Building knowledge improves comprehension by providing a strong foundation of background information. Prior knowledge allows students to connect new information to what they already know, making it easier to understand, analyze, and retain the content they are reading. The more students know about a topic, the better they can understand the text.

Prior Knowledge: A Study

Are you familiar with the "baseball study" that looked at the effect of prior knowledge on readers' memory of text? Here is a quick summary: Students with varying reading comprehension abilities and existing prior knowledge of baseball were asked to read a passage about a half-inning of baseball. After reading, students were asked to summarize the passage and sort passage sentences based on the importance of the idea. The results showed that the students with prior knowledge of baseball were significantly better at summarizing the passage, regardless of their reading skills (even scoring better than the good readers with low baseball knowledge), highlighting the strong influence of prior knowledge.

This study does not surprise teachers; this is why we teach strategies that activate and build background knowledge. Why, then, is the role of student knowledge in comprehension getting more attention from researchers, and what else is there to know?

The Rich Get Richer

The purpose of knowledge extends beyond the material presented to students for skill development. According to Daniel T. Willingham, research in cognitive science shows that knowledge promotes learning by being cumulative and expanding exponentially. A well-developed knowledge base enhances the efficiency and effectiveness of the skills and strategies that educators teach. As a result, as students accumulate more knowledge, they find it easier to grasp new concepts.

Getting to Know Knowledge

Teachers often use the terms "prior knowledge" and "background knowledge" interchangeably, but there are differences worth noticing. Nancy Hennessy explains that prior knowledge encompasses the experiences students bring from their personal, academic, and cultural encounters. In contrast, background knowledge is more specific to academic settings and pertains to the situations, problems, and concepts presented in the texts and topics students study.

Hennessy notes that while both types of knowledge are crucial for learning, teachers have more control over background knowledge than prior knowledge. Understanding this distinction helps teachers identify relevant knowledge for specific texts and design instruction to activate and build what is most necessary for comprehension. For example, this might include pre-teaching vocabulary and concepts needed to set the stage for the new learning or providing relevant real-world examples to ensure all students have an equitable starting point for new learning.

Why Build Students' Knowledge Base?

The knowledge base that students bring to school helps them absorb, process, and retain new information. This new information, in turn, expands their existing knowledge base. According to Daniel Willingham, prior knowledge aids in building further knowledge due to the following factors:

1. Connections and inferences: Students use their long-term memory to make connections and inferences based on their existing knowledge and associations.
2. Cognitive load: It reduces the cognitive load on working memory, where new information is processed.
3. Memory retention: It helps students remember new information more effectively, as it is easier to integrate new knowledge into long-term memory when they have prior knowledge of the topic.

Strategies for Building Knowledge: Before, During, and After Reading

Building knowledge before, during, and after reading refers to multi-layered reading strategies that actively engage students with the material by activating prior knowledge before reading (and building knowledge for students with knowledge gaps), actively making connections, and synthesizing information while reading. Students then solidify their understanding by reviewing and reflecting on the information.

Before Reading

- Preview the text: Skim headings, subheadings, visuals, and key vocabulary to get a general idea of the content and focus areas.
- Activate prior knowledge: Discuss related topics, ask questions to gauge what students already know, or use brainstorming activities to connect new information to existing knowledge.
- Set a purpose for reading: Establish clear goals for what you want students to learn from the text and teach students to set goals for their learning.

During Reading

Monitoring Comprehension Strategies	Fix-Up Strategies
- Summarize, paraphrase, retell - Make, confirm, and revise predictions - Connect to knowledge (prior knowledge, background knowledge, information from previous sections of the text) - Make inferences - Ask and answer questions - Construct mental images - Recognize text structure - Build vocabulary	- Reread the sentence, paragraph, or section - Ask questions that focus on the main idea or new learning - Slow down reading - Think aloud about your thinking - Read aloud - Use text features - Use context clues - Ask for help - Use reference tools (dictionary, thesaurus, etc.) - Break words into parts (morphological awareness) - Break sentences into parts (syntactical awareness)

After Reading

- Summarize: Recap the main points of the text in your own words.
- Reflect and analyze: Evaluate the information, consider different perspectives, and draw conclusions.
- Discuss and share insights: Engage in conversations with others to deepen understanding and explore different interpretations.
- Apply knowledge: Think about how the new information can be used in different contexts or situations.

Student knowledge is now recognized as a crucial factor in learning because it significantly impacts how students acquire and retain new information. Researchers have found that knowledge acts like double-sided sticky tape for new learning. In other words, the more students know, the better equipped they are to deepen their understanding further. Background knowledge, in turn, enhances student engagement and vocabulary and provides more meaningful opportunities to practice skills and strategies. Therefore, instruction that prioritizes knowledge and is built around conceptually related topics rather than isolated skills leads to better student outcomes. When instruction focuses solely on skills and students read unrelated passages to find the main idea, they cannot fully realize the benefits of building knowledge.

Learning A–Z

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Learning A–Z Supports Building Knowledge

Core ELA programs can sometimes be too ambitious, distributing attention equally across all items. Many programs lack sufficient books to build knowledge and vocabulary. Additionally, both native speakers and multilingual learners (MLLs) often come to school with gaps in early literacy experiences. Students frequently start a unit without adequate background knowledge or fail to recall the previous year's unit information. Teachers can use Learning A–Z materials to build background knowledge and vocabulary before students begin the unit. Frontloading knowledge ensures equitable learning opportunities, as all students will have the necessary background and vocabulary to access grade-level content.

Curate Learning A–Z materials to supplement a core ELA program, or build a conceptually related unit from scratch. Follow these steps to support your Tier 1 instruction:

Steps	Tips
Search texts related to a topic and place them in the File Cabinet.	• Look for texts with varying complexities. Some students will use these texts to build background knowledge, so the difficulty of the text is less important than its ability to fill gaps in their understanding. • Look for a variety of texts, passages, and other materials that support the topic.
Identify a text for whole-group instruction.	Choose a text or passage that can serve as a read-aloud text or anchor text for whole-group instruction. Because the teacher will read this text, it can be more complex than the texts students might read independently.
Identify texts for small-group instruction.	These texts can be used to target skills and practice strategies during small-group instruction. Because they are on the topic, they support skill and strategy practice while contributing to building knowledge.
Assign the remainder of the texts to students for independent reading.	Texts that are not used for whole-group or small-group instruction can be used for independent reading, allowing students to read a wide variety of texts on the topic. Assign the reading and listening versions of a text to students via Kids A–Z: • Before beginning a unit, to build background knowledge and vocabulary • During the unit, so students can continue building their knowledge of the topic • Turn off the Quiz feature, as the purpose is to build knowledge, not assess it

Example of a Grade 3 curated text set on adaptations

The teacher placed the texts on the left in the file cabinet. After identifying the anchor text and texts for small-group instruction, the teacher assigned the remaining texts to students for independent reading. To help fill knowledge gaps, the teacher made the adaptations assignment available to students one week before starting the unit as a class.

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