# Unraveling the Upper Strands of the Rope

Scarborough's rope gave us the best map we've ever had of what reading comprehension requires — and that map still holds. The problem isn't the science. It's the translation.

Terms like "verbal reasoning" and "language structures" were built for theory, not for lesson planning. They're hard to assess, hard to explain to parents, and hard to turn into instruction.

This instructional taxonomy keeps every concept Scarborough identified — but renames the strands as the things teachers actually do: teach words, sentences, discourse, inferencing, and knowledge. The result: the upper strands become measurable, teachable, and testable. Teachers finally know what to teach.

## CONCEPTUAL TAXONOMY

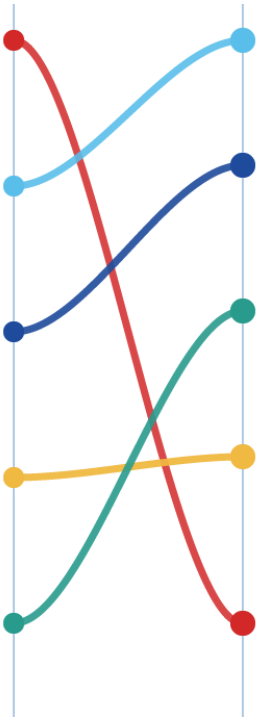
**BACKGROUND KNOWLEDGE**
*facts, concepts, etc*

**VOCABULARY**
*breadth, precision, links, etc*

**LANGUAGE STRUCTURES**
*syntax, semantics, etc*

**VERBAL REASONING**
*inference, metaphor, etc*

**LITERACY KNOWLEDGE**
*print concepts, genres, etc*



## INSTRUCTIONAL TAXONOMY

**WORDS**
*general academic, multiple meaning, domain-specific, and morphologically complex*

**SENTENCES**
*complex sentences with subordinating conjunctions and relative pronouns*

**DISCOURSE**
*narrative and expository discourse patterns*

**INFERENCING**
*strategic use of inferencing to understand figurative language and make text-to-text and text-to-self connections*

**KNOWLEDGE**
*facts and concepts needed for text-to-world connections*

Comprehension does not emerge from exposure, immersion, or wide reading alone. Only through **direct and deliberate instruction** across several years can students be prepared for the demands of academic reading.

The research is clear that every strand must be addressed and the best programs refuse the **either/or** choice. The path forward is **yes/and**: **words** and **sentences** and **discourse** and **inferencing** and **knowledge**

# WORDS

How word types differ and when to teach them

Words are the building blocks of academic language — but they are not all the same. Some appear across every subject. Others belong only to science, math, or social studies. Some carry more than one meaning. Some are built from smaller meaningful parts. Because each type behaves differently, teachers need to know which words to prioritize and when.

## What types of words and when to teach them

*Sample words by type and grade level — PreK through 3rd Grade*

| Word Type | PreK | Kindergarten | 1st Grade | 2nd Grade | 3rd Grade |
|---|---|---|---|---|---|
| **General Academic**<br>*Challenging words useful across many topics and contexts. Prioritize first.* | chase<br>brave<br>explore<br>powerful | clue<br>explain<br>perform<br>change | compare<br>predict<br>investigate<br>construct | exert<br>glance<br>prevent<br>intense | analyze<br>modify<br>emphasize<br>intensify |
| **Domain Specific**<br>*Words needed only in specific subjects — science, social studies, math.* | weather<br>forest<br>magnet<br>season | liquid<br>energy<br>shadow<br>community | habitat<br>climate<br>ecosystem<br>diagram | government<br>election<br>evaporation<br>experiment | ecosystem<br>biodiversity<br>atom<br>equation |
| **Multiple Meaning**<br>*Words with more than one definition. Teach the meaning that fits the context.* | play<br>match<br>trip<br>rock | ground<br>fair<br>trade<br>track | bark<br>light<br>bank<br>pitcher | bolt<br>spring<br>draft<br>scale | bank<br>volume<br>current<br>charge |
| **Morphologically Complex**<br>*Words built from meaningful parts — roots, prefixes, and suffixes.* | teacher<br>helpful<br>unfair<br>repaint | redo<br>unhappy<br>fearless<br>explorer | watched<br>untied<br>beautifully<br>hopeless | rethink<br>unkindness<br>preheated<br>courageous | unpredictable<br>displacement<br>prehistoric<br>thoughtful |

## The big idea

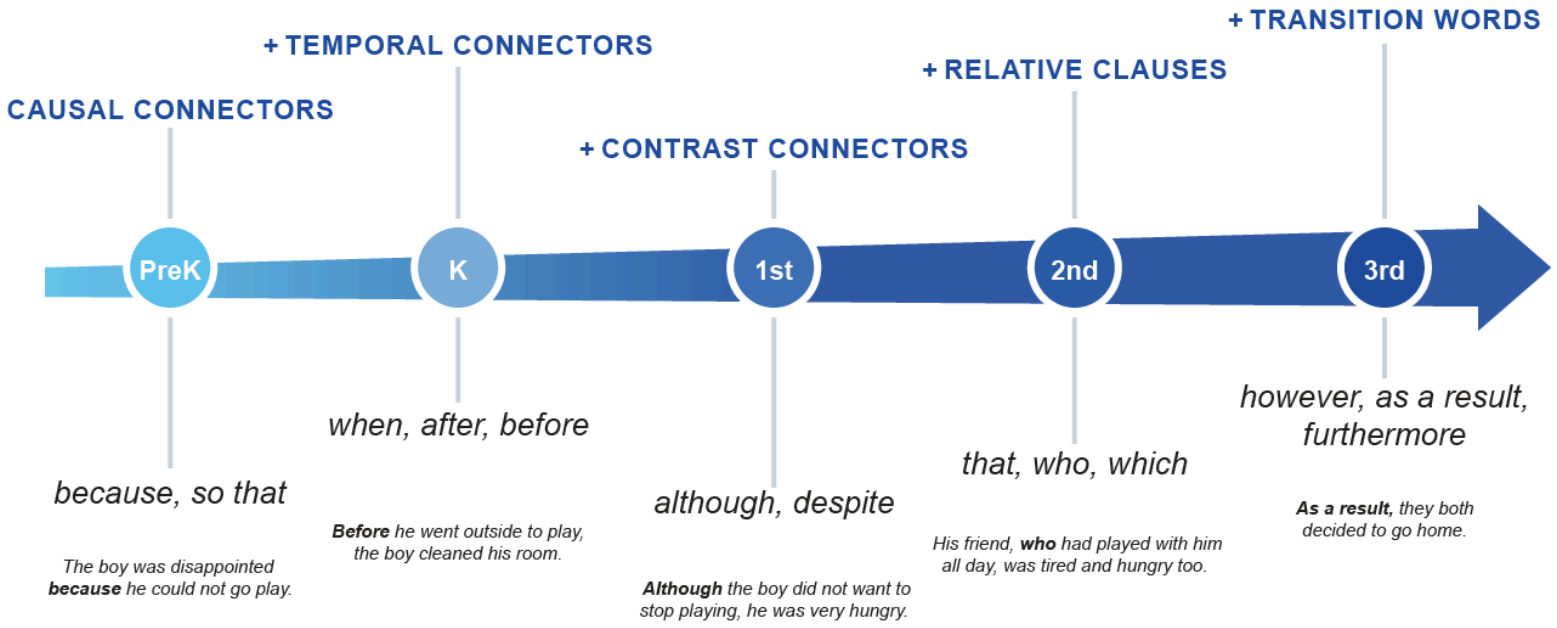
Across PreK through 3rd grade, students' vocabulary knowledge should grow in three ways at once: students learn more words (breadth), they learn more about each word (depth), and they develop more strategies for figuring out unfamiliar words on their own (context clues, morphological analysis, background knowledge). Each of the four word types pulls its weight in this growth — and none can be skipped.

# SENTENCES

## How they grow across the grades

Vocabulary is essential, but knowing words does not guarantee comprehension. Students need to understand how words work together inside sentences — how a *because* signals cause, how a *who* introduces extra information about a person, how a *however* flips the direction of an idea. These syntactic clues carry meaning, and students who don't recognize them lose access to what they're reading and hearing.

Sentence development is sequential. Each grade builds on the patterns from the year before, with new connector words and new structures layered on top.




Each grade builds on what came before and older patterns are practiced and refined, not replaced.

*Complex sentences are learned best through speaking — modeling and oral retells, not worksheets.*

Causal and temporal connectors are not optional vocabulary. They carry the logic of narrative and exposition. A student who cannot use *because*, *when*, *after*, and *so that* cannot retell a story or explain a sequence — and cannot read one with full comprehension either.

Relative pronouns and transition words carry comprehension. *Who, that, which, where* elaborate nouns; *therefore, however, as a result* connect ideas across sentences. A student who misses them loses the critical relations within the text and the meaning of the text.

# DISCOURSE

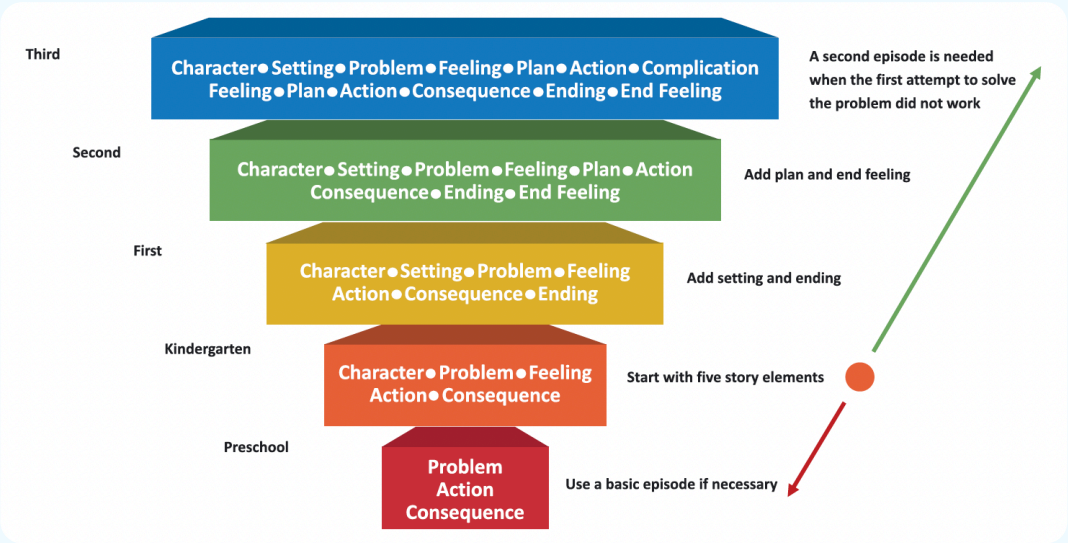
How extended language is organized

Discourse is any extended expression bigger than a single sentence — a story, a paragraph, a science explanation.

Words live inside sentences, and sentences live inside discourse. Because of this nested structure, when students practice language at the discourse level, they automatically practice complex sentences and academic vocabulary at the same time.

There is no need to isolate word or sentence instruction from discourse — discourse is the most efficient place to teach all three.

Students need **two main types of academic discourse**. Master narrative first, then leverage those discourse skills to learn exposition.

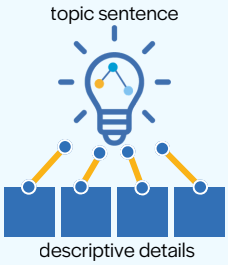



**Narrative discourse** has a general pattern called *story grammar*

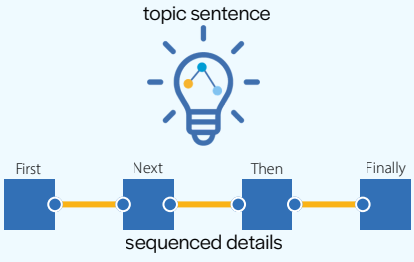
- character
- setting
- problem
- feeling
- attempt
- consequence
- ending

This pattern holds across most types of stories and most languages and cultures.

**Expository discourse** is more variable; its organization depends on purpose (describing, sequencing, comparing, persuading), but every expository structure shares a common spine: a topic sentence supported by details.







# INFERENCING

How the gaps between word, sentence, and discourse patterns are filled

No text says everything. Every page leaves gaps the reader has to fill — what a character is feeling, why an event happened, what a word means in this context, what the author is trying to convey. Filling those gaps is inferencing, and it is what separates skilled comprehenders from struggling ones. Less skilled readers do not generate as many inferences as more capable readers, and these difficulties may be a direct cause of their comprehension problems.

## Climbing the Inference Ladder

*As students ascend the rungs of the ladder, they expand their inferential thinking capacities*

| | TEXT-BASED<br>*text-to-text connections* | KNOWLEDGE-BASED<br>*text-to-self connections \| text-to-life connections* |
|---|---|---|
| **3**<br>*8–9 yrs* | • Main idea/purpose in longer text<br>• Compare/contrast across passages<br>• Theme & lesson of a story | • Figurative language & metaphor<br>• Author's intent & perspective<br>• Monitoring across longer texts |
| **2**<br>*7–8 yrs* | • Cause-effect across multiple events<br>• Main idea in description & sequence<br>• Multiple-meaning words in context | • Knowledge-based inferences (gap-filling)<br>• Author's purpose (basic)<br>• Self-correcting when comprehension breaks |
| **1**<br>*6–7 yrs* | • Bridging across non-adjacent sentences<br>• Character mental states & perspective<br>• Pronoun & referent connections | • Inferring word meaning from context<br>• Using background knowledge to confirm<br>• Comprehension monitoring (short text) |
| **K**<br>*5–6 yrs* | • Why characters act (goals/motives)<br>• Connecting nearby sentences<br>• Predicting based on story pattern | • Using clues to figure out word meanings<br>• Confirming meaning with what they know<br>• Noticing when something doesn't make sense |
| **P**<br>*3–5 yrs* | • Character feelings<br>• Basic cause–effect within a story | • Connecting story to own experiences<br>• Recognizing familiar events & settings |

Inferencing is comprehension. A student who reads every word but cannot infer what those words mean together has not understood the text.

# KNOWLEDGE

How content knowledge grows in form & emphasis across the grades

## Forms of content knowledge across the grades

*All four forms grow at every grade — the emphasis shifts from simple to complex*

SIMPLER → MORE COMPLEX

| | VERBAL ASSOCIATIONS<br>*facts, labels, words* | CONCEPTS<br>*categories & features* | RULE RELATIONSHIPS<br>*causal & logical links* | COGNITIVE STRATEGIES<br>*flexible, multi-step* |
|---|---|---|---|---|
| **P**<br>*3–5 yrs* | **color names, animal names, body parts, family roles, action words** | "big," "loud," "happy," "kind"<br>*simple categories* | "if I share, friend is happy"<br>*basic cause–effect* | retell a familiar story with help<br>*emerging* |
| **K**<br>*5–6 yrs* | **letter names & sounds, numbers, days, community helpers** | **living vs. nonliving, shapes, character & setting** | why characters feel a certain way; weather causes seasons | retell single-episode story with prompts<br>*supported* |
| **1**<br>*6–7 yrs* | **habitats, continents, historical figures, vocabulary depth** | **story grammar, main idea, ecosystem, community types** | **cause-and-effect in stories & nature, "why" reasoning** | retell after one hearing; basic information retells |
| **2**<br>*7–8 yrs* | **domain-specific terms (government, force, evaporation)** | **narrative episodes, expository structures, economic systems** | **historical cause-effect, scientific principles, character motivation** | **two-episode story retell; describe & sequence in writing** |
| **3**<br>*8–9 yrs* | **academic + content vocabulary across subjects** | **theme, perspective, complex science & history concepts** | **multi-step reasoning, argument logic, author's intent** | **generate stories; compare/contrast, persuade in writing** |

*Color intensity reflects how dominant each form is at that grade — all four forms are present at every grade.*

## You can't reason without facts, but facts aren't enough.

Content knowledge – facts, concepts, and reasoning – emerges from the patterns of language, glued together by inferencing. But knowledge does not all look the same. It comes in four forms that build on each other from simple to complex.

All four forms are present at every grade. What changes is the emphasis. In preschool, the focus is on verbal associations: naming, labeling, connecting words to meaning. By 3rd grade, the emphasis shifts to cognitive strategies, where students generate stories, compare texts, and reason through unfamiliar content. The simpler forms don't disappear. They become the foundation the more complex forms build on.