

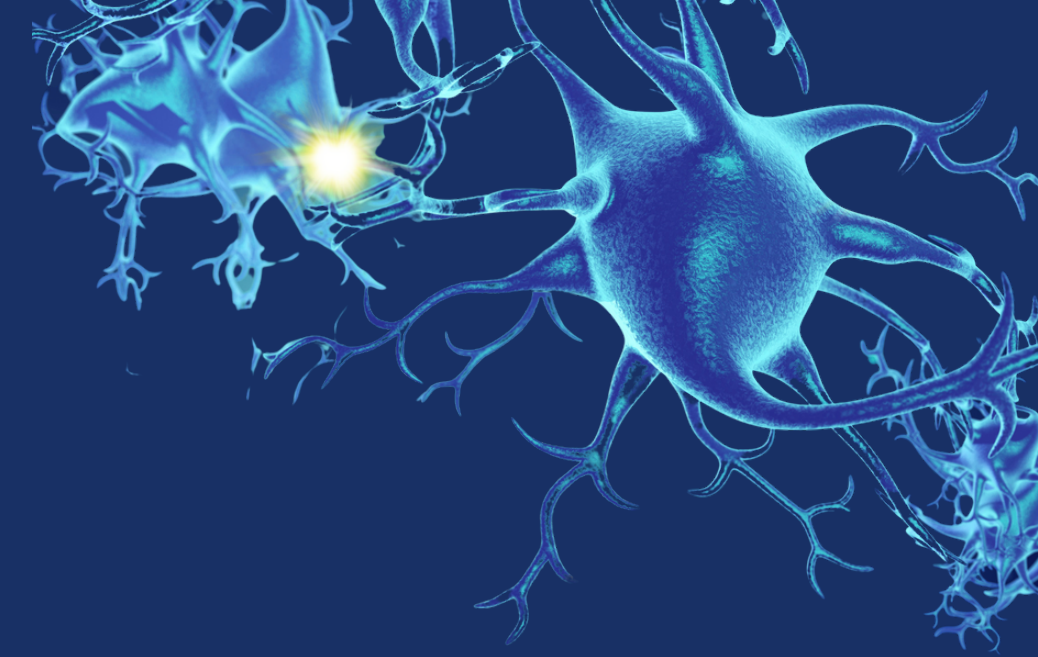
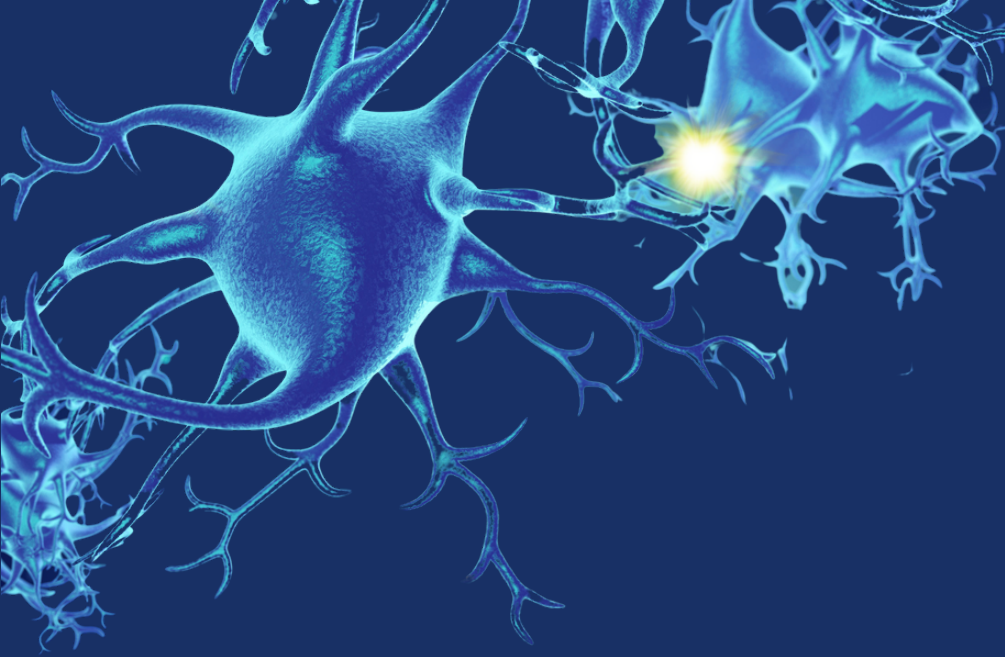


Science of Reading & Literacy

January 5, 2023

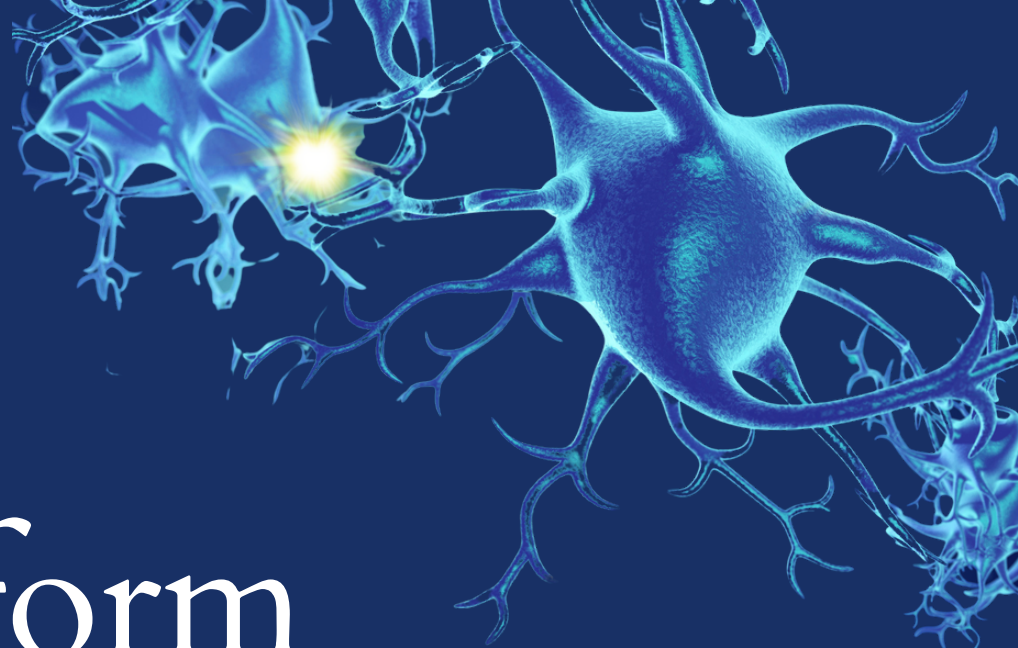
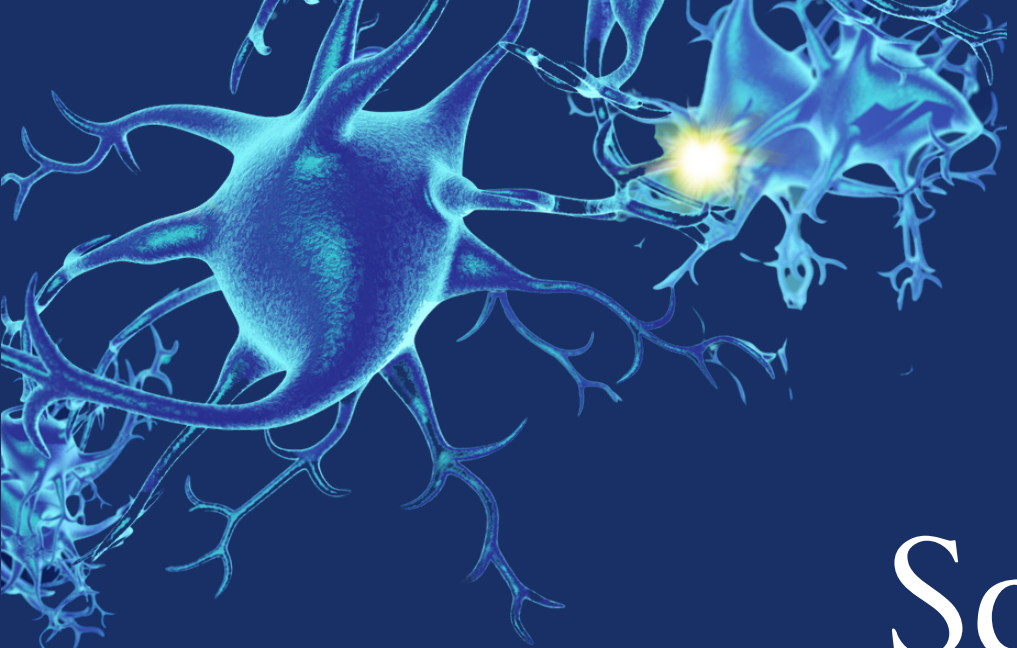


History of Literacy



"The attainment of reading skill has fascinated psychologists and invited more study than any other aspect of human cognition due to its social importance and complexity."

—Moats and Tolman, 2009, p. 31



Goals

Science

Inform

Theory

Practice

Explore

Action



“How do children learn to read?...The answer is the same for all children. Cultural, economic, and educational circumstances obviously affect children’s progress, but what they need to learn does not change.”

—Seidenberg, 2017, p. 101

Science of Reading

THE DEFINITION

What is the science of reading?

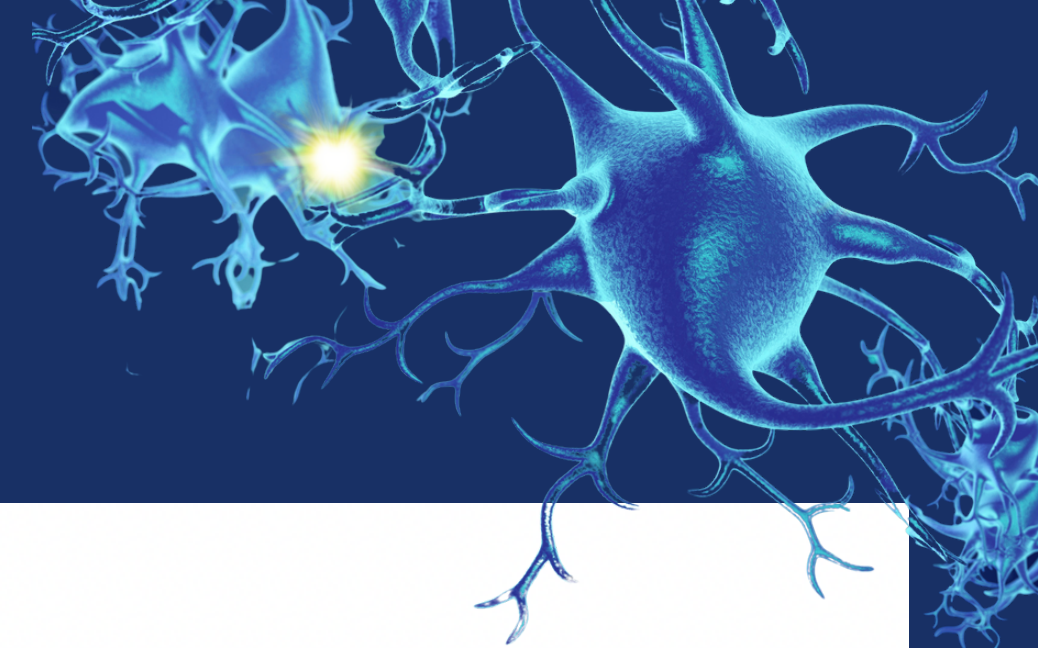
The **science of reading** is a vast, interdisciplinary body of scientifically-based research about reading and issues related to reading and writing.

This research has been conducted over the last five decades across the world, and it is derived from thousands of studies conducted in multiple languages. The science of reading has culminated in a preponderance of evidence to inform how proficient reading and writing develop; why some have difficulty; and how we can most effectively assess and teach and, therefore, improve student outcomes through prevention of and intervention for reading difficulties.

The science of reading is derived from researchers from multiple fields:

- Cognitive Psychology
- Communication Sciences
- Developmental Psychology
- Education
- Implementation Science
- Linguistics
- Neuroscience
- School Psychology



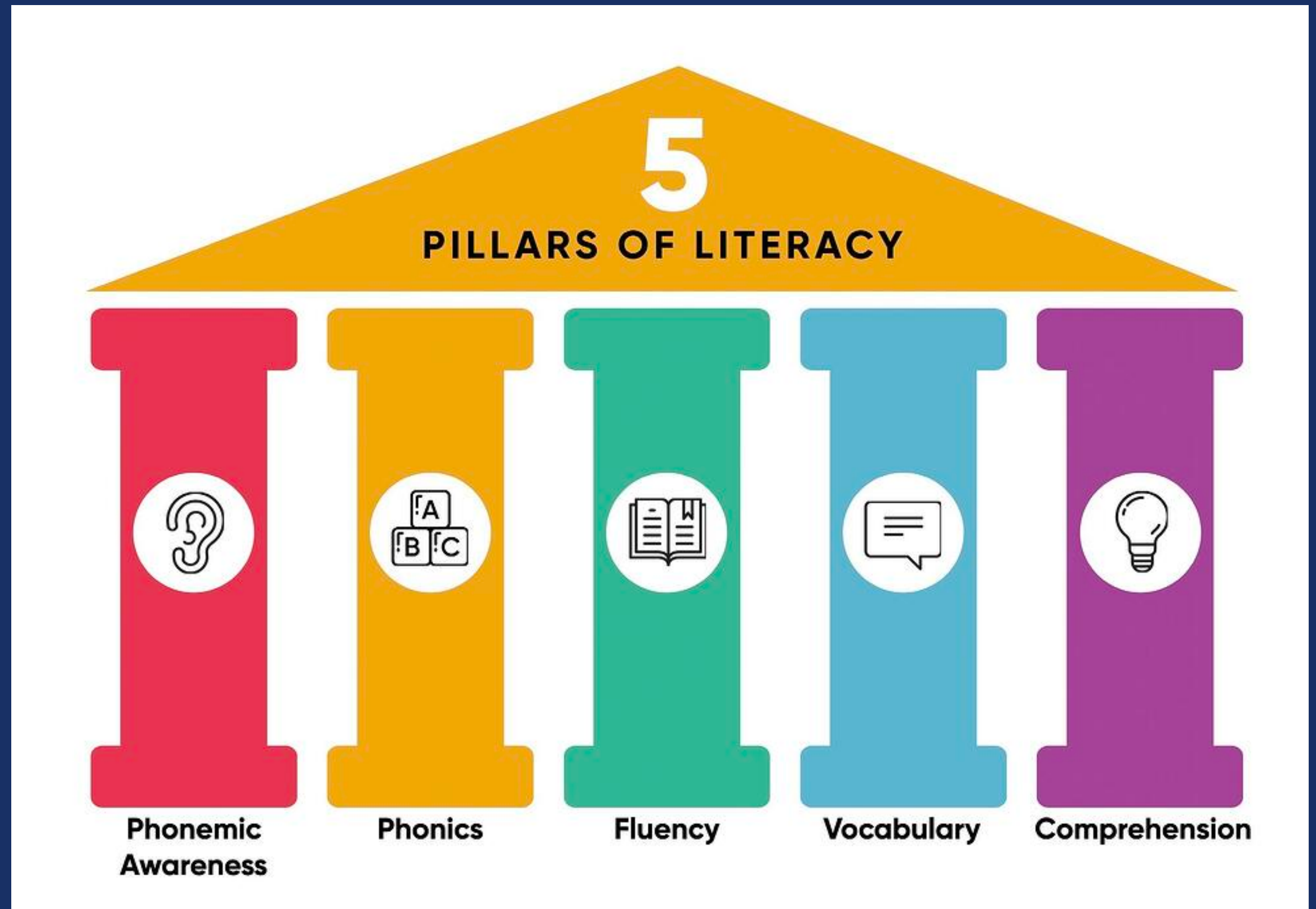
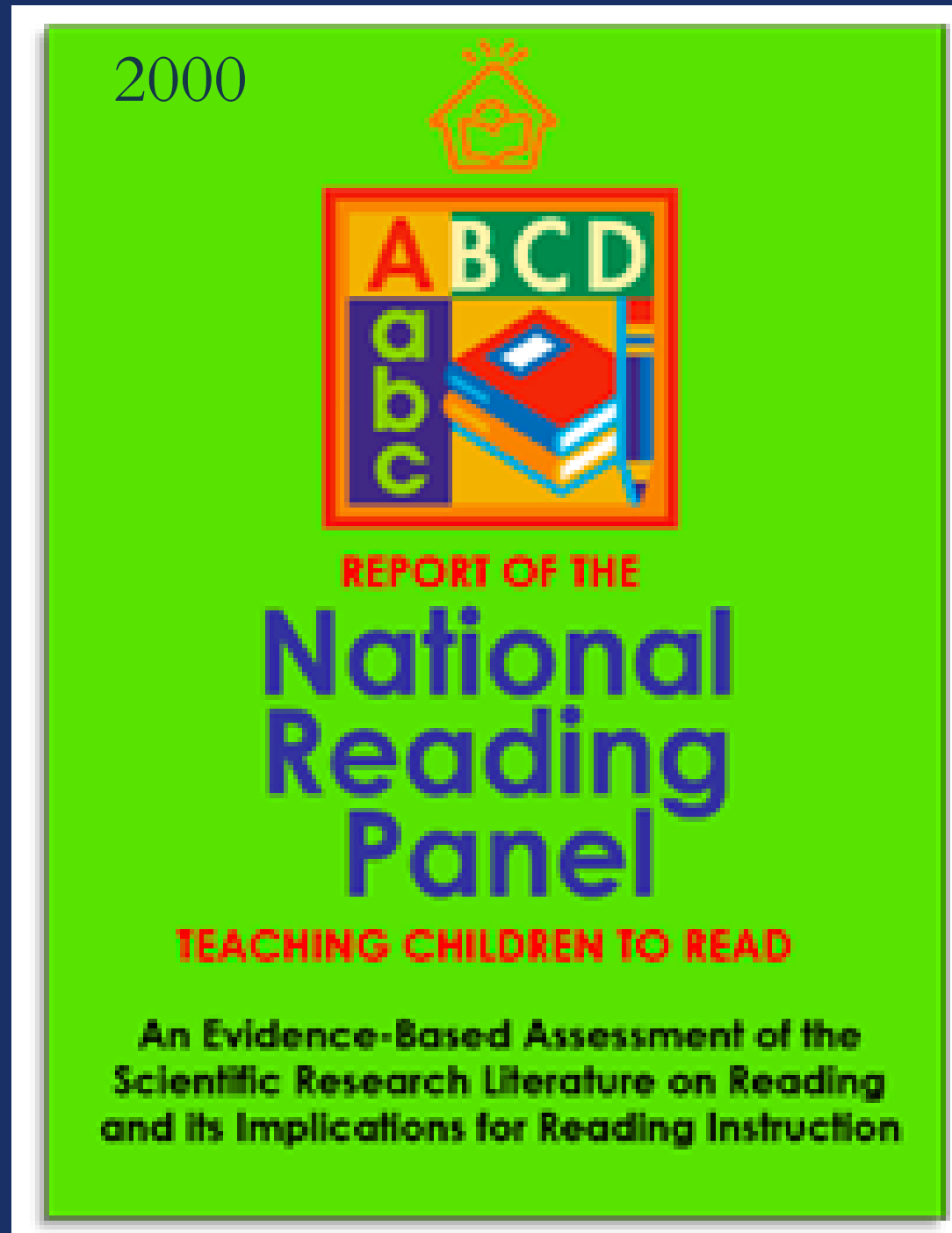


The Simple View of Reading

The Simple View of Reading, formulated by Philip Gough and William Tunmer in 1986, is a scientific theory demonstrating that proficient reading requires two main components.



National Reading Panel



Scarborough's Reading Rope

Scarborough's Rope, developed by Dr. Hollis Scarborough in 2001, further deconstructs decoding and language comprehension, the two parts of the Simple View of Reading, into explicit skills and instruction.

Language Comprehension

Background Knowledge
(facts, concepts, etc.)

Vocabulary
(breadth, precision, links, etc.)

Language Structures
(syntax, semantics, etc.)

Verbal Reasoning
(inference, metaphor, etc.)

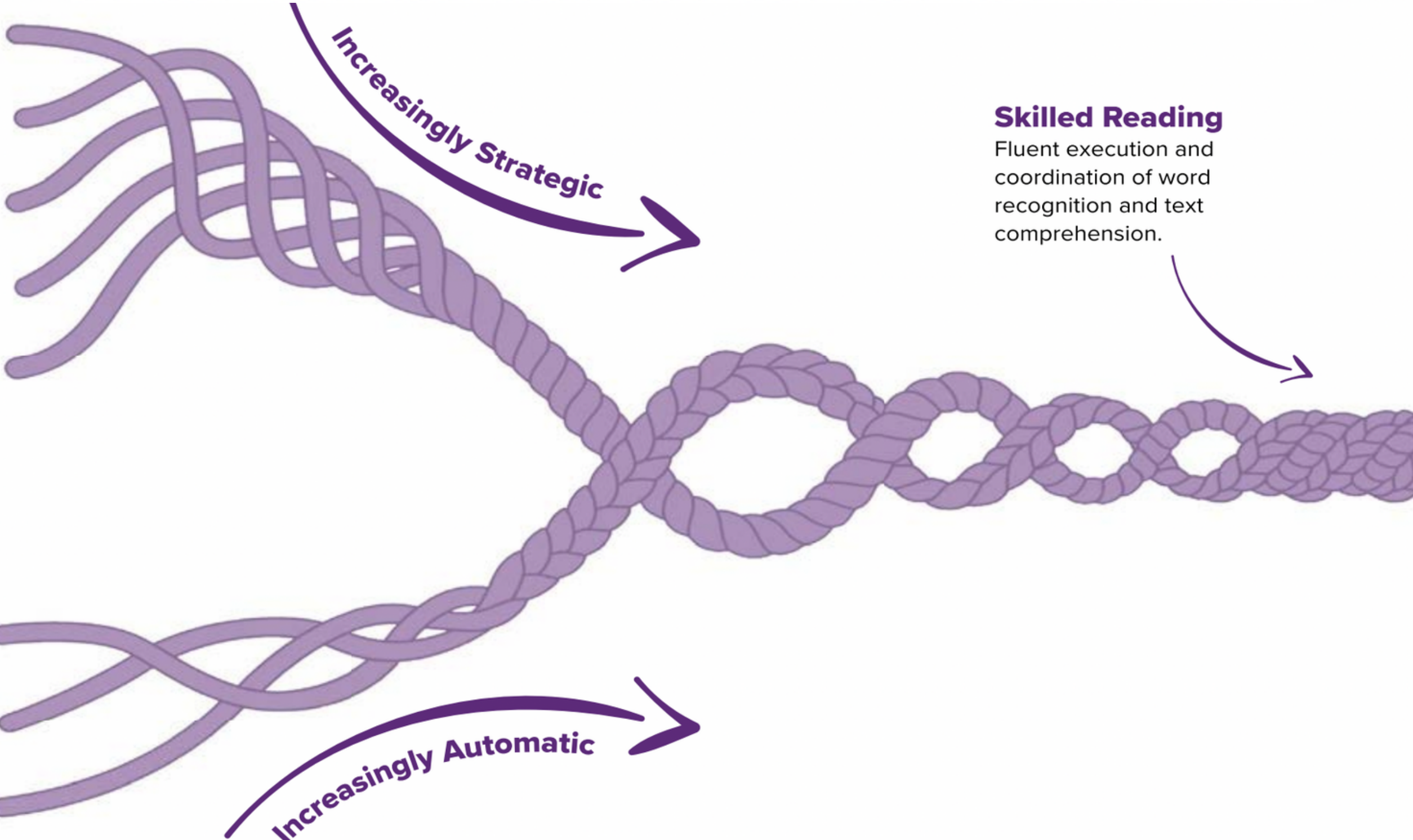
Literacy Knowledge
(print concepts, genres, etc.)

Word Recognition

Phonological Awareness
(syllables, phonemes, etc.)

Decoding
(alphabetic principle, spelling-sound correspondences)

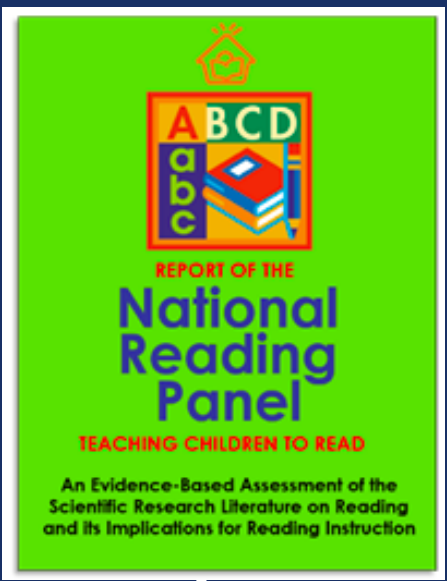
Sight Recognition
(of familiar words)



Skilled Reading

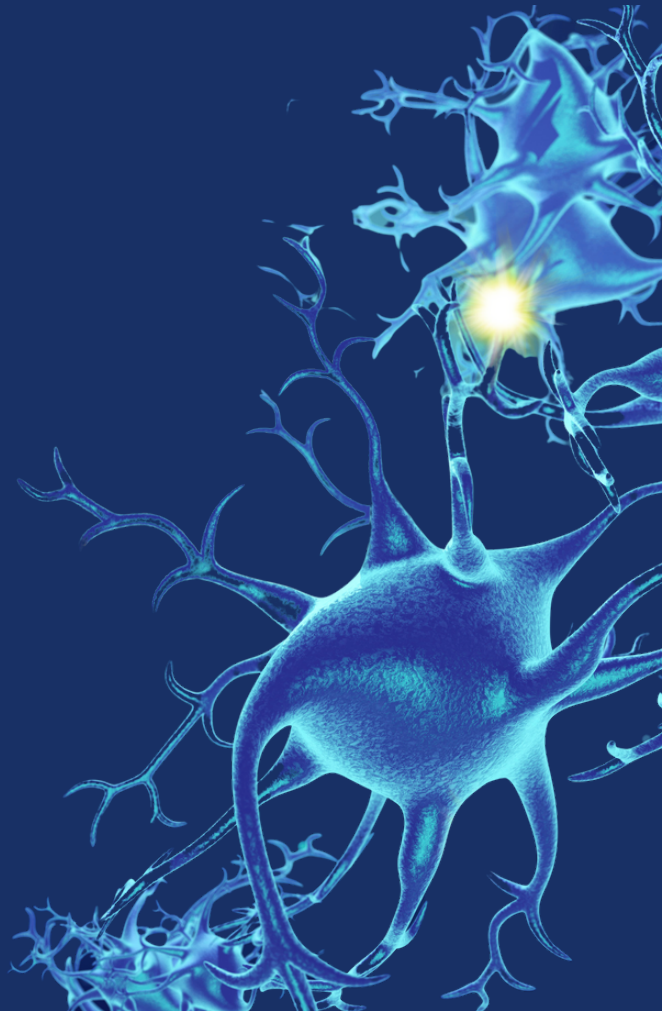
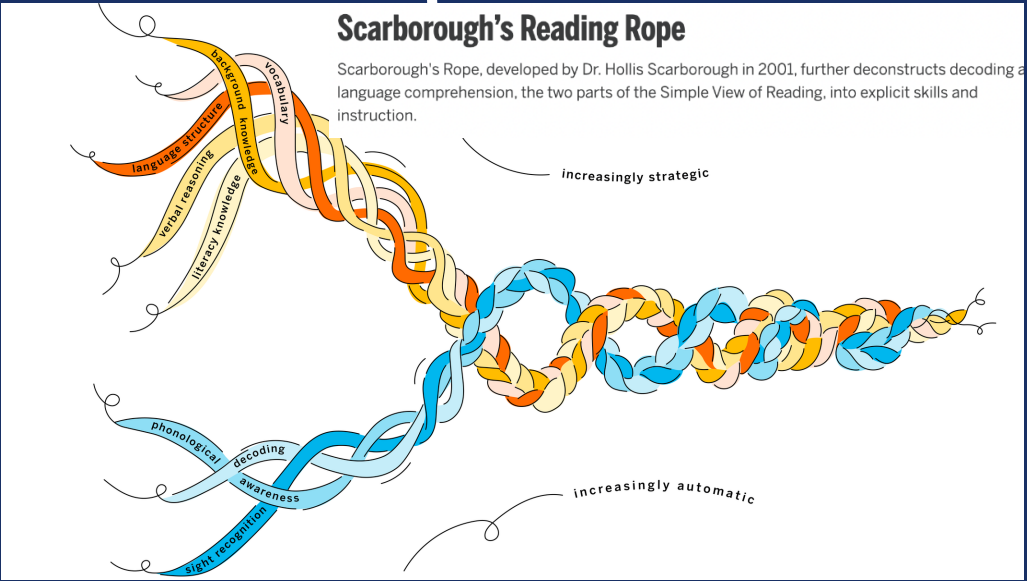
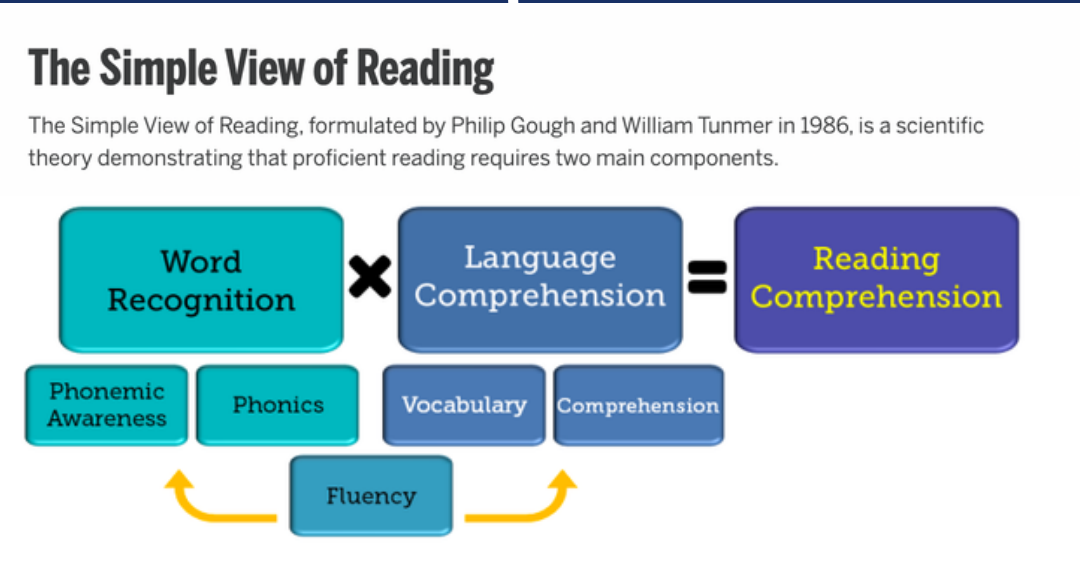
Fluent execution and coordination of word recognition and text comprehension.

INTERNATIONAL
LITERACY
ASSOCIATION

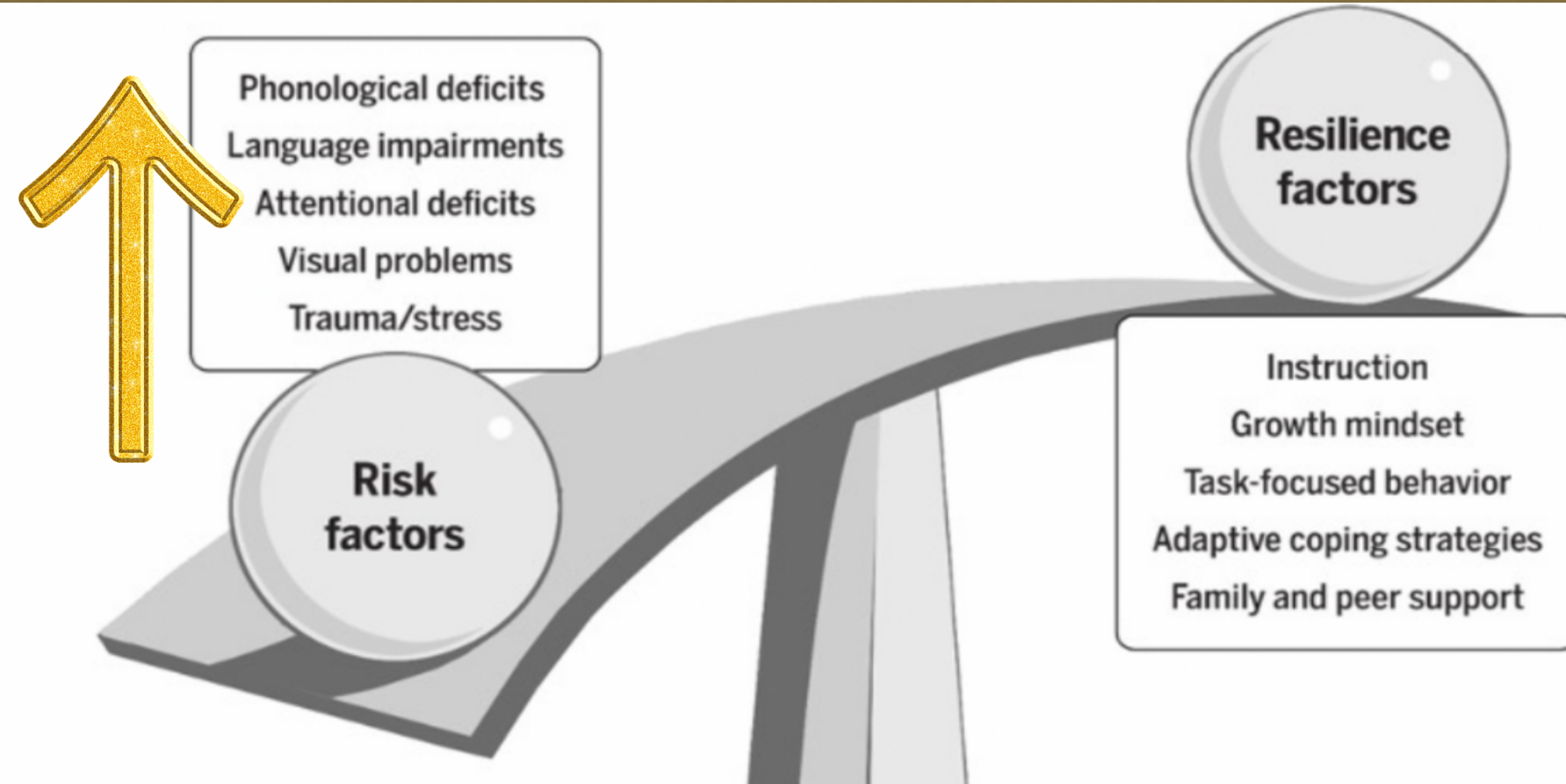
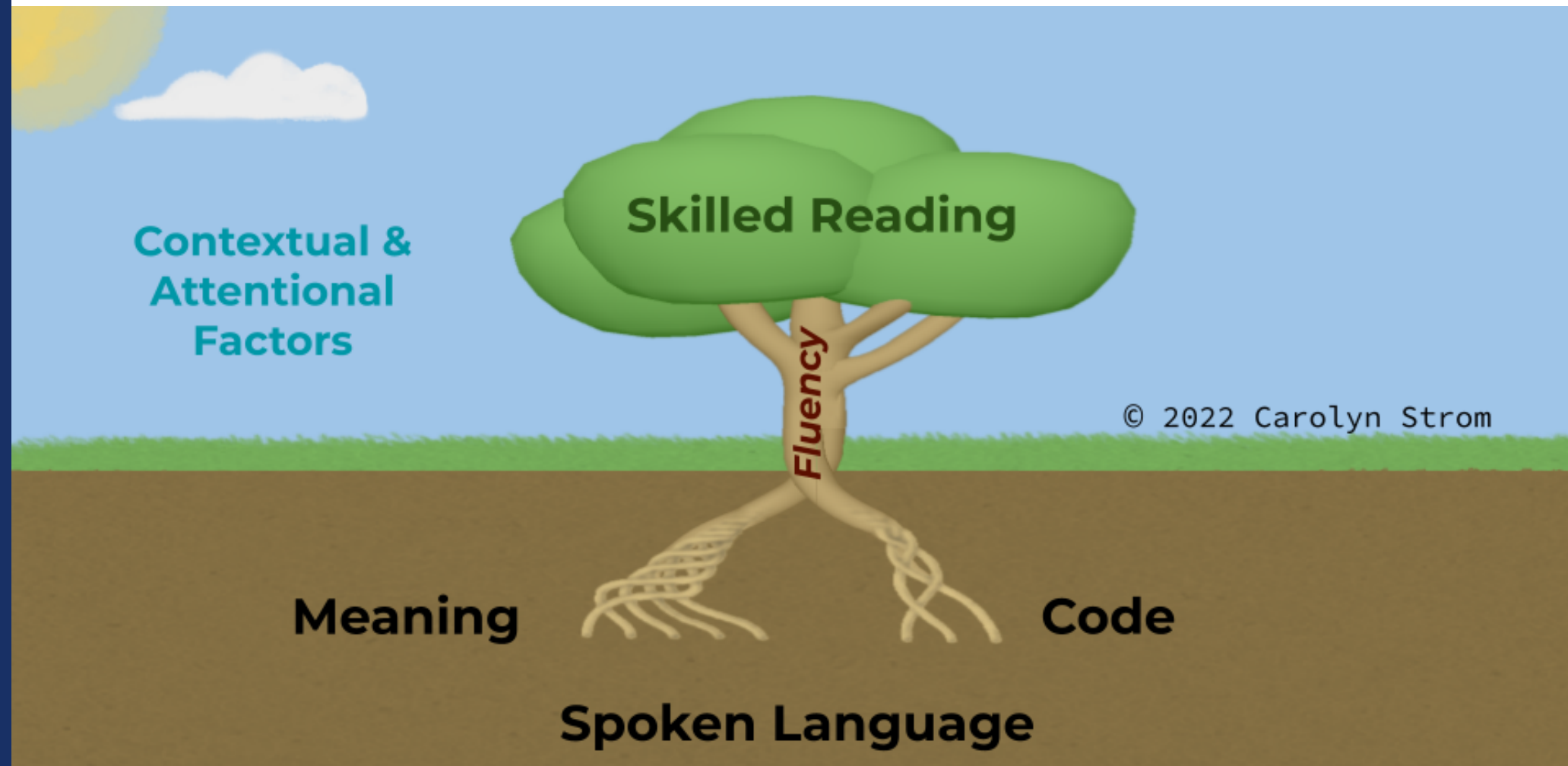


Watching students learn to read:
Magic.

Knowing how they get there:
Science!



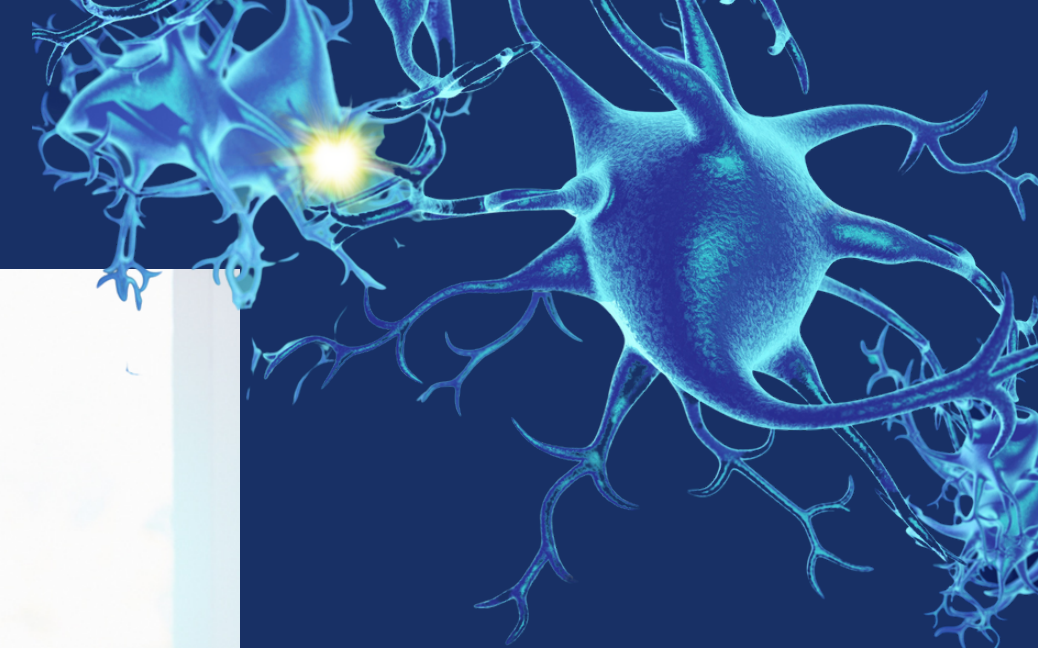
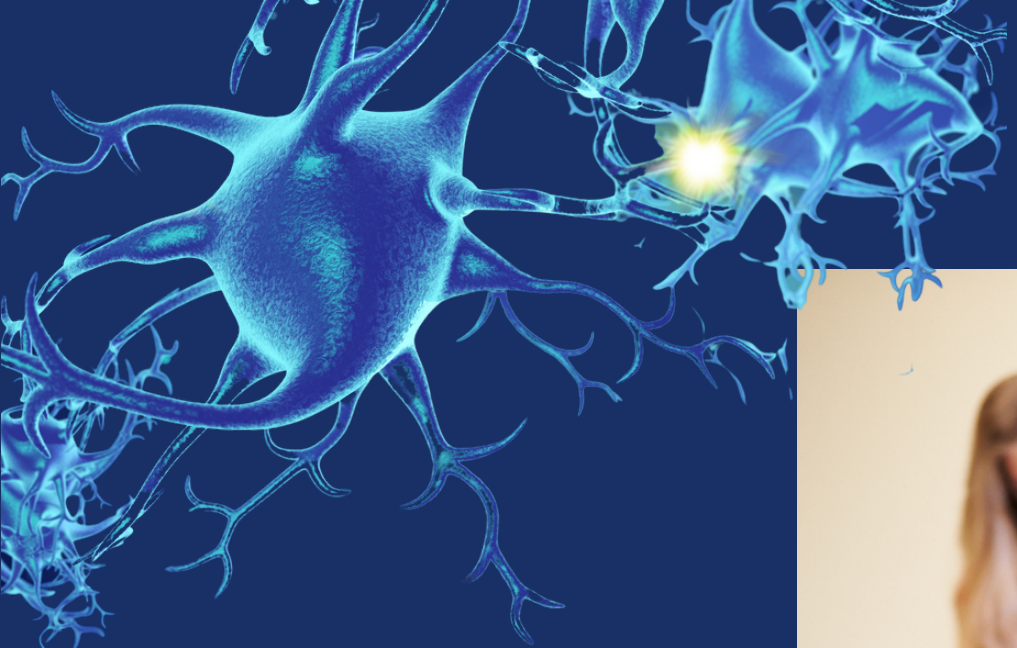
"You can't think about a tree without thinking of its environment the same way you should not be thinking about a kid's reading development without thinking of their environment."



What the Science of Reading is **NOT**

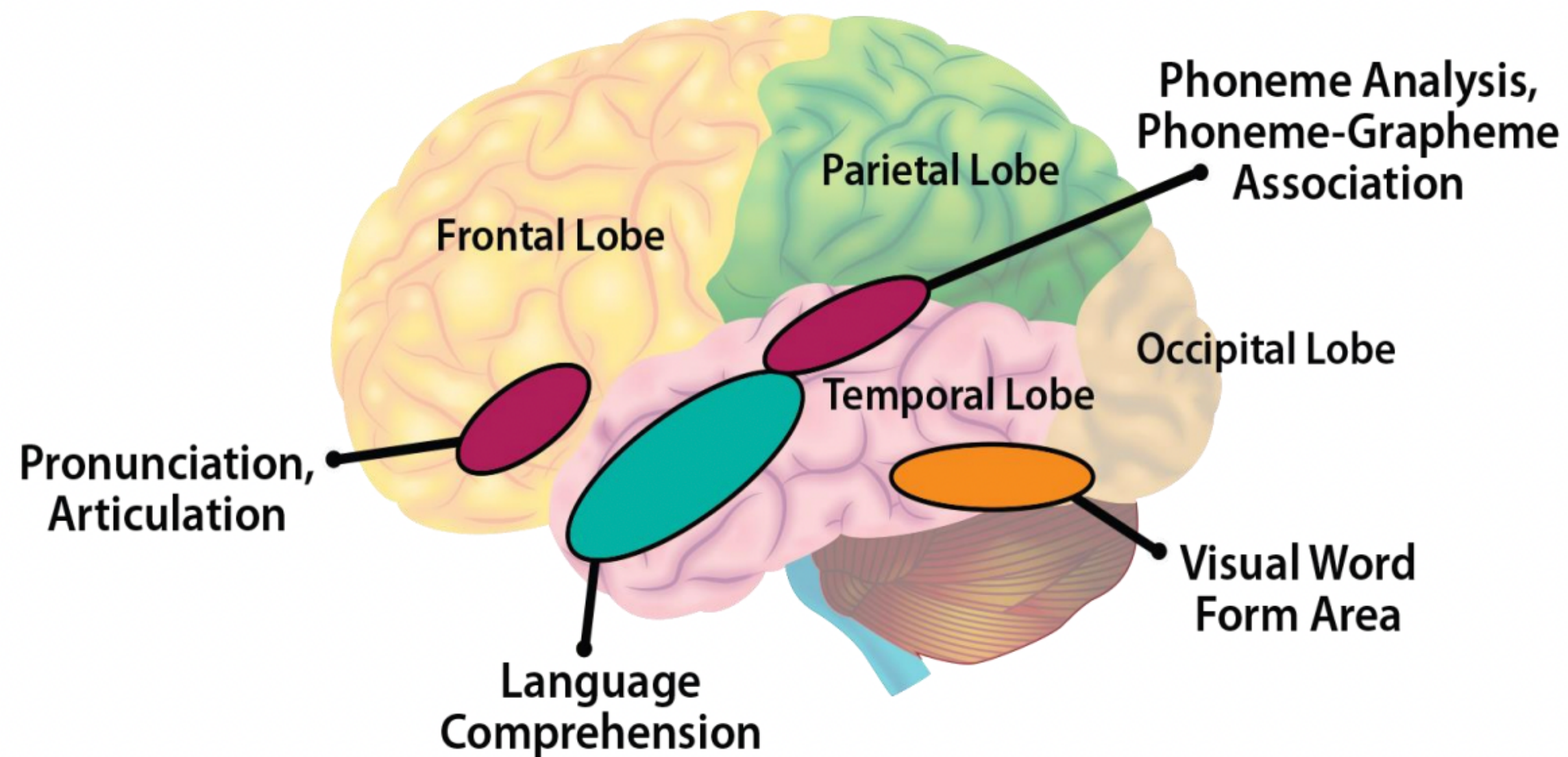
- ⊘ an ideology or philosophy
- ⊘ a fad, trend, new idea, or pendulum swing
- ⊘ a political agenda
- ⊘ a one-size-fits-all approach
- ⊘ a program of instruction
- ⊘ a single, specific component of instruction, such as phonics





“Within his brain, the child is literally building the neural circuitry that links the sounds of spoken words, the phonemes, to the print code, the letters that represent those sounds.”

—Shaywitz, 2003, p. 177

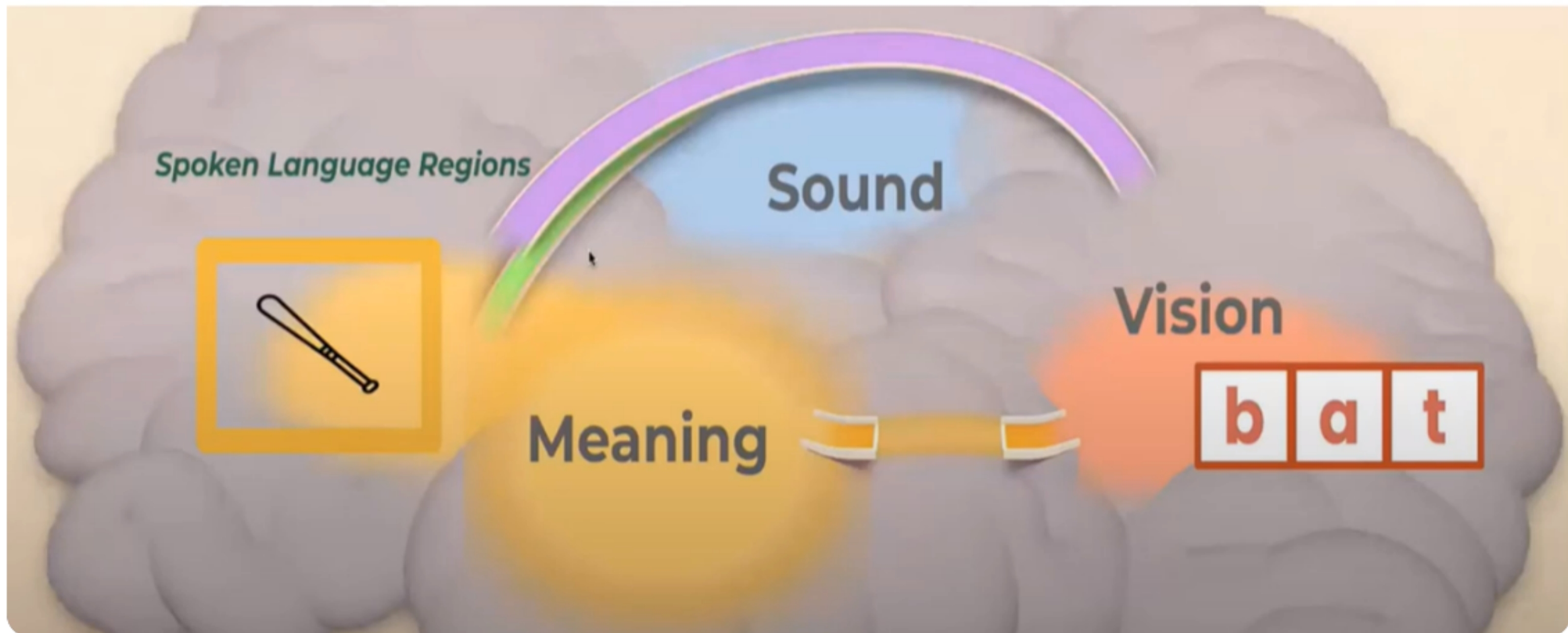
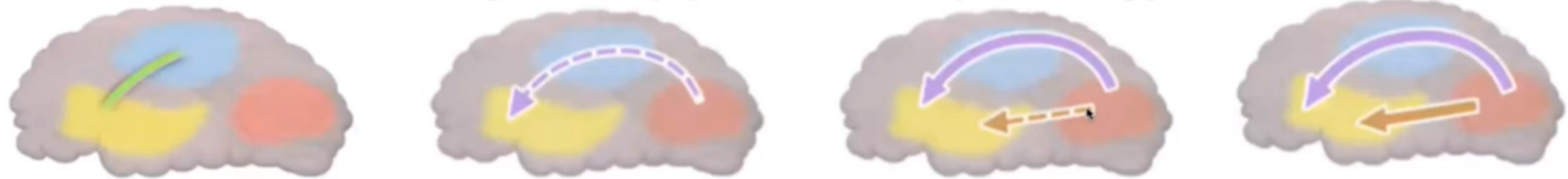


WHILE WE MAY NOT REALIZE IT,
AS WE MOVE OUR EYES ACROSS THE PAGE, EACH WORD IS SLOWLY
BROUGHT INTO THE CENTRAL REGION OF OUR RETINA, ONLY TO BE
EXPLODED INTO A MYRIAD OF FRAGMENTS THAT OUR BRAIN LATER
PIECES BACK TOGETHER. IT IS ONLY BECAUSE THESE PROCESSES HAVE
BECOME AUTOMATIC AND UNCONSCIOUS, THANKS TO YEARS OF
PRACTICE, THAT WE ARE UNDER THE ILLUSION THAT READING IS
SIMPLE AND EFFORTLESS.

-DEHAENE, THE READING BRAIN-
2009

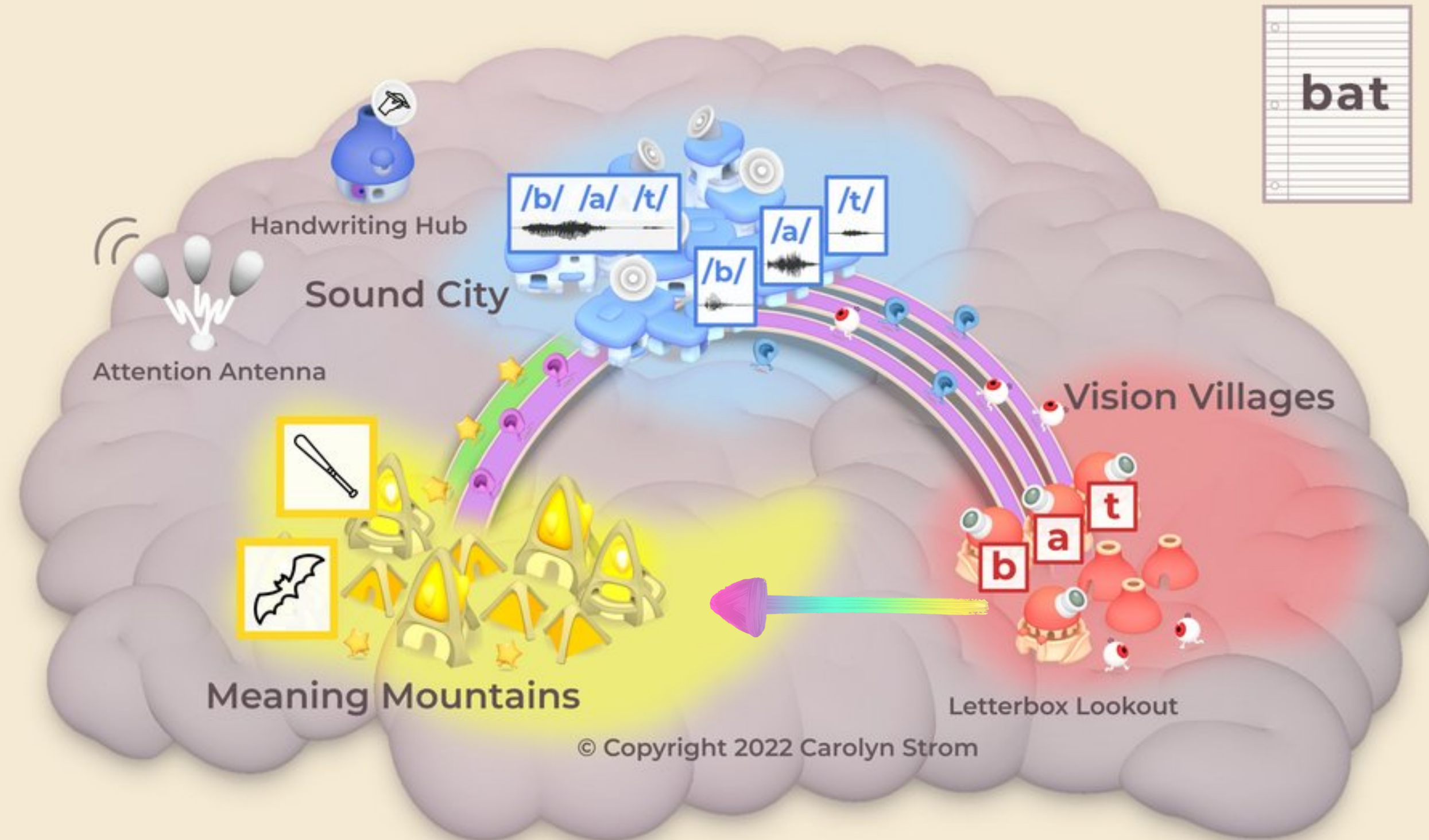
"Our brains are not wired to read...we have to do a neurological backflip to teach our brains to read."

Ages 3-8 (optimal brain plasticity)



A Tale of Three Cities

Chapter 2: The Rise of Letterbox Lookout



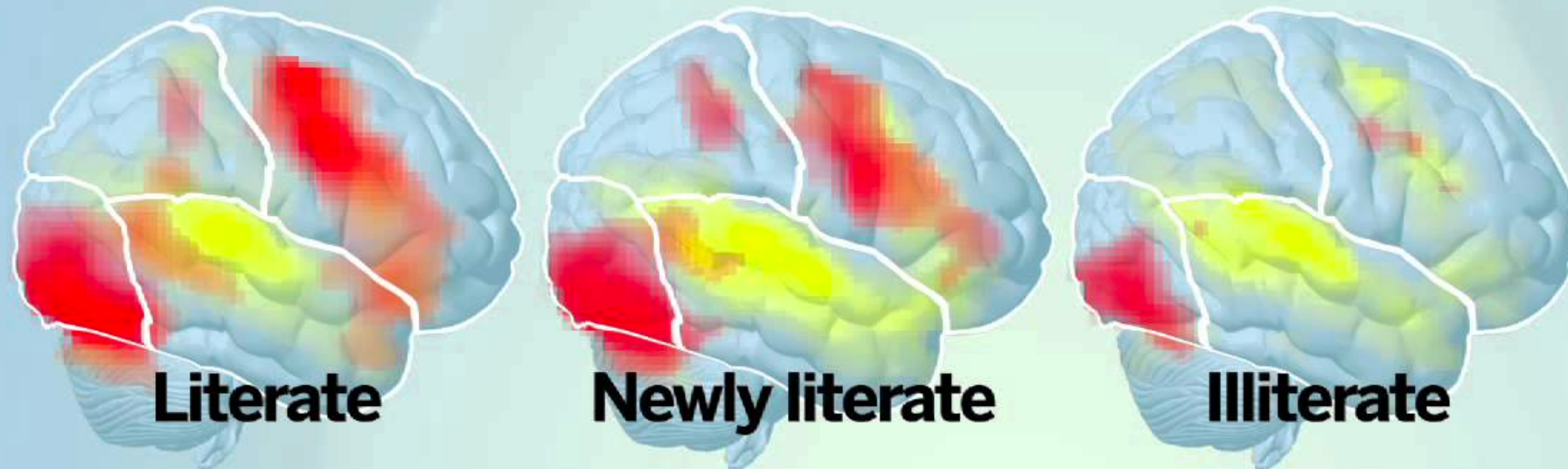
© Copyright 2022 Carolyn Strom

Human Bulletin

AMERICAN MUSEUM OF NATURAL HISTORY

HOW DOES READING CHANGE THE BRAIN?

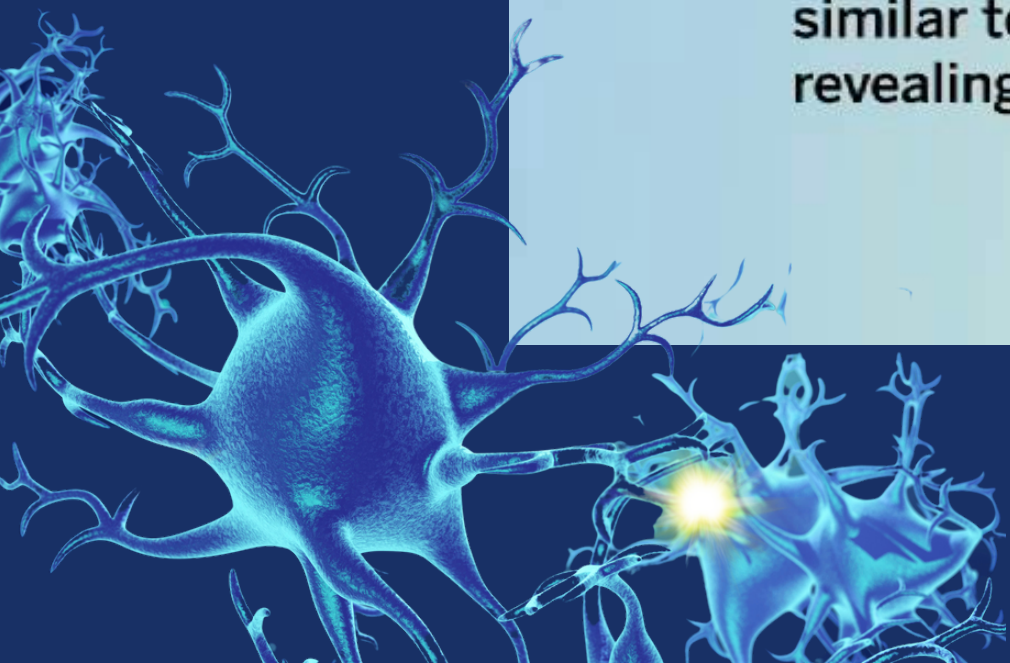
NOVEMBER 29, 2010



Scans of adults who recently learned to read looked similar to those of people who learned as children, revealing that literacy can change the brain at any age.

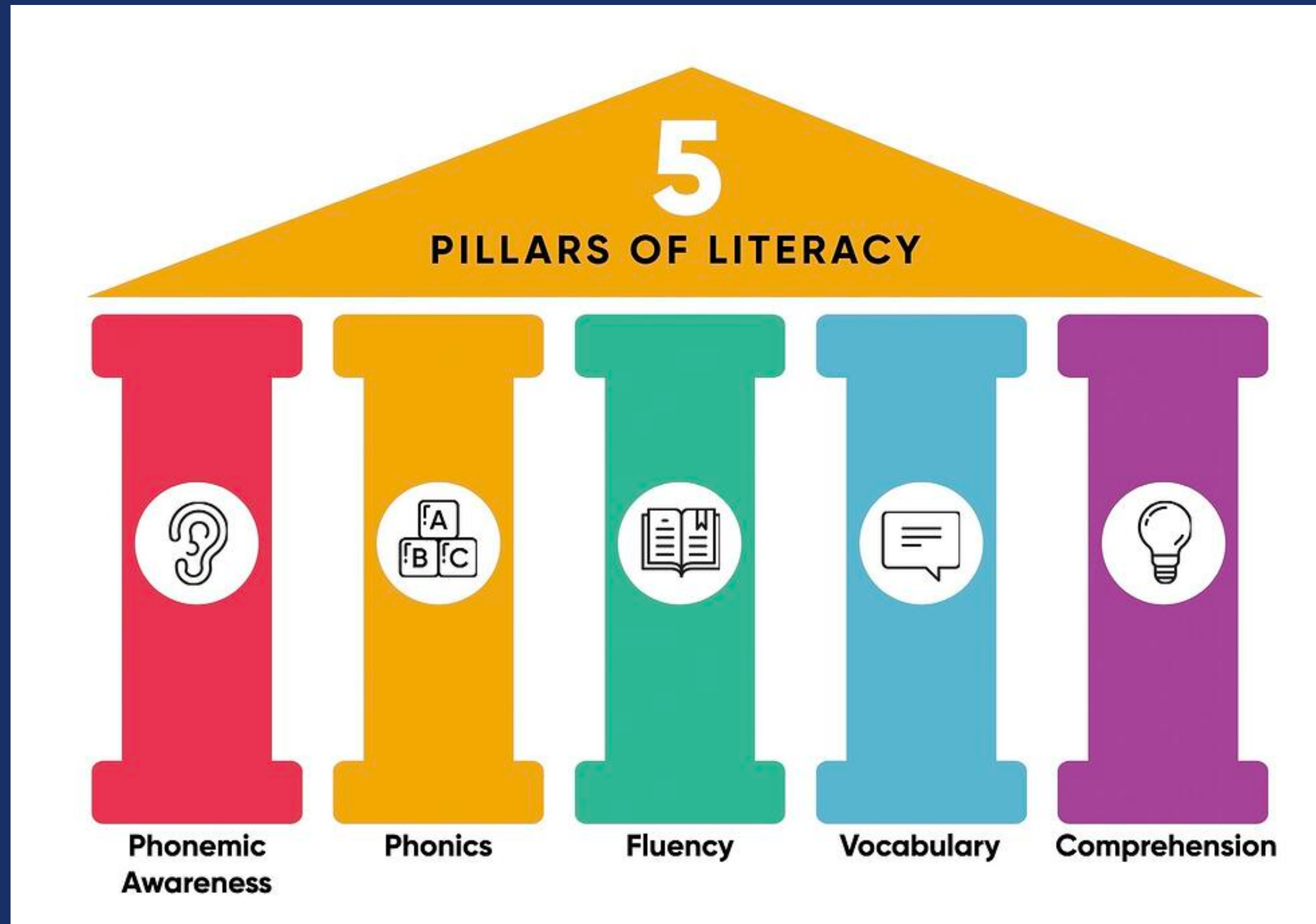
● Written sentences
● Spoken sentences

fMRI data: Stanislas Dehaene



Pedagogical Recommendations

The What

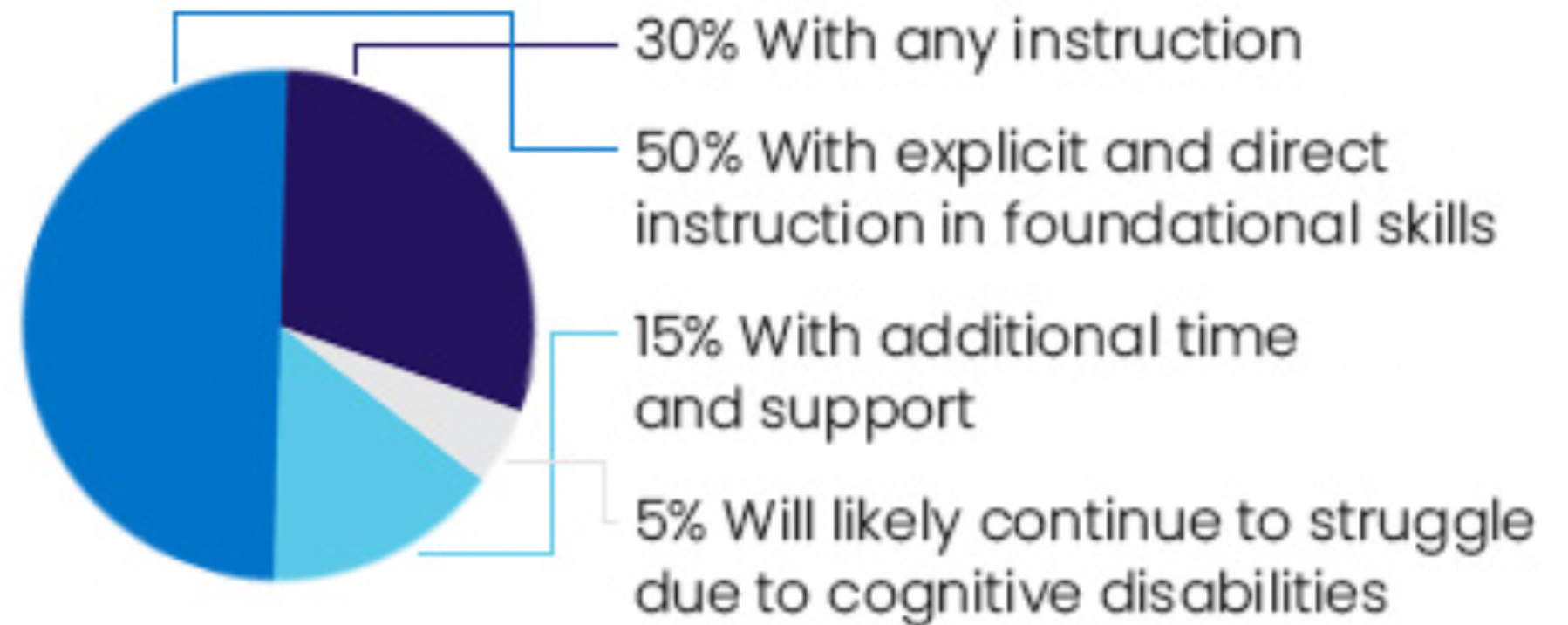


Pedagogical Recommendations

The How & Why



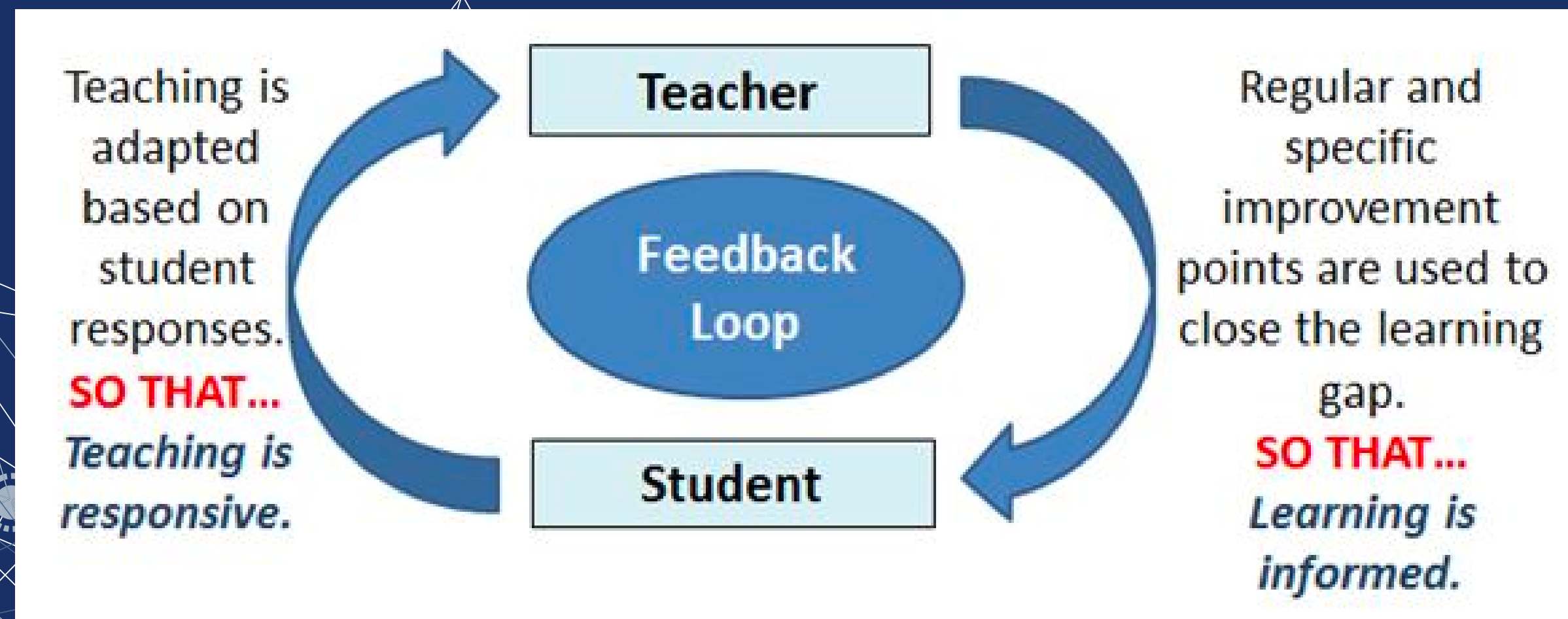
95% of students can learn to read when using instruction and programs based on the science of reading



Pedagogical Recommendations

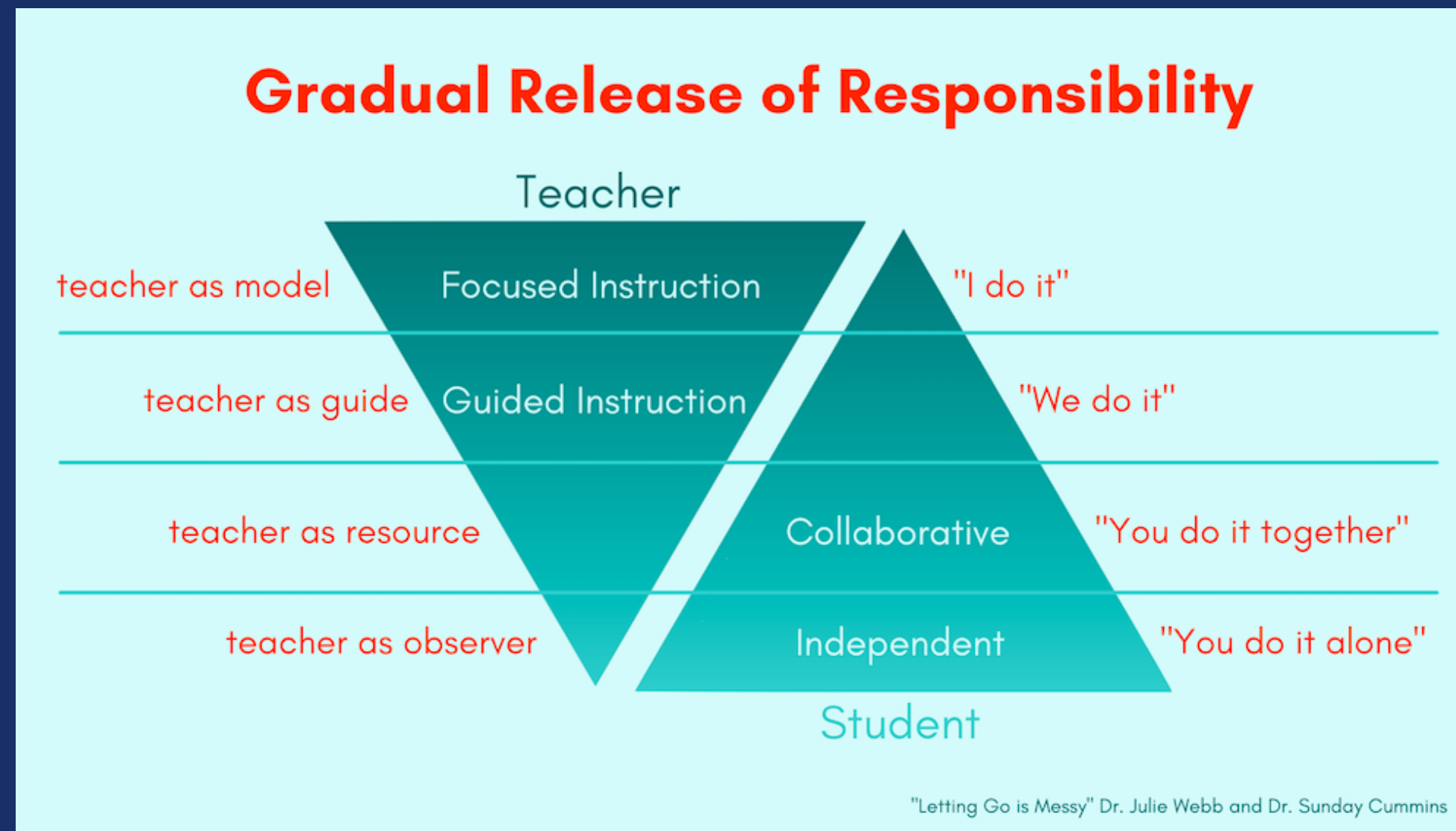
The Who

Meaningful Interactions with Language
Increase Learner Responses
Increase Feedback



Pedagogical Recommendations

The Framework



Pedagogical Recommendations

Assessments

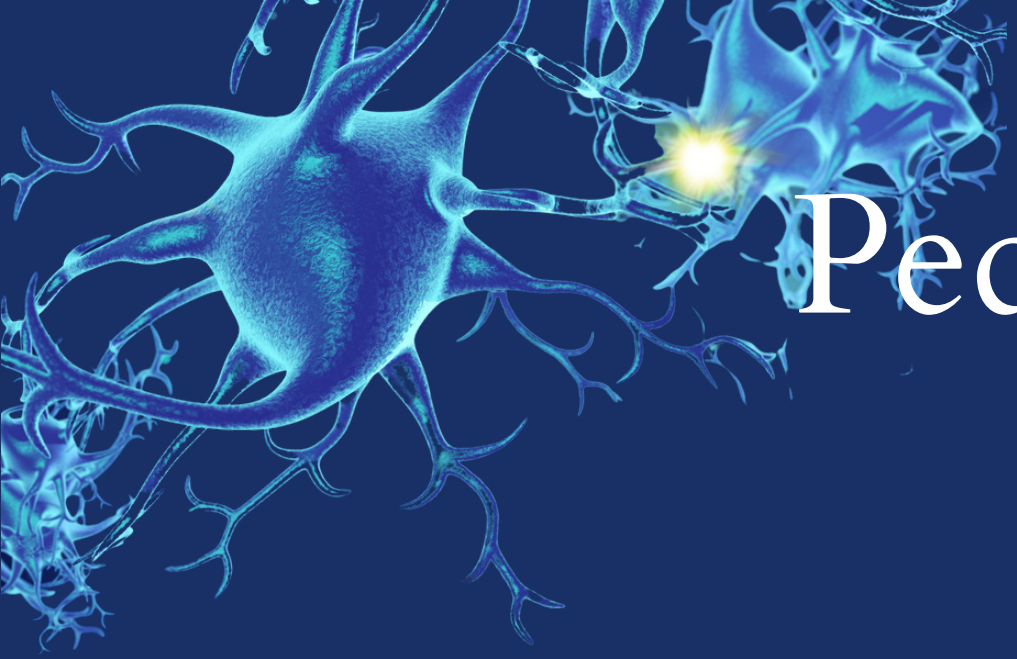
Learners successfully complete activities at a high criterion level of performance.

Foundations[®] Unit Test Scoring Guidelines (Second Edition)

The Foundations Unit Test measures a student's knowledge of concepts that are taught in a *specific* Foundations unit. Foundations Unit Tests are administered at the end of each instructional unit. The benchmark is 80% for each test. Below provides guidelines for scoring the unit test.

Students who are significantly below benchmark or who are consistently below benchmark should be considered for additional in-class support to master the unit's concepts.

Before progressing to the next unit, 80% of the class should be at or above benchmark.



Pedagogical Recommendations

Phonological Awareness

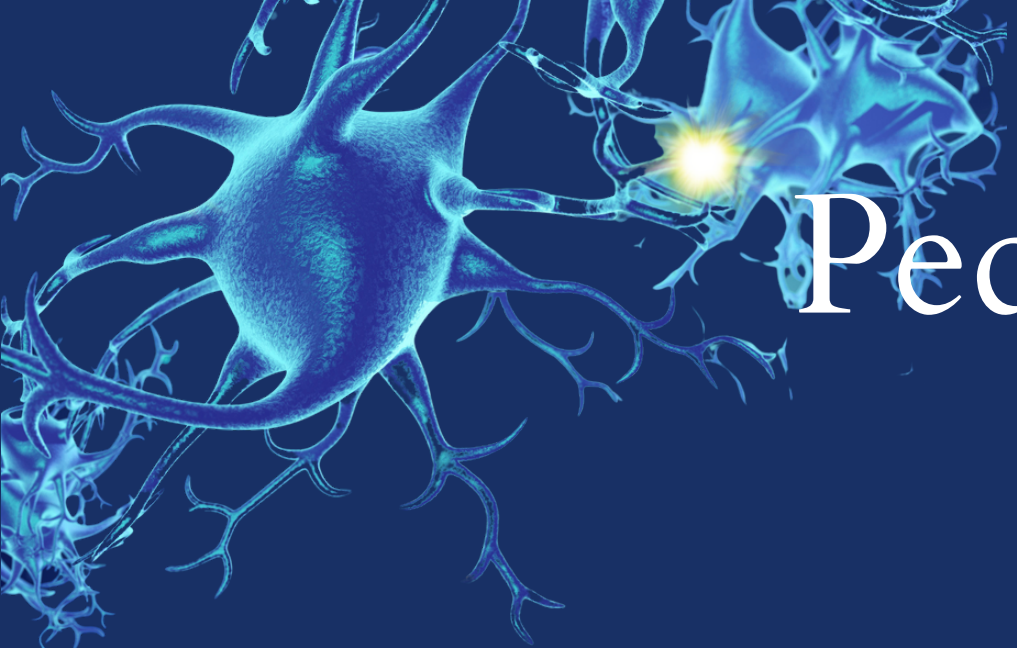
Phonological Awareness (a type of knowledge)

Our Instructional Approach

Increase:

- Explicit knowledge focused on hearing and articulating speech sounds
- Emphasis on phonemic proficiency — blending, segmenting, and manipulating sounds in spoken words
- Screening and progress-monitoring to mastery!





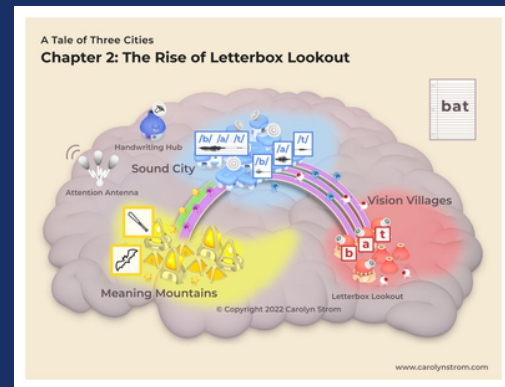
Pedagogical Recommendations

Phonics

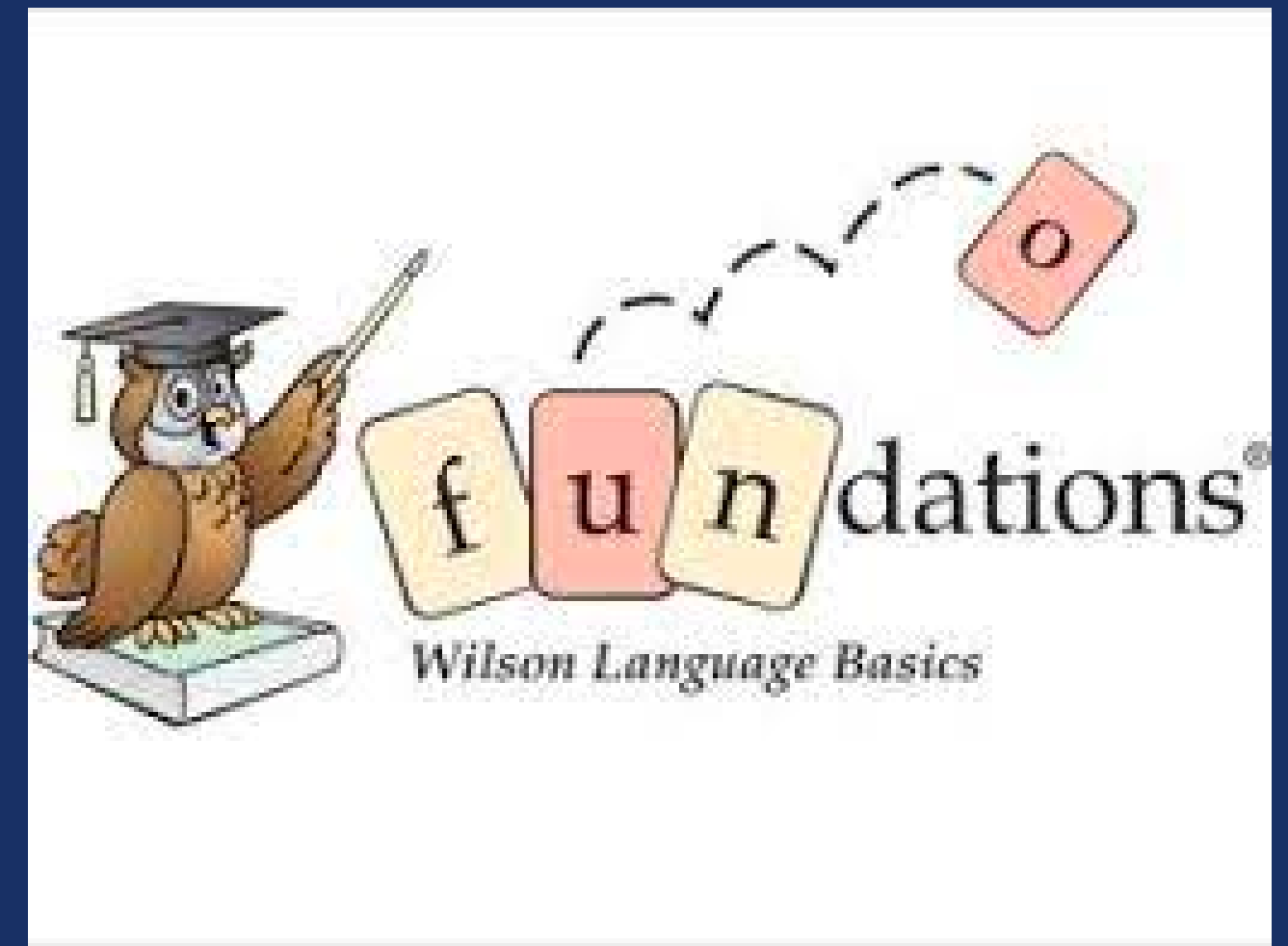
Phonics (a type of instruction)

Increase:

- Explicit, systematic, cumulative teaching of spelling/sound correspondences and meaningful word parts
- Application of word reading skills to text
- Prompting “Sound it out” before “Does it make sense?”
- Teaching sounds and spelling patterns supports reading



Our Instructional Approach



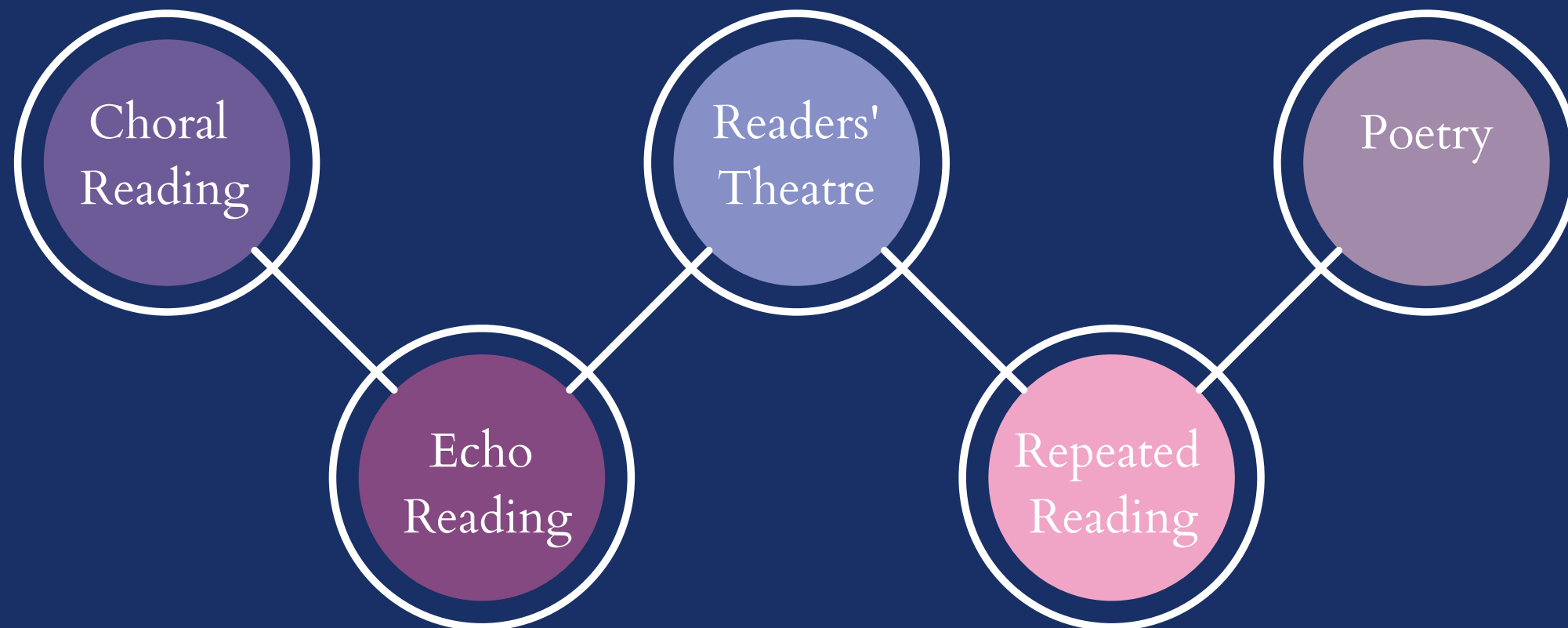
Pedagogical Recommendations

Fluency

Fluency (a characteristic of skilled reading)

Increase:

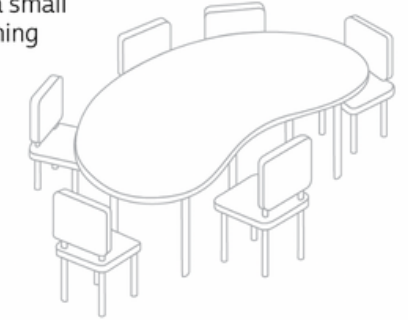
- Focus on reading accuracy
- Rereading, partner reading, reading with a model to develop prosody and automaticity
- Explicit, measurable goals by grade levels for oral reading fluency and related sub-skills



Our Instructional Approach

Guided Reading At A Glance

- Small-group instruction
- Children read a teacher-selected text in a small group; the teacher provides explicit teaching and support for reading increasingly challenging texts
- Texts are at children's instructional reading level
- Children read the whole text
- Teaching is responsive to individual student strengths and needs.



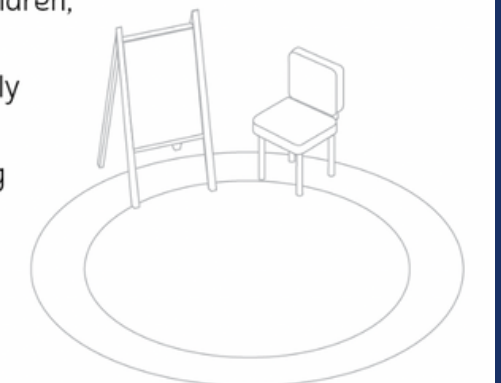
Shared Reading At A Glance

- Whole-group instruction
- During shared reading, teacher and children read aloud a large version of an engaging text that is beyond children's ability to read independently
- Texts provide early experiences with print and promote the development of reading processes
- Texts serve as mentor texts
- After the first reading, children take part in multiple, subsequent readings of the text
- Children discuss the text and the teacher selects teaching points based on children's needs.



Interactive Read-Aloud At A Glance

- Whole-group instruction
- Teacher reads aloud a selected text to children, occasionally pausing for discussion
- Texts are organized into text sets for highly intentional teaching
- Texts are beyond the instructional reading level of most children
- Children are listening to the text and viewing the illustrations
- Text-based discussion helps children construct meaning
- Children make connections between books in the text set.



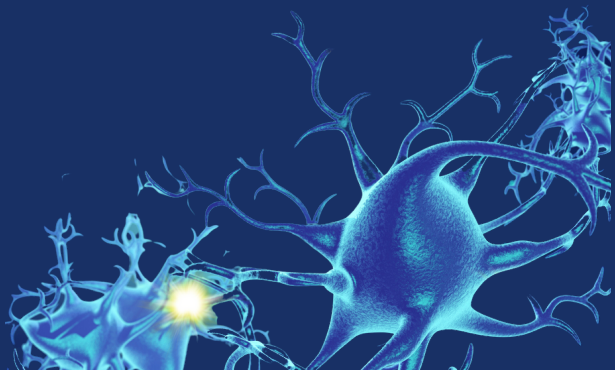
Pedagogical Recommendations

Vocabulary & Comprehension

Vocabulary (a component of language) and Comprehension (a goal or condition we create)

Increase:

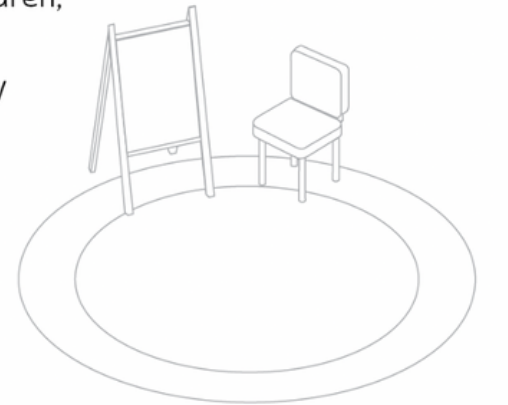
- Exposure to books and material with rich vocabulary
- Encouraging inferring word meaning based on rich discussion, explicit vocabulary and grammar instruction
- Level of reading comprehension
- Connected texts and topics–thematic



Our Instructional Approach

Interactive Read-Aloud *At A Glance*

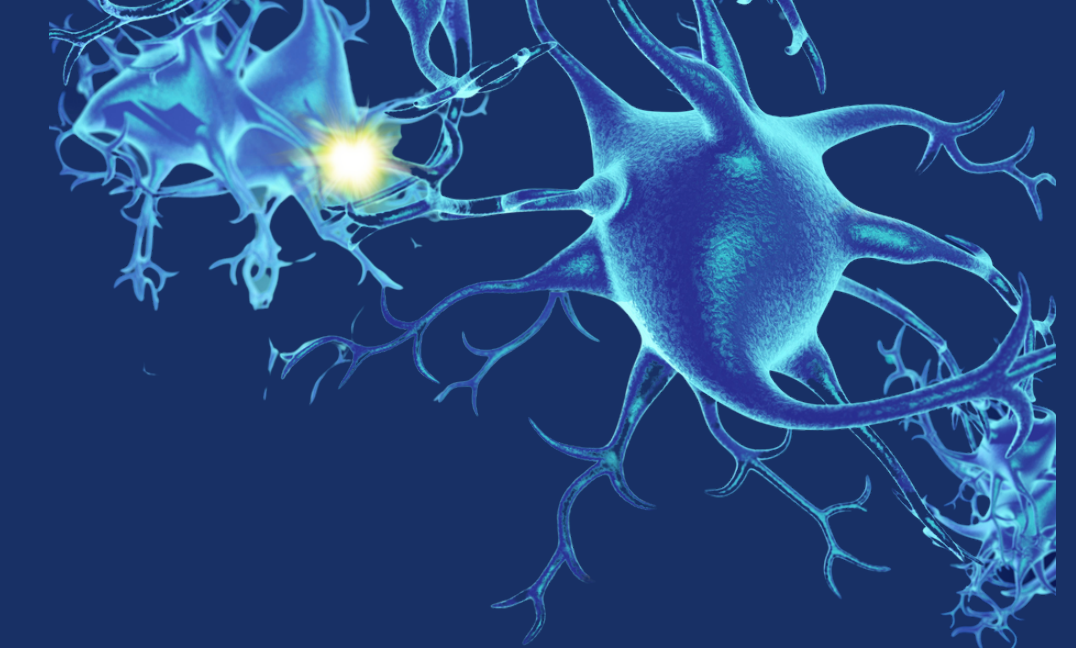
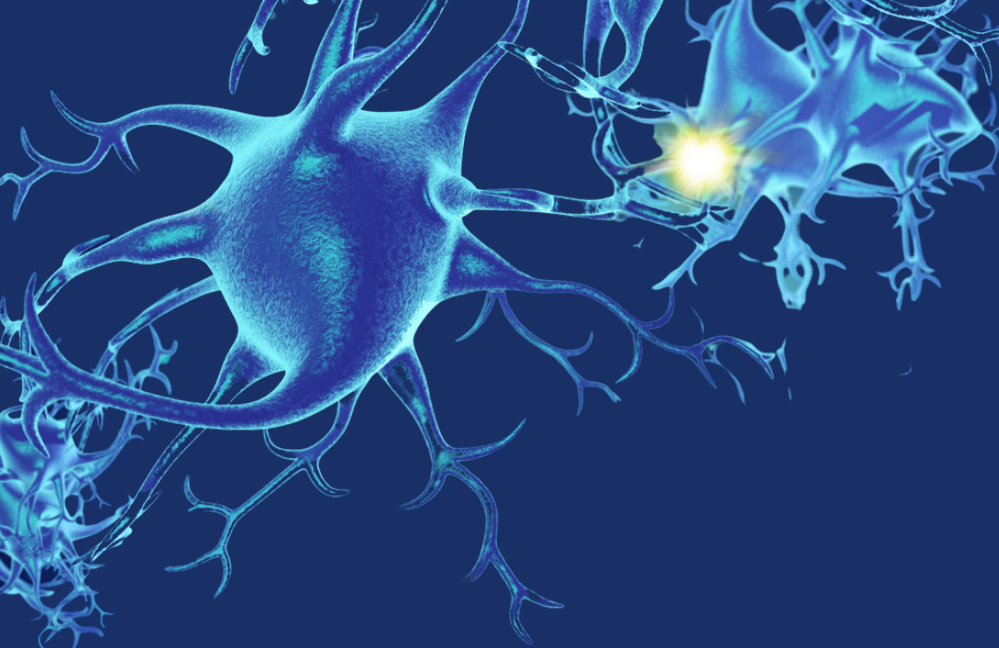
- Whole-group instruction
- Teacher reads aloud a selected text to children, occasionally pausing for discussion
- Texts are organized into text sets for highly intentional teaching
- Texts are beyond the instructional reading level of most children
- Children are listening to the text and viewing the illustrations
- Text-based discussion helps children construct meaning
- Children make connections between books in the text set.



Book Clubs *At A Glance*

- Small-group instruction
- Children discuss a book that they have all read or listened to
- Texts may be at or beyond children's independent reading level
- Children meet to talk about the text and share their thinking
- Instructional focus is on constructing meaning through language and print.





Implementing 5th Grade
Experimenting K-4th Grade

mystery science



Reading & ESL
Training Grades K-5





Action Steps

2022-2023



PRESENTING
JOINTLY



THE SCIENCE OF READING CURRENT PERSPECTIVES AND CONTEXT

Join us to raise awareness and understanding around the reading brain.

During this workshop, we will review the Science of Reading (SOR) from multiple perspectives. A major focus will be on discussing SOR to build capacity to understand current debates, and to examine the definition, rationale, application and associated practices. Structured Literacy will be discussed as a model for reading instruction under the umbrella of SOR. This content will be complimented with an overview of cognitive neuroscience research on reading development and difficulties with a focus on brain plasticity as a mechanism to understand reading intervention. Throughout the sessions, we will integrate discussions of socioeconomic status and diversity as it relates to reading achievement. We aim to include an asset-based approach in considering reading difficulties. The objectives of this workshop are to empower attendees with enhanced understanding and actionable intent to improve reading outcomes for all learners.

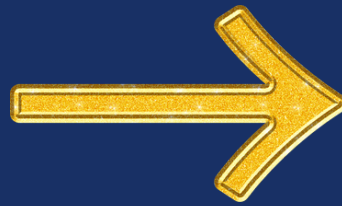
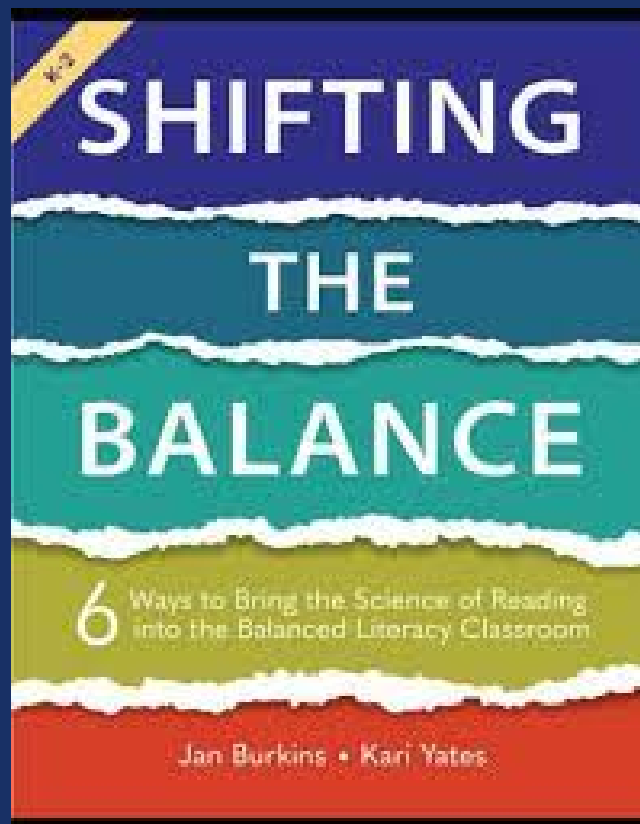
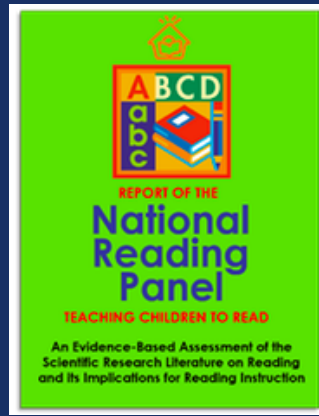


Joanna A. Christodoulou, EdD, is an Associate Professor at the MGH Institute of Health Professions, Adjunct Lecturer at the Harvard Graduate School of Education, and Research Affiliate at the Massachusetts Institute of Technology. She works at the intersection of education, clinical, and research contexts. She leads the Brain, Education, and Mind (BEAM) Lab to study the brain and behavior links underlying reading development and difficulty. Her team's current research focuses on reading intervention and summer reading outcomes. She was awarded the 2014 Transforming Education Through Neuroscience Award from the Learning & the Brain Foundation and the International Mind, Brain, and Education Society and was invited to join the first Obama White House Workshop on Neuroscience and Learning.



Action Steps

2022-2023



SIX SHIFTS...



SHIFT 1
Rethinking How Reading Comprehension Begins

SHIFT 2
Recommitting to Phonemic Awareness Instruction

SHIFT 3
Reimagining the Way We Teach Phonics

SHIFT 4
Revising High-Frequency Word Instruction

SHIFT 5
Reinventing the Ways We Use MSV (3 Cueing Systems)

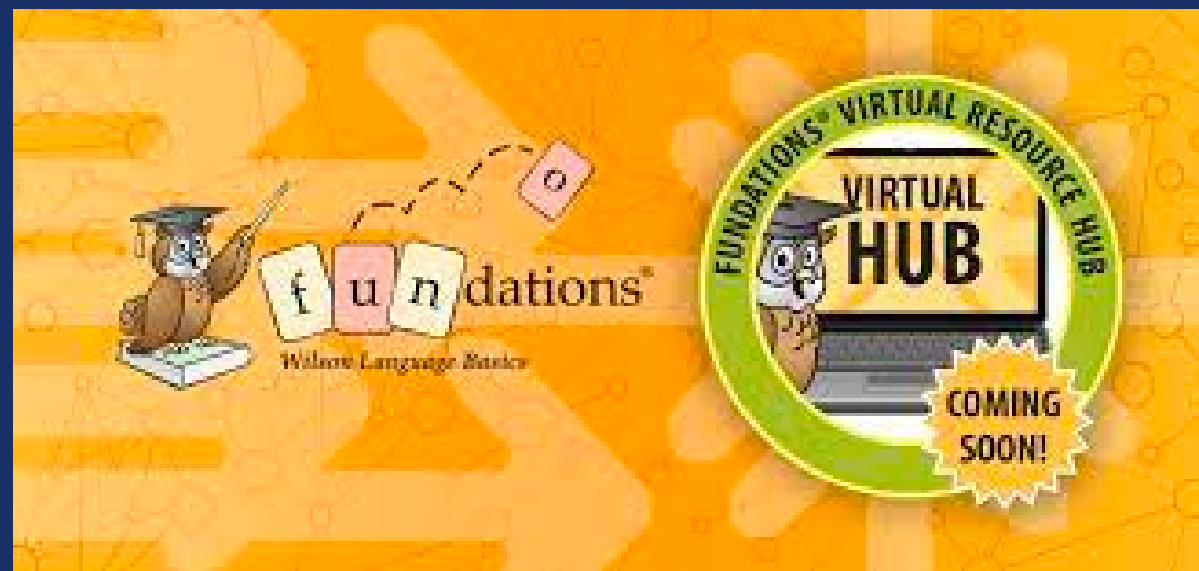
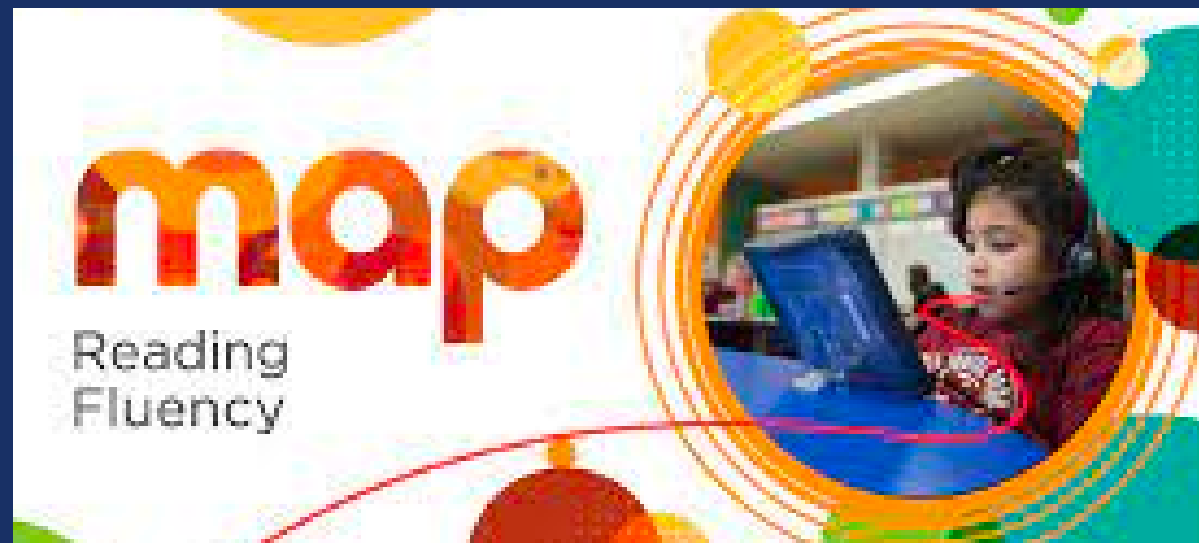
SHIFT 6
Reconsidering Texts for Beginning Readers

DISCUSSED THROUGH...

- ▶ Classroom Examples
- ▶ Common Misunderstandings
- ▶ A Short Summary of the Science
- ▶ Recommendations for Making the Shift
- ▶ Questions for Reflection

#THESIXSHIFTS

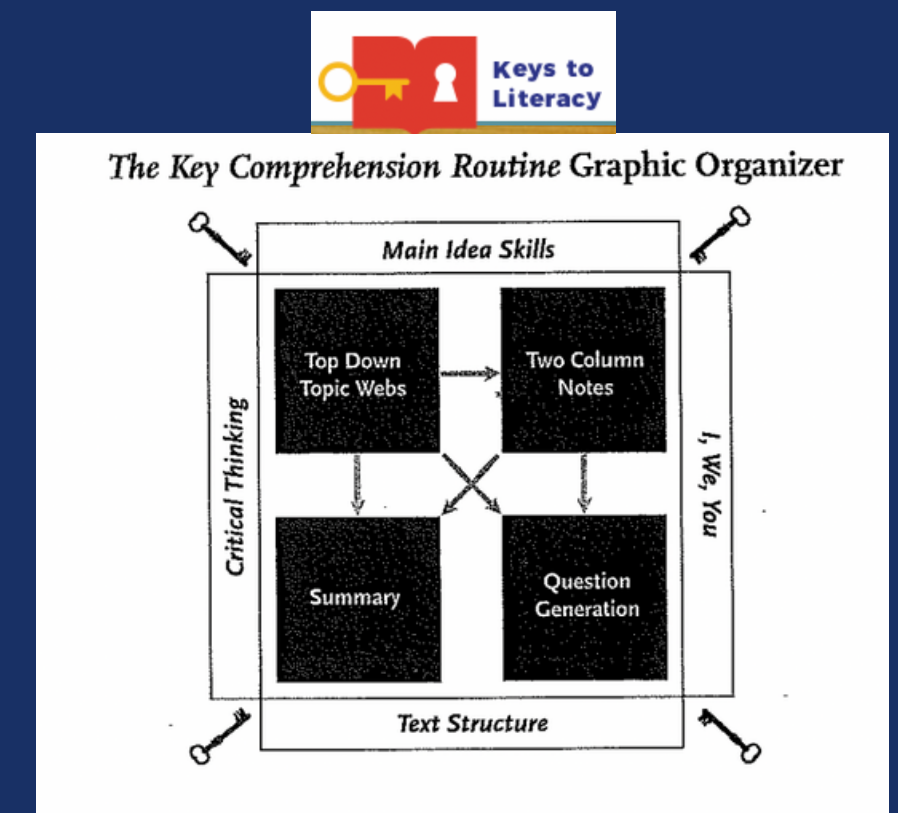
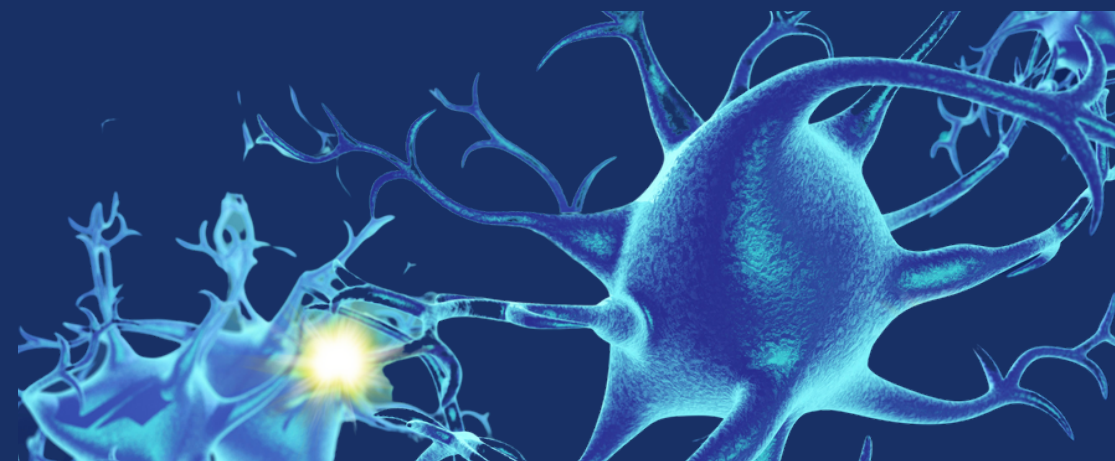
Action Steps 2022-2023



SCOPE AND SEQUENCE ASSESSMENTS

[Foundations K Assessments](#) [First Grade Foundations](#) [Second grade foundations.docx](#)

[Level K Foundations](#) [level 3 Scope Sequence Summary](#)



Action Steps

2022-2023

Data Analysis

Principals
Building Teams

RVC
Literacy Across District

Seeing Our
Successes

Deepening Our
Visions

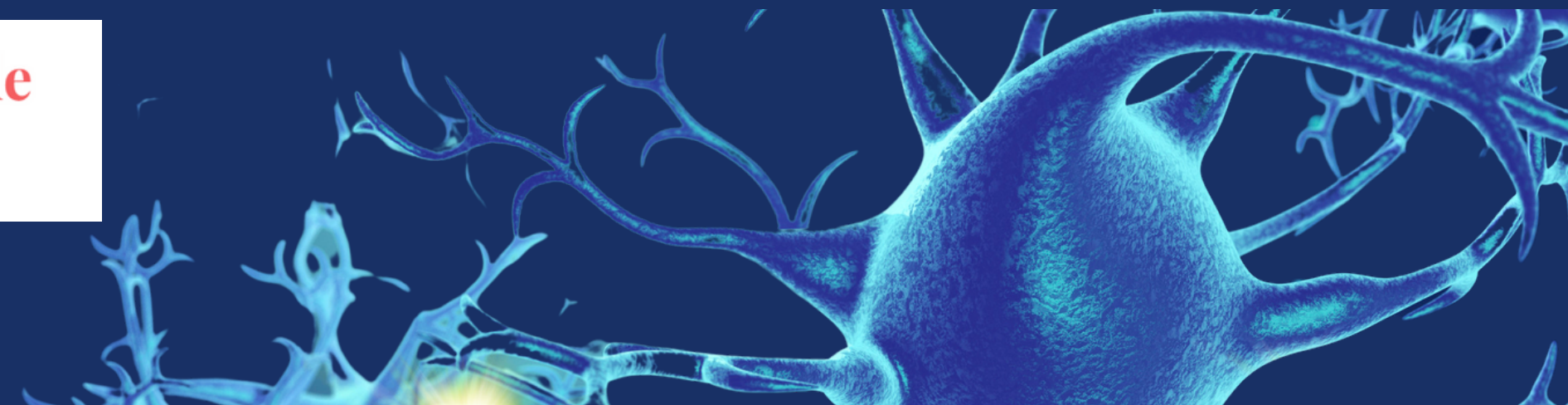
Takeaways

- Change is hard; however each step makes a difference in our student's education
- ALL students are being supported by teachers and our support staff - starts in our classrooms
- Old habits may be hard to break - instruction, groupings, schedules and assessments
- Teachers shouldn't be afraid of support - should not have a 'stigma' attached to it
- Training of teachers - Foundations, Heggerty, F&P Benchmarking, KTL this fall
- We need to make sure teachers are staying up to date with curriculum mapping and assessments and if not, how can we support them
- Foundation unit test retaught and reassessed for mastery
- Tests have to be administered even if out for services, absence, etc. Foundations is part of the core instruction
- **We need to celebrate how we have begun to streamline instruction and assessments across our district in many ways in a very short time**
- **Alone we can do so little; together we can do so much!**

Foundations in K by District wide

Foundations in 1st Grade by District wide

Foundations in 2nd Grade by District wide
Mastery by Unit



Action Steps

2022–2023



The Key Comprehension Routine teaches students a foundational set of research-based comprehension strategies that support listening and reading comprehension in any subject area. Teachers learn how to teach strategies using existing content reading and instructional materials. When used across multiple grade levels, students benefit from a consistent approach to comprehension instruction as they move from grade to grade and subject to subject.

***The Key Comprehension Routine* addresses these topics, strategies and skills:**

- **Critical thinking:** for close, analytic reading of both narrative and expository text
- **Main idea skills:** categorizing information and vocabulary, identifying main ideas at the paragraph level, and identifying central ideas in lengthier text
- **Text structure knowledge:** at the sentence, paragraph, and longer text levels
- **Top-down topic webs:** a graphic organizer that represents the major topics and big ideas of any content that is read, said, or done
- **Two-column notes:** a note taking format that supports active reading and listening
- **Summarizing:** students comprehend and synthesize the main ideas from any content that is read, said, or done
- **Generating questions:** students create and answer questions along a continuum of thinking using Bloom's Taxonomy based on content that is read, said, or done
- **I, We, You instruction:** strategies are taught explicitly through modeling and think aloud, guided practice is provided, and scaffolds are gradually released as students become independent users of the strategies
- **Cooperative learning:** students learn and practice comprehension strategies by working in cooperative pairs or small groups

Action Steps

2022-2023

ROCKVILLE CENTRE SCHOOL DISTRICT

2022-2023



UNIVERSAL



PRE-KINDERGARTEN

FRIEDBERG JCC CENTER - OCEANSIDE

MONDAY – FRIDAY 9 AM – 2 PM

No cost to participate in this program

Before and after school child care available 7 AM – 6 PM at additional cost

Swimming lesson included once per week

WHO IS ELIGIBLE?

- Any child who resides in the Rockville Centre School District and who is four years old on or before December 1, 2022. Child must attend all five days for the entire school year.

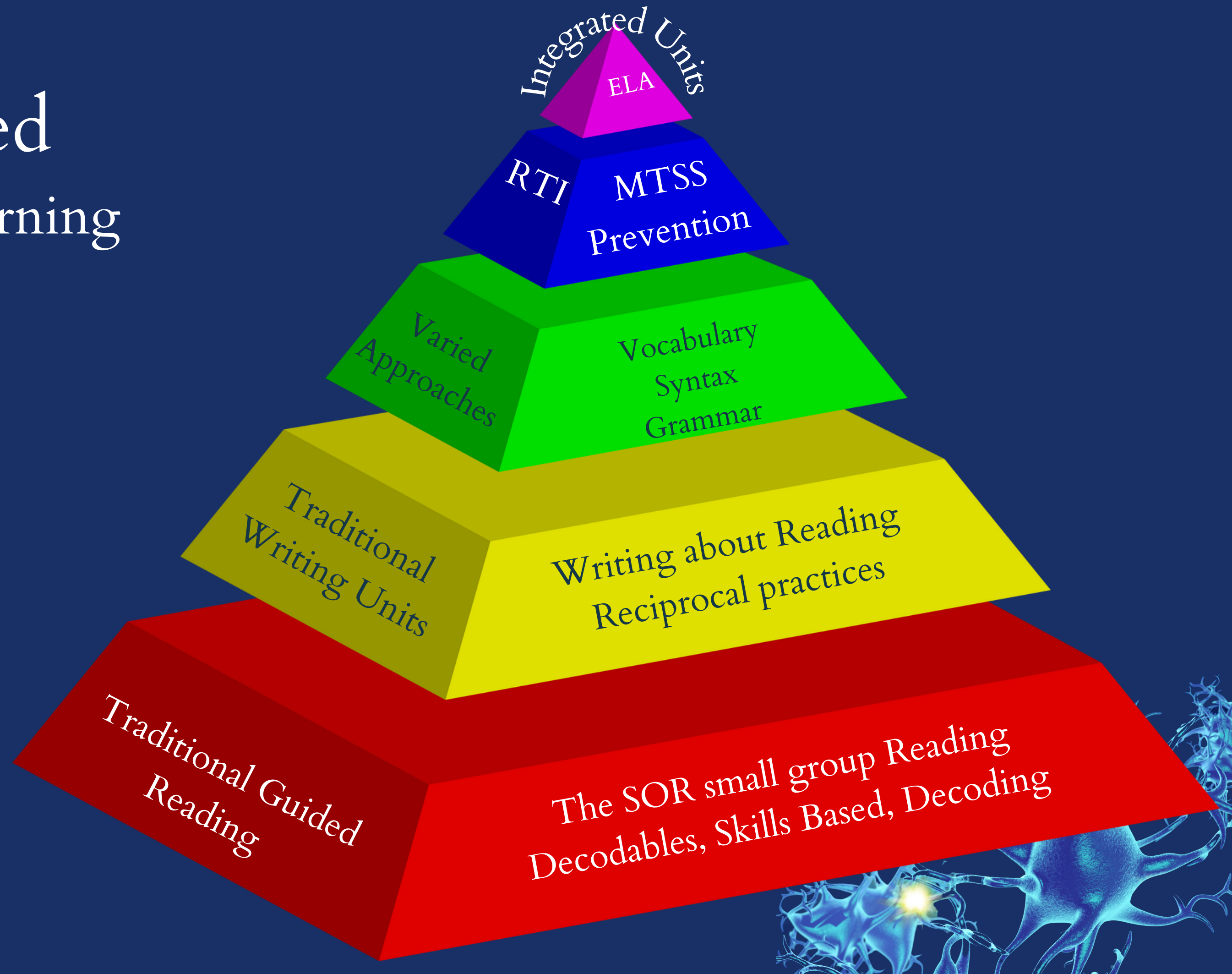
Action Steps

2022-2023

Visits to Lynbrook



Continued Research & Learning

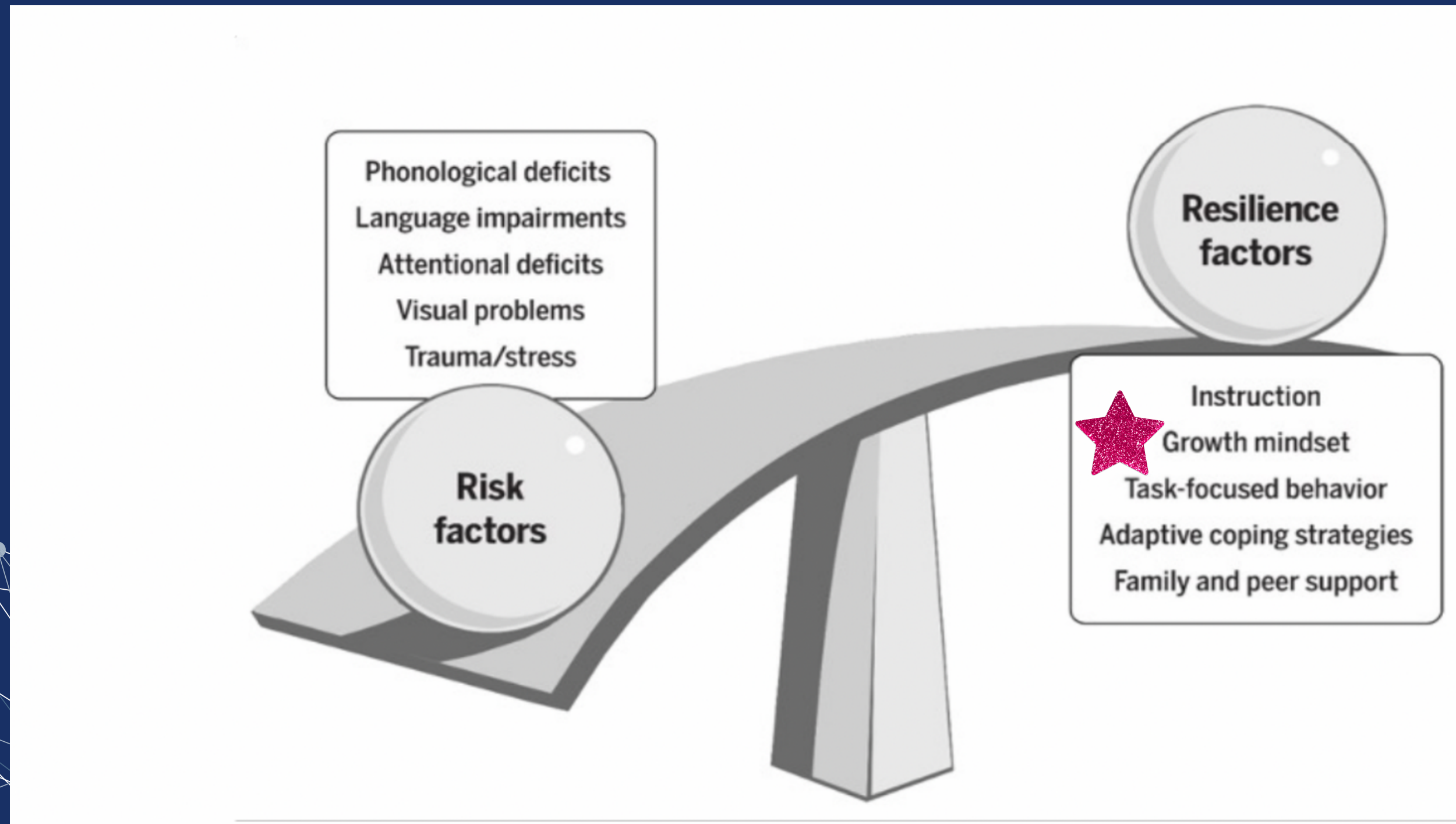


Continued Research & Learning

**DECODING
TEXTS:
USING THE
BEST
DECODABLE
BOOKS**

LITERACY LEARN

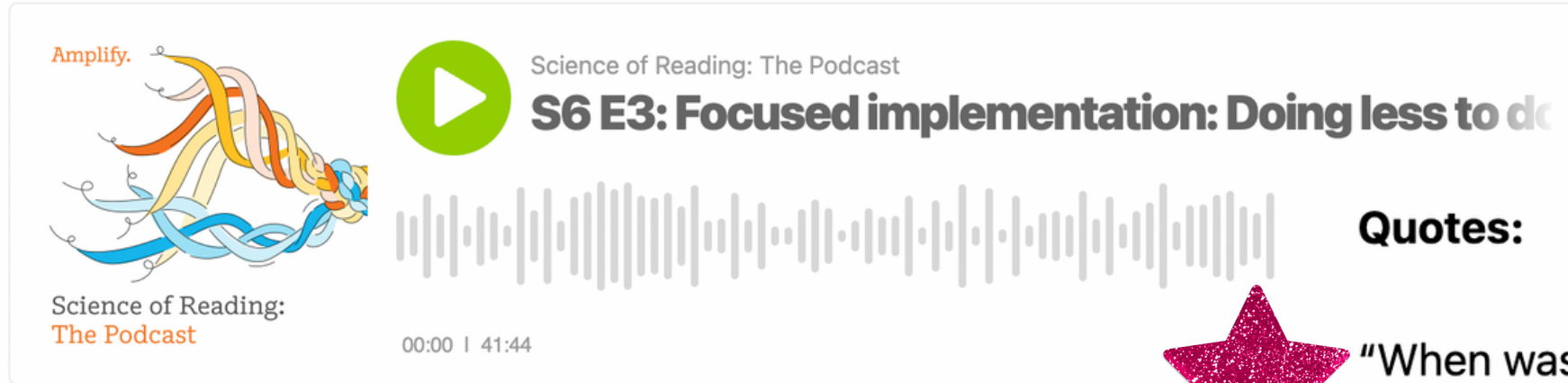
Considerations & Recommendations



Science of Reading: The Podcast

S6 E3: Focused implementation: Doing less to do more with Dr. Doug Reeves

OCTOBER 05, 2022 AMPLIFY EDUCATION SEASON 6 EPISODE 3



Quotes:



"When was the last time in education, anybody heard of de-implementation? All we do is pile one thing on top of another, on top of another, and then we don't then, then we wonder why it didn't work." —Doug Reeves

"If you're not gonna have deep implementation, which requires a level of focus and allocation of time and resources, then don't bother." —Doug Reeves

"You have to have a singular focus and, and it's gotta be sustained year after year after year until it becomes part of your culture." —Doug Reeves

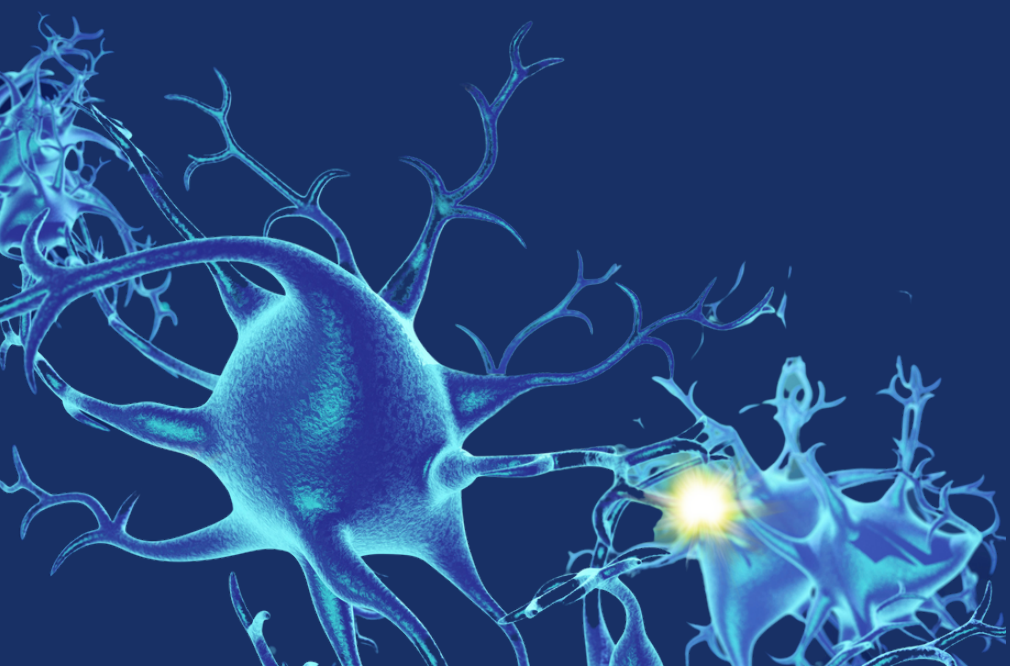
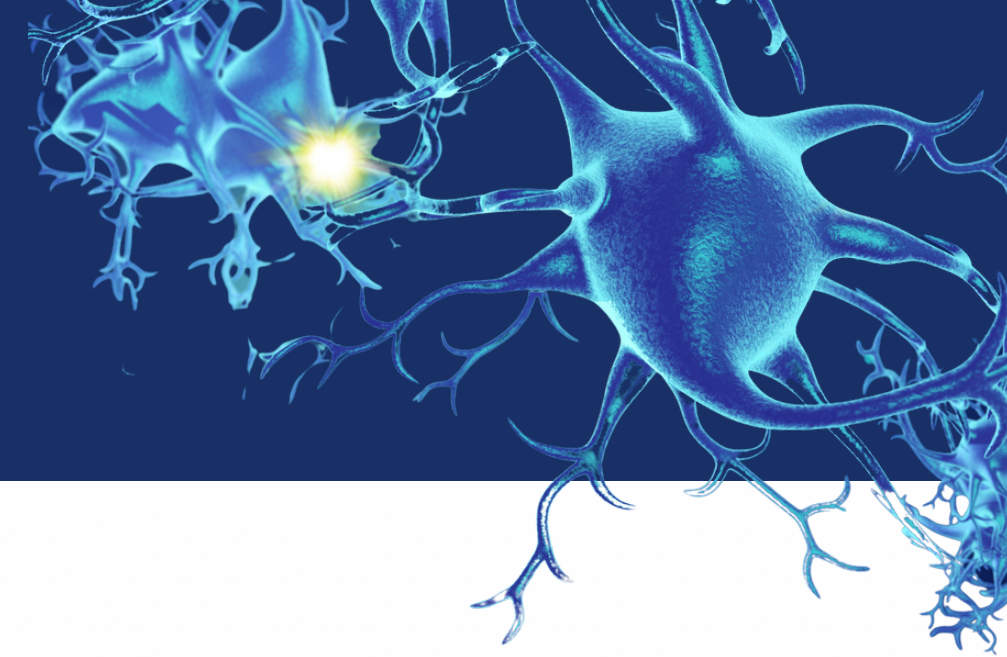


"You have to distinguish between an initiative, something that is new, and culture, something that's part of what we do every day and that is embedded. That is more important." —Doug Reeves



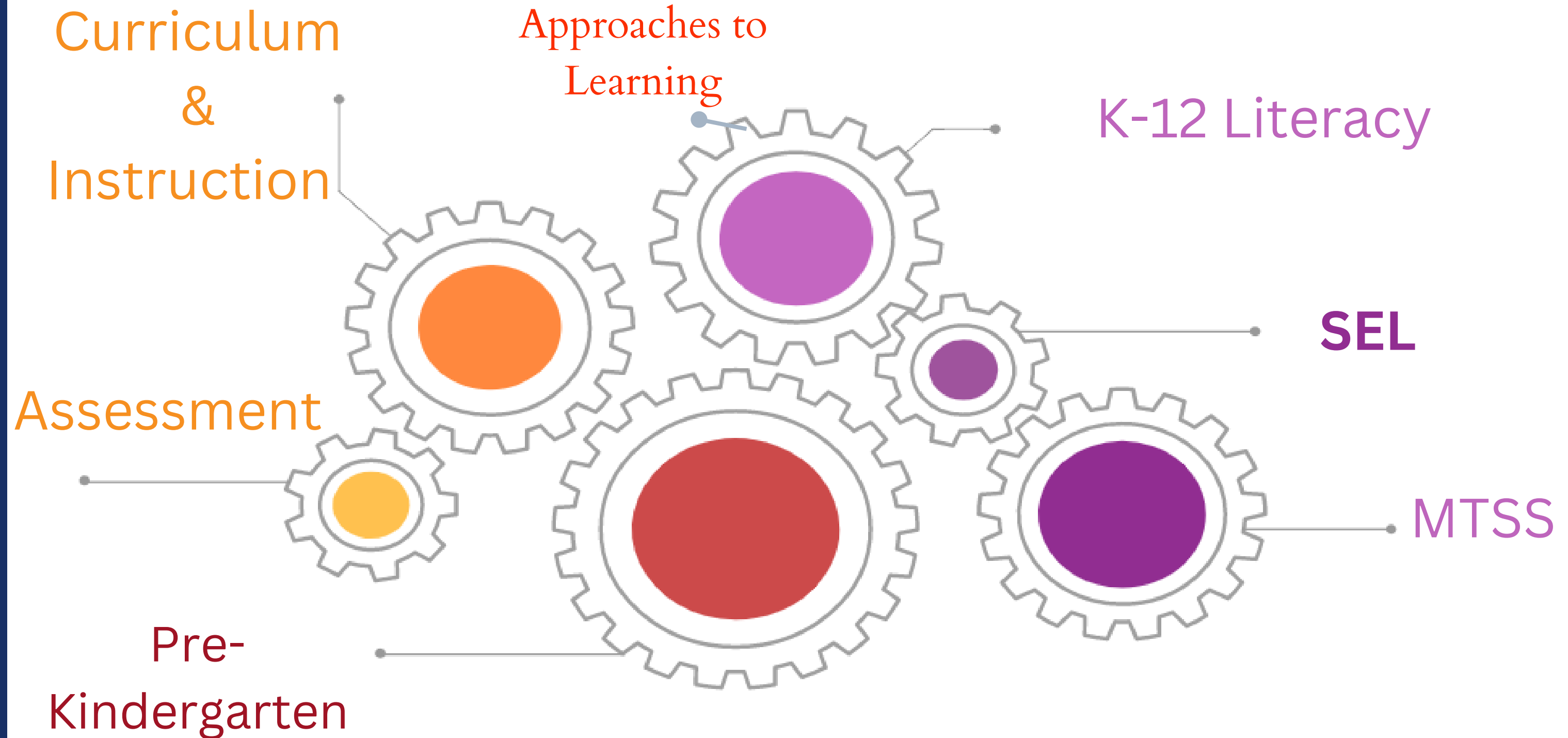
"The problem is this. If you only look at the results, then you don't know what caused it. Somebody has to look at underlying causes." —Doug Reeves

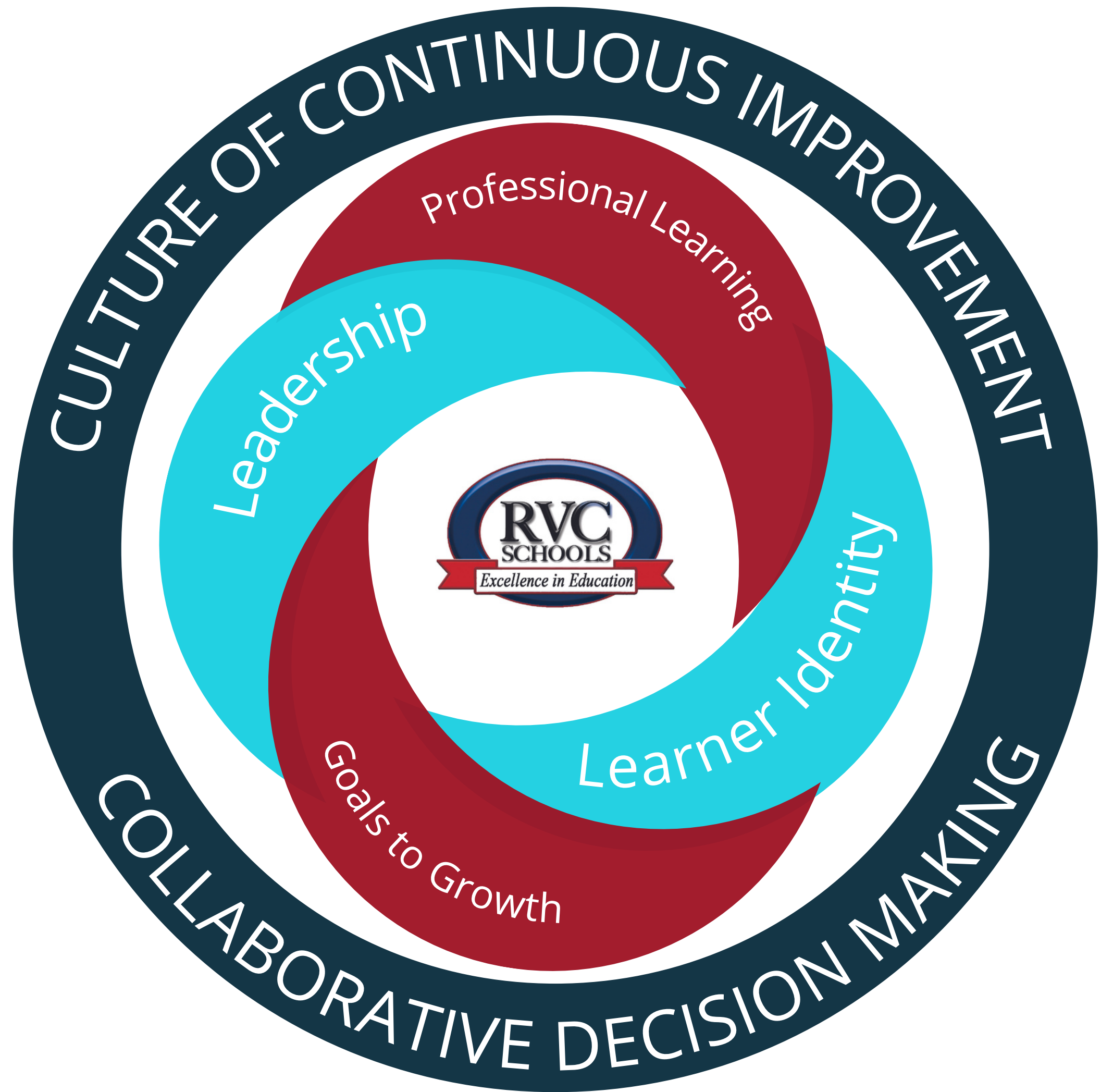
"It's really important for administrators to say, hey, I can deal with some chaos. I can deal with students making mistakes. That's real learning." —Doug Reeves



Integration of Systems

How to cultivate a PreK-12 Literacy Framework?





Summary

- The Brain has **plasticity**; resilience factor of **Growth Mindset** is an indicator of reading success despite risk factors
- RVC has **alignment** to SOR
 - There is more **inquiry and learning** to be done
- **Science of Reading**—there is **science** to back this up
 - The **SOR is a Framework** and consists of 5 pillars
 - **Equal importance** among the pillars (strands or components)
 - **Not one program** but a series of **evidenced-based practices**
 - **Explicit, systematic, gradual release of responsibility**
 - Complexity increases as grades progress
- **Implementation Science is dynamic**
 - **Culture of learning** and culture **literacy practices** are sustainable
 - Initiatives die on the vine

Instruction and teacher efficacy are key!

Thursday was so great! Not only did it get me excited, but I also left with many teaching techniques and ideas that I could instantly apply with my students.

On Friday, I also tried to top-down topic web with one of my fifth graders. One of his goals is to identify details that support the main idea, so it lent itself to that beautifully. I made the model and guided practice about athletes and sports since I knew he'd be enthusiastic and interested. I actually showed him the information in both formats, the top-down topic web and the two column notes. He said he visually preferred the top-down topic web so we continued to use that. I could tell he enjoyed having a choice and control over his learning. He was also really proud of himself by the end of the lesson. Interested to see how it works with other students!

"I am going to be more reflective and aware of my 4th grade ELA curriculum.
I was one of the authors."

This meeting challenged me to think about topics that I hadn't really given much thought to. I was able to directly relate this to my own child and how she has benefitted from the teachers here at RVC

Explicit strategy instruction – teaches students to take control of their own learning/comprehension. Science of Reading ROCKS.

I learned how the more I believe in my abilities, the better and more successful my kids will be.

Resources

