Academic Vocabulary

CONTENT BUILDER FOR THE PLC

SCIENCE
BIOLOGY

PLEASE NOTE: The words contained in **Academic Vocabulary** are words/concepts/terms essential for concept development; this list is not intended to be comprehensive.
The "new to grade level" vocabulary suggestions are a starting point, and educators are encouraged to refer to their district curriculum resources for additional words/concepts/terms.

Cell Structure and Biochemistry

B.5 **Biological structures, functions, and processes.** The student knows that biological structures at multiple levels of organization perform specific functions and processes that affect life.

		important words for concept development			
subcluster	**standards**	**new to grade level**		**previously introduced**	
Cellular Complexity	B.5(A), B.5(B), B.5(C)	active transport* ATP (adenosine triphosphate) biomolecule* carbohydrate* concentration gradient* dehydration synthesis* deoxyribose sugar* diffusion DNA/genetic material endocytosis endoplasmic reticulum* enzyme exocytosis fatty acid* glucose* Golgi apparatus*	homeostasis lipid* lysosome* macromolecule metabolism monomer nitrogenous base* nucleic acid* nucleotide* osmosis permeable/semi-permeable plasma membrane* polymer* simple organic molecule synthesis* vesicle*	carbon* cell membrane cell wall chloroplast cytoplasm eukaryote*	nucleus* organelle* prokaryote* ribosome* vacuole*
Viruses	B.5(D)	antibiotic bacteriophage* capsid* chicken pox Covid-19 DNA virus* genetic material* herpes HIV (human immunodeficiency virus)	immune cells* influenza pathogen * retrovirus T-cell* vaccine virus*	cell* genome host* immune system*	

Organism Growth and Cell Differentiation

B.6 **Biological structures, functions, and processes.** The student knows how an organism grows and the importance of cell differentiation.

important words for concept development				
subcluster	**standards**	**new to grade level**		**previously introduced**
Cell Cycle	B.6(A), B.6(C)	anaphase* apoptosis benign* cancer cell cycle* (G0 stage/phase, G1 stage/phase*, S stage/phase*, G2 stage/phase*, M stage/phase*) cell division disease cellular process* centriole* centromere* chromatid* complementary base pair cytokinesis	daughter cell* diploid* DNA (deoxyribonucleic acid)* DNA replication* interphase* malignant* metaphase* mitosis* nucleotide prophase* somatic cell spindle fibers* telophase transcription* tumor*	chromosome hydrogen bond nucleus organelle
Cell Differentiation	B.6(B)	cell differentiation cell specialization DNA environmental factor RNA somatic cell*		gene

Mechanisms of Genetics

B.7 **Mechanisms of genetics.** The student knows the role of nucleic acids in gene expression.

		important words for concept development		
subcluster	**standards**	**new to grade level**		**previously introduced**
DNA	B.7(A)	adenine* amino acid* complementary strand* cytosine* DNA (deoxyribonucleic acid)* double helix* genetic code*	guanine* hydrogen bond(ing)* nitrogenous base* nucleotide* phosphate* polypeptide chain thymine*	chromosome* protein* trait*
Gene Expression	B.7(B)	amino acid codon mRNA* gene expression* nitrogen bases	transcription* translation* tRNA uracil	allele* protein* trait*
Mutations	B.7(C)	adenine anticodon* base sequence* chromosomal mutation cytosine DNA* DNA codon* DNA triplet* gamete* gene mutation	genetic change* guanine insertion mutation* mRNA codon* non-disjunction somatic cell* silent mutation transcription translation* uracil	chromosome*
Molecular Technologies	B.7(D)	DNA fingerprinting DNA mapping gel electrophoresis	genetic engineering genetic modification polymerase chain reaction (PCR)	

Heredity and Diversity

B.8 **Mechanisms of genetics.** The student knows the role of nucleic acids and the principles of inheritance and variation of traits in Mendelian and non-Mendelian genetics.

important words for concept development				
subcluster	**standards**	**new to grade level**		**previously introduced**
Genetic Diversity	B.8(A), B.8(B)	chromatid* chromosome reduction codominance crossing over* dihybrid cross* diploid* dominance* dominant trait gamete* genetic variety* haploid* heterozygous* homozygous*	incomplete dominance independent assortment inherited trait law of dominance law of independent assortment law of segregation meiosis Mendel's law of inheritance monohybrid cross non-Mendelian inheritance sex cell	allele* diversity gene* genotype offspring* phenotype* Punnett square* recessive (trait)* variation*

Above are some of the key vocabulary for Pre-Comp. Units below are still to be covered

Evolutionary Theory

B.9 **Biological evolution.** The student knows evolutionary theory is a scientific explanation for the unity and diversity of life that has multiple lines of evidence.

		important words for concept development		
subcluster	**standards**	**new to grade level**		**previously introduced**
Evolution	B.9(A), B.9(B)	abrupt appearance analogous structure anatomical homology ancestor* biogeography cladogram* dendrogram* descended* developmental homology DNA sequence* embryo evolution fossil record gene flow* genetic drift*	genome map* genus* gradualism homologous structure molecular homology native* phylogenetic* phylogram punctuated equilibrium* speciation species* spindle diagram stasis* transitional fossils*	natural selection* offspring* taxon/taxa* taxonomic*

Evolutionary Mechanisms

B.10 Biological evolution. The student knows evolutionary theory is a scientific explanation for the unity and diversity of life that has multiple mechanisms.

important words for concept development					
subcluster	**standards**	**new to grade level**		**previously introduced**	
Natural Selection	B.10(A), B.10(B), B.10(C)	directional selection disruptive selection environmental resource fitness gene frequency* inherited variation	isolation mortality rate* reproduce* reproductive success speciation stabilizing selection	adapt/adaptation* competition* diversity environment* evolutionary theory habitat* mutation	natural selection* offspring* population* predator* prey* species* survive*
Nonadaptive Mechanisms	B.10(D)	artificial selection gene flow* genetic drift genetic variation* non-random mating recombination		mutation	

Energy Conversions in Organisms

B.11 Biological structures, functions, and processes. The student knows the significance of matter cycling, energy flow, and enzymes in living organisms.

important words for concept development				
subcluster	**standards**	**new to grade level**		**previously introduced**
Cellular Respiration	B.11(A), B.11(B)	activation energy ATP (adenosine triphosphate) carbon dioxide catalyst cellular process*	cellular respiration* enzyme inhibitor* enzyme* glucose oxygen substrate*	organelle* product reactant
Photosynthesis	B.11(A)	ATP (adenosine triphosphate) carbon dioxide cellular process* glucose oxygen		organelle* photosynthesis* product radiant energy reactant

Interactions Among Biological Systems

B.12 **Biological structures, functions, and processes.** The student knows that multicellular organisms are composed of multiple systems that interact to perform complex functions.

		important words for concept development			
subcluster	**standards**	**new to grade level**		**previously introduced**	
Animal Structure and Function	B.12(A)	feedback loop homeostasis* nutrient absorption pathogen regulation		circulatory system* defense digestive system* endocrine system* excretory system* immune system* integumentary system*	interaction* lymphatic system muscular system* nervous system* reproductive system* respiratory system* skeletal system*
Plant Structure and Function	B.12(B)	cellular reproduction* cuticle filament* gamete geotropism* gravitropism guard cell* hormone hydrotropism mesophyll cell* ovule*	phototropism* pith pollen response* shoot system* stigma* stoma* thigmotropism transpiration transport* vascular system*	phloem reproductive system* roots* stem* system* xylem*	

Interdependence and Ecosystem Stability

B.13 **Interdependence within environmental systems.** The student knows that interactions at various levels of organization occur within an ecosystem to maintain stability.

important words for concept development				
subcluster	**standards**	**new to grade level**	**previously introduced**	
Ecosystem Stability	B.13(A), B.13(B), B.13(C), B.13(D)	atmospheric nitrogen* carbon cycle detritivore* diversity-stability relationship dynamic equilibrium ecological pyramid* ecosystem instability* environmental resistance invasive species predation* reduction factor resistance*	10% energy rule abiotic factor autotroph biotic factor carnivore commensalism* competition for resources consumer cycling of matter decomposer* ecosystem ecosystem stability energy pyramid* environmental change flow of energy food chain/web* herbivore	heterotroph impact* mutualism* nitrogen cycle nitrogen fixation* omnivore* organism* parasitism* population* primary consumer* producer* respiration secondary consumer* stability symbiotic relationship tertiary consumer* trophic level*