

# RESEARCH RATIONALE FOR DESIGN AND CONTENT OF SPELLOGRAPHY

## A WORD STUDY PROGRAM FOR GRADES 4-5



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The newly published *Spellography* is a word study program for intermediate grade students whose spelling and word analysis skills are somewhat to well below average. It integrates practice with spelling, word analysis, word reading fluency, and grammar and usage. The program embodies instructional content and methods that are consistently supported by inter-disciplinary research on learning to read and spell. Selective findings from decades of research, guiding the content and instructional approach of *Spellography*, are as follows:

### Explicit Instruction of Spelling Pays Off!

Design and Content of Spellography	Supporting Research
<ul style="list-style-type: none"> <li>■ Explicit teaching of concepts</li> <li>■ Cumulative sequencing</li> <li>■ Guided practice</li> <li>■ Application</li> <li>■ Immediate feedback and self-correction of errors</li> <li>■ Review and reteaching as necessary</li> </ul>	<p>A meta-analysis of 53 “gold standard” studies (Graham &amp; Santangelo, 2014) provided strong and consistent support for teaching spelling explicitly and systematically. Effects were strong for improvement in spelling, spelling during writing, reading, and phonological awareness, with most effect sizes over .5 for each of these aspects of literacy development. Gains in spelling were maintained over time. Positive outcomes were consistent across grades and literacy levels. Explicit teaching practices in general have strong support in educational psychology (Kirschner &amp; Hendrick (2020).</p>

### Learning to Spell Depends Primarily on Language Processes

Design and Content of Spellography	Supporting Research
<ul style="list-style-type: none"> <li>■ Brief, distributed practice of phoneme awareness relevant to the lesson</li> <li>■ Orthographic patterns, morphology, word origin, grammar and usage in each unit</li> <li>■ Continual connection of spoken with written language</li> <li>■ No rote memorization of word lists</li> </ul>	<p>Phonological awareness (especially phoneme awareness), morphological knowledge, knowledge of print patterns or allowable letter sequences, knowledge of phoneme-grapheme correspondences, and vocabulary knowledge all contribute to the brain’s ability to store mental images of written words (Bourassa &amp; Treiman, 2014; Treiman, 2017; Werfel, Schuele, &amp; Reed, 2019).</p> <p>To remember words, we do not use “visual” cues, such as word shapes or rote memory for letter strings. On their own, these are not distinctive. Rather, we develop a mental mapping system – even for irregular words – in which sounds (phonemes and syllables) are bonded to print (graphemes and letter sequences) and then to meaning (Ehri, 2014).</p>

## The Orthography of English is Not “Crazy:” It Can Be Explained and Learned

Design and Content of Spellography	Supporting Research
<ul style="list-style-type: none"> <li>■ Emphasis on thinking through why a word is written the way it is</li> <li>■ Explicit teaching of reliable phoneme-grapheme patterns and correspondences</li> <li>■ Instruction on morphology and word origin in each unit</li> </ul>	<p>The spelling of most English words can be explained by considering one or more of the following:</p> <ul style="list-style-type: none"> <li>■ phoneme-grapheme or sound-symbol correspondences;</li> <li>■ arbitrary patterns of letter use, for example, that no word in English can end in ‘j’ or ‘v’;</li> <li>■ preferred spellings for sounds by their position in a word, for example, that we use ‘c’ to spell /k/ before o, a, and u, we use ‘k’ to spell /k/ before e, l, or y, and we use ‘ck’ to spell /k/ right after a short vowel;</li> <li>■ the morphemes or meaningful parts of a word; and</li> <li>■ the language stream from which a word came – especially Old English, French, Latin, and Greek.</li> </ul> <p>Taking these factors in consideration, only a small percentage of English words are truly irregular and do not follow such patterns and constraints (Hanna, Hanna, Hodges, &amp; Rudorf, 1966; Moats, 2020; Venezky, 1999).</p>

## Explicit Teaching of Language Structure, by an Informed Teacher, Works Best

Design and Content of Spellography	Supporting Research
<ul style="list-style-type: none"> <li>■ Teachers are active leaders of each lesson</li> <li>■ The text and answer keys provide all the information a teacher needs to explain words</li> <li>■ Supportive professional learning is available</li> </ul>	<p>Both spelling and word recognition instruction is more effective if students learn and practice words that share a linguistic pattern or orthographic feature, as enumerated above (Graham &amp; Santangelo, 2014; Schlagal, 2002). However, the teacher’s knowledge of the language structures that are being taught determines the effectiveness of a structured language approach (Puliatte &amp; Ehri, 2017). Teachers’ linguistic knowledge, including their understanding of spelling conventions, word parts, and phonemes, is strongly associated with student gains in spelling.</p>

## Spelling and Reading are Reciprocal: One Influences the Other

Design and Content of Spellography	Supporting Research
<ul style="list-style-type: none"> <li>■ Lessons include speaking, listening, reading, and writing</li> <li>■ Word analysis and short, word reading fluency exercises reinforce speed and accuracy of pattern recognition</li> <li>■ Almost all lessons include dictation of words and sentences for writing</li> </ul>	<p>Spelling and reading development are closely correlated overall, and both depend on specific language processes. Spelling requires formation of a completely specified mental image of a word. Knowing a word's spelling increases the fluency and accuracy of word recognition in reading. Integrating spelling (encoding) into a basic reading lesson improves results in both skills (Graham &amp; Santangelo, 2014; Weiser &amp; Mathes, 2011).</p>

## Exploring Language Can Be Interesting, Fun, and Engaging!

Design and Content of Spellography	Supporting Research
<ul style="list-style-type: none"> <li>■ Lessons provide extra practice identifying and manipulating speech sounds that are often a source of error in poor spellers</li> <li>■ Lessons focus on specific spelling challenges, such as spelling of final blends with nasals and spelling of unstressed syllables</li> <li>■ Word spellings are explained from many angles, including meaning and language of origin, to support students whose memories for sounds and symbols are problematic</li> <li>■ The logic of spelling is emphasized so that students can reason through a spelling problem</li> </ul>	<p>The errors typically made by both novice and poor spellers show that some speech sounds and speech sound sequences are more challenging to perceive than others (Moats, 1996; Ouelette &amp; Senechal, 2008; Read, 1971; Treiman, 2017). These include the identification of nasal and liquid consonants embedded in spoken words, identification of sounds in blends, and recognition of syllable stress patterns (Moats, 1996, 2020). In addition, certain aspects of orthography are more challenging to learn for spelling than for reading, including spellings for vowel-r combinations, spellings of unstressed syllables, and spellings for homophones. Weak spellers often do not recognize common morphemes in word structure (Henbest &amp; Apel, 2021; Tops, Callens, Bijn, &amp; Brysbaert, 2012; Werfel, Schuele, &amp; Reed, 2019) or words that are morphologically related. These challenging aspects of language processing should receive more attention in spelling instruction than they may require for reading.</p>

## Weak Spellers Typically Struggle with Specific Linguistic Challenges

Design and Content of Spellography	Supporting Research
<ul style="list-style-type: none"> <li>■ Lead narrators and their story themes add interest and cohesion to the subject matter</li> <li>■ Illustrations are light-hearted and fun</li> <li>■ Plays on words are entertaining</li> <li>■ Some passages are purposefully silly, designed to promote chuckles</li> <li>■ Many exercises and activities can be done with partners or small group collaboration</li> </ul>	<p>The inclusion of humor, word play, collaborative activities, and lead characters to whom students can relate are designed to enhance students' attention and engagement with the material. Dehaene (2020) advises teachers to keep children active, curious, and engaged so that students' attention can be directed to what matters. Learning that is enjoyable is learning that sticks. Kirschner and Hendrick (2020) advise that deeper processing of information is learning that is likely to stick, and the more techniques that promote deeper, active thinking, the more likely is that information will be remembered and recalled.</p>

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