*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.
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