**The City School**

**North Nazimabad Boys Campus**

**Date: 11-06-2016**

**Subject: Biology**

**Class: 10**

**Teacher: Humaira Imran**

**Active transport:**The process in which energy is used to move the particles of a substance against a concentration gradient, that is, from a region where they are of lower concentration to a region where they are of higher concentration.

**Adaptation:**Any characteristic of an organism that improves its chances of surviving in its environment.

**Aerobic respiration:**Respiration with oxygen. It’s the oxidation of food substances in the presence of oxygen with the release of a large amount of energy. Carbon dioxide and water are released as waste products.

**AIDS:**An abbreviation for Acquired Immune Deficiency Syndrome.

**Alleles:**Different forms of a gene which occupy the same relative positions on a pair of homologous chromosomes.

**Anaerobic respiration:**Respiration without oxygen. It’s the oxidation of food substances in the absence of oxygen. Anaerobic respiration releases less energy than aerobic respiration.

**Anaesthetics:**Drugs that make the body unable to feel pain.

**Arteries:**Blood vessels which carry blood away from the heart.

**Artificial selection:**A method used by human beings to produce plants and animals with desired qualities.

**Asexual reproduction:**The process resulting in the production of genetically identical offspring from one parent, without the fusion of gametes.

**Assimilation:**The process whereby some of the absorbed food materials are converted into new protoplasm or used to provide energy.

**Axon:**A nerve fibre that transmits impulses away from the cell body of a neurone.

**Bioaccumulation:**The process by which substances collect in all parts or part of a living organism.

**Breathing:**The process that brings about an exchange of gases between an organism and its environment.

**Capillaries:**Microscopic thin-walled (one cell thick) blood vessels which carry blood from a small artery (arteriole) to a small vein (venule).

**Codominance:**A condition where both alleles express themselves in a hybrid, as they are both either dominant or recessive to one another. (Roughly equal expression.)

**Community:**Populations of organisms living together and interacting with one another under the same environmental conditions.

**Conservation:**The protection and preservation of natural resources of the environment.

**Consumers:**Organisms which obtain their energy by feeding on other organisms.

**Continuous variation:**Traits with phenotypes ranging from one extreme to the other. It is brought about by combined (or additive) effects of many genes. It is affected by environmental conditions, e.g. intelligence, height and skin colour in human beings.

**Cross-pollination:**The transfer of pollen grains from one plant to the stigma of a flower in another plant of the same species.

**Decomposers:**Saprotrophs and detritivores. Organisms which obtain energy by breaking down dead organisms, faeces and excretory products.

**Dendron:**A nerve fibre that transmits impulses towards the cell body of a neurone.

**Desertification:**The destruction of land leading to desert-like conditions.

**Detoxification:**The process of converting harmful substances into harmless ones in the body.

**Differentiation:**The process by which a cell becomes specialized for a specific function.

**Diffusion:**The net movement of particles (atoms, ions or molecules) from a region of higher concentration to a region of lower concentration, that is, down a concentration gradient.

**Digestion:**The process by which large food molecules are broken down into small, soluble and diffusible molecules that can be absorbed by the body cells.

**Diploid:**Cells that contain the full number of chromosomes.

**Discontinuous variation:**Traits that show limited variation in their phenotypes which are easily distinguishable. It is usually controlled by only one or a few genes. It is not affected by the environment. E.g. detached earlobes-it’s either yes or no.

**Dominant:**A form of a gene that is expressed and masks the recessive gene. It gives the same phenotype in both homozygous and heterozygous conditions as it expresses itself.

**Ecology:**The study of the relationships between living organisms and the natural environment.

**Ecosystem:**An ecological system formed by the interaction of living organisms (biotic) and their non-living (abiotic) environments.

**Egestion:**The removal of undigested matter from the body. Egestion would be like pooing-you’re egesting faeces which are basically undigested food. [Different to excretion! See excretion.]

**Endocrine glands:**Ductless glands that secrete hormones into the bloodstream.

**Enzymes:**Biological catalysts made of protein. They alter the rate of (mostly catalyse) chemical reactions without themselves being chemically changed at the end of the reactions.

**Eutrophication:**The profuse growth and multiplication of algae and green plants as a result of the enrichment of nutrients in the water. Often leads to depletion of oxygen levels.

**Excretion:**The process by which metabolic waste products and toxic materials are removed from the body of an organism. E.g. sweating, sweat is a metabolic waste product. [Different to egestion! See egestion.]

**Fertilisation:**The process by which the male gamete fuses with the female gamete to form a zygote.

**Focusing/accommodation:**The adjustment of the lens of the eye so that clear images of objects at different distances are formed on the retina.

**Food chain:**A series of organisms through which energy is transferred in the form of food.

**Food web:**Two or more food chains interlinked together.

**Gamete:**A reproductive cell containing the haploid number of chromosomes.

**Gene:**A hereditary factor found on a particular locus in a chromosome. It controls a particular characteristic and codes for a specific protein.

**Genetic engineering:**A technique used to transfer genes from one organism to another.

**Genotype:**The combination of genes in an individual.

**Gland:**A cell, tissue or an organ that secretes chemical substances.

**Habitat:**The place where an organism lives.

**Haploid:**Cells that contain half the number of chromosomes as the parent cells which produced them.

**Heterozygous:**A condition where you have different alleles for a particular trait. E.g. if B codes for brown eyes (dominant allele is always upper case) and the recessive allele is b (always the lower case of the dominant alleles’ letter), then a person with a Bb genotype for eye colour is heterozygous dominant, so will have brown eyes.

**Homeostasis**: The maintenance of a constant internal environment.

**Homologous** pairs: Chromosomes which have the same genes, shape and length.

**Homozygous**: Having identical alleles for a particular trait. E.g. BB-homozygous dominant, or bb-homozygous recessive.

**Hormone**: A chemical substance produced in minute quantities by an endocrine gland. It is transported in the bloodstream to target organ(s) where it exerts its effects.

**Irritability/sensitivity:** The ability of an organism to respond to a stimulus.

**Meiosis**: A form of cell division such that the daughter cells contain half the number of chromosomes as the parent will be diploid, e.g. to form sex cells/gametes (Chromosomes are in the nucleus.)

**Mitosis**: Cell division such that the daughter cell produced contains the same number of chromosomes as the parent cell. –will be diploid, e.g. to form somatic (body) cells

**Mutation**: The sudden or spontaneous change in gene structure or a chromosome, or even the chromosome number, and may be inheritable.

**Nerve**: A collection of nerve fibres.

**Nerve fibre**: A long cytoplasmic extension of the cell body of a neurone. It serves to transmit impulses.

**Neurone**: A nerve cell.

**Nutrition**: The intake of food and the processes that convert food substances into living matter.

**Osmoregulation**: The control of water and solute levels in the blood to maintain a constant water potential in the body. Basically to maintain blood water levels.

**Osmosis**: The net movement of water molecules from a solution of higher water potential to a solution of lower water potential, through a partially permeable membrane, i.e. down a water potential gradient. Or, from a region of high concentration to a region of low concentration, through a partially permeable membrane, i.e. down a concentration gradient.

**Oxygen debt**: The amount of oxygen required to oxidize the lactic acid produced in muscles during anaerobic respiration and convert it into harmless substances.

**Partially/selectively permeable membrane**: A membrane that allows selected substances to pass through.

**Peristalsis**: The rhythmic wave-like contractions of the walls of the gut.

**Phagocytosis**: The process of engulfing and ingesting foreign particles, such as bacteria, by phagocytes such as the white blood cells.

**Phenotype**: The physically expressed trait in an individual, e.g. outward appearances such as height and eye colour.

**Photosynthesis**: The process in which light energy absorbed by chlorophyll is transformed into chemical energy.

**Pollination**: The transfer of pollen grains from an anther to a stigma.

**Pollution**: The addition of substances to the environment that damage it, making it unfit for life.

**Population**: A group of organisms of the same species living together in the same habitat.

**Producers**: Organisms which convert energy from the sun, or light energy, into chemical energy and store it as food during photosynthesis. They are the start of the food chain.

**Recessive**: A form of a gene that expresses itself only in the homozygous condition. E.g. Bb, it won’t be expressed because the dominant ‘B’ allele masks it and is expressed instead. But in ‘bb’, this is homozygous recessive, so it will be expressed.

**Reducing sugars**: Sugars that produce a red precipitate when boiled with Benedict’s solution. E.g. glucose, maltose, fructose, lactose.

**Reflex action**: An immediate response to a specific stimulus without conscious control.

**Reflex arc**: The shortest pathway by which impulses travel from the receptor to the effector in a reflex action.

**Respiration**: The oxidation of food substances with the release of energy in living cells.

**Self-pollination**: The transfer of pollen grains from the anther the stigma of the same flower or of a different flower on the same plant.

**Sexual reproduction**: The process involving the fusion of two gametes to form a zygote, resulting in the production of genetically dissimilar offspring-as in there will be variation.

**Species**: A group of similar organisms. Organisms within a species can breed. They produce healthy offspring that are able to grow, develop and reproduce normally.

**Synapse**: A junction between two neurones.

**Tissue**: A group of similar cells which work together to perform a specific function.

**Tissue respiration**: The process in living cells by which food substances are oxidized with energy released for the vital activities of the cells. Basically: C6H12O6 + 6O2 à 6CO2 + 6H2O + energy (ATP)

**Translocation**: The transport of manufactured food substances such as sugar and amino acids in plants (in phloem.)

**Transpiration**: The loss of water vapour from aerial parts of a plant, especially through the stomata of the leaves.

**Transpirational pull**: The suction force caused by transpiration that is the main factor causing water movement up the xylem.

**Turgor pressure**: The pressure exerted outwards on the cell wall due to the water in the cell-hence the cell becomes turgid.

**Variation**: The differences that can be observed within a species.

**Veins**: Blood vessels which carry blood towards the heart.

**Voluntary action**: An action that is under the control of the will, requires thinking so it’s obviously slower than involuntary/reflex actions.