

Morphology

Background Information Sheets



English is a morphophonemic language — it incorporates both morphological and phonemic information. Morphology provides the framework of spoken and written words in English, so it is essential to teach morphology right from the beginning of literacy instruction. You will see that

the concept of a base (and the addition of a simple suffix) is introduced very early in our series (e.g., cats → cat + s). As you read through this section, consider how some of these concepts can be taught orally before students even begin reading and writing.

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Written and spoken words in English are formed by combining structural units called **morphemes**.

Morphemes can be defined as the smallest meaningful units of language. Morphemes can have meaning or grammatical functions. A written morpheme is called an **element**.

Here are some examples of morphemes:

- suffix <-ed> can indicate past tense of a verb
- prefix <un-> gives a sense of *not* or *opposite of*
- base <rupt> gives a sense of *to break or bust*

Morphology is the study of morphemes and how they combine to form words. Consider the word morphology itself, which is a combination of two meaning units (morphemes): **morpho** (form, shape) and **logy** (study of)

Big Ideas about Morphology

Written and spoken words in English are formed by combining structural units called morphemes	<ul style="list-style-type: none"> • un + fair + ly → unfairly
Morphemes are meaning units, contributing to the overall “sense” of a word, or have a grammatical function	<ul style="list-style-type: none"> • <u>re</u> + pack vs <u>un</u> + pack • sail + ed
Words that are related in meaning are related in spelling	<ul style="list-style-type: none"> • heal and health • their, they, and them
Spelling of morphemes remain consistent even if the pronunciation changes	<ul style="list-style-type: none"> • please and pleasure • sign and signal
Consistent suffixing conventions are used when attaching suffixes to bases	<ul style="list-style-type: none"> • bikee + ing → biking • , <i>, <k>, replace <e> with <-ing>

The study of morphology is essential in understanding English orthography. Students need to understand that morphology is the framework and foundation of spoken and written words right from the beginning of literacy instruction.

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Terminology



Here are some key terms that relate to the study of morphology:

Base: a structural element that forms the foundation of a written word — bases have an orthographic denotation (a general sense) rather than a strict definition (the term “root” refers to the etymological/historical source of the base). e.g., <form>, <rupt>

Free base: a base that functions independently/forms a complete English word on its own.
e.g., <pack>, <the>, <fort>

Bound base: a base that requires affixes to be an English word.
e.g., <ject>, <spect>, <struct> (con + **struct** + ion)

Affix: a morpheme that is attached before or after a base.
e.g., **unsafe**, **try**ing, **hope**fully (hope + **ful** + **ly**)

Prefix: a morpheme attached before a base - can shift the meaning or intensify a word.
e.g., **re**boot, **bi**cycle, **un**remarkable (**un** + **re** + mark + able)

Suffix: a morpheme attached after a base — often changes the grammatical structure or the “sense” of a word. e.g., jump**ing**, help**er**, avoid**able**

Compound word: a word combining two or more bases that together form a new meaning.
e.g., snow + man, sail + boat, basket + ball

English orthography is **morphophonemic** — the spelling of words incorporates both morphological information (meaning) as well as phonemic information (sound). It is important to remember that our instruction is more powerful if we include an exploration of both concepts. Here’s an example. A student is learning how to spell the /ē/ in the word *please*.

They can use multiple sources of information to support them:

- 1 Grapheme/Phoneme Correspondence:** Students need an understanding of what graphemes can be used to represent /ē/ — this information is needed, but isn’t enough as there are multiple ways to represent /ē/.
- 2 Morphology:** students need the understanding that words that are related in meaning are also related in spelling. The base <please> is found in the word *pleasure*. The grapheme /ea/ can represent both the long /ē/ phoneme (like in *please*), and the short /ĕ/ phoneme (like in *pleasure*). A study of words related in meaning can help improve spelling **and** build vocabulary.

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Working With Morphology

When studying morphology, it is important to follow some key procedures:

- 1 Always spell the element (both bases and affixes) rather than pronounce it. This makes sense when you consider the big idea: *spelling of morphemes remains consistent even if the pronunciation changes*. Here are some examples to show why this is important:

jump + ed → jumped
land + ed → landed

Think about the pronunciation of the suffix <-ed> in *jumped* vs *landed*

do + ing → doing
do + es → does

Think about the pronunciation of the base <do> in *doing* vs *does*

The pronunciation of an element may change, but the spelling will stay consistent. Therefore it is most logical to spell each element in a word sum.

- 2 Always use an arrow rather than an equal sign when you are creating word sums, as both sides of the equation are not equal. This makes sense when you consider suffixing conventions: a marker <e> may be replaced, a <y> changed to <i>, or a final consonant doubled when suffixes are attached. We use the phrase “is rewritten as” as we read the arrow in a word sum. Here are some examples to show why this is important:

bike~~e~~ + ing → biking

We would say , <i>, <k>, <e>, plus <-ing> is rewritten as , <i>, <k>, replace the <e> with <-ing>

hop^p + ed → hopped

We would say <h>, <o>, <p>, plus <-ed> is rewritten as <h>, <o>, double the <p>, <-ed>

Emphasis can be brought to the concept of morphology and morphemes in words by pausing between the structural elements when expressing the word sum. For example, say, “<h>, <o>, double the <p> (pause) <-ed>.” Emphasis can be brought to grapheme/phoneme correspondence by saying the letters in a grapheme quickly and together. For example, when spelling *please*, say “<p>, <l>, <ea> (together), <s>, <e>.” Depending on the age and understanding of your students, you might want to have them say “marker <e>” rather than just <e> in a word sum.



Check out Pete Bowers’ Guide for Writing-out Spelling-out Word Structure with Word Sums, which has a detailed explanation as well as a video:

www.wordworkskingston.com/WordWorks/Spelling-Out_Word_Sums.html

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Suffixing Conventions

The following suffixing conventions are reviewed in our **Orthographic Conventions Background Information Sheets** as well. When morphemes are combined, suffixing conventions apply. These suffixing conventions are very consistent and predictable and help students with both decoding (we want students to read *hopping* instead of *hoping* when reading “hop + ing”) and spelling.

Doubling Convention:

When attaching a vowel suffix to a one-syllable word (or a stressed syllable), that ends in a single vowel followed by a single consonant, double the final consonant before adding the vowel suffix. For example:

- runⁿ + ing → running
- skip^p + ed → skipped
- beginⁿ + ing → beginning (the stress is on the second syllable, so the doubling convention is applied)
- open + ing → (the stress is on the first syllable, so there is no need to apply the doubling convention)



Note: See our **Orthographic Conventions Background Information Sheets** for more information on **stress**.

Replace <e>:

Replace a final “marker <e>” when attaching a vowel suffix, for example:

- dance~~e~~ + er → dancer
- give~~e~~ + ing → giving

unless the <e> is still needed, for example:

- notice + able → noticeable (the <e> is still needed to soften the <c>, so it is not replaced)

Change <y> to <i>:

When attaching a suffix to an element ending with the single grapheme <y>, replace the <y> with an <i> unless the suffix starts with an <i>. Here are some examples:

- try + ed → tried
- try + ing → trying (not *triing* — complete English words do not have double <i>)
- happy + ness → happiness
- play + ed → played (don’t replace the <y> because it is part of the grapheme <ay>)



Note: Use <-es> (rather than <-s>) for plural or third-person singular after single grapheme <y>:
try + es → tries.

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Suffix Types

Inflectional Suffixes:

Inflectional suffixes do not change a base's part of speech (for example, they will not change a verb to a noun). The pronunciation of the base does not tend to change.

- e.g., <-ing>, <-ed>, <-s>, <-est>
- jump + ed → jumped - both *jump* and *jumped* are verbs

Derivational Suffixes:

Derivational suffixes can change the grammatical class of a word (for example, they can change a noun to an adjective) — the pronunciation of the base may change.

- e.g., <-ion>, <-ive>
- act + ion → action — *act* is a verb and *action* is a noun (notice the pronunciation change of <t>)
- cave + ity → cavity (notice the pronunciation change of the <a> in *cave*)

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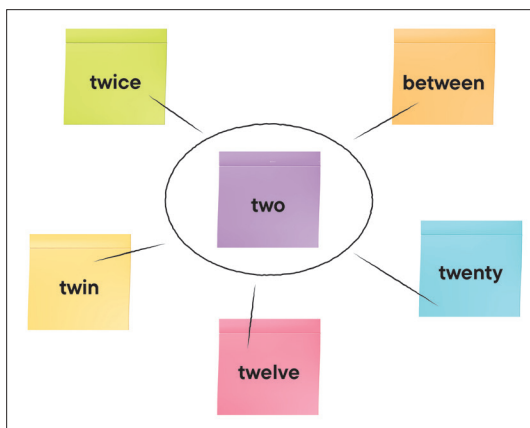
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Homophones and Morphology

Homophones are words that have the same pronunciation, but are not related in meaning. Whenever possible, homophones will have different spellings. This helps readers understand the difference in the meaning of a word when reading. A study of the spelling of homophones can help students gain a greater understanding of words that are related in meaning.

Consider the word *two*. Students may initially confuse the spelling of this word with *to* and *too*. Think of how a study of related words to *two* can support students with this.



Notice how these words are related in meaning, and in spelling. The grapheme <w> is not pronounced in the word *two*, but it marks a relationship to these other words that also carry the sense of *two*. The spelling of many homophones can be explained by looking for related words:

- *groan* and *grown* (consider the relationship between *grown* and *grow*)
- *here* and *hear* (consider the relationship between *hear* and *heard*)
- *their* and *there* (consider the relationship between *there*, *where* and *here*)

When students have an understanding of morphology, they can also understand the spelling of homophones through the lens of the morphemes within. Consider the homonyms *wade* and *weighed*:

- *wade* — this word is a free base, consisting of one element
- *weighed* — this word is built from a base and a suffix: weigh + ed → weighed

A Note on “Irregular” Words

Helping students see the connection between spelling and meaning can be a powerful way to support the spelling of words that are sometimes seen as “irregular.” Rather than just memorizing spelling (which is often temporary), students can begin to understand **why** words are spelled the way they are.

Consider the word *one* as an example. Although *one* might initially appear “irregular,” an exploration of related words can help us see logic in its spelling:

- one, once, lone, alone, lonely
- notice how all the words are related in meaning — all carrying the “sense” of the word *one*
- notice that the combination <o>, <n>, <e> is phonemically regular in many of the related words

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Lesson Ideas for Developing Morphological Understanding

Word Family Activities

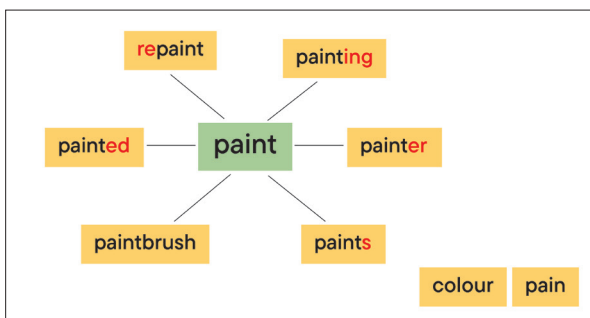
There are many fun ways to explore words and word families. This is different from a study of onset/rime, which have traditionally been called “word families.”

Word Family Bags/Word Webs:

We first learned about this activity from Rebecca Loveless in her SWI for Early Learners Workshop (see resource section for links). In this activity, the teacher prepares a selection of words that share a common base. An example that you might do with kindergarten students would be the free base <paint>. Words in the selection might include *paints*, *painting*, *painted*, *painter*, *paintbrush*, *fingerpaint*, etc. Depending on the age and ability of the students, you might also add some words that are similar (either in meaning or in sound), but do not share the same base structure, for instance, *pain* and *colour*.

Start by telling your students which base you will be exploring. Write your base on chart paper/whiteboard. Have the students spell out the base. The next step is to define the base. Work together to come up with a definition. The students then choose a word (you can have them in a bag, or face down in the middle of a circle, etc.). The students should spell the word they pull from the bag (e.g., <p>, <ai>, <n>, <t>) — children do not need to be able to read the word — it can be read by the teacher and still be an effective way to study morphology. Students then need to determine if the word shares the same structure as the base (e.g., do *paint* and *painter* share the same base?). An analytic word sum could be created to demonstrate if students need support with this.

<painter> → <paint> + <er>



A discussion can then be had about whether both words are related in meaning (remember they will not have the same definition but should share the same “sense” or “essence”). If the answer is yes to both structure and meaning, the word belongs in the same family.

← A board may look like this when finished

Whereas the above example is very powerful for younger students, older students can also benefit from word webs and word family activities. Consider some of the following ideas:

- choose a base where suffixing conventions apply, and explore any spelling and pronunciation changes that may occur to the base when suffixes are added (e.g., *hope* or *cry*)
- use math and science terminology in word study to give students a deeper understanding of the terms they are using in subject areas

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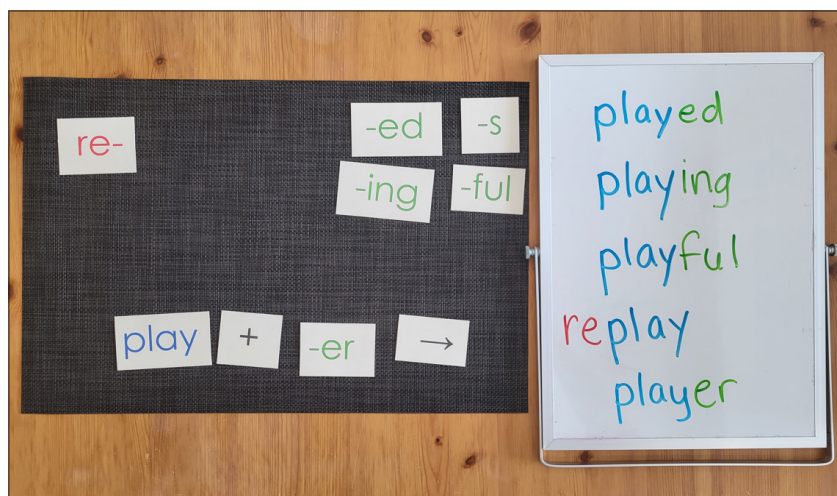
Lesson Ideas for Developing Morphological Understanding (Cont.)

Word Sum

Word sum cards give students the opportunity to explore how words are built. Start by giving students a free base that is familiar to them, both in meaning and orthography, such as *play*. Consider the word sums that students can build using the following morphemes:

- free base: <play>
- suffixes: <-s>, <-ing>, <-ed>, <-ful>, <-er>
- prefixes: <re->

Students can keep a record of the words they have built. Here is an example of what this might look like:



Always draw attention to the fact that each morpheme (base and affix) carries meaning. Discuss how the “sense” of the base <play> takes on a more specific meaning/definition when affixes are attached to it. What function does the <-er> suffix play in *player*? How does it affect the “sense” of the base <play>? Does it change the grammatical function of the word? These are just a few of the types of questions that can be asked and explored when building word sums.

Once students become more proficient at this activity, they can create their own word sums. Students benefit from an investigation of words encountered in other specific subject areas. For example, exploring the word *fraction*, and connecting it to related words such as *fracture*, can help students deepen their understanding of the concept. You may want to have a “Wonder Wall” for students to park words that they want to investigate further. Here are some subject-related words that lend themselves to this type of investigation:

contract	credible	deduce	inspect	transport
inform	microscope	hydroelectric	biography	economy
bicycle	autograph	project	audible	reflect

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Lesson Ideas for Developing Morphological Understanding (Cont.)

Using a Matrix

A matrix is a powerful visual as it clearly shows the morphemes that, once combined, form words. In a matrix, the base element is bold, and will have an orthographic denotation (general sense) written below. Words are made by combining the elements. More than one prefix and/or suffix can be added to the base.

Here is an example:

con de in re trans	form <i>"to shape"</i>	al	ity	
		ate	ion	s
			ive	
		ed		
		s		
		er	s	

Word Sums (13)

re + form + s
in + form + s
de + form
in + form + er + s
in + form + ed
in + form + al
re + form + er
trans + form + s
form + ate + ion + s
in + form + ate + ive
form + al
con + form
form + al + ity

Created with Mini Matrix-Maker, at www.neilramsdn.co.uk/spelling/matrix

Students can consolidate the following key understandings by working with a matrix:

- words are built by combining bases and affixes
- bases and affixes are morphemes, and as such, carry meaning (or a grammatical function)
- these meanings are best thought of as a “connotation” or a “sense”
- affixes sometimes act as “intensifiers” (intensify the action of a base rather than contributing a different sense)
- understanding the “connotation” or “sense” of a morpheme supports vocabulary development and reading comprehension
- suffixing conventions are consistent

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Lesson Ideas for Developing Morphological Understanding (Cont.)

Using a Matrix (Cont.)

Consider the power of using a matrix with a bound base:

ab	rupt <i>"to break or burst"</i>	ible
cor		ion
dis		ive
e		ture
inter		

Created with Mini Matrix-Maker, at www.neilramdsden.co.uk/spelling/matrix

If presenting this to a class, you might find that students recognize and are familiar with the words *erupt* and *interrupt*. Think of the rich conversations that could be had with some of the other words that could be built from this matrix:

- abrupt
- corrupt
- interrupt
- corruption
- disruptive
- rupture

We quickly move from words that are fairly high frequency such as *erupt* and *interrupt*, to others such as *corruption* and *rupture*. A great deal of vocabulary can be built through this one activity.

Recap

- The Mini Matrix-Maker can be found at www.neilramdsden.co.uk/spelling/matrix. This site is easy to use — matrices can be created by teachers or by students.
- Start with a familiar base (e.g., <form>). Explore other words that have the same base but are less well known (e.g., *conform*).
- Choose a subject-specific vocabulary word (e.g., *cycle*). Have students explore the base, including its orthographic denotation, and complete an investigation of other words built from the same base. Note how the “sense” of the base changes in the words.

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Resources

Word Family Activities

Rebecca Loveless has amazing resources and workshops. Here are a few links that share more about word family activities:

- www.illuminatewords.com/post/word-bag-excitement
- www.illuminatewords.com/post/video-the-rain-family

Sites with Additional Resources

- Sue Hegland, the author of *Beneath the Surface of Words*, has an amazing site with blog posts, and links to books, resources, and webinars, all related to morphology.
www.learningaboutspelling.com
- Wordtorque is owned and directed by Fiona Hamilton. Wordtorque’s “Engage with the page” initiative can be found on the site, which spotlights different picture books that lead to rich word inquiry. She has also partnered with Rebecca Loveless on the High Frequency Word Project — more information and a link to the project can be found on her website, as well as many other resources.
www.wordtorque.com
- Pete Bowers’ site has amazing information about SWI (Structured Word Inquiry). He has newsletters, workshops, links to resources and more!
www.wordworkskingston.com
- Mary Beth Steven has an amazing site that includes blog posts, videos, and workshop opportunities. Her Orthographic Resources page provides links to many additional resources that are useful when studying morphology.
www.mbsteven.edublogs.org
- Lisa Carter’s “Can Do Kids Academy” has many great visuals that support the study of English Orthography and Morphology.
<https://www.candokidsacademy.com>

References

The goal of these background information sheets is to help teachers better understand our language system. Each background sheet (Grapheme/Phoneme Correspondence, Orthographic Conventions, and Morphology) provides definitions of key terms and concepts contained within our Scope and Sequence and ideas for teaching these concepts. These sheets are being offered for free download because the more we understand about our language, the more powerful decodable books can be for our students.

The information for these sheets has been compiled from a wide variety of sources. Many thanks to those in the field who have researched, practiced, and shared their knowledge with educators. Please note: these sheets are based on my current understanding, both from my studies and from my personal experience. As I continue to learn, my understanding will evolve. If I reach a point where I feel these sheets need to be adjusted, I will do so and provide updated versions for free download.

Here is a list of the resources I have used and courses/workshops I have completed.

Source	Details
www.funlearning.ca <ul style="list-style-type: none"> • O-G Fundamentals/O-G Associate Practitioner • O-G practicum • SWI Workshop • Grammar Workshop 	Liisa is an OG Fellow and teacher trainer based in Toronto. I highly recommend her courses, and cannot thank her enough for getting me started on this journey! Liisa provides OG training with supervised practicums, as well as a range of general workshops.
www.rebeccaloveless.com <ul style="list-style-type: none"> • Teaching Real Script • SWI for Early Readers 	Rebecca is a Structured Word Inquiry Coach based in California. Her courses are practical, informative, and inspirational — a great way to see how morphology can be explored with young learners!
Learning About Spelling <ul style="list-style-type: none"> • www.learningaboutspelling.com Morphology: Important from the Beginning <ul style="list-style-type: none"> • youtu.be/7DEuTWa0g5E 	Sue Hegland is the author of “Beneath the Surface of Words”, which is a fantastic resource that has significantly broadened my understanding of morphology. Her attached Youtube video is also very informative.
<i>Speech to Print</i> - Dr. Louisa Moats	This book covers many fundamentals of the English Language — it is a great resource to build a solid background and understanding across a range of literacy topics. It’s a heavy read, but worth it!
<i>Uncovering the Logic of English</i> - Denise Eide	This book is my go-to reference book for spelling and spelling conventions. It’s great to have on standby when developing lesson materials!
<i>UFLI Foundations</i> - Holly Lane and Valentina Contesse <ul style="list-style-type: none"> • www.ufl.edu/education/ufl.edu/resources 	This is a program from the University of Florida Literacy Institute. The background section at the beginning of the manual is very informative, and there are many, many free resources available on their website. This resource is definitely worth checking out!
Wordtorque <ul style="list-style-type: none"> • www.wordtorque.com • www.thehfwproject.com • www.wordtorque.com/category/engagewthepage 	The Wordtorque site by Fiona Hamilton has a wealth of resources for teachers. Links can be found to the High Frequency Word Project (created in partnership with Rebecca Loveless) and Engage with the Page (word inquiry through picture books).
Etymonline <ul style="list-style-type: none"> • https://www.etymonline.com 	Etymonline is an online etymology dictionary. It does not give definitions, rather “explanations of what our words meant and how they sounded 600 or 2,000 years ago”. It is a great resource to use if you are trying to determine the history of words and/or if words share a common root in history.