole-class and small groups for teacher-directed lessons, independent reading, individual computer-directed lessons Content: Not reported Type of text: Not reported Relevance to recommendation: Instruction included fluency-building activities	Business-as-usual English language arts instruction	Measures of general reading proficiency and English language arts: 0.07 Reading comprehension: 0.06
Roberts et al. (2018) *Meets WWC standards without reservations*	Design: RCT Contrast: Text processing with foundational reading skills intervention vs. business as usual Participants: 240 grade 3–5 students with reading difficulties • Race/Ethnicity: ▪ 36% Black ▪ 6% Hispanic ▪ 42% White Setting: Afterschool at 7 schools in 2 districts in the southwestern region of the U.S.	Duration: 60 minutes per day, 4–5 days per week, 6 months Group size: Individual computer intervention and small-group tutoring (3–6 students) Content: Not reported Type of text: Narrative and informational Relevance to recommendation: Instruction included fluency-building activities such as daily reading of texts	Business-as-usual instruction, which generally did not consist of supplemental literacy instruction	Measures of general reading proficiency and English language arts: 0.02 Reading comprehension: 0.00
Schenck et al. (2012) *Meets WWC standards without reservations*	Design: RCT Contrast: *Passport Reading Journeys* vs. business as usual Participants: 634 grade 7–8 students with reading difficulties • Race/Ethnicity: ▪ 68% Black Setting: 9 schools in 3 urban districts in Virginia	Duration: 50 minutes per day, 5 days per week, 1 year Group size: 9–21 students Content: Science and social studies Type of text: Informational Relevance to recommendation: Instruction included fluency-building activities such as rereading of passages independently or with a partner	Business-as-usual English language arts or elective instruction	Measures of general reading proficiency and English language arts: 0.06

Recommendation 2: Fluency Building				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
Somers et al. (2010) *Meets WWC standards without reservations*	Design: RCT Contrast: *Reading Apprentice Academic Literacy (RAAL)* vs. business as usual Participants: 2,255 grade 9 students with reading difficulties • Race/Ethnicity: ▪ 47% Black ▪ 30% Hispanic ▪ 17% White Setting: 17 schools in 10 districts in the U.S.	Duration: 45 minutes per day, 5 days per week, 1 year Group size: 10–15 students Content: Not reported Type of text: Not reported Relevance to recommendation: Instruction included fluency-building activities such as reading with appropriate expression	Business-as-usual English language arts instruction	Measures of general reading proficiency and English language arts: 0.16* Reading comprehension: 0.12*
Somers et al. (2010) *Meets WWC standards without reservations*	Design: RCT Contrast: *Xtreme Reading* vs. business as usual Participants: 2,329 grade 9 students with reading difficulties • Race/Ethnicity: ▪ 46% Black ▪ 32% Hispanic ▪ 16% White Setting: 17 schools in 10 districts in the U.S.	Duration: 45 minutes per day, 5 days per week, 1 year Group size: Whole-class teacher-directed lessons, paired-student practice, independent practice Content: Not reported Type of text: Not reported Relevance to recommendation: Instruction included fluency-building activities such as reading with appropriate expression	Business-as-usual English language arts instruction	Measures of general reading proficiency and English language arts: 0.09 Reading comprehension: 0.06
Sprague et al. (2012) *Meets WWC standards with reservations*	Design: RCT Contrast: *READ 180* vs. business as usual Participants: 456 grade 9 students with reading difficulties • Race/Ethnicity: ▪ 27% White Setting: 5 schools in 2 districts in western Massachusetts	Duration: 90 minutes per day, 5 days per week, 1 year Group size: Whole-class and small groups for teacher-directed lessons; independent reading; individual computer-directed lessons Content: Not reported Type of text: Not reported Relevance to recommendation: Instruction included fluency-building activities	Business-as-usual English language arts instruction and/or supplemental reading intervention	Measures of general reading proficiency and English language arts: 0.18*

Recommendation 2: Fluency Building				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
Swanlund et al. (2012) *Meets WWC standards without reservations*	Design: RCT Contrast: *READ 180* vs. business as usual Participants: 619 grade 6–9 students with reading difficulties • Race/Ethnicity: ▪ 70% Black ▪ 19% Hispanic ▪ 7% White Setting: 5 schools in 1 district in Milwaukee, Wisconsin	Duration: 90-minutes per day, 5 days per week, 1 year Group size: Whole-class and small groups for teacher-directed lessons, independent reading, individual computer-directed lessons Content: Not reported Type of text: Narrative Relevance to recommendation: Instruction included fluency-building activities such as repeated reading of text	Business-as-usual instruction, which generally did not consist of supplemental literacy instruction	Measures of general reading proficiency and English language arts: 0.14*
Therrien et al. (2006) *Meets WWC standards without reservations*	Design: RCT Contrast: *Reread-Adapt and Answer-Comprehend (RAAC) vs. business as usual* Participants: 29 grade 4, 5, 7, and 8 students with reading difficulties • Race/Ethnicity: ▪ Not reported Setting: 1 rural district in southwestern Ohio	Duration: 10–15 minutes per day, until 50 passages were read over 16 weeks Group size: Individual Content: Topics and themes found in children's literature Type of text: Narrative Relevance to recommendation: Instruction included fluency-building activities such as repeated reading of text	Business-as-usual instruction	Measures of general reading proficiency and English language arts: 0.67 Passage reading fluency–oral: 0.86*
Torgesen et al. (2006) *Meets WWC standards with reservations*	Design: RCT Contrast: *Corrective Reading* vs. business as usual Participants: 86 grade 5 students with reading difficulties • Race/Ethnicity: ▪ 16% Black ▪ 85% White Setting: 50 schools in 27 districts outside of Pittsburgh, Pennsylvania	Duration: 50 minutes per day, 5 days per week, 6 months Group size: 3 students Content: Not reported Type of text: Not reported Relevance to recommendation: Instruction included fluency-building activities such as oral reading of stories	Business-as-usual English language arts instruction and/or supplemental reading intervention	Passage reading fluency–oral: 0.10 Reading comprehension: 0.12

Recommendation 2: Fluency Building				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
Torgesen et al. (2006) *Meets WWC standards with reservations*	Design: RCT Contrast: *Wilson Reading* vs. business as usual Participants: 91 grade 5 students with reading difficulties • Race/Ethnicity: ▪ 43% Black ▪ 57% White Setting: 50 schools in 27 districts outside of Pittsburgh, Pennsylvania	Duration: 50 minutes per day, 5 days per week, 6 months Group size: 3 students Content: Not reported Type of text: Not reported Relevance to recommendation: Instruction included fluency-building activities	Business-as-usual English language arts instruction and/or supplemental reading intervention	Passage reading fluency–oral: −0.01 Reading comprehension: 0.09
Torgesen et al. (2006) *Meets WWC standards with reservations*	Design: RCT Contrast: *Failure Free Reading* vs. business as usual Participants: 126 grade 5 students with reading difficulties • Race/Ethnicity: ▪ 19% Black ▪ 81% White Setting: 50 schools in 27 districts outside of Pittsburgh, Pennsylvania	Duration: 50 minutes per day, 5 days per week, 6 months Group size: 3 students Content: Not reported Type of text: Not reported Relevance to recommendation: Instruction included fluency-building activities such as spending time reading text	Business-as-usual English language arts instruction and/or supplemental reading intervention	Passage reading fluency–oral: −0.01 Reading comprehension: −0.04
Toste et al. (2019) *Meets WWC standards without reservations*	Design: RCT Contrast: Multisyllabic word reading intervention (with or without motivation) vs. business as usual Participants: 108 grade 4–5 students with reading difficulties • Race/Ethnicity: ▪ 6% Black ▪ 85% Hispanic Setting: 3 schools in 1 district in the southeastern region of the U.S.	Duration: 40 minutes per day, 4 days per week, 40 sessions Group size: 3–4 students Content: Not reported Type of text: Informational Relevance to recommendation: Instruction included fluency-building activities such as reading of sentences and text	Business-as-usual supplemental reading intervention	Reading comprehension: 0.13*

Recommendation 2: Fluency Building				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
Vadasy & Sanders (2008) *Meets WWC standards with reservations*	Design: RCT Contrast: *Quick Reads* vs. business as usual Participants: 119 grade 4–5 students with reading difficulties • Race/Ethnicity: ▪ 39% Black ▪ 13% Hispanic ▪ 24% White Setting: 12 schools from 1 district in the northwestern region of the U.S.	Duration: 30 minutes per day, 4 days per week, 18 weeks Group size: 2 students Content: Science and social studies Type of text: Not reported Relevance to recommendation: Instruction included fluency-building activities such as repeated reading of text, with each reading having a different purpose	Business-as-usual literacy curricula	Passage reading fluency–oral: 0.08 Reading comprehension: 0.49*
Vaden-Kiernan et al. (2012) *Meets WWC standards without reservations*	Design: RCT Contrast: *Passport Reading Journeys* vs. business as usual Participants: 1,042 grade 6–7 students with reading difficulties • Race/Ethnicity: ▪ 71% Black ▪ 24% White Setting: 10 schools in 4 urban, suburban, and rural districts in Louisiana	Duration: 50-minutes per day, 5 days per week, 2 years Group size: 15 students Content: Science and social studies Type of text: Informational Relevance to recommendation: Instruction included fluency-building activities such as rereading of passages independently or with a partner	Business-as-usual instruction, which generally did not consist of supplemental literacy instruction	Measures of general reading proficiency and English language arts: 0.14*
Vaughn et al. (2016) *Meets WWC standards without reservations*	Design: RCT Contrast: Reading intervention on word reading, vocabulary, and comprehension vs. business as usual Participants: 445 grade 4 students with reading difficulties • Race/Ethnicity: ▪ 22% Black ▪ 68% Hispanic Setting: 17 schools in 3 districts in the southwestern region of the U.S.	Duration: 35 minutes per day, 5 days per week, 16 weeks Group size: 4–5 students Content: Social studies topics Type of text: Informational Relevance to recommendation: Instruction included fluency-building activities such as rereading of passages aloud in unison, with a partner or independently, along with teacher modeling of reading	Business-as-usual English language arts instruction	Passage reading fluency–silent: −0.14 Reading comprehension: −0.11

Recommendation 2: Fluency Building				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
Vaughn, Cirino, et al. (2010) *Meets WWC standards with reservations*	Design: RCT Contrast: Reading intervention on word recognition, vocabulary, fluency, and comprehension vs. business as usual Participants: 326 grade 6 students with reading difficulties • Race/Ethnicity: ▪ 46% Black ▪ 40% Hispanic ▪ 12% White Setting: 7 schools in 3 urban districts in the southwestern region of the U.S.	Duration: 50 minutes per day, 5 days per week, 1 year Group size: 10–15 students Content: Social studies Type of text: Narrative and informational Relevance to recommendation: Instruction included fluency-building activities such as rereading of passages with a partner	Business-as-usual English language arts instruction	Measures of general reading proficiency and English language arts: 0.18 Passage reading fluency–silent: 0.13 Reading comprehension: 0.13
Vaughn, Martinez, et al. (2019) *Meets WWC standards without reservations*	Design: RCT Contrast: *Reading Intervention for Adolescents* vs. business as usual Participants: 318 grade 9 students with reading difficulties • Race/Ethnicity: ▪ 89% Hispanic Setting: 3 schools in 1 urban district in the southwestern region of the U.S.	Duration: 50 minutes per day, 4–5 days per week, 2 years Group size: 10–15 students Content: Science and social studies Type of text: Informational Relevance to recommendation: Instruction included fluency-building activities	Business-as-usual English language arts or elective instruction	Passage reading fluency–silent: 0.13 Reading comprehension: −0.18
Vaughn, Roberts, et al. (2019) *Meets WWC standards without reservations*	Design: RCT Contrast: Reading intervention on word reading and comprehension vs. business as usual Participants: 252 grade 4–5 students with reading difficulties • Race/Ethnicity: ▪ 40% Black ▪ 47% White Setting: 9 schools in 3 districts in the southwestern region of the U.S.	Duration: 30–45 minutes per day, 5 days per week, 68 sessions Group size: 3–6 students Content: Science-related topics Type of text: Narrative and informational Relevance to recommendation: Instruction included fluency-building activities such as repeated reading of text and reading with expression	Business-as-usual English language arts instruction and/or supplemental reading intervention	Measures of general reading proficiency and English language arts: 0.11 Passage reading fluency–oral: 0.42* Passage reading fluency–silent: 0.02 Reading comprehension: 0.09

Recommendation 2: Fluency Building				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
Vaughn, Wanzek, et al. (2010) *Meets WWC standards with reservations*	Design: RCT Contrast: Reading intervention on word study, vocabulary, fluency, and comprehension (large group) vs. business as usual Participants: 420 grade 7–8 students with reading difficulties • Race/Ethnicity: ▪ 40% Black ▪ 43% Hispanic ▪ 14% White Setting: 6 schools in urban settings in the southwestern region of the U.S.	Duration: 45–50-minute sessions, 5 days per week, 1 year Group size: 10–15 students Content: Not reported Type of text: Informational and narrative Relevance to recommendation: Instruction included fluency-building activities such as repeated reading of passages with a partner	Business-as-usual English language arts instruction	Passage reading fluency–silent: −0.02 Reading comprehension: 0.03
Wanzek et al. (2016) *Meets WWC standards without reservations*	Design: RCT Contrast: *Passport to Literacy* vs. business as usual Participants: 196 grade 4 students with reading difficulties • Race/Ethnicity: ▪ 41% Black ▪ 40% Hispanic ▪ 21% Native American ▪ 32% White Setting: 10 schools in 4 districts in 2 U.S. states	Duration: 30-minute sessions, 4 days per week, 1 year Group size: 4–7 students Content: Not reported Type of text: Narrative and informational Relevance to recommendation: Instruction included fluency-building activities	Business-as-usual supplemental reading intervention	Passage reading fluency–oral: 0.04 Reading comprehension: 0.21

Recommendation 2: Fluency Building				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
Wanzek et al. (2017) *Meets WWC standards without reservations*	Design: RCT Contrast: *Passport to Literacy* vs. business as usual Participants: 404 grade 4 students with reading difficulties • Race/Ethnicity: ▪ 35% Black ▪ 46% Hispanic ▪ 17% Native American ▪ 44% White Setting: 16 schools in 6 districts in 3 U.S. states	Duration: 30-minute sessions, 5 days per week, 25 weeks, 120 sessions Group size: 4–7 students Content: Not reported Type of text: Narrative and informational Relevance to recommendation: Instruction included fluency-building activities such as reading with expression	Business-as-usual English language arts instruction and/or supplemental reading intervention	Reading comprehension: 0.16
Wanzek & Roberts (2012) *Meets WWC standards without reservations*	Design: RCT Contrast: Reading intervention with word study plus reading intervention with comprehension emphasis vs. business as usual Participants: 68 grade 4 students with reading difficulties • Race/Ethnicity: ▪ 82% Hispanic ▪ 13% White Setting: 5 schools in 1 district in the southwestern region of the U.S.	Duration: 30-minute sessions, 5 days per week, 28 weeks Group size: 2–4 students Content: Science Type of text: Informational Relevance to recommendation: Instruction included fluency-building activities such as spending time reading text	Business-as-usual supplemental reading intervention	Reading comprehension: −0.41
R. White et al. (2005) *Meets WWC standards with reservations*	Design: QED Contrast: *READ 180* vs. business as usual Participants: 448 grade 4–8 students with reading difficulties • Race/Ethnicity: ▪ 85% Black ▪ 15% Hispanic Setting: 16 schools in 1 district in Brooklyn, New York	Duration: 90 minutes per day, 5 days per week, 2 years Group size: Whole-class and small groups for teacher-directed lessons, independent reading, individual computer-directed lessons Content: Not reported Type of text: Not reported Relevance to recommendation: Instruction included fluency-building activities[a]	Business-as-usual English language arts instruction	Measures of general reading proficiency and English language arts: 0.18

Recommendation 2: Fluency Building				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
R. White et al. (2006) *Meets WWC standards with reservations*	Design: QED Contrast: *READ 180* (Cohort 1) vs. business as usual Participants: 1,652 grade 9 students with reading difficulties • Race/Ethnicity: ▪ Not reported Setting: 1 district in Phoenix, Arizona	Duration: 90 minutes per day, 5 days per week, 1 year Group size: Whole-class and small groups for teacher-directed lessons, independent reading, individual computer-directed lessons Content: Not reported Type of text: Not reported Relevance to recommendation: Instruction included fluency-building activities[a]	Business-as-usual instruction	Reading comprehension: 0.13*
R. White et al. (2006) *Meets WWC standards with reservations*	Design: QED Contrast: *READ 180* (Cohort 2) vs. business as usual Participants: 1,630 grade 9 students with reading difficulties • Race/Ethnicity: ▪ 85% Hispanic Setting: 1 district in Phoenix, Arizona	Duration: 90 minutes per day, 5 days per week, 1 year Group size: Whole-class and small groups for teacher-directed lessons, independent reading, individual computer-directed lessons Content: Not reported Type of text: Not reported Relevance to recommendation: Instruction included fluency-building activities[a]	Business-as-usual instruction	Measures of general reading proficiency and English language arts: 0.27*

Note: Race and ethnicity categories under the *Participants* heading in each row may not add to 100 percent due to rounding, exclusion of categories smaller than 5%, and/or non-mutually exclusive categories of race and ethnicity; some studies did not report this information.

[a] As no details about the intervention were included in the manuscript, this description is based on other studies on *READ 180* that were reviewed for this practice guide.

*Statistically significant at $p \leq 0.05$.

Recommendation 3: Routinely use a set of comprehension-building practices to help students make sense of the text.

Rationale for a Strong Level of Evidence

The WWC contractor and the expert panel assigned **Recommendation 3** a strong level of evidence based on 34 studies.[191] Twenty-three studies meet WWC group design standards without reservations because they were RCTs with low sample attrition.[192] Eleven studies meet WWC group design standards with reservations because they were either compromised RCTs, RCTs with high sample attrition, or QEDs, but the analytic intervention and comparison groups in each satisfied the baseline equivalence requirement.[193] In addition, the study samples collectively included 17,168 students and 250 schools across multiple states.[194]

There were findings in three relevant outcome domains for this recommendation (**Table C.7**). Two domains had statistically significant, positive meta-analytic effect sizes: measures of general reading proficiency and English language arts ($g = 0.13$, $p < 0.01$) and reading comprehension ($g = 0.10$, $p < 0.01$). The other domain (reading vocabulary) was not statistically significant.

Table C.7. Domain-level effect sizes across the 34 studies supporting Recommendation 3

Domain	Number of studies (*k*)	Effect size [a]	95% Confidence interval	*p* Value	Percentage of weight from studies that meet WWC standards without reservations
Measures of general reading proficiency and English language arts	16	**0.13**	[0.09–0.17]	< 0.01	58.00
Reading comprehension	24	**0.10**	[0.06–0.13]	< 0.01	67.86
Reading vocabulary	9	0.04	[−0.01–0.09]	*ns*	85.46

Note: All effect sizes were calculated using a fixed-effects meta-analytic effect size across studies. *ns* = statistically nonsignificant findings; *k* = number of studies with at least one outcome in the relevant domain that contributed to the meta-analytic effect size. Thirty-four studies contributed to at least one domain's meta-analytic effect size.

[a] Statistically significant findings are bolded.

The collection of studies demonstrates a large extent of evidence and a preponderance of positive effects. In the studies supporting this recommendation, the interventions were closely aligned with the practices outlined in the recommendation. Consequently, the panel assigned a strong level of evidence to this recommendation. This rating was supported by the strength of the evidence according to the following criteria:

- **Extent of evidence.** Each outcome domain average is based on more than one study with a total sample size of at least 350 individuals.

- **Effects on relevant outcomes.** Two of the three domains (measures of general reading proficiency and English language arts and reading comprehension) have effect sizes that are positive and statistically significant, with more than 50 percent of the meta-analytic weight from studies that meet WWC standards without reservations. These two domains represented at least half of the relevant outcome domains for this recommendation. The third domain (reading vocabulary) had a positive but statistically nonsignificant meta-analytic effect size. No outcome domain has negative and statistically significant results.
- **Relevance to scope.** The evidence supporting this recommendation had relevant settings, populations, comparisons, and outcomes. The studies included samples of students in grades 3–9, examined interventions that were implemented as a supplement to Tier 1 instruction or in a resource room, and measured outcomes in relevant domains. The interventions ranged from roughly three weeks to three years in duration. Most interventions were substantial in length. In 16 studies, the interventions lasted between 8 and 28 weeks;[195] in 17 studies, the intervention lasted one year or longer.[196] A majority of the interventions were implemented 5 times per week (19 studies),[197] and sessions were 40–60 minutes in duration in 20 studies.[198]
- **Relationship between the evidence and recommendation.** The 34 studies supporting this recommendation exhibited a strong relationship between the evidence and recommended practices. Instruction in these studies focused on various comprehension-building practices to develop students' ability to make sense of the text. The instructional practices included:
  - Providing brief, purposeful exposure to world knowledge necessary for understanding the text.
  - Teaching the meanings of words.
  - Teaching how to answer literal and inferential questions and generate questions about the content during and after reading.
  - Teaching how to generate gist statements.
  - Teaching students to monitor their understanding of text and make inferences while reading.

Supplemental Findings for Recommendation 3

Supplemental findings (delayed or follow-up measures and measures for subgroups of linguistically diverse students and students with reading difficulties) for 7 studies are available at the corresponding study pages on the WWC website.[199]

Table C.8. Studies providing evidence for Recommendation 3: Routinely use a set of comprehension-building practices to help students make sense of the text

Recommendation 3: Comprehension Building				
Study and WWC rating	**Study description[a]**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size[b]**
Barth & Elleman (2017) *Meets WWC standards without reservations*	Design: RCT Contrast: Multi-strategy inference intervention vs. business as usual Participants: 61 grade 6–8 students with reading difficulties • Race/Ethnicity: ▪ 36% Black ▪ 8% Hispanic ▪ 49% White Setting: 1 school in the midwestern region of the U.S.	Duration: 45 minutes per day, 4 days per week, 10 sessions Group size: 2–3 students Content: Topics related to Egypt Type of text: Narrative and informational Relevance to recommendation: Instruction addressed using context clues, asking and answering questions, finding the main idea, and monitoring for understanding	Business-as-usual supplemental reading intervention	Reading comprehension: 0.39
Barth et al. (2016) *Meets WWC standards with reservations*	Design: RCT Contrast: Text processing intervention vs. business as usual Participants: 128 grade 6–8 students with reading difficulties • Race/Ethnicity: ▪ 9% Black ▪ 84% White Setting: 3 schools in 3 rural districts in the midwestern region of the U.S.	Duration: 40 minutes per day, 4 days per week, 8 weeks Group size: 4–6 students Content: Science Type of text: Informational Relevance to recommendation: Instruction addressed generating gist statements and making connections and inferences	Business-as-usual English language arts instruction and/or supplemental reading intervention	Reading comprehension: 0.11

Recommendation 3: Comprehension Building				
Study and WWC rating	**Study description[a]**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size[b]**
Connor et al. (2018) *Meets WWC standards without reservations*	Design: RCT Contrast: *TEXTS* vs. business as usual Participants: 216 grade 4 students with reading difficulties • Race/Ethnicity: ▪ 39% Black ▪ 53% White Setting: 31 schools in Florida	Duration: 30-minute sessions, 4 days per week, 10–12 weeks Group size: 4–5 students Content: Common topics and state standards for fourth grade Type of text: Informational Relevance to recommendation: Instruction addressed text structure	Business-as-usual English language arts instruction	Measures of general reading proficiency and English language arts: −0.08
Denton et al. (2008) *Meets WWC standards without reservations*	Design: RCT Contrast: Reading intervention on word reading, comprehension, vocabulary, and fluency vs. business as usual Participants: 38 grade 6–8 students with reading difficulties • Race/Ethnicity: ▪ 23% Black ▪ 77% Hispanic Setting: 1 school in an urban district in the southwestern region of the U.S.	Duration: 40-minute sessions, 5 days per week, 13 weeks Group size: Individual Content: Not reported Type of text: Narrative Relevance to recommendation: Instruction addressed vocabulary, building background knowledge, finding the main idea, and generating questions	Business-as-usual supplemental reading intervention	Reading comprehension: 0.00
Dimitrov et al. (2012) *Meets WWC standards without reservations*	Design: RCT Contrast: *Passport Reading Journeys* vs. business as usual Participants: 514 grade 9 students with reading difficulties • Race/Ethnicity: ▪ 58% Black ▪ 5% Hispanic ▪ 30% White Setting: 6 schools in 4 districts in Illinois	Duration: 50-minute sessions, 5 days per week, 1 year Group size: 7–16 students Content: Science and social studies Type of text: Informational Relevance to recommendation: Instruction addressed vocabulary, answering and generating questions, making inferences, identifying the main idea	Business-as-usual instruction, which generally did not consist of supplemental literacy instruction	Measures of general reading proficiency and English language arts: −0.06

Recommendation 3: Comprehension Building				
Study and WWC rating	**Study description[a]**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size[b]**
Fogarty et al. (2017) *Meets WWC standards without reservations*	Design: RCT Contrast: *Comprehension Circuit Training* vs. business as usual Participants: 197 grade 6–8 students with reading difficulties • Race/Ethnicity: ▪ 30% Black ▪ 26% Hispanic ▪ 27% White Setting: 3 schools in 2 districts in Texas	Duration: 50-minute sessions, 3 days per week, 50–70 days, 39 sessions Group size: Individual Content: Not reported Type of text: Narrative and informational Relevance to recommendation: Instruction addressed vocabulary, making inferences, finding the main idea, and monitoring for understanding	Business-as-usual supplemental reading intervention	Reading comprehension: 0.13
Hall et al. (2019) *Meets WWC standards without reservations*	Design: RCT Contrast: Inference instruction intervention vs. business as usual Participants: 78 grade 6–7 students with reading difficulties • Race/Ethnicity: ▪ 96% Hispanic Setting: 1 school in an urban Texas district	Duration: 40 minutes per day, 2–3 days per week, 14 weeks Group size: 4–6 students Content: Children's fictional literature Type of text: Narrative Relevance to recommendation: Instruction addressed making inferences	Business-as-usual English language arts instruction	Reading comprehension: 0.30* Reading vocabulary: 0.09
Hock et al. (2017) *Meets WWC standards with reservations*	Design: QED Contrast: *Fusion Reading* vs. business as usual Participants: 37 grade 6 students with reading difficulties • Race/Ethnicity: ▪ 65% White Setting: 3 schools in 1 urban district in the midwestern region of the U.S.	Duration: 50 minutes per day, 5 days per week, 1 year Group size: 3–8 students Content: Language arts, science, social studies, and math Type of text: Narrative and informational Relevance to recommendation: Instruction addressed vocabulary, finding the main idea, and making inferences	Business-as-usual supplemental reading intervention	Measures of general reading proficiency and English language arts: 1.28*

Recommendation 3: Comprehension Building				
Study and WWC rating	**Study description[a]**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size[b]**
A. Kim et al. (2006) *Meets WWC standards without reservations*	Design: RCT Contrast: Computer-Assisted Collaborative Strategic Reading vs. business as usual Participants: 34 grade 6–8 students with reading difficulties • Race/Ethnicity: ▪ 21% Black ▪ 35% Hispanic ▪ 44% White Setting: 1 school in an urban school district in the U.S.	Duration: 50 minutes per day, 2 days per week, 10–12 weeks Group size: 2 students Content: Not reported Type of text: Informational Relevance to recommendation: Instruction addressed activating background knowledge and generating gist statements	Business-as-usual English language arts instruction and/or supplemental reading intervention	Reading comprehension: 0.51
J. Kim et al. (2010) *Meets WWC standards with reservations*	Design: RCT Contrast: *READ 180* vs. business as usual Participants: 264 grade 4–6 students with reading difficulties • Race/Ethnicity: ▪ 52% Black ▪ 21% Hispanic ▪ 22% White Setting: Afterschool at 3 schools in 1 district in southeastern Massachusetts	Duration: 60 minutes per day, 4 days per week, 23 weeks Group size: Small groups for teacher-directed lessons, independent reading, individual computer-directed lessons Content: People and culture, science and math, and history and geography Type of text: Narrative and informational Relevance to recommendation: Instruction addressed building background knowledge, using context clues, and comprehension	Business-as-usual instruction, which generally did not consist of supplemental literacy instruction	Measures of general reading proficiency and English language arts: 0.01

Recommendation 3: Comprehension Building				
Study and WWC rating	**Study description[a]**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size[b]**
J. Kim et al. (2011) *Meets WWC standards without reservations*	Design: RCT Contrast: *READ 180* vs. business as usual Participants: 297 grade 4–6 students with reading difficulties • Race/Ethnicity: ▪ 54% Black ▪ 12% Hispanic ▪ 28% White Setting: 4 schools in 1 urban district in southeastern Massachusetts	Duration: 60 minutes per day, 4 days per week, 23 weeks Group size: Whole-class and small groups for teacher-directed lessons, independent reading, individual computer-directed lessons Content: People and culture, science and math, and history and geography Type of text: Narrative and informational Relevance to recommendation: Instruction addressed vocabulary and comprehension	Business-as-usual instruction, which generally did not consist of supplemental literacy instruction	Reading comprehension: 0.33* Reading vocabulary: 0.25*
J. Kim et al. (2017) *Meets WWC standards without reservations*	Design: RCT Contrast: *Strategic Adolescent Reading Intervention* vs. business as usual Participants: 401 grade 6–8 students with reading difficulties • Race/Ethnicity: ▪ 20% Black ▪ 24% Hispanic ▪ 50% White Setting: 8 schools in 4 districts in the northeastern region of the U.S.	Duration: 50 minutes per day, 3–5 days per week, 1 year Group size: Whole-class (ranging from 9–21 students) Content: Topics included sports in society, war in Iraq, immigration debate Type of text: Narrative and informational Relevance to recommendation: Instruction addressed building background knowledge, vocabulary, asking and answering questions, making inferences	Business-as-usual supplemental reading and/or general academic intervention	Reading comprehension: 0.14 Reading vocabulary: 0.16

Recommendation 3: Comprehension Building				
Study and WWC rating	**Study description[a]**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size[b]**
Meisch et al. (2011) *Meets WWC standards with reservations*	Design: RCT Contrast: *READ 180* vs. business as usual Participants: 1,023 grade 6–8 students with reading difficulties • Race/Ethnicity: ▪ 55% Black ▪ 43% Hispanic Setting: 19 schools in Newark, New Jersey	Duration: 90 minutes per day, 5 days per week, 1–3 years Group size: Whole-class and small groups for teacher-directed lessons, independent reading, individual computer-directed lessons Content: Not reported Type of text: Not reported Relevance to recommendation: Instruction addressed building background knowledge, vocabulary, text structure, making inferences, and finding the main idea	Business-as-usual English language arts instruction	Measures of general reading proficiency and English language arts: 0.07 Reading comprehension: 0.06 Reading vocabulary: 0.05
Ritchey et al. (2017) *Meets WWC standards without reservations*	Design: RCT Contrast: Informational text reading comprehension intervention vs. business as usual Participants: 46 grade 5 students with reading difficulties • Race/Ethnicity: ▪ 22% Black ▪ 61% White Setting: 4 schools in 1 district in the Mid-Atlantic region of the U.S.	Duration: 30-minute sessions, 4 days per week, 10–12 weeks Group size: 2–4 students Content: Science Type of text: Informational Relevance to recommendation: Instruction addressed activating background knowledge, vocabulary, asking and answering questions, finding the main idea, and monitoring for understanding	Business-as-usual English language arts instruction and/or supplemental reading intervention	Reading comprehension: 0.46

Recommendation 3: Comprehension Building				
Study and WWC rating	**Study description[a]**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size[b]**
Roberts et al. (2018) *Meets WWC standards without reservations*	Design: RCT Contrast: Text processing with foundational reading skills intervention vs. business as usual Participants: 240 grade 3–5 students with reading difficulties • Race/Ethnicity: ▪ 36% Black ▪ 6% Hispanic ▪ 42% White Setting: Afterschool at 7 schools in 2 districts in the southwestern region of the U.S.	Duration: 60 minutes per day, 4–5 days per week, 6 months Group size: Individual computer intervention and small-group tutoring (3–6 students) Content: Not reported Type of text: Narrative and informational Relevance to recommendation: Instruction addressed vocabulary, making inferences, and monitoring for understanding	Business-as-usual instruction, which generally did not consist of supplemental literacy instruction	Measures of general reading proficiency and English language arts: 0.02 Reading comprehension: 0.00
Schenck et al. (2012) *Meets WWC standards without reservations*	Design: RCT Contrast: *Passport Reading Journeys* vs. business as usual Participants: 634 grade 7–8 students with reading difficulties • Race/Ethnicity: ▪ 68% Black Setting: 9 schools in 3 urban districts in Virginia	Duration: 50 minutes per day, 5 days per week, 1 year Group size: 9–21 students Content: Science and social studies Type of text: Informational Relevance to recommendation: Instruction addressed vocabulary, text structure, finding the main idea, answering questions, making inferences, and monitoring for understanding	Business-as-usual English language arts or elective instruction	Measures of general reading proficiency and English language arts: 0.06

Recommendation 3: Comprehension Building				
Study and WWC rating	**Study description[a]**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size[b]**
Somers et al. (2010) *Meets WWC standards without reservations*	Design: RCT Contrast: *Reading Apprentice Academic Literacy (RAAL)* vs. business as usual Participants: 2,255 grade 9 students with reading difficulties • Race/Ethnicity: ▪ 47% Black ▪ 30% Hispanic ▪ 17% White Setting: 17 schools in 10 districts in the U.S.	Duration: 45 minutes per day, 5 days per week, 1 year Group size: 10–15 students Content: Not reported Type of text: Not reported Relevance to recommendation: Instruction addressed vocabulary and comprehension	Business-as-usual English language arts instruction	Measures of general reading proficiency and English language arts: 0.16* Reading comprehension: 0.12* Reading vocabulary: 0.00
Somers et al. (2010) *Meets WWC standards without reservations*	Design: RCT Contrast: *Xtreme Reading* vs. business as usual Participants: 2,329 grade 9 students with reading difficulties • Race/Ethnicity: ▪ 46% Black ▪ 32% Hispanic ▪ 16% White Setting: 17 schools in 10 districts in the U.S.	Duration: 45 minutes per day, 5 days per week, 1 year Group size: Whole-class teacher-directed lessons, paired-student practice, independent practice Content: Not reported Type of text: Not reported Relevance to recommendation: Instruction addressed vocabulary and comprehension	Business-as-usual English language arts instruction	Measures of general reading proficiency and English language arts: 0.09 Reading comprehension: 0.06 Reading vocabulary: 0.03
Sprague et al. (2012) *Meets WWC standards with reservations*	Design: RCT Contrast: *READ 180* vs. business as usual Participants: 456 grade 9 students with reading difficulties • Race/Ethnicity: ▪ 27% White Setting: 5 schools in 2 districts in western Massachusetts	Duration: 90 minutes per day, 5 days per week, 1 year Group size: Whole-class and small groups for teacher-directed lessons, independent reading, individual computer-directed lessons Content: Not reported Type of text: Not reported Relevance to recommendation: Instruction addressed building background knowledge, vocabulary, and comprehension	Business-as-usual English language arts instruction and/or supplemental reading intervention	Measures of general reading proficiency and English language arts: 0.18*

Recommendation 3: Comprehension Building				
Study and WWC rating	**Study description[a]**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size[b]**
Stevens et al. (2020) *Meets WWC standards without reservations*	Design: RCT Contrast: Paraphrasing and text structure instruction vs. business as usual Participants: 61 grade 4–5 students with reading difficulties • Race/Ethnicity: ▪ 8% Black ▪ 90% Hispanic Setting: 2 schools in the south central region of the U.S.	Duration: 40 minutes per day, 2–3 days per week, 25 sessions Group size: 4–6 students Content: Social studies and science Type of text: Informational Relevance to recommendation: Instruction addressed building background knowledge, finding the main idea, text structure, and monitoring for understanding	Business-as-usual instruction, which generally did not consist of supplemental literacy instruction	Reading comprehension: 0.45*
Swanlund et al. (2012) *Meets WWC standards without reservations*	Design: RCT Contrast: *READ 180 vs.* business as usual Participants: 619 grade 6–9 students with reading difficulties • Race/Ethnicity: ▪ 70% Black ▪ 19% Hispanic ▪ 7% White Setting: 5 schools in 1 district in Milwaukee, Wisconsin	Duration: 90-minute sessions, 5 days per week, 1 year Group size: Whole-class and small groups for teacher-directed lessons, independent reading, individual computer-directed lessons Content: People and culture, science and math, and history and geography Type of text: Narrative and informational Relevance to recommendation: Instruction addressed vocabulary and comprehension	Business-as-usual instruction, which generally did not consist of supplemental literacy instruction	Measures of general reading proficiency and English language arts: 0.14*

Recommendation 3: Comprehension Building				
Study and WWC rating	**Study description[a]**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size[b]**
Thames et al. (2008) *Meets WWC standards with reservations*	Design: RCT Contrast: Individualized integrated approach vs. business as usual Participants: 61 grade 4–8 students with reading difficulties • Race/Ethnicity: ▪ 81% Black ▪ 11% White Setting: 1 school in the southeastern region of the U.S.	Duration: 20–90 minutes per day, 1 day per week, 10 sessions Group size: Individual Content: Science and social studies Type of text: Trade books and informational text Relevance to recommendation: Instruction addressed vocabulary and monitoring for understanding	Business-as-usual English language arts instruction	Reading comprehension: 0.65*
Vaden-Kiernan et al. (2012) *Meets WWC standards without reservations*	Design: RCT Contrast: *Passport Reading Journeys* vs. business as usual Participants: 1,042 grade 6–7 students with reading difficulties • Race/Ethnicity: ▪ 71% Black ▪ 24% White Setting: 10 schools in 4 urban, suburban, and rural districts in Louisiana	Duration: 50-minute sessions, 5 days per week, 2 years Group size: 15 students Content: Science and social studies Type of text: Informational Relevance to recommendation: Instruction addressed building background knowledge, vocabulary, asking and answering questions, making inferences, and finding the main idea	Business-as-usual instruction, which generally did not consist of supplemental literacy instruction	Measures of general reading proficiency and English language arts: 0.14*
Vaughn et al. (2016) *Meets WWC standards without reservations*	Design: RCT Contrast: Reading intervention on word reading, vocabulary, and comprehension vs. business as usual Participants: 445 grade 4 students with reading difficulties • Race/Ethnicity: ▪ 22% Black ▪ 68% Hispanic Setting: 17 schools in 3 districts in the southwestern region of the U.S.	Duration: 35 minutes per day, 5 days per week, 16 weeks Group size: 4–5 students Content: Social studies topics Type of text: Informational Relevance to recommendation: Instruction addressed vocabulary, answering questions, and monitoring for understanding	Business-as-usual English language arts instruction	Reading comprehension: −0.11

Recommendation 3: Comprehension Building				
Study and WWC rating	**Study description[a]**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size[b]**
Vaughn, Cirino, et al. (2010) *Meets WWC standards with reservations*	Design: RCT Contrast: Reading intervention on word recognition, vocabulary, fluency, and comprehension vs. business as usual Participants: 325 grade 6 students with reading difficulties • Race/Ethnicity: ▪ 46% Black ▪ 40% Hispanic ▪ 12% White Setting: 7 schools in 3 urban districts in the southwestern region of the U.S.	Duration: 50 minutes per day, 5 days per week, 1 year Group size: 10–15 students Content: Social studies Type of text: Narrative and informational Relevance to recommendation: Instruction addressed building background knowledge, vocabulary, answering and generating questions, and finding the main idea	Business-as-usual English language arts instruction	Measures of general reading proficiency and English language arts: 0.18 Reading comprehension: 0.13
Vaughn, Martinez, et al. (2019) *Meets WWC standards without reservations*	Design: RCT Contrast: *Reading Intervention for Adolescents* vs. business as usual Participants: 318 grade 9 students with reading difficulties • Race/Ethnicity: ▪ 89% Hispanic Setting: 3 schools in 1 urban district in the southwestern region of the U.S.	Duration: 50 minutes per day, 4–5 days per week, 2 years Group size: 10–15 students Content: Science and social studies Type of text: Informational Relevance to recommendation: Instruction addressed vocabulary, building background knowledge, finding main ideas, and asking and answering questions	Business-as-usual English language arts or elective instruction	Reading comprehension: −0.18 Reading vocabulary: −0.03

Recommendation 3: Comprehension Building				
Study and WWC rating	**Study description[a]**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size[b]**
Vaughn, Roberts, et al. (2019) *Meets WWC standards without reservations*	Design: RCT Contrast: Reading intervention on word reading and comprehension vs. business as usual Participants: 252 grade 4–5 students with reading difficulties • Race/Ethnicity: ▪ 40% Black ▪ 47% White Setting: 9 schools in 3 districts in the southwestern region of the U.S.	Duration: 30–45 minutes per day, 5 days per week, 68 sessions Group size: 3–6 students Content: Science topics Type of text: Narrative and informational Relevance to recommendation: Instruction addressed answering questions and monitoring for understanding	Business-as-usual English language arts instruction and/or supplemental reading intervention	Measures of general reading proficiency and English language arts: 0.11 Reading comprehension: 0.09
Vaughn, Wanzek, et al. (2010) *Meets WWC standards with reservations*	Design: RCT Contrast: Reading intervention on word study, vocabulary, fluency, and comprehension (large group) vs. business as usual Participants: 420 grade 7–8 students with reading difficulties • Race/Ethnicity: ▪ 40% Black ▪ 43% Hispanic ▪ 14% White Setting: 6 schools in urban settings in the southwestern region of the U.S.	Duration: 45–50-minute sessions, 5 days per week, 1 year Group size: 10–15 students Content: Not reported Type of text: Informational and narrative Relevance to recommendation: Instruction addressed vocabulary, answering questions, generating questions, and identifying the main idea	Business-as-usual English language arts instruction	Reading comprehension: 0.03

Recommendation 3: Comprehension Building				
Study and WWC rating	**Study description[a]**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size[b]**
Wanzek et al. (2016) *Meets WWC standards without reservations*	Design: RCT Contrast: *Passport to Literacy vs.* business as usual Participants: 196 grade 4 students with reading difficulties • Race/Ethnicity: ▪ 41% Black ▪ 40% Hispanic ▪ 21% Native American ▪ 32% White Setting: 10 schools in 4 districts in 2 U.S. states	Duration: 30-minute sessions, 4 days per week, 1 year Group size: 4–7 students Content: Not reported Type of text: Narrative and informational Relevance to recommendation: Instruction addressed vocabulary, building background knowledge, answering and generating questions, making inferences, text structure, and finding the main idea	Business-as-usual supplemental reading intervention	Reading comprehension: 0.21
Wanzek et al. (2017) *Meets WWC standards without reservations*	Design: RCT Contrast: *Passport to Literacy* vs. business as usual Participants: 404 grade 4 students with reading difficulties • Race/Ethnicity: ▪ 35% Black ▪ 46% Hispanic ▪ 17% Native American ▪ 44% White Setting: 16 schools in 6 districts in 3 U.S. states	Duration: 30-minute sessions, 5 days per week, 25 weeks, 120 sessions Group size: 4–7 students Content: Not reported Type of text: Narrative and informational Relevance to recommendation: Instruction addressed building background knowledge, vocabulary, making inferences, answering and generating questions, text structure, and finding the main idea	Business-as-usual English language arts instruction and/or supplemental reading intervention	Reading comprehension: 0.16 Reading vocabulary: 0.00

Recommendation 3: Comprehension Building				
Study and WWC rating	**Study description[a]**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size[b]**
Wanzek & Roberts (2012) *Meets WWC standards without reservations*	Design: RCT Contrast: Reading intervention with comprehension emphasis vs. business as usual Participants: 47 grade 4 students with reading difficulties • Race/Ethnicity: ▪ 89% Hispanic ▪ 9% White Setting: 5 schools in 1 district in the southwestern region of the U.S.	Duration: 30-minute sessions, 5 days per week, 28 weeks Group size: 2–4 students Content: Science Type of text: Informational Relevance to recommendation: Instruction addressed vocabulary, finding the main idea, generating and answering questions, and monitoring for understanding	Business-as-usual supplemental reading intervention	Reading comprehension: −0.24 Reading vocabulary: 0.35
R. White et al. (2005) *Meets WWC standards with reservations*	Design: QED Contrast: *READ 180* vs. business as usual Participants: 448 grade 4–8 students with reading difficulties • Race/Ethnicity: ▪ 85% Black ▪ 15% Hispanic Setting: 16 schools in 1 district in Brooklyn, New York	Duration: 90 minutes per day; 5 days per week; 2 years Group size: Whole-class and small groups for teacher-directed lessons, independent reading, individual computer-directed lessons Content: Not reported Type of text: Not reported Relevance to recommendation: Intervention addressed vocabulary and comprehension [a]	Business-as-usual English language arts instruction	Measures of general reading proficiency and English language arts: 0.18

Recommendation 3: Comprehension Building				
Study and WWC rating	**Study description[a]**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size[b]**
R. White et al. (2006) *Meets WWC standards with reservations*	Design: QED Contrast: *READ 180* (Cohort 1) vs. business as usual Participants: 1,652 grade 9 students with reading difficulties • Race/Ethnicity: ▪ Not reported Setting: 1 district in Phoenix, Arizona	Duration: 90 minutes per day, 5 days per week, 1 year Group size: Whole-class and small groups for teacher-directed lessons, independent reading, individual computer-directed lessons Content: Not reported Type of text: Not reported Relevance to recommendation: Intervention addressed vocabulary and comprehension [a]	Business-as-usual instruction	Reading comprehension: 0.13*
R. White et al. (2006) *Meets WWC standards with reservations*	Design: QED Contrast: *READ 180* (Cohort 2) vs. business as usual Participants: 1,630 grade 9 students with reading difficulties • Race/Ethnicity: ▪ 85% Hispanic Setting: 1 district in Phoenix, Arizona	Duration: 90 minutes per day, 5 days per week, 1 year Group size: Whole-class and small groups for teacher-directed lessons, independent reading, individual computer-directed lessons Content: Not reported Type of text: Not reported Relevance to recommendation: Intervention addressed vocabulary and comprehension [a]	Business-as-usual instruction	Measures of general reading proficiency and English language arts: 0.27*

Note: Race and ethnicity categories under the *Participants* heading in each row may not add to 100 percent due to rounding, exclusion of categories smaller than 5%, and/or non-mutually exclusive categories of race and ethnicity; some studies did not report this information.

[a] As no details about the intervention were included in the manuscript, this description is based on other studies on READ 180 that were reviewed for this practice guide.

*Statistically significant at $p \leq 0.05$.

Recommendation 4: Provide students with opportunities to practice making sense of stretch text (i.e., challenging text) that will expose them to complex ideas and information.

Rationale for a Moderate Level of Evidence

The WWC contractor and the expert panel assigned **Recommendation 4** a moderate level of evidence based on 15 studies.[200] Seven studies meet WWC group design standards without reservations because they were RCTs with low sample attrition.[201] Eight studies meet WWC group design standards with reservations because they were either compromised RCTs, RCTs with high sample attrition, or QEDs, but the analytic intervention and comparison groups in each satisfied the baseline equivalence requirement.[202] In addition, the study samples collectively included 7,612 students and 94 schools across multiple states.[203]

There were findings in two relevant outcome domains for this recommendation (**Table C.9**). Both domains had statistically significant, positive meta-analytic effect sizes: measures of general reading proficiency and English language arts ($g = 0.17$, $p < 0.01$), and reading comprehension ($g = 0.10$, $p < 0.01$).

Table C.9. Domain-level effect sizes across the 15 studies supporting Recommendation 4

Domain	Number of studies (*k*)	Effect size [a]	95% Confidence interval	*p* Value	Percentage of weight from studies that meet WWC standards without reservations
Measures of general reading proficiency and English language arts	9	**0.17**	[0.11–0.23]	< 0.01	22.33
Reading comprehension	9	**0.10**	[0.04–0.16]	< 0.01	31.15

Note: All effect sizes were calculated using a fixed-effects meta-analytic effect size across studies. *k* = number of studies with at least one outcome in the relevant domain that contributed to the meta-analytic effect size. Fifteen studies contributed to at least one domain's meta-analytic effect size.
[a] Statistically significant findings are bolded.

The collection of studies demonstrates a large extent of evidence and a preponderance of positive effects. In the studies supporting this recommendation, the interventions were closely aligned with the practices outlined in the recommendation. Consequently, the panel assigned a moderate level of evidence to this recommendation. This rating was supported by the strength of the evidence according to the following criteria:

- **Extent of evidence.** Each outcome domain average is based on more than one study with a total sample size of at least 350 individuals.

- **Effects on relevant outcomes.** Both relevant outcome domains for this recommendation had statistically significant, positive meta-analytic effect sizes; no domains had negative, statistically significant meta-analytic effect sizes. However, for both relevant domains, more than 50 percent of the meta-analytic weight came from studies that meet WWC standards with reservations.
- **Relevance to scope.** The evidence supporting this recommendation had relevant settings, populations, comparisons, and outcomes. The studies included samples of students in grades 3–9, examined interventions that were implemented as a supplement to Tier 1 instruction or in a resource room, and measured outcomes in relevant domains. The interventions ranged from roughly three weeks to three years in duration. Most interventions were substantial in length. In five studies, the interventions lasted between 14 and 26 weeks;[204] in seven studies, the intervention lasted one year or longer.[205] A majority of the interventions were implemented 5 times per week (nine studies)[206] and sessions were 60–90 minutes long in nine studies.[207]
- **Relationship between the evidence and recommendation.** The 15 studies supporting this recommendation exhibited a strong relationship between the evidence and recommended practices. Instruction in these studies focused on providing students with supported opportunities to read and discuss text appropriate for their grade level, but often well above their current independent reading level. The instructional practices included:
  - Selecting texts that are likely to increase access to grade-level concepts taught in content classes and provide exposure to more complex vocabulary and sentences than typically experienced.
  - Teaching essential words and stopping at manageable points in the text to support comprehension.
  - Guiding students' use of technology to support reading of challenging text.

Supplemental Findings for Recommendation 4

No supplemental findings (delayed or follow-up measures and measures for subgroups of linguistically diverse students and students with reading difficulties) were included in the studies supporting **Recommendation 4**.

Table C.10. Studies providing evidence for Recommendation 4: Provide students with opportunities to practice making sense of stretch text (i.e., challenging text) that will expose them to complex ideas and information

Recommendation 4: Stretch Text				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
Barth & Elleman (2017) *Meets WWC standards without reservations*	Design: RCT Contrast: Multi-strategy inference intervention vs. business as usual Participants: 61 grade 6–8 students with reading difficulties • Race/Ethnicity: ▪ 36% Black ▪ 8% Hispanic ▪ 49% White Setting: 1 school in the midwestern region of the U.S.	Duration: 45 minutes per day, 4 days per week, 10 sessions Group size: 2–3 students Content: Topics related to Egypt Type of text: Narrative and informational Relevance to recommendation: Instruction was designed to support use of texts that were above students' current reading level	Business-as-usual supplemental reading intervention	Reading comprehension: 0.39
Barth et al. (2016) *Meets WWC standards with reservations*	Design: RCT Contrast: Text processing intervention vs. business as usual Participants: 128 grade 6–8 students with reading difficulties • Race/Ethnicity: ▪ 9% Black ▪ 84% White Setting: 3 schools in 3 rural districts in the midwestern region of the U.S.	Duration: 40 minutes per day, 4 days per week, 8 weeks Group size: 4–6 students Content: Science Type of text: Informational Relevance to recommendation: Instruction was designed to support use of texts that were above students' current reading level	Business-as-usual English language arts instruction and/or supplemental reading intervention	Reading comprehension: 0.11

Recommendation 4: Stretch Text				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
Hock et al. (2017) *Meets WWC standards with reservations*	Design: QED Contrast: *Fusion Reading* vs. business as usual Participants: 37 grade 6 students with reading difficulties • Race/Ethnicity: ▪ 65% White Setting: 3 schools in 1 urban district in the midwestern region of the U.S.	Duration: 50 minutes per day, 5 days per week, 1 year Group size: 3–8 students Content: Language arts, science, social studies, and math Type of text: Narrative and informational Relevance to recommendation: Instruction was designed to support use of texts that were above students' current reading level	Business-as-usual supplemental reading intervention	Measures of general reading proficiency and English language arts: 1.28*
J. Kim et al. (2010) *Meets WWC standards with reservations*	Design: RCT Contrast: *READ 180* vs. business as usual Participants: 264 grade 4–6 students with reading difficulties • Race/Ethnicity: ▪ 52% Black ▪ 21% Hispanic ▪ 22% White Setting: Afterschool at 3 schools in 1 district in southeastern Massachusetts	Duration: 60 minutes per day, 4 days per week, 23 weeks Group size: Small groups for teacher-directed lessons, independent reading, individual computer-directed lessons Content: People and culture, science and math, and history and geography Type of text: Narrative and informational Relevance to recommendation: Instructional practices included use of audio books	Business-as-usual instruction, which generally did not consist of supplemental literacy instruction	Measures of general reading proficiency and English language arts: 0.01

Recommendation 4: Stretch Text				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
J. Kim et al. (2011) *Meets WWC standards without reservations*	Design: RCT Contrast: *READ 180* vs. business as usual Participants: 297 grade 4–6 students with reading difficulties • Race/Ethnicity: ▪ 54% Black ▪ 12% Hispanic ▪ 28% White Setting: Afterschool at 4 schools in 1 urban district in southeastern Massachusetts	Duration: 60 minutes per day, 4 days per week, 23 weeks Group size: Whole-class and small groups for teacher-directed lessons, independent reading, individual computer-directed lessons Content: People and culture, science and math, and history and geography Type of text: Narrative and informational Relevance to recommendation: Instructional practices included use of audio books	Business-as-usual instruction, which generally did not consist of supplemental literacy instruction	Reading comprehension: 0.33*
Meisch et al. (2011) *Meets WWC standards with reservations*	Design: RCT Contrast: *READ 180* vs. business as usual Participants: 1,023 grade 6–8 students with reading difficulties • Race/Ethnicity: ▪ 55% Black ▪ 43% Hispanic Setting: 19 schools in Newark, New Jersey	Duration: 90 minutes per day, 5 days per week, 1–3 years Group size: Whole-class and small groups for teacher-directed lessons, independent reading, individual computer-directed lessons Content: Not reported Type of text: Not reported Relevance to recommendation: Instructional practices included use of audio books	Business-as-usual English language arts instruction	Measures of general reading proficiency and English language arts: 0.07 Reading comprehension: 0.06

Recommendation 4: Stretch Text				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
Roberts et al. (2018) *Meets WWC standards without reservations*	Design: RCT Contrast: Text processing with foundational reading skills intervention vs. business as usual Participants: 240 grade 3–5 students with reading difficulties • Race/Ethnicity: ▪ 36% Black ▪ 6% Hispanic ▪ 42% White Setting: Afterschool at 7 schools in 2 districts in the southwestern region of the U.S.	Duration: 60 minutes per day, 4–5 days per week, 6 months Group size: Individual computer intervention and small-group tutoring (3–6 students) Content: Not reported Type of text: Narrative and informational Relevance to recommendation: Instruction was designed to support use of stretch texts—that is, more challenging texts—during part of the intervention	Business-as-usual instruction, which generally did not consist of supplemental literacy instruction	Measures of general reading proficiency and English language arts: 0.02 Reading comprehension: 0.00
Sprague et al. (2012) *Meets WWC standards with reservations*	Design: RCT Contrast: *READ 180* vs. business as usual Participants: 456 grade 9 students with reading difficulties • Race/Ethnicity: ▪ 27% White Setting: 5 schools in 2 districts in western Massachusetts	Duration: 90 minutes per day, 5 days per week, 1 year Group size: Whole-class and small groups for teacher-directed lessons, independent reading, individual computer-directed lessons Content: Not reported Type of text: Not reported Relevance to recommendation: Instructional practices included use of challenging texts along with audiobooks	Business-as-usual English language arts instruction and/or supplemental reading intervention	Measures of general reading proficiency and English language arts: 0.18*

Recommendation 4: Stretch Text				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
Stevens et al. (2020) *Meets WWC standards without reservations*	Design: RCT Contrast: Paraphrasing and text structure instruction vs. business as usual Participants: 61 grade 4–5 students with reading difficulties • Race/Ethnicity: ▪ 8% Black ▪ 90% Hispanic Setting: 2 schools in the south central region of the U.S.	Duration: 40 minutes per day, 2–3 days per week, 25 sessions Group size: 4–6 students Content: Social studies and science Type of text: Informational Relevance to recommendation: Instruction was designed to support student use of texts that increased in difficulty throughout the intervention	Business-as-usual instruction, which generally did not consist of supplemental literacy instruction	Reading comprehension: 0.45*
Swanlund et al. (2012) *Meets WWC standards without reservations*	Design: RCT Contrast: *READ 180* vs. business as usual Participants: 619 grade 6–9 students with reading difficulties • Race/Ethnicity: ▪ 70% Black ▪ 19% Hispanic ▪ 7% White Setting: 5 schools in 1 district in Milwaukee, Wisconsin	Duration: 90-minute sessions, 5 days per week, 1 year Group size: Whole-class and small groups for teacher-directed lessons, independent reading, individual computer-directed lessons Content: People and culture, science and math, and history and geography Type of text: Narrative and informational Relevance to recommendation: Instructional practices included use of audio books of grade-level texts	Business-as-usual instruction, which generally did not consist of supplemental literacy instruction	Measures of general reading proficiency and English language arts: 0.14*

Recommendation 4: Stretch Text				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
Vaughn et al. (2016) *Meets WWC standards without reservations*	Design: RCT Contrast: Reading intervention on word reading, vocabulary, and comprehension vs. business as usual Participants: 445 grade 4 students with reading difficulties • Race/Ethnicity: ▪ 22% Black ▪ 68% Hispanic Setting: 17 schools in 3 districts in the southwestern region of the U.S.	Duration: 35 minutes per day, 5 days per week, 16 weeks Group size: 4–5 students Content: Social studies topics Type of text: Informational Relevance to recommendation: Instruction was designed to support use of stretch texts—that is, more challenging texts—during part of the intervention	Business-as-usual English language arts instruction	Reading comprehension: −0.11
Vaughn, Roberts, et al. (2019) *Meets WWC standards without reservations*	Design: RCT Contrast: Reading intervention on word reading and comprehension vs. business as usual Participants: 252 grade 4–5 students with reading difficulties • Race/Ethnicity: ▪ 40% Black ▪ 47% White Setting: 9 schools in 3 districts in the southwestern region of the U.S.	Duration: 30–45 minutes per day, 5 days per week, 68 sessions Group size: 3–6 students Content: Science topics Type of text: Narrative and informational Relevance to recommendation: Instruction was designed to support use of stretch texts—that is, more challenging texts—in over half the lessons	Business-as-usual English language arts instruction and/or supplemental reading intervention	Measures of general reading proficiency and English language arts: 0.11 Reading comprehension: 0.09

Recommendation 4: Stretch Text				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
R. White et al. (2005) *Meets WWC standards with reservations*	Design: QED Contrast: *READ 180* vs. business as usual Participants: 448 grade 4–8 students with reading difficulties • Race/Ethnicity: ▪ 85% Black ▪ 15% Hispanic Setting: 16 schools in 1 district in Brooklyn, New York	Duration: 90 minutes per day, 5 days per week, 2 years Group size: Whole-class and small groups for teacher-directed lessons, independent reading, individual computer-directed lessons Content: Not reported Type of text: Not reported Relevance to recommendation: Instructional practices included use of audio books [a]	Business-as-usual English language arts instruction	Measures of general reading proficiency and English language arts: 0.18
R. White et al. (2006) *Meets WWC standards with reservations*	Design: QED Contrast: *READ 180* (Cohort 1) vs. business as usual Participants: 1,652 grade 9 students with reading difficulties • Race/Ethnicity: ▪ Not reported Setting: 1 district in Phoenix, Arizona	Duration: 90 minutes per day, 5 days per week, 1 year Group size: Whole-class and small groups for teacher-directed lessons, independent reading, individual computer-directed lessons Content: Not reported Type of text: Not reported Relevance to recommendation: Instructional practices included use of audio books [a]	Business-as-usual instruction	Reading comprehension: 0.13*

Recommendation 4: Stretch Text				
Study and WWC rating	**Study description**	**Intervention condition description**	**Comparison condition description**	**Outcome domain and effect size**
R. White et al. (2006) *Meets WWC standards with reservations*	Design: QED Contrast: *READ 180* (Cohort 2) vs. business as usual Participants: 1,630 grade 9 students with reading difficulties • Race/Ethnicity: ▪ 85% Hispanic Setting: 1 district in Phoenix, Arizona	Duration: 90 minutes per day, 5 days per week, 1 year Group size: Whole-class and small groups for teacher-directed lessons, independent reading, individual computer-directed lessons Content: Not reported Type of text: Not reported Relevance to recommendation: Instructional practices included use of audio books [a]	Business-as-usual instruction	Measures of general reading proficiency and English language arts: 0.27*

Note: Race and ethnicity categories under the *Participants* heading in each row may not add to 100 percent due to rounding, exclusion of categories smaller than 5%, and/or non-mutually exclusive categories of race and ethnicity; some studies did not report this information.

[a] As no details about the intervention were included in the manuscript, this description is based on other studies on *READ 180* that were reviewed for this practice guide.

*Statistically significant at $p \leq 0.05$.

Appendix D: Meta-Analytic Data

Table D.1 provides domain-level data for each recommendation. Specifically, the table provides the total number of studies (*k*) contributing to the meta-analysis, as well as the domain-level meta-analytic effect size, standard error, and *p* value.

Table D.1. Domain-level effect sizes across the studies supporting all recommendations

Outcome domain	Number of studies (*k*)	Effect size (*g*)	Standard error	*p* Value[a]
Recommendation 1: Multisyllabic word reading				
Measures of general reading proficiency and English language arts	16	**0.13**	0.02	< 0.01
Passage reading fluency–oral	10	0.08	0.05	*ns*
Passage reading fluency–silent	6	0.04	0.05	*ns*
Reading comprehension	22	**0.09**	0.02	< 0.01
Word and pseudoword reading	17	**0.07**	0.03	< 0.05
Recommendation 2: Fluency building				
Measures of general reading proficiency and English language arts	17	**0.13**	0.02	< 0.01
Passage reading fluency–oral	11	**0.10**	0.05	< 0.05
Passage reading fluency–silent	6	0.04	0.05	*ns*
Reading comprehension	22	**0.09**	0.02	< 0.01
Recommendation 3: Comprehension building				
Measures of general reading proficiency and English language arts	16	**0.13**	0.02	< 0.01
Reading comprehension	24	**0.10**	0.02	< 0.01
Reading vocabulary	9	0.04	0.02	*ns*
Recommendation 4: Stretch text				
Measures of general reading proficiency and English language arts	9	**0.17**	0.03	< 0.01
Reading comprehension	9	**0.10**	0.03	< 0.01

Note: All effect sizes were calculated using a fixed-effects meta-analytic effect size across studies. *ns* = statistically nonsignificant findings; *k* = number of studies with at least one outcome in the relevant domain that contributed to the meta-analytic effect size; *g* = Hedges' *g*.

[a] Statistically significant findings are bolded.

Tables D.2, D.3, D.4, and D.5 provide the underlying data for conducting the fixed-effects meta-analyses for Recommendations 1-4. Each table includes the average effect size and standard error for each outcome domain and study.

If a study had multiple main findings contributing to the evidence in the same outcome domain, the average effect size was used. Additional data on the findings and studies reviewed for this practice guide can be extracted from https://ies.ed.gov/ncee/wwc/studyfindings when selecting "Assisting Students Struggling with Reading: Intervention in Grades 4-9" in the Protocol field. The WWC webpages for each study also contain additional information about the study and findings (see References).

For each finding, the WWC may use either the effect size reported in the study, if it was calculated in a way that is consistent with the WWC Handbooks, or an effect size calculated by the WWC. Standard errors were calculated using a standard error calculation for the Hedges' *g* effect size which corrected for small sample bias. For additional information on this process, see Appendix E of the WWC Version 4.1 Procedures Handbook.

Table D.2. Data for studies providing evidence for Recommendation 1: Build students' decoding skills so they can read complex multisyllabic words

Recommendation 1: Multisyllabic Word Reading			
Study	**Outcome domain**	**Effect size (*g*)**	**Standard error**
Borman et al. (2009)	Measures of general reading proficiency and English language arts	0.000	0.149
Denton et al. (2008)	Passage reading fluency–oral	0.050	0.318
Denton et al. (2008)	Reading comprehension	0.004	0.318
Denton et al. (2008)	Word and pseudoword reading	0.070	0.318
Dimitrov et al. (2012)	Measures of general reading proficiency and English language arts	-0.060	0.091
Fogarty et al. (2017)	Passage reading fluency–oral	-0.138	0.146
Fogarty et al. (2017)	Passage reading fluency–silent	0.293	0.149
Fogarty et al. (2017)	Reading comprehension	0.130	0.142
Fogarty et al. (2017)	Word and pseudoword reading	-0.087	0.146
Hock et al. (2017)	Measures of general reading proficiency and English language arts	1.282	0.353
J. Kim et al. (2010)	Measures of general reading proficiency and English language arts	0.010	0.123
J. Kim et al. (2010)	Passage reading fluency–oral	0.020	0.123
J. Kim et al. (2010)	Word and pseudoword reading	-0.067	0.123

Appendix D

Recommendation 1: Multisyllabic Word Reading			
Study	**Outcome domain**	**Effect size (*g*)**	**Standard error**
J. Kim et al. (2011)	Passage reading fluency–oral	0.104	0.116
J. Kim et al. (2011)	Reading comprehension	0.334	0.117
J. Kim et al. (2017)	Reading comprehension	0.140	0.101
J. Kim et al. (2017)	Word and pseudoword reading	0.200	0.101
Meisch et al. (2011)	Measures of general reading proficiency and English language arts	0.071	0.063
Meisch et al. (2011)	Reading comprehension	0.060	0.063
Roberts et al. (2018)	Measures of general reading proficiency and English language arts	0.020	0.129
Roberts et al. (2018)	Reading comprehension	0.003	0.129
Schenck et al. (2012)	Measures of general reading proficiency and English language arts	0.060	0.079
Somers et al. (2010) *Reading Apprentice Academic Literacy (RAAL)* vs. business as usual	Measures of general reading proficiency and English language arts	0.156	0.062
Somers et al. (2010) *Reading Apprentice Academic Literacy (RAAL)* vs. business as usual	Reading comprehension	0.117	0.043
Somers et al. (2010) *Xtreme Reading* vs. business as usual	Measures of general reading proficiency and English language arts	0.085	0.058
Somers et al. (2010) *Xtreme Reading* vs. business as usual	Reading comprehension	0.058	0.042
Sprague et al. (2012)	Measures of general reading proficiency and English language arts	0.178	0.094
Swanlund et al. (2012)	Measures of general reading proficiency and English language arts	0.137	0.081
Torgesen et al. (2006) *Spell, Read, PAT* vs. business as usual	Passage reading fluency–oral	0.076	0.197
Torgesen et al. (2006) *Spell, Read, PAT* vs. business as usual	Reading comprehension	0.000	0.196
Torgesen et al. (2006) *Spell, Read, PAT* vs. business as usual	Word and pseudoword reading	0.190	0.197
Torgesen et al. (2006) *Corrective Reading* vs. business as usual	Passage reading fluency–oral	0.103	0.223
Torgesen et al. (2006) *Corrective Reading* vs. business as usual	Reading comprehension	0.119	0.223
Torgesen et al. (2006) *Corrective Reading* vs. business as usual	Word and pseudoword reading	0.100	0.223
Torgesen et al. (2006) *Wilson Reading* vs. business as usual	Passage reading fluency–oral	-0.007	0.211

Appendix D

Recommendation 1: Multisyllabic Word Reading			
Study	**Outcome domain**	**Effect size (*g*)**	**Standard error**
Torgesen et al. (2006) *Wilson Reading* vs. business as usual	Reading comprehension	0.086	0.211
Torgesen et al. (2006) *Wilson Reading* vs. business as usual	Word and pseudoword reading	0.080	0.211
Torgesen et al. (2006) *Failure Free Reading* vs. business as usual	Passage reading fluency–oral	-0.006	0.177
Torgesen et al. (2006) *Failure Free Reading* vs. business as usual	Reading comprehension	-0.040	0.177
Torgesen et al. (2006) *Failure Free Reading* vs. business as usual	Word and pseudoword reading	0.020	0.177
Toste et al. (2019)	Reading comprehension	0.130	0.203
Toste et al. (2019)	Word and pseudoword reading	0.430	0.205
Vaden-Kiernan et al. (2012)	Measures of general reading proficiency and English language arts	0.140	0.062
Vaughn et al. (2016)	Passage reading fluency–silent	-0.138	0.104
Vaughn et al. (2016)	Reading comprehension	-0.110	0.105
Vaughn et al. (2016)	Word and pseudoword reading	0.020	0.103
Vaughn, Cirino, et al. (2010)	Measures of general reading proficiency and English language arts	0.184	0.123
Vaughn, Cirino, et al. (2010)	Passage reading fluency–silent	0.132	0.116
Vaughn, Cirino, et al. (2010)	Reading comprehension	0.130	0.118
Vaughn, Cirino, et al. (2010)	Word and pseudoword reading	0.190	0.120
Vaughn, Martinez, et al. (2019)	Passage reading fluency–silent	0.131	0.114
Vaughn, Martinez, et al. (2019)	Reading comprehension	-0.180	0.113
Vaughn, Martinez, et al. (2019)	Word and pseudoword reading	-0.030	0.113
Vaughn, Roberts, et al. (2019)	Measures of general reading proficiency and English language arts	0.111	0.126
Vaughn, Roberts, et al. (2019)	Passage reading fluency–oral	0.415	0.128
Vaughn, Roberts, et al. (2019)	Passage reading fluency–silent	0.016	0.126
Vaughn, Roberts, et al. (2019)	Reading comprehension	0.091	0.127
Vaughn, Roberts, et al. (2019)	Word and pseudoword reading	0.120	0.126
Vaughn, Wanzek, et al. (2010)	Passage reading fluency–silent	-0.020	0.097
Vaughn, Wanzek, et al. (2010)	Reading comprehension	0.026	0.100

Recommendation 1: Multisyllabic Word Reading			
Study	**Outcome domain**	**Effect size (*g*)**	**Standard error**
Vaughn, Wanzek, et al. (2010)	Word and pseudoword reading	0.070	0.100
Wanzek & Roberts (2012) Reading intervention with word study emphasis vs. business as usual	Reading comprehension	0.270	0.298
Wanzek & Roberts (2012) Reading intervention with word study emphasis vs. business as usual	Word and pseudoword reading	0.276	0.298
Wanzek et al. (2016)	Passage reading fluency–oral	0.039	0.142
Wanzek et al. (2016)	Reading comprehension	0.210	0.145
Wanzek et al. (2016)	Word and pseudoword reading	0.050	0.143
Wanzek et al. (2017)	Reading comprehension	0.160	0.099
Wanzek et al. (2017)	Word and pseudoword reading	-0.040	0.099
R. White et al. (2005)	Measures of general reading proficiency and English language arts	0.180	0.143
R. White et al. (2006) *READ 180* (Cohort 1) vs. business as usual	Reading comprehension	0.126	0.049
R. White et al. (2006) *READ 180* (Cohort 2) vs. business as usual	Measures of general reading proficiency and English language arts	0.271	0.050

Table D.3. Data for studies providing evidence for Recommendation 2: Provide purposeful fluency-building activities to help students read effortlessly

Recommendation 2: Fluency Building			
Study	**Outcome domain**	**Effect size (*g*)**	**Standard error**
Borman et al. (2009)	Measures of general reading proficiency and English language arts	0.000	0.149
Denton et al. (2008)	Passage reading fluency–oral	0.050	0.318
Denton et al. (2008)	Reading comprehension	0.004	0.318
Dimitrov et al. (2012)	Measures of general reading proficiency and English language arts	-0.060	0.091
Fogarty et al. (2017)	Passage reading fluency–oral	-0.138	0.146
Fogarty et al. (2017)	Passage reading fluency–silent	0.293	0.149
Fogarty et al. (2017)	Reading comprehension	0.130	0.142
Heistad (2008)	Measures of general reading proficiency and English language arts	0.242	0.160

Recommendation 2: Fluency Building			
Study	**Outcome domain**	**Effect size (*g*)**	**Standard error**
J. Kim et al. (2010)	Measures of general reading proficiency and English language arts	0.010	0.123
J. Kim et al. (2010)	Passage reading fluency–oral	0.020	0.123
J. Kim et al. (2011)	Passage reading fluency–oral	0.104	0.116
J. Kim et al. (2011)	Reading comprehension	0.334	0.117
J. Kim et al. (2017)	Reading comprehension	0.140	0.101
Meisch et al. (2011)	Measures of general reading proficiency and English language arts	0.071	0.063
Meisch et al. (2011)	Reading comprehension	0.060	0.063
Roberts et al. (2018)	Measures of general reading proficiency and English language arts	0.020	0.129
Roberts et al. (2018)	Reading comprehension	0.003	0.129
Schenck et al. (2012)	Measures of general reading proficiency and English language arts	0.060	0.079
Somers et al. (2010) *Reading Apprentice Academic Literacy (RAAL)* vs. business as usual	Measures of general reading proficiency and English language arts	0.156	0.062
Somers et al. (2010) *Reading Apprentice Academic Literacy (RAAL)* vs. business as usual	Reading comprehension	0.117	0.043
Somers et al. (2010) *Xtreme Reading* vs. business as usual	Measures of general reading proficiency and English language arts	0.085	0.058
Somers et al. (2010) *Xtreme Reading* vs. business as usual	Reading comprehension	0.058	0.042
Sprague et al. (2012)	Measures of general reading proficiency and English language arts	0.178	0.094
Swanlund et al. (2012)	Measures of general reading proficiency and English language arts	0.137	0.081
Therrien et al. (2006)	Measures of general reading proficiency and English language arts	0.673	0.371
Therrien et al. (2006)	Passage reading fluency–oral	0.862	0.378
Torgesen et al. (2006) *Corrective Reading* vs. business as usual	Passage reading fluency–oral	0.103	0.223
Torgesen et al. (2006) *Corrective Reading* vs. business as usual	Reading comprehension	0.119	0.223
Torgesen et al. (2006) *Wilson Reading* vs. business as usual	Passage reading fluency–oral	-0.007	0.211

Recommendation 2: Fluency Building			
Study	**Outcome domain**	**Effect size (*g*)**	**Standard error**
Torgesen et al. (2006) *Wilson Reading* vs. business as usual	Reading comprehension	0.086	0.211
Torgesen et al. (2006) *Failure Free Reading* vs. business as usual	Passage reading fluency–oral	-0.006	0.177
Torgesen et al. (2006) *Failure Free Reading* vs. business as usual	Reading comprehension	-0.040	0.177
Toste et al. (2019)	Reading comprehension	0.130	0.203
Vadasy & Sanders (2008)	Passage reading fluency–oral	0.082	0.183
Vadasy & Sanders (2008)	Reading comprehension	0.493	0.186
Vaden-Kiernan et al. (2012)	Measures of general reading proficiency and English language arts	0.140	0.062
Vaughn et al. (2016)	Passage reading fluency–silent	-0.138	0.104
Vaughn et al. (2016)	Reading comprehension	-0.110	0.105
Vaughn, Cirino, et al. (2010)	Measures of general reading proficiency and English language arts	0.184	0.123
Vaughn, Cirino, et al. (2010)	Passage reading fluency–silent	0.132	0.116
Vaughn, Cirino, et al. (2010)	Reading comprehension	0.130	0.118
Vaughn, Martinez, et al. (2019)	Passage reading fluency–silent	0.131	0.114
Vaughn, Martinez, et al. (2019)	Reading comprehension	-0.180	0.113
Vaughn, Roberts, et al. (2019)	Measures of general reading proficiency and English language arts	0.111	0.126
Vaughn, Roberts, et al. (2019)	Passage reading fluency–oral	0.415	0.128
Vaughn, Roberts, et al. (2019)	Passage reading fluency–silent	0.016	0.126
Vaughn, Roberts, et al. (2019)	Reading comprehension	0.091	0.127
Vaughn, Wanzek, et al. (2010)	Passage reading fluency–silent	-0.020	0.097
Vaughn, Wanzek, et al. (2010)	Reading comprehension	0.026	0.100
Wanzek & Roberts (2012)[a] Reading intervention with word study plus reading intervention with comprehension emphasis vs. business as usual	Reading comprehension	-0.410	0.256
Wanzek et al. (2016)	Passage reading fluency–oral	0.039	0.142
Wanzek et al. (2016)	Reading comprehension	0.210	0.145

Recommendation 2: Fluency Building			
Study	**Outcome domain**	**Effect size (*g*)**	**Standard error**
Wanzek et al. (2017)	Reading comprehension	0.160	0.099
R. White et al. (2005)	Measures of general reading proficiency and English language arts	0.180	0.143
R. White et al. (2006) *READ 180* (Cohort 1) vs. business as usual	Reading comprehension	0.126	0.049
R. White et al. (2006) *READ 180* (Cohort 2) vs. business as usual	Measures of general reading proficiency and English language arts	0.271	0.050
[a] For this study, data from two reviews conducted in the WWC Online Study Review Guide (SRG) have been aggregated using an excel-based SRG. Hyperlinks to the WWC study review pages for these two reviews are listed in the **References** section.			

Table D.4. Data for studies providing evidence for Recommendation 3: Routinely use a set of comprehension-building practices to help students make sense of the text

Recommendation 3: Comprehension Building			
Study	**Outcome domain**	**Effect size (*g*)**	**Standard error**
Barth & Elleman (2017)	Reading comprehension	0.390	0.256
Barth et al. (2016)	Reading comprehension	0.110	0.181
Connor et al. (2018)	Measures of general reading proficiency and English language arts	-0.078	0.136
Denton et al. (2008)	Reading comprehension	0.004	0.318
Dimitrov et al. (2012)	Measures of general reading proficiency and English language arts	-0.060	0.091
Fogarty et al. (2017)	Reading comprehension	0.130	0.142
Hall et al. (2019)	Reading vocabulary	0.090	0.224
Hall et al. (2019)	Reading comprehension	0.300	0.225
Hock et al. (2017)	Measures of general reading proficiency and English language arts	1.282	0.353
A. Kim et al. (2006)	Reading comprehension	0.508	0.341
J. Kim et al. (2010)	Measures of general reading proficiency and English language arts	0.010	0.123
J. Kim et al. (2011)	Reading comprehension	0.334	0.117
J. Kim et al. (2011)	Reading vocabulary	0.252	0.116

Appendix D

Recommendation 3: Comprehension Building			
Study	**Outcome domain**	**Effect size (*g*)**	**Standard error**
J. Kim et al. (2017)	Reading comprehension	0.140	0.101
J. Kim et al. (2017)	Reading vocabulary	0.160	0.101
Meisch et al. (2011)	Reading comprehension	0.060	0.063
Meisch et al. (2011)	Measures of general reading proficiency and English language arts	0.071	0.063
Meisch et al. (2011)	Reading vocabulary	0.053	0.063
Ritchey et al. (2017)	Reading comprehension	0.460	0.294
Roberts et al. (2018)	Reading comprehension	0.003	0.129
Roberts et al. (2018)	Measures of general reading proficiency and English language arts	0.020	0.129
Schenck et al. (2012)	Measures of general reading proficiency and English language arts	0.060	0.079
Somers et al. (2010) *Reading Apprentice Academic Literacy (RAAL)* vs. business as usual	Measures of general reading proficiency and English language arts	0.156	0.062
Somers et al. (2010) *Reading Apprentice Academic Literacy (RAAL)* vs. business as usual	Reading vocabulary	0.000	0.043
Somers et al. (2010) *Reading Apprentice Academic Literacy (RAAL)* vs. business as usual	Reading comprehension	0.117	0.043
Somers et al. (2010) *Xtreme Reading* vs. business as usual	Measures of general reading proficiency and English language arts	0.085	0.058
Somers et al. (2010) *Xtreme Reading* vs. business as usual	Reading vocabulary	0.029	0.042
Somers et al. (2010) *Xtreme Reading* vs. business as usual	Reading comprehension	0.058	0.042
Sprague et al. (2012)	Measures of general reading proficiency and English language arts	0.178	0.094
Stevens et al. (2020)	Reading comprehension	0.450	0.256
Swanlund et al. (2012)	Measures of general reading proficiency and English language arts	0.137	0.081
Thames et al. (2008)	Reading comprehension	0.649	0.266
Vaden-Kiernan et al. (2012)	Measures of general reading proficiency and English language arts	0.140	0.062
Vaughn et al. (2016)	Reading comprehension	-0.110	0.105

Recommendation 3: Comprehension Building			
Study	**Outcome domain**	**Effect size (*g*)**	**Standard error**
Vaughn, Cirino, et al. (2010)	Measures of general reading proficiency and English language arts	0.184	0.123
Vaughn, Cirino, et al. (2010)	Reading comprehension	0.130	0.118
Vaughn, Martinez, et al. (2019)	Reading comprehension	-0.180	0.113
Vaughn, Martinez, et al. (2019)	Reading vocabulary	-0.032	0.113
Vaughn, Roberts, et al. (2019)	Measures of general reading proficiency and English language arts	0.111	0.126
Vaughn, Roberts, et al. (2019)	Reading comprehension	0.091	0.127
Vaughn, Wanzek, et al. (2010)	Reading comprehension	0.026	0.100
Wanzek et al. (2016)	Reading comprehension	0.210	0.145
Wanzek et al. (2017)	Reading comprehension	0.160	0.099
Wanzek et al. (2017)	Reading vocabulary	0.001	0.099
Wanzek & Roberts (2012) Reading intervention with comprehension emphasis vs. business as usual	Reading comprehension	-0.240	0.288
Wanzek & Roberts (2012) Reading intervention with comprehension emphasis vs. business as usual	Reading vocabulary	0.350	0.289
R. White et al. (2005)	Measures of general reading proficiency and English language arts	0.180	0.143
R. White et al. (2006) *READ 180* (Cohort 1) vs. business as usual	Reading comprehension	0.126	0.049
R. White et al. (2006) *READ 180* (Cohort 2) vs. business as usual	Measures of general reading proficiency and English language arts	0.271	0.050

Table D.5. Data for studies providing evidence for Recommendation 4: Provide students with opportunities to practice making sense of stretch text (i.e., challenging text) that will expose them to complex ideas and information

Recommendation 4: Stretch Text			
Study	**Outcome domain**	**Effect size (*g*)**	**Standard error**
Barth & Elleman (2017)	Reading comprehension	0.390	0.256
Barth et al. (2016)	Reading comprehension	0.110	0.181
Hock et al. (2017)	Measures of general reading proficiency and English language arts	1.282	0.353

Recommendation 4: Stretch Text			
Study	**Outcome domain**	**Effect size (*g*)**	**Standard error**
J. Kim et al. (2010)	Measures of general reading proficiency and English language arts	0.010	0.123
J. Kim et al. (2011)	Reading comprehension	0.334	0.117
Meisch et al. (2011)	Reading comprehension	0.060	0.063
Meisch et al. (2011)	Measures of general reading proficiency and English language arts	0.071	0.063
Roberts et al. (2018)	Reading comprehension	0.003	0.129
Roberts et al. (2018)	Measures of general reading proficiency and English language arts	0.020	0.129
Sprague et al. (2012)	Measures of general reading proficiency and English language arts	0.178	0.094
Stevens et al. (2020)	Reading comprehension	0.450	0.256
Swanlund et al. (2012)	Measures of general reading proficiency and English language arts	0.137	0.081
Vaughn, Roberts, et al. (2019)	Reading comprehension	0.091	0.127
Vaughn, Roberts, et al. (2019)	Measures of general reading proficiency and English language arts	0.111	0.126
Vaughn et al. (2016)	Reading comprehension	-0.110	0.105
R. White et al. (2005)	Measures of general reading proficiency and English language arts	0.180	0.143
R. White et al. (2006) *READ 180* (Cohort 1) vs. business as usual	Reading comprehension	0.126	0.049
R. White et al. (2006) *READ 180* (Cohort 2) vs. business as usual	Measures of general reading proficiency and English language arts	0.271	0.050

Appendix E: About the Panel and WWC Contractor Staff

Panel

Sharon Vaughn, Ph.D. (Panel Chair), is a professor of special education and Executive Director of The Meadows Center for Preventing Educational Risk at The University of Texas at Austin. She is nationally recognized as a leader in the development and dissemination of Multi-Tiered Systems of Support (MTSS) in reading. She is familiar with the evidence base related to causal studies on the topic of MTSS in reading, including emerging research and research trends. She also has knowledge of the WWC standards and practice guide process. She has published 30 studies addressing aspects of literacy intervention for students with reading difficulties in grades 4–9. These studies have addressed both Tier 2 and intensive Tier 3 interventions in grades 6–9 that include systematic work on basic decoding and word/sentence reading skills. Her studies also address differentiated Tier 1 instruction that ensures students with reading difficulties gain meaningful access to content-area material in social studies while continuing to build reading proficiency within Tier 1 instruction.

Michael J. Kieffer, Ed.D., is an associate professor of literacy education at New York University. A former middle school teacher, he conducts research that aims to inform instruction and policy to improve reading outcomes for secondary readers, especially multilingual learners. His research has included causal studies of academic language instruction in middle school, longitudinal studies of reading and language development of multilingual learners, and secondary analyses of large longitudinal data sets. He has published 50 articles in peer-reviewed journals across the fields of education, reading research, applied linguistics, and applied psychology, and he is currently an associate editor at *Scientific Studies of Reading*. His research has received awards and funding from the IES, National Academy of Education, Spencer Foundation, International Reading Association, and American Educational Research Association. He served as a panelist and co-author of the updated WWC English learner practice guide.

Margaret McKeown, Ph.D., is a clinical professor, emerita, in the Department of Instruction and Learning at the University of Pittsburgh School of Education. Her research interests include acquisition of vocabulary in school-age children, effects of child and text characteristics on learning in verbal domains, and design of instructional interventions for vocabulary development and reading comprehension. Central to her research, including projects funded by IES and the Spencer Foundation, is considerable time spent in classrooms observing and teaching lessons. Her work has been published in numerous journals, and she has authored several book chapters and books on vocabulary and reading comprehension. She began her career as an elementary school teacher and has taught grades 2–6.

Deborah K. Reed, Ph.D., is a professor in the College of Education at the University of Iowa and director of the Iowa Reading Research Center. She spent the first 10 years of her career as an English language arts and reading teacher as well as a reading specialist, working primarily with adolescents exhibiting reading difficulties in California and Texas secondary schools. She served as a principal

investigator for the Texas Adolescent Literacy Academies and the content lead on California State Professional Development Grants awarded by the Office of Special Education Programs (OSEP) for middle school literacy intervention. Funded by state and federal agencies as well as private foundations, her research studies explore effective literacy instructional and assessment practices. She has published over 60 peer-reviewed articles, numerous professional development materials, three books on adolescent literacy, and three assessments of adolescents' reading skills.

Michele Sanchez, M.Ed., is the reading specialist for language arts in the Ysleta Independent School District (YISD) in El Paso, Texas. She works primarily with middle school teachers on improving literacy instruction in content areas and intervention classes. She routinely leads sessions with colleagues focused on how current research might be translated into practice in the YISD middle schools. Prior to her current role, she taught English language arts and reading to elementary and middle school students for 11 years.

Kimberly St. Martin, Ph.D., currently serves as the assistant director of Michigan's Multi-Tiered System of Support (MiMTSS) Technical Assistance Center, co-director of a federally funded adolescent literacy model demonstration grant, and co-principal investigator of a federally funded IES grant evaluating a state-level initiative to implement supplemental academic and behavioral interventions in an MTSS framework. She supports secondary schools with the use of an intervention system to appropriately identify, place, and monitor the progress of middle school students who are receiving intensive intervention supports, and has written guidelines for how to intensify literacy in Tier 3 for students in secondary settings for the State of Michigan.

Jade Wexler, Ph.D., is an associate professor of special education at the University of Maryland. Her current research interests include developing and testing reading interventions to support adolescents with reading difficulties and disabilities in the content-area and supplemental intensive intervention settings. Her research also focuses on designing and evaluating professional development, literacy coaching, and school-wide service delivery models to support teachers' implementation of evidence-based literacy practices at the secondary level. Wexler has been the principal investigator and co-principal investigator on several federally funded adolescent literacy-focused grants. She is currently the principal investigator of two grants funded by the IES and Office of Special Education focused on refining and evaluating an adaptive intervention literacy coaching model, AIM Coaching. She has over 45 publications in peer-reviewed journals and is the co-author of three books about adolescent literacy. She is a former high school special education and reading teacher.

WWC Contractor Staff

Madhavi Jayanthi, Ed.D., research director at Instructional Research Group (IRG), served as project director for this practice guide. She also participated in various capacities in developing five other WWC practice guides on a range of topics (English learners, mathematics, dropout prevention). She is certified in WWC 4.1 group design and single-case design standards. Jayanthi has served or currently serves as a co-principal investigator on grants funded by the National Center for Education Research, National Center on Education and the Economy, National Science Foundation, and Office of Special

Education. Her research interests include examining effective instructional practices in mathematics and reading for struggling learners.

Russell Gersten, Ph.D., executive director of IRG and professor emeritus of educational research at the University of Oregon, served as the principal investigator for the practice guide. He worked with the panel on interpreting major themes in the research and played a role in conceptualizing and writing the guide. Gersten developed the very first WWC practice guide and created the concept of "roadblocks" in practice guides. He led, as either the panel chair or principal investigator, the teams that developed five WWC practice guides, including the practice guide on response to intervention in reading for students in the primary grades. He was senior author of a widely read synthesis of the research on reading comprehension interventions for students with learning disabilities in the *Review of Educational Research*, and he has authored over 160 articles in scholarly journals, including major pieces on MTSS, teacher study groups as means of professional development, and providing meaningful access to important history topics such as the Civil Rights Movement of the 1950s and 1960s to middle school students requiring reading intervention.

Joseph Dimino, Ph.D., deputy executive director of IRG, worked with the panel to craft the recommendations. He also drafted recommendations for the 2014 WWC practice guide on *Teaching Academic Content and Literacy to English Learners in Elementary and Middle School*. Dimino served as a panel member for the response to intervention in reading and the foundational reading WWC practice guides. He was the lead developer and author of the first-ever Professional Learning Community (PLC) guide on the 2014 English learner practice guide for the Regional Educational Laboratory-Southeast (REL-SE). As an expert in the area of effective reading instruction for students with reading difficulties, he has co-authored books and journal articles in reading comprehension, reading interventions, and vocabulary instruction. He consults nationally in these areas and presents at state, national, and international conferences. Dimino has served as the co-principal investigator or task lead for several studies in reading, including the national evaluation of fifth-grade reading comprehension programs, the impact of Collaborative Strategic Reading on comprehension and vocabulary skills, the evaluation of the Texas Adolescent Literacy Initiative, and the effect of professional development on academic vocabulary instruction in eighth-grade social studies classrooms.

Mary Jo Taylor, Ph.D., senior research associate at IRG, worked with the panel to craft the recommendations. Taylor consults nationally in the areas of early and adolescent literacy and has taught graduate and undergraduate courses in content-area literacy, reading methods including effective reading interventions, and assessment. Taylor is also experienced in developing user-friendly products for practitioners. She co-authored two PLC guides for Regional Educational Laboratory-Southeast (REL-SE) that can be used by teachers to understand and apply the recommendations from the WWC practice guides on *Teaching Academic Content and Literacy to English Learners in Elementary and Middle School* and *Improving Mathematical Problem-Solving in Grades 4 Through 8*.

Rebecca Newman-Gonchar, Ph.D., senior research associate at IRG, helped draft the recommendations. She has contributed to seven practice guides on a range of topics, including instruction for English learners, response to intervention in mathematics, response to intervention in reading, and mathematical problem-solving; and three WWC practice guide updates focused on mathematics interventions, English learners, and dropout prevention. She served as a co-principal investigator for three research syntheses on professional development for mathematics teachers, reading interventions for struggling students, and rational number interventions for struggling students, which was a National Science Foundation-funded meta-analysis. She is certified in WWC 4.1 group design standards.

Sarah Krowka, Ph.D., research associate at IRG, synthesized and compiled the evidence for each recommendation and conducted the fixed-effects meta-analyses to inform the evidence levels for the recommendations. She also led the drafting of the technical appendices. As a WWC-certified reviewer in 4.1 group design and single-case design standards, she conducted WWC study reviews for this guide. Her research interests include the development, evaluation, and translation of intervention research for struggling learners.

Kelly Haymond, M.A., research associate at IRG, served as senior reviewer and advisor, providing oversight for all WWC study reviews for this guide. As a certified WWC reviewer since 2008, Haymond has reviewed group design studies for eight WWC practice guides, three WWC topic area reviews, two REL research digests, and two meta-analyses. She served as the evidence lead for the updated WWC practice guide on *Teaching Academic Content and Literacy to English Learners in Elementary and Middle School*, overseeing WWC reviews of more than 70 studies, and the deputy evidence coordinator for the recent WWC practice guide on *Assisting Students Struggling with Mathematics: Intervention in the Elementary Grades*. She is currently certified in WWC 4.1 group design and RDD evidence standards.

Samantha Wavell, B.A., research associate at IRG, served as project manager and as a liaison between WWC study reviewers and the WWC's Statistics, Website, and Training (SWAT) team. She collaborated with WWC SWAT to resolve all issues raised by reviewers during the process of completing WWC study reviews in the online system. In addition, she served as the project manager for the WWC practice guide on *Assisting Students Struggling with Mathematics: Intervention in the Elementary Grades*. She is certified in WWC 4.1 group design and single-case design standards, and in WWC 4.0 RDD evidence standards.

Julia Lyskawa, M.P.P., researcher at Mathematica, served as the project director for the Mathematica subcontract with IRG. She has worked in various capacities on several WWC practice guides on a range of topics, including secondary writing, algebra knowledge, early math, and elementary math intervention. Lyskawa also oversaw the implementation of the WWC's dissemination strategy for prior practice guides and other products, created supplemental resources to support each practice guide, and promoted practice guides at conferences and through webinars and social media. She created the concept of WWC practice guide summaries and drafted several summaries for WWC practice guides. She is a certified WWC reviewer in the version 4.1 group design standards and has conducted WWC study reviews across a range of topic areas for WWC practice guides and intervention reports.

Seth Morgan, M.A., systems analyst at Mathematica, served as the evidence coordinator for this practice guide. Morgan has been a certified WWC reviewer since 2014, reviewing group design studies under multiple topic areas. He was the deputy evidence coordinator on the *Assisting Students Struggling with Mathematics: Intervention in the Elementary Grades* WWC practice guide. He co-authored the *Xtreme Reading* adolescent literacy WWC intervention report. Morgan is certified in WWC version 4.1 group design standards and single-case design standards.

Betsy Keating, M.P.P., researcher at Mathematica, assisted with developing the evidence appendix for this practice guide. She served as the evidence coordinator on the *Assisting Students Struggling with Mathematics: Intervention in the Elementary Grades* WWC practice guide, as well as the deputy practice lead and deputy evidence lead on two other WWC practice guides that focused on algebra knowledge and foundational reading. Keating co-authored *Tips for Supporting Reading Skills at Home*, a supplemental WWC product providing tips for parents or caregivers drawn from the evidence-based classroom practices in the WWC's foundational reading practice guide. Keating is certified in WWC version 4.1 group design and single-case design standards.

Armando Yañez, M.P.P., research analyst at Mathematica, assisted with the evidence appendix for this practice guide. Yañez has been a certified WWC reviewer since 2019, reviewing group design studies under multiple topic areas. Yañez is certified in WWC version 4.1 group and single-case design standards.

Acknowledgments

The panel would like to thank the team of WWC-certified reviewers from IRG and Mathematica for their contributions to this practice guide. They would also like to thank the following staff from IRG: Pam Foremski for screening studies and formatting of the practice guide, Christopher Tran for screening studies and managing study reviews, and Jonathan Cohen for his editorial assistance. In addition, they would like to thank the following staff from Mathematica: Clare Fisher for her support with project management and coordinating the review process and Laura Sarnoski and Sheryl Friedlander for their help with the production of the practice guide.

Appendix F: Disclosure of Potential Conflicts of Interest

Practice guide panels are comprised of nationally recognized experts on the topics about which they are making recommendations. The Institute of Education Sciences (IES) expects the experts to be involved in professional activities that might relate to their work as a panelist. Panel members are asked to disclose these professional activities and institute deliberative processes that encourage critical examination of their views as they relate to the content of the practice guide. Objectivity is further encouraged by the requirement that the panelists ground their recommendations in evidence that is documented in the practice guide. In addition, before all practice guides are published, the guides undergo an independent external peer review focusing on whether the evidence related to the recommendations in the guide has been presented appropriately.

The professional activities reported by each panel that appear to be most closely associated with the panel recommendations are noted below.

Panelists

Dr. Sharon Vaughn (Chair) co-authored articles that were reviewed and used for evidence for this practice guide. The interventions examined in these articles were developed in part or completely by her and other researchers working with the Meadows Center for Preventing Educational Risk.

Dr. Michael J. Kieffer co-authored articles referenced in this practice guide.

Dr. Margaret McKeown co-authored books and articles referenced in this practice guide.

Dr. Deborah K. Reed co-authored articles referenced in this practice guide.

Dr. Jade Wexler co-authored articles that were reviewed and used for evidence for this practice guide. She led and/or contributed to the development of the interventions examined in some of these articles.

References

Studies included in the meta-analysis. These studies meet WWC standards and provide the evidence base for the recommendations. Citations include hyperlinks to the WWC study review and the URL for the full text article in the Education Resources Information Center (ERIC).

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Ritchey, K. D., Palombo, K., Silverman, R. D., & Speece, D. L. (2017). Effects of an informational text reading comprehension intervention for fifth-grade students. *Learning Disability Quarterly, 40*(2), 68–80. **https://eric.ed.gov/?id=EJ1139515** [**Informational text reading comprehension intervention vs. business as usual**].

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[128] Stevens & Vaughn, 2021; Stevens et al., 2020.

[129] Stevens & Vaughn, 2021; Stevens et al., 2020.

[130] Barth & Elleman, 2017; Barth et al., 2016; A. Kim et al., 2006; Manset-Williamson & Nelson, 2005; Ritchey et al., 2017; Vaughn, Martinez, et al., 2019; Wanzek & Roberts, 2012.

[131] Stevens et al., 2020.

[132] Barth & Elleman, 2017; Barth et al., 2016; A. Kim et al., 2006; Manset-Williamson & Nelson, 2005; Ritchey et al., 2017; Vaughn, Martinez, et al., 2019; Wanzek & Roberts, 2012.

[133] Barth & Elleman, 2017; Barth et al., 2016; A. Kim et al., 2006; Manset-Williamson & Nelson, 2005; Ritchey et al., 2017; Vaughn, Martinez, et al., 2019; Wanzek & Roberts, 2012.

[134] Berkeley et al., 2011; Vaughn, Roberts, et al., 2019.

[135] Barth & Elleman, 2017; Berkeley et al., 2011; Fogarty et al., 2017; A. Kim et al., 2006; J. Kim et al., 2017; Manset-Williamson & Nelson, 2005; Meisch et al., 2011; Ritchey et al., 2017; Schenck et al., 2012; Sprague et al., 2012; Stevens et al., 2020; Thames et al., 2008; Vaughn, Martinez, et al., 2019; Vaughn, Roberts, et al., 2019; Wanzek et al., 2016.

[136] Barth & Elleman, 2017; Fogarty et al., 2017; A. Kim et al., 2006; Manset-Williamson & Nelson, 2005; Ritchey et al., 2017; Stevens et al., 2020; Thames et al., 2008; Vaughn, Martinez, et al., 2019; Wanzek et al., 2016; Wanzek & Roberts, 2012.

[137] Roberts et al., 2018; Vaughn, Roberts, et al., 2019; Vaughn et al., 2016.

[138] Barth & Elleman, 2017; Dimitrov et al., 2012; Fogarty et al., 2017; Schenck et al., 2012; Sprague et al., 2012; Wanzek et al., 2016.

[139] Swanlund et al., 2012; Vaughn, Roberts, et al., 2019.

[140] Fogarty et al., 2017; Vaughn et al., 2016.

[141] Barth & Elleman, 2017; Fogarty et al., 2017; J. Kim et al., 2011; Manset-Williamson & Nelson, 2005; Meisch et al., 2011; Ritchey et al., 2017; Roberts et al., 2018; Somers et al., 2010; Sprague et al., 2012; Stevens et al., 2020.

[142] Barth & Elleman, 2017; Fogarty et al., 2017; Stevens et al., 2020.

[143] Barth et al., 2016; Dimitrov et al., 2012; Fogarty et al., 2017; J. Kim et al., 2017; Ritchey et al., 2017; Sprague et al., 2012.

[144] Barth & Elleman, 2017; Fogarty et al., 2017; J. Kim et al., 2017; Ritchey et al., 2017.

[145] Swanlund et al., 2012; Vaughn, Roberts, et al., 2019.

[146] Calhoon et al., 2010; Fogarty et al., 2017; Heistad, 2008; Hock et al., 2017; A. Kim et al., 2006; J. Kim et al., 2017; Manset-Williamson & Nelson, 2005; Ritchey et al., 2017; Schenck et al., 2012; Sprague et al., 2012; Stevens et al., 2020; Thames et al., 2008; Vaughn, Martinez, et al., 2019; Wanzek et al., 2016; Wanzek & Roberts, 2012.

[147] Calhoon et al., 2010; Fogarty et al., 2017; Heistad, 2008; Hock et al., 2017; A. Kim et al., 2006; Manset-Williamson & Nelson, 2005; Ritchey et al., 2017; Roberts et al., 2018; Schenck et al., 2012; Sprague et al., 2012; Thames et al., 2008; Vaughn, Martinez, et al., 2019; Wanzek et al., 2016; Wanzek & Roberts, 2012.

[148] Fogarty et al., 2017.

[149] Roberts et al., 2018; Vaughn, Roberts, et al., 2019.

[150] Roberts et al., 2018; Vaughn, Roberts, et al., 2019.

[151] Roberts et al., 2018; Vaughn, Roberts, et al., 2019.

[152] Roberts et al., 2018; Vaughn, Roberts, et al., 2019.

[153] Barth & Elleman, 2017; J. Kim et al., 2017.

[154] Barth & Elleman, 2017; J. Kim et al., 2017.

[155] Hock et al., 2017; J. Kim et al., 2017.

[156] J. Kim et al., 2017.

[157] Barth & Elleman, 2017; Hall et al., 2019.

[158] Barth & Elleman, 2017.

[159] Barth & Elleman, 2017; Hall et al., 2019.

[160] Fletcher et al., 2006.

[161] Hall et al., 2019; Roberts et al., 2018; Vaughn, Roberts, et al., 2019.

[162] J. Kim et al., 2010; J. Kim et al., 2011; J. Kim et al., 2017; Meisch et al., 2011; Sprague et al., 2012; Swanlund et al., 2012; R. White et al., 2005; R. White et al., 2006.

[163] J. Kim et al., 2010; J. Kim et al., 2011; J. Kim et al., 2017; Meisch et al., 2011; Sprague et al., 2012; Swanlund et al., 2012; R. White et al., 2005; R. White et al., 2006.

[164] J. Kim et al., 2017; Vaughn, Roberts, et al., 2019.

[165] Studies were reviewed using the WWC Version 4.0 Standards Handbook, available at **https://ies.ed.gov/ncee/wwc/Docs/referenceresources/wwc_standards_handbook_v4.pdf** and the version 4.0 practice guide review protocol available at **https://ies.ed.gov/ncee/wwc/Document/1295**.

[166] Following WWC guidelines, improved outcomes are indicated by a positive, statistically significant effect from a meta-analytic effect size calculated separately for each relevant outcome domain. For more information on how the WWC calculates these effect sizes and determines levels of evidence, see the WWC Version 4.1 Procedures Handbook at **https://ies.ed.gov/ncee/wwc/Handbooks**.

[167] Barth & Elleman, 2017; Barth et al., 2016; Borman et al., 2009; Connor et al., 2018; Denton et al., 2008; Dimitrov et al., 2012; Fogarty et al., 2017; Hall et al., 2019; Heistad, 2008; Hock et al., 2017; A.

Kim et al., 2006; J. Kim et al., 2010; J. Kim et al., 2011; J. Kim et al., 2017; Meisch et al., 2011; Ritchey et al., 2017; Roberts et al., 2018; Schenck et al., 2012; Somers et al., 2010 (*Reading Apprentice Academic Literacy* [*RAAL*] vs. business as usual); Somers et al., 2010 (*Xtreme Reading* vs. business as usual); Sprague et al., 2012; Stevens et al., 2020; Swanlund et al., 2012; Thames et al., 2008; Therrien et al., 2006; Torgesen et al., 2006 (*SpellRead PAT* vs. business as usual); Torgesen et al., 2006 (*Corrective Reading* vs. business as usual); Torgesen et al., 2006 (*Wilson Reading* vs. business as usual); Torgesen et al., 2006 (*Failure Free Reading* vs. business as usual); Toste et al., 2019; Vadasy & Sanders, 2008; Vaden-Kiernan et al., 2012; Vaughn, Cirino, et al., 2010; Vaughn, Martinez, et al., 2019; Vaughn, Roberts, et al., 2019; Vaughn et al., 2016; Vaughn, Wanzek, et al., 2010; Wanzek et al., 2016; Wanzek et al., 2017; Wanzek & Roberts, 2012 (Reading intervention with word study emphasis vs. business as usual); Wanzek & Roberts, 2012 (Reading intervention with comprehension emphasis vs. business as usual); Wanzek & Roberts, 2012 (Reading intervention with word study plus reading intervention with comprehension emphasis vs. business as usual); R. White et al., 2005; R. White et al., 2006 (*READ 180* [Cohort 1] vs. business as usual); R. White et al., 2006 (*READ 180* [Cohort 2] vs. business as usual).

[168] Berkeley et al., 2011; Fuchs et al., 2018.

[169] Connor et al., 2018; Hall et al., 2019; Heistad, 2008; A. Kim et al., 2006; Ritchey et al., 2017; Thames et al., 2008; Therrien et al., 2006; Vadasy & Sanders, 2008.

[170] Barth & Elleman, 2017; Barth et al., 2016; Borman et al., 2009; Denton et al., 2008; Dimitrov et al., 2012; Fogarty et al., 2017; Hock et al., 2017; J. Kim et al., 2010; J. Kim et al., 2011; J. Kim et al., 2017; Meisch et al., 2011; Roberts et al., 2018; Schenck et al., 2012; Somers et al., 2010 (*Reading Apprentice Academic Literacy* [*RAAL*] vs. business as usual); Somers et al., 2010 (*Xtreme Reading* vs. business as usual); Sprague et al., 2012; Stevens et al., 2020; Swanlund et al., 2012; Torgesen et al., 2006 (*SpellRead PAT* vs. business as usual); Torgesen et al., 2006 (*Corrective Reading* vs. business as usual); Torgesen et al., 2006 (*Wilson Reading* vs. business as usual); Torgesen et al., 2006 (*Failure Free Reading* vs. business as usual); Toste et al., 2019; Vaden-Kiernan et al., 2012; Vaughn, Cirino, et al., 2010; Vaughn, Martinez, et al., 2019; Vaughn, Roberts, et al., 2019; Vaughn et al., 2016; Vaughn, Wanzek, et al., 2010; Wanzek et al., 2016; Wanzek et al., 2017; Wanzek & Roberts, 2012 (Reading intervention with word study emphasis vs. business as usual); Wanzek & Roberts, 2012 (Reading intervention with comprehension emphasis vs. business as usual); Wanzek & Roberts, 2012 (Reading intervention with word study plus reading intervention with comprehension emphasis vs. business as usual); R. White et al., 2005; R. White et al., 2006 (*READ 180* [Cohort 1] vs. business as usual); R. White et al., 2006 (*READ 180* [Cohort 2] vs. business as usual).

[171] Hedges & Vevea, 1998.

[172] If effect sizes from studies with overlapping samples are entered into a meta-analysis, participants from experimental conditions that are common across studies will be counted twice, resulting in effect

sizes that are statistically dependent. This dependence in a meta-analysis can create a serious threat to the validity of the results.

[173] Borman et al., 2009; Denton et al., 2008; Dimitrov et al., 2012; Fogarty et al., 2017; Hock et al., 2017; A. Kim et al., 2006; J. Kim et al., 2011; J. Kim et al., 2017; Meisch et al., 2011; Roberts et al., 2018; Schenck et al., 2012; Somers et al., 2010 (*Reading Apprentice Academic Literacy* [*RAAL*] vs. business as usual); Somers et al., 2010 (*Xtreme Reading* vs. business as usual); Sprague et al., 2012; Swanlund et al., 2012; Torgesen et al., 2006 (*SpellRead PAT* vs. business as usual); Torgesen et al., 2006 (*Corrective Reading* vs. business as usual); Torgesen et al., 2006 (*Wilson Reading* vs. business as usual); Torgesen et al., 2006 (*Failure Free Reading* vs. business as usual); Toste et al., 2019; Vaden-Kiernan et al., 2012; Vaughn, Cirino, et al., 2010; Vaughn, Martinez, et al., 2019; Vaughn, Roberts, et al., 2019; Vaughn et al., 2016; Vaughn, Wanzek, et al., 2010; Wanzek et al., 2016; Wanzek et al., 2017; Wanzek & Roberts, 2012 (Reading intervention with word study emphasis vs. business as usual); R. White et al., 2005; R. White et al., 2006 (*READ 180* [Cohort 1] vs. business as usual); R. White et al., 2006 (*READ 180* [Cohort 2] vs. business as usual).

[174] Denton et al., 2008; Dimitrov et al., 2012; Fogarty et al., 2017; J. Kim et al., 2011; J. Kim et al., 2017; Roberts et al., 2018; Schenck et al., 2012; Somers et al., 2010 (*Reading Apprentice Academic Literacy* [*RAAL*] vs. business as usual); Somers et al., 2010 (*Xtreme Reading* vs. business as usual); Swanlund et al., 2012; Toste et al., 2019; Vaden-Kiernan et al., 2012; Vaughn, Martinez, et al., 2019; Vaughn, Roberts, et al., 2019; Vaughn et al., 2016; Wanzek et al., 2016; Wanzek et al., 2017.

[175] Borman et al., 2009; Hock et al., 2017; J. Kim et al., 2010; Meisch et al., 2011; Sprague et al., 2012; Torgesen et al., 2006 (*SpellRead PAT* vs. business as usual); Torgesen et al., 2006 (*Corrective Reading* vs. business as usual); Torgesen et al., 2006 (*Wilson Reading* vs. business as usual); Torgesen et al., 2006 (*Failure Free Reading* vs. business as usual); Vaughn, Cirino, et al., 2010; Vaughn, Wanzek, et al., 2010; Wanzek & Roberts, 2012 (Reading intervention with word study emphasis vs. business as usual); R. White et al., 2005; R. White et al., 2006 (*READ 180* [Cohort 1] vs. business as usual); R. White et al., 2006 (*READ 180* [Cohort 2] vs. business as usual).

[176] Two studies (R. White et al., 2006 [*READ 180* (Cohort 1) vs. business as usual]; R. White et al., 2006 [*READ 180* (Cohort 2) vs. business as usual]) did not report the number of schools in the sample. Likewise, four studies from another study (Torgesen et al., 2006 [*SpellRead PAT* vs. business as usual]; Torgesen et al., 2006 [*Corrective Reading* vs. business as usual]; Torgesen et al., 2006 [*Wilson Reading* vs. business as usual]; Torgesen et al., 2006 [*Failure Free Reading* vs. business as usual]) took place in the same schools, so those schools were only counted once. Therefore, the total number of schools comes from 27 studies.

[177] Denton et al., 2008; Fogarty et al., 2017; J. Kim et al., 2010; J. Kim et al., 2011; Roberts et al., 2018; Torgesen et al., 2006 (*SpellRead PAT* vs. business as usual); Torgesen et al., 2006 (*Corrective Reading* vs. business as usual); Torgesen et al., 2006 (*Wilson Reading* vs. business as usual); Torgesen et al., 2006

(*Failure Free Reading* vs. business as usual); Vaughn, Roberts, et al., 2019; Vaughn et al., 2016; Wanzek et al., 2017; Wanzek & Roberts, 2012 (Reading intervention with comprehension emphasis vs. business as usual).

[178] Dimitrov et al., 2012; Hock et al., 2017; J. Kim et al., 2017; Meisch et al., 2011; Schenck et al., 2012; Somers et al., 2010 (*Reading Apprentice Academic Literacy* [*RAAL*] vs. business as usual); Somers et al., 2010 (*Xtreme Reading* vs. business as usual); Sprague et al., 2012; Swanlund et al., 2012; Vaden-Kiernan et al., 2012; Vaughn, Cirino, et al., 2010; Vaughn, Martinez, et al., 2019; Vaughn, Wanzek, et al., 2010; Wanzek et al., 2016; R. White et al., 2005; R. White et al., 2006 (*READ 180* [Cohort 1] vs. business as usual); R. White et al., 2006 (*READ 180* [Cohort 2] vs. business as usual).

[179] Borman et al., 2009; Denton et al., 2008; Dimitrov et al., 2012; Hock et al., 2017 ; Meisch et al., 2011; Schenck et al., 2012; Somers et al., 2010 (*Reading Apprentice Academic Literacy* [*RAAL*] vs. business as usual); Somers et al., 2010 (*Xtreme Reading* vs. business as usual); Sprague et al., 2012; Swanlund et al., 2012; Torgesen et al., 2006 (*SpellRead PAT* vs. business as usual); Torgesen et al., 2006 (*Corrective Reading* vs. business as usual); Torgesen et al., 2006 (*Wilson Reading* vs. business as usual); Torgesen et al., 2006 (*Failure Free Reading* vs. business as usual); Vaden-Kiernan et al., 2012; Vaughn, Cirino, et al., 2010; Vaughn, Roberts, et al., 2019; Vaughn et al., 2016; Vaughn, Wanzek, et al., 2010; Wanzek et al., 2017; Wanzek & Roberts, 2012 (Reading intervention with comprehension emphasis vs. business as usual); R. White et al., 2005; R. White et al., 2006 (*READ 180* [Cohort 1] vs. business as usual); R. White et al., 2006 (*READ 180* [Cohort 2] vs. business as usual).

[180] Denton et al., 2008; Dimitrov et al., 2012; Fogarty et al., 2017; Hock et al., 2017; J. Kim et al., 2010; J. Kim et al., 2011; J. Kim et al., 2017; Roberts et al., 2018; Schenck et al., 2012; Somers et al., 2010 (*Reading Apprentice Academic Literacy* [*RAAL*] vs. business as usual); Somers et al., 2010 (*Xtreme Reading* vs. business as usual); Torgesen et al., 2006 (*SpellRead PAT* vs. business as usual); Torgesen et al., 2006 (*Corrective Reading* vs. business as usual); Torgesen et al., 2006 (*Wilson Reading* vs. business as usual); Torgesen et al., 2006 (*Failure Free Reading* vs. business as usual); Toste et al., 2019; Vaden-Kiernan et al., 2012; Vaughn, Cirino, et al., 2010; Vaughn, Martinez, et al., 2019; Vaughn, Wanzek, et al., 2010.

[181] Borman et al., 2009; Meisch et al., 2011; Schenck et al., 2012; Somers et al., 2010 (*Reading Apprentice Academic Literacy* [*RAAL*] vs. business as usual); Somers et al., 2010 (*Xtreme Reading* vs. business as usual); Vaden-Kiernan et al., 2012.

[182] Borman et al., 2009; Denton et al., 2008; Dimitrov et al., 2012; Fogarty et al., 2017; Heistad, 2008; J. Kim et al., 2010; J. Kim et al., 2011; J. Kim et al., 2017; Meisch et al., 2011; Roberts et al., 2018; Schenck et al., 2012; Somers et al., 2010 (*Reading Apprentice Academic Literacy* [*RAAL*] vs. business as usual); Somers et al., 2010 (*Xtreme Reading* vs. business as usual); Sprague et al., 2012; Swanlund et al., 2012; Therrien et al., 2006; Torgesen et al., 2006 (*Corrective Reading* vs. business as usual); Torgesen et al., 2006 (*Wilson Reading* vs. business as usual); Torgesen et al., 2006 (*Failure Free Reading* vs. business as

usual); Toste et al., 2019; Vadasy & Sanders, 2008; Vaden-Kiernan et al., 2012; Vaughn, Cirino, et al., 2010; Vaughn, Martinez, et al., 2019; Vaughn, Roberts, et al., 2019; Vaughn et al., 2016; Vaughn, Wanzek, et al., 2010; Wanzek et al., 2016; Wanzek et al., 2017; Wanzek & Roberts, 2012 (Reading intervention with word study plus reading intervention with comprehension emphasis vs. business as usual); R. White et al., 2005; R. White et al., 2006 (*READ 180* [Cohort 1] vs. business as usual); R. White et al., 2006 (*READ 180* [Cohort 2] vs. business as usual).

[183] Denton et al., 2008; Dimitrov et al., 2012; Fogarty et al., 2017; J. Kim et al., 2011; J. Kim et al., 2017; Roberts et al., 2018; Schenck et al., 2012; Somers et al., 2010 (*Reading Apprentice Academic Literacy* [*RAAL*] vs. business as usual); Somers et al., 2010 (*Xtreme Reading* vs. business as usual); Swanlund et al., 2012; Therrien et al., 2006; Toste et al., 2019; Vaden-Kiernan et al., 2012; Vaughn, Martinez, et al., 2019; Vaughn, Roberts, et al., 2019; Vaughn et al., 2016; Wanzek et al., 2016; Wanzek et al., 2017; Wanzek & Roberts, 2012 (Reading intervention with word study plus reading intervention with comprehension emphasis vs. business as usual).

[184] Borman et al., 2009; Heistad, 2008; J. Kim et al., 2010; Meisch et al., 2011; Sprague et al., 2012; Torgesen et al., 2006 (*Corrective Reading* vs. business as usual); Torgesen et al., 2006 (*Wilson Reading* vs. business as usual); Torgesen et al., 2006 (*Failure Free Reading* vs. business as usual); Vadasy & Sanders, 2008; Vaughn, Cirino, et al., 2010; Vaughn, Wanzek, et al., 2010; R. White et al., 2005; R. White et al., 2006 (*READ 180* [Cohort 1] vs. business as usual); R. White et al., 2006 (*READ 180* [Cohort 2] vs. business as usual).

[185] Three studies (Therrien et al., 2006; R. White et al., 2006 [*READ 180* (Cohort 1) vs. business as usual]; R. White et al., 2006 [*READ 180* (Cohort 2) vs. business as usual]) did not report the number of schools in the sample. Likewise, three studies from another record (Torgesen et al., 2006 [*Corrective Reading* vs. business as usual]; Torgesen et al., 2006 [*Wilson Reading* vs. business as usual]; Torgesen et al., 2006 [*Failure Free Reading* vs. business as usual]) took place in the same schools, so those schools were only counted once. Therefore, the total number of schools comes from 29 studies.

[186] Denton et al., 2008; Fogarty et al., 2017; J. Kim et al., 2010; J. Kim et al., 2011; Roberts et al., 2018; Therrien et al., 2006; Torgesen et al., 2006 (*Corrective Reading* vs. business as usual); Torgesen et al., 2006 (*Wilson Reading* vs. business as usual); Torgesen et al., 2006 (*Failure Free Reading* vs. business as usual); Vadasy & Sanders, 2008; Vaughn, Roberts, et al., 2019; Vaughn et al., 2016; Wanzek et al., 2017; Wanzek & Roberts, 2012 (Reading intervention with word study plus reading intervention with comprehension emphasis vs. business as usual).

[187] Dimitrov et al., 2012; Heistad, 2008; J. Kim et al., 2017; Meisch et al., 2011; Schenck et al., 2012; Somers et al., 2010 (*Reading Apprentice Academic Literacy* [*RAAL*] vs. business as usual); Somers et al., 2010 (*Xtreme Reading* vs. business as usual); Sprague et al., 2012; Swanlund et al., 2012; Vaden-Kiernan et al., 2012; Vaughn, Cirino, et al., 2010; Vaughn, Martinez, et al., 2019; Vaughn, Wanzek, et al., 2010;

Wanzek et al., 2016; R. White et al., 2005; R. White et al., 2006 (*READ 180* [Cohort 1] vs. business as usual); R. White et al., 2006 (*READ 180* [Cohort 2] vs. business as usual).

[188] Borman et al., 2009; Denton et al., 2008; Dimitrov et al., 2012; Meisch et al., 2011; Schenck et al., 2012; Somers et al., 2010 (*Reading Apprentice Academic Literacy* [*RAAL*] vs. business as usual); Somers et al., 2010 (*Xtreme Reading* vs. business as usual); Sprague et al., 2012; Swanlund et al., 2012; Torgesen et al., 2006 (*Corrective Reading* vs. business as usual); Torgesen et al., 2006 (*Wilson Reading* vs. business as usual); Torgesen et al., 2006 (*Failure Free Reading* vs. business as usual); Vaden-Kiernan et al., 2012; Vaughn, Cirino, et al., 2010; Vaughn, Roberts, et al., 2019; Vaughn et al., 2016; Vaughn, Wanzek, et al., 2010; Wanzek et al., 2017; Wanzek & Roberts, 2012 (Reading intervention with word study plus reading intervention with comprehension emphasis vs. business as usual); R. White et al., 2005; R. White et al., 2006 (*READ 180* [Cohort 1] vs. business as usual); R. White et al., 2006 (*READ 180* [Cohort 2] vs. business as usual).

[189] Denton et al., 2008; Dimitrov et al., 2012; Fogarty et al., 2017; J. Kim et al., 2010; J. Kim et al., 2011; J. Kim et al., 2017; Roberts et al., 2018; Schenck et al., 2012; Somers et al., 2010 (*Reading Apprentice Academic Literacy* [*RAAL*] vs. business as usual); Somers et al., 2010 (*Xtreme Reading* vs. business as usual); Torgesen et al., 2006 (*Corrective Reading* vs. business as usual); Torgesen et al., 2006 (*Wilson Reading* vs. business as usual); Torgesen et al., 2006 (*Failure Free Reading* vs. business as usual); Toste et al., 2019; Vaden-Kiernan et al., 2012; Vaughn, Cirino, et al., 2010; Vaughn, Martinez, et al., 2019; Vaughn, Wanzek, et al., 2010.

[190] Borman et al., 2009; Meisch et al., 2011; Schenck et al., 2012; Somers et al., 2010 (*Reading Apprentice Academic Literacy* [*RAAL*] vs. business as usual); Somers et al., 2010 (*Xtreme Reading* vs. business as usual); Vaden-Kiernan et al., 2012.

[191] Barth & Elleman, 2017; Barth et al., 2016; Connor et al., 2018; Denton et al., 2008; Dimitrov et al., 2012; Fogarty et al., 2017; Hall et al., 2019; Hock et al., 2017; A. Kim et al., 2006; J. Kim et al., 2010; J. Kim et al., 2011; J. Kim et al., 2017; Meisch et al., 2011; Ritchey et al., 2017; Roberts et al., 2018; Schenck et al., 2012; Somers et al., 2010 (*Reading Apprentice Academic Literacy* [*RAAL*] vs. business as usual); Somers et al., 2010 (*Xtreme Reading* vs. business as usual); Sprague et al., 2012; Stevens et al., 2020; Swanlund et al., 2012; Thames et al., 2008; Vaden-Kiernan et al., 2012; Vaughn, Cirino, et al., 2010; Vaughn, Martinez, et al., 2019; Vaughn, Roberts, et al., 2019; Vaughn et al., 2016; Vaughn, Wanzek, et al., 2010; Wanzek et al., 2016; Wanzek et al., 2017; Wanzek & Roberts, 2012 (Reading intervention with comprehension emphasis vs. business as usual); R. White et al., 2005; R. White et al., 2006 (*READ 180* [Cohort 1] vs. business as usual); R. White et al., 2006 (*READ 180* [Cohort 2] vs. business as usual).

[192] Barth & Elleman, 2017; Connor et al., 2018; Denton et al., 2008; Dimitrov et al., 2012; Fogarty et al., 2017; Hall et al., 2019; A. Kim et al., 2006; J. Kim et al., 2011; J. Kim et al., 2017; Ritchey et al., 2017; Roberts et al., 2018; Schenck et al., 2012; Somers et al., 2010 (*Reading Apprentice Academic Literacy* [*RAAL*] vs. business as usual); Somers et al., 2010 (*Xtreme Reading* vs. business as usual); Stevens et al.,

2020; Swanlund et al., 2012; Vaden-Kiernan et al., 2012; Vaughn, Martinez, et al., 2019; Vaughn, Roberts, et al., 2019; Vaughn et al., 2016; Wanzek et al., 2016; Wanzek et al., 2017; Wanzek & Roberts, 2012 (Reading intervention with comprehension emphasis vs. business as usual).

[193] Barth et al., 2016; Hock et al., 2017; J. Kim et al., 2010; Meisch et al., 2011; Sprague et al., 2012; Thames et al., 2008; Vaughn, Cirino, et al., 2010; Vaughn, Wanzek et al., 2010; R. White et al., 2005; R. White et al., 2006 (*READ 180* [Cohort 1] vs. business as usual); R. White et al., 2006 (*READ 180* [Cohort 2] vs. business as usual).

[194] Two studies (R. White et al., 2006 [*READ 180* (Cohort 1) vs. business as usual]; R. White et al., 2006 [*READ 180* (Cohort 2) vs. business as usual]) did not report the number of schools in the sample. Therefore, the total number of schools comes from 32 studies.

[195] Barth et al., 2016; Connor et al., 2018; Denton et al., 2008; Fogarty et al., 2017; Hall et al., 2019; A. Kim et al., 2006; J. Kim et al., 2010; J. Kim et al., 2011; Ritchey et al., 2017; Roberts et al., 2018; Stevens et al., 2020; Thames et al., 2008; Vaughn, Roberts, et al., 2019; Vaughn et al., 2016; Wanzek et al., 2017; Wanzek & Roberts, 2012 (Reading intervention with comprehension emphasis vs. business as usual).

[196] Dimitrov et al., 2012; Hock et al., 2017; J. Kim et al., 2017; Meisch et al., 2011; Schenck et al., 2012; Somers et al., 2010 (*Reading Apprentice Academic Literacy* [*RAAL*] vs. business as usual); Somers et al., 2010 (*Xtreme Reading* vs. business as usual); Sprague et al., 2012; Swanlund et al., 2012; Vaden-Kiernen et al., 2012; Vaughn, Cirino, et al., 2010; Vaughn, Martinez, et al., 2019; Vaughn, Wanzek, et al., 2010; Wanzek et al., 2016; R. White et al., 2005; R. White et al., 2006 (*READ 180* [Cohort 1] vs. business as usual); R. White et al., 2006 (*READ 180* [Cohort 2] vs. business as usual).

[197] Denton et al., 2008; Dimitrov et al., 2012; Hock et al., 2017; Meisch et al., 2011; Schenck et al., 2012; Somers et al., 2010 (*Reading Apprentice Academic Literacy* [*RAAL*] vs. business as usual); Somers et al., 2010 (*Xtreme Reading* vs. business as usual); Sprague et al., 2012; Swanlund et al., 2012; Vaden-Kiernan et al., 2012; Vaughn, Cirino, et al., 2010; Vaughn, Roberts, et al., 2019; Vaughn et al., 2016; Vaughn, Wanzek, et al., 2010; Wanzek et al., 2017; Wanzek & Roberts, 2012 (Reading intervention with comprehension emphasis vs. business as usual); R. White et al., 2005; R. White et al., 2006 (*READ 180* [Cohort 1] vs. business as usual); R. White et al., 2006 (*READ 180* [Cohort 2] vs. business as usual).

[198] Barth & Elleman, 2017; Barth et al., 2016; Denton et al., 2008; Dimitrov et al., 2012; Fogarty et al., 2017; Hall et al., 2019; Hock et al., 2017; A. Kim et al., 2006; J. Kim et al., 2010; J. Kim et al., 2011; J. Kim et al., 2017; Roberts et al., 2018; Schenck et al., 2012; So Somers et al., 2010 (*Reading Apprentice Academic Literacy* [*RAAL*] vs. business as usual); Somers et al., 2010 (*Xtreme Reading* vs. business as usual); Stevens et al., 2020; Vaden-Kiernan et al., 2012; Vaughn, Cirino, et al., 2010; Vaughn, Martinez, et al., 2019; Vaughn, Wanzek, et al., 2010.

[199] Hall et al., 2019; Meisch et al., 2011; Schenck et al., 2012; Somers et al., 2010 (*Reading Apprentice Academic Literacy* [*RAAL*] vs. business as usual); Somers et al., 2010 (*Xtreme Reading* vs. business as usual); Thames et al., 2008; Vaden-Kiernen et al., 2012.

[200] Barth & Elleman, 2017; Barth et al., 2016; Hock et al., 2017; J. Kim et al., 2010; J. Kim et al., 2011; Meisch et al., 2011; Roberts et al., 2018; Sprague et al., 2012; Stevens et al., 2020; Swanlund et al., 2012; Vaughn, Roberts, et al., 2019; Vaughn et al., 2016; R. White et al., 2005; R. White et al., 2006 (*READ 180* [Cohort 1] vs. business as usual); R. White et al., 2006 (*READ 180* [Cohort 2] vs. business as usual).

[201] Barth & Elleman, 2017; J. Kim et al., 2011; Roberts et al., 2018; Stevens et al., 2020; Swanlund et al., 2012; Vaughn, Roberts, et al., 2019; Vaughn et al., 2016.

[202] Barth et al., 2016; Hock et al., 2017; J. Kim et al., 2010; Meisch et al., 2011; Sprague et al., 2012; R. White et al., 2005; R. White et al., 2006 (*READ 180* [Cohort 1] vs. business as usual); R. White et al., 2006 (*READ 180* [Cohort 2] vs. business as usual).

[203] Two studies (R. White et al., 2006 [*READ 180* (Cohort 1) vs. business as usual]; R. White et al., 2006 [*READ 180* (Cohort 2) vs. business as usual]) did not report the number of schools in the sample. Therefore, the total number of schools comes from 13 studies.

[204] J. Kim et al., 2010; J. Kim et al., 2011; Roberts et al., 2018; Vaughn, Roberts, et al., 2019; Vaughn et al., 2016.

[205] Hock et al., 2017; Meisch et al., 2011; Sprague et al., 2012; Swanlund et al., 2012; R. White et al., 2005; R. White et al., 2006 (*READ 180* [Cohort 1] vs. business as usual); R. White et al., 2006 (*READ 180* [Cohort 2] vs. business as usual).

[206] Hock et al., 2017; Meisch et al., 2011; Sprague et al., 2012; Swanlund et al., 2012; Vaughn, Roberts, et al., 2019; Vaughn et al., 2016; R. White et al., 2005; R. White et al., 2006 (*READ 180* [Cohort 1] vs. business as usual); R. White et al., 2006 (*READ 180* [Cohort 2] vs. business as usual).

[207] J. Kim et al., 2010; J. Kim et al., 2011; Meisch et al., 2011; Roberts et al., 2018; Sprague et al., 2012; Swanlund et al., 2012; R. White et al., 2005; R. White et al., 2006 (*READ 180* [Cohort 1] vs. business as usual); R. White et al., 2006 (*READ 180* [Cohort 2] vs. business as usual).

[208] This review of the aggregated comparison does not have a hyperlink to an IES study page because the review was completed outside the Online Study Review Guide system using the Excel-based Study Review Guide.