

Reading for meaning: Examining the components that support the development of reading comprehension

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Overview

What is reading (comprehension)?

- The simple view of reading as a broad framework
- Beyond decoding: what's involved?

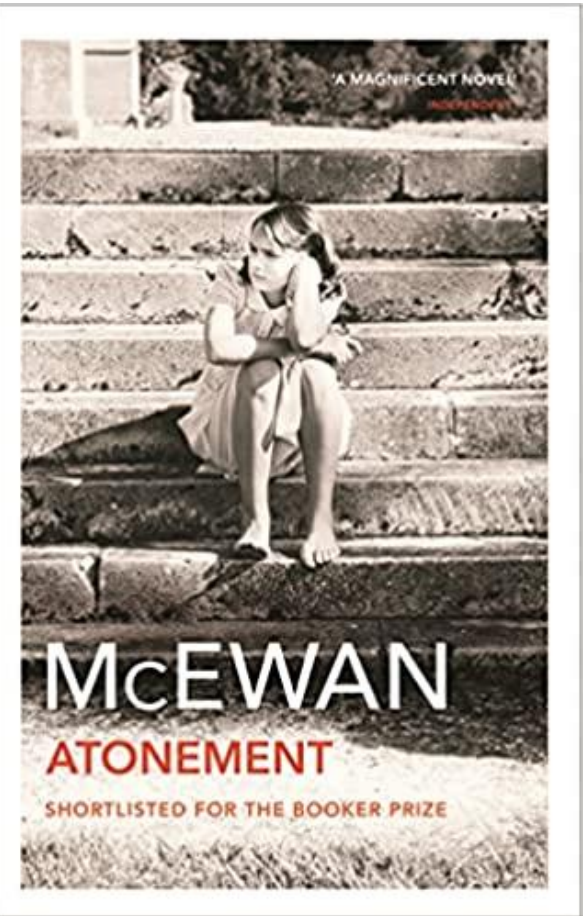
Comprehension in action

- The dynamics of constructing meaning from text
- The relations between skills and knowledge over time

Reading for meaning: conclusions

- What should we teach, when, and how?

What is reading?



What is reading?

"A story was direct and simple a story was a form of telepathy. By means of inking symbols onto a page, she was able to send thoughts and feelings from her mind to her reader's. It was a magical process, so commonplace that no one stopped to wonder at it. Reading a sentence and understanding it were the same thing; as with the crooking of a finger, nothing lay between them."

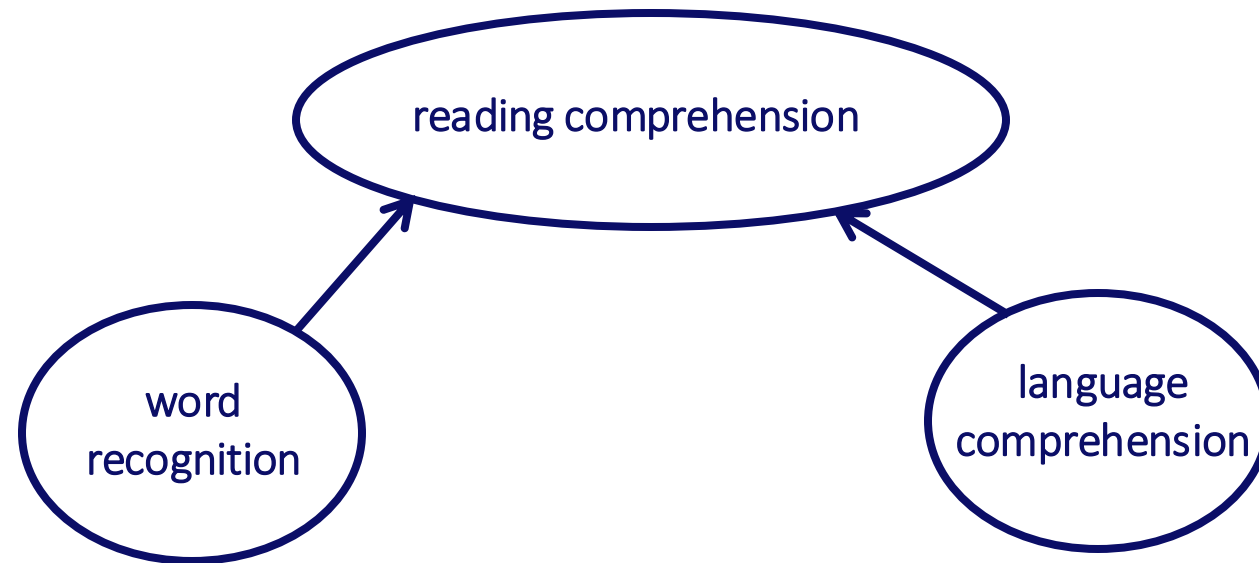
(Atonement, Ian McEwan, 2002, p. 23)

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(Atonement, Ian McEwan, 2002, p. 23)

The Simple View of Reading (Gough & Tunmer,



Both word recognition and language comprehension are necessary
for reading comprehension

The simple view of reading: a strong and converging evidence base

Concurrent relations: Word recognition and language comprehension each make **unique** contributions to an individual's reading comprehension, across the lifespan (e.g., Garcia & Cain, 2014).

Longitudinal relations: Word recognition and language comprehension each predict **outcomes** in reading comprehension over time (e.g., Oakhill & Cain, 2012; LARRC & Chiu, 2018).

Poor reading: Weak word recognition and weak language comprehension are distinct **sources** of reading comprehension difficulties (e.g., Catts et al., 2006).

Take home message #1

Word recognition and language comprehension
skills both matter!

Reading comprehension is the product of both word recognition
and language (listening) comprehension.

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Why is this text hard to understand?

نعم يا صديقي اني اعيش في مدينه هيوستن وانها ثاني اكبر مدينة في الوايا المتحده, من حيث المنكقه انها جیده جدا ومنازلها ليست باهضه الاسعار, ومدارسها تحتوي على ١٠ نجوم مما يدل انها مدارس ممتازة, وايضا هناك الكثير من المراكز الرياضيه القريبه من المنزل, حيث انك لن تحتاج لسياره لذهاي الى مركز رياضي. ومن حيث المطاعم فهناك الكثير مو المطاعم المختلفه مثل مطاعم عربيه يابانيه والصينيه والكثير منها.

Cannot decode the print to retrieve word meanings

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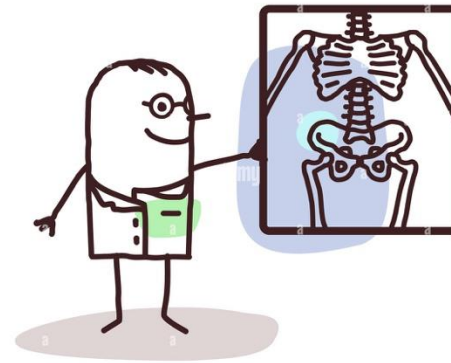
Angie rushed through the doors of the old brick building. She almost ran straight into a shadow gazer talking grim-faced to a blade. With a quick apology, she brushed past them and headed for the pup rounds. She had to know if things were zero delta with yesterday's first hit. After all, what looked like a soapbox derby had turned into a bounceback....

Specialised vocabulary (jargon) so cannot draw on existing vocabulary/world knowledge

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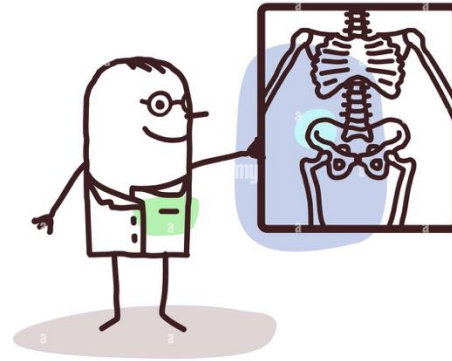
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radiologist

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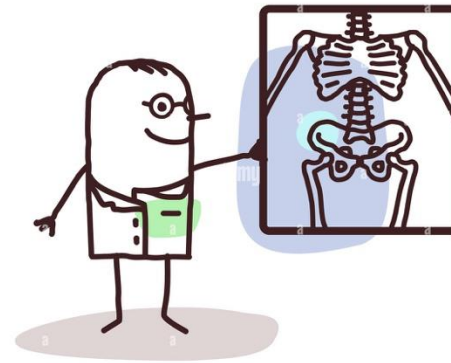
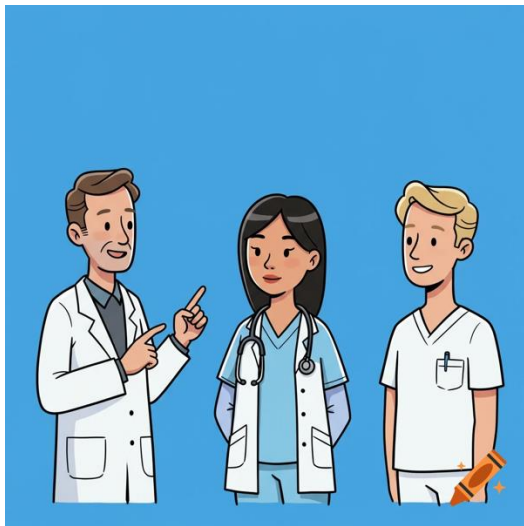


surgeon



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briefings for junior doctors



Why is this sentence hard to understand?

The man who whistles tunes pianos.

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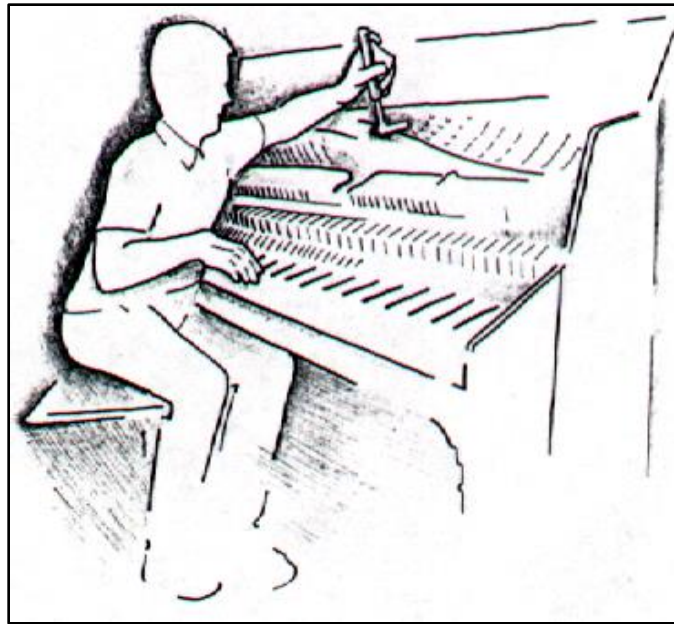
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Adobe Stock | #205824054

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Adobe Stock | #205824054

Why is this text hard to understand?

Peter was out of shape and needed to join a gym. He spent a great deal of time reviewing his options. He even went to talk to other people to get their advice. After a while Peter made the decision to find a boxer that he knew he would like as a pet and a companion.

Target sense of a word that has multiple meanings is inconsistent with preceding context

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Boxer = breed of dog or sports person



What makes these sentence pairs hard to understand?

The contractor was renovating the apartment on the top floor.

The tap could not be used during the rest of the day.

The contractor was fixing the bathtub in the apartment on the top floor.

The tap could not be used during the rest of the day.

Inference required to integrate (or link) the meanings of the two sentences

The contractor was renovating the apartment on the top floor.
The **tap** could not be used during the rest of the day.



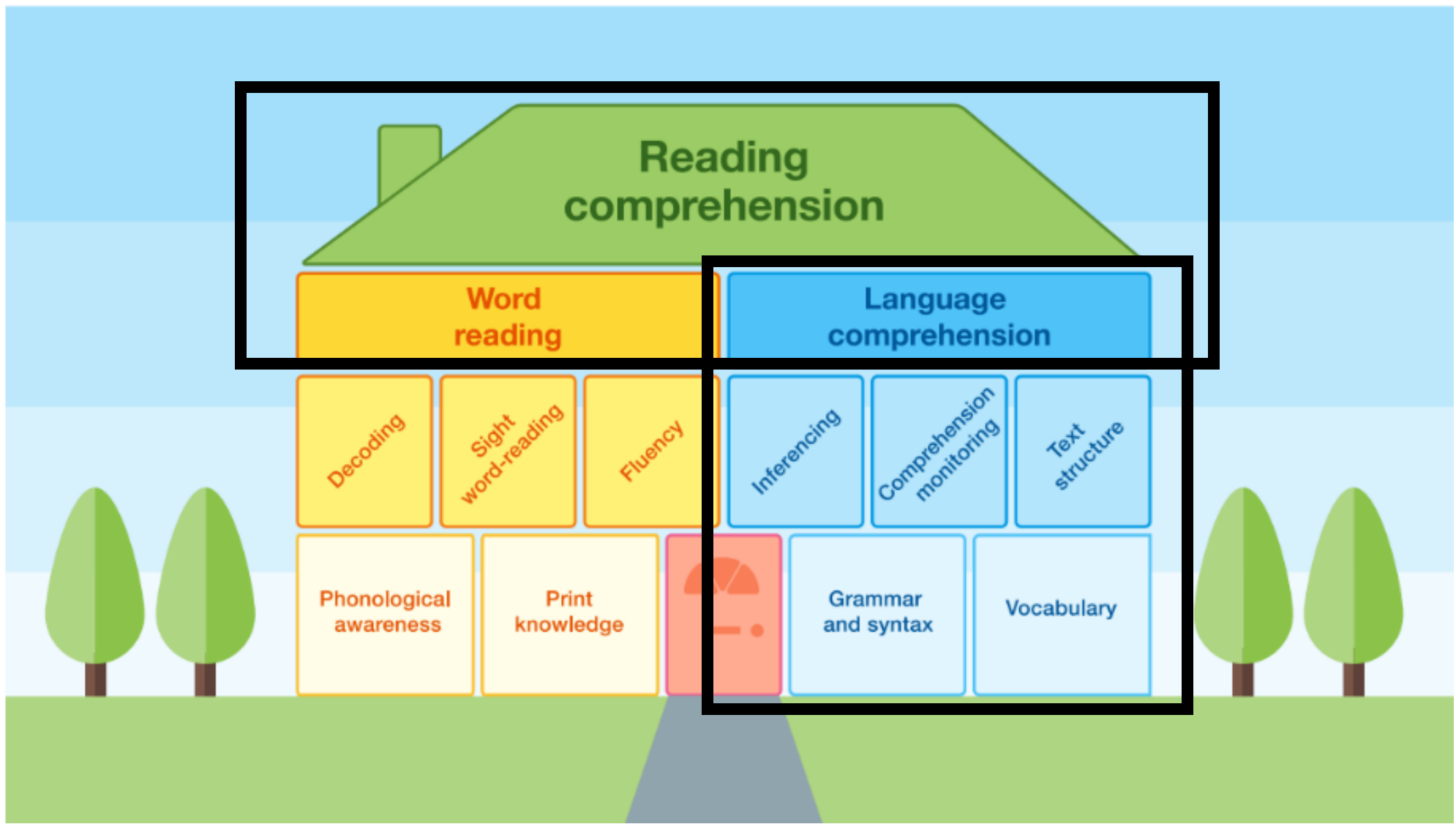
The contractor was fixing the **bath tub** in the apartment on the top floor.
The **tap** could not be used during the rest of the day.



Reading comprehension: the product

The product of skilled comprehension is an accurate, coherent and integrated memory-based representation of the situation or the state of affairs described in the text – a Mental Model or a Situation Model.

(Johnson-Laird, 1983; Kintsch, 1998)



(EEF 2021, adapted from Hogan et al., 2011)

Multiple skills and knowledge are important for reading comprehension: a strong and converging evidence base

Concurrent relations: Vocabulary, grammar, inference, knowledge of text structures, comprehension monitoring all make **unique** contributions to young children's reading comprehension, beyond word recognition (e.g., Cain et al., 2004; LARRC & Logan, 2017).

Longitudinal relations: These skills predict **outcomes** in reading comprehension across time (e.g., Oakhill & Cain, 2012; LARRC & Chiu, 2018).

Poor reading comprehension: These skills are weak in children with specific reading comprehension difficulties (e.g., Cain & Oakhill, 2006; Nation et al., 2004).

Take home message #2

Successful reading comprehension involves more than accurate and fluent word recognition skills.

Successful reading for meaning involves constructing a mental model that represents the situation(s) described in the text.

Beyond decoding, a range of language skills, knowledge, and processes support reading for meaning.

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Comprehension in action

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The dynamics of reading for meaning

It was a beautiful summer afternoon. Mrs. Flynn decided to go walking with her little boy, Mike. Mike was a little toddler who enjoyed riding in the stroller and taking walks with his mum. They were always making interesting discoveries on their nature walks. Over the last few weeks, they had been watching some caterpillar cocoons, anxiously awaiting their opening. As they looked around, Mike suddenly saw something new and became very excited. He looked and pointed at something flying that had beautifully decorated wings. It was rising gracefully from a delicate flower and fluttered just above his head before flying away in the sky.

What does Mike see? How does the text support this interpretation?

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inference

enables integration of information into the mental model; essential for filling in missing details; supports vocabulary and knowledge acquisition

vocabulary & background knowledge

support comprehension in general and inference in particular; are learned from text; background knowledge can provide a framework for the mental model

grammar and cohesive ties

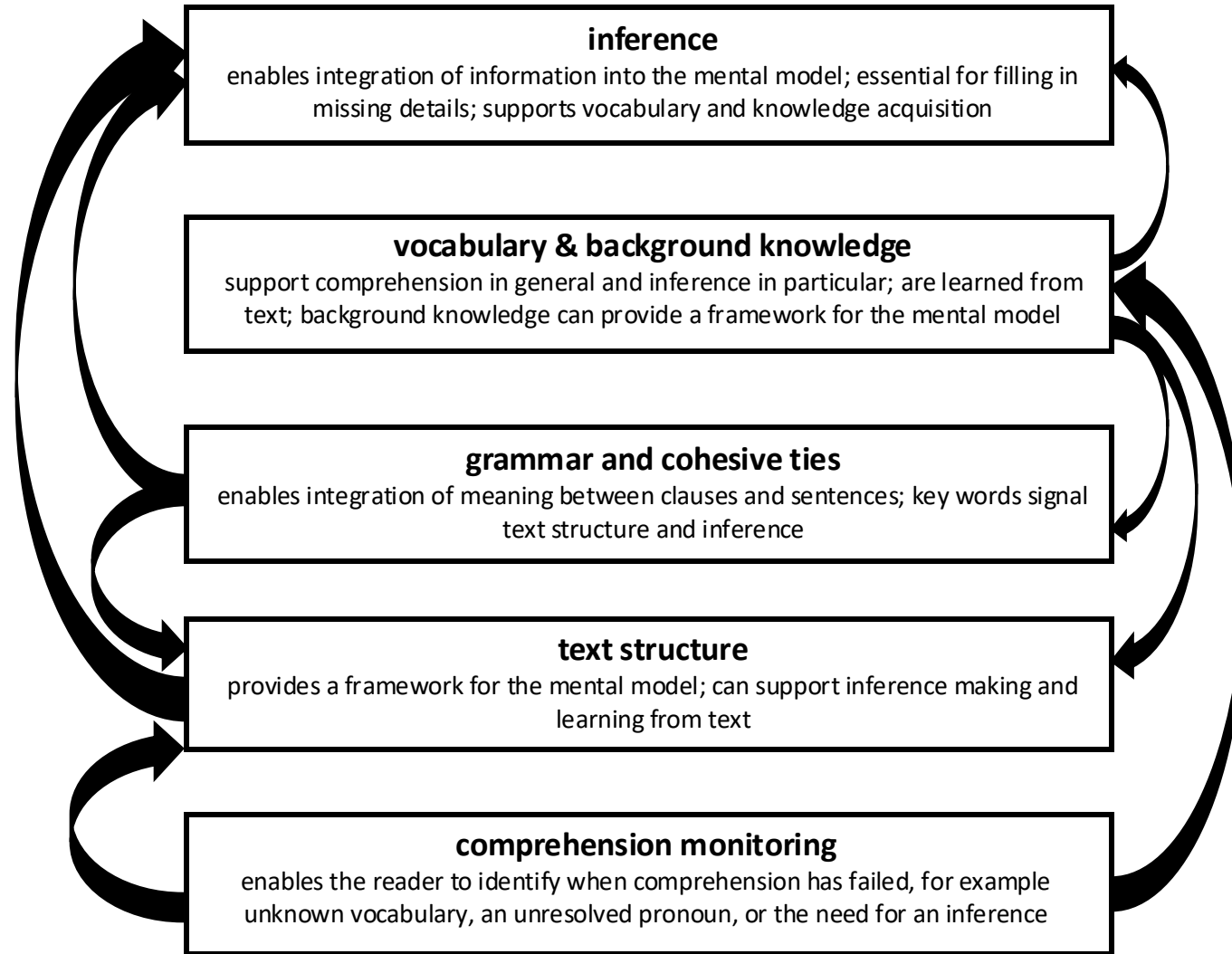
enables integration of meaning between clauses and sentences; key words signal text structure and inference

text structure

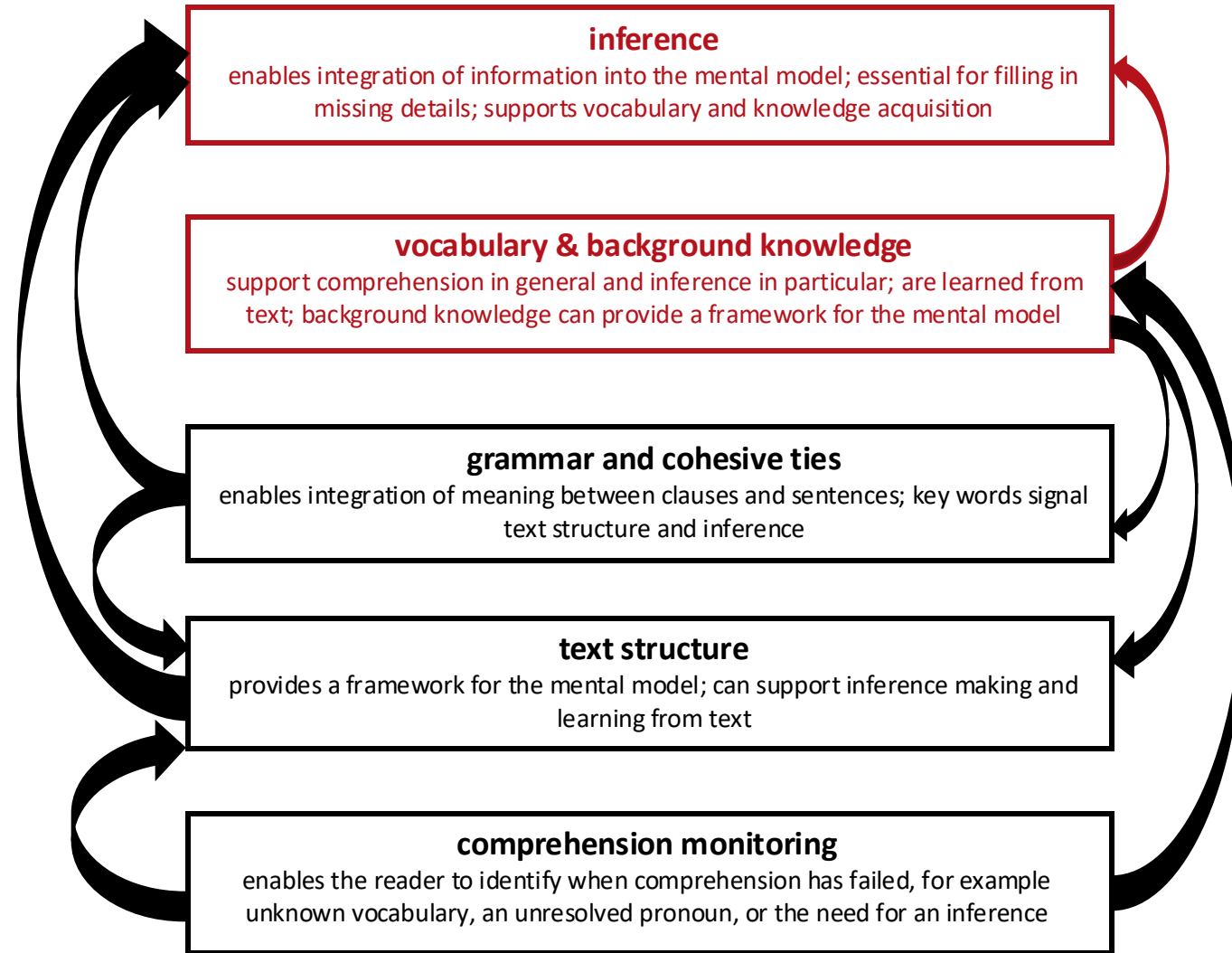
provides a framework for the mental model; can support inference making and learning from text

comprehension monitoring

enables the reader to identify when comprehension has failed, for example unknown vocabulary, an unresolved pronoun, or the need for an inference



(Oakhill, Cain & Elbro, 2014)

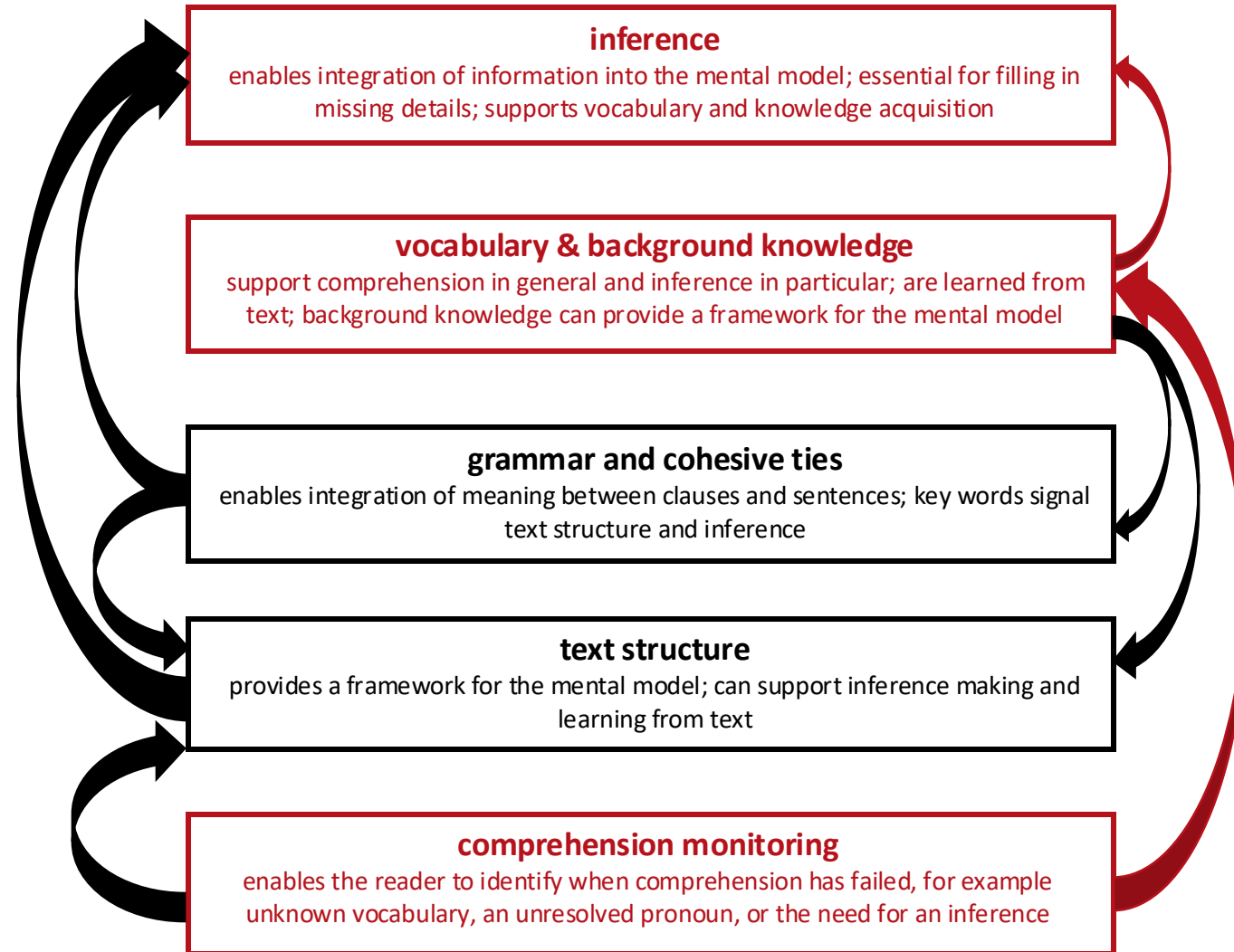


(Oakhill, Cain & Elbro, 2014)

The dynamics of reading for meaning



Although it was flying very fast, they could see its **feathers** and hear the **flapping of its wings**. They could also see that it had captured an insect on the ground and was carrying it in its **beak**. Obviously, the hard working mother was carrying the insect back to its **nest** full of babies. Mike and his mum looked about in the **trees** wondering where the **nest** might be hidden. They knew it must be close because they could hear the **chirping** of the hungry babies.

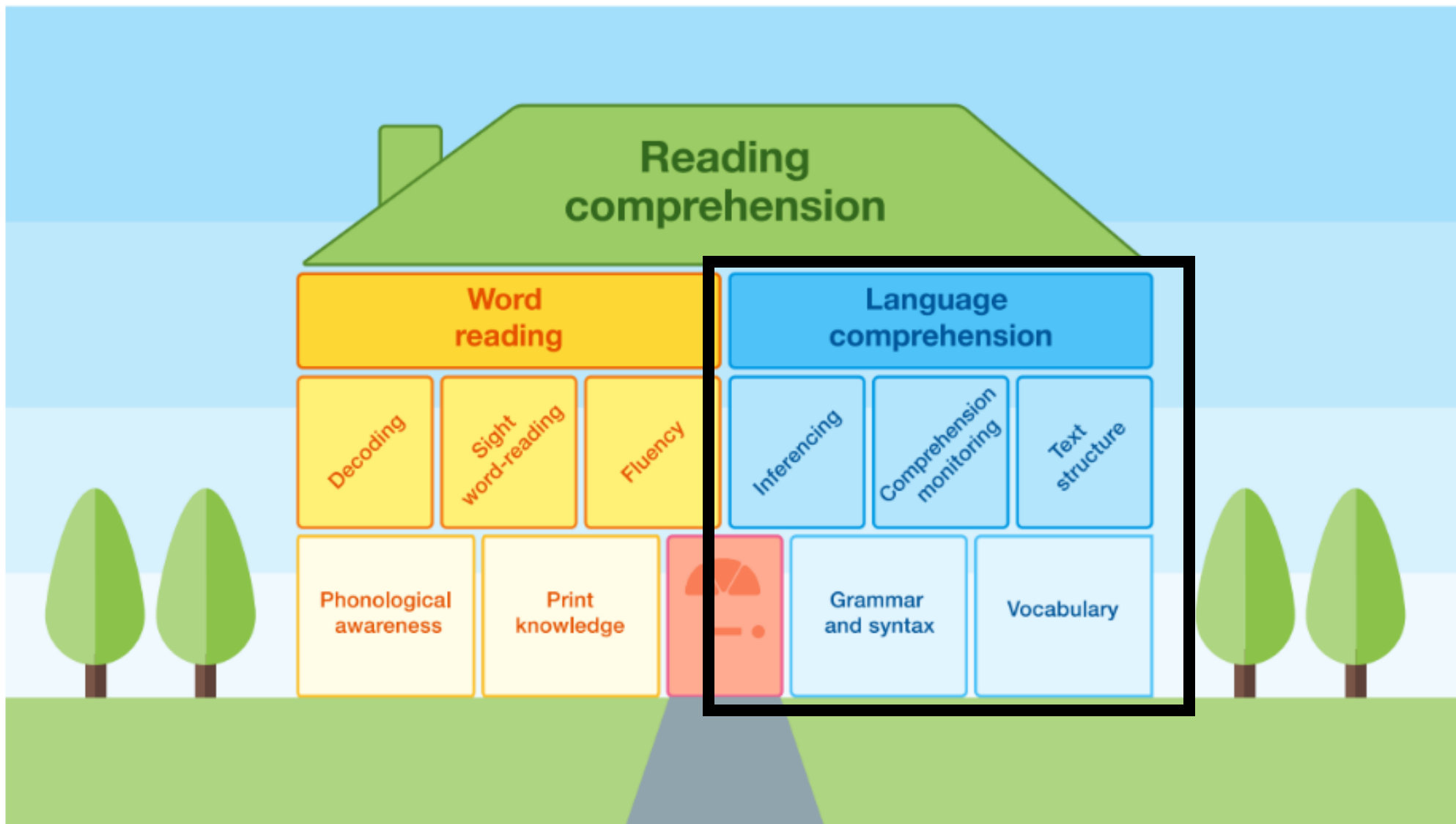


Reading comprehension: the process

Comprehension is dependent on **CONTEXT**: interpretation (of words, phrases, and actions) does not occur in isolation.

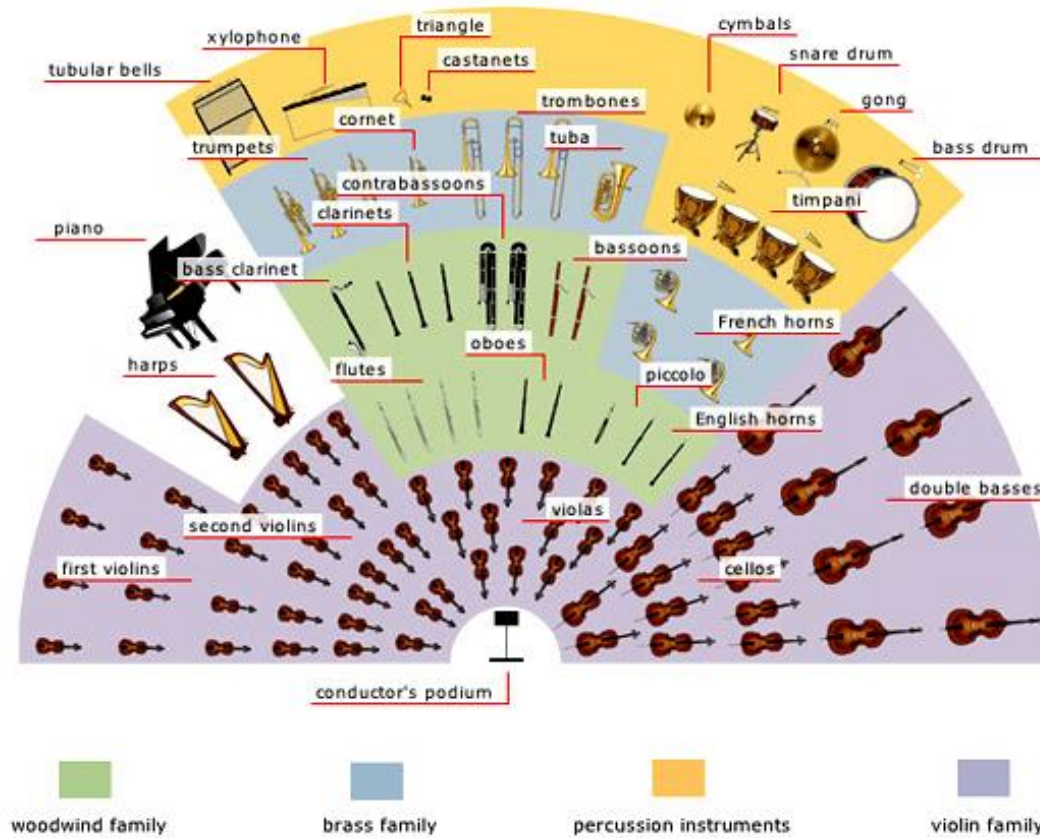
Comprehension is an **INTEGRATIVE** process: information from different sentences is combined.

Comprehension is a **CONSTRUCTIVE** process: explicit information in a sentence or sentences is supplemented by world knowledge stored in long-term memory.



(EEF 2021, adapted from Hogan et al., 2011)

The orchestration of language



Take home message #3

Comprehension is a dynamic process.

Readers draw on a range of knowledge and skills to process each new piece of information; the mental model of the text's meaning is updated *as the text unfolds* and new information is integrated into the current mental model.

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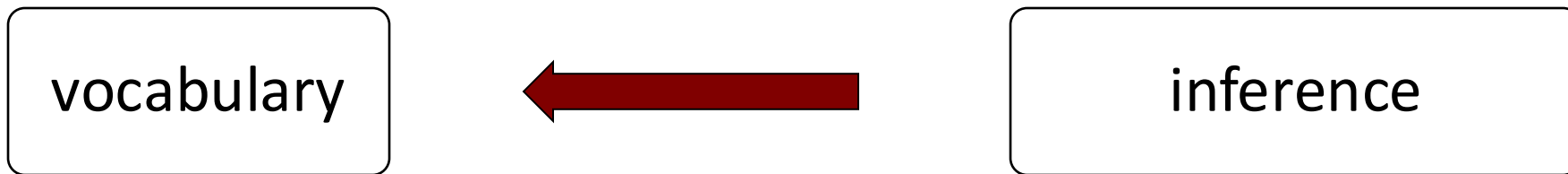
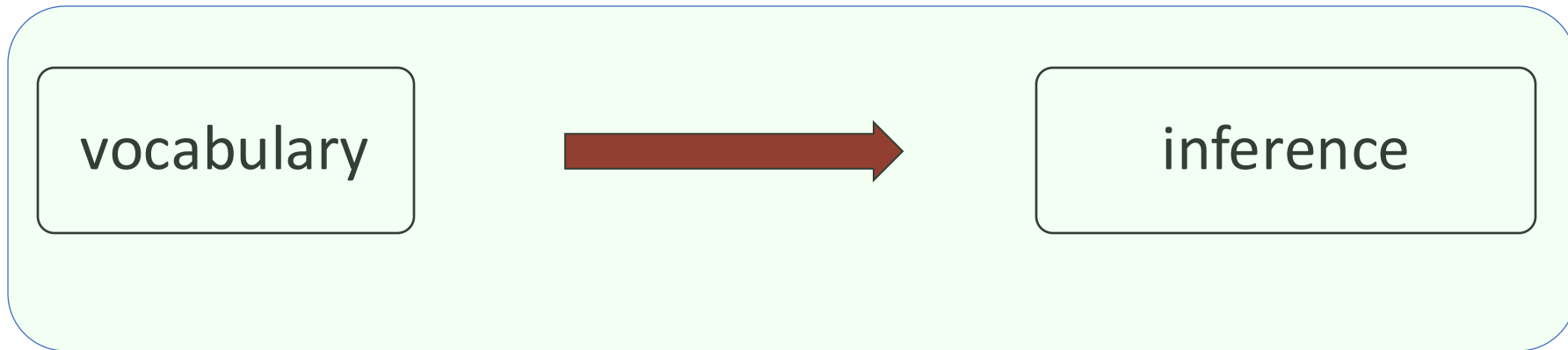
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Reading for meaning: conclusions

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Reciprocal relations

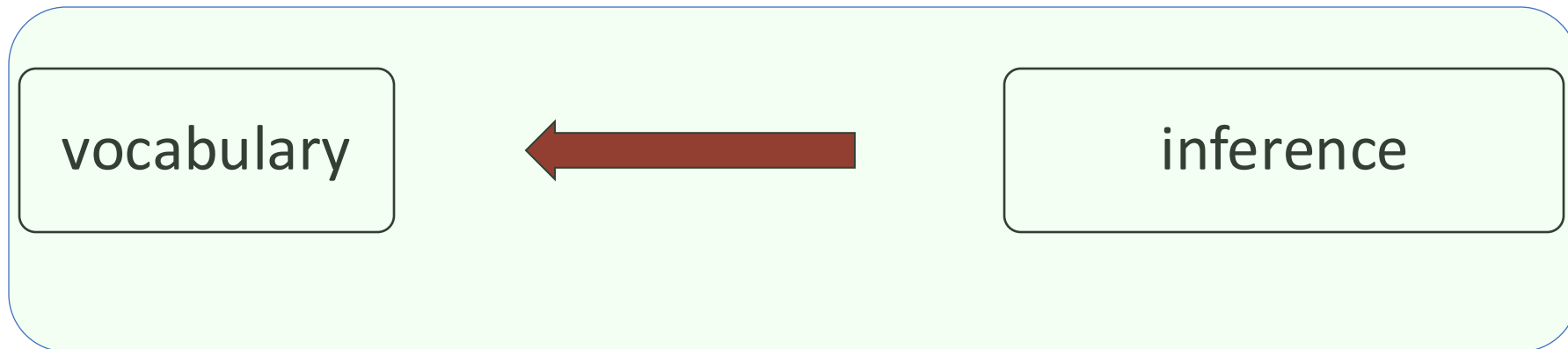
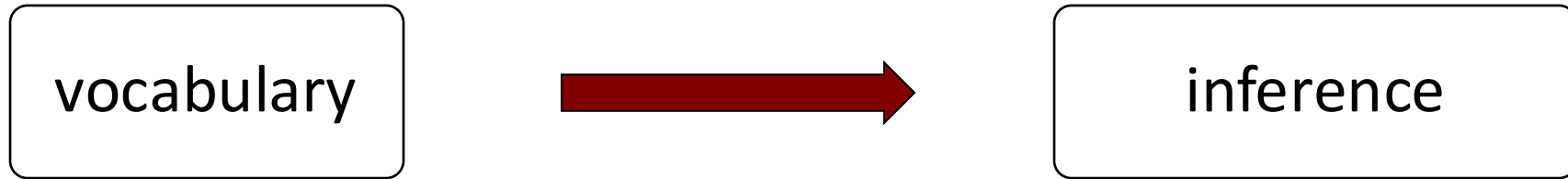


Vocabulary knowledge enables inference making

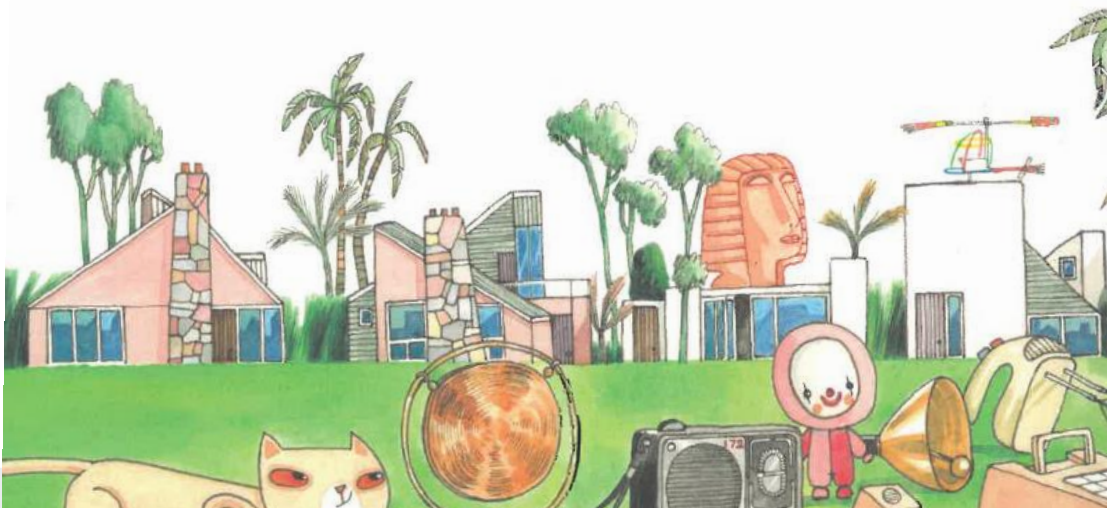
Mike suddenly saw something new and became very excited. He looked and pointed at something **flying** that had **beautifully decorated wings**. It was **rising gracefully from a delicate flower** and **fluttered** just above his head before **flying away in the sky**.



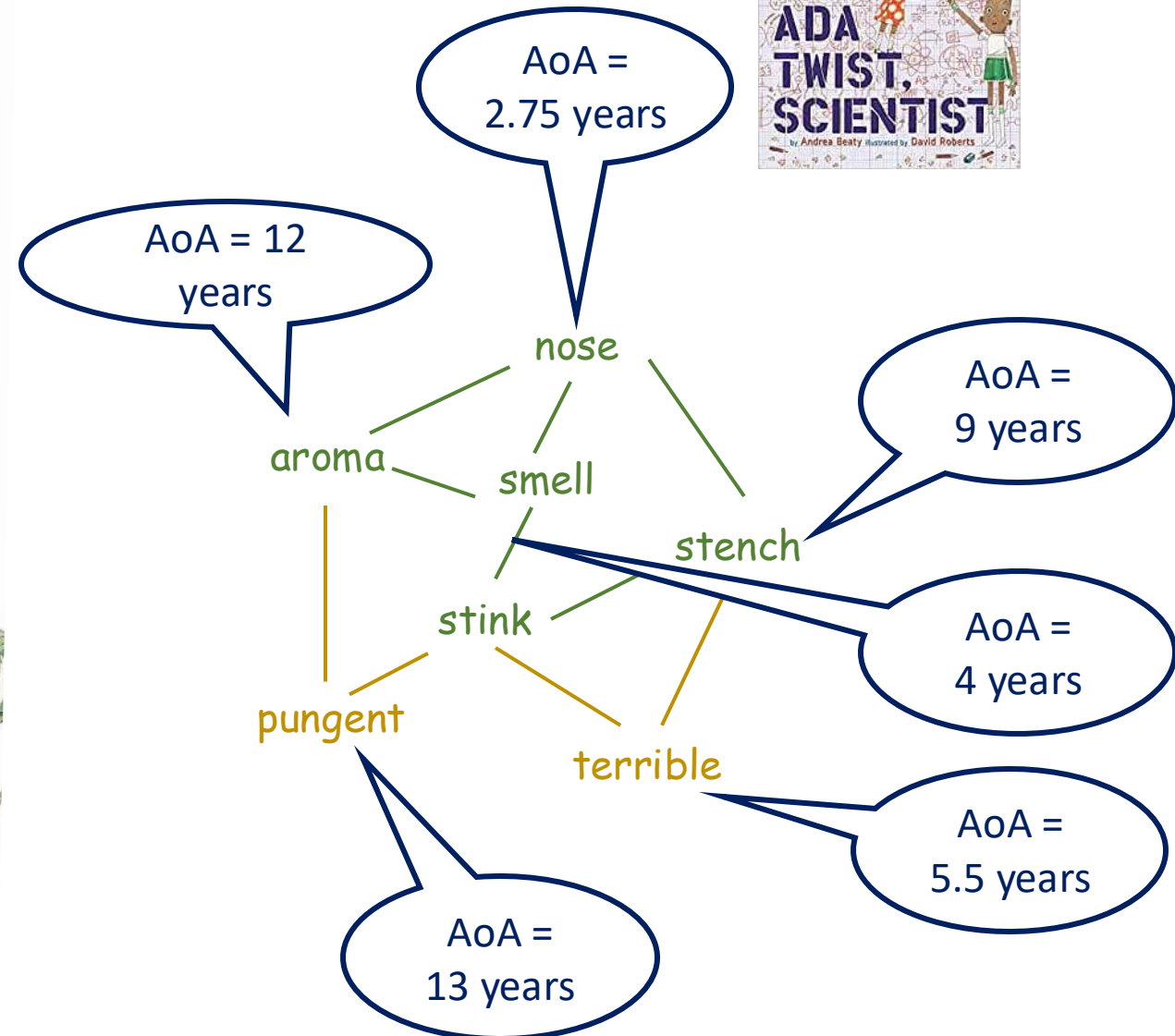
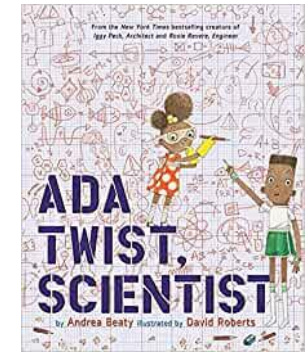
Reciprocal relations



Ada was busy that first day of spring,
testing the sounds that make mockingbirds sing,
when a horrible stench whacked her right in the nose—
a pungent aroma that curled up her toes.
“Zowie!” said Ada, which got her to thinking:
“What is the source of that terrible stinking?”
“How does a nose know there’s something to smell?”
“And does it still stink if there’s no nose to tell?”
She rattled off questions and tapped on her chin.
She’d start at the start, where she ought to begin.
A mystery! A riddle! A puzzle! A quest!
This was the moment that Ada loved best.



Reading age 5 to 7 years



We use different words in print and speech



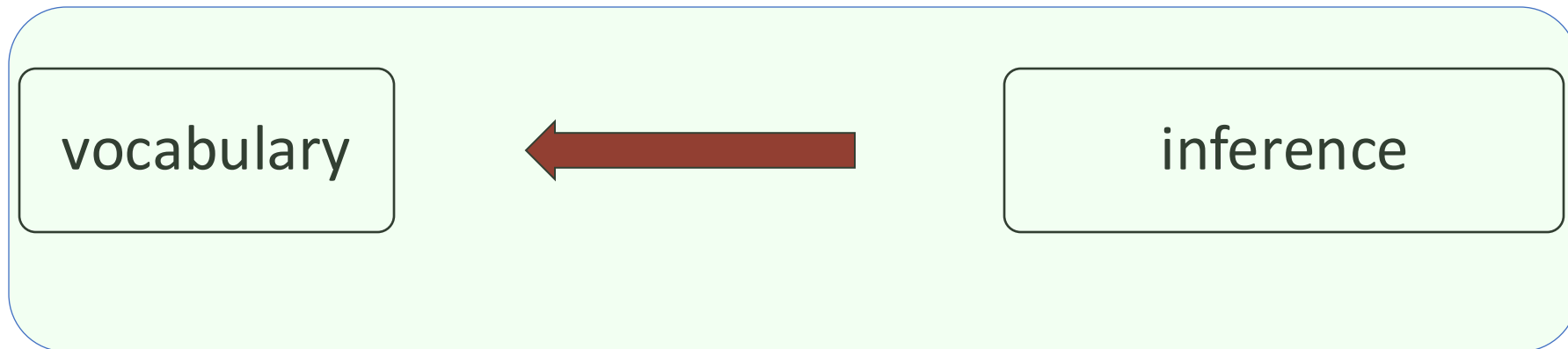
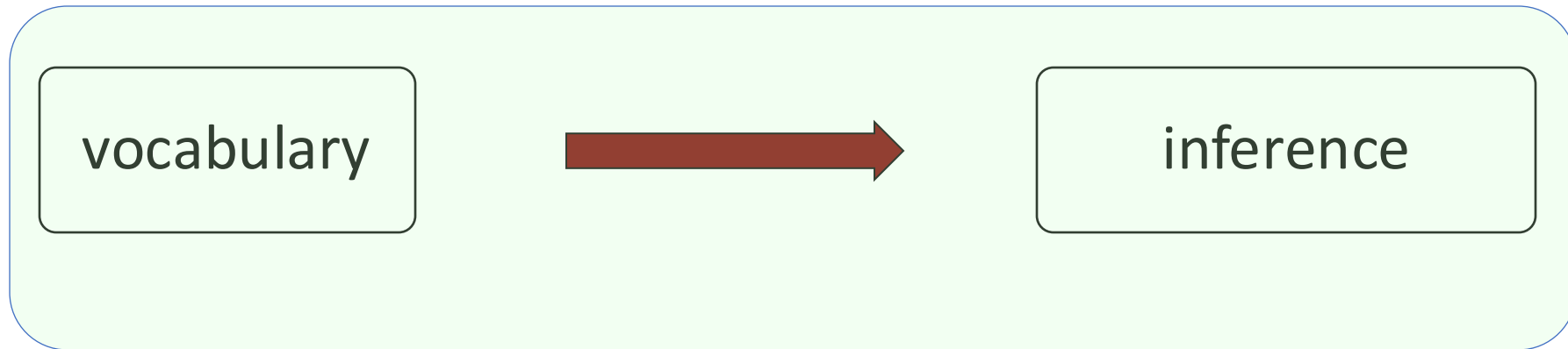
These words do not appear in spoken language corpora:

- display, equate, literal, portray, luxury, legitimate

Majority (51%) of words in reading schemes appear only once or twice:

- infrequently occurring words tend to be content words that carry meaning, e.g., *green, grow, jolly, easily*, rather than grammar/function words, e.g., *at, the, it*

Reciprocal relations



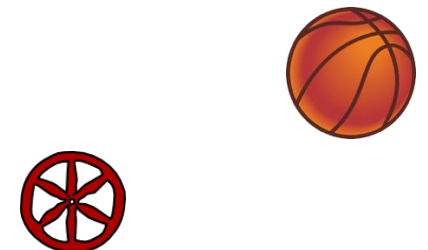
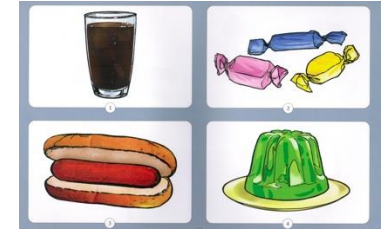
Vocabulary and inference: reciprocal relations

Participants

- US children aged 4-5 years (PK) at study outset

Measures

- Vocabulary breadth – how many words do you know? (receptive and expressive single word tests)
- Vocabulary depth – what is known about those words (definitions, semantic relations)
- Inference from spoken narrative texts
- Working memory – letters and numbers; memory updating



Vocabulary and inference: reciprocal relations

Tim had a new *pet* called Sparky. Sparky was soft, furry, and very playful. At first, Sparky slept indoors in a cardboard box with a nice soft blanket. Sparky soon grew very big. Tim decided to build a kennel and a tall wooden fence around the back yard. Tim went to the store. He already had a hammer and a saw, but he needed some wood and some nails...

Background knowledge (link with BK to establish theme)

Q: What sort of animal was Sparky?



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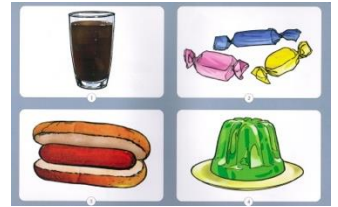
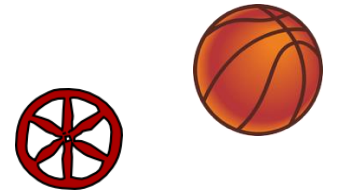
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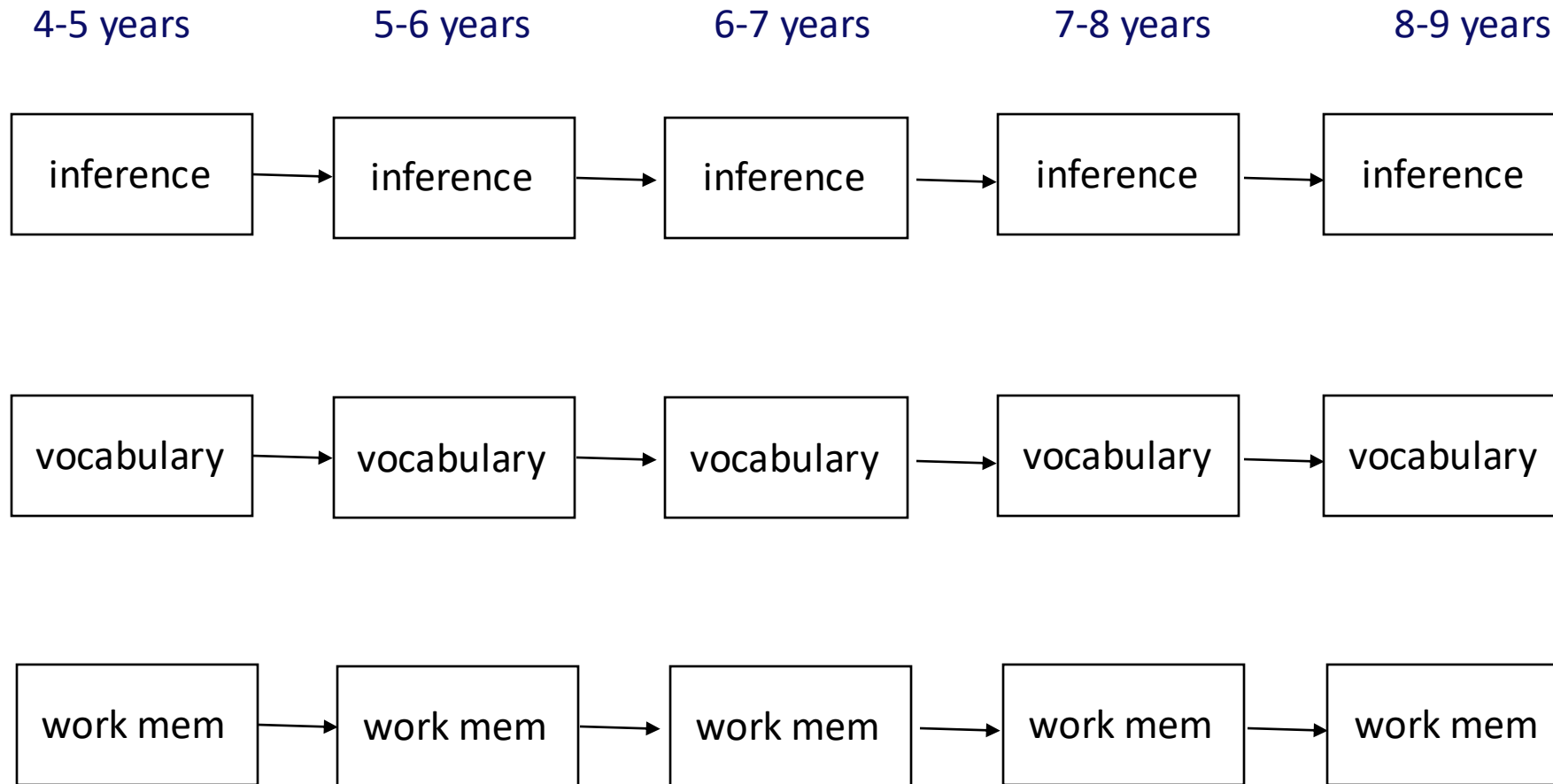
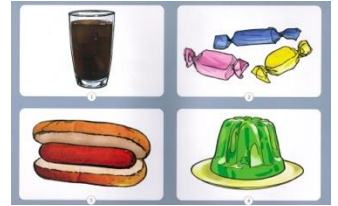
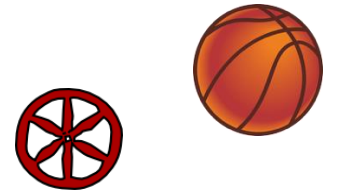
Integrative (connecting propositions)

Q: What did Tim buy at the store?

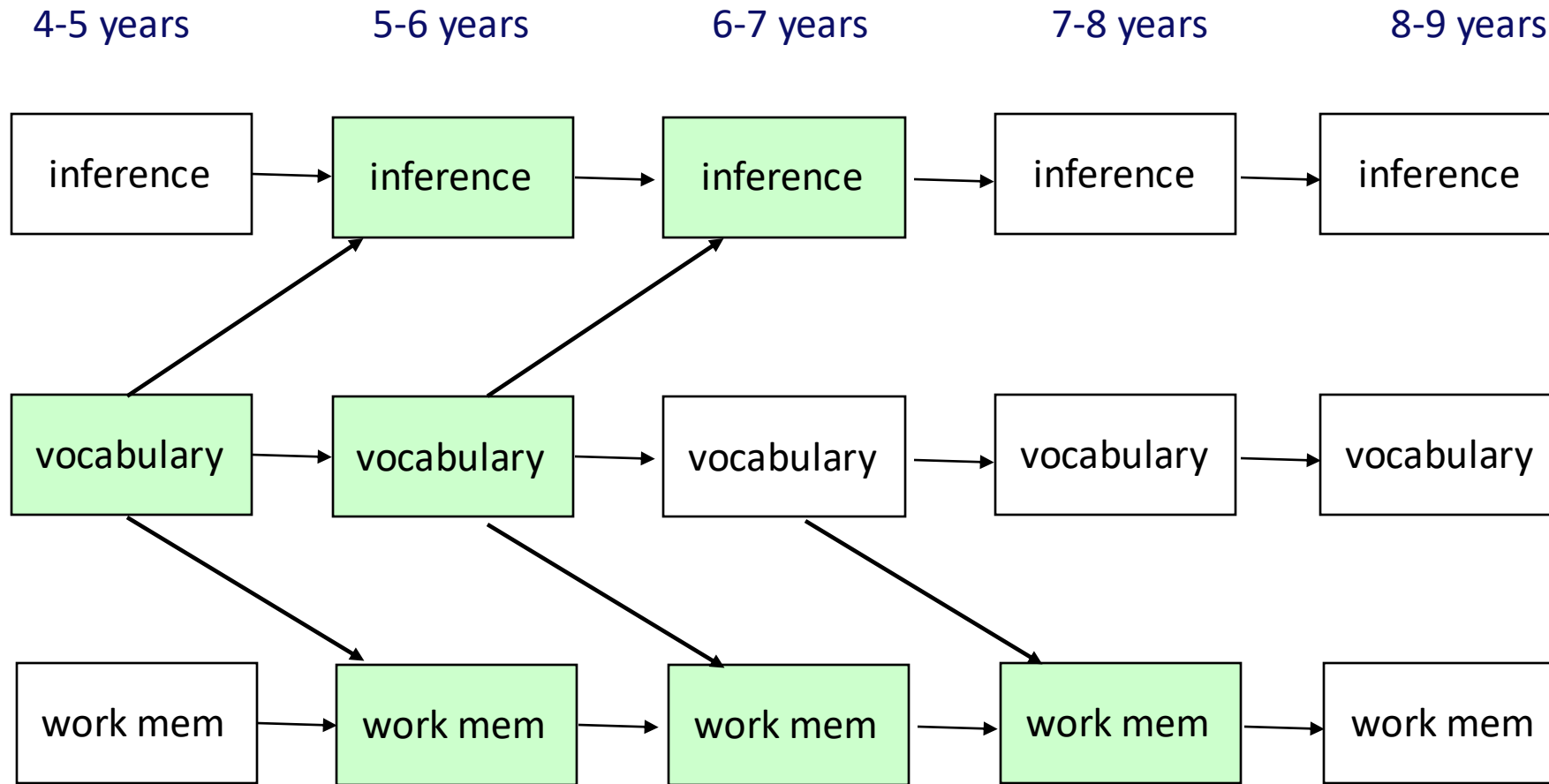
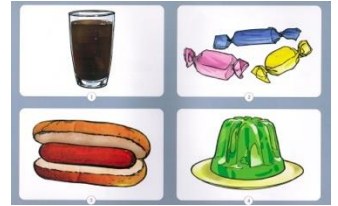
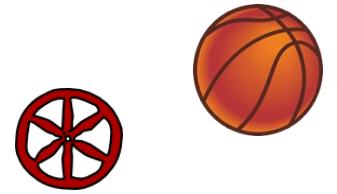
Vocabulary, inference, and memory: reciprocal relations



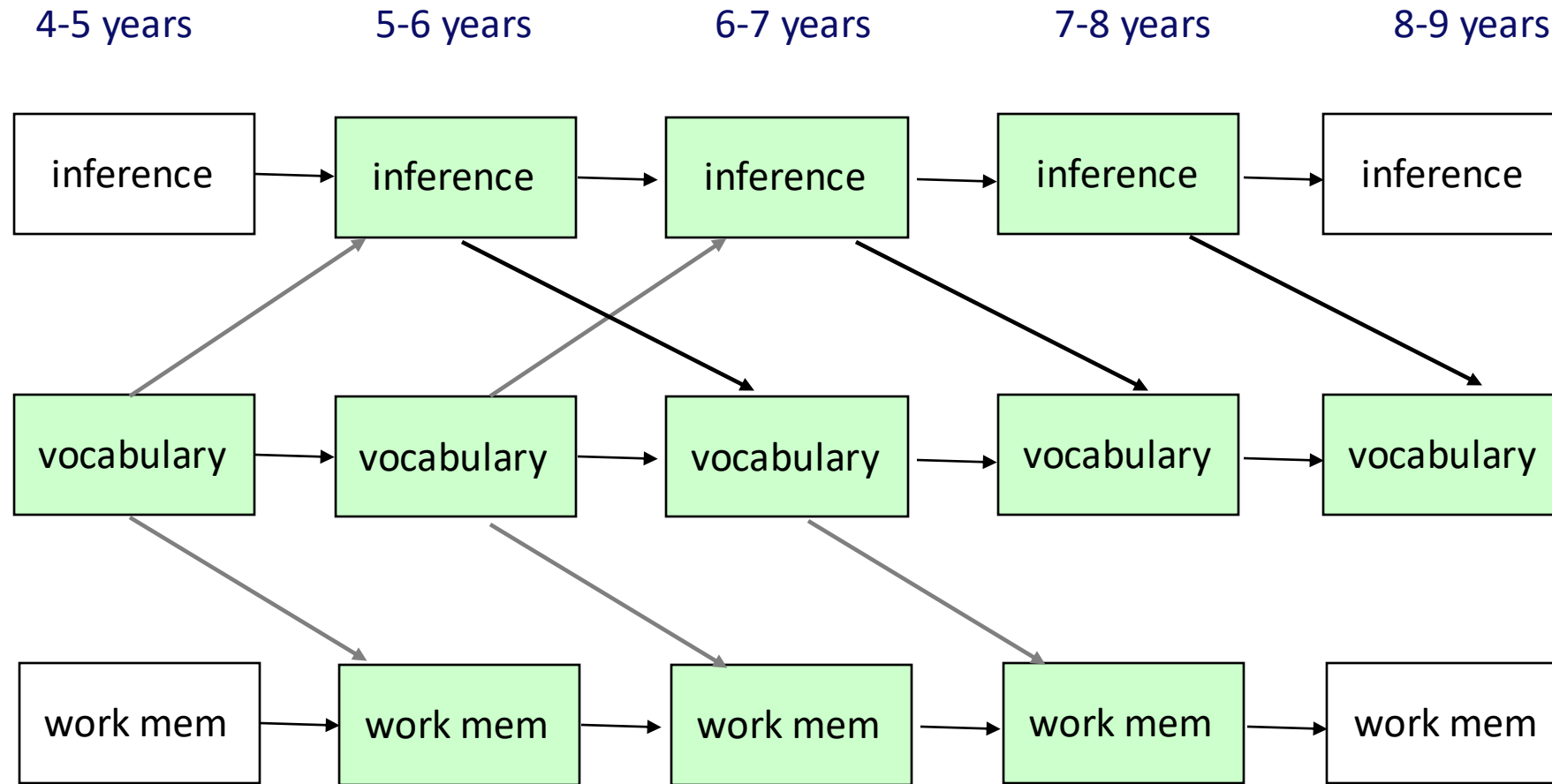
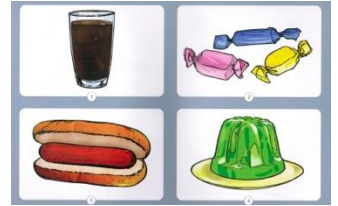
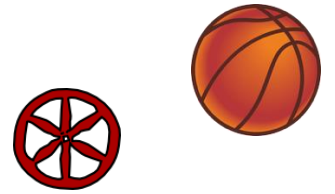
Vocabulary, inference, and memory: reciprocal relations



Vocabulary, inference, and memory: reciprocal relations



Vocabulary, inference, and memory: reciprocal relations



Take home message #4

Skills and knowledge support growth over time.

Inference supports vocabulary growth, and vocabulary knowledge supports later inference making.

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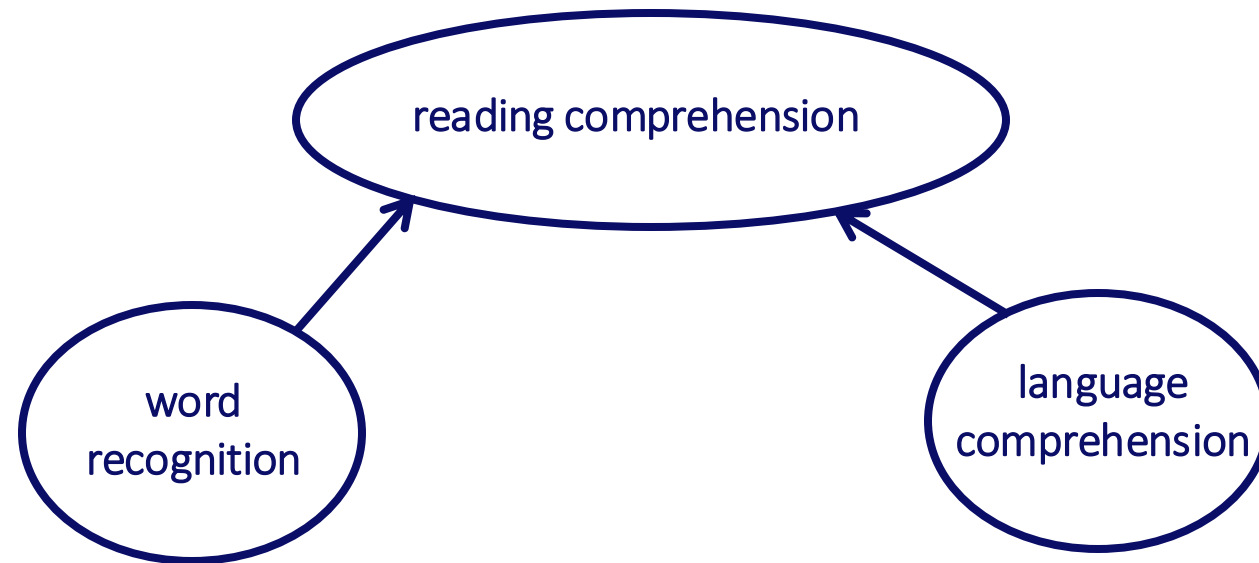
Reading for meaning: conclusions

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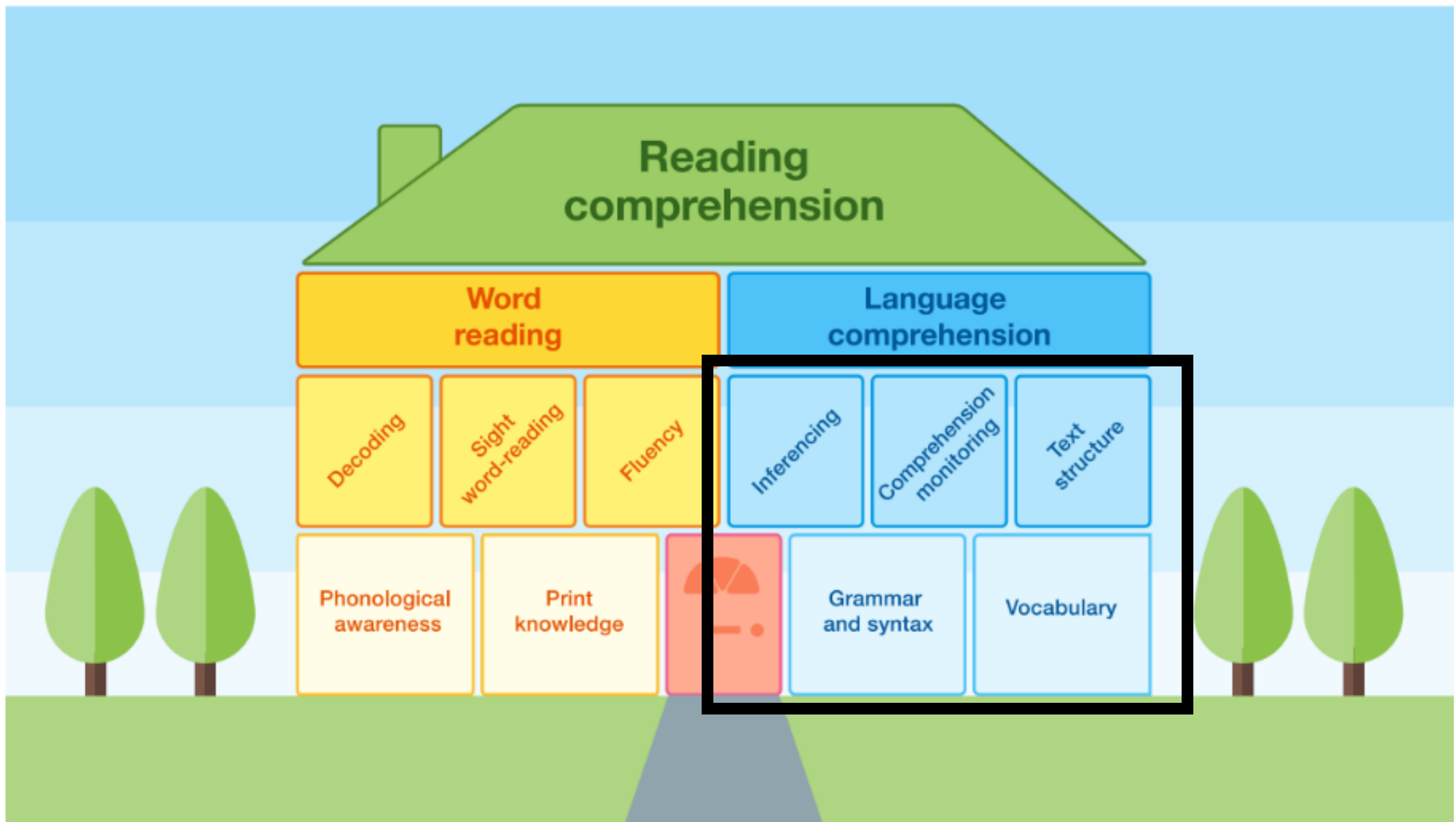
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What should we teach?

The Simple View of Reading

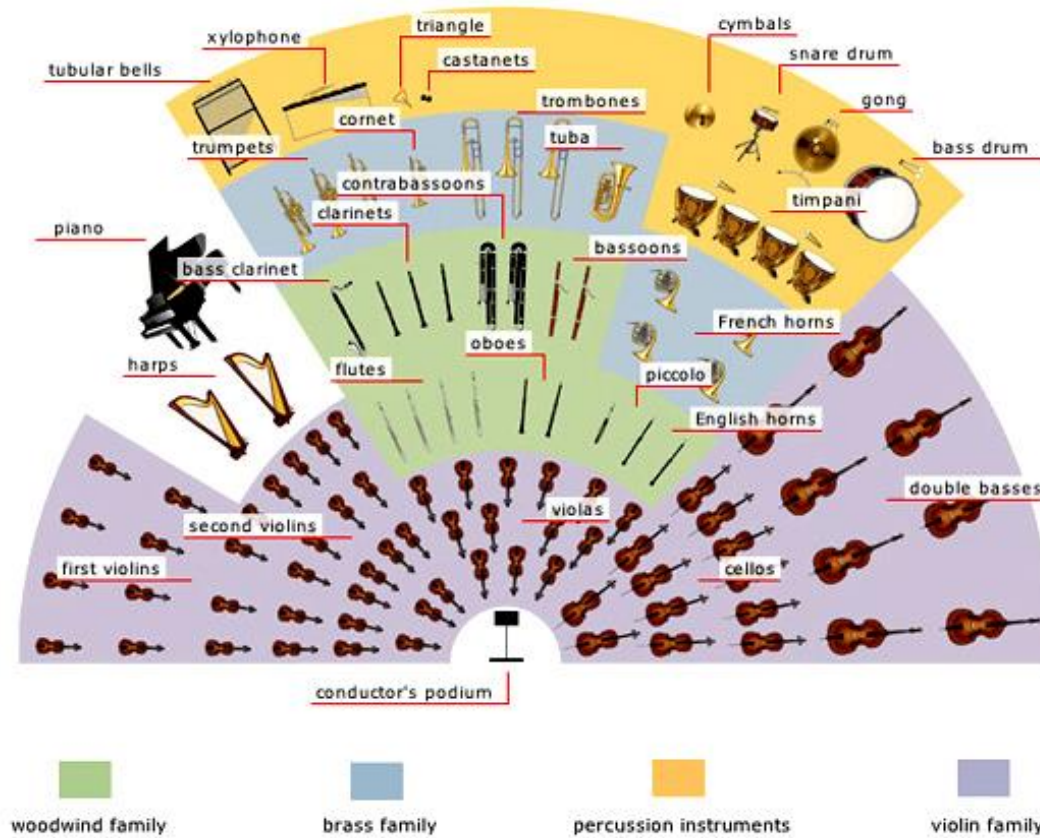


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(EEF 2021, adapted from Hogan et al., 2011)

The orchestration of language



What should we teach, when and how?

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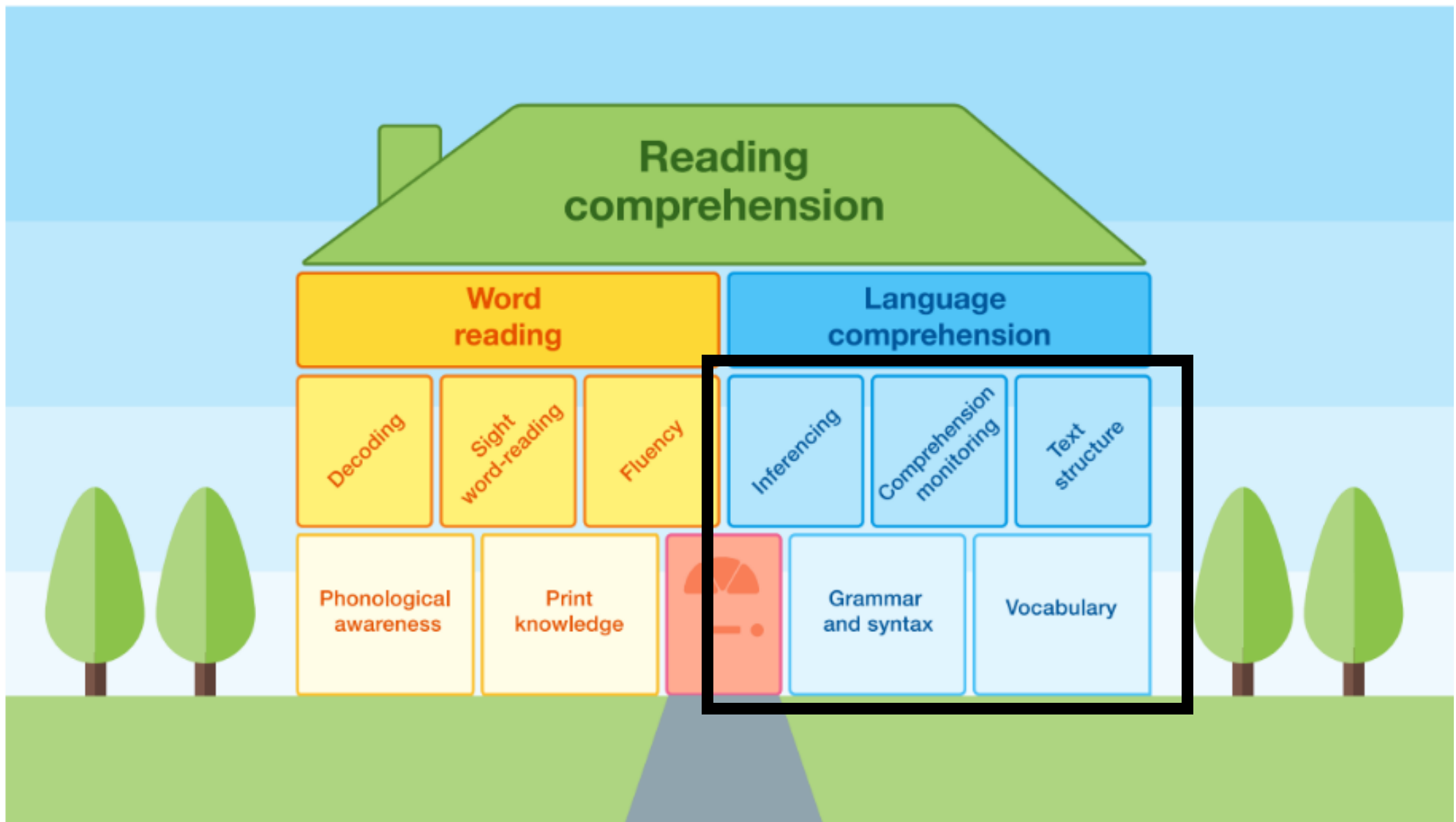
- How to be an active comprehender with a focus on coherence;
- How to coordinate a range of skills and knowledge to extract meaning from text.

What should we teach, when and how?

What should we teach?

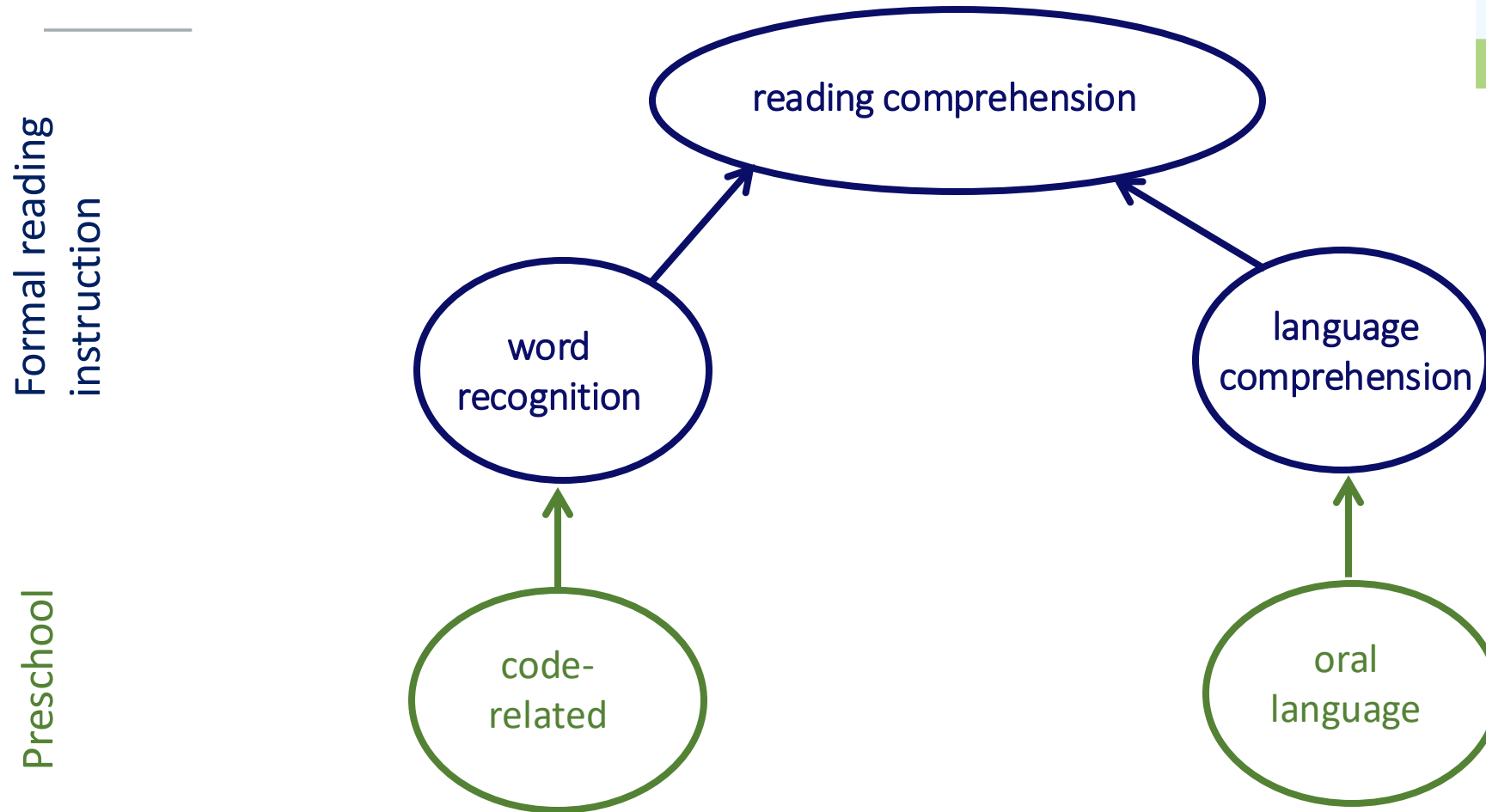
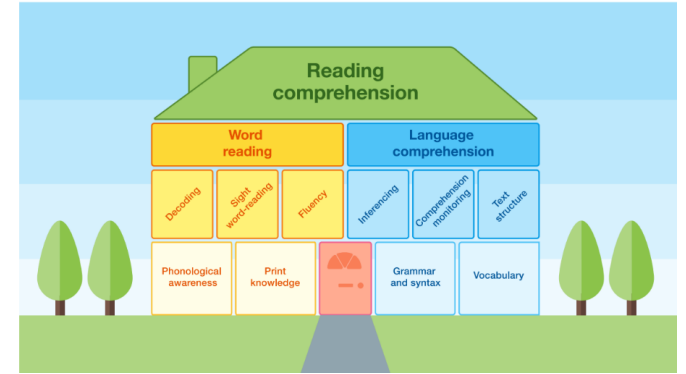
- How to be an active comprehender with a focus on coherence;
- How to coordinate a range of skills and knowledge to extract meaning from text.

When should we teach?



(EEF 2021, adapted from Hogan et al., 2011)

Oral language skills in preschool predict later reading comprehension 5 years later



What should we teach, when and how?

What should we teach?

- How to be an active comprehender with a focus on coherence;
- How to coordinate a range of skills and knowledge to extract meaning from text.

When should we teach?

- Early! We can and should foster these skills in pre-readers and from the earliest stages of schooling, alongside support for word recognition.

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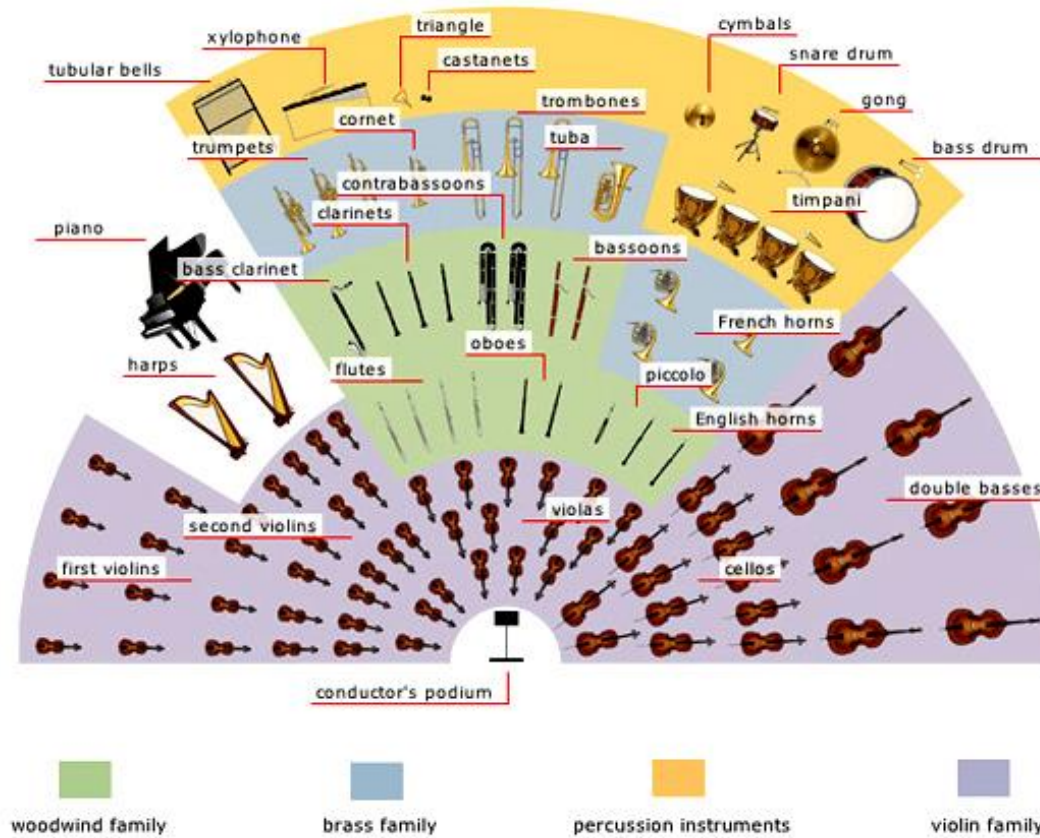
How?

How?

Should we focus on separate skills – vocabulary instruction, lessons on inference, teaching children about text structure, etc?

Should we teach skills as a hierarchy – first vocabulary, then grammar for sentences, and then skills and strategies to support text processing?

The orchestration of language



What should we teach, when and how?

What should we teach?

- How to be an active comprehender with a focus on coherence;
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How?

- Not isolated skill and drill! Through use of rich authentic texts, discussion and activities that model how to process for meaning.

Take home message #5

Comprehension is enabled by a range of skills, knowledge and processes. Some are 'unconstrained' skills that develop across the lifespan and have bi-directional relations.

Instruction should model the process of constructing meaning from text and foster good reading habits can support the development of good comprehension skills.

Questions?

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