**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**, s**tudents should learn to recognize word parts since they often give clues as to the meaning of a word.

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| **Word Part**  | Meaning | Example | *Meaning of Example* |
| **a-, an-, non-, un-** | Without, Not | Aphotic, Anaerobic, Nonrenewable | *Without* light, *Without* air or oxygen, *Not* able to replenish naturally |
| **ab-, ef-** | Away | Aboral, Efferent neuron | Away from the mouth, nerve cells going *away* from brain |
| **ad-, af-** | Toward | Adductor muscle, Afferent neuron | Muscle movement *toward* the body, nerve cells going *toward* the brain |
| **adi-, lip-** | Fat | Adipose, Liposuction | *Fat* tissue, Removing *fat* tissue |
| **aero-** | Air, Oxygen | Anaerobic | Without *oxygen* |
| **amphi-** | Both sides | Amphibian | *Both sides* of land and water |
| **ana-** | Up | Anabolic | Build *up* of larger molecules from smaller molecules |
| **angio-** | Vessel, Container | Angiosperm, Angiogram | *Container* for seed, Picture of a blood *vessel* |
| **andro, anthro, homo (latin)** | Man, Human | Androgen, Anthropoid, Homo sapien | *Male hormone, Man*-like, *Man* who is wise |
| **anti-, contra-** | Opposite, Against | Anticodon, Contraception | *Opposite* of codon, *Against* conception |
| **aqua-, hydr-** | Water | Aquatic, Hydration | Of *water*, With *water* |
| **arthro-** | Joint | Arthropod, Arthritis | *Jointed* foot, *Joint* inflamation |
| **-ase** | Enzyme | Amylase, Lipase | *Enzyme* that breaks down carbohydrates, *Enzyme* that breaks down lipids |
| **auto-** | Self | Autotroph | *Self* feeder (can make their own energy, usually by photosynthesis) |
| **avi-, orni-** | Bird | Aviary, Ornithologist | *Bird* cage, *Bird* studier |
| **bene-** | Well Good | Beneficial | Mutualistic relationships benefit both organisms |
| **bi-, di-, diplo-** | Two | Bipedal, Diploid, Diplococcus | *Two* feet, *Two* sets of chromosomes, *Two* round bacteria |
| **bio-, vita-** | Life | Biosphere, Vitamin | Where *life* exists on earth, Organic molecules necessary for *life* |
| **blast-** | Germinate, Sprout, Bud | Blastula  | Single layer of cells surrounding a cavity formed by cleavage of the fertilized egg |
| **card-** | Heart | Cardiology | Study of the *heart* |
| **carn-** | Meat, Flesh | Carnivore | *Meat*-eater |
| **cat-, de-** | Down | Catabolic, Decomposer | Break *down* of big molecules into small molecules, Break *down* of dead organisms |
| **centi-** | 100 | Centigrams | *100* grams |
| **chel-** | Claw | Cheleped, Chelicerata | *Clawed foot (lobster’s big* claw), Classification of spiders with small *claws* |
| **ceph-** | Head | Cephalization | Concentration of sense organs at the front of an animal’s body, its *head* |
| **cerv-** | Neck | Cervical vertebrae | Bones of the *neck* |
| **chloro-** | Green | Chlorophyl | *Green* leaf |
| **chrom-** | Color | Chromosome | *Colored* body |
| **-cide** | Kill | Herbacide, Insecticide | Plant *kille*r, Insect *killer* |
| **co-, com-, con-** | Together, Both, With | Codominance, Community, Conjugation | *Both* alleles (trait type – size, color) are dominant, Organisms living *together* |
| **coel (seel)** | Space, Cavity, Hollow | Eucoelomate | Having a true body *cavity or hollow space*  (within the mesoderm germ layer) |
| **corp, som** | Body | Corpse, Somatic cell | Dead *body*, *Body* 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 sting  |
| **-cyte** | Cell | Erythrocyte, Osteocyte | Red blood *cell*, Bone *cell* |
| **deca-, deci-** | 10  | Decameter, Deciliter | *10* meters, *10* liters |
| **decid-** | Cut Off | Deciduous | Deciduous trees lose their leaves in the fall |
| **dendro-, arbor-** | Tree | Dendrochronology, Arboretum | Counting *tree* rings to determine its age, Place where many different *trees* grow |
| **dent, dont** | Tooth or Teeth | Dental plaque, Orthodontist | *Teeth* with patches of bacterial growth, Dr. who straightens *teeth* |
| **derm** | Skin | Epidermis, Ectoderm | Top *skin* 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 *through*, Cut *apart*, *Across* (cell membrane) |
| **dors-, noto-** | The Back | Dorsal fin, Notochord | Fin on the *back* 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 *where organisms live* |
| **ecto-, exo-** | Out, Outside | Ectoderm, Exoskeleton | *Outer* layer of tissue during embryo development, Skeleton on *outside* 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 | *Insect* studier, *Insect* eater |
| **epi-** | Upon, Over, Atop | Epidermis, Epicardium, Epiphytes | *Upon* the dermis (skin), *Over* the heart, *Atop* a plant |
| **Equ-, iso-** | Equal, Same | Isotonic, Equilibrium | Solute levels are *equal* on both sides of a membrane (inside & outside the cell) |
| **erthr-** | Red | Erythrocyte | *Red* blood cell |
| **eu-** | True | Eukaryote, Eucoelomate | *True* nucleus (protective membrane around DNA), *True* body cavity |
| **ex-, extra-, exo-** | Out, Outside, Beyond | Extinct, Extracellular, Extrapolation | Died *out*, *Outside* the cell, *Beyond* known values (on a graph) |
| **gastr-** | Stomach | Gastrointestinal (GI) | *Stomach* and intestines |
| **geo** | Earth | Geotropim | A plant’s response to the *earth’s* gravity |
| **hapl-, mono-, uni-** | One | Haploid, Monosaccharide, Unicellular | *One* set of chromosomes, *One* unit of sugar (glucose), *one* celled organism |
| **herb-, -phyte** | Plant | Herbivore, Epiphyte | *Plant* eater, Atop a *plant* |
| **homo (greek)** | Same | Homozygous | Same alleles (form of a gene);  |
| **hyper-** | More, Excessive | Hypertonic, Hypertension | *More* solute (something dissolved in water), *Excessive* blood pressure |
| **hypo-, sub-** | Less, Below | Hypotonic, Hypotension, Subatomic | *Less* solute, *Below* normal blood pressure, Below atoms (protons, neutrons, electrons) |
| **lingu** | Tongue | Sublingual | Under the *tongue* |
| **gnath (nath)** | Jaw | Agnathan | A fish without a *jaw* |
| **gram, -graph** | Written or Picture | Electrocardiogram, Sonography | *Print out* of the heart’s electrical activity, Taking *pictures* using sound waves |
| **helix** | Spiral, Coil | Double helix | Two strands in a *spiraled* shape |
| **hem-** | Blood | Hemorrhage | *Bleed* heavily |
| **hepato-** | Liver | Hepatitis | Inflammation of the *liver* |
| **herp-** | Reptile | Herpetologist | Study of *reptiles* (lizards, croc’s, turtles, and snakes) |
| **hetero-** | Different, Other | Heterozygous, Heterotroph | Offspring gets *different* forms of same trait (Tt), *Other* feeder (ex. herbivore) |
| **ichthyes** | Fish | Chondrychthyes, Osteichthyes | *Fis*h with a cartilage skeleton, *Fish* with a bony skeleton |
| **inter-** | Between | Intercellular | *Between* cells |
| **intra-, endo-** | Inside | Intracellular, Endoderm | *Inside* a cell, *Inside* layer of a developing embryo |
| **-itis** | Inflammation of | Dermatitis, Laryngitis | *Inflammation* of the skin, *Inflammation* of the larynx (voicebox) |
| **karyo, caryo** | Cell Nucleus | Prokaryote, Procaryotic | Cells without a nucleus  |
| **kilo-, mill-** | 1000 | Kilogram, Milliliter | *1000* grams, *1000th* of a liter |
| **leuco-, leuko-** | White | Leucocyte | *White* blood cell |
| **loc** | Place | Locus | *Place* on a chromosome where a specific gene is found |
| **logy** | Study or Science of | Mycology, Virology | *Study* of Fungi, *Study* of Viruses |
| **lys-** | To Loosen | Lyses, Cytolysis | Process of *loosening* up or digesting a cell membrane causing cell death |
| **macro-, mega-** | Large | Macromolecule, Megafauna | *Large* molecules (lipids, carbohydrates, proteins, nucleic acids), *Big* animals |
| **Mal, dis, dys** | Bad or Ill | Malnutrition, Disease, Dystrophy | The tumor was malignant.  |
| **mar-** | Sea | Marine Biology | Study of life in the *Sea* or Ocean |
| **medi-, meso-** | Middle | Medial, Mesoderm | *Middle*, *Middle* layer of tissue during embryo development |
| **meta-** | Change | Metamorphosis, Metastasis | *Change* in shape or location; *C*ancer cells that change location (spread), |
| **meter** | Measurement | Spirometer, Sphygmomanometer | *Measures* inhalation & exhalation, *Measures* blood pressure |
| **micro-** | Small | Microsporangia, Microbiology | Small spore carriers (male), Study of microbes (bacteria, viruses, etc.) |
| **morph** | Shape, Form | Mesomorph, Metamorphosis | Middle *form*, Change in *shape* (tadpole to frog) |
| **multi, myria, poly-** | Many | Multicellular, Myriapod, Polysaccharide | Organism made of *many* cells, Organism w/*many* feet, *Many* monosaccharides |
| **muta-** | Change | Mutation | *Change* in the # or sequence of DNA |
| **myo-** | Muscle | Myofibril, Fibromyalgia | *Muscle* cell, *Muscle* pain |
| **nasal, rhin, probosc** | Nose | Nasal septum, Rhinoplasty, Proboscis | Wall dividing *nasal* cavity, Surgery of reshaping the *nose*, Elephant’s *trunk* |
| **neo-** | New | Neonatal | *Newborn* |
| **nephr-, renal** | Kidney | Nephron, Renal vein | Part of the *kidney* that filters/cleans blood, Vessel taking blood to the *kidney* |
| **nom-** | Name | Binomial nomenclature | Two-*name naming* system (Homo sapien = Humans) |
| **oct-** | 8 | Octopus | *8* feet |
| **oma** | Tumor, Swelling | Carcinoma, Lymphoma | Cancer-causing *tumor*, *Tumor* of the lymphatic system |
| **omni-, toti-** | All | Omnivore, Totipotent | Eats *all* – plants & animals, *All* important cell (zygote) – becomes *all* cells |
| **oo-, ov-** | Egg | Oogonia, Oviduct, Oviparous | *Egg* stem cells, *Egg* carrying tube, *Eggs* that are hatched outside the mother |
| **orth-** | Straight | Orthoptera, Orthodontist | *Straight*-winged insect order (grasshoppers), Dr. who *straightens* teeth |
| **ose, gly, sacchar**  | Sugar | Glucose | A simple *sugar* or monosaccharide made by photosynthesis in autotrophs |
| **-osis** | Act, Condition | Acidosis | Too much acid in body fluids |
| **oste-** | Bone | Osteoarthritis, Osteocyte | Inflammation where *bones* meet (joint), *Bone* cell |
| **paleo-, archeo-** | Old, Ancient | Paleontology, Archeology | Study of fossils and the history of earth, Study of *ancient* civilizations |
| **para-** | Beside | Parallel, Parapodia | *Side* by *Side*, Feet to the *side* |
| **patho-** | Disease | Pathogens | *Disease*-causing organisms (some bacteria, some viruses, etc.) |
| **ped, pod** | Feet, Foot | Centipede, Tetrapod | 100 *feet*, 4 *feet* |
| **pent-** | 5 | Pentradial, Pentose | *5* spokes or rays (sea star has 5 rays/arms); 5 carbon sugar |
| **peri-** | Around | Pericardium | *Around* the heart |
| **phago, troph, vore** | To Feed or Eat | Phagocyte, Autotroph, Carnivore | *Eating* cell (white blood cells), Self-*Feeders* (photosynthesizers), Meat *eater* |
| **phore** | Carry, To Bear | Chromatophore | Color or pigment *carrying* cell |
| **photo-, lumin** | Light | Photosynthesis, Bioluminescence | Using *light* to make glucose, Organisms that can create *light* |
| **phyte, phyto** | Plant | Epiphyte | A *plant* that grows atop of another *plant* |
| **pinn-, plum-, -pter** | Wing, Feather, Fin | Pinnepedia, Plummage, Hymenoptera | Using *fins* for feet (seals), *Feather* shape & patterns, Straight membraned *wings* |
| **pino-** | Drink | Pinocytosis | Process of a cell engulfing/*drinking* liquids or dissolved substances |
| **platy-** | Flat | Platyhelminthes, Platypus | *Flat*worm, *Flat* foot |
| **ploid** | Chromosome | Haploid, Diploid | One set of *chromosomes*, Two sets of *chromosomes* |
| **pneumo-, pulmo-** | Lungs | Pneumonia, Pulmonary artery | Infection of the *lungs*, Vessel taking blood from the heart to the *lungs* |
| **post-** | After | Post mortem | *After* death |
| **pre-, pro** | Before, Forward  | Prenatal | *Before* birth |
| **prim-, prot-** | First | Primary consumer, Protozoa | *1st* organisms to eat producers (herbivores), *1st* animal  |
| **pseudo-** | False | Pseudocoelomate, Pseudopodium | *False* body cavity (between ecto- & endoderm), *False* foot (found in amoeba’s) |
| **quat-, quad, tetra-** | 4 | Quarternary, Quadiceps, Tetrapod | *4th*, *4* heads, *4* feet |
| **re-** | Again | Reproduce | Produce *again* |
| **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 *Rotting* organic matter/dead organisms (also called decomposers) |
| **schizo-** | Split | Schizocoely, Schizophrenia | Cavity formed at the *split* of the endo- & ectoderm (protostomes), *Split* mind |
| **scope** | View, See | Microscopic, Macroscopic | To *see or view* something small, To *see or view* something w/o using a scope |
| **sect, -tom** | Cut | Bisect, Anatomy | *Cut* in two, To *cut* up |
| **semi-, hemi-** | One-Half | Semipermeable, Hemisphere | Allows some (*1/2*), but not all things through, *One-half* a sphere (ball-shape) |
| **sperm** | Seed | Spermacide, Spermatid | *Sperm* killer, A small or immature *sperm* |
| **spir** | Breathe | Inspire, Spiracle | To *breathe* in, Hole found on insects for air to enter and leave (*breathing)* |
| **stas, stat** | Unchanging | Homeostasis | *Unchanging* chemical conditions in healthy organisms |
| **stom-, ora** | Mouth | Stomata, Oral cavity | Hole or *mouth* in leaves allowing gas exchange (O2 & CO2), *Mouth* space |
| **sym-, syn,- sys** | With, Together | Symbiosis, Synthesize, System | Organisms living *with* each other*,* Put *together*, Working *together* |
| **tax-** | Arrange | Taxonomy | A system used to *arrange* or classify a large number of organisms |
| **telo-** | End | Telophase, Telomeres | *End* of mitosis, *End* or tip of chromosomes |
| **terr** | Land | Terrestrial ecosystem | All living and nonliving things in a designated area on *land* |
| **tert-, tri-** | 3 | Tertiary, Trisomy | *3rd*, *3* bodies (chromosomes) |
| **therm** | Heat | Thermophile, Thermometer | Bacteria that live in *hot* areas, *Heat* measuring instrument |
| **toxic** | Poison | Neurotoxin, Hemotoxin | *Poison* to the nervous system, *Poison* in the blood |
| **trans-, per-** | Across, Through | Transport, Transdermal, Permeable | *Across* a cell membrane, *Through* the skin, Through a cell membrane |
| **trop, volv** | Turn, Change | Phototropism, Evolution | Plant’s response of *turning* toward light, How organisms *change* 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 *animals* |
| **zyg** | Yoke (egg + sperm) | Zygote, Homozygous | Union of *egg & sperm*, Zygote receives the same genes from both *egg & sperm* |

Additional :