

Biology EOC Review Vocabulary: Goal 2

1. Active transport- when molecules are moved against the concentration gradient; LOW → HIGH; happens when the cell is collecting something.
2. Alcohol fermentation- type of cellular respiration, without oxygen, yeasts and bacteria, makes CO_2 , alcohol, and 2 ATPS.
3. Amino acids- linked together to build a protein
4. Anaerobic- means "without oxygen"
5. ATP- adenosine-triphosphate; cellular energy molecule.
6. Buffers- proteins used to control pH; helps cells resist changes in pH; example of homeostasis.
7. Carbohydrate- group of organic compounds including polysaccharides, disaccharides, and monosaccharides; SUGARS; used as immediate energy sources.
8. Cell wall- on the very outside of cell (EXCEPT ANIMAL CELLS); provides support, protection, and shape.
9. Cellular respiration- process which breaks down carbohydrates to make ATP; produces CO_2
10. Cellulose- polysaccharide made from linking together many molecules of glucose; made by plants and used in cell walls as structural support.
11. Chloroplast- membrane-bound organelle which is the site of photosynthesis; ONLY IN EUKARYOTIC PLANT CELLS
12. Diffusion- another term for passive transport; water, gases, and sugar
13. DNA- deoxyribonucleic acid; stored in the nucleus of eukaryotic cells, ALL CELLS HAVE DNA; the genetic instructions for BUILDING PROTEINS.
14. Enzymes- proteins which control ALL CHEMICAL REACTIONS IN THE CELL; lower the activation energy; also called CATALYSTS; unchanged by chemical reaction; reusable; shape is the most important characteristic
15. Fats- group of lipids; made from fatty acids; energy storage and source of energy and insulation.
16. Fatty acids- the building block or "monomer" of lipids.
17. Glucose- monosaccharide, made by photosynthesis, SIMPLE SUGAR
18. Glycogen- polysaccharide, made by linking together many molecules of glucose; made by animals to store extra glucose molecules until they are needed.
19. Homeostasis- internal balance; keeping thing within a certain functional range, ex. blood sugar, pH, body temperature.
20. Insulin- protein hormone used to control the blood glucose levels (controls blood sugar), ex. of homeostasis
21. Lactic acid fermentation- type of cellular respiration, without oxygen, animal cells (Muscles) do this type of fermentation; makes CO_2 , alcohol, and 2 ATPS
22. Lipids- organic compounds that are used as insulation and long term energy storage; includes fats, oils, waxes, and steroids.
23. Mitochondria- membrane-bound organelle which is called the powerhouse of the cell because it is the site of cellular respiration (which makes the ATP); ONLY IN EUKARYOTIC CELLS.
24. Monosaccharides- the building block or "monomer" of carbohydrates, ex. GLUCOSE
25. Nucleic acids- organic compounds build out of nucleotides; store and transmit genetic information, CODE or INSTRUCTIONS FOR BUILDING PROTEINS, ex. DNA and RNA
26. Nucleotide- building block of all nucleic acids; has three parts...phosphate, sugar, and nitrogen base.
27. Nucleus- only in eukaryotic cells; controls all cellular activity because it contains the DNA, which is the code for building all proteins (enzymes) used in cellular metabolism.

28. Osmosis- diffusion or passive transport of water
29. Passive transport- when molecules are moved with the concentration gradient; HIGH → LOW; ends in equilibrium.
30. Photosynthesis- process which uses CO₂ to build carbohydrates using energy from the sun; only producers or autotrophs
31. Plasma membrane- also called the "cell membrane"; controls what enters and leaves the cell; made out of phospholipids and proteins.
32. Proteins- organic compound composed of amino acids; examples are enzymes, hemoglobin, and insulin; used to build structures and control chemical reactions.
33. Receptor proteins- act like antennae on cell membranes; respond to chemical signals called hormones.
34. Ribosomes- makes proteins; site of translation; ALL CELLS HAVE RIBOSOMES.
35. RNA- ribonucleic acids; made in the nucleus; carries the base sequence of the DNA out of the nucleus to the ribosomes, where proteins are made.
36. Semi-permeable- picky or choosy; acting like a filter allowing something things through but not others; cell membrane or plasma membrane.
37. Starch- a polysaccharide, therefore a carbohydrate; made out of many molecules of glucose; made only by plants to store extra glucose molecules until they are needed.
38. Substrate- the molecule that the enzyme breaks down or puts together; what is changed by the enzyme.
39. Vacuoles- membrane-bound organelle which is the storage site of water, proteins, and sugars in a cell; ONLY IN EUKAROTIC CELLS; very, very large in plant cells.

Biology EOC Review Vocabulary: Goal 3

- 1.
2. DNA- deoxyribonucleic acid; codes for cell's protein; passed on generation to generation; stored in cell's nucleus.
3. RNA- ribonucleic acid; made in nucleus, leaves for ribosome.
4. Complementary base-pair- rules for matching bases in DNA and RNA; A-T; A-U; C-G
5. Nitrogen bases- part of nucleotide; adenosine, thymine, uracil, cytosine, guanine.
6. Deoxyribose- sugar found on DNA nucleotides
7. Ribose- sugar found on RNA nucleotides
8. Nucleotides- building blocks of nucleic acids (DNA and RNA); three parts= phosphate, sugar, and nitrogen base.
9. DNA replication- making copies of DNA; occurs in the cell's nucleus
10. Transcription- process of rewriting the DNA bases into a molecule of RNA; occurs in the cell's nucleus.
11. Ribosomes- site of translation; where the mRNA and tRNA meet up; makes proteins by linking amino acids together by peptide bonds.
12. Hydrogen bonds- weak bonds found between the base pairs down the middle of the DNA double helix; easy to separate for DNA replication.
13. Double helix- name given to the shape of the DNA molecule because it has TWO STRANDS of nucleotides that are twisted into a spiral.
14. Semi-conservative replication- term used to describe DNA replication because each NEW double helix has one old strand and one new strand of nucleotides.
15. Translation- process of converting the mRNA base sequence into amino acids; mRNA → amino acids
16. Messenger RNA (mRNA)- carries the base sequence in the DNA OUT OF THE NUCLEUS to the ribosomes, where the code will be translated into an amino acid sequence to build a protein.
17. Transfer RNA (tRNA)- carries specific amino acids to the ribosome to be used in building a protein.
18. Codon- base-triplet on the mRNA; CODE for ONE amino acid
19. Anti-codon- base triplet on the tRNA; must be complementary to the mRNA codon.
20. Amino acids- chemical building blocks of proteins.
21. Mutation- change in DNA base sequence, MAY cause a change in the protein.
22. Protein synthesis- process of building a protein; happens at the ribosome; includes BOTH transcription and translation.
23. Peptide bonds- links or connects together the amino acids in a protein.
24. Polypeptide- fancy term for a strand of amino acids (LOTS OF PEPTIDE BONDS); will fold to become a 3-D protein.
25. Differentiation- when cells in a multicellular organisms begin to turn off and on different genes in order to become specialized in structure; ex. Red blood cells, muscle cells, skin cells
26. Cancer- disease resulting from uncontrolled mitosis
27. Mitosis- type of cell division that makes IDENTICAL CELLS; for growth and repair

28. Meiosis- type of cell division that makes genetically different cells; reduced chromosomal numbers by $\frac{1}{2}$; makes gametes
29. Gamete- fancy term for sex cell; sperm or egg
30. Haploid- cells without homologous pairs; $1n$; made by MEIOSIS; SEX CELLS
31. Diploid- cells with homologous pairs; $2n$
32. Homologous chromosome pairs- contains genes for the same characteristic, but not necessarily the same traits; one is inherited from father's sperm cell and the other from mother's egg cell.
33. Homozygous- when both alleles are the same, either both dominant or both recessive (AA or aa)
34. Heterozygous-when the two alleles for a characteristic are different, ex. $I^A i$ or Aa
35. Chromatids- the exact copies of a chromosome; halves of a "double chromosome"
36. Crossing-over- when homologous pairs of chromosomes swap genes; resulting in genetic variation.
37. Non-disjunction- when chromosomes do not separate correctly in meiosis; leads to chromosomal disorders such as Down's syndrome, Turner's Syndrome, or Klinefelter's
38. Trisomy 21- caused by non-disjunction; three copies of chromosome 21; also called Down's Syndrome
39. Turner's Syndrome- caused by non-disjunction of the sex chromosomes; when a female is missing an X chromosome and therefore only has 1 (instead of the normal XX).
40. Klinefelter's Syndrome- caused by non-disjunction of the sex chromosomes; when a male has an extra X resulting in XXY.
41. Fertilization- sperm + egg
42. Zygote- fertilized egg cell
43. Alleles- genes for the same characteristic; ex. A and a
44. Karyotype- picture of all the homologous pairs; used in determining sex of baby as well as if the baby has Down's Syndrome, Turner's, or Klinefelter's.
45. Dominant allele- gene that shows up in the phenotype.
46. Recessive allele- gene that can be in the genotype without showing up in the phenotype.
47. Incomplete dominance- when two alleles cannot cover each other up; get a blended or intermediate phenotype in the heterozygous individual (R_1R_2), ex. Pink flowers when R_1 =red and R_2 =white
48. Codominance- when BOTH alleles show up at the same time in the phenotype, ex. $I^A I^B$ = Type AB blood
49. Polygenic- when multiple gene pairs code for a trait; LOTS OF PHENOTYPIC POSSIBILITIES. Ex. Human skin color, eye color, hair color
50. Sex-linked inheritance- when genes coding for a trait are located in the X chromosome; males are twice as likely to show these traits because they only have ONE X chromosome from their mothers.
51. Hemophilia- sex-linked recessive disorder; blood does not clot properly.
52. Colorblindness- sex-linked recessive disorder; cannot see colors properly.

53. Autosomal inheritance- means NOT SEX-LINKED, the genes controlling a trait are NOT ON A SEX CHROMOSOME; effects males and females equally.
54. Pedigree- family tree used to trace patterns of inheritance.
55. Genetic variation- means that everyone does NOT have the same genes; we are all genetically different.
56. Human Genome Project- world-wide collaboration to find out the location and sequence of all human genes.
57. Gene therapy- part of genetic engineering; when a normal copy of the gene is used to replace a mutated form.
58. Gel electrophoresis- process used to separate DNA pieces by size; larger pieces travel less and stay close to the wells whereas the smaller pieces travel the fastest and the farthest.
59. DNA fingerprint- pattern of DNA fragments made by gel electrophoresis; used in crime scene investigation, determining parents, and also in determining how closely related two species are.
60. Transgenic organisms- organisms that contain recombinant DNA; also called *GMO* "genetically modified organisms".
61. Recombinant DNA- DNA piece that contains DNA from two different sources
62. Plasmid- small, circular chromosome taken from bacterial cells; used in genetic engineering
63. Stem cells- undifferentiated cells; all genes are still turned on
64. Natural selection- process by which the environment determines which traits are favorable and those organisms with the favorable trait have better reproductive success and have more babies, passing on their genes to the next generations.
65. Fitness- an organism's reproductive success; # of offspring
66. Speciation- process of one population becoming two different species, ex. Polar bears and grizzly bears
67. Geographic isolation- when a population is split into two groups by a physical barrier such as a river, Grand Canyon → each group will become a different species.
68. Favorable traits- inherited traits that increase an organism's reproductive success in a specific environment.
69. Acquired traits- NOT IN THE DNA; gained through the course of an organism's life time; ex. Tattoos
70. Antibiotic resistance- when a population of bacterial is no longer vulnerable to an antibiotic because natural selection has favored those with a specific genetic resistance to the effects of bacteria.
71. Pesticide resistance when a population of insects is no longer vulnerable to a chemical because natural selection has favored those with a specific genetic resistance to the effects of the pesticide.
72. Gene- segment of DNA bases that code for a protein.
73. Sickle cell anemia- autosomal recessive disorder; abnormal hemoglobin
74. Cystic fibrosis- autosomal recessive disorder; increased mucous production → lots of infections → damage to lungs, pancreas
75. PKU- when a person lacks an enzyme to break down the amino acid phenylalanine → if the person eats the amino acids, will lead to brain damage.

76. Tay Sachs Disease- autosomal recessive disorder; lacks enzyme to break down lipids which will build up and cause brain damage.

77. Huntington's Disease- autosomal dominant disorder; causes brain damage, shows up when people are in their 40-50s AFTER they have already had children.

Biology EOC Vocabulary Review: Goal 4 part I

1. Alveoli- air-sacs in lungs; increases surface area for respiration in the lungs
2. Angiosperms- flowering plants; protect seeds in FRUITS
3. Asexual reproduction- one parent; no new combination of genes or traits
4. Autotroph- self feeder, makes food through photosynthesis, does NOT have to eat.
5. Classification- process of grouping organisms by common characteristics. Current system: Kingdom, Phylum, Class, Order, Family, Genus, Species (King Phillip Came Over For Good Soup).
6. Cuticle- waxy covering of leaves; helps reduce water loss (transpiration).
7. Development- process of undergoing physical changes; ex. Metamorphosis, puberty
8. Eukaryotic- cells WITH membrane-bound organelles.
9. Excretion- removal of waste products
10. Exoskeleton- outer protective covering of arthropods
11. Growth- increase in size due to the production of new cells by MITOSIS.
12. Gymnosperms- type of seed producing plants that make "naked seeds" in cones; seeds NOT IN FRUITS
13. Heterotroph- must eat or absorb food
14. Hormones- chemical messengers; controlled by endocrine system; regulation
15. Lungs- organs of gas exchange in amphibians and mammals; respiratory system
16. Metamorphosis- example of development; period of physical changes. Ex. Caterpillar to butterfly
17. Microvilli- finger-like projections which increase surface area for nutrient absorption in small intestines of mammals.
18. Multicellular- organisms that have many different cells and different TYPES of cells, ex. Humans
19. Nutrition- method of obtaining needed nutrients; photosynthesis or digestive system.
20. Phloem- type of vascular tissue in plants; carries sugar and sap; direction depends on season.
21. Prokaryotic- cells WITHOUT membrane-bound organelles such as nucleus, mitochondria, chloroplast, vacuole. DO HAVE RIBOSOMES.
22. Regulation- control and coordination of all other life processes; often accomplished by nervous system and endocrine system via hormones.
23. Respiration- gas exchange; how oxygen and carbon dioxide are moved in/out of body and to cells.
24. Sexual reproduction- combination of two cells which creates new genetic combinations different from those seen in the parents.
25. Stomata- holes in the bottom of leaves; allows carbon dioxide in and oxygen out.
26. Synthesis- how an organism makes what is needed; ex. Cellular respiration SYNTHESIS ATP, photosynthesis MAKES SUGARS, proteins synthesis MAKES proteins.
27. Taxonomy- process of naming organisms; current system *Genus species*. Ex. *Homo sapien*. Homo-genus, sapien= species.
28. Transpiration- water loss through the stomata of leaf; BAD; reduces photosynthesis
29. Transport- how organisms get what is needed to cells; how wastes are moved away from cells to organs of excretion, ex. Circulation

30. Unicellular- organism that is only one cell; ex.
Amoeba, paramecium, all bacteria
31. Xylem- type of vascular tissue in plants; carries
water UP from roots to leaves for
photosynthesis.

Biology EOC Vocabulary Review: Goal 5

1. Abiotic- non-living (not dead, but never was living); ex. temperature, pH, light intensity
2. Autotroph- self-feeder; another term for producer; does photosynthesis
3. Bioaccumulation- pesticides are higher in the top consumers because they do not break down over time in the prey; ex. a snake would have more pesticides than a single mouse, because the snake has to eat more than one mouse to survive.
4. Biosphere- any portion of the life where life can be supported; abiotic and biotic factors anywhere on earth
5. Biotic- living factors in an ecosystem; ex. decomposers, bacteria, predators
6. Carbon cycle- made up of photosynthesis and cellular respiration; photosynthesis makes the carbohydrates that are broken down in cellular respiration. Cellular respiration makes the CO_2 that is used in photosynthesis to make the carbohydrates.
7. Carrying capacity- the population size (number of organisms) the environment can support for a long period of time with no damage done to the environment; set by the amount of the limiting factor.
8. Commensalism- relationship where one species benefits and the other species is not affect (neither harmed nor helped); +/0
9. Community- all the living factors in an area; only biotic; all the populations in an area
10. Competition- when two organisms need the same resource
11. Decomposers- break down the bodies of dead consumers and producers to return the organic matter to the soil for the producers to cycle back up through the trophic levels.
12. Deforestation- when humans cut down entire forests ruining habitats; decreases levels of photosynthesis, increases levels of CO_2 in the area, adds to the Greenhouse Effect
13. Ecosystem- all the abiotic and biotic factors in one specific area; the community and the habitat in an area; ex. pond, river
14. Exponential growth- when a population is increasing at the maximum rate because conditions are favorable; no limiting factor; enough resources
15. Food chain- shows the pathway of energy transfer; arrows point in the direction of energy transfer. Ex. grass → mouse → snake → hawk
16. Food web- diagram showing connected food chains
17. Greenhouse Effect- when excess CO_2 in the atmosphere traps the heat from the sun increasing the overall temperature

18. Habitat- environment or physical surroundings
19. Heterotroph- organism which must eat its food; another word for a consumer
20. limiting factor- resource that is in the shortest supply and the greatest demand; resource the organisms are going to compete for; sets the carrying capacity of an ecosystem
21. mutualism- relationship in which both species benefit; +/+ relationship
22. niche- an organisms role played in the ecosystem; ex. whether or not the organism is a producer or consumer, where it lives, with whom it competes for resources, etc.
23. parasitism- relationship in which one species benefits at the expense of another species, +/- relationship
24. population- group of organisms that are the SAME SPECIES, living in the same area, using the same resources, and reproducing together.
25. Predation- relationship in which a predator hunts a prey as a source of FOOD, technically +/- relationship
26. Primary consumer- eats your producers
27. Producers- trophic level of autotrophs; do photosynthesis
28. Resource- anything that is needed for survival; ex. food, clean water, shelter, mates, etc.
29. Secondary consumer- eat your primary consumers; third trophic level
30. Species diversity- describes how many different species you have in an area
31. Symbiotic relationship- between two different species; ex. predation, parasitism, mutualism, commensalism, competition
32. Trophic level- energy level or feeding position in the ecosystem; ex. producer, primary consumer, secondary consumer