

1. Ribose	A five-carbon sugar present in RNA	24. Substitution	Change to a gene in which a nucleotide is swapped
2. tRNA	transfer RNA; type of RNA that carries amino acids to the ribosome	25. Chromosomal Mutations:	Changes in a DNA sequence that affect an entire chromosome or multiple chromosomes
3. mRNA	messenger RNA; type of RNA that carries instructions from DNA in the nucleus to the ribosome	26. Insertion/Duplication	Change to a chromosome in which a fragment of the chromosome is added
4. rRNA	-ribosomal RNA, RNA that helps assemble proteins in the RNA	27. Deletion (chromosomal)	Change to a chromosome in which a fragment of the chromosome is removed
5. Genetic Code	Collection of codons of mRNA, each of which codes for a particular amino acid during protein synthesis	28. Inversion	Change to a chromosome in which a fragment of the chromosome is rearranged
6. Synthesis	to make or create	29. Translocation	Change to a chromosome in which a fragment of the chromosome is switched from one chromosome to another
7. Transcription	the process in which DNA is copied into mRNA	30. Ecology	Scientific study of interactions among organisms and between organisms and their environment
8. Translation	the process in which mRNA is interpreted into a chain of amino acids, resulting in a protein	31. Population	A group of individuals that belong to the same species and live in the same area
9. RNA Polymerase	An enzyme that links together the growing chain of RNA nucleotides during transcription, using a DNA strand as a template.	32. Exponential Growth	Growth of a population in an ideal, unlimited environment, represented by a J-shaped curve when population size is plotted over time.
10. Promoters	Region of DNA that tells an enzyme where to start transcribing RNA	33. Logistic Growth	Occurs when a population's growth slows or stops following a period of exponential growth because the carrying capacity has been reached. It forms an S-shaped curve.
11. termination signals	Region of DNA that tells an enzyme where to STOP transcribing RNA	34. Carrying Capacity	Largest number of individuals of a population that an environment can support
12. Ribosome	Location of protein synthesis	35. Limiting Factors	any factor that restricts the existence, numbers, reproduction, or distribution of organisms
13. Amino Acid	Building blocks of protein	36. Ecosystem	A community and its abiotic environment
14. Protein	Major macromolecule made from amino acids during protein synthesis	37. Biotic factors	living parts of an ecosystem
15. Peptide Bond	A bond that links amino acids together	38. Abiotic factors	nonliving parts of an ecosystem
16. Codon	A triplet of three bases on mRNA that codes for a specific amino acid.	39. Community	All the different populations that live together in an area
17. Start/Stop Codon	Codons on mRNA that tells the ribosome when to start and stop translation	40. Biodiversity	The diversity of plant and animal life in a particular habitat (or in the world as a whole)
18. Anti-codon	group of three bases on a tRNA molecule that are complementary to an mRNA codon		
19. Mutations	Changes in DNA		
20. Gene Mutations	A change the nucleotide sequence of a gene.		
21. Frameshift	Mutation that shifts the "reading" frame of the genetic message by inserting or deleting a nucleotide		
22. Deletion (gene)	Change to a gene in which a nucleotide is removed		
23. Addition	Change to a gene in which a nucleotide is added		

41. Habitat	Place where an organism lives	59. Water cycle	The continuous process by which water moves from Earth's surface to the atmosphere and back
42. Niche	An organism's particular role in an ecosystem or job	60. Evapotranspiration	the evaporation of water from soil plus the transpiration of water from plants
43. Food Chain	A model of the series of steps in which organisms transfer energy by eating and being eaten.	61. Condensation	Atmospheric water vapor cool and collects into liquid form
44. Trophic Level	A position in a food chain or Ecological Pyramid occupied by a group of organisms with similar feeding style	62. Precipitation	Any form of water that falls from clouds and reaches Earth's surface.
45. Symbiosis	A close relationship between two species that benefits at least one of the species.	63. Runoff	water that flows over the ground surface rather than soaking into the ground
46. Mutualism	A relationship between two species in which both species benefit	64. Infiltration/Percolation	water on the ground surface enters the soil
47. Commensalism	A relationship between two organisms in which one organism benefits and the other is unaffected	65. Carbon cycle	The organic circulation of carbon from the atmosphere into organisms and back again
48. Parasitism	A relationship between two organisms of different species where one benefits and the other is harmed	66. Carbon Sequestration	the removal and storage of carbon from the atmosphere in carbon sinks (such as oceans, forests, coral or soils)
49. Food Web	A complex arrangement of interrelated food chains illustrating the flow of energy between interdependent organisms.	67. Cellular Respiration	Creating energy or ATP from glucose and oxygen
50. Autotroph	An organism that makes its own food	68. Photosynthesis	Plants use the sun's energy to convert water and carbon dioxide into glucose
51. Heterotroph	An organism that cannot make its own food, and thus must eat other organisms.	69. Nitrogen Cycle	The transfer of nitrogen from the atmosphere to the soil, to living organisms, and back to the atmosphere
52. Producer	An organism that can make its own food.	70. Assimilation	absorption of N by organisms
53. Consumer	An organism that eats other organisms	71. Ammonification	Decomposers (bacteria) convert waste into ammonia
54. Herbivore	A consumer that eats only plants.	72. Nitrification	Urea (waste) is converted to nitrate
55. Carnivore	A consumer that eats other animals	73. Denitrification	Nitrate is converted into Nitrogen gas
56. Omnivore	A consumer that eats both plants and animals.	74. Nucleotide	A building block of DNA, consisting of a five-carbon sugar (deoxyribose) bonded to a nitrogenous base and a phosphate group.
57. Detrivore/Decomposer	a consumer that gets its energy and nutrients from dead material such as corpses, fallen plant material, and the wastes of living organisms	75. Deoxyribose	A five-carbon sugar that is a component of DNA nucleotides
58. Energy/Ecological Pyramid	show the relative amount of energy, population numbers or biomass available at each trophic level of a food chain or food web	76. Nitrogen Base	Adenine, Thymine, Guanine, Cytosine, The chemicals that make up the rungs of the DNA ladder. A-T and C-G match.

77. Phosphate	A phosphorus containing component of both RNA and DNA nucleotides.	97. Camouflage	A structural adaptation that enables an organism to blend in with its environment
78. Double Helix	Shape of DNA	98. Mimicry	An adaptation that enables one species to resemble another species.
79. Pyrimidines	Cytosine and Thymine (single ringed bases)	99. Analogous Structures	Similar in function but not structure
80. Purines	Adenine and Guanine (double ringed bases)	100. Homologous Structures	Similar structures that have different functions
81. A,T,C,G,U	Five types of nitrogenous bases	101. Vestigial Structure	A structure that no longer serves its original purpose
82. Chargaff	Discovered A matches T and C matches G	102. Natural Selection	A natural process resulting in the evolution of organisms best adapted to the environment.
83. Watson/Crick/Franklin	Scientists who won Nobel prizes for correctly describing the structure of DNA as a double helix (Franklin got no CREDIT!!)	103. Gene Pool	Combined genetic information of all the members of a particular population
84. Hershey/Chase	Scientists who determined DNA is our genetic material	104. Polyploid	Condition in which an organism has extra sets of chromosomes
85. Avery	Scientist that helped determine DNA is our genetic material	105. Speciation	Formation of new species
86. Semi Conservative	How DNA replicates; it keeps half of the old strand and the other half is new	106. Convergent Evolution	Evolution toward similar characteristics in unrelated species
87. Anti-parallel	DNA strands run in opposite directions, making so Replication happens in TWO DIRECTIONS	107. Divergent Evolution	when two or more species sharing a common ancestor become more different over time
88. Replication	The process whereby DNA makes a copy of itself before cell division	108. Allelic Frequency	the percentage of any specific allele in the gene pool
89. Template	Original DNA that can be used to build new DNA	109. Genetic Equilibrium	Situation in which allele frequencies remain constant
90. Helicase	An enzyme that untwists the double helix of DNA at the replication forks - breaks hydrogen bonds attaching bases.	110. Gradualism	The theory that evolution occurs slowly but steadily
91. DNA polymerase	Enzyme involved in DNA replication that attaches free nucleotides to a DNA template to produce new DNA	111. Punctuated Equilibrium	Pattern of evolution in which long stable periods are interrupted by brief periods of more rapid change
92. Ligase	Enzyme that seals up DNA at the end of replication	112. Reproductive Isolation	Separation of species or populations so that they cannot interbreed and produce fertile offspring
93. Geologic Time Scale	A record of the geologic events and life forms in Earth's history	113. Geographic Isolation	Physical separation of a group of individuals from others of the same species
94. Fossil	A trace of an ancient organism that has been preserved in rock	114. Genetic Drift	A change in the allele frequency of a population as a result of chance events rather than natural selection.
95. Relative Dating	A technique used to determine which of two fossils is older based on its placement in rock layers	115. Adaptive Radiation	An evolutionary pattern in which many species evolve from a single ancestral species
96. Radioactive Dating	A technique used to determine the actual age of a fossil	116. Directional Selection	Form of natural selection in which the entire curve moves; occurs when individuals at one end of a distribution curve have higher fitness than individuals in the middle or at the other end of the curve
		117. Stabilizing Selection	Natural selection in which intermediate phenotypes survive or reproduce more successfully than do extreme phenotypes.

118. Disruptive Selection	Natural selection in which individuals on both extremes of a phenotypic range survive or reproduce more successfully than do individuals with intermediate phenotypes.	139. Incomplete Dominance	A pattern of inheritance in which two alleles, inherited from the parents, are neither dominant nor recessive. The resulting offspring have a phenotype that is a BLENDING of the parental traits.
119. Behavioral Isolation	Form of reproductive isolation in which two populations have differences in courtship rituals or other types of behavior that prevent them from interbreeding	140. Blood Type	A trait that displays the codominance pattern of inheritance
120. Gene	A segment of DNA on a chromosome that codes for a specific trait	141. Co-dominance	A pattern of inheritance in which both alleles for a gene are fully expressed in heterozygous individuals
121. Allele	A different form of a gene.	142. Polygenic traits	Traits controlled by two or more genes, that produce a range of variation (skin color, eye color, height, etc)
122. Homozygous (purebred)	Term used to refer to an organism that has two identical alleles for a particular trait (BB or bb for ex.)	143. Sex-linked traits	Traits controlled by genes located on sex chromosomes, for which the male Y chromosome carries no alleles.
123. Heterozygous (hybrid)	Term used to refer to an organism that has two different alleles for a trait (Bb for ex.)	144. Meiosis	Reductive Division that results in the formation of haploid sex cells used for reproduction
124. Homologous chromosome	Paired, matching chromosomes that have the same sequence of genes and the same structure.	145. Gametes	sex cells formed through meiosis that are haploid (n)
125. Dominant Allele	An allele whose trait is expressed or 'shows' in the organism when the allele is present	146. Haploid	(n) Condition an organism or cell has only one set of chromosomes, or only one of each chromosome.
126. Recessive Allele	An allele that is masked when a dominant allele is present	147. Diploid	2(n) Condition when an organism or cell having two sets of chromosomes or twice the haploid number
127. Law of Dominance	the presence of a dominant allele will ensure that trait will be expressed	148. Tetrad	A paired set of homologous chromosomes, each composed of two sister chromatids. Tetrads form during prophase I of meiosis.
128. Law of segregation	Alleles separate when gametes form during meiosis, so a parent only passes one allele to each offspring	149. Synapsis	Pairing of homologous chromosomes in a diploid cell, as occurs during prophase I of meiosis.
129. Law of independent assortment	Alleles for different traits are inherited independently of one another during meiosis	150. Crossing Over	Process in which homologous chromosomes exchange portions of their chromatids during meiosis.
130. Pollination	The transfer of pollen from male reproductive structures to female reproductive structures in plants	151. Genetic Variation	Differences among individuals in the composition of their genes or other DNA segments
131. Self Pollination	Occurs when pollen is transferred from the reproductive parts of a flower on the same plant.	152. Gametes	A haploid reproductive sex cell such as an egg or sperm. They unite during sexual reproduction to produce a diploid zygote.
132. Fertilization	Process in sexual reproduction in which male and female reproductive cells join to form a new cell	153. Somatic Cells	Any cells in the body other than reproductive cells
133. Gametes	Haploid reproductive cells	154. sperm/egg	Male and female gametes (haploid n)
134. Genotype	An organism's genetic makeup (AA, Aa or aa)	155. Homologous Chromosomes	Paired chromosomes which have genes for the same traits arranged in the same order
135. Phenotype	An organism's physical appearance, or visible traits. (black fur, green seeds, etc)	156. Autosomes	Any chromosome that is not a sex chromosome
136. Heredity	Passing of traits from parent to offspring		
137. Genetics	Study of heredity		
138. Traits	Characteristics that are inherited		

157. Spermatogenesis	the creation of sperm through meiosis	177. Anaphase	Third stage of mitosis: The chromatids of each chromosome separate at the centromere and move in opposite directions, being pulled by spindle fibers.
158. Oogenesis	The creation of eggs through meiosis	178. Telophase	Fourth stage of mitosis: Cell finishes dividing, chromosomes lengthen and become unwound, nuclear membrane reappears, cytoplasm/organelles get divided up evenly.
159. Karyotype	A display of the chromosome pairs of a cell arranged by size and shape.	179. Nucleus	A membrane-bound organelle in the cell that contains DNA.
160. Nondisjunction	Error in meiosis in which homologous chromosomes fail to separate.	180. Nuclear Membrane	Boundary between nucleus and cytoplasm. Regulates passage of materials between the two.
161. aneuploid	A condition when one has the incorrect number of chromosomes.	181. Nucleolus	A specialized structure in the nucleus, which allows the synthesis of ribosomes
162. euploid	A normal, correct set of chromosomes (23 pairs)	182. Chromosome(s)	X shaped threadlike structures made of DNA molecules that contain the genes
163. Genetic Disorder	An abnormal condition that a person inherits through genes or chromosomes	183. Sister chromatid	Replicated forms of a chromosome joined together in the center by the centromere that are eventually separated during mitosis.
164. germ cells	cells involved in the process of spermatogenesis/oogenesis	184. Chromatin	DNA and protein that makes up chromosomes
165. sexual reproduction	A reproductive process that involves two parents that combine their genetic material to produce a new organism, which differs from both parents	185. Spindle Fibers	Microtubules that appear and form to help move chromosomes during cell division.
166. monosomy	Chromosomal abnormality consisting of the absence of one chromosome from the normal diploid number	186. Centrioles	Cell organelle that aids in cell division in animal cells only, by helping produce spindle fibers and serving as anchors at the opposite ends (poles) of the cell
167. trisomy	A chromosomal abnormality of having one additional chromosome instead of the normal diploid number.	187. Equator	The center of the cell, where chromosomes will align during metaphase of mitosis
168. sex chromosome	Chromosomes that determine the sex of an individual (the 23rd pair in humans.)	188. Poles	The opposite ends of a cell, towards which separated chromatids move during cell division.
169. Cell Cycle	Continuous sequence of growth (interphase) and division (mitosis) in eukaryotic cells.	189. Cell Plate	In a plant cell, the midline of dividing cells. Becomes the cell wall eventually, by new cellulose forming. (animals cells have a cleavage furrow!)
170. Surface Area to Volume ratio	The relationship of the cells outer surface area to its volume, which limits a cells size.	190. Cellulose	A structural polysaccharide of plant cell walls; a very sturdy and rigid fiber.
171. Interphase	A period between two mitotic or mitotic divisions during which the cell grows, copies its DNA, synthesizes proteins and prepares for division.	191. Cleavage furrow	The area of the animal cell membrane that pinches in and eventually separates the dividing cell (plants have a cell plate!)
172. G1,S,G2 phases	The phases that are included during interphase of a cell's life cycle.	192. Phospholipid	A molecule that makes up the bilayer of cellular membranes, having a polar, hydrophilic head and a nonpolar, hydrophobic tail.
173. Cell Division	Process by which a parent cell divides into two new daughter cells		
174. Mitosis	A method of cell division of the nucleus. (PMAT) The final product is 2 daughter cells that are exactly like the parent cell.		
175. Prophase	First stage of mitosis: Chromosomes become visible, nuclear envelope dissolves, spindle forms		
176. Metaphase	Second stage of mitosis: Chromosomes align themselves along the center of the cells.		

193. Selective permeability	A property of cellular membranes that allows some substances to cross more easily than others.	210. Plasmolysis	As a plant cell loses water, it shrivels, and its plasma membrane pulls away from the cell wall
194. Fluid mosaic model	A model that shows that the membrane is a fluid structure with a mosaic of various proteins and phospholipids in a double layer.	211. Channel protein	An integral protein that form a tiny channel through the plasma membrane, allowing ions, water, or other materials to pass through.
195. Passive transport	Movement of substances through a cell membrane without the use of cellular energy; includes diffusion, osmosis, and facilitated diffusion.	212. Receptor Protein	Membrane proteins that allow communication between cells by allowing materials to 'bind' onto them.
196. Dynamic equilibrium	Result of diffusion where there is continuous movement of particles but no overall change in concentration	213. Marker Protein	A membrane protein that serves to identify a cell
197. Brownian Motion	Random motion caused by collisions of rapidly moving molecules	214. Active transport	Energy-requiring process that moves material across a cell membrane against a concentration gradient. (in other words the movement of materials occurs from low to high concentrations)
198. concentration gradient	A difference in the concentration of a substance across a distance or space	215. Endocytosis	An active transport process by which large quantities of materials are taken into a cell
199. Solution	A liquid that is a homogeneous mixture of two or more substances.	216. Exocytosis	An active transport process by which large quantities of materials are released from a cell
200. Solute	In a solution, the substance that dissolves in the solvent (ex. sugar, salt, etc)	217. Pinocytosis	A form of endocytosis; the uptake of liquids by engulfing liquids into a vesicle/vacuole
201. Solvent	A liquid substance capable of dissolving other substances	218. Contractile vacuole	In protists, an organelle that accumulates water and then releases it periodically to maintain osmotic pressure.
202. Diffusion	Movement of molecules from an area of higher concentration to an area of lower concentration.	219. Phagocytosis	A type of endocytosis in which solid particles are ingested by a cell by the formation of a membrane vesicle/vacuole
203. Osmosis	Diffusion of water through a selectively permeable membrane		
204. Facilitated diffusion	A type of passive transports in which the movement of specific molecules across cell membranes requires protein channels.		
205. Hypertonic solution	A solution where the concentration of solutes outside a cell is higher than that found inside the cell, resulting in the cell shriveling because there is a net movement of water OUT OF the cell.		
206. Hypotonic solution	A solution where the concentration of solutes outside a cell is lower than that found inside the cell, resulting in the cell swelling because there is a net movement of water INTO the cell.		
207. Isotonic solution	A solution with the same concentration of water and solutes as inside a cell, resulting in the cell retaining its normal shape because there is no net movement of water.		
208. Cytolysis	Bursting of a cell (usually an animal cell)		
209. Turgor Pressure	The pressure that water molecules exert against the cell wall		