*Lecture One:* ***Terminology***

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***“Useful Biological Prefixes and Suffixes”***

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| **Prefix** | **Meaning** | **Example** |
| *a–, an–, non–, un–* | not, without, non, the lack of, negative. | * **abiotic:** non-living, characterized by the absence of life. *Or* usually applied to the physical and chemical aspects of an organism’s environment. * **abiogenesis:** the origination of living organisms from lifeless matter. * **abiosis:** the absence of life. * **aphotic:** having no light. * **avirulent bacteria.** * **anaerobic:** without air or oxygen especially of an environment or organism. * **nonrenewable:** not able to replenish naturally. |
| *anti–, contra–* | against, opposed to, opposite | * **antibody:** a protein that blinds to a specific antigen. * **antibiotic susceptibility test.** * **antimicrobial resistance:** is the ability of microorganisms to grow despite being exposed to antimicrobial agents. * **anticodon:** a sequence of three nucleotides forming a unit of genetic code in a transfer RNA molecule, corresponding to a complementary codon in messenger RNA. * **antigen:** is a substance that causes an immune response in the body—specifically, an antigen causes the body to produce antibodies. * **contraception:** the intentional prevention of conception (pregnancy) by artificial or natural means. |
| *auto–* | self | * **autotrophs:** any organism that can synthesize its food from inorganic substances, using heat or light as a source of energy. |
| *bi–, di–, diplo–* | twice, double | * **biennial:** two year life span plant. * **binary fission:** the process by which organisms with only one cell create new organisms by dividing. * **diploid:** having a pair of each type of chromosome. * **Diplococcus:** two round bacteria. |
| *bio–, vita–* | related to life | * **Biochemistry:** is the study of chemical processes within and relating to living organisms. * **biodiversity**: the diversity (number and variety of species) of plant and animal life within a region. * **biology:** the study of living organisms, including their structure, functioning, evolution, distribution, and interrelationships. * **biogeochemical cycle:** mainly refer to the movement of nutrients and other elements between biotic and abiotic factors. * **biogeography:** the branch of biology that deals with the geographical distribution of plants and animals. * **biotechnology:** the use of living organisms especially microorganisms in industrial, agricultural, medical and other technological applications. * **biocycle:** any cyclic biological process. * **biomagnification:** can be defined as the rise or increase in the contaminated substances caused by the intoxicating environment. * **Vitamin:** organic molecules necessary for life. |
| *cat–, de–* | down | * **catabolism:** thebreakdown of complex molecules in living organisms to form simpler ones. * **decomposer:** organisms in ecosystems that break down complex organic material into smaller inorganic molecules that then recirculated. * **detritivore:** an organism that eats dead or decaying plants or animals as food. |
| *chlor–* | green | * **chlorophyll:** green pigment that is found in the chloroplasts of plants and in other photosynthetic organisms. * **chloroplast:** an organelle found in the cells of green plants. |
| *chrom–* | color | * **chromatography:** technique for separating the components (usually mixture of chemical substances.) * **chromoplast:** any plastid in which a pigment is synthesized or stored. * **chromosome:** carries genetic information, in form of genes. * **chromatin:** a complex of DNA, RNA and proteins within the cell nucleus. * **chromogen:** a strongly pigmented organelle or organism. | |
| *cyto–* | cell | * **cytokinesis:** division of the cytoplasm of a cell. * **cytomegalovirus:** is a common virus. Once infected, your body retains the virus for life. * **cytosol:** the solution of a cell’s cytoplasm. * **cytoplasm:** contents of a cell excluding the nucleus. | |
| *eco–* | where one lives, home | * **ecology:** the study of the interactions of organisms with their physical environment (abiotic) and with one another (biotic). * **ecosystem:** all of the organisms of a given area and the encompassing physical environment. | |
| *endo–* | within, in, inside | * **endocytosis:** is the process of bringing substances inside a cell from the external environment with the help of the cell membrane. * **endosymbiosis:** a condition of living within the body or cells of another organism. * **endophyte:** any organism (generally bacterium, fungus or algae) that lives inside a plant. * **endoskeleton:** a skeleton found within the interior of the body. | |
| *entomo–, insect–* | insect | * **entomologist:** insect studier. * **insectivore:** insect-eating animal or plant.. | |
| *epi–* | On, above | * **epiphyte:** a plant that grows on the surface of another plant for support. * **epidermis:** outer layer of skin. | |
| *ex–, ecto–, exo–,* | out, outside, beyond, outer surface | * **exoskeleton:** hard outer surface that provides support and protection for an organism. * **exoderm:** an outer layer of skin. | |
| *geo–* | Earth | * **geotropism:** a plant’s response to the earth’s gravity (either downwards or upwards). | |
| *herb–, (–phyte)* | plant | * **herbivore:** an animal that consumes plants as food. * **epiphyte:** atop a plant i.e a plant that grows on another. | |
| *herpe–* | reptile | * **herpetology:** the branch of zoology concerned with the study of amphibians and reptiles. | |
| *hetero–* | other, different | * **heterotrophs:** an organism with a requirement for energy-rich organic molecules from outside. | |
| *hyper–* | above, excess, over, more than | * **hypersecretion:** excessive secretion. * **hypertension:** high blood pressure. * **hyperthyroidism:** condition resulting from the excessive production of thyroid hormones. |
| *hypo–, sub–* | under, beneath, below | * **hypodermic:** below skin. * **hypoactive:** less than normally active. * **hypoglycemia:** low blood pressure**.** |
| *intra–* | within, in, inside, indoors, interior | * **intracellular:** to be inside or between a cell. * **intrachromosomal:** occurring within a chromosome. |
| *macro–, mega–* | large, big, huge | * **macromolecule:** a very large molecule. * **macrophage:** a large white blood cell. * **macronucleus:** is the larger type of nucleus in ciliates. * **megafauna:** big animals. |
| *mar–* | sea | * **marine biology:** study of life in the sea or ocean. * **marine ecosystems:** are the largest of Earth’s aquatic ecosystems and are distinguished by waters that have a high salt content. |
| *medi–, meso–* | middle | * **mesoderm:** middle layer of tissue during embryo development. * **mesosphere:** layer of the Earth’s atmosphere. |
| *multi–, myria–, poly–* | many | * **multicellular:** organisms made of many cells. * **myriapod:** one of a group of small creatures that have long bodies and many sections with legs. * **polysaccharide:** complex carbohydrate. * **polymorphism:** the regular existence of two or more different genotypes within a given species or population. |
| *micro–* | Small, tiny, little | * **microorganism:** a microscopic organism, especially a bacterium, virus or fungus. * **microbiology:** the study of small organisms. |
| *omni–, toti–* | all | * **omnivore:** an animal that consumes both plant and animal matter as food. * **totipotency:** the ability of a cell to produce differentiated cells upon division. |
| *patho–* | disease | * **pathogen:** a bacterium, virus, or other microorganism that can cause disease. |
| *phago–,( –troph), (–vore)* | To feed or eat | * **phagocyte:** a cell of the immune system that engulfs and destroys viruses, bacteria and waste materials. * **autotroph:** self-feeder. * **carnivore:** an animal that eats the flesh of other animals. * **detrivore:** an organism that takes energy from dead or waste organic matter. |
| *prim–, proto–* | first or one | * **primer:** template strand of DNA used to generate a new double-strand of DNA. * **primary consumer:** 1st organisms to eat producers (herbivores). * **protozoa:** are single celled organisms. * **protoplasm:** is the living part of a cell that is surrounded by a plasma membrane. |
| *re–* | again | * **reproduction:** the act of producing again. * **recombinant DNA:** a form of DNA produced by combining genetic material from two different sources by means of genetic engineering. |
| *sym–, syn–, sys–* | with, together | * **symbiosis:** organisms living with each other. * **synthesize:** to combine things to produce new, more complex product. * **system:** working together. |
| *tax–* | arrange | * **taxonomy:** a system used to arrange or classify a large number of organisms. |
| *terr–* | *land* | * **terrestrial ecosystem:** all living and non-living things in a designated area or land. |
| *zo–* | animal | * **zoology:** study of animals. |

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| **Suffix** | **Meaning** | **Example** |
| *–cide* | kill | * **herbicide:** a substance used to kill plants. * **insecticide:** a substance used to kill insects. |
| -logy | study | * **cytology:** study of cell. * **ethology:** study of animal behavior. * **ecology:** study of inter-relationship between living and non-living components and their environment. * **phycology:** study of algae. * **etiology:** study of cycle of pathogen. * **entomology:** study of insects. * **histology:** study of tissue with the help of microscope. * **bacteriology:** study of bacteria. * **mycology:** study of fungi. |
| *–phyll* | leaf | * **chlorophyll:** green pigment. |
| *–phore* | carry, to bear | * **chromatophore:** a cell containing pigment. |
| *–osis* | actions, conditions, or states | * **symbiosis:** the living together of two organisms of different species. |
| *–scope* | view, see | * **microscopic:** so small that it can only be seen using a microscope. |
| *–trop, –volv* | turn, change | * **phototropism:** plant’s response of turning toward or away from light. * **evolution:** how organisms change over time. |