

Helpful Guidelines and Strategies

for Explicit Vocabulary Instruction of Greek and Latin Morphemes



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language (Zwiers, 2007) or vocabulary in Tiers II and III (Beck, McKeown, & Kucan, 2013), the proportion of words derived from Latin and Greek rises due to the increasing complexity and specificity of language.

Additionally, the Common Core State Standards for English/Language Arts (CCSSELA), which inform the Georgia Performance Standards, include a standard focused on vocabulary. For grades 6-8, there is a standard that calls for students to be able to “[d]etermine the meaning of unknown words choosing flexibly from a range of strategies” (CCSSELA-Literacy.L.6.4; CCSSELA-Literacy.L.7.4; CCSSELA-Literacy.L.8.4). For grades 9-12, there is a standard that calls for students to be able to “determine or clarify the meaning of unknown and multiple-meaning words and phrases based on [grade appropriate texts], choosing flexibly from a range of strategies.” (CCSSELA-Literacy.L.9-10.4; CCSSELA-Literacy.L.11-12.4).

Further, a sub-heading for the standard for grades 6-8 specifies Latin and Greek to the degree that students “use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word.” (CCSSELA 4B for all three grades). The corresponding sub-heading to the standard for grades 9-12 focuses on word formation by calling on students to be able to “identify and correctly use patterns of word changes that indicate different meanings or parts of speech.” (CCSSELA 4B for all four grades). This standard, with its components, also underscores the importance of Latin and Greek for English vocabulary.

In addition to the vocabulary-specific standards, a Common Core appendix encourages teachers to provide instruction that supports students’ “lexical dexterity,” or the idea that students develop strong internal ideas of words and contexts within which to understand the meanings of words. The same appendix also advocates for teaching that helps students gain “rich and flexible word knowledge” through instruction that focuses on patterns and connections within and among languages, awareness of word parts and word origins, and attention to morphology and etymology to build meaning (Common Core ELA Appendix A: Research Supporting Key Elements of the Standards). The attention in both the

Abstract

Vocabulary knowledge predicts students’ comprehension of text. Both research and the Common Core State Standards advocate explicit vocabulary instruction with attention to morphemes, or units of meaning within words. Many English words, especially more complex words that are part of a student’s academic vocabulary or content-specific vocabulary, derive from Latin or Greek. For this reason, an explicit approach to vocabulary instruction based on Latin and Greek morphemes can support students’ vocabulary knowledge. Several guidelines and strategies are described.

Vocabulary knowledge is considered to be the greatest predictor of how well one may comprehend text (Beck, Perfetti, & McKeown, 1982; Hairrell, Rupley, & Simmons, 2011; National Institute of Child Health and Human Development, 2000). For this reason among others, it is important for teachers to incorporate explicit and effective vocabulary instruction in all content areas (Bintz, 2011; Wilcox & Morrison, 2013). With so many words in the English lexicon and so many ways to approach vocabulary, what is a good focal area for vocabulary instruction? One response: Latin and Greek, twin foundations of a robust vocabulary.

Why Latin and Greek? English is full of words derived from these languages. While precise estimates vary, a little more than half of English words derive from Latin. Another fifth of English words derive from Greek. These numbers are conservative and account for all English words. When the field is narrowed to words that can be referred to as part of one’s academic

Common Core appendix and the standard to Greek and Latin affixes and roots as well as “patterns of word changes” mirrors a shift in research from general, word-based vocabulary instruction toward more specific, morpheme-based vocabulary instruction. Kieffer and Lesaux (2007, 2008) have researched explicit instruction of morphemes, especially among native speakers of Spanish, and have found that knowledge of morphemes can be more helpful to students’ reading comprehension than knowledge of vocabulary. To this end, researchers such as Rasinski and colleagues have offered lists of specific Greek and Latin morphemes they have found to be helpful to students’ vocabulary acquisition (Rasinski, Padak, Newton, & Newton, 2011; see also Kieffer & Lesaux, 2007 for sample word charts). Recalibrating vocabulary instruction to focus on morphemes has great potential for teachers and students.

The specific purpose of this article is to outline a few features of Latin and Greek that become helpful guidelines for instruction based on morphemes from these languages. Often Latin and Greek are presented as a yoked pair (“Latin-and-Greek”) even though they are separate languages. Understanding some of the differences between the two languages can enhance morphemic awareness and analysis. After providing guidelines, I will share instructional strategies for explicit vocabulary instruction anchored in morphemic analysis, or an approach to vocabulary based on a word’s morphemes. These guidelines and strategies are drawn from the relevant literature as well as my own background studying Latin and Greek and teaching Latin. The guidelines and most of the strategies below were successful for my students through the years.

Language Guidelines: It’s not all Greek!

First, Latin and Greek are distinct languages. Latin uses the same alphabet as English, while Greek uses a different alphabet. This is worth remembering because the same Greek letter may be transliterated into English in different ways, especially for proper nouns. For example, students reading Homer’s *Odyssey* may see “Athena” or “Athene”, “Ithaca” or “Ithaka”, “Heracles” or “Herakles”, depending on the translation and the translator’s approach to rendering Greek words in English.

Each language has developed differently over time. Classical Greek has become Modern Greek, but lineage of Latin is broader. Latin has five daughter languages: French, Italian, Portuguese, Romanian, and Spanish. These languages are called Romance Languages because they derive from Latin, language of the Romans. Students are sometimes confused because English is not on that list. While a great

proportion of English vocabulary comes from Latin, the structure (or syntax) of the language makes English a Germanic Language.

It is important to clarify that Latin and Greek are separate languages for two reasons. First, some patterns vary between the two languages. Second, since Latin is the mother language of other languages—especially Spanish— that students may know, it is important to understand that students and teachers can channel their knowledge of Spanish, French, Italian, or another Romance language to make connections among words in those languages and to words in English derived from Latin. Here are two examples of Latin words and the corresponding words in French, Italian, and Spanish, three Romance Languages students are more likely to know:

Water

Latin	aqua
Related English Derivative	aquarium
French	eau (*)
Italian	acqua
Spanish	agua

Friend

Latin	amicus, amica
Related English Derivative	amicable
French	ami, amie
Italian	amico, amica
Spanish	amigo, amiga

In the first chart, the French “eau” for water is a useful example that not every Latin word retains a similar form in each of the Romance Languages. Since Latin and the Romance Languages have gender for nouns, both masculine and feminine forms are given for friend. In both of these examples also, we can observe how Spanish uses a “g” where Italian uses a “c.” Understanding that a “g” in Spanish may correspond linguistically to a “c” or “q” in an English derivative of Latin is useful knowledge for students who are native speakers of Spanish or who have even a novice grasp of Spanish.

Before diving into specific guidelines for explicit vocabulary based on Latin and Greek morphemes,

it's helpful to back up and understand some of the terminology and components regarding phonemes, graphemes, and morphemes.

A phoneme can be defined as the smallest sound unit in a word; a technical linguistic discussion would require more detail, but that working definition will aid understanding of vocabulary. A grapheme is defined as a written unit in a word; a grapheme may include one letter or more than one letter. For example, in the word philosophy the grapheme <ph> indicates the sound also made by the letter “f.”

A morpheme is smallest unit of meaning in a word; the word comes from the Greek “morph” meaning shape. A morpheme can be a root (also called a base or a stem) or an affix. An affix is a morpheme that is added to the beginning, middle, or end of a word. There are different types of affixes. The two most common are prefixes (morphemes added to the beginnings of words) and suffixes (morphemes added to the ends of words). A word may have multiple prefixes (for example, uninterested) or multiple suffixes (for example, helplessness). This snapshot of phonemes, graphemes, and morphemes is helpful for a few language guidelines when considering the different means by which Latin and Greek morphemes make their way into English.

A caveat: these guidelines are general rules of thumb rather than hard-and-fast rules of language that always apply to all words. Each of these guidelines has exceptions, because language is always in flux. Nevertheless, these guidelines are great to share with students through explicit vocabulary instruction based on morphemes.

Guideline 1: Graphemes can be clues.

First, certain graphemes in a word often (but not always) signal that an English word derives from Greek rather than Latin. This chart shows a few graphemes much more common in morphemes from Greek than morphemes from Latin:

graphemes	Sample English Words
y (when not at the end of a word)	hypnosis, psychology, dystopia
z	zoology, analyze
rh	rhythm, rhinoceros, diarrhea, rheumatic
sm (at the end of morphemes)	prism, chasm, organism
ch (especially when	chronology,

pronounced as /k/)	chiropractor
ps	psoriasis, pseudonym, psychiatry
ph	graphic, telephone, phantom

Some of the words (e.g., psychiatry, chasm) exemplify more than one of these graphemes. The last three of these graphemes are called digraphs because they are composed of two letters that together represent one phoneme. The same phoneme in the Greek alphabet is represented by one letter, but English requires two due to the variance between the alphabets. Of course there are several words in English that include <ch> and <ps>, especially when “s” is used to indicate a plural word. This chart is intended to be of more use with longer, more complex words such as the examples given. This idea that certain graphemes more commonly signal Greek (rather than Latin) is useful because of a second guideline.

Guideline 2: Like attracts like.

Different morphemes in the same word often (but not always) derive from the same language. That is, if one morpheme in a word derives from Latin, it is likely (but not guaranteed) that other morphemes in that word also will derive from Latin. Teaching students this guideline will strengthen their skills with morphemic analysis because they will have another tool for taking apart words into their constituent morphemes. That skill with morphemic analysis will help them understand and sometimes infer meaning. For example, the word *autobiography* has three morphemes, all from Greek:

Morpheme	Meaning
auto-	<i>self, one's own</i>
-bio-	<i>life</i>
-graphy-	<i>writing</i>

From knowledge of these morphemes, we can piece together a working definition of *autobiography* as “writing about one’s own life.” In this case, the working definition is very accurate and close to the way a dictionary would define the word. Knowledge of these individual morphemes then helps us unpack morphemes in less familiar words. We can see the “graph” morpheme in *geography* and understand a working definition of this word as “writing about the earth.” This definition is not as helpful but at least allows us to see both morphemes (“geo” and “graph”) and then make a connection to other words such as

geometry, geodesic, or geode as relating to land or the earth.

Another example may be *psychiatrist*. A student may know that a psychiatrist is a type of doctor, and that the morpheme “psyche” relates to the mind. Because “psyche” includes the graphemes <ps> and <ch>, it is logical to infer that this word comes to English from Greek. By extension, the student may postulate that “-iatrist” comes from Greek.

The student may think of another word such as geriatrics and think that this morpheme may relate to doctors or medicine. Then the student sees the word *pediatrician*. The student may know that “ped” means *foot* through words like *pedal*, *impede*, or *pedestal*—but that morpheme “ped” comes from Latin, not Greek. The student probably knows that a *pediatrician* is a children’s doctor. Thus the student may conclude that “ped” comes from the Greek meaning “child”, inferring the meaning of the morpheme from common knowledge and inferring the language source by morphemic analysis. The student may also think of words like *pedagogy* and *encyclopedia*. He may corroborate his idea that “ped” means “child” when using the morpheme from Greek. In this example, there are two morphemes that appear the same. The morpheme “ped” from Greek means *child*, but the morpheme “ped” from Latin means *foot*. The Greek morpheme for *foot* is “pod,” as in *octopus*, *tripod*, or *podiatrist*. In other words, the same series of letters (in this case, “ped”) can be different morphemes, from different languages, with different meanings and different English derivatives. Instruction focusing on morphemes and morphemic analysis can help students understand that words like *pediatrician* and *pedestal* have different etymologies because their morphemes derive from different languages.

There are exceptions to this guideline. Common words that combine morphemes from Greek and Latin include: *television*, *automobile*, *sociology*, and *sonogram*. The guideline is still helpful when facing new words.

Guideline 3: Vowels can raise.

Linguists categorize sounds in several ways. Vowels can be described as low, middle, or high depending on where in the mouth the sound of each vowel happens. The English vowel “a” is categorized as a low vowel, “e” and “o” are mid vowels, and “i” and “u” are high vowels (Wardhaugh, 1995). Each of these vowels can be used for multiple phonemes, but again, this is a basic overview.

from one level to another, often when affixes are attached to a root morpheme. An understanding of

vowel raising helps students see the connections among words more clearly. Students often wail that English can be a very random language. They are not wrong, but some patterns in English are less overt than others.

An example of vowel raising can be seen in some English derivatives of the Latin verb *facere* (“to make, to do”). For example, the word *factory* keeps the same “a” as the Latin morpheme. But when a prefix is added, the morpheme “fac” becomes “fec” in *perfect*. The vowel raises again in the English *proficient*. Understanding that “fac”, “fec”, and “fic” are the same morpheme, with the only change attributable to vowel raising, allows students to see many more connections among words.

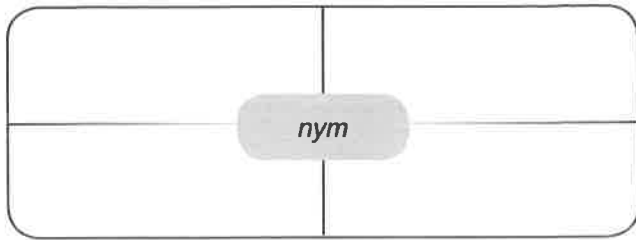
Another example comes from English derivatives of the Latin verb *spectare* (“to look, watch, see”). The words *respect* and *despicable* share the morpheme “spec.” Understanding that the morpheme is shared can help students understand each word in terms of its etymology. They can see that respect has an idea of looking back on (or up to) the words or advice of another person, while a person is *despicable* if someone looks down on him or her.

Guideline 4: Letters can change to be more like other letters.

Another principle from linguistics is assimilation, the idea that letters and sounds in words can change to make sounds more congruent or pleasing. Assimilation is the influence of one sound on a nearby sound so that the two become more similar; spelling can be affected. An understanding of assimilation helps students especially with prefixes. Sometimes word charts will tell us that the prefixes *col-*, *com-*, and *con-* can mean “together” or “with.” It helps if students know that these prefixes are all versions of the same morpheme *com*, from the Latin *cum* (“with”).

The Latin preposition *ad* (“to, toward”) comes to English as a prefix (e.g., *advance*, *adventure*, *advantage*). Through assimilation, the morpheme changes. The words *accept*, *affect*, *aggrandize*, *alleviate*, *ameliorate*, *announce*, *apprise*, *arrive*, *assumption*, and *attain* all contain the same morpheme; the spelling changes are a result of assimilation of the “d” in the Latin *ad* to the first letter of the root morpheme in each word.

When I taught middle school students the concept of assimilation, it was as if they had learned a giant secret about language. They began to see more relationships and connections among words once they understood that the morpheme could remain the same even if the spelling changed. English vocabulary seemed less random to them.



Strategies for Teaching Morphemes based on these Guidelines.

Research has yielded several wonderful strategies for vocabulary instruction. Here I offer a few that are especially well suited to explicit vocabulary instruction based on Latin and Greek morphemes.

Framer Models. A Frayer Model (Frayer, Frederick, and Klausmeier, 1969) is a way to understand and categorize a word in different ways. Typically, the word under examination is in the middle of the Frayer Model, and there are four boxes around it. In one box, a student defines the word. In another, the student gives characteristics. In the other two boxes, the student gives examples and then non-examples of the word. Here are an example template and an example based on the morpheme “nym” from the Greek word meaning *name*.

There are other ways for teachers to employ a graphic to promote understanding of a word. For example, teachers can reserve one box for a sentence or for an illustration of the word, depending on the words and the content area.

Students may do Frayer Models individually or in pairs. Often students keep their Frayer Models for reference; they also can be displayed in the classroom.

Word Walls. A Word Wall is a graphic display of words, organized around a topic, in a classroom or other school space. Teachers can use Word Walls to highlight individual morphemes or groups of morphemes. For example, a science class could have a Word Wall with morphemes such as “geo” or “hydro” during an earth science unit. These morphemes relate to land and water. A math class may use a Word Wall with morphemes related to numbers (e.g., “quad” or “hex”) during a geometry unit. Although Word Walls are more common in elementary classrooms, they are also powerful in middle and high school classrooms, especially in content areas and during studies of words in Tiers II and III (Beck, McKeown, and Kucan, 2013). Beck and colleagues define Tier II words as general academic words; Tier III words are domain-specific academic words.

Derivative Projects. There are a number of ways for teachers to use derivative posters and projects. The

main idea is for students to investigate different English words from a common Latin or Greek morpheme. I learned about these projects from my own mentors and then modified derivative projects through my years in middle school and high school classrooms. Here are four variations.

One Morpheme. Students select a morpheme from a list compiled by the teacher. The teacher may select the morphemes based on a unit of study or general frequency of use. For the morpheme selected, the student would need to locate 5-10 English words that derive from that Latin or Greek morpheme. The number of derivatives to assign is determined by the age group of the students, the relative time frame and assessment weighting of the project, and the number of (appropriate) English derivatives from that morpheme. Teachers can require students to use words they are more likely to encounter (rather than obscure scientific terms unlikely to be of use to the students), words of different parts of speech, and words with various affixes, where possible. For the project, students would make a poster. The morpheme and its meaning would be in the center. Then the student would identify the source language of the morpheme. The student would put each English derivative and its meaning on the poster. The overall design of the poster should reflect the meaning of the original Latin or Greek morpheme.

One Morpheme: Prefixes or Suffixes. Since many English prefixes can change spelling from word to word due to assimilation, students can collect English words using the prefix with a variety of spelling patterns to reinforce the meaning of the prefix morpheme. Likewise, students may become more alert to patterns of word change through explicit attention to suffixes, which often contain information about the word’s part of speech and even meaning. The same guidelines for a poster as above apply here.

Morpheme Pairs. In this variation, students select a pair of morphemes (one Greek, one Latin) that have the same English meaning. Then the student finds 4-6 English words from each morpheme. The student displays the meaning of the morphemes, each morpheme, and the two sets of English derivatives on the poster. Again, the design of the poster should reflect the meaning of the morphemes. Sample pairs are in the chart below.

Meaning	Greek	Sample English Word	Latin	Sample English Word
love	<i>philia</i>	philanthropy	<i>amor</i>	amorous
fear	<i>phobia</i>	claustrophobia	<i>timor</i>	timid
water	<i>hydro</i>	hydrant	<i>aqua</i>	aquarium
fire	<i>pyr</i>	pyre	<i>ignis</i>	ignition
city	<i>polis</i>	politics	<i>urbs</i>	suburbs

Morpheme Opposites. In this variation, students select pairs of morphemes for opposites. As with the other variations, they find 4-6 English derivatives for each word. The poster should show each morpheme, its meaning, and the two sets of derivatives. The design should reflect the meaning of the “opposites”. Sample pairs are in the chart below.

Morpheme	Meaning	Morpheme	Meaning
<i>philia</i>	love	<i>phobia</i>	fear
<i>gyne</i>	woman	<i>andro</i>	man
<i>zoo</i>	animal	<i>anthropos</i>	human
<i>hydro</i>	water	<i>pyr</i>	fire
<i>servus</i>	slave	<i>dominus</i>	master
<i>venire</i>	to come	<i>ire</i>	to go

The top four pairs of morphemes are from Greek, and the bottom two are from Latin.

Illustrating Word Relationships. This strategy comes from *Words Their Way* (Bear, Invernizzi, Templeton, and Johnston, 2012). A student selects a pair or small cluster of English words from a common morpheme. The student draws a picture on a piece of paper or an index card to illustrate as many of those English words as possible. Then the words are written around the card; labels or arrows coordinate each word with an aspect of the illustration. Example word groups could include: resident, residence (the example in *Words Their Way*); conclude, conclusion; inventor, invention; and inscribe, inscription. Teachers can select pairs or clusters based on topics of study or patterns in word formation. In terms of word formation, teachers also can support students’ morphemic awareness of patterns in word formation with this strategy. Pairs such as analyze, analysis; hypothesize, hypothesis; or paralyze, paralysis can help students see patterns between verbs and their related nouns. Pairs such as marvel, marvelous; scandal, scandalous; humor, humorous can help students see patterns and relationships between nouns and their related adjectives. This strategy is an explicit way to attend to the Common Core Standard regarding patterns in word formation.

Derivative Boggle, or Brainburst. This is a timed group activity inspired by the popular game Boggle (made by Hasbro; once made by Parker Brothers). To play Derivative Boggle, students organize themselves into teams of 3-4; each team needs a piece of paper and a pencil. The teacher announces a morpheme from Latin or Greek and then begins a timer. Teams of students have no more than two minutes to write down each English word they know that uses that morpheme. At the end of the time limit, all teams put their pencils down. One by one, the teams read their

lists. Any time another team has the same word, all teams cross that word off their lists. If by chance a team reads a word that is not from the morpheme in question, the teacher vetoes that word. The team that has the most points wins the round. Often, I would allot members of that team one extra point on the next quiz. I learned this game from a mentor many years ago; in *Words Their Way*, Bear and colleagues describe an identical game they call Brainburst.

A note about using these strategies in the classroom: these strategies come from research and classroom teachers and are useful in supporting students’ morphemic analysis. That said, it is recommended for teachers to preview and predict what responses students may generate for certain activities and/or morphemes. For example, the morpheme “graph” is the source of several common English words—and it is also a morpheme in the word *pornography*, which is not a word or topic a middle school teacher would want to discuss. When I taught middle school, I required students to submit lists of words they wanted to use for derivative posters as a homework check before they started work in earnest on the poster. This check allowed me to guide and, when necessary, redirect students early in the project.

Resources for Teachers.

Reframing vocabulary instruction to focus on morphemes can seem daunting at first, so starting small is a good approach. I recommend three sources for teachers. First, even though a print dictionary with etymologies may seem like a quaint relic in the age of instant information, a proper paper dictionary remains a great resource for any classroom. I recommend the *American Heritage Dictionary*, but any dictionary large enough to contain thorough etymological information is an asset.

Two websites offer thorough information about morphemes. I recommend each of these for the teacher’s use. As the sites are thorough, they also contain explicit information (especially in regards to words related to anatomy and health) that a teacher may deem to be inappropriate for students. The first website is the Online Etymology Dictionary (<http://www.etymonline.com/>); this site is not very intuitive for users but becomes more navigable with practice. A search bar at the top of the site allows users to key in certain words to learn about their etymologies. Another site that is useful is English-Word Information (<http://wordinfo.info/>). This site allows users to enter morphemes. As with the Online Etymology Dictionary, this site becomes easier to use with increased proficiency.

The guidelines, strategies, and resources described

here should aid a teacher eager to develop explicit vocabulary instruction based on Latin and Greek morphemes. Organizing instruction around some of the guidelines explained here can aid students in a few ways. When students understand that words are made of morphemes, they can begin to see more relationships among words from common morphemes. Showing students that certain graphemes tend to signal that a word comes from Greek helps them understand how morphemes can interact. Explaining that different morphemes in the same word often, but not always, derive from the same language, is useful so that students can use prior knowledge to predict the meanings of new words. When students understand vowel raising and assimilation, they can see more patterns within language despite spelling changes. These guidelines for morphemic analysis equip students to be stronger readers and writers. The strategies and activities based on these guidelines can help focus attention on specific vocabulary or morphemes relevant to the content area.

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