



Beware: The Science of Reading Does Include Comprehension

---

# Webinar Tips



Close all programs & browsers to maximize bandwidth



Exit & re-enter the webinar if you experience an audio or video lag



Use the Q&A Icon to ask a question; Use Chat for technical assistance



The recording, slide deck & certificate will be sent by email

# Meet Your Presenter



## **Nancy Hennessy, M.Ed.**

Educational consultant and past president of the International Dyslexia Association

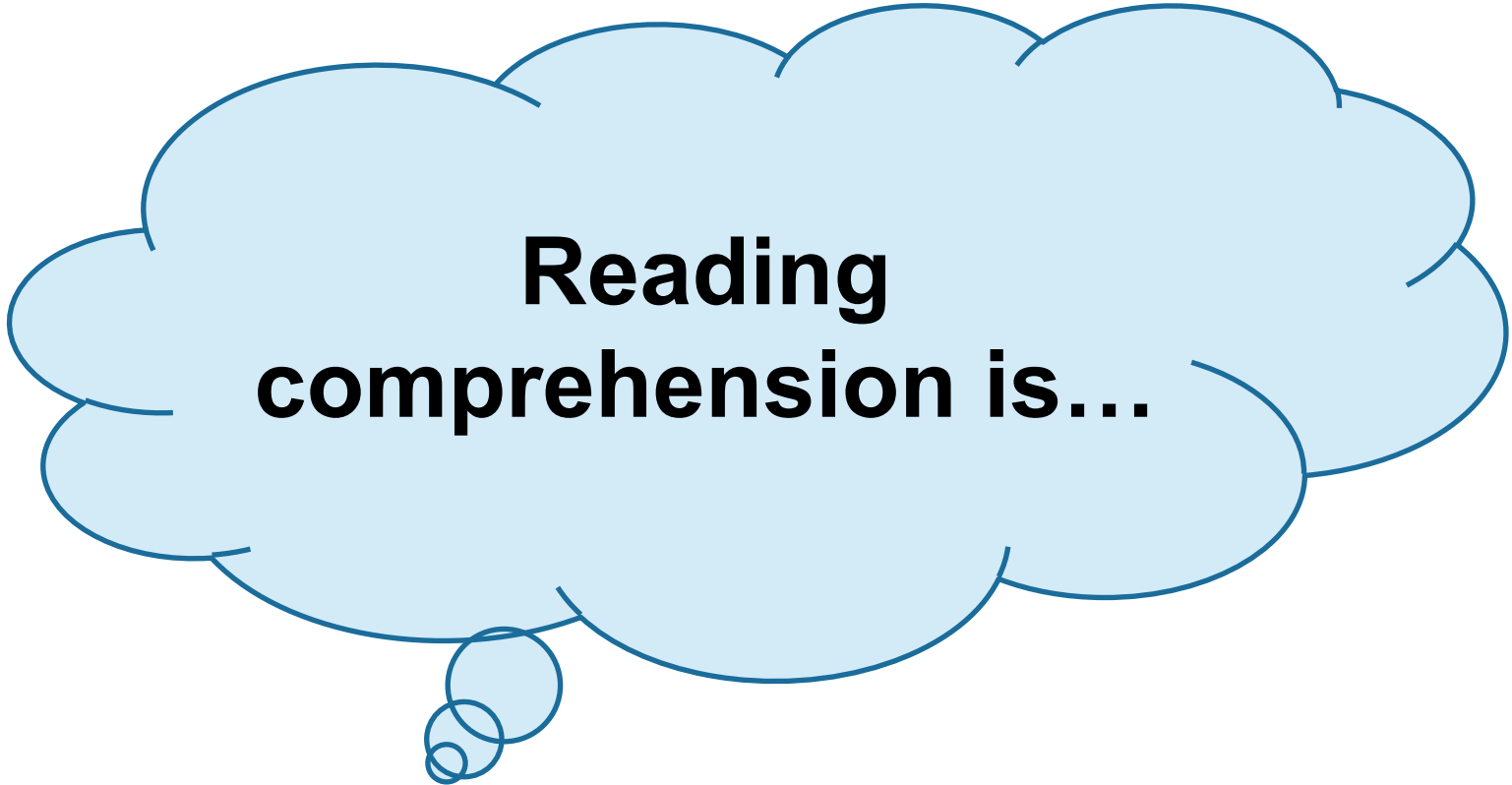




# What You'll Learn

- What the science has revealed about the complexity of reading comprehension
- The critical processes and knowledge necessary for making meaning
- How this knowledge informs the design of a blueprint for reading comprehension instruction
- Evidence based instructional tools to help student develop strategies and skills for comprehending text

**Fact: The science of reading  
does include  
comprehension.**



**Reading  
comprehension is...**

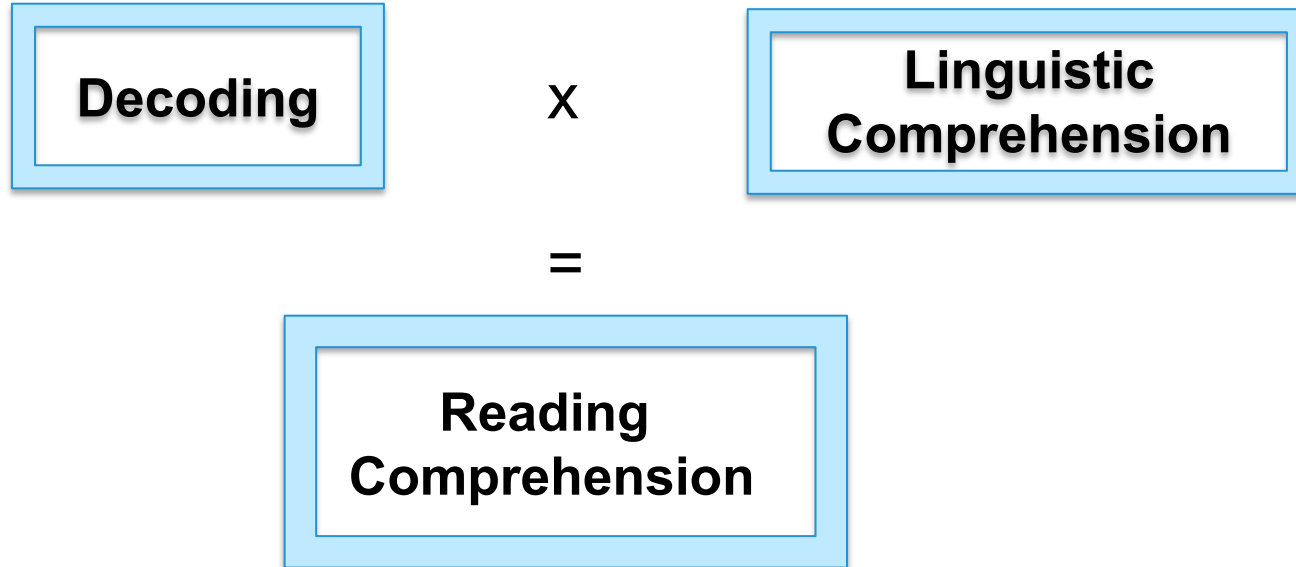
*Reading comprehension is **not a single entity that can be explained by a unified cognitive model.***

*Instead, it is the orchestrated product of a set of linguistic and cognitive processes operating on text and interacting with background knowledge, features of the text, and the purpose and goals of the reading situation.*

Castles et al, 2018

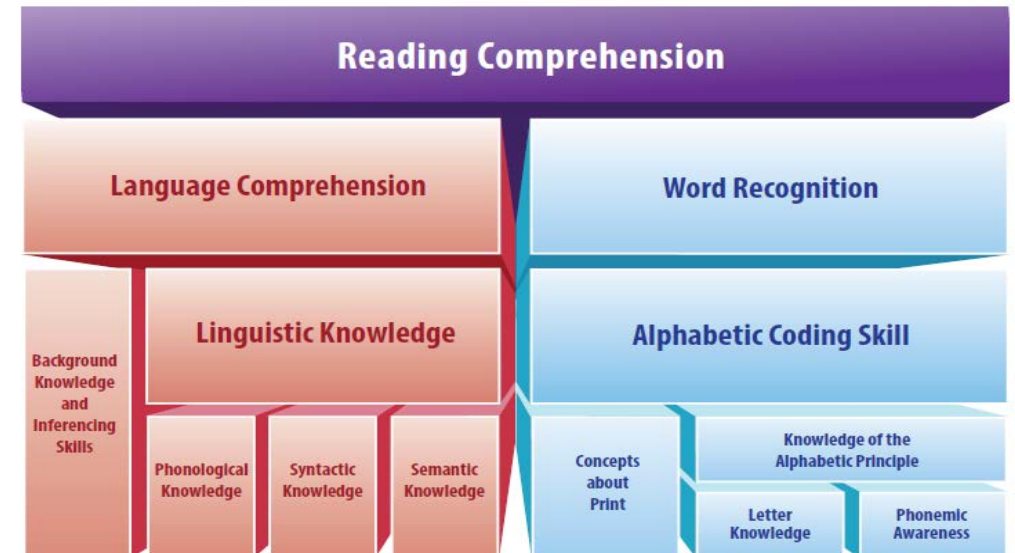
# The Simple View of Reading?

Gough & Tunmer, 1986



*One of the most complex behaviors that individuals engage in on a regular basis.*  
Catts & Kamhi, 2017

Cognitive Foundations of Reading



Hoover & Tunmer, 2020



Instead, it is the **orchestrated product** of a set of linguistic and cognitive processes...



Antonio-first grade  
*Stand Tall Molly Lou Mellon*  
**What was her  
Grandmother's message?**

Kayla-fourth grade  
*Mystery of the Tattooed Mummy*  
**What were archaeologists looking  
for?**

Matt-fifth grade  
*Tuck Everlasting*  
**Would you want to be immortal?  
Why or why not?**

Maria-second grade  
*The Ants & the Grasshopper*  
**What do you know about ants  
and how they behave?**

Jermaine-sixth grade  
*The Founding of American Democracy*  
**Why did the Founding Fathers have  
to compromise?**

Will-third grade  
*Dear Benjamin Banneker*  
**Was Benjamin an activist?  
Why or why not?**



# *Instead, it is the orchestrated product of a **set of linguistic and cognitive processes...***

*At the word level, the reader must decode individual words . . . **access meaning** of the words they hear or read.*

*At the sentence level, the comprehender needs to work out the **syntactic structure and sense of each sentence**. Simply deriving the meanings of individual words and sentences is insufficient.*

*In order to construct a **mental model of the text**, the comprehender needs to **integrate information from different sentences** to establish local coherence and to incorporate background knowledge and ideas (retrieved from long term memory) to **make sense of details that are not explicitly mentioned**.*

Oakhill & Cain, 2007



What does this word, phrase, sentence mean? Which who or what is it this about? What's happening? Why, where, how, when?

Identifying idea units

What did the author want me to understand from reading this text- the big ideas? What am I taking away from this text?

Organizing overall understanding

## *Building Meaning: A Mental Model*

How do the ideas in this and these sentences connect? Are there words that are clues to these connections and what do they mean?

Integrating ideas between sentences

Do I understand what I am reading? What else do I need to do?

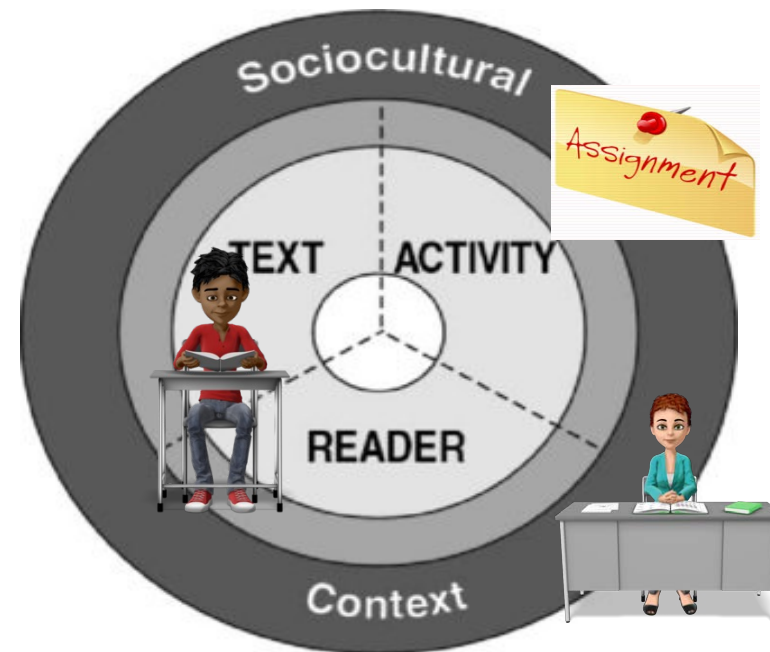
What do I know that connects to what I am reading? How will that help me understand what the author meant but did not say?

Integrating prior knowledge and inferencing

Monitoring understanding

Hennessy, 2020, 2023  
Based on Irwin, 2007

*...operating on **text** and interacting with **background knowledge, features of the text, and the purpose and goals of the reading situation.***



*The Rand Reading Study Group Report Heuristic, 2002*

*When a child is repeatedly **unsuccessful** in comprehending texts that he/she has read, this suggests **reading difficulties at the processing level.***

*These difficulties can **manifest** themselves in various ways: failure to recall the **main points of a story**, failure to **answer literal and/or inferential questions**, failure to **complete the actual reading of the text**, and so on.*

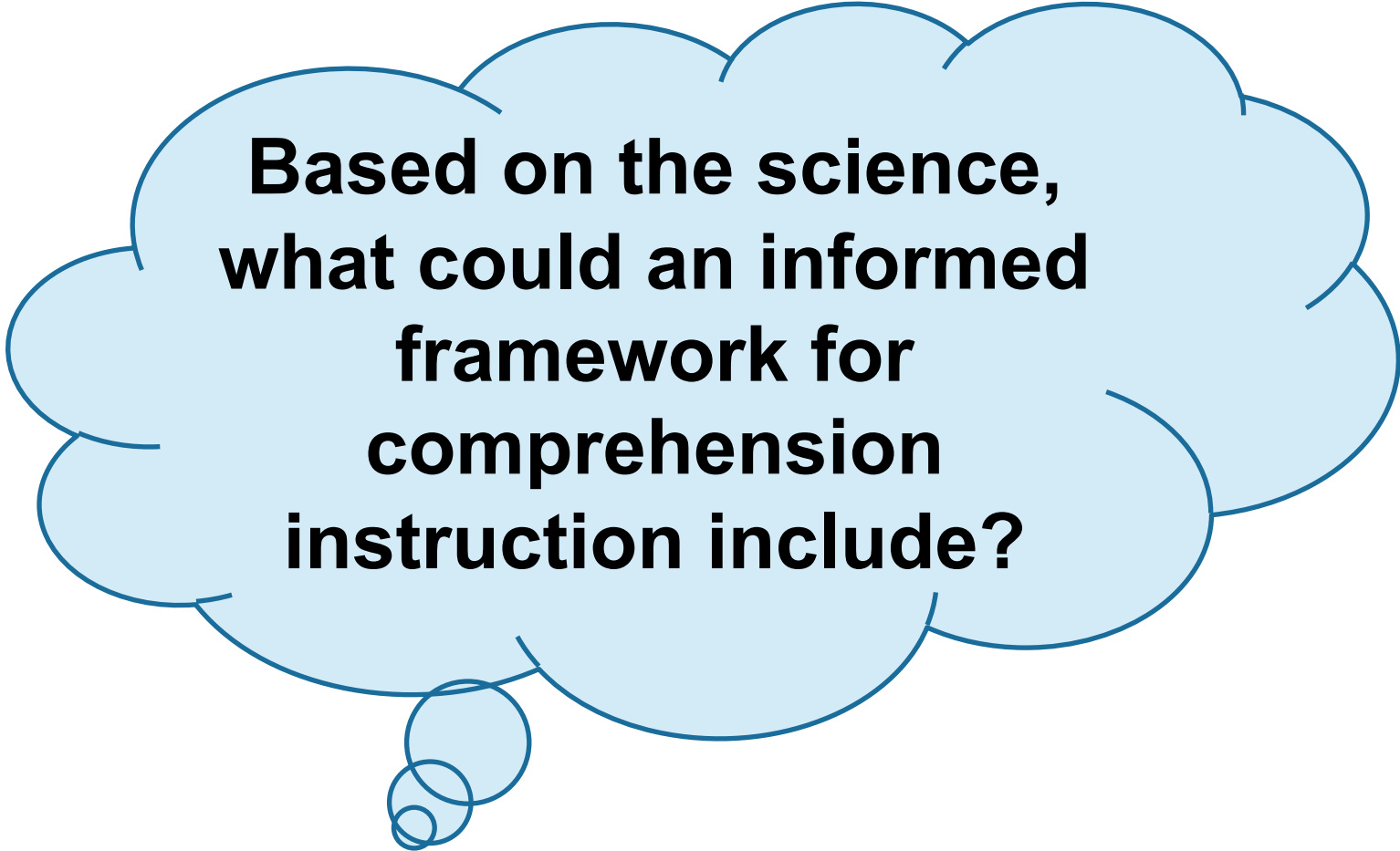
Kendeou et al, 2014

**Instructional Implications?**

**Fact: Despite decades of reading comprehension research, a limited amount of time is spent using evidence-based methods in classrooms**

Elleman & Oslund, 2019





**Based on the science,  
what could an informed  
framework for  
comprehension  
instruction include?**

What does your instruction include?

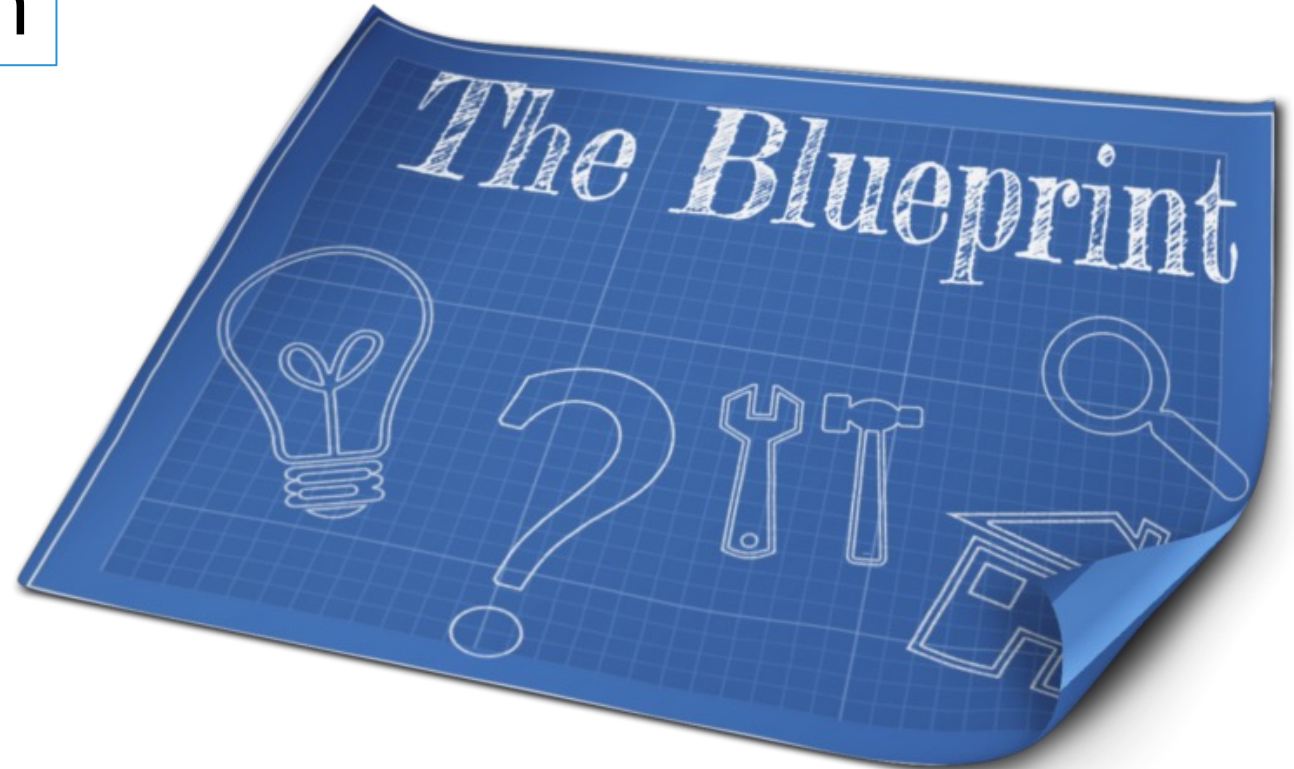
Master Plan

Scaffolds instruction

Metacognitive

Process & Product

Evidence Based Strategies



Flexible

# Blueprint for Comprehension Instruction

## **PREPARING FOR INSTRUCTION** **CRITICAL UNDERSTANDINGS OF TEXT**

What do you want students to know and understand after reading the text? What are the critical concepts and understandings—big ideas you want your students to acquire?

## **PURPOSE FOR READING TEXT**

What are the content instructional goals and objectives?  
What are the literacy instructional goals and objectives?

## **TEXT READING** **VOCABULARY**

Which words will your students need to know? Which are worth knowing?  
Which ones will you intentionally target and directly teach? Which ones will you incidentally-on-purpose teach? How, when?  
Which words will you purposefully discuss, incorporate into expressive language activities?  
How and when will you teach and foster the use of independent word learning strategies?

## **LANGUAGE STRUCTURES** **(Phrases, Clauses, Sentence Comprehension)**

Are there phrases, clauses, sentence structures that may be difficult for your students?  
How and when will you directly teach sentence comprehension? How and when will you teach students to work with challenging sentences?  
How will you facilitate the integration of ideas within and between sentences, e.g., the use of cohesive ties and connectives? How and when will you teach students to work with these?

## **KNOWLEDGE** • **Text Structure** • **Background Knowledge**

How is the text organized? How and when will you directly teach students the purpose, features, and signal words of different genres? How will you teach students to use the structure to understand purpose? To organize and express their understanding?  
What background knowledge is critical to understanding the text? How and when will you teach students to access and build their knowledge and integrate it with the text?

## **LEVELS OF UNDERSTANDING AND INFERENCE**

How will you teach students to construct meaning at different levels of understanding, including the surface code, textbase, and mental model of text? How will you directly teach students to use inference to integrate ideas and connect background knowledge to the text?  
How will you support your students' deep comprehension of text?

## **EXPRESSION OF UNDERSTANDING**

What strategies and activities will you use for students to demonstrate understanding at different levels, during and after reading?  
How will you support their oral and written expression of understanding?

Comprehension Monitoring  
Before, During, and After Reading: Strategies and Activities

# Purpose for Reading



# Critical Understandings

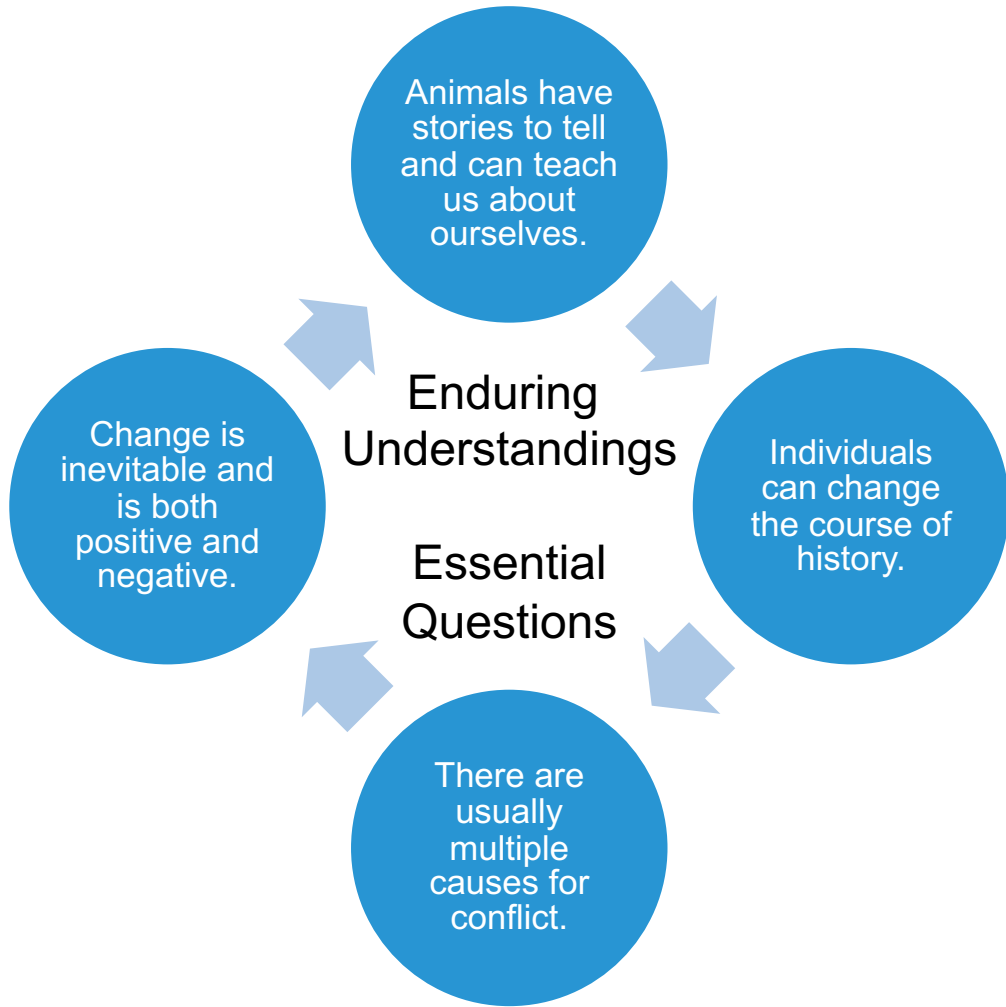
***What do you want your students to know, understand and be able to do?***

***What are your content and literacy goals & objectives?***

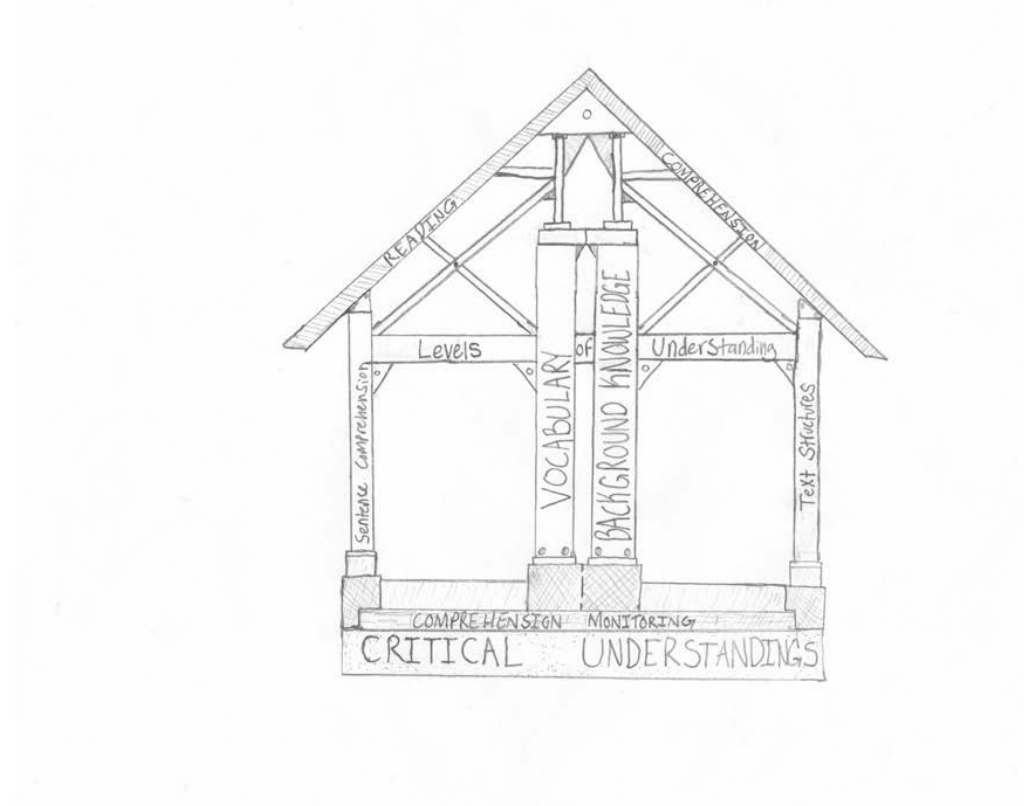


*...double outcomes-an improvement in reading ability and an increased knowledge about whatever was read.*

Shanahan, 2017



## Content Goals



## Literacy Goals



# What are your students reading?

- ✓ *Do your readings support the development of knowledge?*
- ✓ *Do your readings provide opportunities to develop necessary language processes and skills?*
- ✓ *Do your texts provide opportunities to develop and apply academic language skills to text ?*
- ✓ *Do your readings represent different genre, disciplines, the interests and experiences of your readers, are culturally responsive?*
- ✓ *Have you considered access issues for struggling readers?*

Hennessy, 2020

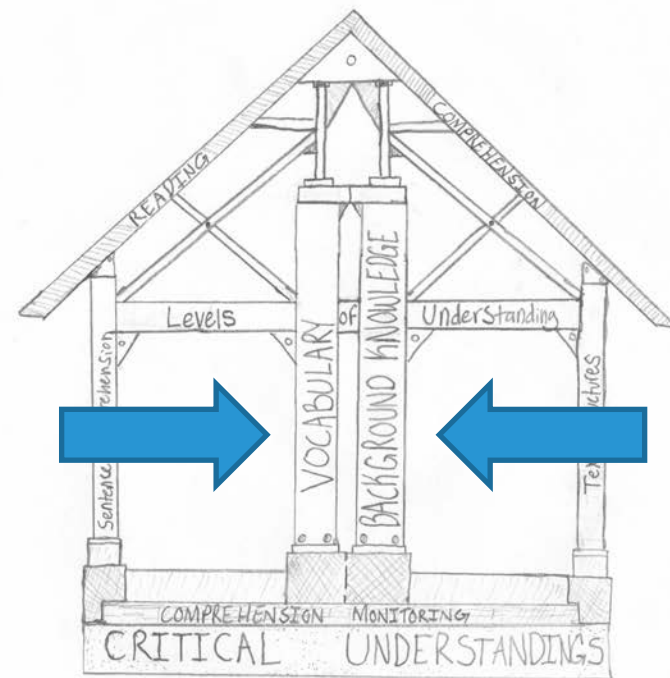


# Blueprint for Comprehension Instruction

<p><b>PREPARING FOR INSTRUCTION</b> <b>CRITICAL UNDERSTANDINGS OF TEXT</b></p>	<p>What do you want students to know and understand after reading the text? What are the critical concepts and understandings—big ideas you want your students to acquire?</p>
<p><b>PURPOSE FOR READING TEXT</b></p>	<p>What are the content instructional goals and objectives? What are the literacy instructional goals and objectives?</p>
<p><b>TEXT READING</b> <b>VOCABULARY</b></p>	<p>Which words will your students need to know? Which are worth knowing? Which ones will you intentionally target and directly teach? Which ones will you incidentally-on-purpose teach? How, when? Which words will you purposefully discuss, incorporate into expressive language activities? How and when will you teach and foster the use of independent word learning strategies?</p>
<p><b>LANGUAGE STRUCTURES</b> <b>(Phrases, Clauses, Sentence Comprehension)</b></p>	<p>Are there phrases, clauses, sentence structures that may be difficult for your students? How and when will you directly teach sentence comprehension? How and when will you teach students to work with challenging sentences? How will you facilitate the integration of ideas within and between sentences, e.g., the use of cohesive ties and connectives? How and when will you teach students to work with these?</p>
<p><b>KNOWLEDGE</b> • Text Structure • Background Knowledge</p>	<p>How is the text organized? How and when will you directly teach students the purpose, features, and signal words of different genres? How will you teach students to use the structure to understand purpose? To organize and express their understanding?  What background knowledge is critical to understanding the text? How and when will you teach students to access and build their knowledge and integrate it with the text?</p>
<p><b>LEVELS OF UNDERSTANDING AND INFERENCE</b></p>	<p>How will you teach students to construct meaning at different levels of understanding, including the surface code, textbase, and mental model of text? How will you directly teach students to use inference to integrate ideas and connect background knowledge to the text? How will you support your students' deep comprehension of text?</p>
<p><b>EXPRESSION OF UNDERSTANDING</b></p>	<p>What strategies and activities will you use for students to demonstrate understanding at different levels, during and after reading? How will you support their oral and written expression of understanding?</p>



Comprehension Monitoring  
Before, During, and After Reading: Strategies and Activities



*...early as kindergarten, **language measures, including vocabulary, add to the prediction of reading comprehension difficulties** over and above other word reading predictors and are direct measures of word reading performance in second grades.*

Catts et al, 2014

*Children with **better vocabulary knowledge** have higher reading **comprehension scores** concurrently and longitudinally.*

Oakhill, Cain & Elbro, 2015

**Vocabulary is more  
than knowing a  
definition.**



*Effective instruction means bringing students' attention to words in ways that promote not just knowing word meanings but also understanding how words work and how to utilize word knowledge effectively in higher level tasks, such as reading comprehension.*

McKeown, 2019

***What tools do you use to build vocabulary?***



# The Blueprint & Vocabulary

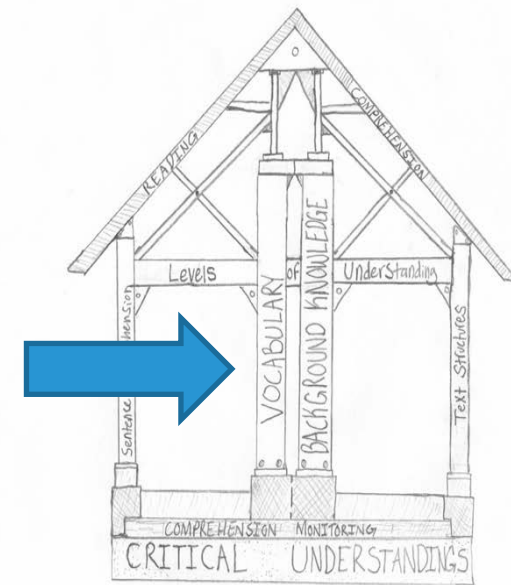
*Which words will your students need to know?  
Which are worth knowing?*

*Which ones will you intentionally target and  
directly teach?*

*Which ones will you incidentally-on-purpose  
teach?  
How? When?*

*How and when will you teach and foster the  
use of independent word learning strategies?*

*Which words will you purposefully discuss and  
incorporate into expressive language activities?*



# An Informed Structure for Vocabulary Instruction



Intentional Instruction	Incidental on Purpose Instruction	Intentional Independent Word Learning Strategies Instruction
<ul style="list-style-type: none"> <li>✓ <b>Word Choice</b></li> <li>✓ <b>Instructional Routines</b></li> <li>✓ <b>Processing &amp; Practice Activities</b></li> </ul>	<ul style="list-style-type: none"> <li>✓ Structured Point of Contact Teaching</li> <li>✓ Structured Teacher-Student Talk</li> <li>✓ Structured Shared Reading</li> <li>✓ Structured Independent Reading</li> </ul>	<ul style="list-style-type: none"> <li>✓ Using the Dictionary</li> <li>✓ Using Context Clues</li> <li>✓ Using Morphemic Analysis</li> </ul>
<p><b>Word Consciousness</b></p>	<p><b>Word Consciousness</b></p> <p><i>Purposeful Activities</i></p>	<p><b>Word Consciousness</b></p> <p>©2018 Nancy Hennessy</p>

# Informed Instructional Routine

## Simple:

- ✓ *use of definitional and contextual information.*

## Complex:

- ✓ *multiple exposures to targeted words (e.g., use orally and in written expression).*
- ✓ *engagement in deep processing of each word generating information that ties the word to known information (e.g., relationships to other words, big ideas/themes).*
- ✓ *includes multiple varied activities for before, during and after reading.*

Stahl, 2000

## Teacher:

Pronounces targeted word and discusses structure and/or asks questions about linguistic structure.

Asks students to repeat.

Explains the meaning in everyday language.

Provides examples from context and other situations. Asks students for example.

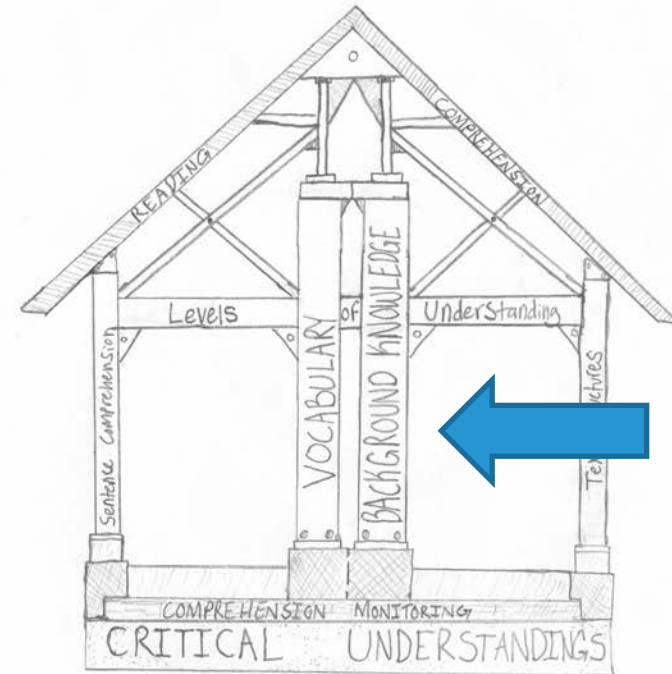
Says, spells and writes the word.





Connect	Represent	Use
Semantic Maps	Pictures Drawings Videos	Questions, Examples
Semantic Feature Analysis	Gestures and Movement	Conversation Prompts
Concept Maps	Word Walls	Writing Stems  Hennessy, 2018

*Multiple exposures & deep processing...*



# Background Knowledge is ..



*Background knowledge is specific to the situations, problems, and concepts presented in targeted texts used in an academic setting.*

*Brody, 2001*



- ✓ *provides a framework for organizing incoming information and guides us as we read through a text.*
- ✓ *allows us to make inferences and fill in information that is not explicitly provided.*
- ✓ *is the most critical component of critical thinking.*
- ✓ *allows us to make the most use of our working memory.*

Catts, 2022

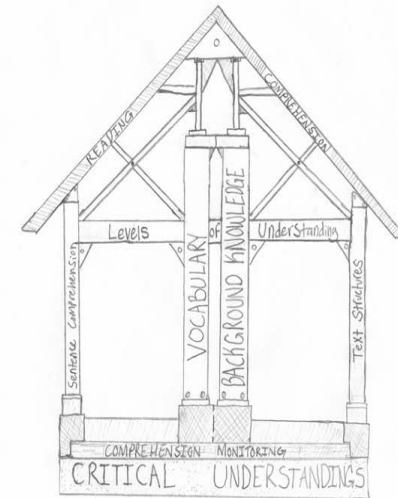
***What role does background knowledge play in your instruction?***



# The Blueprint & Knowledge

*What background knowledge is critical to understanding the text?*

*How & when will you teach students to access, build and integrate their knowledge with the text?*



Win Wagner 01/01/2020

# Five Research Based Principles

Neuman, 2019

- ✓ Big Ideas
- ✓ Word Knowledge
- ✓ Use of Multiple Genres
- ✓ Distribute Reviews
- ✓ Intentional Opportunities for Language Engagement

# Informed Instructional Approach

<b>Activate and assess background knowledge</b>	<b>Build background knowledge</b>	<b>Connect to background knowledge</b>
Anticipation guides	Multiple topical/themed texts	Anticipation guides
Questions and prompts	Virtual and real-time experiences	Questions and prompts
Charts, webs, maps	Authentic artifacts	Charts, webs, maps
Visual images	Vocabulary connections	Application to other readings

## The ABCs of Background Knowledge

Hennessy, 2020

Instructional Tools	Example
<p><b>Multiple topical/themed texts</b></p>	<p>Students read varied related texts to develop an understanding of the critical topic—dictatorship:</p> <p><i>Animal Farm</i> (Orwell, 1945)</p> <p><i>In the Time of Butterflies</i></p> <p><i>Stalin: A Brutal Legacy Uncovered</i> (Kubic, 2016)</p>
<p><b>Authentic artifacts</b></p>	<p>Students study and discuss the meaning behind the following documents to support their understanding about the life of Rosa Parks and the Montgomery bus boycott:</p> <ul style="list-style-type: none"> <li>• A photograph of people seated on a segregated bus</li> <li>• Rosa Parks’ arrest record</li> <li>• Rosa Parks’ fingerprint record</li> <li>• A photograph of the boycott</li> </ul>
<p><b>Vocabulary connections</b></p>	<p>Using a word cloud or map, consider the connections students might make to the word democracy to develop an understanding of how words provide insight into underlying concepts and ideas.</p> <p style="text-align: right;">Hennessy, 2020</p>

1. *What is necessary for understanding the critical topics and understandings represented in this text?*
2. *What did the author assume readers would bring to the text?*
3. *How will I activate or gain access to my students' knowledge?*
4. *Given what my students know, what else might my students need to know?*
5. *How will I facilitate the building of necessary knowledge?*
6. *How will I prompt students' integration of background knowledge with the text?*

Hennessy, 2020



**Fact: The science of reading  
does include  
comprehension.**

**Fact: The science provides direction  
for designing & delivering effective instruction.**





## Learn the Science of Reading

- 7–10-week online course that teaches foundational skills and instructional practices based on the science of reading
- Learn to understand and recognize dyslexia and its warning signs
- Learn the structure of the English and Spanish language system
- Includes the *Teaching Reading Sourcebook* and *Assessing Reading: Multiple Measures* textbooks
- Available for graduate credit

[www.corelearn.com/online-elementary-reading-academy](http://www.corelearn.com/online-elementary-reading-academy)

# Questions?



**Get in Touch with CORE!**

[info@corelearn.com](mailto:info@corelearn.com)  
888.249.6155



Consortium on Reaching Excellence in Education



@COREInc

# Join Us in March!

## Supporting Collaborative Learning in Elementary Math Classrooms

March 15, 4:00 p.m. ET

With

Jennifer M. Langer-Osuna, Ph.D.

Associate Professor

Graduate School of Education, Stanford University

*Register*

[www.corelearn.com/2022-23-webinars](http://www.corelearn.com/2022-23-webinars)

