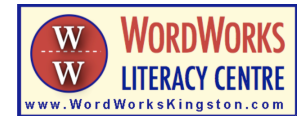


Guide for Writing-out and Spelling-out Word Structure with Word Sums

Teaching and assessing understanding of the written word by announcing word structure



[L]earning to read is learning how to use the conventional forms of printed language to obtain meaning from words...This view implies that *the child learning how to read needs to learn how his or her writing system works* [emphasis added].

Rayner, Foorman, Perfetti, Pesetsky, & Seidenberg (2001)
How psychological science informs the teaching of reading,
American Psychological Society, vol. 2, 34.

Why teach word sums?

🧠 *Word sums reveal how the underlying meaning-bearing building blocks of words (morphemes) combine to form words.*

Written word sums offer a concrete representation of the morphological structures of [Carol Chomsky's \(1970\)](#) abstract concept of a “lexical spelling.” See Bowers and Cooke (2012) for more on this association of word sums and the lexical spelling.

According to “backwards design” from *Understanding by Design* (Wiggins & McTighe, 2005) instructional planning should not begin until it is guided by:

- *Clearly established goals for intended learning outcomes*
- *A means of assessing achievement of those goals*

If ensuring that children learn how their writing system works is a fundamental goal of literacy instruction, teachers need a means of assessing students’ understanding of the conventions that drive English spelling. Since word sums represent the structure of written words, student construction of word sums provides a clear assessment of that understanding. Using word sum construction to teach and assess understanding of the writing system is thus perfectly aligned with the recommendations of backwards design.

Word sums: A self-correcting mechanism

Using word sums to tie instruction to the existing structures of the written word provides teachers with a self-correcting mechanism for their own learning and instructional practice. Word sums bring flawed assumptions about underlying word structures to the surface where they can be

inspected and reconsidered. They then also provide the appropriate tool to test alternative hypotheses. In this way, systematic understanding of English spelling (and the skills for analysis) continually moves forward in ever greater alignment with the actual conventions that drive English spelling.

Is there a “right way” to teach word sums?

There is no more one way to teach multiplication and division than there is one way to teach the process of constructing a word sum. This document simply offers conventions we can use to focus our attention and that of our students’ on the the structures of written words by linking linking those structures to motor movements. The conventions described for writing-out and spelling-out word sums fix motor movements to morphemic structures (bases and affixes) and graphemes and orthographic markers in the base.

The following pages offer “worked examples” of conventions for the construction of word sums that involve all three suffixing changes.

Simultaneously writing-out and spelling-out word structures in accordance with recommendations of cognitive load theory (Schnotz & Kürschner, 2007) for fixing representations of these structures in long-term memory. (Contact [Pete](#) if you are interested in references on cognitive load theory.)

Synthetic vs. Analytic word sums

This page describes the process of constructing fully analyzed *synthetic word sums*. These begin on the left with distinct morphemes, mark suffixing changes and synthesize those morphemes into a resolved complex word as it appears in print on the right. Another type of word sum is the *Analytic word sum* (or “reverse” word sum). Analytic word sums begin with a resolved complex word on the left. That word is then analyzed into constituent morphemes on the right of the rewrite arrow, again complete with the marking any morphological suffixing patterns.

More guidance and practice

Try the spelling out challenge on [this page](#) and then check your answers [here](#). I strongly encourage schools to integrate [handwriting instruction](#) for this purpose as well.

Steps for marking and announcing the replacing of final, non-syllabic <e>s in word sum construction

Step #1: Build *left side of word sum*.

This written word sum...

please + ure →



...is written and spelled aloud in groups like this:

p--l--ea--s--e-- "plus" --ure "is rewritten as"

Step #2: Say "Check the joins!" and mark changes on *left side of word sum*.

- The vowel suffix <-ure> replaces the final, non-syllabic <e> of <please>.
- Draw a line through that <e> to remind yourself to announce that change when you complete the right side of the word sum.

Note that the final, non-syllabic <e> (commonly referred to as the "single, silent <e>") represents no phonology. Letters or letter combinations that do not write phonemes are called *orthographic markers* an etymological structure. In <please> this <e> functions as a plural canceling marker, and to distinguish this word from its homophone <pleas>.

final, non-syllabic, <e>

vowel suffix

For suffixing conventions see [Big Suffix Checker](#) and/or [Interactive Suffix Checker](#)

please + ure →

Step #3: Complete right side of word sum, announcing the structure you have represented on left side of word sum.

Spell and write out the result...

please + ure → pleasure



...in groups like this:

p--l--ea--s-- "replace the <e>" -- "pause" -- ure

Steps for marking and announcing consonant doubling in word sum construction

Step #1: Build *left side of word sum*.

This written word sum...

com + mit + ee →



...is written and spelled aloud in groups like this:

com-- “plus” --m-i-t-- “plus” -- “double e” -- “is rewritten as”

Step #2: Say “Check the joins!” and mark changes on *left side of word sum*.

a) Note that the <-ee> vowel suffix forces the doubling of the final single < t > (See big suffix checker for conventions.)

b) Mark a doubled < t >.

Mark
doubled < t >

vowel
suffix

For suffixing conventions see
[Big Suffix Checker](#) and/or
[Interactive Suffix Checker](#)

com + mit(t) + ee →

Step #3: Complete right side of word sum by announcing the structure you have represented on left side of word sum.

Spell and write out the result...

com + mit(t) + ee → committee



...in groups like this:

com-- “pause” --m-i- “double t” --”pause” -- “double e”

- If the same letter occurs twice in a row within a morpheme, or if it is doubled because of a suffixing change, it is announced as a “double letter” in a word sum.
- If there is a plus sign between a letter that is repeated twice in a row it is an “accidental juxtaposition” not a double letter. There are two <m>s in <committee> but there is no “double m”. There is a “double t” and a “double e”.

Steps for marking and announcing the toggling property of <y> / <i> when constructing word sums

Step #1: Build *left side of word sum*.

This written word sum...

ease + y + ly →

ea-s-e-- "plus" --y-- "plus" --ly-- "is rewritten as"

...is written and spelled aloud in groups like this:

Step #2: Say "Check the joins!" and mark changes on *left side of word sum*.

- Note that the vowel suffix <y> replaces the single silent <e> of <ease>.
- Note that there is no good reason to keep the <y> inside the word when adding the <-ly> suffix.
- Mark all the changes.

Mark the
dropped <e>

Mark the <y> / <i>
change

For suffixing conventions see
[Big Suffix Checker](#) and/or
[Interactive Suffix Checker](#)

ease~~e~~ + ~~y~~ⁱ + ly →

Step #3: Complete right side of word sum, announcing the structure you have represented on the left side of the word sum.

Spell and write out the result...

ease~~e~~ + ~~y~~ⁱ + ly → easily

...in groups like this:

ea-s- "replace the e" -- "pause" -- "replace the y with i" -- "pause" --ly

Videos of spelling out word sums:

- Click [here](#) for a video of a Grade 1 student announces the structure of a sum for <wonderfully>.
- Click [here](#) for a scene from a teacher workshop on teaching word sums.
- Click [here](#) for a video of using "spelling out" during reading with a 5-year-old.
- A [Skype tutoring session](#) with a Grade 2 student with word sums and the matrix.