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Morphology Matters
Building Vocabulary Through Word Parts
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Different Kinds of Vocabulary & Levels of Word Knowledge

Passive & Active Vocabulary:

A person's **active** (expressive) vocabulary is a smaller subset of her **passive** (receptive) vocabulary; in other words, she knows far more words than she uses.

Of the approximately half a million words in current use—750,000 if you take into account polysemy (multiple meanings)—a typical college-educated adult has a vocabulary of about 40,000 words, uses about 20,000 when she writes, and uses only about 10,000 of that 20,000 when she speaks.
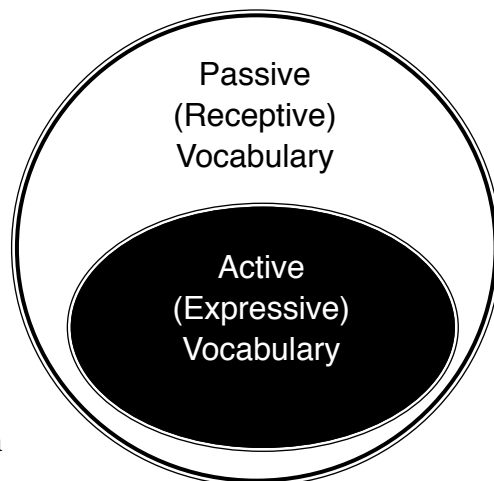
Instructors should choose vocabulary words carefully. Also, if a student needs only to *recognize* a word in text, instruction can be less intense. If a student needs to be able to *use* the word, instruction will need to include a deeper understanding and application practice.

Passive
(Receptive)
Vocabulary

Active
(Expressive)
Vocabulary

Word Knowledge:

Before teaching a word to students, show them the word and ask them to rank it on a scale of 1 to 5 by how well they know it. This activates any prior knowledge of the word.

1 — never encountered word

2 — heard word before but can't define it

3 — recognize word due to context or tone of voice

4 — able to use and understand but not explain word

5 — fluent with word - both use and definition

Vocabulary Categories:

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)

Notes:

Terminology for Morphology Study

<u>affix</u>	prefix or suffix that can be attached to the base
<u>base</u>	morpheme that holds the core meaning of a word; every word has one
free base	stands alone; often called base word (e.g., <u>port</u>, <u>kind</u>)
bound base	only appears as part of a larger word (e.g., <u>struct</u>, <u>mit</u>)
<u>base</u> <u>word</u>	free base; word even when no affixes are added (e.g., <u>kind</u>)
<u>final</u> <u>stable</u> <u>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>); *not* synonymous with the term suffix
<u>morpheme</u>	smallest component of a word that has meaning
<u>phoneme</u>	smallest unit of speech sound (e.g., /b/, /ch/)
<u>prefix</u>	affix placed before the base of a word (e.g., <u>pre</u>-, <u>ab</u>-)
<u>root</u>	word in an origin language from which English bases are derived; (sometimes, the term is used to identify bases)
<u>suffix</u>	affix placed after the base of a word

derivational (lexical): (shifts part of speech)	vowel: -able, -ance, -ate, -er (noun), -ish, -ive, -ize, -ous, -us consonant: -ly, -like, -ment, -ful, -tude, -less
inflectional (grammatical): (does not shift part of speech)	vowel: -ed, -er (comparative), -es, -est, -ing consonant: -ly, -'s, -s

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<u>assimilated</u> <u>prefix</u>	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., <u>ad</u>- changes to <u>ar</u>- before <u>range</u> to make <u>arrange</u>; <u>in</u>- changes to <u>im</u>- before <u>pact</u> to make <u>impact</u>)
<u>element</u>	(sometimes called combining form) often used to describe Greek-based bases and affixes (e.g., <u>phone</u>, <u>crat</u>, <u>phys</u>, <u>epi</u>-, <u>a</u>-)
<u>connective</u>	letter(s) in English words used to combine two morphemes; connectives function as glue and have no meaning (not morphemes)
Latin-based	connect a base to a suffix or two suffixes to each other (e.g., pal<u>i</u>mony, grad<u>i</u>ent, mon<u>u</u>ment). -<u>i</u>- and -<u>u</u>- are connectives; while -<u>ul</u>- is sometimes identified as a connective, it is actually suffix -<u>ule</u>, where the <u>e</u> has dropped before a vowel suffix
Greek-based	connective -<u>o</u>- often joins two elements (e.g., phot<u>o</u>graph, dem<u>o</u>cracy)

note: Because in linguistics the term "root" refers to the word (in another language) from which our current stem or base is derived, base is a more clear term to describe the core meaning in an English word. Often, however, in word study with students, the term "root" is used interchangeably with "stem" and "base."

Basic Word Matrix Work

word matrix

un		able
re	**teach**	er
pre		es
mis		ing

teach + er ➜ teacher

_____

_____

_____

_____

_____

Why We Don't Use =

bat + er ➜ batter

rake + ing ➜ raking

cry + ed ➜ cried

Identifying Morphemes In Basic Words

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

cook	likeness	cried
cooking	liking	understandable
overcooked	likelihood	tailspin
ship	likeliest	underactive
reship	name	hopefully
shipwreck	naming	unwholesome
shipment	nameless	booklet

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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	
orchid	biology	contraception	
distribute	consequence	elbow	
psychology	watch	philanthropist	

bonus words:
biodegradable
graphomotor
subatomic

Suffixes Both Determine & Change Part of Speech

noun	verb	adjective	adverb
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 Middle & High School Level: A Week's Lesson in E.L.A.

1. Introduce.
   a. Write the morpheme for students to see. Include appropriate dashes for affixes. (e.g., pre-, contra-, -ment, -age *but* 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 or chart.
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 morpheme.
4. Have students build a matrix for the morpheme or build word sums from an existing matrix.
5. Have students locate and underline the morpheme in 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 <u>constructed</u>.   *Student:* <u>constructed</u>
   Instructor: Change the /ed/ in <u>constructed</u> to /ing/.   *Student:* <u>constructing</u>
   Instructor: Add <u>re</u> to the beginning of <u>constructing</u>.   *Student:* <u>reconstructing</u>
   Instructor: Drop the first prefix and the /ing/ in <u>reconstructing</u>. *Student:* <u>construct</u>
   Instructor: Add /iv/ to the end of <u>construct</u>.   *Student*: <u>constructive</u>.

7. Have students read phrases/sentences that include examples of words containing morpheme.
8. Provide word, phrase, and sentence dictation that includes examples of words containing morpheme.
9. Have students write sentences with words containing morpheme.
10. Have students locate words that contain familiar prefixes and bases 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 for Middle/High School Students In the Content Areas

1. Introduce.
   a. Write the morpheme for students to see. Include appropriate dashes for affixes. (e.g., pre-, contra-, -ment, -age *but* 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 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.)
7. If you want the term in their active vocabulary, ask students to write sentences with words containing element. A sentence frame may help with this activity.

Bonus Activities:

A. Have students write a prefix or base 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 base. An example of a simple word web for the Greek element tele is at 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.
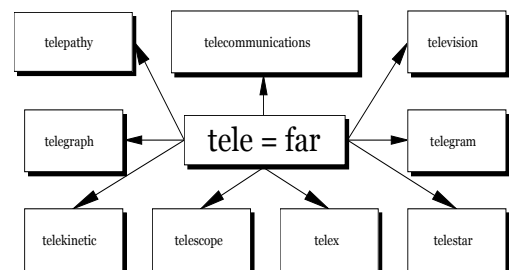
A Note on Procedure for Word Origins

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

Supplemental Activities

1. Have students write a prefix or base in the center, and map or web words that come from that morpheme. More advanced students can even link those webbed words to other prefixes and bases. An example of a simple word web for the Greek element -<u>tele</u>- is at right.
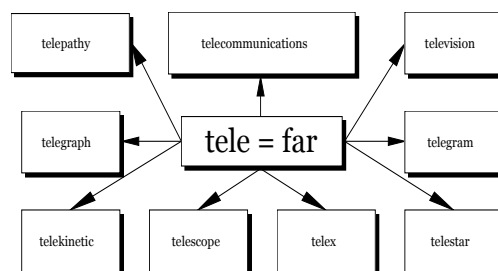
2. Have students locate words that contain familiar prefixes and bases in magazine or newspaper articles. This practice teaches students to recognize learned morphemes and proves their frequency and therefore the usefulness of studying them.

3. 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/base/suffix, advanced structures, meaning if possible) levels. This provides both review and a fascinating study!

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

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

Supplemental Activities (continued)

5. 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.

transport
carry   across
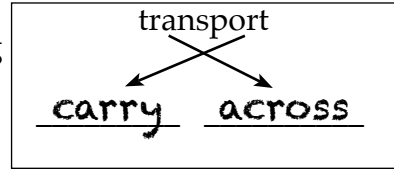
Here's a word web that incorporates criss-cross sheets, for the base <u>port</u> (from Latin).

transport

_____   _____

support

_____   _____

deport

_____   _____

report

_____   _____

port
(carry)

import

_____   _____

com**port**ment
ap**port**ion
op**port**unity
pro**port**ion
insup**port**able
tele**port**
unim**port**ant

export

_____   _____
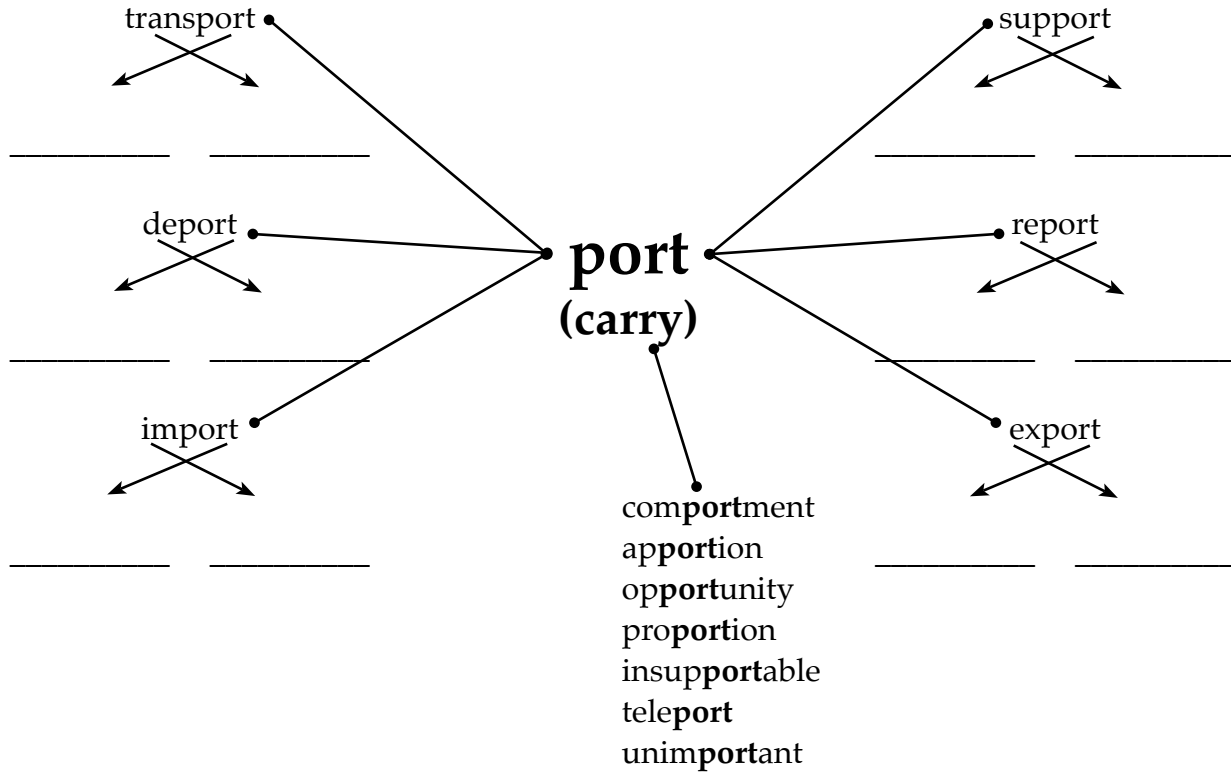
6. Latin & Greek Word Generation: Underline a recognizable morpheme, and list other words that share that morpheme.

beneficial   autograph   position

_____   _____   _____

_____   _____   _____

_____   _____   _____

_____   _____   _____

_____   _____   _____

7. Sample Activity: Sort Words by Common Morpheme

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

pede	poly	bene	pel/pulse
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

8. Sample Activity: Using Matrices for Word Building

de re	con			ible ing ion or s			*structure* _____
in	de	**struct** *"build"*					_____
				ure	al	ly	_____
in ob					ed ing s		_____

_____   _____

_____   _____

Latin template: 55% of English words
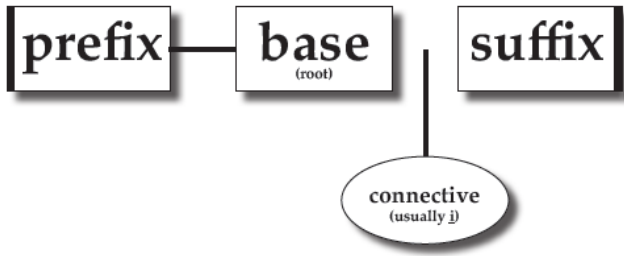
Greek template: 11% of English words

9. Sample Activity: Identifying Morphemes
Underline bases, circle connectives, and box affixes.
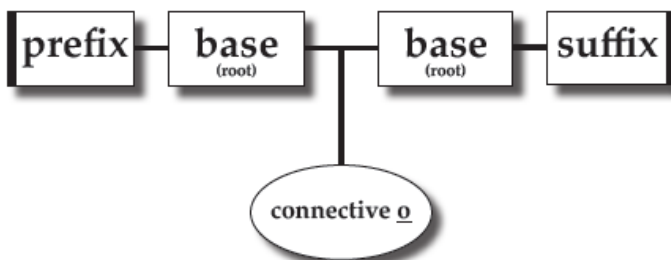
Latin structure

confide

eruption

counterproposal

regenerative

Greek structure

psychometrics

photographic

synchronize

sympathetic

10. Sample Activity: Sister Words for Shared Meaning

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

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 <u>base</u>.   2. Box any ☐affixes☐.   3. Circle any ⬭connectives⬭.

	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

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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/gene - 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

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morpheme	meaning	sample word
Anglo-Saxon Prefixes		
a-	on, in	across
for-	away, against	forbid
fore-	before, ahead	forehead
mis-	wrong(ly)	mistake
out-	beyond	outlaw
un-	not	unhappy
under-	below	underrate
Anglo-Saxon Suffixes		
-ed	past tense	jumped
-ly	adverb	likely
-ful	quantity noun	spoonful
	adjective	doubtful
-ful + -ly	adverb	hopefully
-less	adjective	worthless
-ness	noun	darkness
-ing	verb	digging
-er	comparative adj.	greater
-est	superlative adj.	greatest
-ish	adjective	brownish
	verb	furnish
-hood	noun	adulthood

morpheme	meaning	sample word
Latin Prefixes		
ab-, abs-	away from	absent
circum-	around	circumference
contra-counter-		
	against	contradict
de-	down from, concerning	descend
extra-	beyond	extraordinary
inter-	among, between	interrupt
multi-	many	multimillionaire
per-	through	perforate
	completely	perfect
post-	after	postpone
pre-	before	preview
pro-	for, forth	proceed
re-	again	recopy
	back	reject
se-	apart from	separate
super-	over	supervise
trans-	across	transport

Assimilated Latin Prefixes

Often, instructors teach the core prefix (e.g., ex-) early on, returning later to add its assimilations when students are ready.

morpheme	meaning	sample word
ex- (e-, ef-)	out of	exit
dis- (di-, dif-)	apart	distant
	not	dissatisfied
ad- (ac-, af-, ag-, al-, an-, ap-, ar-, as-, at-)		
	to, toward, at	advance
ob- (oc-, of-, op-)	object	against
sub- (suc-, suf-, sup-)		
	under	submarine
con- (com-, col-, cor-)		
	with, together	construct
in- (im-, il-, ir-)	in	invade
	not	insane

morpheme	meaning	sample word	morpheme	meaning	sample word
Latin Bases			pone, pose, pound press	put, place press	position press
			quest, quire, quise	ask, seek	question
transparent			sede, side, sess	sit	residence
			sense, sent	sense, feel	sensitive
aud	hear	audio	sist, stance, stant, state, stite	stable	stand
dice, dict	say	dictate			
ject	throw	eject	spire	breathe	inspire
mise, miss, mit	send	mission	struct	build	structure
mobe, mote, move	move	move	tain, tene, tine	hold	container
pel, pulse	push	expel	tend, tense, tent	stretch, strain	tension
port	carry	portable			
rupt	break	interrupt	vail, vale	be strong, power	value
scribe, script	write	script			
spece, spect, spice	see	spectacles	vene, vent	come	convention
tract	drag, pull	tractor	verse, vert	turn	invert
vide, vise	see	video	vite, vive	live	survive
			voce, voke	call	vocal
main list					
cape, capt, ceive, cept, cipe					
	take	capture			
cede, cess	go, yield	recede			
cide, cise	cut, kill	scissors			
claim, clame	call out	exclaim			
clause, close, clude, cluse	close, shut	closet			
crede	believe	credit			
course, cur, curse	run	current			
duce, duct	lead	educate			
face, fact, fect, fice	make	factory			
feder, fide	trust	federal			
fer	carry	refer			
fine	end, limit	finish			
flect, flex	bend	flexible			
form	form	form			
gene, gener	birth, origin	gene			
grade, gress	walk, step, move	progress			
lect, lege, lige	choose, speak, read	elect			
pede	foot	pedal			
pend, pense	hang, weigh	pendulum			
plice, ply	fold	reply			

There are a number of Greek morphemes worth learning though Greek bases and affixes typically appear in more specialized vocabulary.

Of the many Greek morphemes, graph, gram, which means write, is particularly common and worth teaching first. Others can be found in the *Everything* text.

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 (a+tom)	indivisible	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

morpheme	meaning	sample word	morpheme	meaning	sample word
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	trop	turn	troposphere
phag	eat	phagocyte	troph	nourishment	autotrophic
phasia	speech	aphasia	ultra	beyond	ultraviolet
phen	appearance	phenotype	vac	empty	vacuole
phono	sound	phonon	vas	vessel	vascular
phor	carry	chromatophore	vect	carry	convection
photo	light	photosynthesis	ventri	belly	ventral
phyll	leaf	chlorophyll	vermin	worm	vermin
phylo	kind	phylum	vert	turn	vertebra
physi	nature	physics	viv/vita	life	vitamin
phyte	plant	saprophyte	volcan/	fire	volcano
plasm	form	cytoplasm	vulcan		
plasto	molded	plastid	volv	roll	revolution
platy	flat	platypus	vore	eat	herbivore
pneumo	lung	pneumonia	xylo	wood	xylem
prim	first	primate	zo(o)	animal	zoology
proto	first	protoplasm	zygo	yoke	zygote
pseudo	false	pseudopod	zym	ferment	enzyme

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

21

Some Sample Matrices

bi "life"

ops, y, act, ive, i, ty, ic, al, graph, y, hazard, mass, sphere, logy, ic, al, lumen, escence, escent, tox, in, de, grade, able, di, verse, ity, en, gine, eer, tic, o, ome, osis, auto, a, anti, sym, astr, macr, micr, neur, o

ge "earth"

centr, ic, ic, al, graph, metr, y, logy, phys, polit, ic, al, mance, er, y, morph, o, logy, therm, al, ode, o, bi, o

chem "alchemy" "transmutation"

s, ic, al, ist, ry, o, therapy, y, agri, al, bi, o

Some Sample Matrices

duct — lead

ab / de / re / se
non / super / con
re / intro
co / post / re / un / under
duct
ed / ile / ing / ion / or / s
ive / ly / ness

duce — lead

con / de / re / se
mis / re / un + e
re / in / intro
co / over / re + pro
duce
ate + ed / ion / al / ly
er / ible / ment
ive / ness

phys — "natural science"

astro
meta
ge + o
phys
ic + al / ist / s
io + logy
ique

poly — "many"

gam — ist + s / y
gon — al
graph — s
nom — ial + s
pept — ide + s
phag — ia
the — ism / ist + ic
ureth* — ane
ploid
un + **satur** + ate + ed

calc — "stone"

mis / pre / re
calc
ule
able / us
ate + ed / ion / or / s
ing / ly

onym — "name"

acr / an / ep / hom / pseud / syn
onym — "name"
ous

All of these matrices were created with Mini Matrix-Maker,
at www.neilramsden.co.uk/spelling/matrix.

act — do, perform

Prefixes (left):

- play

- counter
- de
- hyper
- in
- inter
- over
- retro
- trans
- under

- co / re — en
- in — ex
- **bi** — o

- counter / hyper / non / over — re
- **bi** — o

Base:

act — *do, perform*

Suffixes (right):

- ability
- able
- ant
- ed
- ing
- s

- i — tude
- ion — able / al / s

- ive
  - ate — ed / ing / ion / s
  - ity / ly / ness

- or
  - ess — es
  - s

- u
  - al — ity — es
  - al — ly
  - ary / ate

Useful Morphology Resources

Books:

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. (several series for middle and high school)

Barr, Cooper, Follis, Lindsay, Parsons. *Prefixes, Roots, Suffixes*. (3 reference texts.) wvced.com.

Bowers, Peter. *Teaching How the Written Word Works*. wvced.com. (matrices)

Donah, Sandra. *Improving Morphemic Awareness Using Latin Roots & Greek Combining Forms*. wvced.com. (morphological awareness-advanced)

Donah, Sandra. *Improving Morphemic Awareness Using Base Words & Affixes*. wvced.com. (morphological awareness-basic)

Gold, Diane Hickey, Elaine Russo, Linda Wallace, Judy Shapiro. *PS: Prefixes, Suffixes, Roots (A Resource of Lists, Phrases, Sentences, Poems, and Stories)*. wvced.com. (sequenced lessons, including words, phrases, sentences, and passages-basic level)

Gold, Diana Hickey, Elaine Russo, Linda Wallace, Judy Shapiro. *PPS: Advanced Prefixes, Suffixes, Roots, and Connectives (Resource of Lists, Phrases, Sentences, Stories & Activities)*. wvced.com. (sequenced lessons, including words, phrases, sentences, and passages-advanced level)

Kleiber, Margaret. *Specific Language Training: An Orton-Gillingham Curriculum for Adolescents*. wvced.com. (adolescent Orton-Gillingham curriculum)

Morgan, Kenneth B. *Dynamic Roots - Language Training Program.* wvced.com. (sequenced lessons, including words and sentences, thorough teacher's manual, and practice pages for each root)

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. (reference guide with teaching concepts and word lists covering morphological concepts--in addition to basic O.G.)

Van Cleave, William & Caroline Dover. *Phrases & Sentences for Reading & Spelling*. wvced.com. (words from *Everything* text organized by concept and used in phrases and sentences)

Other Resources:

Morphology Deck (wvced.com)
Phonics Dice Deluxe & Phonics Dice Booster Kit (wvced.com)
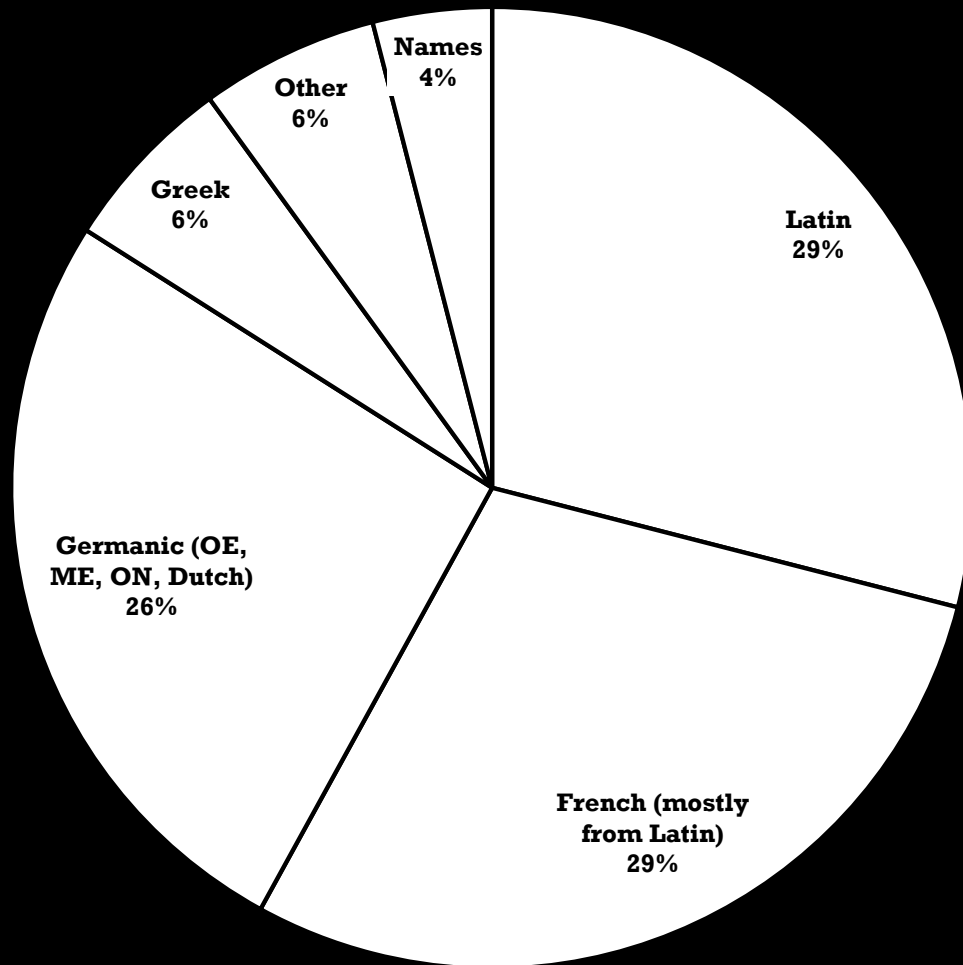Various games and activities (wvced.com)

Vocabulary & Morphology Websites:

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

Selected 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.

ORIGINS OF ENGLISH

Names 4%

Other 6%

Greek 6%

Latin 29%

Germanic (OE, ME, ON, Dutch) 26%

French (mostly from Latin) 29%

Important Notes:
- The % of Greek-based words in English hovers between 6-11% overall, but counting only science terminology moves that number up to 70%.
- 90% of new words to English are of Greek and/or Latin origin.

Word Origins Resources

Carreker, Suzanne. *Word Detective: Discovering The History of The English Language*. neuhaus.org. (word origins for younger students)

Durkin, Philip. *Borrowed Words: A History of Loanwords in English.* Oxford University Press, 2014.

Harper, Douglas. etymonline.com. (best online resource for etymological study)

Kemmer, Suzanne. Words In English (website). ruf.rice.edu/~kemmer/Words04. (website on history of English)

King, Diana Hanbury. *English Isn't Crazy! The Elements Of Our Language And How To Teach Them*. proedinc.com. (straightforward history of English)

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.

Tracking Word Origins

Latin Origins: 55%

General Trends

prefix — base — suffix — connective (usually i)
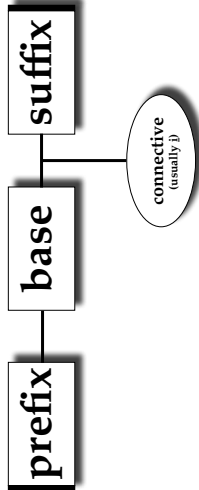
usually multisyllabic words

few vowel teams besides ai: assail, retain

typically academic, Tier 2 words

Common Structures

connectives i and u: binomial, solitude, conspicuous

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

tu = /choo/: eventual, fortunate, spatula

ture = /cher/: adventure, signature, nature

chameleon prefixes: attention, collapse

ct, pt: act, tempt

soft c before e or i: certain, city

Anglo-Saxon Origins: 20%

General Trends

usually monosyllabic words

numbers 1-1000: one, twenty, hundred

basic color words: brown, green, red

simple body parts: arm, throat, thigh

short non-phonetic words: could, do

most vowel teams: boat, house, feel

short words with silent letters: ghost, know

typically everyday, Tier 1 words

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: bubble, fizzle, trickle

Greek Origins: 11%

General Trends

prefix — base — base — suffix — connective o
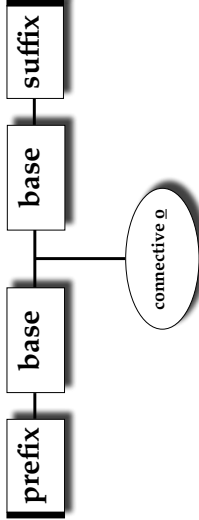
often involve science, school, or the arts

typically domain-specific, Tier 3 words

Common Structures

connective o: democrat, photograph

y = i: cyclone, gym, myth, type

ph = /f/: phobia, phonics, typhoon

ch = /k/: monarch, orchid, school

silent initial p: pneumonia, psychology

k in longer words: kilometer, kinesthetic

th in longer words: athlete, thyroid

-logy: archaeology, biology, technology

suffix -ic: charismatic, chronic, music