

Biological Terminology (Bio Terms): Latin & Greek Word Parts (Prefixes, Root Words, and Suffixes)

Biology students are faced with the challenge of learning a large number of new terms predominately based on the Latin and Greek languages. Therefore, students should learn to recognize word parts since they often give clues as to the meaning of a word. Research suggests that students knowledgeable of these terms score significantly higher on standardized tests (EOC, ACT, & PSAT). All students will be quizzed on the following terms throughout the school year.

Word Part	Meaning	Example	Meaning of Example
a-, an-, non-,	Without, Not	Aphotic, Anaerobic, Nonrenewable	<i>Without</i> light, <i>Without</i> air or oxygen, <i>Not</i> able to replenish naturally
ab-, ef-	Away	Aboral, Efferent neuron	Away from the mouth, nerve cells going <i>away</i> from brain
ad-, af-	Toward	Adductor muscle, Afferent neuron	Muscle movement <i>toward</i> the body, nerve cells going <i>toward</i> the brain
adi-, lip-	Fat	Adipose, Liposuction	<i>Fat</i> tissue, Removing <i>fat</i> tissue
amphi-	Both sides	Amphibian	<i>Both sides</i> of land and water
ana-	Up	Anabolic	Build <i>up</i> of larger molecules from smaller molecules
angio-	Vessel, Container	Angiosperm, Angiogram	<i>Container</i> for seed, Picture of a blood <i>vessel</i>
anti-, contra-	Opposite, Against	Anticodon, Contraception	<i>Opposite</i> of codon, <i>Against</i> conception
aqua-, hydr-	Water	Aquatic, Hydration	Of <i>water</i> , With <i>water</i>
arthro-	Joint	Arthropod, Arthritis	<i>Jointed</i> foot, <i>Joint</i> inflammation
-ase	Enzyme	Amylase, Lipase	<i>Enzyme</i> that breaks down carbohydrates, <i>Enzyme</i> that breaks down lipids
bi-, di-, diplo-	Two	Bipedal, Diploid, Diplococcus	<i>Two</i> feet, <i>Two</i> sets of chromosomes, <i>Two</i> round bacteria
bio-, vita-	Life	Biosphere, Vitamin	Where <i>life</i> exists on earth, Organic molecules necessary for <i>life</i>
blast-	Germinate, Sprout, Bud	Blastula	Single layer of cells surrounding a cavity formed by cleavage of the fertilized egg
centi-	100	Centigrams	<i>100</i> grams
chel-	Claw	Cheleped, Chelicerata	<i>Clawed foot</i> (<i>lobster's big claw</i>), Classification of spiders with small <i>claws</i>
ceph-	Head	Cephalization	Concentration of sense organs at the front of an animal's body, its <i>head</i>
cerv-	Neck	Cervical vertebrae	Bones of the <i>neck</i>
chloro-	Green	Chlorophyl	<i>Green</i> leaf
chrom-	Color	Chromosome	<i>Colored</i> body
-cide	Kill	Herbicide, Insecticide	Plant <i>killer</i> , Insect <i>killer</i>
co-, com-, con-	Together, Both, With	Codominance, Community, Conjugation	<i>Both</i> alleles (trait type – size, color) are dominant, Organisms living <i>together</i>
coel (seel)	Space, Cavity, Hollow	Eucoelomate	Having a true body <i>cavity or hollow space</i> (within the mesoderm germ layer)
corp, som	Body	Corpse, Somatic cell	Dead <i>body</i> , <i>Body</i> cell (any cell that is not an egg or sperm)
-cyst	Capsule, Sac, Pouch	Nematocyst	A capsule within specialized cells of certain coelenterates (jellyfish) containing a barbed, threadlike tube that delivers a paralyzing <i>sting</i>
-cyte	Cell	Erythrocyte, Osteocyte	Red blood <i>cell</i> , Bone <i>cell</i>
deca-, deci-	10	Decameter, Deciliter	<i>10</i> meters, <i>10</i> liters
decid-	Cut Off	Deciduous	Deciduous trees lose their leaves in the fall
dendro-, arbor-	Tree	Dendrochronology, Arboretum	Counting <i>tree</i> rings to determine its age, Place where many different <i>trees</i> grow
dent, dont	Tooth or Teeth	Dental plaque, Orthodontist	<i>Teeth</i> with patches of bacterial growth, Dr. who straightens <i>teeth</i>
derm	Skin	Epidermis, Ectoderm	Top <i>skin</i> layer, Outer layer of tissue/skin during embryo development
deutero-	Second	Deuterostome	Mouth develops second (the anus develops first)
dia-, dif-, diss-	Through, Apart, Across	Diarrhea, Dissect, Diffusion	Flow <i>through</i> , Cut <i>apart</i> , <i>Across</i> (cell membrane)
dors-, noto-	The Back	Dorsal fin, Notochord	Fin on the <i>back</i> of a fish, A embryonic structure that will become vertebrae

echin-	Spiny	Echinoderm, Echidna	Spiny skin (sea star), (spiny anteater)
eco-	Where one lives, Home	Ecology	Study of <i>where organisms live</i>
ecto-, exo-	Out, Outside	Ectoderm, Exoskeleton	<i>Outer</i> layer of tissue during embryo development, Skeleton on <i>outside</i> of body
-emia	Blood Condition	Hyperglycemia, Sickle cell anemia	High blood sugar levels, Sickle shaped red blood cells (should be circular)
entomo-, insect	Insect	Entomologist, Insectivore	<i>Insect</i> studier, <i>Insect</i> eater
epi-	Upon, Over, Atop	Epidermis, Epicardium, Epiphytes	<i>Upon</i> the dermis (skin), <i>Over</i> the heart, <i>Atop</i> a plant
Equ-, iso-	Equal, Same	Isotonic, Equilibrium	Solute levels are <i>equal</i> on both sides of a membrane (inside & outside the cell)
erthr-	Red	Erythrocyte	<i>Red</i> blood cell
eu-	True	Eukaryote, Eucoelomate	<i>True</i> nucleus (protective membrane around DNA), <i>True</i> body cavity
ex-, extra-, exo-	Out, Outside, Beyond	Extinct, Extracellular, Extrapolation	Died <i>out</i> , <i>Outside</i> the cell, <i>Beyond</i> known values (on a graph)
gastr-	Stomach	Gastrointestinal (GI)	<i>Stomach</i> and intestines
geo	Earth	Geotropim	A plant's response to the <i>earth's</i> gravity
hapl-, mono-, uni-	One	Haploid, Monosaccharide, Unicellular	<i>One</i> set of chromosomes, <i>One</i> unit of sugar (glucose), <i>one</i> celled organism
herb-, -phyte	Plant	Herbivore, Epiphyte	<i>Plant</i> eater, <i>Atop</i> a <i>plant</i>
homo (greek)	Same	Homozygous	Same alleles (form of a gene);
hyper-	More, Excessive	Hypertonic, Hypertension	<i>More</i> solute (something dissolved in water), <i>Excessive</i> blood pressure
hypo-, sub-	Less, Below	Hypotonic, Hypotension, Subatomic	<i>Less</i> solute, <i>Below</i> normal blood pressure, <i>Below</i> atoms (protons, neutrons, electrons)
lingu	Tongue	Sublingual	Under the <i>tongue</i>
gnath (nath)	Jaw	Agnathan	A fish without a <i>jaw</i>
gram, -graph	Written or Picture	Electrocardiogram, Sonography	<i>Print out</i> of the heart's electrical activity, Taking <i>pictures</i> using sound waves
helix	Spiral, Coil	Double helix	Two strands in a <i>spiraled</i> shape
hem-	Blood	Hemorrhage	<i>Bleed</i> heavily
hepato-	Liver	Hepatitis	Inflammation of the <i>liver</i>
herp-	Reptile	Herpetologist	Study of <i>reptiles</i> (lizards, croc's, turtles, and snakes)
hetero-	Different, Other	Heterozygous, Heterotroph	Offspring gets <i>different</i> forms of same trait (Tt), <i>Other</i> feeder (ex. herbivore)
inter-	Between	Intercellular	<i>Between</i> cells
intra-, endo-	Inside	Intracellular, Endoderm	<i>Inside</i> a cell, <i>Inside</i> layer of a developing embryo
-itis	Inflammation of	Dermatitis, Laryngitis	<i>Inflammation</i> of the skin, <i>Inflammation</i> of the larynx (voicebox)
karyo, caryo	Cell Nucleus	Prokaryote, Procaryotic	Cells without a nucleus
kilo-, mill-	1000	Kilogram, Milliliter	<i>1000</i> grams, <i>1000th</i> of a liter
leuco-, leuko-	White	Leucocyte	<i>White</i> blood cell
loc	Place	Locus	<i>Place</i> on a chromosome where a specific gene is found
logy	Study or Science of	Mycology, Virology	<i>Study</i> of Fungi, <i>Study</i> of Viruses
lys-	To Loosen	Lyses, Cytolysis	Process of <i>loosening</i> up or digesting a cell membrane causing cell death
macro-, mega-	Large	Macromolecule, Megafauna	<i>Large</i> molecules (lipids, carbohydrates, proteins, nucleic acids), <i>Big</i> animals
Mal, dis, dys	Bad or Ill	Malnutrition, Disease, Dystrophy	The tumor was malignant.
mar-	Sea	Marine Biology	Study of life in the <i>Sea</i> or Ocean
medi-, meso-	Middle	Medial, Mesoderm	<i>Middle</i> , <i>Middle</i> layer of tissue during embryo development
meta-	Change	Metamorphosis, Metastasis	<i>Change</i> in shape or location; Cancer cells that change location (spread),
meter	Measurement	Spirometer,	<i>Measures</i> inhalation & exhalation, <i>Measures</i> blood pressure

		Sphygmomanometer	
micro-	Small	Microsporangia, Microbiology	Small spore carriers (male), Study of microbes (bacteria, viruses, etc.)
morph	Shape, Form	Mesomorph, Metamorphosis	Middle <i>form</i> , Change in <i>shape</i> (tadpole to frog)
multi, myria, poly-	Many	Multicellular, Myriapod, Polysaccharide	Organism made of <i>many</i> cells, Organism w/ <i>many</i> feet, <i>Many</i> monosaccharides
muta-	Change	Mutation	<i>Change</i> in the # or sequence of DNA
myo-	Muscle	Myofibril, Fibromyalgia	<i>Muscle</i> cell, <i>Muscle</i> pain
nasal, rhin,	Nose	Nasal septum, Rhinoplasty, Proboscis	Wall dividing <i>nasal</i> cavity, Surgery of reshaping the <i>nose</i> , Elephant's <i>trunk</i>
neo-	New	Neonatal	<i>Newborn</i>
nephr-, renal	Kidney	Nephron, Renal vein	Part of the <i>kidney</i> that filters/cleans blood, Vessel taking blood to the <i>kidney</i>
nom-	Name	Binomial nomenclature	Two- <i>name</i> naming system (Homo sapien = Humans)
oct-	8	Octopus	8 feet
oma	Tumor, Swelling	Carcinoma, Lymphoma	Cancer-causing <i>tumor</i> , <i>Tumor</i> of the lymphatic system
omni-, toti-	All	Omnivore, Totipotent	Eats <i>all</i> – plants & animals, <i>All</i> important cell (zygote) – becomes <i>all</i> cells
oo-, ov-	Egg	Oogonia, Oviduct, Oviparous	<i>Egg</i> stem cells, <i>Egg</i> carrying tube, <i>Eggs</i> that are hatched outside the mother
orth-	Straight	Orthoptera, Orthodontist	<i>Straight</i> -winged insect order (grasshoppers), Dr. who <i>straightens</i> teeth
ose, gly, sacchar	Sugar	Glucose	A simple <i>sugar</i> or monosaccharide made by photosynthesis in autotrophs
-osis	Act, Condition	Acidosis	Too much acid in body fluids
oste-	Bone	Osteoarthritis, Osteocyte	Inflammation where <i>bones</i> meet (joint), <i>Bone</i> cell
paleo-, archeo-	Old, Ancient	Paleontology, Archeology	Study of fossils and the history of earth, Study of <i>ancient</i> civilizations
para-	Beside	Parallel, Parapodia	<i>Side</i> by <i>Side</i> , Feet to the <i>side</i>
patho-	Disease	Pathogens	<i>Disease</i> -causing organisms (some bacteria, some viruses, etc.)
ped, pod	Feet, Foot	Centipede, Tetrapod	100 <i>feet</i> , 4 <i>feet</i>
pent-	5	Pentradial, Pentose	5 spokes or rays (sea star has 5 rays/arms); 5 carbon sugar
peri-	Around	Pericardium	<i>Around</i> the heart
phago, troph, vore	To Feed or Eat	Phagocyte, Autotroph, Carnivore	<i>Eating</i> cell (white blood cells), Self- <i>Feeders</i> (photosynthesizers), Meat <i>eater</i>
phore	Carry, To Bear	Chromatophore	Color or pigment <i>carrying</i> cell
photo-, lumin	Light	Photosynthesis, Bioluminescence	Using <i>light</i> to make glucose, Organisms that can create <i>light</i>
phyte, phyto	Plant	Epiphyte	A <i>plant</i> that grows atop of another <i>plant</i>
pinn-, plum-, -pter	Wing, Feather, Fin	Pinnepedia, Plumage, Hymenoptera	Using <i>fins</i> for feet (seals), <i>Feather</i> shape & patterns, Straight membraned <i>wings</i>
pino-	Drink	Pinocytosis	Process of a cell engulfing/ <i>drinking</i> liquids or dissolved substances
platy-	Flat	Platyhelminthes, Platypus	<i>Flat</i> worm, <i>Flat</i> foot
ploid	Chromosome	Haploid, Diploid	One set of <i>chromosomes</i> , Two sets of <i>chromosomes</i>
pneumo-, pulmo-	Lungs	Pneumonia, Pulmonary artery	Infection of the <i>lungs</i> , Vessel taking blood from the heart to the <i>lungs</i>
post-	After	Post mortem	<i>After</i> death
pre-, pro	Before, Forward	Prenatal	<i>Before</i> birth
prim-, prot-	First	Primary consumer, Protozoa	<i>1st</i> organisms to eat producers (herbivores), <i>1st</i> animal
pseudo-	False	Pseudocoelomate, Pseudopodium	<i>False</i> body cavity (between ecto- & endoderm), <i>False</i> foot (found in amoeba's)
quat-, quad,	4	Quarternary, Quadiceps,	<i>4th</i> , 4 heads, 4 feet

tetra-		Tetrapod	
re-	Again	Reproduce	Produce <i>again</i>
rhea, rrhea	Flow or Discharge	Diarrhea	Frequent passage of loose, watery, soft stools
sal	Salt	Saline	Full of salt or salt containing
sapr-	Rotten	Saprotroph	Feeds on <i>Rotting</i> organic matter/dead organisms (also called decomposers)
schizo-	Split	Schizocoely, Schizophrenia	Cavity formed at the <i>split</i> of the endo- & ectoderm (protostomes), <i>Split</i> mind
scope	View, See	Microscopic, Macroscopic	To <i>see or view</i> something small, To <i>see or view</i> something w/o using a scope
sect, -tom	Cut	Bisect, Anatomy	<i>Cut</i> in two, To <i>cut</i> up
semi-, hemi-	One-Half	Semipermeable, Hemisphere	Allows some (1/2), but not all things through, <i>One-half</i> a sphere (ball-shape)
sperm	Seed	Spermicide, Spermatid	<i>Sperm</i> killer, A small or immature <i>sperm</i>
spir	Breathe	Inspire, Spiracle	To <i>breathe</i> in, Hole found on insects for air to enter and leave (<i>breathing</i>)
stas, stat	Unchanging	Homeostasis	<i>Unchanging</i> chemical conditions in healthy organisms
stom-, ora	Mouth	Stomata, Oral cavity	Hole or <i>mouth</i> in leaves allowing gas exchange (O ₂ & CO ₂), <i>Mouth</i> space
sym-, syn-, sys	With, Together	Symbiosis, Synthesize, System	Organisms living <i>with</i> each other, Put <i>together</i> , Working <i>together</i>
tax-	Arrange	Taxonomy	A system used to <i>arrange</i> or classify a large number of organisms
telo-	End	Telophase, Telomeres	<i>End</i> of mitosis, <i>End</i> or tip of chromosomes
terr	Land	Terrestrial ecosystem	All living and nonliving things in a designated area on <i>land</i>
tert-, tri-	3	Tertiary, Trisomy	<i>3rd</i> , 3 bodies (chromosomes)
therm	Heat	Thermophile, Thermometer	Bacteria that live in <i>hot</i> areas, <i>Heat</i> measuring instrument
toxic	Poison	Neurotoxin, Hemotoxin	<i>Poison</i> to the nervous system, <i>Poison</i> in the blood
trans-, per-	Across, Through	Transport, Transdermal, Permeable	<i>Across</i> a cell membrane, <i>Through</i> the skin, Through a cell membrane
trop, volv	Turn, Change	Phototropism, Evolution	Plant's response of <i>turning</i> toward light, How organisms <i>change</i> over time
ventr-	Belly	Ventral	Belly portion of an organism (portion of a worm that touches the ground)
vore	Devour	Carnivore	Carnivores devour meat or flesh
zo	Animal	Zoology	Study of <i>animals</i>
zyg	Yoke (egg + sperm)	Zygote, Homozygous	Union of <i>egg & sperm</i> , Zygote receives the same genes from both <i>egg & sperm</i>

The best way to study the bio terms is to read (silently & out loud) through your cards both term-first and definition-first so that can you get used to remembering both ways. Go through the entire stack MULTIPLE times day and night. During concentrated study times, go through the cards a first time and place all of the cards answered wrong in a separate pile. Go through the pile of wrongly answered cards, and again place all the cards answered incorrectly in a separate pile. Keep going through the "wrong" pile until there aren't any cards left that you can't answer. Repeat this process from the beginning until you are able to go through the entire stack of bio terms without missing any. Give the terms to another person and have them quiz you. If you are able to answer 95% of them right – then CELEBRATE and sleep on it. Review the stack at least 3x's a week to integrate the terms into long term memory.