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# **Morphology Matters**

## **Building Vocabulary Through Word Parts**

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### **I. Introduction**

- a. word knowledge & active vs. passive vocabulary
- b. motivation for teaching morphology
- c. terminology
- d. difference between phonological & morphological study (“cat”)
- e. Anglo-Saxon, Latin, Greek: sorting by origin

### **II. First Level Morphology**

- a. Anglo-Saxon base words & affixes
- b. basic parts of speech for suffixing

### **III. Second Level Morphology - Latinate Words**

- a. Latin roots & affixes
- b. elements of a lesson
- c. suffixes versus final stable syllables
- d. Latin template & connectives

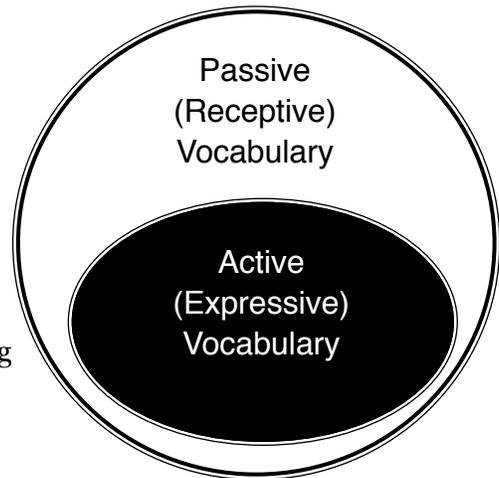
### **IV. More Advanced Elements (as time permits)**

- a. Greek template
- b. Greek combining forms
- c. -ti-, -ci-, & -tu-
- d. assimilated/chameleon prefixes

# ***Different Kinds of Vocabulary & Levels of Word Knowledge***

## **Passive & Active Vocabulary:**

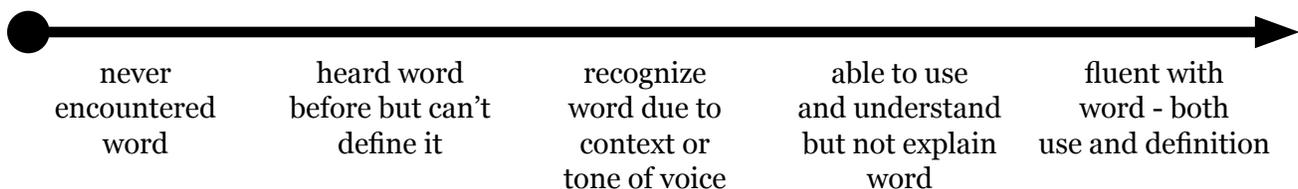
It is important to understand the difference between **passive** (receptive) and **active** (expressive) vocabulary. A person's active vocabulary is much smaller than her passive vocabulary, and most if not all of that person's active vocabulary is included in her passive vocabulary. The words she uses in conversation and writing are typically a subset of those she understands (when she either listens or reads). Most readers encounter many words in text that are not commonly spoken. This knowledge is essential when selecting vocabulary words for students and also when deciding how to help those students learn the selected words.



Of the approximately 175,000 words in current use, 750,000 if you take into account multiple meanings, a typical adult has a vocabulary of about 40,000 words, uses 20,000 when she writes, and uses only about 10,000 when she speaks.

## **Word Knowledge:**

A person's understanding of individual words can also be seen on a continuum. Consider the following:



## **Vocabulary Categories:**

## **Notes:**

### **Reading vocabulary:**

words you recognize when you read  
(typically the largest vocabulary)

### **Listening vocabulary:**

words you recognize when listening to speech  
(increased by context and tone of voice)

### **Writing vocabulary:**

words you use when you write  
(many written words do not usually occur in speech)

### **Speaking vocabulary:**

words you use in speech  
(typically a subset of listening vocabulary)

## ***Terminology for Morphology Study (K-2)***

<u>affix</u>	morpheme that is attached to the root (usually either a prefix or a suffix)
<u>base word</u>	(also called root word) free morpheme; word with no prefixes and suffixes (e.g., <u>-port-</u> , <u>-kind-</u> )
<u>final stable syllable</u>	cluster of letters at the end of a word whose pronunciation remains consistent regardless of the word in which it appears (e.g., <u>-tion</u> , <u>-ble</u> , <u>-ture</u> ); <i>not</i> synonymous with the term suffix
<u>morpheme</u>	smallest component of a word that has meaning
<i>bound morpheme</i>	morpheme that only appears as part of a larger word (e.g., <u>-struct-</u> )
<i>free morpheme</i>	morpheme that can stand alone; often called base word or root word (e.g., <u>-port-</u> , <u>-kind-</u> )
<u>phoneme</u>	smallest unit of sound (e.g., /b/, /ch/)
<u>prefix</u>	affix placed before the root of a word (e.g., <u>pre-</u> , <u>ab-</u> )
<u>root</u>	core meaning in a word; some are bound morphemes (e.g., <u>-struct-</u> ), and some are free morphemes (e.g., <u>-port-</u> ); all words have at least 1 root
<u>suffix</u>	affix placed after the root of a word
<i>derivational (lexical):</i>	vowel: -able, -ance, -ate, -ish, -ive, -ize, -ous, -us consonant: -ly, -like, -ment, -ful, -tude, -less
<i>inflectional (grammatical):</i>	vowel: -ed, -er, -es, -est, -ing consonant: -ly, -'s, -s

### ***Some Affixes to Begin With For K-2 Students***

Below is a list of affixes good for the youngest students. Note that all are Anglo-Saxon except re-, which comes from the Latin.

<b>Basic Prefixes</b>		<b>Basic Suffixes</b>	
un- (not)	unlock	-s (plural)	cups, books
re- (again)	rewrite	-es (plural)	dishes, boxes
re- (back)	return	-ing (present part.)	jumping
		-ed (past part.)	jumped
		-er (person)	teacher
		-er (comparative)	larger
		-est (superlative)	largest
		-ful (full of)	careful
		-less (without)	nameless

## ***Terminology for Advanced Word Structure***

<u>affix</u>	morpheme that is attached to the root (usually either a prefix or a suffix)
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assimilated prefix prefix (often nicknamed chameleon) where, for ease of pronunciation, the final letter changes according to the initial letter of the base to which it is attached (e.g., ad- changes to ar- before range to make arrange; in- changes to im- before pact to make impact)

combining form (also called element) often used to describe Greek-based morphemes (rather than specifying whether they are roots or affixes) (e.g., -phon-, -crac- / -crat-, -bio-)

connective letter(s) in English words used to combine two morphemes; connectives function as “glue” and are not morphemes themselves

*Latin-based* connect a root to a suffix or two suffixes to each other (e.g., media, gradient, regular). three common Latin connectives: -i-, -u-, and -ul-.

*Greek-based* connective -o- often joins two combining forms or elements (e.g., photograph, democracy)

*note: In linguistics, the term “root” refers to the word (in another language) from which our current stem or base is derived. Typically, however, in word study with students, the term “root” is used interchangeably with “stem” and “base.”*

# Terminology for Advanced Word Structure

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<u>base word</u>	(also called root word) free morpheme; word with no prefixes and suffixes (e.g., <u>-port-</u> , <u>-kind-</u> )
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<i>inflectional (grammatical):</i>	vowel: <u>-ed</u> , <u>-er</u> , <u>-es</u> , <u>-est</u> , <u>-ing</u> consonant: <u>-ly</u> , <u>-’s</u> , <u>-s</u>

*note: In linguistics, the term “root” refers to the word (in another language) from which our current stem or base is derived. Typically, however, in word study with students, the term “root” is used interchangeably with “stem” and “base.”*

## ***Phoneme-Morpheme Analysis***

Let's figure out the difference between phonology and morphology!

<b>Word</b>	<b>Phoneme Count</b>	<b>Morpheme Count</b>
c u p s	_____	_____
b l e n d	_____	_____
p h o n e	_____	_____
c a l l e d	_____	_____
r e c a l l i n g	_____	_____

## ***Identifying Morphemes***

Underline the base words. Box the affixes (prefixes and suffixes).

cook	preheat	unworthy
cooking	overheated	worthlessness
cookery	like	worthiest
overcooked	likely	understandable
heat	liking	underactive
heating	likelihood	hopefully
heater	worth	unwholesome

## Selecting Word Origins

Label each word as AS = Anglo-Saxon; G = Greek; or L = Latin

sing	surreptitious	regenerate	hundred
mutual	what	phase	evacuate
monochrome	telepathy	those	phonics
forty	from	abbreviate	incredulous
declension	manuscript	phonograph	moat
pyre	pathology	epidemic	recuperate
expenditure	does	miss	
laugh	white	abnormal	<i>bonus words:</i>
orchid	biology	contraception	biodegradable
distribute	consequence	elbow	graphomotor
psychology	watch	philanthropist	subatomic

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heater	worth	unwholesome



## ***Suffixes Both Determine & Change Part of Speech***

<b>noun</b>	<b>verb</b>	<b>adjective</b>	<b>adverb</b>
joy	rejoice(s,ing,ed) enjoy(s,ing,ed)	joyous joyful	joyfully
peace		peaceful	peacefully
hunger	hunger(s) hungered hungering	hungry	hungrily
expanse expansion expansiveness	expand(s) expanding expanded	expansive expandable	expansively
darkness dark	darken(s) darkened darkening	dark darker darkest	darkly
act action actor	act(s) acted acting	active	actively
loudness	-	loud louder loudest	loudly
dependence	depend(s) depended depending	dependent dependable	dependently
sleep sleeper sleepiness	sleep(s)	sleepy	sleepily

*Note: -ed and -ing verbs can also serve as adjectives (called participles).*

## ***Morpheme Instruction at the Elementary Level: A Week's Lesson***

1. Introduce.
  - a. Write the morpheme for students to see. Write affixes with dashes to show they attach to bases. (e.g., -s, un-)
  - b. Have students trace and write the morpheme, naming its letters as they write.
  - c. If the morpheme is bound, write it in a keyword to show how it is used.
  - d. Have students pronounce, trace, and write the keyword, naming its letters as they write.
  - e. Explain and write the meaning of the morpheme. (Either use direct instruction or, wherever possible, help students use discovery learning to uncover its meaning.)
  - f. Provide or ask students to create a personal card with the morpheme on the front and its keyword and meaning on the back.
  - g. Using a Post-it, add the morpheme to the morpheme wall.
2. Generate with the students a list of words that contain the new morpheme.
3. Ask questions to help students generate other known words that contain the morpheme. (e.g., for un-: "What would a word be for 'not kind'?" (unkind)  
(e.g., for -port-: "What would a word be for 'to carry back'?" (report))
4. Have students build a matrix for the morpheme.
5. Have students locate and underline the morpheme in a list of words containing it. Alternatively, have the students complete word sorts.
6. Have students participate in morphemic awareness activities (oral manipulation of morphemes in words). Use felts or chips to represent the morphemes you move just as you would for phonemic awareness activities. (See Donah's texts for scripted activities.)

*Instructor:* Say teach.

*Student:* teach

*Instructor:* Add /ing/ to teach.

*Student:* teaching

*Instructor:* Change /ing/ in teaching to /able/.

*Student:* teachable

*Instructor:* Add the prefix un- to teachable.

*Student:* unteachable

7. Have students read phrases/sentences that include examples of words containing element.
  8. Provide word, phrase, and sentence dictation that includes examples of words containing element.
  9. Have students write sentences with words containing element.
  10. Have students locate words that contain familiar prefixes and roots in paragraphs or longer pieces.
- \* *Games and other activities can be added or even used instead of some of the activities above. See separate page of supplemental activities.*

# ***Morpheme Instruction at the Middle & High School Level: A Week's Lesson***

1. Introduce.
  - a. Write the morpheme for students to see. Include dashes that demonstrate where other morphemes can be added. (e.g., pre-, contra-, -ment, -age, -port-, -struct-)
  - b. Have students trace and write the morpheme, naming its letters as they write.
  - c. Write the morpheme in a keyword to show how it is used.
  - d. Have students pronounce, trace, and write the keyword, naming its letters as they write.
  - e. Explain and write the meaning of the morpheme. (Either use direct instruction or, wherever possible, help students use discovery learning to uncover its meaning.)
  - f. Provide or ask students to create a personal card with the morpheme on the front and its keyword and meaning on the back.
  - g. Using a Post-it, add the morpheme to the morpheme wall.
2. Generate with the students a list of words that contain the new morpheme.
3. Provide definitions, and have students retrieve from memory other, recognizable but less familiar, words that contain the studied element.
4. Have students build a matrix for the morpheme.
5. Have students locate and underline the morpheme in a list of words containing it. Alternatively, have the students complete word sorts.
6. Have students participate in morphemic awareness activities (oral manipulation of morphemes in words). Use felts or chips to represent the morphemes you move just as you would for phonemic awareness activities. (See Donah's texts for scripted activities.)

*Instructor:* Say constructed.

*Student:* constructed

*Instructor:* Change the /ed/ in constructed to /ing/.

*Student:* constructing

*Instructor:* Add re to the beginning of constructing.

*Student:* reconstructing

*Instructor:* Drop the first prefix and the /ing/ in reconstructing.

*Student:* construct

*Instructor:* Add /iv/ to the end of construct.

*Student:* constructive.

7. Have students read phrases/sentences that include examples of words containing element.
  8. Provide word, phrase, and sentence dictation that includes examples of words containing element.
  9. Have students write sentences with words containing element.
  10. Have students locate words that contain familiar prefixes and roots in paragraphs or longer pieces.
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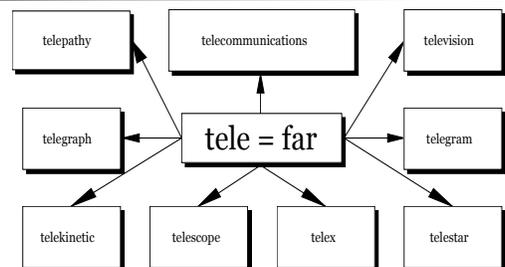
# ***Morpheme Instruction for Middle/High School Students In the Content Areas***

1. Introduce.
  - a. Write the morpheme for students to see. Include dashes that demonstrate where other morphemes can be added. (e.g., pre-, contra-, -ment, -age, -port-, -struct-)
  - b. Have students write the morpheme, naming its letters as they write.
  - c. Write the morpheme in a keyword to show how it is used. (You choose the keyword.)
  - d. Have students pronounce and write the keyword, naming its letters as they write.
  - e. Explain and write the meaning of the morpheme. (Either use direct instruction or, wherever possible, help students use discovery learning to uncover its meaning.)
  - f. Ask students to make a morpheme card for the term or, alternatively, to add it to the vocabulary section of their notebooks.
  - g. Using a Post-it, add the morpheme to the morpheme wall.
2. Generate with the students a list of words that contain the new morpheme.
3. Provide definitions, and have students retrieve from memory other, recognizable but less familiar, words that contain the studied element.
4. Have students build a matrix for the morpheme.
5. Have students locate and underline the morpheme in a list of words containing it. Alternatively, have the students complete word sorts.
6. Have students read sentences/paragraphs that include examples of words containing element. (This could involve reading the textbook or an article or essay that uses this morpheme.)
8. If you want the term in their active vocabulary, ask students to write sentences with words containing element.

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## ***Bonus Activities:***

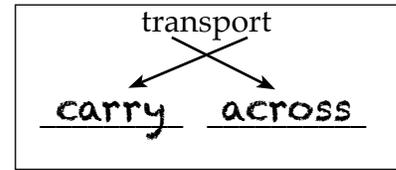
A. Have students write a prefix or root in the center, and map or web words that come from that word part. More advanced students can even link those webbed words to other prefixes and roots. An example of a simple word web for the Greek element -tele- is at bottom right.



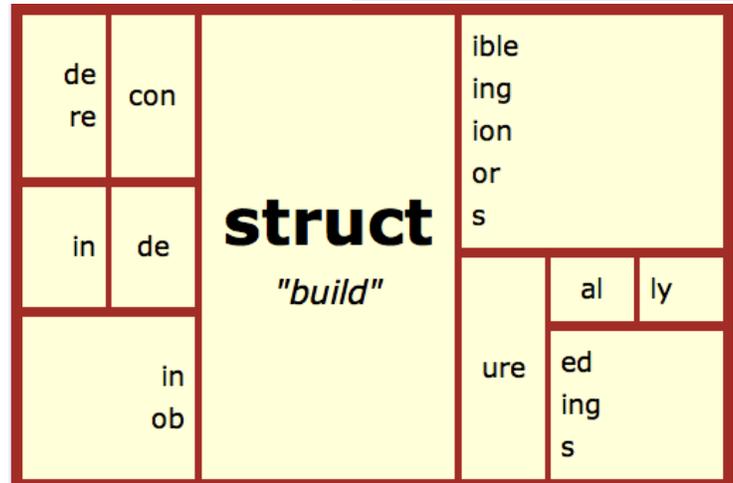
B. #6 can be done as a cumulative activity, where students identify words that include any studied element from the year. This practice teaches students to recognize learned word parts and proves their frequency and therefore the usefulness of studying them.

## Supplemental Activities

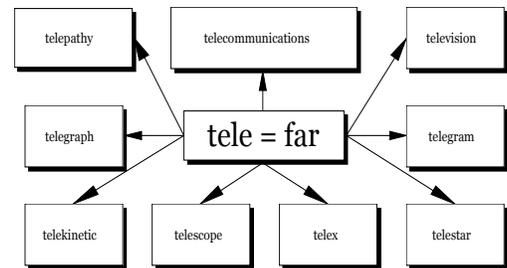
1. Have students write literal definition of given word using knowledge of element meaning, or have them provide word to match provided literal definition (crisscross sheets). An example is at right.



2. Have students build matrix from list of words containing studied element, or have students use teacher-made matrix to generate list of words containing studied element. An example of a matrix for the base **-struct-** is at right. (Bowers' *Teaching How the Written Word Works* explores this practice and is available at [wvced.com](http://wvced.com).)



3. Have students write a prefix or root in the center, and map or web words that come from that word part. More advanced students can even link those webbed words to other prefixes and roots. An example of a simple word web for the Greek element **-tele-** is at bottom right.



4. Have students locate words that contain familiar prefixes and roots in magazine or newspaper articles. This practice teaches students to recognize learned word parts and proves their frequency and therefore the usefulness of studying them.
5. Provide students with a "word of the day," which they must analyze at the phonological (phonemes, syllables, blends/digraphs, etc.) and morphological (language of origin, prefix/root/suffix, advanced structures, meaning if possible) levels. This provides both review and a fascinating study!
6. Here's an activity to generate words from a single root.

**Instructions:**

- Add prefixes and/or suffixes to the root to create a different word for each blank. Do not use the suffixes **-s**, **-ed**, and **-ing**.
- Many words can be created using two or more suffixes. Occasionally, two prefixes can be used in a single word as well.
- An **-s** can be added to many of the verbs and nouns you will create. **-ed** and **-ing** can be added to many of the verbs you will create to change tense.

**-abl(e)**      **-al**  
**-ad-**      **-at(e)**  
**con-**      **-(i)fy**  
**de-**      **-il(e)**  
**e-**      **-ion**  
**in-**      **-ist**  
**inter-**      **-ity**  
**non-**      **-iv(e)**  
**ob-**      **-ly**  
**pro-**      **-ness**  
**re-**      **-or**  
**sub**      **-or(y)**  
**tra(ns)-**      **-ur(e)**

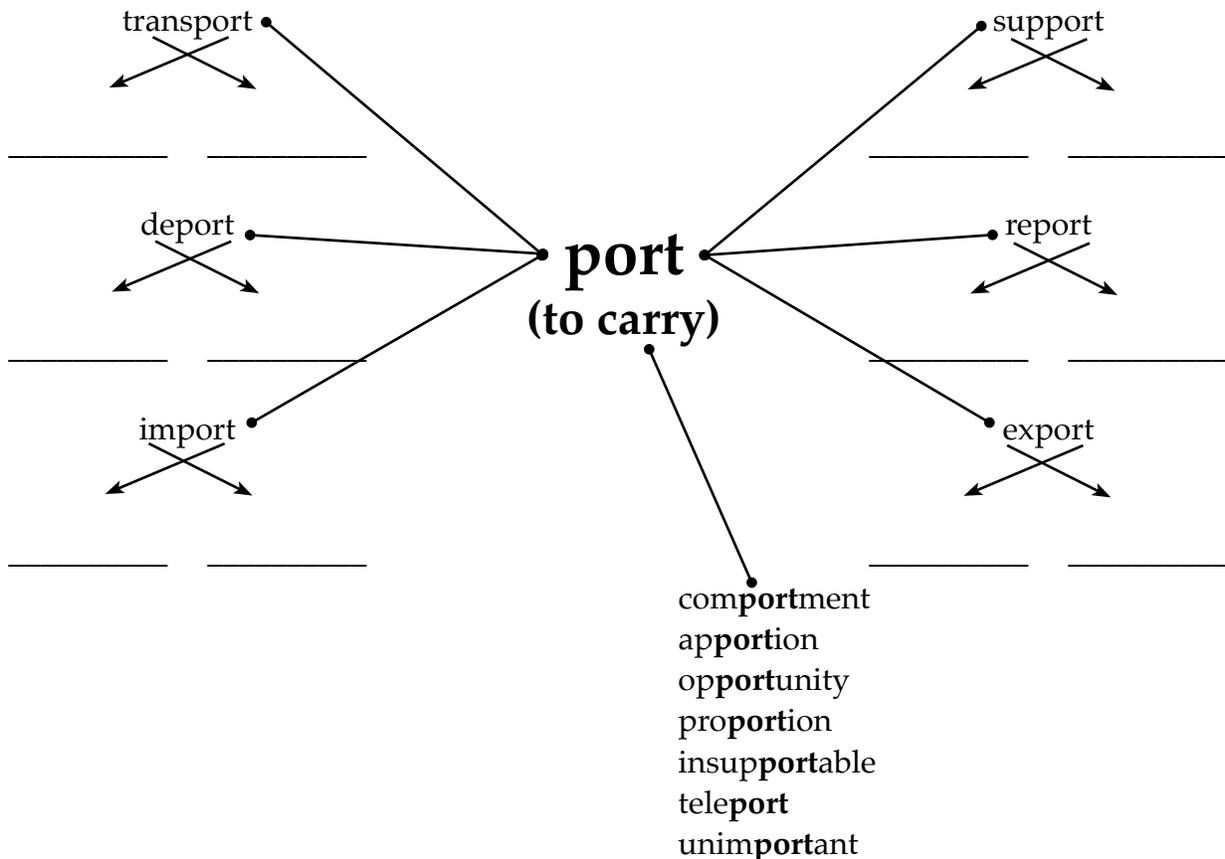
**-ject-**  
(to throw)

## Supplemental Activities (continued)

7. Suffixes often determine part of speech. Examine these words to see how their parts of speech change as different suffixes are added:

prefix	prefix	root	connective	suffix	connective	suffix	suffix
inter	de	part		ment		al	ly
dis	pro	port		ion		ate	ly
	ad	vent		ur(e)		ous	
		nat		ur(e)		al	ly
	re	med	i	at(e)		ion	
	ir	reg	ul	ar		ly	

8. A variety of word webs are useful for advanced word structure study. Examine this web, which includes criss-cross sheets, for the Latin root port, meaning “to carry.”



## ***A Note on Procedure for Word Origins***

A significant conceptual difference exists between basic phonological decoding (division by sound) and morphological work (division by meaning).

With morphology we no longer examine words based on syllabication; rather, we examine them based on parts for meaning. Examples are above at right. Morphological study leads to an understanding of more challenging spellings and an enhanced vocabulary.

phonological division	morphological division
e la tion	e lat ion
in som ni a	in somn i a
con tra dic tion	contra dict ion

## ***Recall & Recognition Drills (taken from Shirley A. Kokesh)***

After a concept has been taught, it must be drilled if it is to be remembered. Drills are on two levels:

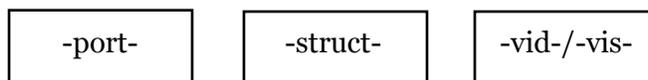
1. Recognition: Instructor provides a set of potential answers and one question.  
Student must choose the correct answer from the given set.
2. Recall: Instructor provides one question.  
Student must provide the answer from memory.

A great deal of student failure occurs because teachers tend to go from teaching directly to the higher level drill of recall...or testing! While a small percentage of students can function well in such a system, it places most in a position of threat, uncertainty, and insecurity. If students fail, many times the instructor repeats the procedure instead of adding necessary lower level drills of recognition.

For example: After explaining the meanings of three to six morphemes (teaching), if you then say, "Now let's go through these morphemes again, only this time you tell me the definitions," you are testing (recall) not practicing (recognition).

Instead, after teaching the meanings of several new roots or prefixes, insert the following recognition drill:

1. Put three of the word part cards in front of the student:



2. Define one of these roots: "to build"
3. The student "recognizes" the root he thinks is right by tapping or removing it, saying, "struct."
4. The teacher places a new card on top of, or in place of, struct and gives the second definition of the drill.
5. If the student chooses the wrong answer, say, "Try again!" Don't display a new card. Rather, define the word that was mistaken so that the student can get immediate feedback to correct his error.
6. When all cards have been drilled, then it is appropriate to go to the testing level (recall). Gather cards in a deck. Flash and test: "Give me the definitions for each card you see."

# ***A Suggested Sequence for First Level Morphology***

(Numbers in parentheses cross reference this sequence with my text,  
*Everything You Want To Know & Exactly Where To Find It.*)

Below is a sequence that can be used as a guideline for beginning morphology:

1. Elementary students (and those with fledgling word attack skills) should learn what base words, prefixes, and suffixes are and how they influence a word's meaning. Stick with bases that are free morphemes (can stand by themselves as words). (80-89)

Focus your study on several key areas.

- understanding basewords, prefixes, and suffixes
- identifying basewords in longer words (e.g., like in unlikely, chair in chairs)
- understanding how prefixes change meaning (e.g., misuse means to use *wrongly*)
- understanding how suffixes change meaning (e.g., cats is more than one cat)

2. Begin a pack of basic prefixes (front is prefix followed by a dash, back is key word above meaning). Some instructors use green (for "go") for prefixes. Students should look at the prefix ("un-" for example) and say "un-, unhappy, not," in that order. (Anglo-Saxon prefixes to start - 85)
3. Then, build a pack of basic suffixes (front is suffix preceded by dash, back is key word above part of speech). Where useful, include meaning. Often, meanings are abstract and obscure, and studying part of speech is more fruitful. Students should look at the suffix ("-ly" for example) and say "ly, likely, usually an adverb" in that order. (89)
4. Continue to add basic prefixes and suffixes to the students' learned stacks of cards as you introduce other elements of study. Once you have exhausted those that come from Anglo-Saxon, move into the more basic Latin affixes.
5. Teach (or review) noun, verb, adjective, and adverb. Without this knowledge students will not be able to apply their knowledge of suffixes.

Some common suffixes with which to start, sorted by part of speech:

- noun: -er, -hood, -ness, -or, -ist, -ment, -ity  
adjective: -er, -est, -ful, -ish, -ous, -able, -ible  
adverb: -ly  
verb: -ed, -ing, -en, -fy, -ate (pronounced /āte/), -ize

6. Teach the way suffixes can change bases; include the terms consonant suffix and vowel suffix.

- silent-e: drop the e before a vowel suffix (95)

e.g., hope + ing = hoping *but* hope + less = hopeless

- cvc doubling: 1 syl. word ending in cons.-vowel-cons., double before a vowel suffix (97)

e.g., tap + ing = tapping *but* ship + ment = shipment  
send + ing = sending  
cook + ed = cooked

- y: never drop the y. keep it or change it. vowel-y, keep the y (99)

cons.-y, change the y to i unless the suffix begins with i.

e.g., cry + ed = cried *but* stay + ed = stayed  
cry + ing = crying

7. Often in elementary school, students will have learned some final stable syllables. If these stable syllables are introduced at an earlier stage, it is only for decoding and spelling. Note: While all of these are final stable syllables, only some are suffixes.

Useful stable syllables to study at first: -tion (155), -ture (161), -age (147),  
-ous (151), -sion (155), -ate (149), -ive (173)

Put these on cards, complete with hyphen. On the front should be the final stable syllable. On the back should be the pronunciation and a key word.

8. (for students with at least 4th grade word attack) Teach the two sounds of c and g. A number of upper elementary and middle school words contain soft c and g, and a number of bound roots at the next level of morphology contain soft c and g as well.

- two sounds of c and g (c and g are soft before e, i, and y) (37)

e.g., cent, cider, cyst, gentle, ginger, gym (words)

e.g., -cid-, -cess-, -gen-, -cept-, -ced-, -cycl- (bound roots)

9. (for students with at least 4th grade word attack) Teach the Greek Code for reading/decoding. Have your students read words that contain elements of the Greek code on cards. Where appropriate, such words can also be dictated for spelling. Students should learn that words containing these elements usually come from the Greek.

- y acts as i; ch says /k/; ph says /f/ (131)

e.g., cyclone, python, echo, chronic, phylum, elephant

# ***A Suggested Sequence for Second Level Morphology***

(Numbers in parentheses cross reference this sequence with my text,  
*Everything You Want To Know & Exactly Where To Find It.*)

Though advanced language study is flexible, it is useful to have in mind a sequence to guide your teaching. The sequence you choose depends on the level of the student, the academic courses that student is taking, or a combination of both. Below is a sequence that can be used as a guideline for students who have achieved at least fourth grade word attack skills. *Cover concepts on First Level Morphology sequence before beginning with these more advanced elements:*

1. Begin a pack of four or five basic prefixes (front is prefix followed by a dash, back is key word above meaning). Some instructors use green (for “go”) for prefixes. While assimilated (chameleon) prefixes are some of the most common, if you use them at this stage, stick to their base forms and avoid their assimilations (e.g., study in but not im, il, or ir). Students should look at the prefix (“pre-” for example) and say “pre, preview, before,” in that order. (regular prefixes - 112-4; assimilated prefixes - 115-23)  

8 good prefixes to study at first: pre-, in-, con-, re-, inter-, trans-, ex-, dis-
2. Then, build a pack of four or five roots (front is root surrounded by dashes, back is key word above meaning). Students should look at the root (“-rupt-” for example) and say “rupt, interrupt, to break,” in that order. (124-7)  

6 good roots to study at first: -port-, -rupt-, -dic-/dict-, -ject-, -mit-/mis-,  
-spec-/spect-/spic-
3. From there, build separate packs of prefixes and roots. Stick to one language of origin for a time before introducing elements of another language.
4. At this point, look at common endings, layering in part of speech and other important information. A knowledge of nouns, verbs, adjectives, and adverbs is important for this study. Continue to build your pack of stable syllables and suffixes. Have your students practice reading and spelling words containing these elements. Here are a few examples of useful final stable syllables; more can be found in the text:
  - a. useful final stable syllables to study at first:
    - ment (noun): argument, investment (146)
    - ist (people noun): florist, dentist (147)
    - or (people noun): instructor, tutor (147)
    - ture (noun): nature, adventure (161) (The suffix here is -ure.)
    - ize (verb): utilize, systematize (171)
    - ive (adjective): talkative, active (173)

Note: While all the endings above are final stable syllables, -ture is not a suffix.

b. final stable syllable /shun/ (155)

-tion: most common		-sion (/shun/): after s, n, l (/zhun/): after vowels/r		-cian: for people
nation		propulsion, invasion		musician

(Note: The t, s, or c in these syllables is part of the preceding morpheme, leaving -ion/-ian as the suffix.)

c. -ous (adjective): dangerous    -us (noun): circus (151)

d. -ate (/āt/ - verb): locate    -ate (/ět/ - adjective/noun): immediate, pirate (149)

5. As students build packs of prefixes, roots, and stable syllables, introduce the major word origins (Anglo-Saxon, Latin, Greek, and maybe French), and discuss their characteristics. Have students practice identifying words by their origins. Remember that the study of advanced word structure is cognitive. In other words you need to teach *how* the language works. Little of this concerns rote memory. (176-8)

6. Teach students that -ti- and -ci- say /sh/. Use students' base knowledge of -tion to get to this. (In other words, "if tion says /shun/, what does ti say?") Then, expand your stable syllable pack with /sh/ syllables. You should have a large pack of multisyllabic words that contain these /sh/ structures for reading and eventually spelling. (152-7)

-tion = /shun/		-cian = /shun/
-ti- = /sh/		-ci- = /sh/
-tial = initial		-tious = nutritious
-tient = patient		-tiate = initiate
		-cial = racial
		-cious = ferocious
		-cient = ancient
		-ciate = associate
		-ciency = efficiency

(Note: The initial c or t is a part of the base while the letters that follow form the suffix.)

7. Then, teach students -ture (as you taught -tion) and -tu- (as you taught -ti-). (158-9)

- ture = /cher/ as in adventure
- tu- = /choo/ as in mutual, spatula

8. As students continue to build packs of prefixes, roots, and stable syllables, examine the template of a typical Latinate word. Teach the three Latin connectives (-i-, -u-, -ul-). Teach the pronunciations of Latin connective i (e.g., medium, million, aptiude). (111)

9. Eventually, teach the breakdown of a Greek word (including elements and connective o). (129)

10. Teach assimilated/chameleon Latin prefixes. (115-23)

## A Technique for Reviewing Word Parts & Vocabulary Terms Independently

### To study your cards use **“The Box Method”!**

1) Put down 4 cards to form your “BOX”

Word up, definition down:

democracy	convention
primary	delegate

2) Quiz yourself

Pick up a card, do you know the definition?

**YES!** Set it aside, and place a new card in your box.

**NO...** carefully review the back of the card until you feel you know it, then put it back in your box, and choose another card from your box to answer.  
No card leaves the box until you get it right once.

Keep putting aside the cards you know and reviewing the ones you don't until you know them all!

3) Now try it with the definitions up!

*This is a much more effective way to learn your cards than just flipping through the deck!*

“The Box Method” William Van Cleave & Shirley Kokesh  
Instruction sheet by Susan Schambach and Cheryl Swanson, Triad Academy, Winston-Salem, N.C.

### *Identifying Morphemes: The /shun/ Question*

1. Underline the root.
2. Box the affixes.

contraction

regression

magician

Guess

c o n t r a c t i o n

r e g r e s s i o n

m a g i c i a n

Correct  
Answer

c o n t r a c t i o n

r e g r e s s i o n

m a g i c i a n

## ***Sample Activity: Sister Words for Shared Meaning***

<b>challenge</b>	<b>sister word</b>	<b>shared meaning</b>
perturbed	disturb	-----
benefactor	benefit	-----
rupture	disrupt	-----
amiable amicable	amigo	-----
envision	vision	-----
enclosure	close	-----
antibiotic	antisocial	-----
	biology	-----
autobiography	automobile	-----
	biology	-----
	paragraph	-----
euphony	euphemism	-----
euthanasia	eulogy	-----
geothermal	geography	-----
	Thermos	-----

## Sample Activity: Latin and Greek Word Generation

Underline a morpheme and list other words that share that morpheme.

beneficial

biography

-----

-----

-----

-----

-----

thermometer

autograph

-----

-----

-----

-----

-----

legal

position

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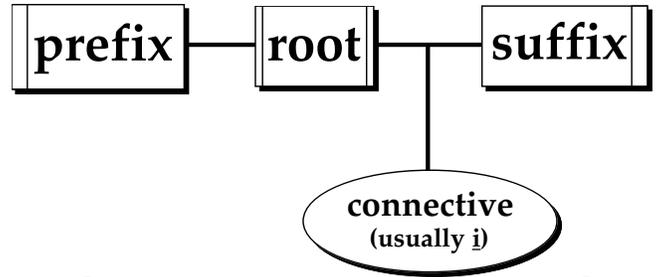
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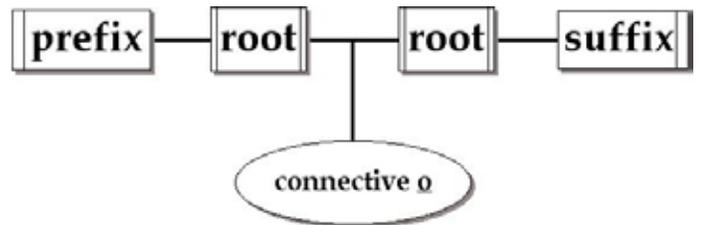
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Latin template: 55% of English words



Greek template: 11% of English words



**Sample Activity: Identifying Morphemes**

Underline roots, circle connectives, and box affixes.

confide

psychometrics

eruption

photographic

counterproposal

synchronize

regenerative

sympathetic

---

**Sample Activity: Using Advanced Matrices for Word Building**

de re	con	<b>struct</b> "build"	ible	<i>structure</i>			
in	de		ing				
			ion	_____			
			or			_____	
			s	_____			
						al	ly
				ed		_____	
			ure	ing			
				s		_____	
						_____	

**Sample Activity: Sort Words by Common Morpheme**

benevolent	compelling	benefactor	pedal
pedometer	polygamy	compulsory	impulsivity
polyester	expedient	polygon	beneficial
repulsive	benign	impediment	polyglot

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<u>ped</u>	<u>poly</u>	<u>bene</u>	<u>pel / puls</u>
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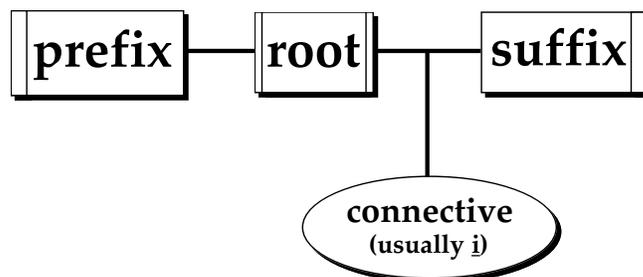
**Sample Activity: Continuum Vocabulary**

angry	irascible	smart	shrewd
raging	infuriated	intelligent	insightful
wild	enraged	clever	brainy
tempestuous	irate	fast	wise
wrathful	provoked	sharp	bright
furious	aggravated	astute	brilliant
mad	livid		
huffy	indignant		
hot under the collar	outraged		

## Latin Connectives Practice Sheet

Underline roots, circle connectives, and box affixes.

expedient	spatula
muscular	alleviate
petunia	testimony
magnitude	impediment
virtuous	imperial
continual	egregious
gratify	radiant
hysteria	unofficial
spectacular	appreciate
monument	editorial
cautious	malicious
deficiency	exponential
popular	suburbia
evaluate	injurious
tempestuous	parsimonious
brilliant	marsupial



Three key Latin connectives are i, u, and ul. You should accent the syllable that comes before the Latin connective:

sól i tude                      món u ment                      rég ul ate

u and ul are always long:

promiscuus                      manuul                      muscuular

Latin connective i is by far the most common.

Use these rules for pronouncing it:

1. i = /ē/ before a vowel suffix: curious
2. i = /y/ after l or n:                      peculiar
3. i = /ĩ/ before a consonant: multitude

A sampling of useful suffix rules:

-ous = adjective                      -ate /āt/ = verb  
 -us = noun                              -ate /ět/ = adj./noun

## Exploring Assimilated Prefixes

Explanation: For ease of pronunciation, the final letter of an assimilated prefix changes according to the initial letter of the base to which it is attached. These prefixes are often nicknamed chameleons because a chameleon changes its colors to blend with its surroundings, much like the assimilated prefix.

ex and dis:

ex drops x (e.g., eject), dis, drops s (e.g., divide)

ex changes to ef before f (e.g., effect), dis changes to dif before f (e.g., differ)

(rare ex: ex changes to ec in some situations)

ad:

ad retains d before d (e.g., addition)

ad to ac before c (e.g., accelerate)

ad to af before f (e.g., affect)

ad to ag before g (e.g., aggressive)

ad to al before l (e.g., alliance)

ad to an before n (e.g., announce)

ad to ap before p (e.g., apply)

ad to ar before r (e.g., arrange)

ad to as before s (e.g., assert)

ad to at before t (e.g., attract)

Examples	
ex	→ ef + fort = effort
dis	→ dif + fer = differ
ad	→ ar + rest = arrest
ob	→ op + posite = opposite
sub	→ sup + pose = suppose
in	→ im + bibe = imbibe
con	→ com + bine = combine

ob and sub:

ob to oc before c (e.g., occasion), sub to suc before c (e.g., succeed)

ob to of before f (e.g., offer), sub to suf before f (e.g., suffer)

ob to op before p (e.g., opponent), sub to sup before p (e.g., support)

(rare ob: o before m; os before c or t)

(rare sub: sug before g; sum before m; sur before r; sus before c, p, or t)

in and con:

in can retain n before n (e.g., innate), con retains n before n (e.g., connect)

(rare: in can change to ig before n)

in to im before b, m, p (e.g., imbalanced), con to com before b, m, p (e.g., combine)

in to il before l (e.g., illegal), con to col before l (e.g., collect)

in to ir before r (e.g., irrational), con to cor before r (e.g., correct)

sample  
activities

in + regular = irregular

in + regular = irregular

irregular = not regular

not regular = irregular

*Note: The word lists accompanying these morphemes were developed for **high school** students. Some words should be omitted for younger students.*

**Morphemes in the Content Areas:** Content-area instructors have the opportunity to show how morphemes function in words specific to their subject. Exploring words' common morphemes and shared meanings proves fruitful for vocabulary development—to help students understand both words instructors are teaching and those that may be encountered in the future.

## **gen - birth, origin** (common science morpheme)

androgen	eugenics	genitals	hypoallergenic
allogenic	genealogy	genius	neurodegenerative
biogenesis	general	genteel	overgeneralize
biogenetic	generalize	gentle	oxygen
carcinogen	generate	gentleman	pathogen
congenital	generative	gentry	photogenic
congenitally	genetic	genus	primogenitor
degenerate	geneticist	heterogeneous	regenerate
eugenicist	genial	homogeneous	transgenerational
estrogen	genitalia	hydrogen	

## **crat/cracy - rule or government by** (common history morpheme)

aristocracies	isocracy
aristocrat	meritocracy
aristocratic	mobocracy
autocrat	nondemocratic
bureaucrat	technocrat
bureaucracy	theocracy
bureaucratic	theocrat
democracy	undemocratically
democrat	

## **arch - chief/principal** (common history morpheme)

anarchy	monarch
anarchism	monarchies
archbishop	monarchy
archdiocese	nonhierarchical
hierarchical	oligarchy
hierarchy	patriarch
matriarch	patriarchal
matriarchal	patriarchy
matriarchy	tetrarchy

## Science Morphemes (Ron Yoshimoto compilation)

morpheme	meaning	sample word	morpheme	meaning	sample word
aero	air	aerobes	enter	intestine	gastroenteritis
amphi	both	amphibian	entom	insect	entomology
angio	vessel	angiogram	epi	upon/on	epidermis
antho	flower	another	erg	work	ergonomics
anti	against	antibody	exo	out	exotoxin
arthro	joint	arthritis	ferro	iron	ferrite
astro	star	astronomy	fiss	split	fission
atmo	vapor	atmosphere	gastro	stomach	gastropods
atom	vapor	atomic	gen	origin	genetics
aud/audi	hear	audiometer	geo	earth	geology
aur	gold	Aurora	germ	related/vital	germinate
auto	self	autotrophic	gest	carry	digestion
baro	pressure	barometer	glyc	sweet	glycerin
bath	deep	bathyscaph	gram/graph	write	seismograph
bio	life	biological	grav	heavy	gravity
blasto	embryo	blastocyst	gyn	female	gynecology
brachio	arm	brachium	gymno	naked	gymnosperm
branchio	gills	branchia	gyro	turn	gyroscope
bronch	windpipe	bronchial	helio	sun	heliotropic
calor	heat	caloric	hema/hemo	blood	hemoglobin
cardi/cardio	heart	cardiogram	hepat	liver	hepatitis
carn	meat/flesh	carnivore	hetero	different	heteromorphic
cephalo	head	cephalopod	hibern	winter	hibernation
chlor	green	chlorophyll	hist	tissue	histology
chrom	color	chromosome	homo	same	homozygous
chron	time	chronometer	hydro/hydra	water	hydrometer
coel	hollow	coelenterates	hyper	over	hyperacidity
corp	body	corpuscle	ichthy	fish	ichthyologist
cosmo	universe/world	microcosm	ign	fire	igneous
cranio	skull	intracranial	infra	beneath	infrared
cyan	blue	cyanide	intra	within	intracellular
cyclo	circle	cyclotron	ite	mineral	granite
cyt	cell	cyclotron	itis	inflammation	appendicitis
dendr	tree	dendrite	ium	element	radium
derm	skin	dermatology	kine	motion	kinetic
diplo	double	diplococcus	lepsy	attack	epilepsy
dorm	sleep	dormancy	leuko/leuc	white	leukemia
dors	back	dorsal	lign	mineral/fossil	halite
dyna	power	dynamite	lith	rock	lithium
dys	bad	dysentery	luc/lum	light	lumen
echin	spiny	echinodermata	luna	moon	lunar
eco	house	ecology	lys	breakdown	dialysis
ecto	outer	ectoplasm	macro	large	macrobiotics
endo	within	endoplasm	mal	bad	malignant

<b>morpheme</b>	<b>meaning</b>	<b>sample word</b>	<b>morpheme</b>	<b>meaning</b>	<b>sample word</b>
mar	sea	marine	pter	wing	pterodactyl
melano	black	melanoma	pyro	fire	pyrotechnic
meta	change	metamorphosis	radi	ray	radiation
meter	measure	millimeter	rhiz	root	rhizome
micro	small	microscope	rhodo	rose	rhododendron
moll	soft	mollusk	saur	lizard	dinosaur
morph	shape	metamorphosis	scope	see	microscope
mut	change	mutation	sect	cut	dissection
myo	muscle	myocardium	sphere	ball	hydrosphere
neo	new	neonatal	sol	sun	solar
neuro	nerve	neurology	solv	loosen	solvent
nuc	center	nucleus	som	body	somatic
ocul	eye	ocular	sperm	seed	spermatophyte
oid	appearance	asteroid	spir(e)	breathe	respiration
ology	study of	dermatology	spor(e)	seed	sporophyte
oma	tumor	carcinoma	stell	star	interstellar
omni	all	omnivore	stereo	solid	stereoscope
ophthal	eye	ophthalmology	strat	layer	stratosphere
ornith	bird	ornithology	sub	below	substratum
oscu	mouth	osculum	sym/syn	with/together	symbiosis
ose	sugar	glucose	taxis	arrangement	taxonomy
osis	condition	osmosis	tele	far	telescope
osteo	bone	osteopath	therm	heat	thermometer
ov/ovi	egg	oviduct	tomy	cut	anatomy
patho	disease	pathogen	tox	poison	toxins
ped/pod	foot	bipeds	trich	hair	trichinosis
petr	rock	petroglyph	troph	nourishment	troposphere
phag	eat	phagocyte	ultra	beyond	ultraviolet
phasia	speech	aphasia	vac	empty	vacuole
phen	appearance	phenotype	vas	vessel	vascular
phono	sound	phonon	vect	carry	convection
phor	carry	chromatophore	ventri	belly	ventral
photo	light	photosynthesis	vermin	worm	vermin
phyll	leaf	chlorophyll	vert	turn	vertebra
phylo	kind	phylum	viv/vita	life	vitamin
physi	nature	physics	volcan/	fire	volcano
phyte	plant	saprophyte	vulcan		
plasm	form	cytoplasm	volv	roll	revolution
plasto	molded	plastid	vore	eat	herbivore
platy	flat	platypus	xylo	wood	xylem
pneumo	lung	pneumonia	zo(o)	animal	zoology
prim	first	primate	zygo	yoke	zygote
proto	first	protoplasm	zym	ferment	enzyme
pseudo	false	pseudopod			

## Math Morphemes (Ron Yoshimoto compilation)

morpheme	meaning	sample word	morpheme	meaning	sample word
alt	high	altitude	nom	name	denominator
circum	around	circumference	numer	number	numerator
col/com/con	with/together	collinear	oid	resembling	trapezoid
de	down/away	denominator	para	beside	parabola
dia	across	diagonal	pend	hang	perpendicular
digit	finger	digital	peri	around	perimeter
equi	equal	equilateral	ply/plic	fold	multiply
fer	bring/carry	circumference	put(e)	think	compute
fract	break	fraction	radi	ray	radius
gon	angle	polygon	rect	right/straight	rectangle
grade	step	centigrade	sect	cut/divide	bisect
gram/graph	write	kilogram	sphere	ball	spherical
hedron	sided object	tetrahedron	sub	below/under	subtract
hypo	under	hypotenuse	sym/syn/syl	with/together	symmetric
inter	between/ among	intersect	tang	touch	tangent
iso	equal	isosceles	therm	heat	thermometer
lat	side	collateral	tract	drag/pull	protractor
lin	line	collinear	verse/vert	turn	vertex
medi	middle	median			
meter/metry	measure	symmetrical			
mut	change	commutative			

Number Prefixes				
#	Latin	sample word	Greek	sample word
1	uni-	unicorn	mono	monopoly
2	bi	bicycle	di	digraph
	du(o)	dual		
3	tri	tricycle	ter	tertiary
4	quadr/quar	quarter	tetra	tetragon
5	quint	quintuplets	pent	pentagon
6	sex	sextuplets	hex	hexagon
7	sept	septuplets	hept	heptagon
8	octa/octo*		octa/octo*	octagon
9	nona/nove	November		
10	dec/deca/deci*		dec/deca/deci*	decade
100	cent	cent	hect	hectogram
1000	mille	millipede	kilo	kilometer

\* same for Latin and Greek

## Social Sciences Morphemes (Ron Yoshimoto compilation)

morpheme	meaning	sample word	morpheme	meaning	sample word
ab	away, from	abdicate	medi	middle	medieval
acro	high	acropolis	mega/ megalo	large	megalopolis
alt	high	altitude	meso	middle	mesozoic
anni/annu	year	annuity	migr	wander	migration
ante	before	antebellum	mony	condition	ceremony
anthropo	man	anthropology	nat	born	native
archaeo	ancient	archaeology	neo	new	Neolithic
arch(y)	ruler/gov't	monarchy	nesin	island	Melanesia
auto	self	autonomy	oid	resembling	anthropoid
capit/capt	head/leader	capitalism	olig(o)	few	oligarchy
cata	down	catacombs	ology	study of	archaeology
ceed/cede/ cess	go	recession	pac	peace	pacifism
circum	around	circumnavigate	paleo	old	paleontology
cis(e)/cid(e)	cut/kill	genocide	pan	all	pantheism
civ	citizen	civilization	pater/patri	father	patriarchy
clud(e)/ clus(e)	shut	exclusion	pend/pens	hang	independence
dem	people	democracy	petr	rock	petroglyph
dic/dict	say	dictator	phil/philo	love	philosophy
ethno	race/culture	ethnocentrism	phobia	fear	acrophobia
fac	make	factory	pict	paint	pictograph
feder	trust/faith	federalism	plu/plur	more	pluralism
frat	brother	fraternal	polis	city	metropolis
gamy	marriage	polygamy	pop	people	populist
gen	origin	indigenous	port	bring/carry	export
grad/gress	step	Congress	pos(e)	place	depose
gram/graph	write	pictograph	pre	before	preliterate
hab/habit	live	habitat	prim	first	primogeniture
hum	earth	humanity	proto	first	protozoa
ideo	idea	ideograph	psych	mind/soul	psychological
inter	between/among	interdependent	se	apart/away	secession
intra	within	intragroup	sed	sit	sedentary
ism	doctrine	communism	simil/simul	resembling	assimilate
ist	one who	anarchist	socio	society	sociology
ize	make	decentralize	soph	wisdom	philosophy
jud/jur/jus	law	jurisdiction	stitu	pace	constitution
leg	law	legislature	sub	below	suburban
liber	free	liberty	techni	skill/art	technocracy
lith	rock	paleolithic	theo	god	theology
liter	letter	preliterate	topo	place	topography
mania	madness	kleptomania	trans	across	transcontinental
manu	hand	manufacture	trib	pay	tribute
matri	mother	matrilineal	urb	city	urban
			vinc/vict	conquer	victory



# Useful Resources

## Advanced Word Structure & History of the English Language:

- Anderson, C. Wilson, T. Elli Cross, and Joan Stoner. *VAK Tasks, Intermediate Prefixes, Roots and Suffixes series, Essential Roots series, Essential Prefixes series. Workbook of Resource Words for Phonetic Reading.* wvced.com
- Barr, Cooper, Follis, Lindsay, Parsons. *Prefixes, Roots, Suffixes.* (3 reference texts.) wvced.com
- \* Beck, Isabel L., Margaret G. McKeown, Linda Kucan. *Bringing Words to Life, Second Edition: Robust Vocabulary Instruction.* 2013. guilford.com.
- \* Beck, Isabel L., Margaret G. McKeown, Linda Kucan. *Creating Robust Vocabulary: Frequently Asked Questions and Extended Examples.* 2008. guilford.com.
- Bowers, Peter. *Teaching How the Written Word Works.* wvced.com.
- \* Carreker, Suzanne. *Word Detective: Discovering The History of The English Language.* neuhaus.org.
- Donah, Sandra. *Improving Morphemic Awareness Using Latin Roots & Greek Combining Forms.* wvced.com.
- Donah, Sandra. *Improving Morphemic Awareness Using Base Words & Affixes.* wvced.com.
- Gold, Diane Hickey, Elaine Russo, Linda Wallace, Judy Shapiro. *PS: Prefixes, Suffixes, Roots (A Resource of Lists, Phrases, Sentences, Poems, and Stories).* wvced.com.
- Gold, Diana Hickey, Elaine Russo, Linda Wallace, Judy Shapiro. *PPS: Advanced Prefixes, Suffixes, Roots, and Connectives (Resource of Lists, Phrases, Sentences, Stories & Activities).*
- Kemmer, Suzanne. *Words In English* (website). ruf.rice.edu/~kemmer/Words04
- \* King, Diana Hanbury. *English Isn't Crazy! The Elements Of Our Language And How To Teach Them.* proedinc.com.
- Kleiber, Margaret. *Specific Language Training: An Orton-Gillingham Curriculum for Adolescents.* wvced.com.
- Morgan, Kenneth B. *Dynamic Roots - Language Training Program.* wvced.com.
- Van Cleave, William. *Everything You Want To Know & Exactly Where To Find It: A Reference Guide for Teachers of Orton-Gillingham & Other Multisensory Approaches.* wvced.com.
- Van Cleave, William & Caroline Dover. *Phrases & Sentences for Reading & Spelling.* wvced.com.

## Vocabulary & Morphology Websites:

- dictionary.com          vocabulary.com          etymonline.com          visualthesaurus.com
- matrix maker (Bowers & Ramsden): <http://www.neilramsdn.co.uk/spelling/matrix/index.html>

## Some Good Morpheme Lists:

- <http://drpaulasprescriptions4pd.wikispaces.com/file/view/Root+words+in+content+areas.pdf>
- <http://www.4gaslps.com/CommonRootWd4MSciSocSt.pdf> (simple lists for math, science, social studies)
- <http://www.owasso.k12.ok.us/webpages/rcollins/files/greek%20and%20latin%20root%20words.pdf>  
(biology morphemes)
- <http://academic.cuesta.edu/acasupp/as/506.HTM> (morphemes grouped in interesting ways)
- <http://www.biologycorner.com/worksheets/language.html> (science roots)
- [http://www.asdk12.org/middlelink/LA/vocabulary/forms/Greek\\_Latin\\_Roots.pdf](http://www.asdk12.org/middlelink/LA/vocabulary/forms/Greek_Latin_Roots.pdf)  
(1 simple page for each of math, science, social studies, and language arts)
- [http://sscking.files.wordpress.com/2013/01/list\\_-\\_root\\_words.pdf](http://sscking.files.wordpress.com/2013/01/list_-_root_words.pdf) (more comprehensive science morpheme list)
- <http://www.readwritethink.org/files/resources/printouts/content-area-roots.pdf> (roots cross referenced by content with words for each content)
- <http://ancienthistory.about.com/od/mathematics/a/061210EtymologyGeometryTerms.htm>  
(math terms in depth)

## Research Supporting Morphological Intervention:

- Bowers, P. N., Kirby, J. R, & Deacon, S.H. 2010. "The effects of morphological instruction on literacy skills: A systematic review of the literature." *Review of Educational Research*, 80, 144–179.
- Goodwin, A. P., & Ahn, S. 2010. "A meta-analysis of morphological interventions: effects on literacy achievement of children with literacy difficulties." *Annals of Dyslexia*, 60, 183–208.
- Goodwin, A. P. & Ahn, S. 2013. "A Meta-Analysis of Morphological Interventions in English: Effects on Literacy Outcomes for School-Age Children." *Scientific Studies of Reading*, 1–29, 2013.

# Tracking Word Origins

A two-color poster-size version of this chart is available from W.V.C. ED.  
Please do NOT copy this chart except for personal reference.

**Latin Words: 55%**

**General Trends**

usually multisyllabic words

few vowel teams besides ai: assail, retain

**Common Structures**

connectives i, u, and ul: mediate, monument, muscular, solitude

ti, si, and ci = /sh/: notation, crucial

tu = /choo/: eventual, fortunate, spatula

ture = /cher/: adventure, signature, nature

*chameleon prefixes:*  
attention, collapse, difference, illegal

ct, pt: act, tempt

soft c before e or i:  
certain, city

**Anglo-Saxon Words: 20%**

**General Trends**

usually one syllable words

numbers 1-1000: one, twenty

basic color words: brown, green

simple body parts: arm, throat

most sight words: could, do

most vowel teams: boat, house

short words with silent letters: ghost, know

**Common Structures**

ff-ll-ss words: cliff, tall, grass

ch = /ch/: chore, chin, bench

ck, tch, and dge: back, witch, edge

th in short words: than, thin, thick

k in short words: keep, kill, kind

wh: when, whisper

ng: hang, song, sting

wr: wrist, write

wild/old words: child, mind, post, told

2 syllable consonant-le words: table, fizzle, hurdle

**Greek Words: 11%**

**General Trends**

often involve science, school, or the arts

**Common Structures**

connective o: democrat, photograph

γ = i: cyclone, gym, myth, type

ph = /f/: phobia, phonics, typhoon

ch = /k/: monarch, orchid, school

k in longer words: kilometer, kinesthetic

th in longer words: athlete, thyroid

silent initial p: pneumonia, psychology

ending -ology:  
archaeology, biology

ending -ic: charismatic, chronic, music