To change outcomes of vocabulary learning and close these gaps, teachers need vocabulary strategies at their fingertips.

Veteran educator Marilee Sprenger explains how to teach the essential, high-frequency words that appear in academic contexts—and reverse the disadvantages of what she calls “word poverty.” Drawing on research and experience, Sprenger provides a rich array of engaging strategies to help educators across all content areas and grade levels not only teach students a large quantity of words but also ensure that they know these words well. You’ll find:

- An overview of how the brain learns and retains new words, including the three stages of building long-term memories: encoding, storage, and retrieval.
- Encoding strategies to introduce words in novel ways and jump-start the memory process.
- Rehearsal strategies to help students put words into long-term storage.
- Review strategies to help students strengthen their retrieval skills and gain the automaticity needed for reading comprehension.
- Ways to address planning and assessment as crucial, intersecting supports of a robust vocabulary program.

This comprehensive resource has everything you need to help your students profoundly expand their vocabulary, enabling them to speak, read, and write with greater understanding and confidence.
Far too many students come to school with small vocabularies. This is a big deal: the size of a child’s vocabulary is an accurate predictor of academic achievement and even upward mobility over the course of a lifetime (Hirsch, 2013). Children’s vocabulary acquisition is affected by numerous factors, including the number of words exchanged in the home environment, the quality of those words, language spoken in the home, the number of books that have been read to a child, and the amount of time spent in quality conversations. Whichever factors contribute to what I refer to as “word poverty,” it is clear that educators across all content areas and grade levels need to provide an enriched environment and implement a broad repertoire of strategies that will immerse all our students in words.

My first vocabulary book, *Teaching the Critical Vocabulary of the Common Core* (2013), focused on 55 high-frequency words used in most standards, including the Common Core standards, and aimed to teach students the vocabulary used on most standardized achievement tests. My motivation for writing that book stemmed from research (Tileston, 2011) estimating that 85 percent of achievement test scores are based on the language used in the standards. At-risk students, including students of low socioeconomic status (SES) and English language learners (ELLs), have a particular need to learn these words in ways that meet their specific learning requirements. *Teaching the Critical Vocabulary of the Common Core* addressed that need.
As teachers recognized the importance of teaching those 55 critical words and began adopting new vocabulary strategies, the need for even more strategies to teach even more words became apparent.

Throughout their elementary and secondary school careers, students will learn about 50,000 words (Nagy & Anderson, 1984; Nagy & Herman, 1987; White, Graves, & Slater, 1990), averaging 3,000–4,000 words each year, most through implicit learning. This implicit learning is nonconscious and usually happens by reading, being read to, and engaging in high-quality conversations. In addition, teachers should be teaching about 300 academic words through direct instruction. The 300-word target comes to an average of about 60 words for each content area, although many academic words overlap areas: for example, we summarize in social studies, science, and English. Many schools create lists for each grade level based on the vocabulary of the standards and their curriculum.

The importance of teaching these words cannot be overstated. According to Susan B. Neuman, a professor in educational studies specializing in early literacy development, “[Vocabulary has] been one of the most resistant-to-change skills in early literacy. Generally, children come into school with vocabulary at one point and leave with vocabulary at the same point” (quoted in Sparks, 2013).

This goal is particularly important for English language learners and students who come from low-SES homes. Low socioeconomic status can adversely affect the vocabularies and literacy skills of both native speakers of English and English language learners. Beyond this factor, students who are English language learners generally have smaller English vocabularies. One of the key factors in ELLs’ vocabulary acquisition in English, however, is their vocabulary acquisition in their primary language. Those who have a larger word bank in their native language can use those meanings and spellings to help them infer meanings of new English words (Graves, August, & Mancilla-Martinez, 2013). For instance, using cognates—words that have similar spellings and meanings in two languages—for Spanish-speaking students is extremely effective because up to 40 percent of all English words have a Spanish cognate. Pointing out words with cognates as you read aloud, asking students to identify cognates in their own reading, and creating a cognate word wall are three possible strategies for teaching cognates.

To change future outcomes of vocabulary learning and close these gaps, teachers need both professional development in teaching vocabulary and vocabulary
strategies at their fingertips. Many teachers have not had adequate preparation for explicitly teaching vocabulary and resort to Internet searches and professional books for novel, engaging strategies. These strategies are everywhere, but they are not located in one place, and they vary in effectiveness—which is where this book comes in.

**TIER 2 WORDS: THEIR IMPORTANCE**

So what, exactly, are these 300 academic words that must be explicitly taught? Let’s back up a bit.

There are three tiers of vocabulary that encompass all the words our students can learn. Tier 1 includes basic vocabulary, Tier 2 includes high-frequency academic vocabulary, and Tier 3 includes low-frequency specialized vocabulary.

Tier 1 words are those words used in everyday speech that students generally have in their long-term memories, such as *table, clock, food, run, ride, drive*, and so on. Tier 3 words are those that are specific to content areas. For instance, *meiosis* is used in science and generally not in other subjects. It is good to teach some Tier 3 words, but they are often defined in the text in which they appear.

Tier 2 words are those that I call “everybody’s words.” These vocabulary words often have multiple meanings in different contexts, appear frequently in written sources across the content areas but are not discipline-specific, and are considered academic words. A word like *letter* is a Tier 2 word with multiple meanings; it can mean a symbol that represents a sound or a way of communicating with someone. *Analyze* is a Tier 2 word that is used across the content areas; students are asked to analyze stories, musical selections, artwork, math problems, and so on. As academic words, Tier 2 words are used primarily in academic texts and classrooms and are not likely to be encountered by students in casual conversations.

Although Tiers 1 and 3 are important, Tier 2 words are the most necessary to teach explicitly (Beck, McKeown, & Kucan, 2013). Much research (Blachowicz, Fisher, Ogle, & Taffe, 2013; Marzano, 2004) stresses the importance of students mastering a significant body of Tier 2 words and urges teachers to use more academic terms in the classroom for discussion and personal dialogue. So why, if these words are so important, are most of us not teaching them to our students? There are several reasons:
• We tend to assume that if we know a word, so does everyone else.
• When a word is found across the content areas, we assume that some other teacher has taught it.
• We are under the impression that students will discover words for themselves using a dictionary or the Internet.
• We don’t have time to teach vocabulary. There are too many standards, so we choose those that are visible to us, that make sense to our own brains, and with which we are comfortable.

Recently, however, following the lead of the grade-level expectations laid out by the Common Core and state standards in both Common Core and non–Common Core states, the testing companies (PARCC, SBA, ACT, SAT, NWEA, ACT Aspire) have become aware that vocabulary is not an add-on for which students are solely responsible and that we can ignore. In fact, vocabulary may be the most important content that we teach. The link among vocabulary, reading, writing, speaking, and listening is becoming increasingly clear, and academic vocabulary is frequently referenced (Beck et al., 2013; Marzano, 2004) as a critical element in reading comprehension and academic achievement.

These academic words are the focus of the strategies in this book. In the pages that follow, you’ll find an array of strategies for teaching the hundreds of words that students will need in school and beyond.

THE ROLE OF MEMORY AND THE ORGANIZATION OF THIS BOOK

If we want to get words into long-term memory and make them stick, we need to keep some fundamentals in mind. Most words need to be processed multiple times and in various ways to make them permanent. In Teaching the Critical Vocabulary of the Common Core, I shared strategies that would get those critical words quickly into nonmotor procedural memory, which I often refer to as automatic memory. Those 55 words are so crucial for student assessments that I believed it best to teach many of them the same way we teach decoding skills, fluency, and even multiplication: repetition, repetition, repetition. In this context,
repetition doesn’t mean rote drill; rather, this method incorporates elaborate rehearsals that engage all the senses in novel, fun ways.

For the Tier 2 words covered in this book, I have taken a slightly different tack. The emphasis is on first getting words into semantic long-term memory before eventually getting them into nonmotor procedural memory (again, also known as automatic memory). As a strong proponent of brain-compatible teaching and differentiation, I have selected strategies that will appeal to different levels of readiness and will provide a pathway in the brain to create strong memories (Gallagher, 2014). Almost all of the strategies can be used at all grade levels. Here’s how the book is organized.

In Chapter 1, I share the background research on vocabulary and memory, citing studies that point to a vocabulary pathway in the brain and explaining the memory systems and how vocabulary words are stored in and through them.

Chapters 2, 3, and 4 and their strategies are organized according to the stages of building long-term memories: encoding, storage, and retrieval. In Chapter 2, I share dozens of encoding strategies to introduce new words and begin the memory process. During this stage, it’s important to create an atmosphere in which students feel safe to try and fail. Knowing their teachers and classmates believe in them makes a huge difference in how students approach learning. Thus, the strategies in this chapter will help you reach students so that words can more readily be encoded in their brains.

From encoding in Chapter 2, we move to storage in Chapter 3. This stage is when we do elaborate rehearsals to get the words, definitions, visuals, and concepts related to each word stored permanently in the brain. The networks have been laid and made; now it is time to use the new words in multisensory activities that enter the mind through various systems for easier retrieval. Chapter 3 shares rehearsal strategies that help students recode, or define vocabulary terms in their own words. From synonyms to sentences, this stage encourages writing that will more clearly define and describe the academic vocabulary.

After the storage stage comes the retrieval stage—the focus of Chapter 4. During this stage, we use review to encourage retrieval of word knowledge and gain the automaticity needed for reading comprehension. Automaticity is the ability to read words without conscious decoding and understand them without
needing to search one’s brain for definitions. Our students cannot afford to use precious working memory space on decoding and figuring out word meanings; they need it for comprehension. Accordingly, to help students gain automaticity, Chapter 4 provides review strategies that will help student practice recalling words and meanings, using the words in speaking and writing, and understanding them in reading. Students will combine several words in sentences, make comparisons among words, and, most important, use the words in natural conversation and daily writing.

I wrap up the book with Chapter 5, which focuses on the intertwined components of assessment and planning. You will find rubrics and sample one- and two-week lesson plans using various strategies included in this book. We’ll explore questions like “How long will you study each word?” and “When will you assess?”

**GIVING THE GIFT OF VOCABULARY**

The release of the Common Core State Standards brought the importance of vocabulary instruction to the fore. Students are beginning to take the next generation of assessments that require higher cognitive demand as based on Webb's Depth of Knowledge and Bloom’s Taxonomy. But the importance of expanding our students’ Tier 2 vocabulary transcends these assessments: a strong academic vocabulary lays a solid foundation for success in life, just as a small vocabulary is a major disadvantage.

I have thought long and hard about teaching vocabulary at all levels, as I have in my own classrooms. I have studied research, talked to teachers, modeled lessons in classrooms, and compiled a plethora of strategies. Some of the 101 strategies in this book you may already know. Others, perhaps, will be brand-new to you. Some may require a tweak to work with your students. But I urge you not to discount any tools out of hand as either “too young” or “too tough” for your students. Certainly there is a difference between how we work with words in kindergarten and how we do it in 5th grade, but most strategies can be used in various grade levels. I have created an at-a-glance chart that lists all 101 strategies and indicates their approximate grade range as well as which strategies work particularly well for ELLs or low-SES students. You can access this chart at http://www.ascd.org/ASCD/pdf/books/sprenger2017.pdf.
I have no doubt that you will find strategies here to help you teach academic vocabulary in a way that will make it stick. If you are committed to teaching vocabulary and need more strategies to do so, this book is for you. If you teach students who live in poverty, this book is for you. If you have a large population of English language learners, you will find strategies for them, too. We owe this to our students. Let’s jump in together.
I often visit schools where I get to work with exceptional teachers. At one Chicago school, I spent a lot of time in an ESL primary classroom where the teacher, Jacquie Erickson, worked with her students using strategies from my first two vocabulary books, *Teaching the Critical Vocabulary of the Common Core* (2013) and *Vocab Rehab: How Do I Teach Vocabulary Effectively with Limited Time?* (2014). Although I had not specifically created lessons for English language learners, these brain-friendly strategies were effective for these students because they offered varied ways of learning.

For vocabulary instruction to be effective, we must meet students where they are and use strategies that take into account how their brains and memories work. In this chapter, I review some of the research behind how the brain learns and retains new words and explain how to prime students for vocabulary instruction to take hold.

**INSIGHTS FROM RESEARCH**

We are fortunate to teach in an age that abounds with brain research and memory research. Neuroscientists have been able to map the language pathway and the reading pathway in the brain (Sprenger, 2013). Mapping these pathways has enabled us to learn much more about how the brain acquires new vocabulary.
Some research specifically supports a visual word learning method. Reading and comprehension of words are often associated with an area in the left hemisphere of the brain called the visual word form area (Dehaene, 2009). Researchers (Glezer, Kim, Rule, Jiang, & Riesenhuber, 2015) believe that this area is used to store words as pictures, particularly after the words are learned through the familiar “sounding out” process, making good fluency possible.

Professor and researcher Maryann Wolf (2010) explains:

> When reading even a single word, the first milliseconds of the reading circuit are largely devoted to decoding the word’s visual information and connecting it to all that we know about the word from its sounds to meanings to syntactic functions. The virtual automaticity of this first set of stages allows us in the next milliseconds to go beyond the decoded text. It is within the next precious milliseconds that we enter a cognitive space where we can connect the decoded information to all that we know and feel. In this latter part of the process of reading, we are given the ability to think new thoughts of our own: the generative core of the reading process.

Most of us are familiar with vocabulary strategies that incorporate visuals, such as pictures, drawings, symbols, and graphic organizers. There’s a reason for that. Let me illustrate with a common scenario: you’re introduced to someone new, and just seconds later you have forgotten his name—but you remember that he’s an artist. This phenomenon is often referred to as the “baker/Baker effect.” You may not remember Mrs. Baker’s name right after you meet her, but if she is a baker, you’ll remember that—probably because you visualized the occupation and have a stronger connection to it. In one study (James, 2004), subjects were shown pictures of people along with their names and occupations. Later, when they were shown the pictures again, younger and older participants alike remembered occupations more than names. For this reason, teaching vocabulary is much more effective when the words are associated with visuals of some kind.

In addition to the visual aspect of vocabulary learning, researchers at King’s College in London (López-Barroso et al., 2013) have recently found that the arcuate fasciculus—a bundle of axons that connects the two speech centers, Wernicke’s area and Broca’s area—is the key to remembering new words.
Wernicke’s area is the brain’s lexicon of words and their meanings, whereas Broca’s area is involved with the articulation of speech. The researchers found that the more myelinated the arcuate fasciculus was—myelination being the process by which axons are covered in myelin, a fatty coating that makes nerve impulses move faster and more effectively—the more easily a word was remembered. In addition, articulation of the word helps reinforce the connection between the two speech structures. Therefore, the importance of having students speak new words cannot be overstated. Providing more opportunities for students to repeat a new vocabulary word and then use it when speaking increases the likelihood of their using it again.

It behooves us to approach vocabulary instruction using sound pedagogy that incorporates the conclusions of these research findings, including the use of repetition and reinforcement that strengthen the word connections in the brain. Researcher Michael Graves (2006) devised a four-part plan for teaching vocabulary that provides multiple avenues for learning and incorporates both explicit and implicit modes of learning. His plan includes the following four elements:

1. **A rich language environment.** Students should be immersed in a word-filled world. Some ways teachers can achieve this are by reading with and to students, through direct instruction and discussion of new vocabulary (Moore, Alvermann, & Hinchman, 2000), and by encouraging students to form “book clubs” in which they read and discuss books of their choice. Students should read and write across genres and content areas, and teachers should be sure to provide informational text along with fiction. You will find more ideas for creating a rich, word-filled environment throughout this book.

2. **Focus on individual words.** Teaching individual words is at the heart of increasing vocabularies. Because our student populations are so diverse, a toolbox of strategies is necessary to introduce and rehearse new vocabulary. Teachers should be open to what students need and vary their teaching methods accordingly.

3. **Word-learning strategies.** It’s important for students to be able to learn and explore new words independently. Teachers should show students how to use context clues as well as clues from morphemes (i.e., the smallest parts of words that contain meaning) to figure out the meaning of new words. Although most
experts agree that generating definitions with students is preferable to using dictionaries as a way of learning vocabulary, teachers should explain to students when a dictionary may be necessary and how to use a thesaurus.

4. Word consciousness. To foster word consciousness, teachers should model an awareness and enjoyment of words and their usefulness. Freely using and playing with words is an important part of building a strong vocabulary.

Baumann, Ware, and Edwards (2007) put Graves’s plan to the test by following 5th grade students from diverse backgrounds for one year, during which time the four elements of Graves’s approach were incorporated into daily vocabulary lessons. A sampling of the impressive results follows:

- Students’ word knowledge grew more than expected as a result of the program’s multifaceted approach to vocabulary learning.
- Students who were initially below average in vocabulary knowledge showed greater gains than did classmates who had originally tested above average.
- Writing samples indicated a 36 percent increase in students’ word knowledge between fall and spring.
- Low-frequency word use increased by 42 percent between fall and spring.
- Parents’ ratings of their children’s vocabulary size and appreciation of vocabulary increased between fall and spring.
- Students reported an increase in their interest in reading, writing, and vocabulary from fall to spring.
- Students used more sophisticated and challenging words as the school year progressed.
- Students’ attitudes toward learning improved over the school year.
- Students independently used word-learning tools and strategies.

It’s clear that Graves is onto something with his four-part plan. But there are still many questions to be answered about teaching and learning vocabulary. For example, how well should words be learned? Must students be able to recognize a word’s meaning in multiple contexts and recall its meaning without any triggers or clues? How long are students expected to retain this knowledge? What do we mean when we refer to students “encountering” a word—coming across it in a
written text, hearing it in conversation, defining it in a specific teacher-designed exercise, taking the initiative to use it in a sentence, deliberately committing it to memory? All of the above?

The mere presence of these questions indicates that vocabulary is a much more complex and important subject than it's often given credit for. Indeed, it is increasingly clear that vocabulary instruction must not be relegated to an occasional lesson but, rather, should pervade teaching across the curriculum and in all grade levels. As my colleague Mike Fisher writes in *Hacking the Common Core* (2016),

> Friday is not the only day that vocabulary is important, though you'd never guess that was the case in many classrooms in 2016. This practice is still pervasive and it must stop. Vocab is important every day. We don't want to create neural pathways (myelination) in students' brains that hardwire them to care about vocabulary only on Friday. (p. 37)

I agree wholeheartedly with Mike. We have to show our students that vocabulary is important to us, and that it is important every day. We need to teach definitions, pronunciation, relationships among words, strategies for choosing the right word in a given situation, and the kind of deep understanding that will enable our students to write complex sentences using vocabulary words automatically and correctly. How are we going to do this?

**INTRODUCING THE FIVE LONG-TERM MEMORY SYSTEMS**

Because our ultimate goal is to get vocabulary words into students’ long-term memories, let’s first look at how long-term memory works. There are actually five long-term memory systems that we can use to get information stored in the brain. Two of these are explicit, or declarative, systems: semantic and episodic. The other three—motor procedural, nonmotor procedural (automatic), and emotional—are implicit memory systems.

**Semantic Memory**

Semantic memory holds factual information that we have learned from words. Here’s how it works: new information enters the brain through the brain
stem, goes to the thalamus, and is sent to the hippocampus, which serves as the “file cabinet” for our factual memories. Just as each aisle at the supermarket has a sign telling us which items are on its shelves, the hippocampus holds the signs, or files, for our memories. If incoming sensory information is factual, it will trigger the hippocampus to search its files for matching information. If that existing information connects to the new information, it will be sent to the prefrontal cortex, where working memory will continue to sort and sift the old and the new material. Through prior knowledge or interest, the new information may be added to the old information and form new memories. This process may need to be repeated before permanent memories are formed.

This memory system is a problematic one to use for learning because it takes several repetitions of the learning to cement it into the pathway, and the new learning must be stimulated by associations, comparisons, and similarities to be accessed. Despite the limitations of semantic memory, most of our educational system relies heavily on this system. Textbooks, videos, and lectures are some of the teaching strategies that feed this system.

**Episodic Memory**

Episodic memory, which relates to locations, people, and events, has also been called contextual or spatial memory. You are always somewhere when you learn something, so that learning may easily be associated with the location. For example, those of us who are old enough to remember the assassination of President Kennedy may ask one another, “Where were you when you found out that JFK had been shot?” For younger people, the 9/11 tragedy is a similar type of memory trigger.

The point is that we all remember some information because it is location-related. The car that you learned to drive in will be easier for you to drive than other cars because you will remember the instructions you received and associate them with this particular car. That’s why taking your driving test in a different car tends to make the experience more difficult. Similarly, students who learn information in one room and are tested in another consistently underperform. Episodic memory has an important component that can be called “invisible information.” Students have more trouble solving math problems in their English classroom than they do back in math class because the walls, desks, overheads,
chalkboards, and even the math teacher provide all kinds of invisible information. The content of the room becomes part of the context of the memory.

Students can improve their semantic and episodic memory through the recoding process—that is, by putting information into their own words. This is especially important for students who struggle with a new language, who come from homes with little literacy, or who generally rely more heavily on their surroundings and experiences to build long-term memory. In a study by Szpunar, Chan, and McDermott (2009), three groups of students learned a set of words on computers in five sessions with a 20-minute break between each session. During the breaks, members of group A spent the time as they pleased; members of group B stayed at the computer and went over the words and definitions they had just learned; and members of group C received a blank sheet of paper and were asked to write down everything they remembered from the session. On the unit tests and the final test, group C outscored both of the other groups by about 40 percent. Interestingly, group B did not do much better than group A. This study shows why it is imperative not only to motivate students to attend to the instructional portion of a lesson but also to teach them how to recode and internalize the new information once the lesson is over.

**Motor Procedural Memory**

The motor procedural memory system is often referred to as “muscle memory.” Information found in this system relates to processes that your body engages in and remembers, like riding a bike, skipping rope, roller skating, or driving a car.

The parts of your brain that are responsible for this information in its initial stage are the prefrontal cortex, the parietal cortex, and the cerebellum. For years, it was thought that the cerebellum was used solely for balance and posture, but recent research (Munoz, 2014) suggests that the cerebellum plays a larger, more profound role.

When any procedure becomes routine, it is stored in the motor cortex and cerebellum. So when you first learned to drive, not only was your episodic memory storing factual information, but your motor procedural memory was also activated. Stopping at a red light, hitting your brakes when you see brake lights in front of you, and turning the wheel to avoid collisions are all stored in this system.
The storage of procedural memory within this system has given humans the ability to do two things at once. The fact that we can drive cars and talk on the telephone at the same time (not something I condone!) is evidence of this. Because different areas of the brain are needed for these two functions, they do not fight for brain space or energy.

**Nonmotor Procedural (Automatic) Memory**

Nonmotor procedural memory is where any learning that has become automatic for you is stored. The alphabet is stored here, as are Tier 1 words, which are a natural part of our speech. Because retrieval of words from nonmotor procedural memory is automatic, this is the system through which I recommend learning the critical vocabulary found in the Common Core standards. Automatic memory is also where you’d probably find the multiplication tables, your ability to decode words, and lots of songs.

Repeated sets of words are also stored here: think *stop* and *go*, *black* and *white*, *up* and *down*, *in* and *out*. If you practiced learning information on flashcards, that material would also be stored in your automatic memory system.

The use of this system can cause other memory systems to open. For example, imagine that you are listening to the radio, and a song comes on that you haven’t heard in a long time. You begin to sing the song and remember that the last time you sang it, you were on your way to the hospital. Now your episodic memory has been triggered. You picture yourself clutching the steering wheel of your blue Oldsmobile as you drove up the hill to this hospital. Now you have activated your procedural memory. As you think about the hospital, you remember why you were there: you were taking your friend to the emergency room. Your semantic system has opened up with this factual information. Suddenly, you feel happy as you recall that you were with your friend when her baby was born: now your emotional memory has been activated.

**Emotional Memory**

The feeling of happiness evoked by your memory of your friend’s baby being born is part of your emotional memory system, which is accessed through your amygdala. This brain structure is located in the midbrain next to your hippocampus.
Whereas the hippocampus stores factual information, your amygdala stores emotional information—experiences that made you feel happy, sad, and so on.

Take note: emotional memory takes precedence over any other kind of memory. When emotional information enters your brain, your amygdala immediately stores it. If the information calls for strong emotion, especially fear or high stress, the amygdala takes over, triggering a stress response that can help in life-threatening situations but wreak havoc in everyday stressful circumstances, such as taking a test or having a fight with a family member. During such occasions, the release of stress hormones like cortisol can interrupt transmission of information to the brain, making it impossible to think clearly. Daniel Goleman (1998) calls this response a “neural hijacking”: at this point, no memory system other than emotional memory has a chance.

Your emotional memory can even be triggered by another memory system and then take over your “logical” mind. For instance, let's say that you need to do some research for a project and decide to see if the local library has a book you need. Suddenly, as you picture the library through your semantic system, you “see” in your mind a librarian who works there whom you cannot tolerate. Your disgust and desire to avoid seeing her at any cost take over your thinking, and you decide to forget looking for that book.

The emotional memory system can also enhance learning. Remember the Baker/baker phenomenon, where the brain remembers an occupation more easily than a name? That changes when the brain makes a direct emotional connection to something important to us. For instance, when you met your future mother-in-law, her name was connected in your brain to a strong existing network, so you were more likely to remember her name. Because emotional memory takes precedence over the other long-term memory systems, teachers would be wise to connect learning to positive emotions, such as joy, pride, and humor.

HELPING STUDENTS GET TO KNOW AND LOVE THEIR BRAINS

To build stronger long-term memories, the strategies in this book appeal to multiple memory systems. In line with this multifaceted approach, it's important also to appeal to our students' many ways of learning, feeling, and being. It is necessary that we teach and nurture the whole child even when we are teaching
vocabulary. And the best way to cultivate receptivity to learning is to help students take ownership of it.

In my career, I have witnessed complete turnarounds in students’ engagement with text as they learn and “own” new words. Students need to believe that they can learn. Many have spent years hearing, “What’s the matter with you?” whenever they misbehave, do something that is not in sync with what caregivers want, or refuse to listen to things that aren’t important to them.

I believe that our first job as educators is to show students that there is nothing wrong with them. Accordingly, I suggest taking the first week of school or so to teach students about their brains—their fabulous brains. Some suggestions for doing so follow.

**Explain the five long-term memory systems to students.** Give students a rundown of the brain’s five long-term memory systems, explaining how each one works and helps students learn in different ways. Helping students to understand their memories will build their confidence and engagement in learning.

**Explain about multiple intelligences.** Talk about multiple intelligences and learning preferences to give students a chance to see why they might think or learn differently from others. I suggest distributing simple questionnaires to help them understand how they learn best, how they deal with others in the world, and what makes them truly happy. Edutopia is a good source of information on multiple intelligences and provides a short quiz that can be taken online (http://www.edutopia.org/multiple-intelligences-assessment).

**Test their memories and ensure success.** Many of my students believe that they have terrible memories because they haven’t fared well on traditional classroom assessments. This is compounded by their perception that certain classmates seem to remember *everything!* Rather than try to convince them that their memories are as good as their peers’, I administer simple memory tests that show them how “good” their brains are.

I begin by “wowing” them with my own amazing memory. First, I ask for a volunteer to be the recorder. Then I list the numbers 1–10 on the board and tell the students that they are going to create a grocery shopping list. After I turn my back so that I cannot see the board, the recorder calls on students in turn to provide an item and its number on the list. For instance, Maeve may say, “Number 3 is toilet paper.” The completed list may look like this:
Next, I ask students in what order they want me to recite the list, and I list the items accordingly. They are invariably impressed by this feat and eager to learn how to do it themselves. So I teach them the rhyming peg system that I use, which assigns each number a rhyming word: 1 = sun, 2 = shoe, 3 = tree, 4 = door, 5 = hive, 6 = sticks, 7 = heaven, 8 = gate, 9 = line, and 10 = hen. Because the pegs rhyme with the numbers, most students just require some practice. I give them time to practice and quiz one another on the pegs.

Once they’ve got that down, I give them a grocery list—10 items for older students, 5 items for younger students. They must associate each word I give them with the appropriate number without writing anything down. So if I say, “Number 1 is eggs,” they might visualize the sun (the peg for number 1) as an egg yolk. If number 2 is watermelon, they might picture themselves walking around with watermelons for shoes. This kind of strong visualization enables students to remember the words and makes them feel really good about their memories.

I teach memory classes at the college level and for continuing education and have found that adults are exactly like my K–12 students. If I give them memory tests that they can do well on, they feel motivated to continue working on all of their memory issues. We all have memory issues, but our attitude—our mindset—is what makes the difference in terms of how we handle them.

Empower students with a growth mindset. Students need, as Carol Dweck’s (2007) research suggests, a growth mindset. Do keep in mind that, as she argues (2015), a growth mindset is not just an “attaboy” approach. Students can’t succeed just by hearing that they are doing a good job; they must actually learn...
something. And vocabulary is a great “something” for students to learn because it is essential to and intertwined with everything they do at school.

**CONCLUSION**

We are learning more about how the brain and memory work. Understanding the brain's memory systems, as well as how the reading and language systems interact with storing vocabulary, will help you move forward with your vocabulary instruction and foster your own growth mindset about your success as a vocabulary teacher. No matter what subject you teach, there is a vocabulary that students must learn to understand concepts and procedures. When you add to that specialized vocabulary the academic words that overlap content areas and, in some cases, grade levels, our mission—upgrading our students’ vocabularies—is clear. Sharing the wonders of the human brain, promoting the mindset that all brains can learn, and showing that you respect all learners’ brains will help create an environment of optimism. In Chapter 2, we launch into the encoding process and explore ways to reach students with new and amazing words.


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