

Bio  
definitions  
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Design  
Project

Overproduction: Animals that produce more offspring than will survive to sexual maturity in order to increase the chances of passing on genetic material

Descent with Modification/Differential reproduction: The principle of natural selection that states offspring will look different from their parents and from each other

Gene Flow: When alleles can move freely through populations of species

Genetic Drift: When chance events eliminate different alleles from the gene pool

Isolation: When geographic barriers prevent gene flow from occurring

Speciation: When two different species are created from a common ancestor due to selection of advantageous traits

Variation: A difference in phenotypes and genotypes in a population

Traits: The phenotypes of an organism. These can be different even amongst members of the same species

Adaptation: A specialized trait an organism develops overtime to help them better survive in their environment

Natural Selection/ Survival of the Fittest: A process in which nature (the ecosystem) acts upon heritable characteristics, producing only the organisms who are best suited for their environment

Competition: When two or more organisms fight for resources

Heritability: The concept that traits are passed down from parent to offspring

Trophic Levels: The hierarchical system of organizing energy in an ecosystem. The bottom trophic level contains the most available energy.

Carrying Capacity: the maximum number of organisms that an ecosystem can support.

Logistic Growth: A curve representing healthy population growth, you will see that the population levels off as it reaches carrying capacity.

Exponential Growth: A curve representing unhealthy population growth. Organisms may be reproducing rapidly without any natural predators or population checks.

Biotic Factors: Living factors that impact an ecosystem

Abiotic Factors: Non living Factors that impact an ecosystem

Hardy Weinberg Equation: An equation used to see the change in allele Frequency in a population.

**NUCLEUS** A cellular organelle that stores important genetic information. This is where mRNA synthesis takes place.

**DNA Deoxyribonucleic acid.** The molecule that contains information and instructions on maintaining cellular function.

**MEIOSIS** A specific type of cell division that produces gametes.

**CROSSING OVER** A stage in meiosis where homologous pairs of chromosomes share information in order to create genetically unique daughter cells.

**HAPLOID** A cell that contains 23 chromosomes (Gametes) (Sperm or egg Cells).

**DIPLOID** A cell that contains 46 chromosomes (Somatic Cells) (Body cells).

**CHROMOSOMES** Tightly condensed coils of DNA and proteins.

**RNA Ribonucleic acid.** A disposable, temporary copy of a segment of DNA. Brings genetic information outside of the nucleus to the ribosomes, so protein synthesis can occur.

**PROTEIN** A large molecule in the body responsible for performing specific functions. *Example: Hemoglobin is a protein necessary for oxygen transport in the bloodstream.*

**AMINO ACIDS** The building blocks of proteins. 20 different building blocks come together and form proteins via peptide bonds.

**TRANSCRIPTION** The process of turning DNA into mRNA (Takes place in the nucleus).

**TRANSLATION** The process of turning mRNA into a specific protein (Takes place on a ribosome). The process of “reading” a strand of mRNA, and building the correct protein from amino acids

**CODON** A set of three nucleotides on an mRNA strand. These “code” for a specific amino acid to be brought to the protein chain.

**NUCLEOTIDES** The building blocks of nucleic acids. Adenine, Guanine, Cytosine, and Thymine/Uracil will pair together to great sequences of useable “information” for both DNA and RNA molecules.

**MUTATION** An error in a DNA or mRNA sequence.

**Genes:** Specific sequences of DNA that code for proteins, and are ultimately responsible for physical traits.

**GENOTYPE:** The DNA sequence that encodes for particular genes. Often represented using alike letters (AA or bb).

**PHENOTYPE:** The physical expression of a gene. Often referred to as a trait, or a characteristic.

**TRAITS:** Characteristics of an organism. Example: Eye color, Hair color, Blood type etc...

**HOMOZYGOUS:** Two alike alleles.

**HETEROZYGOUS:** Two different Alleles.

**ALLELES:** Different version of the same gene. These differences can cause different phenotypes to occur in an offspring.

**RECESSIVE:** Alleles or traits that are not commonly seen in the gene pool.

**COMPLETE DOMINANCE:** Alleles or traits that are commonly seen in the gene pool. This Allele will overtake recessive alleles to determine cell function. Typically, this will determine if an organism has one phenotype over the recessive phenotype.

**INCOMPLETE DOMINANCE:** In this type of dominance, heterozygous alleles will create their own intermediary phenotype, that will occupy a blend of dominant and recessive traits.

**CO-DOMINANCE:** In this type of dominance, there is more than one dominant allele. When combined, the two or more phenotypes are presented together as its own dominant phenotype. *Ex) type AB blood.*

**Punnett Square:** A mathematical tool used to determine the probability of an offspring inheriting **ONE** trait.

**Dihybrid cross:** A mathematical tool used to examine the inheritance pattern of two traits that are linked together in a gene.

