

# High-Frequency Morphemes in Science

The following tables list high-frequency morphemes (i.e., prefixes, suffixes, and Latin and Greek roots) for the science subject area, followed by a brief definition and two example words that include the morpheme. Teachers can use this list to identify high-utility morphemes to explicitly teach during science lessons. These lists are based on research conducted by Lane et al. (2019) on high-utility morphemes in academic words.

Note: The most common form of the morpheme is listed in the first column, although there may be other forms (e.g., the morpheme “cap” has the variants “cep” and “cip,” among others).

To learn more about explicit morphology instruction and strategies for teaching morphemes, see the Iowa Reading Research Center’s *Effective Morphology Instruction for Secondary Students Across Content Areas* eLearning module.

## References

Lane, H. B., Gutlohn, L., & van Dijk, W. (2019). Morpheme frequency in academic words: Identifying high-utility morphemes for instruction. *Literacy Research and Instruction*, 58(3), 184–209.  
<https://doi.org/10.1080/19388071.2019.1617375>

# Prefixes

Prefix	Meaning	Example
con	with, joint	conjecture, constraint
re	back, again	reflect, reactant
in	1) in, on, toward; 2) not	induction, infer
de	away from, down	debris, dependence
ad	toward, in, near	adult, advantage
dis	not, apart, absence of	distillation, disease
e	lacking, out	erupt, emission
ex	out	excretion, expansion
trans	beyond, across	transfusion, transform
pro	forward, prior to	prophase, projectile
sub	under, below, secondary	sublimation, submersible
inter	between	interactive, interstellar
pre	before, earlier	preserve, prehistoric
a	on/in, to, not, without	atomic, atoll
en	to make something X	endanger, encoding
non	not	nonliving, nonmetal
ob	down, facing, against, to	observation, observatory
per	through, completely	percolation, permeable
se	apart, without	selection, separation
super	over, above, extreme	supernova, superconductor
uni	one	unicellular, universe

## Suffixes

Suffix	Meaning	Example
ic	of, pertaining to, like - adjective	volcanic, acoustic
al	relating to, characterized by - noun, adjective	crystal, chemical
ation	act of, state of - noun	fermentation, neutralization
ion	act of, state of - noun	ingestion, transfusion
ate	cause, make - verb, adjective	insulate, pulsate
ity	state of, quality - noun	intensity, radioactivity
ive	causing, making - adjective	alternative, interactive
able	able, can do - adjective	malleable, visible
logy	study or science of - noun	zoology, embryology
ment	result of, act of - noun	sediment, filament
ar	of or pertaining to - adjective	nuclear, lunar
ent	action or state - noun	nutrient, solvent
or	one who, that which - noun	predator, conductor
ize	to make more like X - verb	oxidize, polarize
ous	full of, having - adjective	spontaneous, nervous
er	one who, that which - noun	astronomer, outer
ism	characteristic, manner, condition - noun	metabolism, parasitism
ure	state of, process, office, function - noun	moisture, texture
ence	action, state, quality - noun	interference, dependence
ary	relating to, place where - noun, adjective	pituitary, planetary

## Latin Roots

Latin Root	Meaning	Example
gen	race, kind, birth	regeneration, carcinogen
duc	to lead	produce, conductor
fac	to do, to make	modification, factor
electr	electric	electrode, electronic
fer	to carry, to yield	fertilize, interference
pos	to put, to place, to set, to pose	disposal, decompose
act	to do, to act	interact, radioactive
form	shape	transform, formulate
vert	to turn	reversible, vertebrate
sta	to stand, to set	static, substance
org	tool, instrument	inorganic, organelle
solv	to loosen, to slacken, to solve	solvent, dissolve
struct	to build	destructive, structural
mol	mass, pile	molar, molecule
plic	to fold	replicable, complicated
serv	to serve, to keep	preserve, observe
spec	view, sight, kind	spectrum, species
vid	to see, to separate	individual, evidence
cap	to take, to seize, to hold, to receive, to contain	capillary, capacity
celer	swift, frequent	decelerate, acceleration
equ	equal	equator, equinox
mut	to change	mutation, mutual
nuc	nut	nuclear, nucleus
pend	to hang, to weigh	dependence, pendulum
press	to press, to pursue	depressant, pressure
radi	ray of light, shine	radioactivity, radiant
valu	give value	evaluation, value

## Greek Roots

Greek Root	Meaning	Example
metr	measure	photometer, symmetry
bio	life	biology, biome
sphere	circle	lithosphere, atmosphere
syn	together	synthesis, synapse
therm	heat	thermal, thermostat
hydro	water	carbohydrate, hydroelectric
ana	back	anatomy, analogous
photo	light	photon, photosynthesis
endo	internal, within	endoderm, endocrine
graph	to write, to draw	thermograph, holograph
chem	art of alloying metals	chemist, geochemical
geo	earth	geoscience, geophysics
magn	great, large	magnetic, electromagnet
micro	small, minute	microbiology, microwave
scope	to look at, to examine	microscope, telescope
astr	star	astronaut, asteroid
para	beside, position	parasite, paradigm
oid	like, having the form of	thyroid, asteroid
hypo	under	hypothesis, hypothalamus
phas	show, appearance	anaphase, prophase
iso	equal	isotope, isobar
phys	nature	physics, physiological
proto	first, chief	prototype, proton
plasm	something created	cytoplasm, plasmolysis