

# WORD STUDY FOR PHONICS, VOCABULARY, AND SPELLING INSTRUCTION







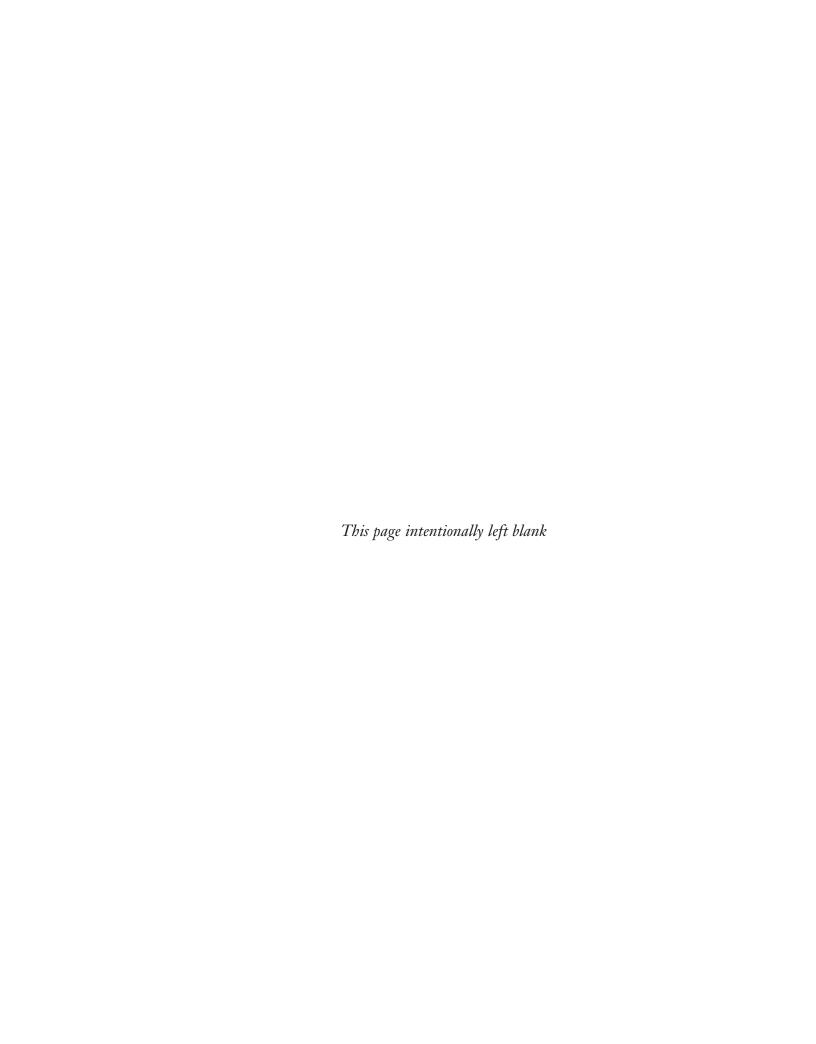


Donald R. Bear • Marcia Invernizzi
Shane Templeton • Francine Johnston

### **Developmental Stages for Word Study**

	STAGES OF SPELLING	ASSESSMENT: Do your students spell this way?	INSTRUCTION
EMERGENT	Ages: 1–6 Grades: pre-K to early 1 Corresponding stage of reading and writing: Emergent Covered in: Chapter 4	Do your students spell this way?  Random marks, representational drawing, mock linear or letter-like writing, random letters and numbers	Talk with students and read to students to enhance vocabulary Build vocabulary with concept sorts Develop phonological awareness with picture sorts, songs, and games Enhance alphabet knowledge with sorts, games, writing, and matching activities Read and reread familiar texts to develop Concept of Word in Text Sort pictures by initial consonant sounds to learn letter—sound correspondences
LETTER NAME	Ages: 4–7 Grades: pre-K to early 2 Corresponding stage of reading and writing: Beginning Covered in: Chapter 5	Do your students spell this way?  M MN MIN mine JN JV JRF DRIV drive T TP TEP tip N NT NAT net S SD SAD SED send S SC SK SEK sick B BK BAK back L LP LOP LUP LOMP lump	Use picture sorts to review initial consonants Sort pictures and words to contrast blends and digraphs Introduce short vowels in contrasting word families Examine short vowels in CVC words Develop sight words with word banks Enhance oral vocabulary through read-alouds and concept sorts
WITHIN WORD	Ages: 6–9 Grades: late 1 to early 3 Corresponding stage of reading and writing: Transitional Covered in: Chapter 6	Do your students spell this way?  SEET, SETE seat NALE nail ROAP rope CRIE cry FOWND found BOTE boat CRALL, CRAUL crawl LAFE laugh TROPE troop BAKE back	Sort pictures to contrast short and long vowel sounds  Use word sorts to study long vowel patterns as well as ambiguous vowels and r-controlled vowels  Study complex consonants and homophones  Develop weekly routines and word study notebooks  Learn strategies to understand new vocabulary in reading  Enhance vocabulary through homophones and inflectional morphology
SYLLABLES & AFFIXES	Ages: 8–12 Grades: 3 to 6 Corresponding stage of reading and writing: Intermediate Covered in: Chapter 7	Do your students spell this way?  HOPING hopping ATEND attend CONFUSSHUN confusion PLESHURE pleasure CAPCHUR capture HOCKY hockey BARBAR barber DISPOSUL disposal	Use word sorts to study inflected endings and compound words  Examine syllable juncture with open and closed syllable sorts  Review vowel patterns in accented syllables  Sort words by final unaccented syllables  Study common prefixes and suffixes and how affixes change meaning and grammatical use  Enhance academic vocabulary in content areas
DERIVATIONAL	Ages: 10+ Grades: 5 and up Corresponding stage of reading and writing: Advanced Covered in: Chapter 8	Do your students spell this way?  SOLEM solemn OPPISITION opposition CRITASIZE criticize BENAFIT benefit AMMUSEMENT amusement APPEARENCE appearance	Examine the spelling—meaning connection through the study of words derived from shared roots and bases     Sort words by Greek and Latin roots     Study assimilated or absorbed prefixes     Study suffixes and how they signal parts of speech     Enhance vocabulary through the study of morphology     Explore etymology and the history of the English language

# Words Their Way®



# Words Their Way®

# Word Study for Phonics, Vocabulary, and Spelling Instruction

SIXTH EDITION

**Donald R. Bear** 

**Iowa State University** 

Marcia Invernizzi

University of Virginia

**Shane Templeton** 

University of Nevada, Reno

**Francine Johnston** 

University of North Carolina at Greensboro

**PEARSON** 

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Executive Editor: Meredith D. Fossel

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Editorial Assistant: Maria Feliberty Program Manager: Karen Mason

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# This book is dedicated to the memory of our teacher, Edmund H. Henderson.

Donald R. Bear Marcia Invernizzi Shane Templeton Francine Johnston

# Letter from the Authors

#### Dear Educator,

It is an honor for the authors of *Words Their Way®*: *Word Study for Phonics, Vocabulary, and Spelling Instruction* to present the sixth edition of this seminal text on word study. Accompanying this edition is an online resource, PDToolkit for *Words Their Way®*, featuring classroom video, printable sorts and games, online interactive sorts, assessment tools, and applications all in one place. These tools will help you to effectively implement word study instruction in your classroom.

For the sixth edition, the authors highlight a few key ideas presented in Words Their Way.

#### Donald

Words Their Way presents a developmental approach that makes word study more efficient and responsive. This approach to word study integrates phonics, spelling, and vocabulary because of the reciprocal nature of literacy: what students learn in spelling transfers to reading, and what they learn in reading transfers to spelling and vocabulary. These are not, therefore, three separate and unrelated areas of instruction. Integrating phonics, vocabulary, and spelling instruction with a developmental approach contributes, we hope, to deep and rewarding learning and teaching.

#### Marcia

Words Their Way has gotten teachers to think about phonics, spelling, and vocabulary instruction from a completely different point of view. Teachers welcome our student-centered, minds-on, active approach that considers word study not only as an integral part of literacy development, but also as an integral vehicle for fostering critical thinking. Effective word study lessons pose questions and involve students in solving problems through careful analysis, reflection, and discussion. The questions teachers pose during words study—such as, "Why do some words end in a silent e?"—encourage an investigative mindset, and give purpose for engaging in word study activities such as word sorts. The language we use when we talk with students about words has a powerful influence on their self-efficacy as learners. This is in sharp contrast to most phonics and spelling programs that merely ask students to memorize relationships, rules, and words.

#### Shane

Words Their Way helps teachers provide their students with the breadth and depth of exploration necessary to construct knowledge about words over time—from individual letters to sound, from groups of letters to sound, and from groups of letters to meaning. Awareness and appreciation of how children construct this knowledge empowers and emboldens many teachers to advocate for developmental instruction in word study specifically and in literacy more generally. This understanding is now being

applied to instruction in vocabulary—in particular, general academic vocabulary and domain-specific vocabulary.

#### Francine

Students learn best when they are working with content that is in their "Zone of Proximal Development" or window of opportunity. *Words Their Way* offers an assessment-driven developmental guide for word study that helps teachers to differentiate instruction to meet children's needs and provides the resources to do so.

Bring your colleagues and come join us in the most active edition of *Words Their Way*® yet. We wish you happy sorting with your students!

Sincerely,

Donald R. Bear Marcia Invernizzi Shane Templeton Francine Johnston

# About the Authors

**Donald R. Bear** is director of the Duffelmeyer Reading Clinic in the School of Education, Iowa State University, where he and his students teach and assess students who are experiencing difficulties learning to read and write. A former elementary teacher, Donald currently researches literacy development with a special interest in students who speak different languages. He partners with schools and districts to think about how to assess and conduct literacy instruction.

Marcia Invernizzi is executive director of the McGuffey Reading Center in the Curry School of Education at the University of Virginia. She and her multilingual doctoral students enjoy exploring developmental universals in non-English orthographies. A former English and reading teacher, Marcia extends her experience working with children who experience difficulties learning to read and write to numerous intervention programs, such as Virginia's Early Intervention Reading Initiative and Book Buddies.

**Shane Templeton** is Foundation Professor Emeritus of Literacy Studies in the College of Education at the University of Nevada, Reno. A former classroom teacher at the primary and secondary levels, his research focuses on the development of orthographic and vocabulary knowledge. He has written several books on the teaching and learning of reading and language arts and is a member of the Usage Panel of the *American Heritage Dictionary*.

**Francine Johnston** is retired from the School of Education at the University of North Carolina at Greensboro, where she coordinated the reading master's program and directed a reading clinic for struggling readers. Francine is a former first grade teacher and reading specialist, and she continues to work with schools as a consultant.

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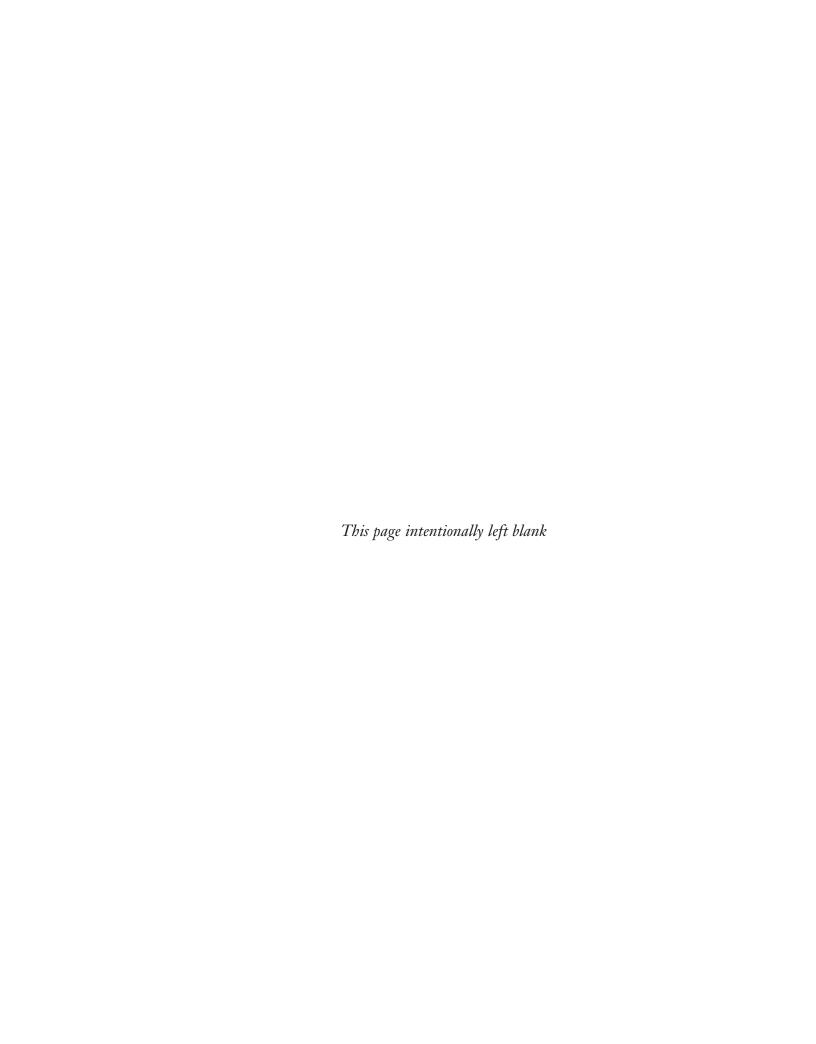
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I see and I forget. I hear and I remember. I do and I understand.

—Confucius

Word study involves "doing" things with words—examining, manipulating, comparing, and categorizing—and offers students the opportunity to make their own discoveries about how words work. When teachers use this practical, hands-on way to study words with students, they create tasks that focus students' attention on critical features of words: sound, pattern, and meaning.

Words Their Way is a developmental approach to phonics, vocabulary, and spelling instruction. Guided by an informed interpretation of spelling errors and other literacy behaviors, Words Their Way offers a systematic, teacher-directed, child-centered plan for the study of words from kindergarten to high school. Step by step, the chapters explain exactly how to provide effective word study instruction. The keys to this research-based approach are knowing your students' literacy progress, organizing for instruction, and implementing word study.

### **NEW to This Edition**

- **NEW:** To enhance thoughtful discussions, a chart in Chapter 3 offers sample questions to guide problem solving, reflection, application, and transfer.
- NEW: Ideas for teaching proofreading and dictionary skills have been developed for each level.
- NEW: Common Core State Standards are listed for each activity.
- **NEW:** Word study websites and resources are expanded for this edition.
- NEW: Academic vocabulary is introduced with accompanying vocabulary activities.
- NEW: Coverage of oral vocabulary is enhanced with additional activities at all stages.
- NEW: More assessments for the emergent stage have been added.
- NEW: A newly designed marginal icon connects the reader to specific videos, sorts, or assessments on PDToolkit.
- **NEW**: Activities have been added, and many have been revised.
- **NEW**: Photos have been pulled from videos and appear in the book, further enhancing the interconnectedness between the text and the media.
- **NEW:** References throughout the book pertaining to student demographics and the latest research pertaining to word study have been updated.

# PDToolkit for Words Their Way®

A website with media tools accompanies *Words Their Way*, sixth edition. Together with the text, the website provides the tools you need to carry out word study instruction that will motivate and engage your students and help them succeed in literacy learning.

The PDToolkit for *Words Their Way*® is available free for twelve months with the password that comes with this book. After twelve months, your subscription must be renewed. Be sure to explore and download the resources available at the website. The following resources are currently available:

- **NEW**: In addition to all new footage presented with the fifth edition of *Words Their Way*®, the classroom footage added to the sixth edition shows you teachers using word study at all of stages of development, including English learners and PreK–K and secondary students.
- An assessment tool provides downloadable inventories and feature guides, as well as interactive classroom composites that help you monitor your students' development throughout the year.
- Prepared word sorts and games for each stage will help you get started with word study in your classroom.
- A Create Your Own feature allows you to modify and create sorts and games and online computers.
- Word sorts that can be used with interactive whiteboards are available for each stage.
   We will continue to add new other resources.

### **Knowing Your Students**

Chapter 1 provides you with foundational information on word study and the research in orthography and literacy development that led to this word study approach. Then, Chapter 2 presents assessment and evaluation tools, walking you step by step through the process of determining your students' instructional level and focusing your word study instruction appropriately. After you administer one of the spelling inventories, you will be able to compile a feature guide for each of your students that will help you identify their stage and the word study features they are ready to master. The classroom composite will identify which students have similar instructional needs, allowing you to plan wisely and effectively for word study grouping.

The website includes progress monitoring charts and spell checks, enabling you to determine the effectiveness of instruction on a regular basis and to modify it as needed. On the PDToolkit for *Words Their Way*® you will find assessment resources to download, including:

- Primary Spelling Inventory, feature guide, error guide, and classroom composite
- Elementary Spelling Inventory, feature guide, error guide, and classroom composite
- Upper-Level Spelling Inventory, feature guide, and classroom composite
- · Spelling-by-Stage Organizational Chart
- Qualitative Spelling Checklist
- Emergent Class Record and other emergent assessments
- Word Feature Inventory
- McGuffey Qualitative Spelling Inventory
- Kindergarten Spelling Inventory and Analysis
- Progress monitoring charts
- Spell checks

### Organizing for Instruction

Chapter 3 outlines the most effective ways to organize word study for classroom instruction. We suggest activities for small groups, partners, and individuals that can be incorporated into weekly routines that will help you manage leveled groups for instruction at all grade levels. We also describe a continuum of support that will help you plan and implement lessons to maximize classroom time. Tips are provided to help guide discussions about words.

# Implementing Word Study

Once you have assessed your students, created leveled groups, and developed routines for word study, the information and materials in Chapters 4 through 8 and the Appendixes will guide your instruction. Chapters 4 through 8 explore the characteristics of each particular stage, from the emergent learner through to the advanced reader and writer in the derivational relations stage of spelling development. Each of these chapters covers the research and principles that drive instruction and the most appropriate sequence and instructional pacing.

Activities described in each chapter include concept sorts, word sorts, and games, which will help you focus instruction where it is needed to move students into the next stage of development. These word study activities promise to engage your students, motivate them, and improve their literacy skills. The activities sections have shaded tabs for your convenience, creating a handy classroom resource. New to this edition are additional vocabulary strategies for each developmental level.

Importantly, as you work with the *Common Core State Standards*, you will see how *Words Their Way* supports the Reading Foundational Skills and the Language Standards across all the grades. The depth and breadth of word knowledge developed through *Words Their Way* also supports the Common Core's emphasis on students reading more complex literary and informational texts.

The Appendixes at the back of the book contain most of the assessment instruments described in Chapter 2, as well as word sorts, sound boards, and game templates you will need to get your own word study instruction under way.

### **Companion Volumes**

Additional stage-specific companion volumes provide you with a complete curriculum of reproducible sorts and detailed directions, including:

- Words Their Way<sup>®</sup>: Letter and Picture Sorts for Emergent Spellers (2nd ed.), by Donald R. Bear, Marcia Invernizzi, Francine Johnston, and Shane Templeton
- Words Their Way<sup>®</sup>: Word Sorts for Letter Name–Alphabetic Spellers (2nd ed.), by Francine Johnston, Donald R. Bear, Marcia Invernizzi, and Shane Templeton
- Words Their Way<sup>®</sup>: Word Sorts for Within Word Pattern Spellers (2nd ed.), by Marcia Invernizzi, Francine Johnston, Donald R. Bear, and Shane Templeton
- Words Their Way®: Word Sorts for Syllables and Affixes Spellers (2nd ed.), by Francine Johnston, Marcia Invernizzi, Donald R. Bear, and Shane Templeton
- Words Their Way<sup>®</sup>: Word Sorts for Derivational Relations Spellers (2nd ed.), by Shane Templeton, Francine Johnston, Donald R. Bear, and Marcia Invernizzi

Other related volumes are designed to meet the needs of English learners and students in the intermediate and secondary levels:

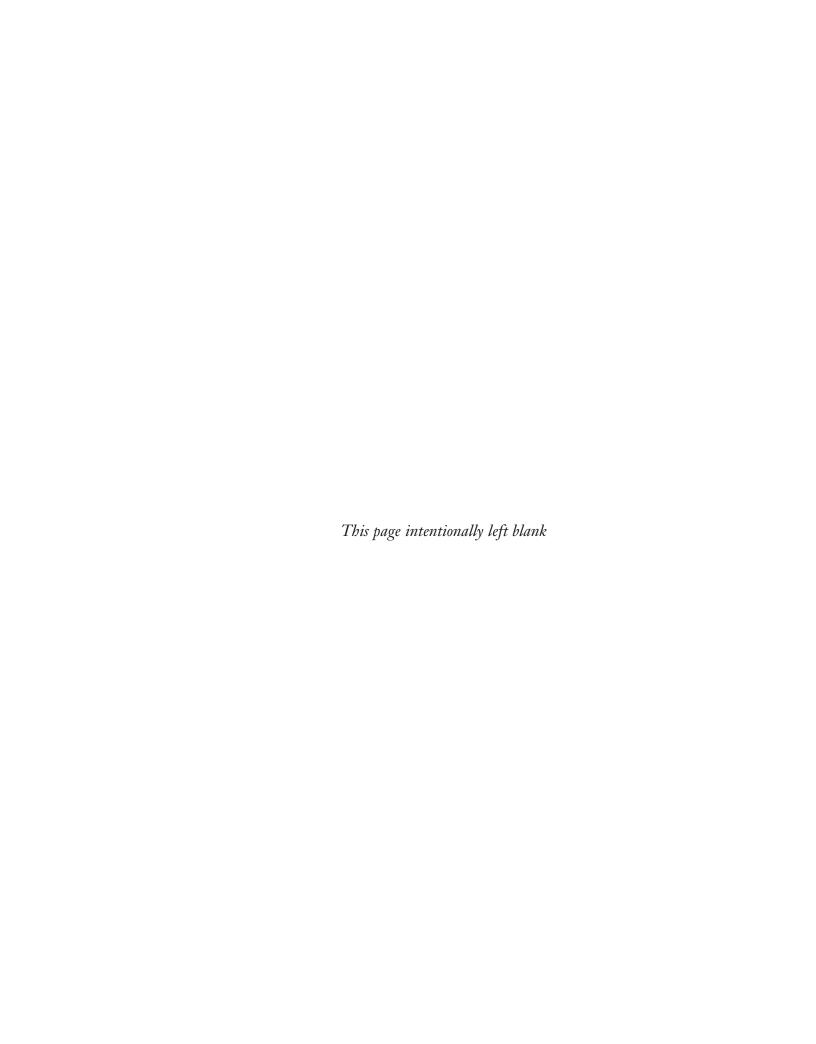
- Words Their Way® for PreK–K, by Francine Johnston, Marcia Invernizzi, Lori Helman, Donald R. Bear, and Shane Templeton
- Words Their Way<sup>®</sup> with English Learners: Word Study for Phonics, Vocabulary, and Spelling (2nd ed.), by Lori Helman, Donald R. Bear, Shane Templeton, Marcia Invernizzi, and Francine Johnston
- Words Their Way<sup>®</sup>: Emergent Sorts for Spanish-Speaking English Learners, by Lori Helman, Donald R. Bear, Marcia Invernizzi, Shane Templeton, and Francine Johnston
- Words Their Way<sup>®</sup>: Letter Name–Alphabetic Sorts for Spanish-Speaking English Learners, by Lori Helman, Donald R. Bear, Marcia Invernizzi, Shane Templeton, and Francine Johnston
- Words Their Way<sup>®</sup>: Within Word Pattern Sorts for Spanish-Speaking English Learners, by Lori Helman, Donald R. Bear, Marcia Invernizzi, Shane Templeton, and Francine Johnston
- Vocabulary Their Way<sup>®</sup>: Word Study with Middle and Secondary Students (2nd ed.), by Shane Templeton, Donald R. Bear, Marcia Invernizzi, Francine Johnston, Kevin Flanigan, Lori Helman, Diana Townsend, and Tisha Hayes
- Words Their Way<sup>®</sup> with Struggling Readers: Word Study for Reading, Vocabulary, and Spelling Instruction, Grades 4–12, by Kevin Flanigan, Latisha Hayes, Shane Templeton, Donald R. Bear, Marcia Invernizzi, and Francine Johnston

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# Words Their Way®

hapter

# Developmental Word Knowledge



or students of all ages and language backgrounds, knowing the ways in which their written language represents the language they speak is the key to literacy. In this sixth edition, we describe how teachers can most effectively guide and support students' learning about the sounds, structure, and meanings of words—crafting our instruction so that our students learn about words *their* way. In addition to demonstrating how a developmental approach to word study best supports students' deep and long-term word learning, this new edition further explores how educators may apply this developmental model as they implement effective and engaging phonics, vocabulary, and spelling instruction from preschool through the middle grades and beyond, and apply best practices for ongoing progress monitoring, response to intervention, and scaffolding instruction for multilingual learners. Whether you are a long-standing companion on this adventure or joining us for the first time, we welcome you on this continuing journey to learn and teach about words *their* way.

### The Braid of Literacy

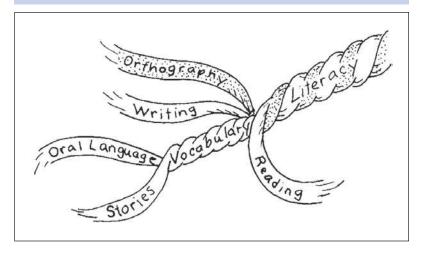
Literacy is like a braid of interwoven threads. The braid begins with the intertwining threads of oral language and stories that are read to children. As children experiment with putting ideas on paper, a writing thread is entwined as well. And all along the way, vocabulary is being learned and developed. As children move into reading, the threads of literacy begin to bond. Students' growing knowledge of spelling or **orthography**—the ways in which letters and letter patterns in words represent sound and meaning—strengthens that bonding. The size of the threads and the braid itself become thicker as orthographic knowledge grows (see Figure 1.1).

During the preschool years, children acquire word knowledge in a fundamentally aural way from the language that surrounds them. Through listening to and talking about every-day events, life experiences, and stories, children develop a speaking vocabulary. As they have opportunities to talk about their everyday experiences, children begin to make sense of their world and to use language to negotiate and describe it. Children also begin to experiment with pen and paper when they have opportunities to observe parents, siblings, and caregivers writing for many purposes. They gradually come to understand the forms and functions of written language. The first written words students learn are usually their own names, followed by those of significant others. Words such as *Mom*, *cat*, and *dog* and phrases like *I love you* represent people, animals, and ideas dear to their lives.

As students grow as readers and writers, the language of books and print becomes a critical component to furthering their literacy development. Vocabulary is learned when purposeful reading, writing, listening, and speaking take place. Even more words can be learned when children explicitly examine printed words to discover consistencies among them and how consistent patterns relate to oral language—to speech sounds and to meaning.

A major aim of this book is to demonstrate how an exploration of spelling—orthography—can lead to lengthening and strengthening of the literacy braid. Teachers must understand the ways in which these threads intertwine to create this bond so that they can direct children's attention to words *their* way.

FIGURE 1.1 Braid of Literacy



There are similarities in the ways learners of all ages expand their knowledge of the world. It seems that humans have a natural interest in finding order and patterns, comparing and contrasting, and paying attention to what remains the same despite minor variations. Infants learn to recognize Daddy as the same Daddy with or without glasses, with or without a hat or whiskers. Through such daily interactions, we categorize our surroundings. Similarly, our students expand their vocabularies by comparing one concept with another. Gradually, the number of concepts they analyze increases, but the process is still one of comparing and contrasting. They may first call anything with four legs "doggie" until they attend to the features that distinguish dogs, cats, and cows, and later terriers, Labrador retrievers, border col-

#### FIGURE 1.2 Emma Sorting Words



lies, and greyhounds. In the process, they learn the vocabulary to label the categories.

Word study, as described in this book, occurs in hands-on activities that reflect basic cognitive learning processes: comparing and contrasting by categorizing word features, and then discovering similarities and differences within and between categories. Word features include their sounds, their spelling patterns, and their meaning. For example, by sorting words according to whether they end in a "silent" e, as Emma is doing in Figure 1.2, students can discover a consistent pattern: words ending with a "silent" e usually have a long vowel sound (ā cake) while those without a final e have a short vowel sound (ă - cat). Under the guidance of a knowledgeable teacher, the logic of the spelling system is revealed when students sort words into categories. During word study, words and pictures are sorted in routines that require children to examine, discriminate, and make critical judgments about speech sounds, spelling patterns, and meanings.

# Children's Spellings: A Window into Developing Word Knowledge

Students have probably been "inventing" their own spelling ever since paper and pencil have been available, but it was not until the early 1970s that Charles Read (1971, 1975) and Carol Chomsky (1971) took a serious look at young children's spelling attempts. Their work introduced the world of literacy to the notion of "invented spelling." Read understood that preschoolers' attempts were not just random approximations of print. To the contrary, his linguistic analysis showed that children's invented spellings provided a window into their developing word knowledge. These inventions revealed a systematic logic to the way some preschoolers selected letters to represent speech sounds.

At about the same time, Edmund Henderson and his colleagues at the University of Virginia had begun to look for similar logic in students' spellings across ages and grade levels (Beers & Henderson, 1977; Henderson & Beers, 1980). Read's findings provided these researchers with the tools they needed to interpret the errors they were studying. Building on Read's discoveries, Henderson discerned an underlying logic to students' errors that changed over time, moving from the spelling of single letters and letter groups or patterns (Henderson, Estes, & Stonecash, 1972) to the spelling of meaning units such as suffixes and word roots. The Virginia spelling studies corroborated and extended Read's findings upward through the grades and resulted in a comprehensive

model of developmental word knowledge (Henderson, 1990; Templeton & Bear, 1992; Templeton & Morris, 2000).

Subsequent studies confirmed this developmental model across many groups of students, from preschoolers (Ouellete & Sénéchal, 2008; Templeton & Spivey, 1980) through adults (Bear, Truex, & Barone, 1989; Massengill, 2006; Worthy & Viise, 1996), as well as across socioeconomic levels, dialects, and other alphabetic languages (Bear, Helman, & Woessner, 2009; Cantrell, 2001; He & Wang, 2009; Helman, 2009; Helman & Bear, 2007; Yang, 2005). The power of this model lies in the diagnostic information contained in students' spelling inventions that reveal their current understanding of written words (Invernizzi, Abouzeid, & Gill, 1994). In addition, the analysis of students' spelling has been explored independently by other researchers (e.g., Bahr, Silliman, & Berninger, 2009; Bissex, 1980; Ehri, 1992; Foorman & Petscher, 2010; Holmes & Davis, 2002; Larkin & Snowling, 2008; Nunes & Bryant, 2009; Richgels, 1995, 2001; Treiman, 1993; Treiman, Stothard, & Snowling, 2013; Young, 2007).

Henderson and his students not only studied the development of children's spelling, but also devised an instructional model to support that development. They determined that through an informed analysis of students' spelling attempts, teachers can differentiate and provide timely instruction in phonics, spelling, and vocabulary that is essential to move students forward in reading and writing. We call this efficient and effective instruction **word study.** 

#### Why Is Word Study Important?

Becoming fully literate depends on fast, accurate recognition of words and their meanings in texts, and fast, accurate production of words in writing so that readers and writers can focus their attention on making meaning. This rapid, accurate recognition and production depends on students' written word knowledge—their understanding of phonics and spelling patterns, word parts, and meanings. Planning and implementing a word study curriculum that explicitly teaches students necessary skills, and engages their interest and motivation to learn about words, is a vital aspect of any literacy program. Indeed, how to teach students these basics in an effective manner has sparked controversy among educators for nearly two hundred years (Balmuth, 1992; Carnine, Silbert, Kame'enui, & Tarver, 2009; Mathews, 1967; Schlagal, 2013; Smith, 2002). But helping students learn about words should not be controversial.

Many phonics, spelling, and vocabulary programs are characterized by explicit skill instruction, a systematic scope and sequence, and repeated practice. However, much of the repeated practice consists of drill and memorization, so students have little opportunity to discover spelling patterns, manipulate word concepts, or apply critical thinking skills. Although students need explicit skill instruction within a systematic curriculum, it is equally true that "teaching is not telling" (James, 1899/1958).

Students need hands-on opportunities to manipulate words and features in ways that allow them to generalize beyond isolated, individual examples to entire groups of words that are spelled the same way (Joseph, 2002; Juel & Minden-Cupp, 2000; Templeton, Smith, Moloney, Van Pelt, & Ives, 2009; White, 2005). Excelling at word recognition, spelling, and vocabulary is not just a matter of memorizing isolated rules and definitions. The best way to develop fast and accurate recognition and production of words is to engage in meaningful reading and writing, and to have multiple opportunities to examine those same words and their features in and out of context. The most effective instruction in phonics, spelling, and vocabulary links word study to the texts students are reading, provides a systematic scope and sequence of word features, provides multiple opportunities for hands-on practice and application, and promotes active thinking. Word study teaches students how to look at and analyze words so that they can construct an ever-deepening understanding of how spelling works to represent sound and meaning. We believe that this word study is well worth 10 to 15 minutes of instruction and practice daily (Carlisle, Kelcey, & Berebitsky, 2013).



What Is Word Study? In this video author Marcia Invernizzi explains why word

study is important.

#### What Is the Purpose of Word Study?

The purpose of word study is twofold: it examines words in order to 1) reveal the logic and consistencies within our written language system, and 2) help students master recognizing, spelling, defining, and using specific words. First, students develop a *general* knowledge of English spelling. Through active exploration, word study teaches students to examine words to discover generalizations about English spelling, such as the role of final silent e to mark a long vowel sound. They learn the regularities, patterns, and conventions of English orthography needed to read and spell. This general knowledge reflects what students understand about the nature of our spelling system. Second, word study increases *specific* knowledge of words—the spellings and meanings of individual words.

General knowledge is what we use when we encounter a new word, when we do not know how to spell a word, or when we do not know the meaning of a specific word. The better our general knowledge of the system, the better we are at decoding unfamiliar words, spelling correctly, or guessing the meanings of words. For example, if you know about short vowels and consonants you would have no trouble attempting the word *brash* even if you have never seen or written it before. The spelling is straightforward, like so many single-syllable short vowel words. The general knowledge that words that are similar in spelling are related in meaning, such as *compete* and *competition*, makes it easier to understand the meaning of a word like *competitor*, even if it is unfamiliar. Additional clues offered by context also increase the chances of reading and understanding a word correctly.

To become fully literate, however, we also need specific knowledge about individual words. The word *rain*, for example, might be spelled *rane*, *rain*, or *rayne*; all three spellings are theoretically plausible. However, only specific knowledge allows us to remember the correct spelling. Likewise, only specific knowledge of the spelling of *which* and *witch* makes it possible to know which is which! The relationship between specific knowledge and general knowledge of the system is *reciprocal*—each supports the other. Conrad (2008) expressed this idea in noting that "the transfer between reading and spelling occurs in both directions" (p. 876) and that "the orthographic representations established through practice can be used for both reading and spelling" (p. 869).

# What Is the Basis for Developmental Word Study?

Word study evolves from four decades of research exploring developmental aspects of word knowledge with children and adults (Henderson, 1990; Henderson & Beers, 1980; Templeton, 2011; Templeton & Bear, 1992). This line of research has documented the specific kinds of spelling errors that tend to occur in clusters and reflect students' uncertainty over certain recurring spellings or orthographic principles. These "clusters" have been described in terms of (1) errors dealing with the alphabetic match of letters and sounds (FES for fish), (2) errors dealing with letter patterns (SNAIK for *snake*) and syllable patterns (POPING for popping), and (3) errors dealing with words related in meaning (INVUTATION for invitation; a lack of knowledge that *invite* provides the clue to the correct spelling of the second vowel). The same cluster types of errors have been observed among students with learning disabilities and dyslexia (Bear, Negrete, & Cathey, 2012; Sawyer, Lipa-Wade, Kim, Ritenour, & Knight, 1997; Templeton & Ives, 2007; Treiman, 1985; Worthy & Invernizzi, 1989), students who speak in variant dialects (Cantrell, 2001; Dixon, Zhao, & Joshi, 2012; Stever, 1980; Treiman, Goswami, Tincoff, & Leevers, 1997), and students who are learning to read in different alphabetic languages (Bear, Templeton, Helman, & Baren, 2003; Helman, 2004; Helman et al., 2012; Yang, 2005). Longitudinal and cross-grade-level research in developmental spelling has shown that developmental progression occurs for all learners of written English in the same direction, and varies only in the rate of acquisition (Invernizzi & Hayes, 2004; Treiman, Stothard, & Snowling, 2013).

Three Layers of English Orthography

Word study also builds on the history of English spelling. Developmental spelling researchers have examined the three layers of English orthography in the historical evolution of English spelling and students' developmental progression from alphabet to pattern to meaning layers. Figure 1.3 illustrates how the layers of written English are arranged. Each of the three layers of the English spelling system is built on the one before: to the straightforward alphabetic base of Old English was added the more abstract letter patterns in Middle English, and to that layer were added the Greek and Latin meaning units such as prefixes, suffixes, and roots in early Modern English. For mature readers, upper level word study examines interactions among the three layers.

# MEANING

#### **Alphabet**

Our spelling system is alphabetic because it represents the relationship between letters and sounds. In the word sat, each sound

is represented by a single letter; we blend the sounds for s, a, and t to read the word sat. In the word chin, we still hear three sounds, even though there are four letters, because the first two letters, ch, function like a single letter, representing a single sound. So we can match letters sometimes singly, sometimes in pairs—to sounds from left to right and create words. This **alphabetic layer** in English spelling is the first layer of information at work.

The alphabetic layer of English orthography was established during the time of Old English, the language spoken and written by the Anglo-Saxons in England between the Germanic invasions of the sixth century B.C.E. and the conquest of England by William of Normandy in 1066 (Lerer, 2007). Old English was remarkably consistent in letter-sound correspondence and used the alphabet to systematically represent speech sounds. The long vowels were pronounced close to the way they are in modern Romance languages today, such as Spanish, French, and Italian (i.e. E is pronounced as long A as in tres and I is pronounced as long E as in Rio).

The history of the alphabetic layer reflected in the story of Old English is relevant to teachers today because beginners spell like "little Saxons" as they begin to read and write (Henderson, 1981). Armed with only a rudimentary knowledge of the alphabet and letter sounds, beginning spellers of all backgrounds use their alphabet knowledge quite literally. They rely on the sound embedded in the names of the letters to represent the sounds they are trying to represent (Invernizzi, 1992; Read, 1971; Young, 2007). This strategy works quite well for consonants when the names do, in fact, contain the correct corresponding speech sounds (Bee, Dee, eF, eS, and so forth). It works less well for letters that have more than one sound (C: /s/ and /k/), and it does not work at all for consonants with names that do not contain their corresponding speech sounds (W: double you; Y: wie; and H: aitch). Short vowel sounds are particularly problematic for novice spellers because there is no single letter that "says" the short vowel sound. As a result, beginning readers choose a letter whose name, when pronounced, sounds and feels closest to the targeted short vowel sound (Beers & Henderson, 1977; Read, 1975). For example, beginning readers often spell the short e sound in bed with the letter a (BAD) and the short i sound in rip with the letter e (REP).

#### **Pattern**

Why don't we spell all words in English "the way they sound"—at the alphabetic level, in other words? If we did, words like cape, bead, and light would look like cap, bed, and lit—but these spellings, of course, already represent other words. Therefore, the pattern layer overlies the alphabetic layer. Because there are 42 to 44 sounds in English and only 26 letters in the alphabet, single sounds are sometimes spelled with more than one letter or are affected by other letters that do not stand for any sounds themselves. When we look beyond single lettersound match-ups and search for patterns that guide the groupings of letters, however, we find surprising consistency (Hanna, Hanna, Hodges, & Rudorf, 1966; Venezky, 1999).



#### **Developmental Word Study** Instruction

This video introduces the three layers of English.

Take, for example, the *ain* in *rain*: we say that the silent *i* is a **vowel marker**, indicating that the preceding vowel letter, *a*, stands for a long vowel sound. The *i* does not stand for a sound itself, but marks the vowel before it as long. The *ai* group of letters follows a pattern: when you have a pair of vowels in a single syllable, this letter grouping forms a pattern that often indicates a long vowel. We refer to this as the "AI pattern" or as the consonant-vowel-vowel-consonant (CVVC) pattern—one of several high-frequency long-vowel patterns. Overall, knowledge about orthographic patterns within words is considerably valuable to students in both their reading and their spelling.

Where did these patterns originate? The simple letter–sound consistency of Old English was overlaid by a massive influx of French words after the Norman Conquest in 1066. Because these words entered the existing language through bilingual Anglo-Norman speakers and writers, some of the French pronunciations and spelling conventions were adopted, too. Old English was thus overlaid with the vocabulary and spelling traditions of the ruling class, the Norman French. This complex interaction of pronunciation change on top of the intermingling of French and English spellings led to a proliferation of different vowel sounds represented by different vowel patterns. The extensive repertoire of vowel patterns today is attributable to this period of history, such as the various pronunciations of the *ea* pattern in words like *bread* and *thread*, *great* and *break*, *meat* and *clean*. It is uncanny that students in this pattern stage of spelling spell like "little Anglo-Normans" when they write *taste* as TAIST or *leave* as LEEVE.

#### Meaning

The third layer of English orthography is the **meaning layer.** When students learn that groups of letters can represent meaning directly, they will be much less puzzled when encountering unusual spellings. Examples of these units or groups of letters are prefixes, suffixes, and Greek and Latin roots. These units of meaning are called **morphemes**—the smallest units of meaning in a language.

One example of how meaning functions in the spelling system is the prefix re: Whether we hear it pronounced "ree" as in rethink or "ruh" as in rethink, the morpheme spelling stays the same because it directly represents meaning. Why is sign spelled with a silent g? Because it is related in meaning to signature, in which the g is pronounced. The letters s-i-g-n remain in both words to visually preserve the meaning relationships that these words share. Likewise, the letter sequence photo in photograph, photographer, and photographic signals spelling—meaning connections among these words, despite the changes in sounds that the letter o represents.

The explosion of knowledge and culture during the Renaissance required a new, expanded vocabulary to accommodate the growth in learning that occurred during this time. Greek and Latin were used by educated people throughout Europe and classical roots had the potential to meet this demand for meaning. Greek roots could be combined (e.g., autograph and autobiography), and prefixes and suffixes were added to Latin roots (inspect, spectator, and spectacular). So, to the orthographic record of English history was added a third layer of meaning that built new vocabulary out of elements that came from classical Greek and Latin.

The spelling–meaning relations inherent in words brought into English during the Renaissance have important implications for vocabulary instruction today as students move through the intermediate grades and beyond (Templeton 2011/2012, 2012). When students explore how spelling visually preserves meaning relationships among words with the same derivations (e.g., note the second b in *bomb* and *bombard*), they see how closely related spelling is to meaning and vocabulary. The seemingly arbitrary spelling of some words—in which silent letters occur or vowel spellings seem irrational—is in reality central to understanding the meanings of related words. For example, the silent *c* in *muscle* is "sounded" in the related words *muscular* and *musculature*—all of which come from the Latin *musculus*, literally a little mouse (the rippling of a muscle reminded the Romans of the movements of a mouse!). Such words, through their spellings, carry their history and meaning with them (Venezky, 1999; Templeton et al., 2015).

#### **Learning the Layers of English Orthography**

Organizing the phonics, spelling, and vocabulary curriculum according to historical layers of alphabet, pattern, and meaning provides a systematic guide for instruction. It places the types of words to be studied in an evolutionary progression that mirrors the development of the orthographic system itself. Anglo-Saxon words, the oldest words in English, are among the easiest to read and the most familiar. Words like *sun*, *moon*, *day*, and *night* are high-frequency "earthy" words that populate easy reading materials in the primary grades. Anglo-Saxon words survive in high-frequency prepositions, pronouns, conjunctions, and auxiliary verbs (e.g., *have*, *was*, *does*) although the pronunciation is now quite different. More difficult Norman French words of one and two syllables—words like *chance*, *chamber*, *royal*, *guard*, and *conquer*—frequently appear in books suitable for the elementary grades. The less frequent, more academic vocabulary of English—words like *calculate*, *maximum*, *cumulus*, *nucleus*, *hemisphere*, *hydraulic*, and *rhombus*—are Latin and Greek in origin and appear most often in student reading selections in the upper elementary grades and beyond.

Alphabet, pattern, and meaning represent three broad principles of written English and form the layered record of orthographic history. As students learn to read and write, they appear to reinvent the system as it was itself invented. As shown in Figure 1.4, beginners invent the spellings of simple words phonetically, just as the Anglo-Saxons did over a thousand years ago. As students become independent readers, they add a second layer by using patterns, much as the Norman French did. Notice in Figure 1.4 the overuse of the silent *e* vowel marker at the ends of all of Antonie's words, much like Geoffrey Chaucer's! Intermediate and advanced readers invent conventions for joining syllables and units of meaning, as was done during the Renaissance when English incorporated a large classical Greek and Latin vocabulary (Henderson, 1990; Templeton, Bear, Invernizzi, & Johnston, 2010). As

Figure 1.4 shows, both Julian, age 14, and Queen Elizabeth I in 1600 had to deal with issues of consonant doubling in the middle of words.

In this book, we argue that orthographic knowledge—understanding the ways in which letters and letter patterns in words represent sound and meaning—plays a central role in a comprehensive language arts program that links reading and writing. Word knowledge accumulates as students develop orthographic understandings at the alphabetic, pattern, and meaning levels. This happens when they read and write purposefully and are also provided with explicit, systematic word study instruction by knowledgeable teachers. Word study should give students the experiences they need to progress through and integrate these layers of information.

• For students who are experimenting with the alphabetic match of letters and sounds, teachers can contrast aspects of the writing system that relate directly to the representation of sound. For example, words spelled with short *e* (*bed*, *leg*, *net*, *neck*, *mess*) are compared with words spelled with short *o* (*hot*, *rock*, *top*, *log*, *pond*).

**FIGURE 1.4** Comparison of Historical and Students' Development across Three Layers of English Orthography: Alphabet, Pattern, and Meaning

Alphabet	Historical Spelling Anglo-Saxon (Lord's Prayer, 1000)	Students' Spelling-by-Stage Letter Name–Alphabetic (Tawanda, age 6)	
	WIF (wife) TODAEG (today) HEAFONUM (heaven)	WIF (wife) TUDAE (today) HAFAN (heaven)	
Pattern	Norman French (Chaucer, 1440)	Within Word Patterns (Antonie, age 8)	
	YONGE (young) SWETE (sweet) ROOTE (root) CROPPE (crop)	YUNGE (young) SWETE (sweet) ROOTE (root) CROPPE (crop)	
Meaning	Renaissance (Elizabeth I, 1600) DISSCORD (discord) FOLOWE (follow) MUSSIKE (music)	Syllables & Meaning (Julian, age 14) DISSCORD (discord) FOLOWE (follow) MUSSIC (music)	

Source: Adapted from "Using Students' Invented Spellings as a Guide for Spelling Instruction That Emphasizes Word Study" by M. Invernizzi, M. Abouzeid, & T. Gill, 1994, Elementary School Journal, 95(2), p. 158. Reprinted by permission of The University of Chicago Press.