New York State Education Department
Office of Special Education
Educational Partnership

Foundations of Effective Reading Instruction

Understanding the Science of Reading

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Disclaimer

The resources shown are designed to provide helpful information. Resources are provided for instructional use purposes only and do not constitute NYSED endorsement of any vendor, author, or other sources. To the best of our knowledge, the resources provided are true and complete.

Agenda

- **Welcome**

- **Purpose and Outcomes**

- **Sections**

  - Overview of the Science of Reading

  - Foundations for Reading Success

  - Teaching Students to Read

- **Wrap-up and Survey**

Slide Marker Icons

Activity

Handout

Poll

Discussion

Reflection

Action Plan

Our Staff

Staff Information

Today's Facilitators

Introductions

- **Name**
- **Role**
- **District**
- **School**
- **Population Served**

Meeting Norms

- Take care of your needs (water, food, restroom, etc.)
- Speak your truth – Use "I" statements
- Ask what you need to understand and contribute
- Listen with respect
- Push your growing edge
- Participate and struggle together
- Expect a lack of closure
- Respect each others' needs and learning styles
- Strive to start and end on time
- Presume positive intentions
- Be prepared with materials
- Action plan to implement what you are learning

Training Objectives

Participants will be able to:

- describe the current status of reading achievement of students in the United States and New York State;

- describe the gap between what is known about effective reading instruction and the implementation of effective reading instruction;

- identify theories of reading that are supported by research; and

- list the skills that are essential for proficient reading and how to best teach those skills.

Blueprint for Improved Results for Students with Disabilities

Self-Advocacy

Students engage in self-advocacy and are involved in determining their own educational goals and plan.

Family Partnership

Parents, and other family members, are engaged as meaningful partners in the special education process and the education of their child.

Specially-Designed Instruction

Teachers design, provide, and assess the effectiveness of specially-designed instruction to provide students with disabilities with access to participate and progress in the general education curriculum.

Research-Based Instruction

Teachers provide research-based instructional teaching and learning strategies and supports for students with disabilities.

Multi-tiered Support

Schools provide multi-tiered systems of behavioral and academic support.

Inclusive Activities

Schools provide high-quality inclusive programs and activities.

Transition Support

Schools provide appropriate instruction for students with disabilities in career development and opportunities to participate in work-based learning.

Appropriate Instruction
Regulations of the Commissioner of Education

"A student shall not be determined eligible for special education if the determinant factor is…lack of appropriate instruction in reading, including explicit and systematic instruction in phonemic awareness, phonics, vocabulary development, reading fluency (including oral reading skills) and reading comprehension strategies"

[8 NYCRR §200.4(c)(2)(i)]

"A school district's process to determine if a student responds to scientific, research-based instruction shall include the following minimum requirements: appropriate instruction delivered to all students in the general education class by qualified personnel…*appropriate instruction in reading* shall mean scientific research-based reading programs that include explicit and systematic instruction in phonemic awareness, phonics, vocabulary development, reading fluency (including oral reading skills) and reading comprehensive strategies"

[8 NYCRR §100.2(ii)(1)(i)(a)]

Which Quote Resonates With You?

Activity

LET US REMEMBER: ONE BOOK, ONE PEN, ONE CHILD, AND ONE TEACHER CAN CHANGE THE WORLD.

MALALA YOUSAFZAI

"TO LEARN TO READ IS TO LIGHT A FIRE; EVERY SYLLABLE THAT IS SPELLED OUT IS A SPARK."

— Victor Hugo, "Les Miserables"

"Oh magic hour, when a child first knows she can read printed words!"

–Betty Smith, A Tree Grows in Brooklyn

So it is with children who learn to read fluently and well: They begin to take flight into whole new worlds as effortlessly as young birds take to the sky.

William James

"Literacy is a bridge from misery to hope. It is a bulwark against poverty, and a building block of development. Literacy is... the means through which every man, woman and child can realize his or her full potential."

KOFI ANNAN

Current Status

Student Literacy in New York and the United States

Approximately one third of students demonstrate reading proficiency

(NCES, 2019)

Black and Hispanic students and students from low-income backgrounds demonstrate disproportionate underachievement

(NCES, 2019)

Students who struggle to initially learn to read are increasingly less likely to catch up to their peers

(Stanovich, 1986)

Equity in Education

Getting what works best into the hands of teachers is of the utmost importance for:

- **Students with disabilities**

- **Black, Indigenous, and students of color**

- **Students from culturally and linguistically diverse backgrounds**

Stop and Think
Equity Through Reading

What individual and collective responsibilities do we have to address inequities in reading?

The Promise of Highly Effective Instruction

Although students nationwide are struggling with reading proficiency, we have access to information and instructional practices that can change these outcomes.

Highly effective general classroom instruction can drastically reduce the rate of struggling readers.

(e.g., Foorman et al., 1998)

A great majority of reading difficulties can be prevented or eliminated with highly effective instruction and intervention.

(e.g., Foorman & Torgesen, 2001; Mathes & Denton, 2002; Torgesen, 1998, 2000, Torgesen et al., 2001)

Foorman et al., 1998; Foorman & Torgesen. 2001; Mathes & Denton, 2002**, 2002; Torgesen, 1998; Torgesen, 2000; Torgesen et al., 2001**

Obstacles to Effective Implementation

If we know what works, why isn't it happening in our schools?
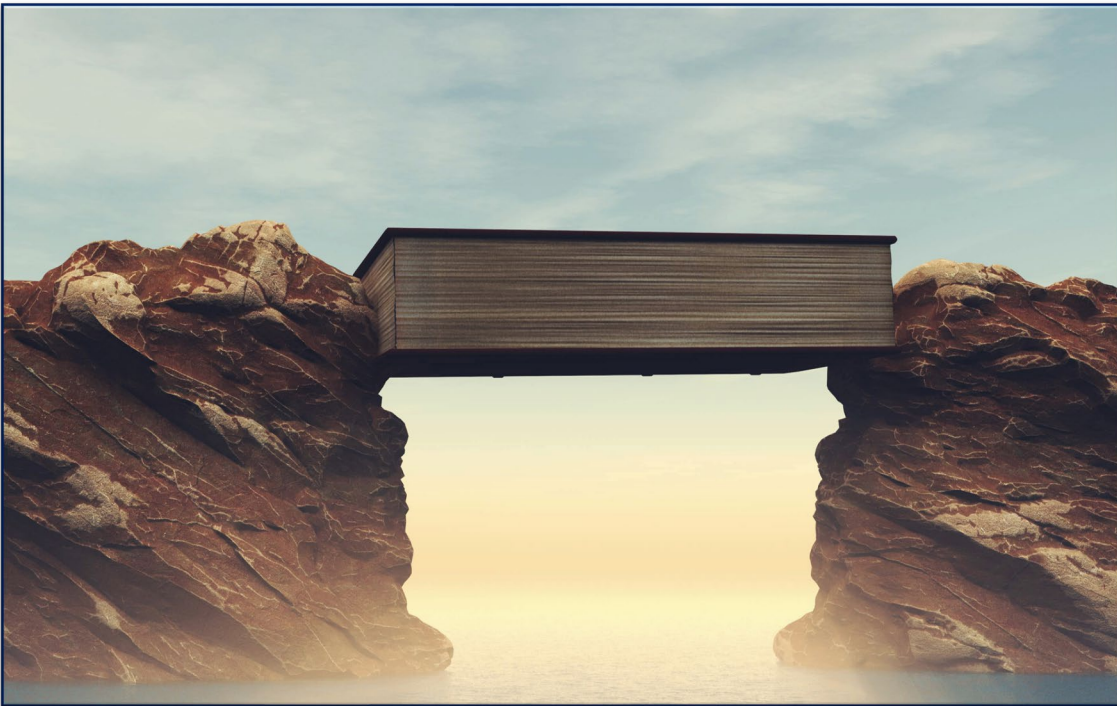
- Conflicting Information
  - in teacher preparation courses
  - In professional development sessions
  - from other professionals
  - In popular media
- Inadequate Teacher Preparation
- Numerous Demands & Initiatives
- Lack of Access to High-Quality Information & Research

Stop & Think Questions

How were you taught to read?

How did you learn to teach reading?

What are some things you have heard about literacy instruction that you have questions about?
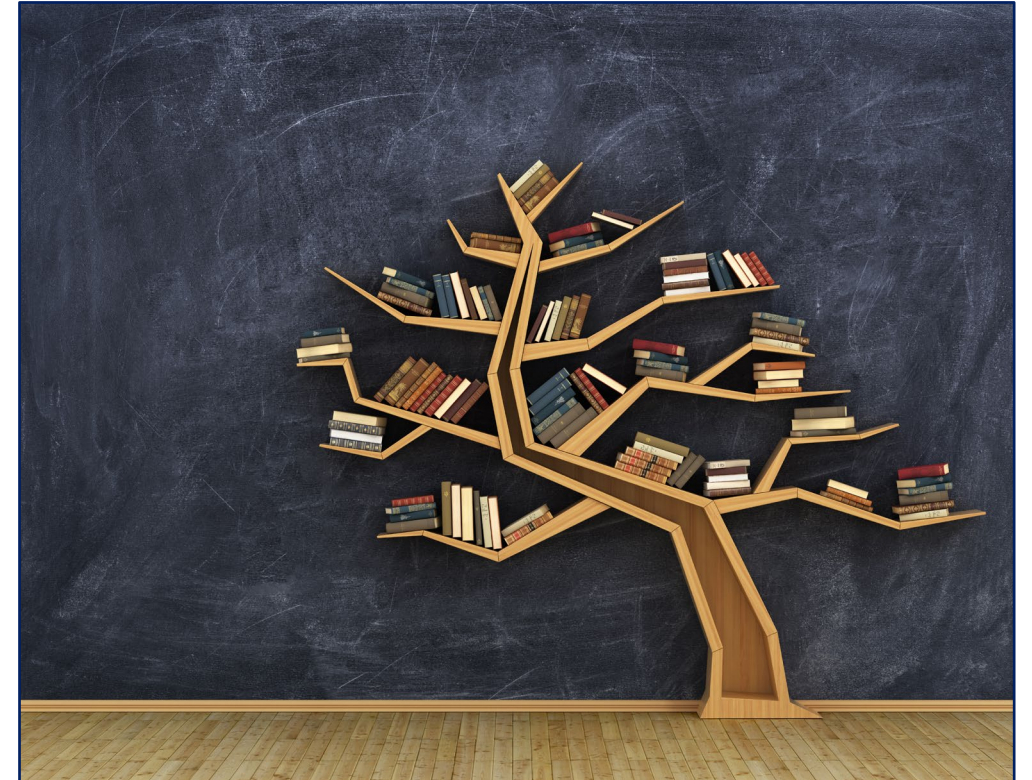
Defining the Science of Reading

"'The science of reading' is a phrase representing the accumulated knowledge about reading, reading development, and best practices for reading instruction obtained by the use of the scientific method."

Petscher et al., 2020

"The Science of Reading is a vast, interdisciplinary body of *scientifically-based research* about reading and issues related to reading and writing."

The Reading League (2021)

Can We Afford to Ignore the Science of Reading?

The Science of Reading

What Does Skilled Reading Require?

The Science of Reading Diagram

Simple View of Reading

Word Recognition ✖ Language Comprehension = Reading Comprehension

The Science of Reading – Word Recognition

1. ในการอ่านคุณต้องถอดรหัสรหัส

2. Le léamh, ní mór duit an cód a dhéanamh amach.

3. წასაკითხად, კოდი უნდა გაშიფროთ.

4. Ut legitur, non possint esse in codice.

The Science of Reading Word Recognition Cont.

American English: *To read, you must decipher the code.*

1. ʃ¢' ƒ˷ª∫•¥∂œ®Σ¢µʃÕÃⱯÕÃ
2. Le léamh, ní mór duit an cód a dhéanamh amach.
3. წასაკითხად, კოდი უნდა გაშიფროთ.
4. Ut legitur, non possint esse in codice.

1. Thai
2. Irish
3. Georgian
4. Latin

The Science of Reading – Language Comprehension

1. I've nah nickle and dime to eat! I'll just 'ave Everton Toffee.

2. I can't find the Peckham Rye that goes with me whistle and flute.

3. Sugar and spice ter meet ya! I'm Leeds United ter Kettle and Hob the match tonight.

The Science of Reading Language Comprehension Continued

1. I've nah nickle and dime to eat! I'll just 'ave Everton Toffee.

2. I can't find the Peckham Rye that goes with me whistle and flute.

3. Sugar and spice ter meet ya! I'm Leeds United ter Kettle and Hob the match tonight.

1. I've no time to eat! I'll just have coffee.

2. I can't find the tie that goes with my suit.

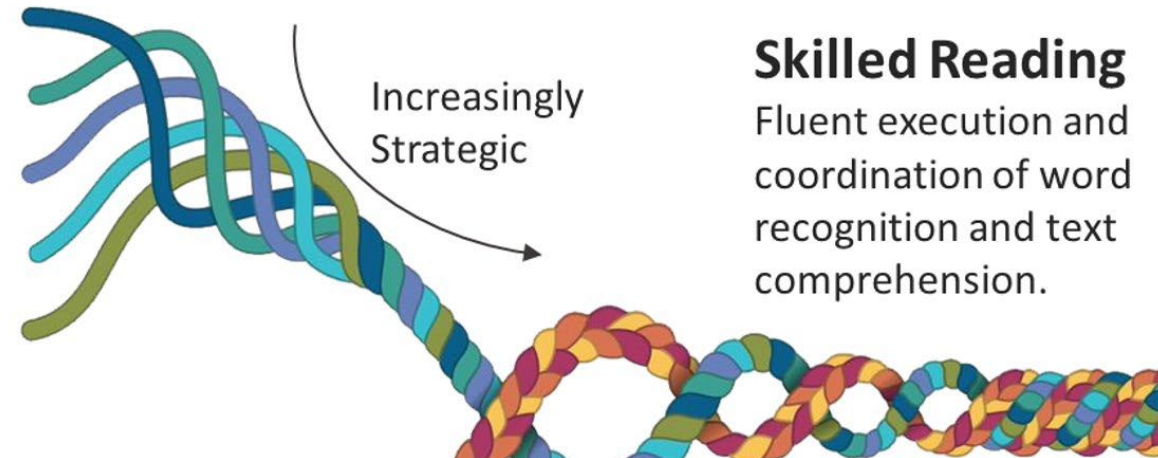3. Nice to meet you! I'm excited to watch the match tonight.

The Science of Reading – Simple View of Reading

Level	Word Recognition (WR)	x	Language Comprehension (LC)	=	Reading Comprehension (RC)
Skilled Reader	100%	X	100%	=	100%
Poor WR	0%	X	100%	=	0%
Poor LC	100%	X	0%	=	0%
Weak WR & LC	50%	X	50%	=	25%
Weak WR & Strong LC	50%	X	100%	=	50%
Strong WR & Weak LC	100%	X	50%	=	50%

The Science of Reading – Scarborough's Reading Rope

Language Comprehension
- Background Knowledge
- Vocabulary Knowledge
- Language Structures
- Verbal Reasoning
- Literacy Knowledge

Word Recognition
- Phonological Awareness
- Decoding (and Spelling)
- Sight Recognition

Increasingly Strategic

Increasingly Automatic

Skilled Reading
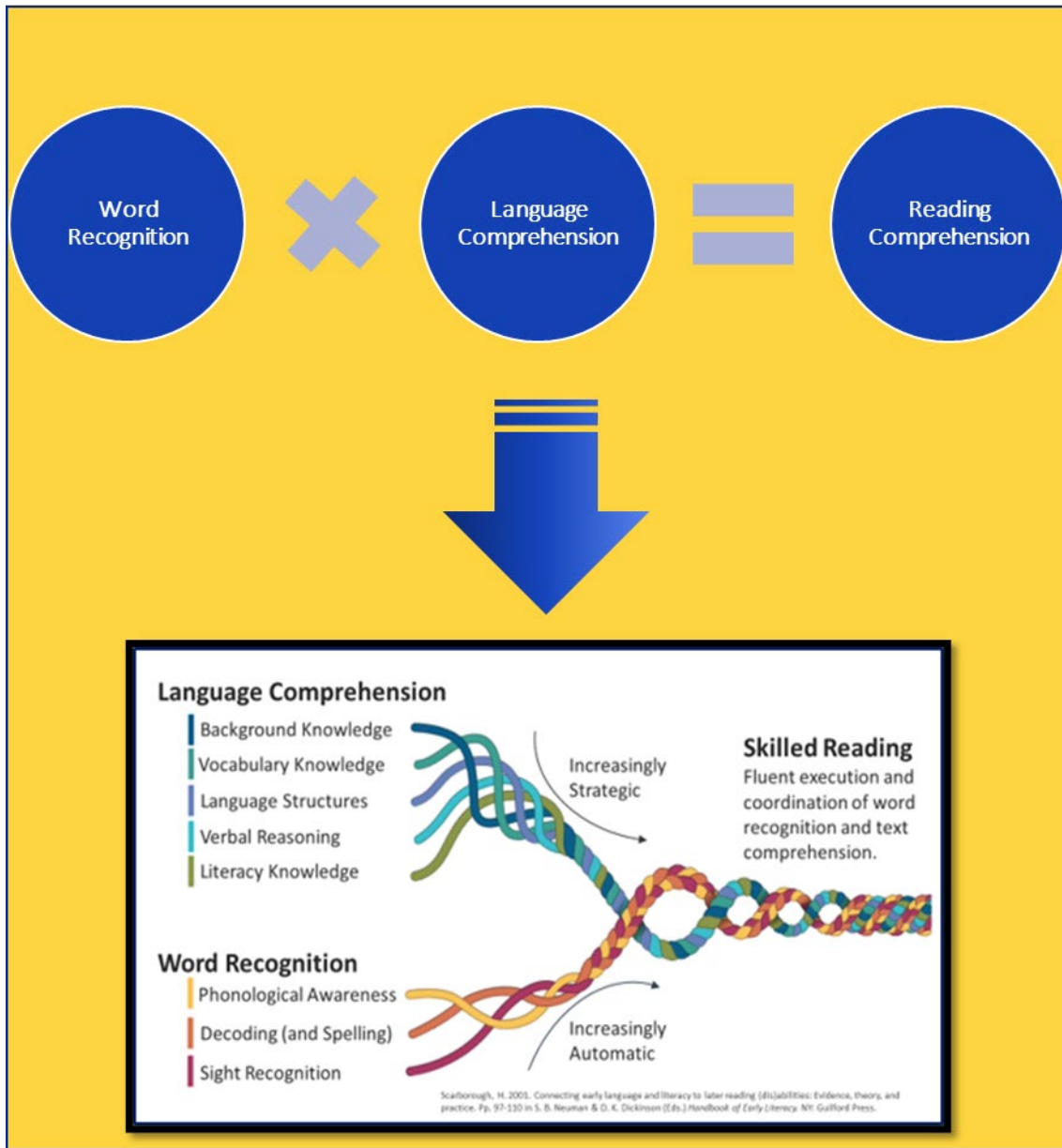Fluent execution and coordination of word recognition and text comprehension.

Scarborough, H. 2001. Connecting early language and literacy to later reading (dis)abilities: Evidence, theory, and practice. Pp. 97-110 in S. B. Neuman & D. K. Dickinson (Eds.) *Handbook of Early Literacy*. NY: Guilford Press.

Foundations of Reading Success

What and How to Teach Children to Read

Word Recognition × Language Comprehension = Reading Comprehension

Language Comprehension
- Background Knowledge
- Vocabulary Knowledge
- Language Structures
- Verbal Reasoning
- Literacy Knowledge

Word Recognition
- Phonological Awareness
- Decoding (and Spelling)
- Sight Recognition

Increasingly Strategic

Skilled Reading
Fluent execution and coordination of word recognition and text comprehension.

Increasingly Automatic

Scarborough, H. 2001. Connecting early language and literacy to later reading (dis)abilities: Evidence, theory, and practice. Pp. 97-130 in S. B. Neuman & D. K. Dickinson (Eds.) Handbook of Early Literacy. NY: Guilford Press.

Key Instructional Areas

Word Recognition/Decoding

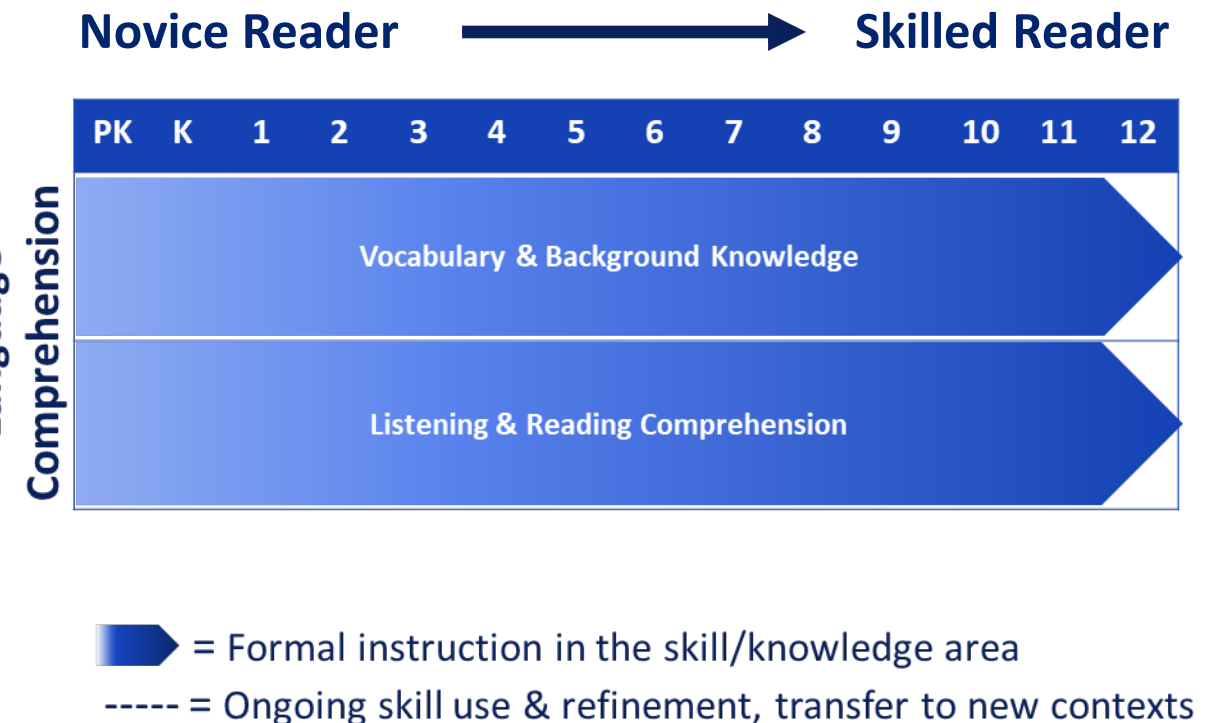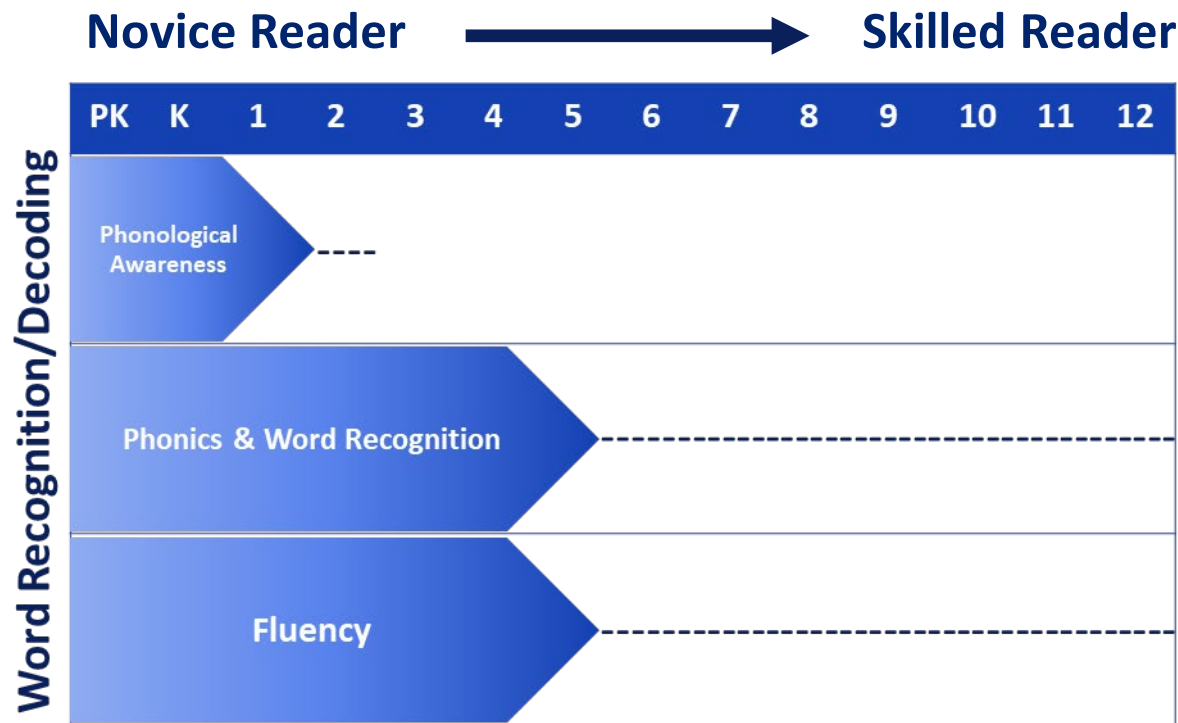- Phonological Awareness
- Phonics & Word Recognition
- Fluency

Language Comprehension

- Vocabulary & Background Knowledge
- Listening & Reading Comprehension
  - Language Structure
  - Verbal Reasoning
  - Literacy Knowledge
  - *Reading Comprehension Strategies*

Learning Progression for Developing Skilled Readers
Timeline for Key Instructional Areas

Foundations of Reading Success

Explicit & Systematic Instructional Practices

The most effective approach to teaching reading is through a structured approach that relies on the use of explicit and systematic instruction.

(e.g., Petscher et al., 2020, Gersten et al., 2009)

Explicit

An instructional approach that includes clear explanations, modeling, practice with specific feedback, and a gradual release towards independence until skills are mastered.

(e.g., Hughes et al., 2017)

Systematic

Skills are taught in an ordered manner, such as from less complex to more complex

(e.g., Castles et al., 2018)

Foundations of Reading Success

Aligned Assessment

An important part of the explicit and systematic instruction model, and Science of Reading, is frequent and brief direct assessment of skills being taught.

The Science of Reading requires screening and progress monitoring using reliable and validated measures.

Example: Curriculum-Based Measurement

The purpose of such assessment is to assess the instructional environment and ensure it's the best environment for each learner.

Castles et al., 2018; Gersten et al., 2009; Hughes et al. 2017; Petscher et al., 2020

Effective Instruction for All Students

Why is this approach to instruction so important?

■ Learn to read from most forms of instruction - ~30%

■ Require explicit, systematic, code-based reading instruction - ~50%

■ Require explicit, systematic, code-based reading instruction with intensification - ~20%
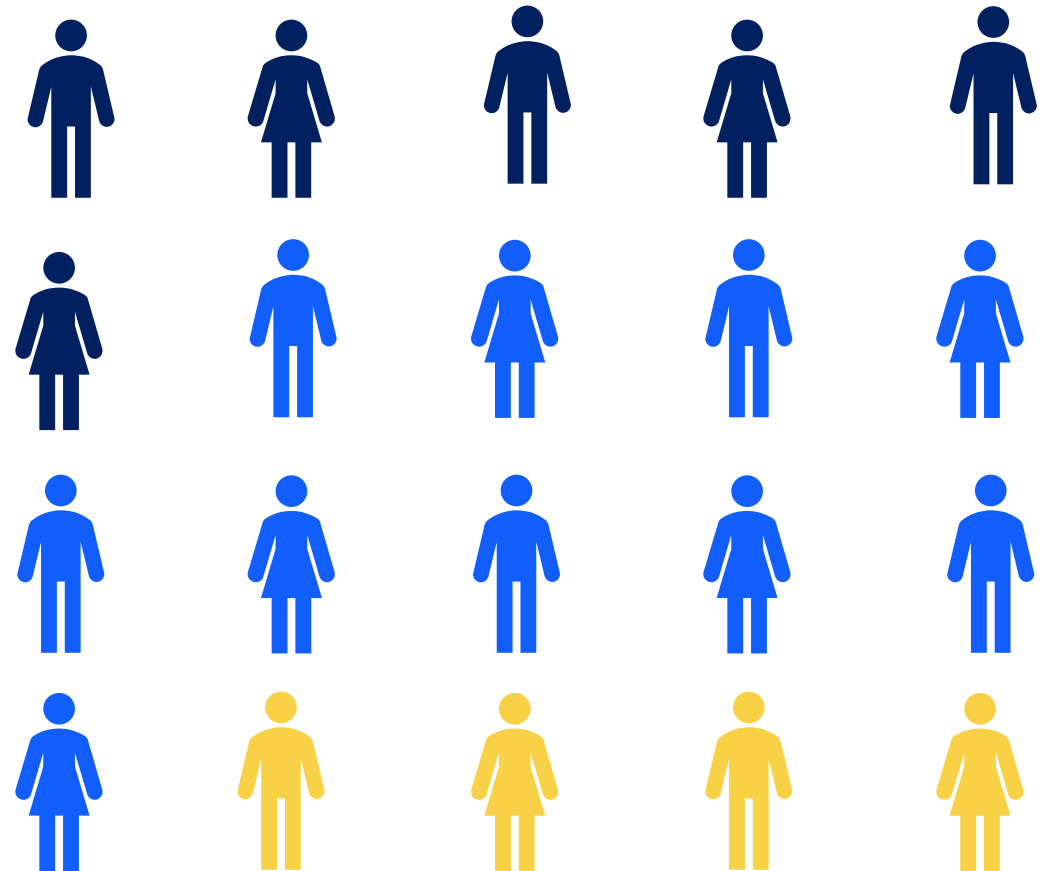
Foundations of Reading Success

Dispelling Myths

Practices with Insufficient Evidence

- **Whole language approaches**
- **Balanced literacy approaches**
- **Three-cuing system**
- **Sustained silent reading**
- **Multi-sensory approaches**

Foundations of Reading Success

Dispelling Myths Continued

Ineffective Practices

- **Programs targeting auditory, visual, or working memory systems**

- **Colored overlays**

e.g., Castles et al., 2018; Petscher et al., 2020

Stop & Think

What are your thoughts and reactions to the information presented so far?

What is similar or different to what you have previously learned about teaching students to read?

Given this information and the limited time we have with students, has this shifted your thinking in how you might work with students?

Teaching Students to Read

Leveraging Key Instructional Areas to Develop Literacy Proficiency

Teaching Students to Read

Word Recognition

- **Word recognition involves quickly and accurately translating alphabetic text into oral language sounds and identifiable words.**

- **Developing the skill to recognize written words with automaticity permits readers to focus on understanding the meaning of text.**

Word Recognition Instructional Areas

- **Phonological Awareness**
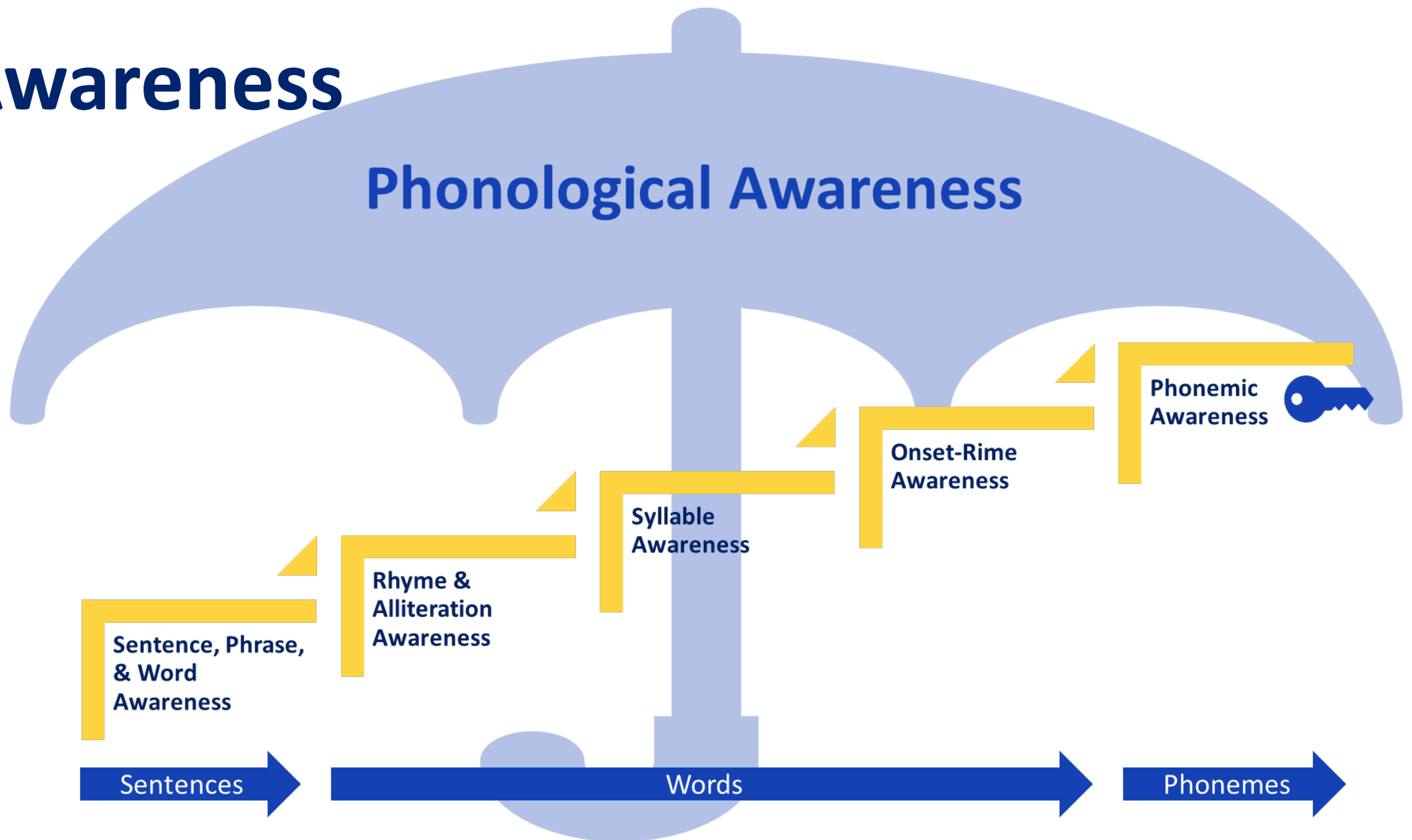- **Phonics & Word Recognition**
- **Fluency**

Teaching Students to Read
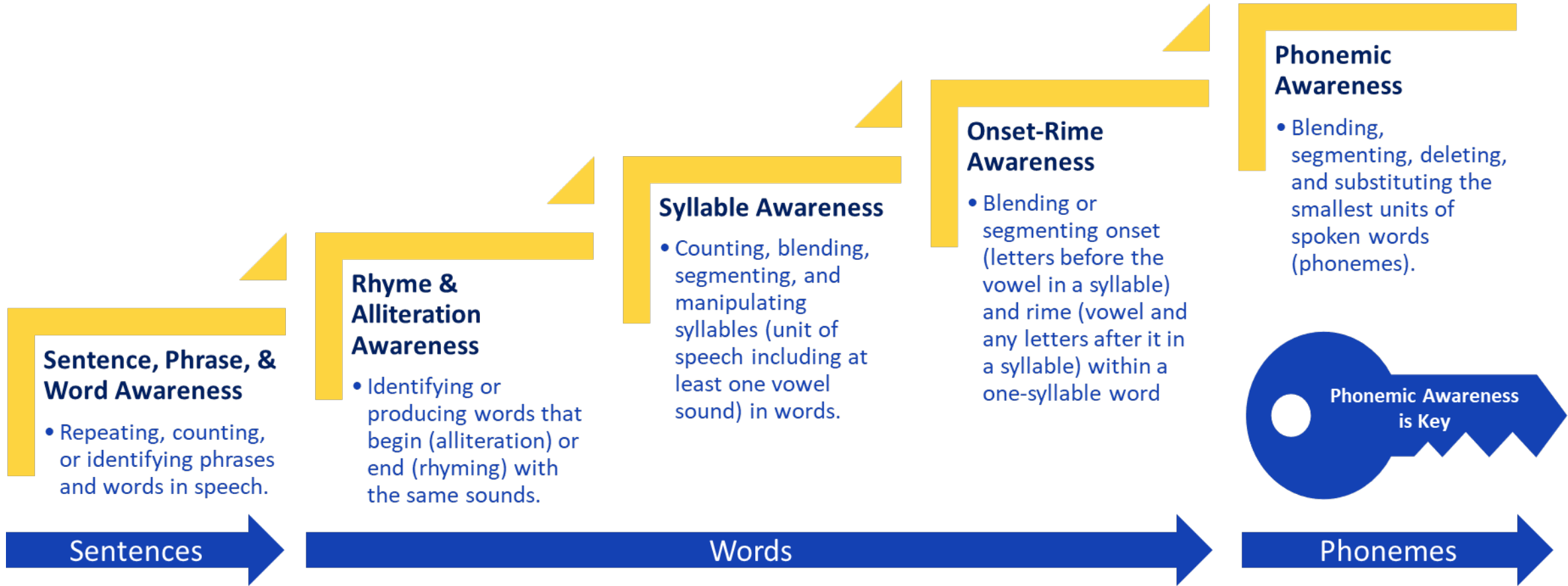## Phonological Awareness

"…awareness of all levels of the speech sound system, including word boundaries, stress patterns, syllables, onset-rime units, and phonemes"

Awareness

Phonological Awareness

Sentence, Phrase, & Word Awareness

Rhyme & Alliteration Awareness

Syllable Awareness

Onset-Rime Awareness

Phonemic Awareness

Sentences → Words → Phonemes

Carroll et al., 2003; Castles et al., 2018; Foorman et al., 2016; Kilpatrick, 2015; Moats, 2020

Phonological Skills Progression

WHAT is Phonological Awareness?

Phonemic Awareness

- Blending, segmenting, deleting, and substituting the smallest units of spoken words (phonemes).

Onset-Rime Awareness

- Blending or segmenting onset (letters before the vowel in a syllable) and rime (vowel and any letters after it in a syllable) within a one-syllable word

Syllable Awareness

- Counting, blending, segmenting, and manipulating syllables (unit of speech including at least one vowel sound) in words.

Rhyme & Alliteration Awareness

- Identifying or producing words that begin (alliteration) or end (rhyming) with the same sounds.

Sentence, Phrase, & Word Awareness

- Repeating, counting, or identifying phrases and words in speech.

Phonemic Awareness is Key

Sentences → Words → Phonemes

Carroll et al., 2003; Castles et al., 2018; Foorman et al., 2016; Kilpatrick, 2016; Moats, 2020

Teaching Students to Read
Phonics & Word Recognition

Phonics is an approach to teaching "letter-sound correspondences and spelling patterns, and learning how to apply this knowledge to...reading"

National Reading Panel & National Institute of Child Health and Human Development, 2000, p. 2-89

"Word recognition refers to the ability to decode and read printed words regardless of context."

Wanzek, Al Otaiba, & McMaster, 2020, p. 35

Teaching Students to Read
Phonics & Word Recognition Continued

Vowel	Middle of Syllable	End of Word	Examples
long *e*	*ee, ea*	*y*	creep, eat, baby
long *a*	*a_e, ai*	*ay*	race, rain, ray
long *i*	*i_e, igh*	*y*	ice, sight, spy

Teaching Students to Read
Phonics & Word Recognition Instructional Practices

- Explicit, systematic instruction of letter names and letter-sound correspondences

- Initial instruction should include a mixture of short vowels and consonants

- Explicit instruction of segmenting and blending

- Teach syllable types, word families, word analysis skills, and morphemes

- Teach irregular high frequency words holistically

- Provide opportunities to practice reading words in isolation and in the context of connected text

- Practice applying phonics skills using decodable texts

Oral Reading Fluency

Fluency

Kuhn & Stahl, 2003

"The ability to read a text quickly, accurately, and with proper expression."

- *National Reading Panel & National Institute of Child Health and Human Development , 2000, p. 3-5*

Automaticity

Accuracy

Prosody
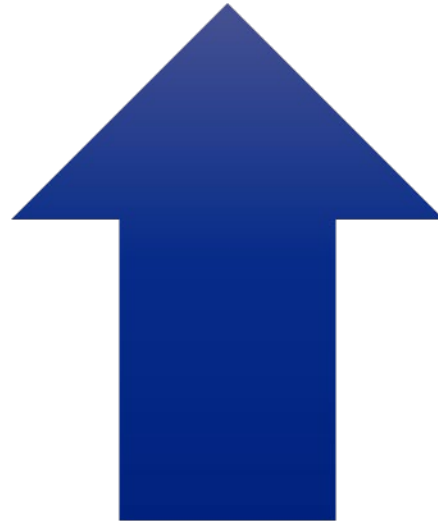
Oral Reading Fluency
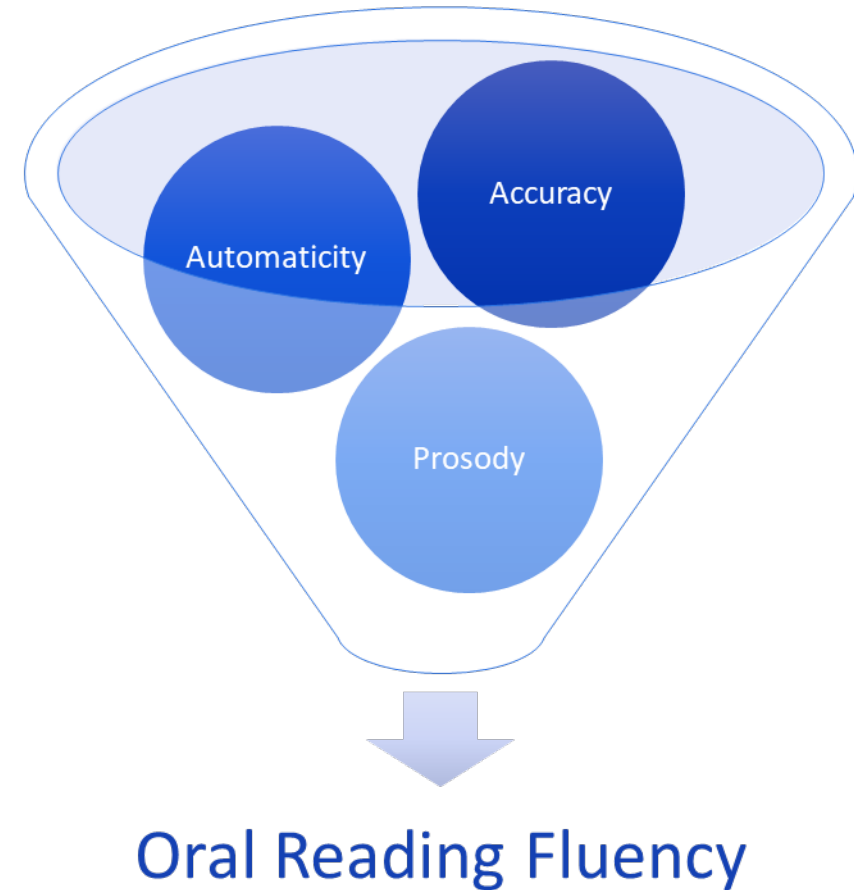
Teaching Students to Read

Fluency

Reading fluency is the bridge between decoding print and comprehending print.

Oral reading fluency is the strongest predictor of comprehension and overall reading proficiency.

Fluent reading leads to greater enjoyment of reading and increased motivation.

Hasbrouck & Glaser, 2012; International Literacy Association, 2018; Paige et al., 2019; Petscher & Kim, 2011; Ruddy et al., 2018; Skinner, 1998

Fluency

Fluent vs Disfluent Reading

Fluent Reading

- Text read in meaningful units
- Pauses at appropriate places aligned with syntax and punctuation
- Reading sounds like natural speech
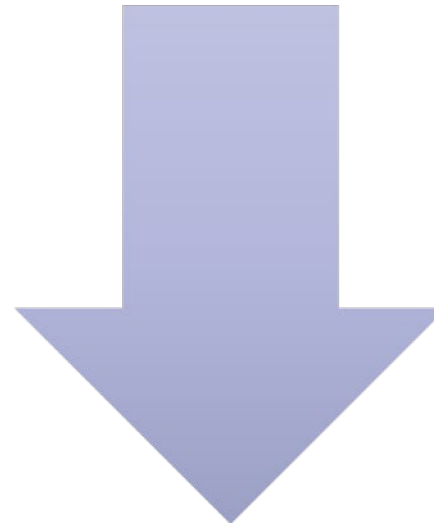
Disfluent Reading

- Text read word-by-word or two-word phrases
- Inappropriate pauses not aligned with syntax and punctuation
- Reading sounds "choppy" or robotic

Fluency Instructional Practices

- **Practicing connected/continuous texts**
- **Independent reading level (> 95% word accuracy)**
- **Provide modeling, scaffolding and feedback**
- **Teach self-monitoring and self-correction**
- **Provide ample structured practice**

Exposure to and practice with print leads to improved word recognition, knowledge, and text comprehension.

Castles et al., 2018

Teaching Students to Read

Language Comprehension

- **Understanding language and word recognition are of equal importance in proficient reading.**

- **Lack of language comprehension limits reading comprehension even if word recognition skills are learned to mastery.**

- **Language comprehension's role in predicting reading comprehension increases as children grow older (Verhoeven & van Leeuwe, 2012).**

Language Comprehension

Many young children enter school proficient with foundational oral language skills.

Foundational oral language skills alone are not sufficient for proficient reading comprehension.

Differences between oral and written language make understanding text more difficult than spoken words.

Teaching Students to Read

Language Comprehension Continued

Written vs. Oral Language

- Written language lacks visual cues (e.g., body language) and is unresponsive to the reader's body language (e.g., puzzled expression).

- Text cannot be questioned like a conversational partner.

- Written language does not easily convey prosodic information used to express meaning in spoken language.

- Text is more complex and formal than day-to-day conversations.

- Written language is de-contextualized and less grounded in the reader's current situation.

- Oral language is typically spontaneous and fluid while text is static.

**Language Comprehension
Key Instructional Areas**

- **Vocabulary & Background Knowledge**
  - Vocabulary
  - Background Knowledge
- **Listening & Reading Comprehension**
  - Language Structures
  - Verbal Reasoning
  - Literacy Knowledge
  - Reading Comprehension Strategies

Vocabulary & Background Knowledge

Vocabulary

Understanding the meaning of words within a text is essential for comprehending the text.

Vocabulary includes:

- Semantics
- Morphology
- Number of known words
- Multiword phrases, idioms, and figurative language

Vocabulary is necessary for understanding language and correlates with reading comprehension.
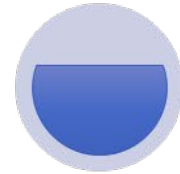
Vocabulary & Background Knowledge
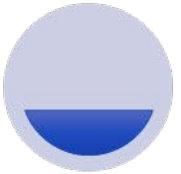## Vocabulary Instructional Tiers

Tier 1

Words that the majority of students already know the meaning

Tier 2

Words that students are typically unacquainted with but convey familiar concepts

Tier 3

Low frequency words that students are unlikely to know and are domain specific

"Words are most likely to be "owned" if they are learned within a network of related ideas pertinent to a topic, theme, or text whose meanings are the primary focus of instruction."

Moats, 2020, p. 234

Vocabulary Instructional Practices

- Explicit instruction in vocabulary for Tiers 2 and 3 words in context of texts
- Briefly teach essential words before reading that are essential to the text
- Teach general and subject area academic vocabulary
- Make connections between new words and known words
- Revisit and reinforce newly taught words often
- Teacher-student talks
- Relate word meanings to students' own experiences
- Explicit instruction in morphology
- Teach word learning strategies
- Dictionary use
- Explicit instruction on when and how to use context clues
- Activities and text to develop word consciousness
- Semantic maps
- Visual representations
- Word hunts
- Word walls

Vocabulary & Background Knowledge

Background Knowledge

Adams, 2011; Hennessy, 2021; Vaughn et al., 2022

Proficient readers use background knowledge in the process of formulating a coherent understanding, or mental representation, of ideas expressed in text.

Background Knowledge includes:

- Cultural learning
- Concepts
- Facts
- Personal experiences

Strongly predicts a reader's ability to understand a text.

Writers assume readers have the background knowledge required to comprehend their text.

Vocabulary & Background Knowledge
Background Knowledge Instructional Practices

- Explicit teaching of background knowledge
- Opportunities to read complex, information rich text
- Reading text pertaining to a variety of subjects
- Making explicit connections between new vocabulary and/or ideas to familiar vocabulary and/or ideas
- Students should regularly review and revisit reading content
- Relate ideas to experiences
- Activities to help students remember, or "activate", background knowledge
- Anticipation guides
- What do I know? What do I want to know? What have I learned? (KWL) charts

Listening & Reading Comprehension
Language Structures

- **Skilled readers understand that languages combine words, clauses, and sentences in predictable patterns essential to communicating meaning.**

- **Language structures include:**
  - Syntax
  - Grammar
  - Tone
  - Rules for using language for different purposes and context

- **Understanding the structures of language and the development of syntactic awareness helps skilled readers comprehend text.**

Listening & Reading Comprehension
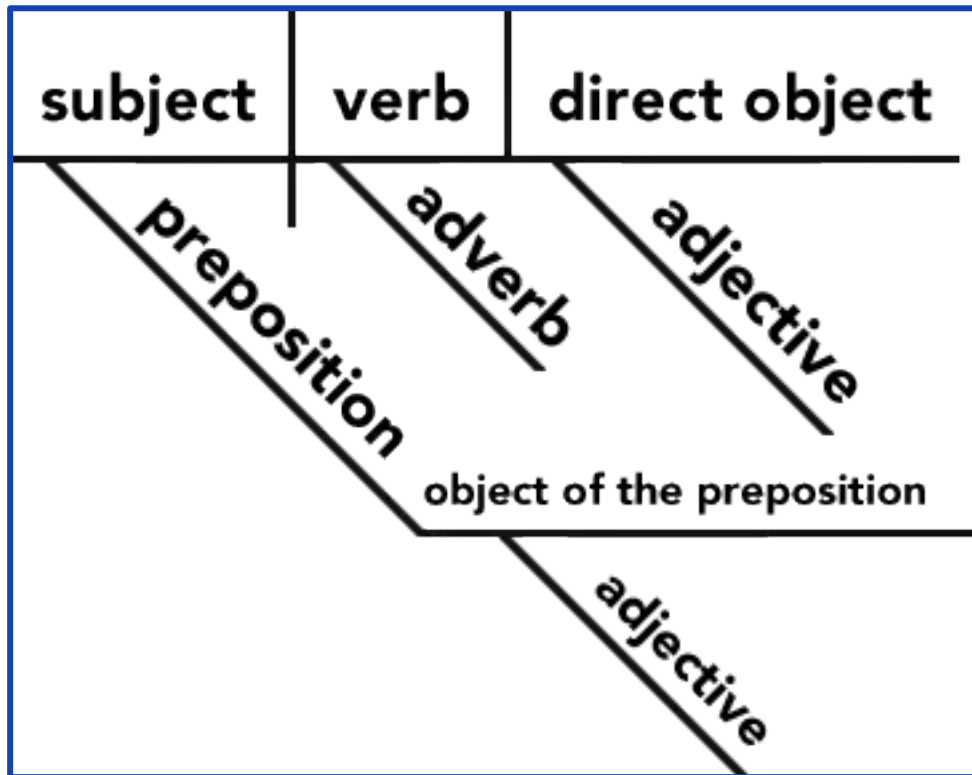
Academic versus Social Language Structures

Academic Language vs. Social Language

Listening & Reading Comprehension
Language Structures Instructional Practices

- Sequential explicit instruction on print, syntax, and grammar
- Grammar-based deconstruction activities:
  - Parts of speech
  - Phrases and clauses
  - Sentences
- Writing exercises
- Cohesive ties and connectives activities
- Sentence combining and expansion
- Sentence diagramming
- Sentence anagrams
- Conversations with teacher modeling

Listening & Reading Comprehension

Verbal Reasoning

Fully understanding text requires logically joining together explicit and implicit ideas to form a rich mental model.

Verbal Reasoning includes:

- Inferences
- Integrating ideas
- Drawing conclusions
- Complex figures of speech

The ability of younger children to make inferences from oral language predicts reading comprehension.
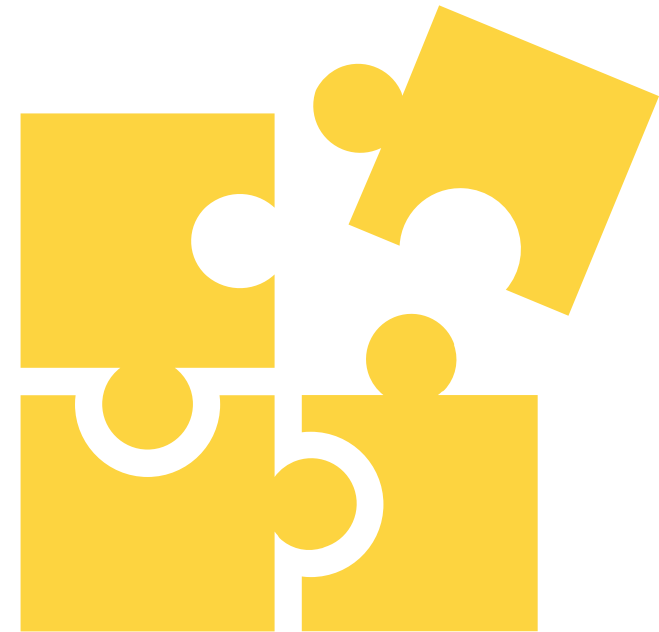
Verbal Reasoning Instructional Practices

- Explicitly teach inferencing using strategies to self-check understanding
- Explicitly teach inferencing using appropriate and accurate background knowledge
- Use graphic organizers to prompt and support inferencing
- Model verbal reasoning through think-aloud activities (e.g., identification of inference clues, integration of background knowledge)
- Teach how to use cohesive ties and connectives in meaning-making
- Anticipation guides
- Concept maps
- Provide guiding questions

"Children with poor reading comprehension do not engage in the same level of integrative and inferential processing as good comprehenders to combine the meaning of successive sentences that is needed to ensure coherent and full understanding of a text's meaning."

Oak et al., 2015, p. 46

Listening & Reading Comprehension

Literacy Knowledge

Understanding that print has meaning, how print is organized, and awareness of the function of print in different contexts, are foundational skills for reading.

Literacy Knowledge:

- Concepts of print
- Literary forms
- Genres

Developing literacy knowledge requires explicit and systematic instruction.

Listening & Reading Comprehension
Literacy Knowledge Instructional Practices

- Explicitly teach print concepts to emergent and early readers
- Draw attention to all forms and functions of print (e.g., calendars, signs, websites)
- Describe characters, settings, significant details, and central ideas in texts
- Use story map/story sequence activities
- Demonstrate how illustrations and graphics provide information that support reading comprehension
- Compare and contrast literary forms (e.g., fiction, nonfiction, poetry, essays, etc.)
- Teach the structure, style, and purpose of literary genres
- Practice identifying genres from short reading passages

Listening & Reading Comprehension

Reading Comprehension Strategies

- **Reading comprehension strategies help students become aware of and actively improve their understanding of text.**

- **Strategies should be briefly taught and then reinforced during reading for:**

  - Beginning readers making sense of text
  - Older students struggling with reading comprehension

"Strategies have been described as intentional, metacognitive, and multi-step."

Hennessy, 2021, p.53

Hennessy, 2021; Shanahan et al., 2010

Listening & Reading Comprehension
Reading Comprehension Strategies Instructional Practices

- Explicitly model and teach self-monitoring and self-correction strategies

- Teach students to summarize sections of text to check for understanding

- Explicitly teach students to question, clarify, and make predictions while reading

- Explicitly teach students to find and justify answers to questions in text

- Explicitly teach routines for developing gist statements

- Support students in recognizing when they do not understand what they have read

Foorman et al., 2016; Oakhill et al., 2015; Vaughn et al., 2022

Exit Ticket

Why is teaching the practices supported by the science of reading vital for our society?

What is the most effective approach to teaching reading? Why?

What are the Key Instructional Areas that need to be taught for reading success? Which ones might you be able to infuse into your teaching?

Questions and Answers

Contact Us

Foundations of Effective Reading Instruction
Training Evaluation Survey

https://put in your own evaluation link here

Meeting Evaluation Survey

https://www.mysurveylink.com