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What Research Says About Teaching Academic Vocabulary

*Research Base for
Academic Vocabulary Builders*

June 2008

“Academic language is part of a cognitive toolbox for undertaking real content area tasks in the same or analogous ways to experts.”

*—Jeffrey D. Wilhelm
(2007, p. 44)*

INTRODUCTION

Vocabulary acquisition and growth are primary factors in student achievement in all areas of the curriculum. Students who acquire a repertoire of strategies for negotiating their way through the various languages of school subjects are capable of meeting the challenges of learning from both fiction and nonfiction content. All students—native speakers of English, English language learners (ELL), struggling learners, and able learners—encounter the uniqueness that characterizes academic language, the language of school. This paper examines the research underlying vocabulary development and instruction, and illustrates how research findings are related to practice through the strategies applied in Red Brick Learning’s *Academic Vocabulary Builders* series. The series, designed for use in elementary through high school, includes a Glossary and companion Activity Book for mathematics, science, reading and language arts at each level, as well as social studies at the high school level.

What do we know about vocabulary knowledge?

Words matter: in talking, writing, reading, listening, and learning. The findings from over 100 years of vocabulary research demonstrate the significant role that vocabulary has in learning and success in school (Bromley, 2007; Graves & Watts-Taffe, 2002; Nagy & Scott, 2000). Davis (2007, p. 72) identified several key messages that these findings offer for teachers:

- Vocabulary knowledge is a critical aspect of reading comprehension.
- Students’ prior understandings and background knowledge are important contributors to vocabulary acquisition and use.
- The contexts in which students encounter words and the frequency of those encounters influence the quality of students’ vocabulary knowledge and use.
- Students learn many new words indirectly; however, they also need strategies to help them when they encounter unfamiliar vocabulary. Systematic approaches to vocabulary instruction provide experiences that actively engage students in their own learning.
- Teachers need to know what words to teach and various ways in which to teach them. Because the task of learning vocabulary is huge, all teachers have a responsibility for developing their students’ vocabulary.

Vocabulary knowledge is a critical factor in the school success of English language learners, as well as students whose early language experiences may have been limited as a result of economic and social factors. Both groups of learners face challenges in school because of gaps in vocabulary knowledge. The effects of these gaps are particularly noticeable when students encounter content-area vocabularies that consist of words with precise meanings that are often central to understanding core concepts (Marzano, 2004). Other researchers have noted that knowledge of English vocabulary is one of the strongest correlates of the discrepancy between the reading performance of native English speakers and that of ELLs even though many ELLs possess a large vocabulary in their native language (Blachowicz, Fisher & Ogle, 2006; Goldenberg, Rezaei & Fletcher, 2005; Graves, 2006).

Developing word knowledge is a complex process. (Nagy & Scott 2000, p. 270) discuss five aspects of word knowledge that are relevant for both researchers and teachers: word knowledge is incremental; word knowledge has both cognitive and affective dimensions; words often have multiple meanings; the extent of word knowledge is affected by one's ability to make connections among words and their meanings; and word knowledge is dependent on understanding the type of word, who uses the word, and for what purposes.

Word learning takes place in many steps. This view of word learning helps explain how a great deal of vocabulary is acquired incidentally from contexts that may involve listening, reading, or viewing. These experiences enable learners to add to their store of words and word meanings in ways that may be highly subjective and personalized. Such learning has to be supported by instruction if students are to reach high levels of word knowledge required for success in school (Beck, McKeown, & Kucan, 2002). Instruction can provide students with strategies that enable them to know words—recognize them in connected speech or in print, access meanings, pronounce them, spell them, and use them in novel contexts and in combination with other types of knowledge.

Word knowledge has many dimensions that reflect both a cognitive and an affective component. As students acquire more extensive vocabularies, they become conversant with connotative and denotative aspects of word knowledge. Such awareness enables them to appreciate the power of words to convey emotion, to persuade, or to communicate concepts precisely.

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Many words have multiple meanings and the more frequently a word is used, the more likely it is to have two or more meanings. For example, think about meanings associated with a common word such as bank. Words gain meanings from the contexts in which they are used and these contexts often provide novel shades of meaning.

Words are not isolated units of knowledge. Students' knowledge of one word is linked to their knowledge of other words. The concept of interrelatedness is recognized in instructional practices that build on students' prior knowledge, linking the known to the new and unfamiliar.

Word knowledge is dependent on the type of word. Function words such as so, the, if, and involve a different kind of knowledge from that associated with terms such as photosynthesis, character, subtract. In addition to factors related to types of words, word knowledge is also affected by who uses the words and for what purposes. For example, the mathematics teacher using the term right angle in explaining right triangles and the marketing professional using the term right angle to determine the best direction for a sales promotion have entirely different purposes and meanings for the same expression. One might describe words as having multiple personalities!

Words are the foundation of language. Knowing words enables students to gain deeper understandings of the subjects they study in school, the world outside school, and themselves. Teachers play a powerful role in bringing words to life by providing their students with the tools that foster understanding of the nature and function of words.

What is academic language?

Wilhelm (2007) observes, “When we teach a subject, or any topic or text within that subject, we must teach the academic vocabulary necessary for dealing with it—not just the words, but also the linguistic processes and patterns for delving deeply into and operating upon that content” (p. 44). Two aspects of academic language can be considered: (1) words that are used in the course of assigning, teaching, and discussing within the context of classes, and (2) words that are specific to subject areas. Burke (2004) produced a list of 360 terms that teachers commonly use in their classes and which also appear on state tests; words such as, *argument, brainstorm, calculate, compare, distinguish, formulate, graphic, hypothesize, integrate, paraphrase, synthesize, theme, voice* (2004, p. 38). Burke and Zwiers (2004/2005) both advise teachers to notice the concepts and thinking processes associated with the content they are teaching and identify the academic language that describes these thinking skills.

A second category of academic vocabulary consists of those words that are specific to content disciplines. Here students encounter technical terms (e.g., hypotenuse, photosynthesis, constitution, metaphor), as well as common terms with specialized meanings derived from the context (e.g., mean, range, scope, mood). Acquiring facility with the vocabulary of the individual disciplines is a significant factor in students’ ability to learn concepts. Through experiences that promote acquisition and use of academic vocabulary, students learn to think, read, write, and speak in the ways of mathematicians, scientists, and historians.

Marzano (2004) researched academic vocabulary in an effort to determine subject-specific terms most suitable for direct instruction. His analysis of standards and benchmark documents produced 7,923 terms across 11 subject areas including language arts, mathematics, science, and social studies. This landmark study provided a practical way for teachers to select words for instruction in their particular disciplines. Notably, the terms used in the *Academic Vocabulary Builders* series are drawn from Marzano’s lists.

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Effective vocabulary instruction does not rely on definitions.

- *instruction needs to focus on helping students develop descriptions as opposed to definitions*

- *Students must represent their knowledge of words in linguistic and nonlinguistic ways.*

- *Verbal descriptions and graphic representations can be used to help students extend their store of words*

- *Effective vocabulary instruction involves the gradual shaping of word meanings through multiple exposures.*

What do we know about effective vocabulary instruction?

The complexity of word knowledge affects instruction in all areas of the curriculum. Teachers are well aware that there are too many words to teach them all to students one-by-one; there is too much to learn about each word to by have students memorize definitions. These factors indicate that students' vocabulary knowledge must be developed in a variety of ways. Effective instruction can motivate students and foster in them a sense of accomplishment as well as awareness about the effectiveness of their learning. Marzano (2004) defined a number of characteristics of effective vocabulary instruction.

Effective vocabulary instruction does not rely on definitions.

Providing students with definitions, having them look up dictionary definitions, and having them write sentences using unfamiliar words have been common practices in vocabulary instruction, yet research findings clearly indicate the limitations of these activities (Beck, McKeown, & Kucan, 2002; Bromley, 2004; Nagy & Scott, 2000). Because of the complexity of word knowledge, instruction needs to focus on helping students develop descriptions as opposed to definitions, and to develop word consciousness, an ability that is more complex than knowing a definition (Blachowicz, Fisher, & Ogle, 2006; Graves, 2006). In general, students need to consciously develop strategies that will enable them to become independent in word learning.

Students must represent their knowledge of words in linguistic and nonlinguistic ways.

Individuals vary in the ways in which they communicate what they know and what they are learning. Verbal descriptions and graphic representations can be used to help students extend their store of words as well as to communicate their meanings more effectively. Semantic feature analysis activities help students to understand similarities and differences in words. Similarly, graphic representations such as Venn diagrams, webs, and charts can be used to help students visualize relationships among terms.

Effective vocabulary instruction involves the gradual shaping of word meanings through multiple exposures.

A word-rich environment provides the setting in which students can build knowledge of words through repeated exposures and through multiple sources of information. Vocabulary knowledge appears to deepen over time and learning is enhanced if students interact with vocabulary in a variety of ways (Beck, McKeown, & Kucan, 2002; Graves,

2006; Marzano, 2004). Some effective ways in which students can interact with vocabulary include comparing, classifying, creating metaphors, and creating analogies. Word walls and word-of-the-day activities encourage students to notice and to appreciate the sheer volume of words that surround them and to appreciate the uniqueness of individual words.

Teaching word parts enhances students' understanding of terms.

Teaching word bases and affixes (i.e., prefixes and suffixes) has traditionally been part of regular vocabulary instruction. This focus makes sense: 90 percent of English words with more than one syllable are Latin-based; most of the remaining 10 percent are Greek based; a single Latin root generates 5–20 English words (Rasinski, Padak, Newton & Newton, 2008). Many words in the academic vocabulary of mathematics, science, literature, and social studies are derived from Latin and Greek roots. As students become familiar with the meanings of word bases and affixes, their knowledge of a word's multiple meanings and usages expands.

Cognates are another source of word learning, particularly for English language learners who may discover similarities between some English words and corresponding words in their native languages. This is particularly true of languages that share a Latin base with English (e.g., Spanish and French). Cognates are words in English and other languages that share the same base and are visibly and often audibly similar. For example, word pairs such as English tranquil and Spanish tranquilo are similar in spelling, pronunciation, and meaning. English and Spanish share many cognates. Helping students understand the relationships that exist among words in different languages can foster development of word consciousness, as well as communicate respect for the linguistic and cultural knowledge that English language learners bring to school.

Students should discuss the terms they are learning.

Talking about words—what they mean, how they are used, how they sound, what they suggest to or remind individuals of, and why it's important to know how to use them—is an essential feature of effective vocabulary instruction. Dialogue about words can be considered in the context of purposeful talk which Nichols (2008) defines as “focused, collaborative talk; a social process that requires children to actively engage with ideas, think out loud together, and work to a co-construction of those ideas” (p. 10). As students discuss new terms, they make connections with their prior knowledge, gain new insights and clarification, acquire deeper understanding, and increase the likelihood that they will remember the words and use them in their own speaking or writing.

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Students should play with words.

Playing with language is one of the best ways to engage students with language and to lead them to deeper levels of understanding. Regrettably, opportunities for students to play with words are sometimes lacking, particularly in situations where teachers are concerned with the demands of standards and state tests. Nonetheless, there is a strong research base for word play based on four principles (Blachowicz and Fisher, 2004, p. 219):

- Word play is motivating and forms an important component of the word-rich classroom.
- Word play calls on students to reflect metacognitively on words, word parts, and context.
- Word play requires students to be active learners and capitalizes on possibilities for the social construction of meaning.
- Word play develops domains of word meaning and relatedness as it engages students in practice and rehearsal of words.

Instruction should focus on terms that have a high probability of enhancing academic success.

Selecting words for direct vocabulary instruction and determining how to involve students in choosing those words are important considerations for teachers. Beck, McKeown, & Kucan (2002) suggest that vocabulary be thought of in three tiers. This structure makes clear that words in the language have different levels of utility. The first tier consists of words that are most basic, ones that students will encounter frequently during reading (e.g., clock, baby, happy), and rarely require instruction in school. Tier Two words are described as high-utility words for mature language users (e.g., crucial, dynamic, momentum). Found across many domains, these words are likely to be conceptually familiar to students and are more characteristic of written language. Beck and her colleagues recommend that instruction in Tier Two words can add productively to an individual's language ability. Tier Three words are specific to content areas—the words that comprise academic vocabularies. According to Beck and her colleagues, these words are probably best learned when needed in a content area. Using the three tiers words to teach vocabulary is widely popular; however, Marzano (2004) argues that the instructional emphasis Beck et al. place on Tier Two words is not sufficient to enable students to meet the learning challenges involved in acquiring academic vocabulary. Marzano maintains that teachers need to focus on subject-specific terms that are essential to building academic background knowledge. The key message is that teachers should

be deliberate about the selection of vocabulary for direct instruction. This awareness enables them to think more systematically about vocabulary instruction and to focus on promoting solid understanding of a small set of core words rather than overwhelming students with masses of new terms (Bromley, 2007; Flanigan & Greenwood, 2007).

Renewed interest in vocabulary instruction has provided a wealth of resources from which teachers can obtain support and direction about effective practice. In summary, effective vocabulary instruction

- takes place in a language- and word-rich environment that fosters word consciousness;
- includes intentional teaching of selected words, providing multiple types of information about each new word as well as opportunities for repeated exposure, use, and practice;
- involves teaching generative elements of words and word learning strategies in ways that give students the ability to learn new words independently
(Blachowicz et al., 2006, p. 527).

Furthermore, effective vocabulary instruction capitalizes on incidental experiences in which students have opportunities to read, hear, use, and talk about new vocabulary. These experiences are integral to classrooms where students are read to, have access to a wide variety of reading materials in both print and non-print forms, and are encouraged to talk about what they read. Taken together, the characteristics of effective vocabulary instruction provide guidance for teachers in implementing practices that accomplish the goal of generating a love of words in students as well as furthering their academic accomplishments.

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Teachers can create a classroom environment that highlights words

- *word collections*
- *opportunities to share and discuss interesting words*
- *wide assortment of word-related resources*

What strategies contribute to effective vocabulary development?

Students need to develop strategies for dealing with new words they will meet in school and in other areas of their lives. Explicit instruction in the use of word learning strategies can help students develop a repertoire of resources they can draw upon to become independent learners. In addition to providing strategy instruction, teachers can create a classroom environment that highlights words (Yopp & Yopp, 2007). Some features of this environment include word collections, opportunities to share and discuss interesting words, and a wide assortment of word-related resources (e.g., puzzles, word games, word calendars, books on riddles, puns, rhymes, and specialized dictionaries, as well as fiction and nonfiction books and magazines). These features are often associated with language arts classes; however, just as many opportunities for creating a word-rich environment are available in the content areas. For example, mathematical and scientific terms can be reinforced through the use of bulletin boards or banners that include symbols and images; headlines from different newspapers or magazines can be displayed to illustrate different accounts of a historical or current event. While the environment and incidental learning can contribute to students' sensitivity to words, these aspects have to be enhanced with vocabulary instruction that is planned, explicit, and deliberate.

Realizing opportunities for vocabulary instruction.

It is easy to slip into the traditional view that vocabulary instruction belongs only in the language arts portion of the curriculum. Such a stance is short-sighted and impractical. Understanding the meanings of terms related to new concepts in content areas is crucial to success in learning. Harmon, Wood and Hedrick (2006) observe, "Vocabulary words are at the heart of learning in content areas because new terms represent the concepts being taught.... So students need to acquire a thorough understanding of terms in order to build a foundation for further learning about a particular topic" (p. 3).

The content areas provide a context in which students can realize the utility of word-learning strategies they have studied in language arts classes. Three examples illustrate this point. Base words, prefixes, and suffixes are often taught in language arts; however, the practical use of this knowledge comes into play most prominently in mathematics and science classes. Features of nonfiction text may be discussed in language arts; however, these features consistently appear in the materials students use in the content areas. Pre-reading activities which include drawing upon prior knowledge and making predictions are routine in language arts lessons; activating students' prior knowledge and

leading them to ask questions stemming from firsthand experiences with concepts enable students to encounter new vocabulary and see the relevance of content-area topics.

Understanding features of nonfiction texts.

Mathematics, science, and social studies texts have features that are designed to help readers access the vocabulary related to key concepts (Barton, Heidema, & Jordan, 2002; Hapgood & Palinscar, 2006/2007). With explicit instruction about the features, the purposes they serve, and how to use them, students can readily understand how these texts differ from the narrative texts they are accustomed to in language arts class. Some of these features include:

- terms listed at the beginning of chapters, highlighted in the text, and listed in end-of-chapter summaries or activities;
- questions to guide students' thinking and help them to make connections with prior knowledge;
- visual representations accompanied by verbal explanations in which key terms are included;
- cross-references;
- headings and subheadings that contain key terms;
- glossary—pronunciation aids and definitions.

Instruction about the features of nonfiction text should also make students aware of terms that signal organizational patterns—sequence, time, description, problem-solution, cause-effect, and compare-contrast.

Taking advantage of strategies used in language arts.

Many of the strategies used to teach vocabulary to aid reading comprehension can be applied with academic vocabulary. Having students preview a text to determine words they think are essential (or challenging), then discussing their choices in the group enables students to become actively engaged with vocabulary prior to reading the text. In the discussion, the teacher can provide comments and questions that familiarize students with meanings as well as the appropriateness of their choices. Several studies report that student selection can be productive not only in determining vocabulary to study but also in building motivation and study skills (Blachowicz & Fisher, 2000; Blachowicz et al., 2006).

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Many of the strategies used to teach vocabulary to aid reading comprehension can be applied with academic vocabulary.

Marzano (2004) recommends a consistent approach to direct vocabulary instruction that includes teacher modeling accompanied by opportunities for students to talk and write, to compose meanings, and to reflect on how these meanings were expressed and various other possibilities for expressing them.

Vocabulary instruction can be integrated within the lesson when students are reading a passage, when they are engaged in solving a math problem, or when they are observing a science experiment or demonstration (Davis, 2007). During follow-up to the lesson, vocabulary can again be highlighted as students respond to questions, discuss what they learned, solve problems, or write up their observations. Taking advantage of these situations gives students repeated exposures to the selected vocabulary, helps them to understand how context is or is not useful for getting at meaning, and enables them to help one other with parts of the text that they do not understand. This latter aspect is a feature of reciprocal teaching, a strategy that involves asking questions, clarifying what was read, summarizing for information, and predicting what might follow (Palinscar & Brown, 1984).

Adhering to an instructional plan.

Wilhelm (2007) notes, “To make all our students keenly aware of how academic language works, we should use ritual structures to promote conscious understanding... Ritualizing means that (1) you will naturally begin to incorporate the techniques into your teaching, and (2) students will recognize and know how to use the techniques to promote their own understanding and performance. Better to use well-chosen techniques repeatedly than to use them intermittently or, worse yet, to use a different one every time” (p. 45). Similarly, Marzano (2004) recommends a consistent approach to direct vocabulary instruction that includes teacher modeling accompanied by opportunities for students to talk and write, to compose meanings, and to reflect on how these meanings were expressed and various other possibilities for expressing them. This framework for direct vocabulary instruction takes place over time so that students have repeated opportunities to work with the terms in a variety of circumstances and settings.

Vocabulary in mathematics.

Many math words have non-mathematical meanings in everyday language; such as, degree, expression, face, gross, mean, net. Students may be aware of these words in their general vocabulary and recognize various meanings of the words in familiar contexts; however, they must also acquire the mathematical meanings for the terms. As previously noted, many math words are formed with Greek and Latin roots; such as, bisect, triangle, quadrangle, hexagon, semicircle, polygon. Visuals and symbols are other aspects of math vocabulary that students must master.

Vocabulary in science.

Scientific language is known for its precision. Like mathematics vocabulary, science has many words with non-scientific meanings in everyday language. Similarly, many science terms are formed from Latin and Greek bases and affixes; such as, photosynthesis, chromosome, mitosis, sedimentary. And science vocabulary includes visuals and symbols that contribute to the development of concepts.

Vocabulary in social studies.

Social studies vocabulary encompasses terms from general history, world history, U.S. history, and regional history as well as current events on local, national, and international levels. Terms from geography, economics, political science, civics, and culture and society will also be found in materials students encounter in social studies. Because of the wide range of topics presented in social studies programs, students will encounter special meanings for familiar words, words derived from Latin and Greek bases and affixes, and unique terms from various domains making up social studies. Understanding word connotations is another aspect of vocabulary development in social studies. This aspect of word knowledge is often examined in reading and language arts classes; however, it has wide applicability in fostering students' critical thinking that is central to comprehending social studies material.

Vocabulary in reading and language arts.

Vocabulary instruction is integral to reading and writing instruction in ways that build students' comprehension and written expression. Like other content areas, reading and language arts have academic vocabularies that students encounter as they learn about reading strategies, literary concepts, language conventions, and oral and written expression; for example, sentence, paragraph, context clue, proofread, edit, metaphor, simile. In addition to acquiring an understanding of these terms, students also encounter a wide range of words that authors use to develop character, plot, and setting—words that form the vocabulary of literary selections. Wide reading experiences ensure that students expand their vocabularies. Nonetheless, helping students learn the academic vocabulary of literacy is as important as learning the vocabularies of the other subject areas.

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Metacognitive awareness.

Metacognition is thinking about thinking. The term describes the knowledge and awareness that a person has of his or her cognitive resources. Through guided vocabulary activities, students learn to take control of their own learning; they develop strategies that enable them to recognize when their comprehension breaks down; they can access appropriate strategies to repair comprehension breakdowns; and they can reflect on their learning.

Strategy instruction for academic vocabulary can draw upon activities that are frequently used in language arts class. Word learning strategies provide the tools students can use for getting at specific meanings for words and concepts that are central to successful learning in the content areas.

Supporting effective instruction with the Academic Vocabulary Builders series

Red Brick Learning, a nationally recognized literacy publisher, is proud to introduce its new vocabulary series: *Academic Vocabulary Builders*. Designed for instruction in elementary through and high school, the program addresses academic vocabulary in mathematics, science, reading and language arts at each level, and social studies at the high school level. *Academic Vocabulary Builders* provides a focus for deliberate selection of vocabulary for instruction and incorporates best-practice strategies. This series is a resource that will enhance teachers' ongoing vocabulary instruction, provide students with repeated exposure to important terms, and offer preparation for tests.

- **It is research-based.** The series is based on Marzano's (2004) landmark research into the need for a program to build academic vocabulary. As explained previously, Marzano developed a list of academic terms applicable in 11 subject areas. The words used in the Glossaries and Activity Books of this series are based on Marzano's word list. This selection of terms reflects a critical factor in teaching academic vocabulary—a focus on subject-specific terms that are essential to building academic background knowledge. *Academic Vocabulary Builders* is a response to the immediate needs of teachers and students to focus on learning vocabulary that is the foundation for achievement in the content areas.
- **It supports the principles of effective vocabulary instruction.** Developing students' academic vocabularies cannot be left to incidental experiences across the curriculum. A credible body of research indicates that direct, explicit vocabulary instruction is necessary for all students and provides additional benefits for students who struggle and those who are learning English. The program's instructional approach is consistent with principles of effective vocabulary instruction: focus on a small core of target words in each activity; consistent lesson organization across the program; words are presented in context; lesson format supports both individual and small group work, as well as student discussion for review and extension at the end of the activity.
- **The language is accessible for students.** The Glossary for each subject area contains descriptive, easy-to-read explanations rather than dictionary-style definitions. A sentence illustrates the use of the selected term in context and reveals a "real-world" application of the term. Visual representations accompany most terms and the use of four colors enhances the appeal of the Glossaries. A Table of Contents identifies the topics which are color-coded with the colors used in headers and marginal thumbprints to distinguish sections in the Glossary. A brief Welcome note explains the purpose of the Glossary, its organization, and shows features of the definitions.

*...addresses
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- **Activities are learner-centered.** Based on student needs, teachers can decide to have students complete the Activity Book exercises in the sequence presented or select exercises that reflect student needs related to topics that are currently being studied in class. The Word Bar at the beginning of each page in the Activity Book can be used to help students identify words that are familiar or unfamiliar. Based on that information, several options are available for completing the activity: students may complete the activity independently without resorting to the Glossary; they may use the Glossary as an aid as they complete the activity; they may work with a partner or in a small group; or they can review the activity together. The activity pages have an open design with lots of white space which provides sufficient room for students to record their responses. Students can use the blank pages at the end of each Glossary to keep notes about terms—this feature builds on Marzano’s recommendation that students keep an academic vocabulary notebook.

- **Suggestions for using the materials with ESL students and struggling readers are provided.** Notes in the Teacher Guide & Answer Key provide practical suggestions for using the materials with these groups of students. The materials lend themselves to teacher modeling and thinking aloud activities which are particularly helpful for these learners. Because the materials lend themselves to flexible use, teachers can have students revisit various activities to provide multiple and repeated exposures that will support student learning over time.

- **The Glossary is a resource for test preparation.** Many of the terms in the Glossary appear on state tests so this book is a handy tool to help prepare students for those tests. In addition to using the Glossary for test preparation purposes, teachers may use the Glossary to complete the Activity Book exercises. Suggestions for using the Glossary include:

- o Having students study the terms as they encounter them in class or on practice tests;
- o Introducing the terms according to the topics under which they appear;
- o Assigning students a set number (e.g., 3 or 5) of terms a day to learn from the Glossary.
- o Instructing students to use the blank pages at the back of the Glossary to start a personal academic notebook. Have students maintain a separate notebook for academic vocabulary, as this space is filled.

Academic Vocabulary Builders is a timely resource that addresses the concerns for effective learning of the technical language in mathematics, science, social studies, and reading and language arts. Based on credible research, the program features terms drawn from Marzano's (2004) academic word list; explanation of terms through verbal descriptions, use in context, and visual representations; and consistent instructional procedures that can be adapted to meet the needs of students who are struggling or learning English.

This paper opened with a quotation from Jeffrey Wilhelm: "Academic language is part of a cognitive toolbox for undertaking real content area tasks in the same or analogous ways to experts." This quotation conveys the central intent of *Academic Vocabulary Builders*: to provide teachers and students with a resource that supports acquisition and use of academic vocabulary through meaningful student-centered activities.

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