

ABRC: Greening the Classroom Resource

Terms & Concepts

GENETICS

Term/Concept	Definition
Adaptation	A change in form (physical) or function (behavioral) of a living thing that affects its ability to survive
Allele	A copy of a gene. There can be multiple alleles possible for a single gene. In sexual reproduction, offspring receive one allele from each parent for each gene in the genome.
DNA	Deoxyribonucleic acid, the molecule that encodes all an organism's genetic information
Dominant	Only one dominant allele of a gene must be present for a dominant trait to be displayed
F1 Generation	First filial generation, the offspring that results from the crossing of the parent generation
F2 Generation	Second filial generation, the offspring that results from the crossing of two distinct individuals in the F1 generation
Gene	A section of DNA that gives instructions for making a protein. Different proteins are responsible for different characteristics. Genes are inherited from parents to offspring in sexual reproduction.
Genetic variation	The degree of genetic variety (the prevalence of different copies of genes) present between individuals or within a population
Genome	The complete DNA of an individual
Genotype	The genetic makeup of an individual, genotype can refer to a single gene or to an individual's entire genome
Heterozygous	Term that describes an individual in which the alleles of a gene are different
Homozygous	Term that describes an individual in which both alleles of a gene are the same
Law of Independent Assortment	Alleles for one trait separate and are passed on to offspring independent of the inheritance of alleles for other traits.
Law of Segregation	In most cells, genes occur in pairs. Each of the two copies of the gene is called an allele. During gamete formation, the two alleles separate resulting in gametes with only one allele for each gene.
Mendelian ratio	3:1, the expected ratio of dominant to recessive phenotypes for a trait controlled by a single gene in the offspring resulting from a genetic cross of two heterozygous individuals
Mutant	An organism whose genetic make-up has been changed
Mutation	A change in the DNA of an organism
Natural accession	A strain of an organism that was collected in the wild as opposed to generated in a laboratory, interchangeable with the term natural variant
Natural variant	A strain of organism that was collected in the wild as opposed to generated in a laboratory, interchangeable with the term natural accession
P Generation	Parent generation, two distinct individuals that are crossed to produce offspring
Phenotype	The physical characteristics that an individual displays. An individual's phenotype is directly influenced by its genotype, as well as by other factors such as environment.
Recessive	Two recessive alleles of a gene must be present for a recessive trait to be displayed
Reference strain	The specific strain of an organism that is used in an experiment as the benchmark against which other strains are compared. This strain may not possess a mutation for a certain gene or does not display a certain phenotype
Sequence	The process of analyzing and identifying all of the genes in an organism's genome
Strain	A set of Arabidopsis seeds that is genetically uniform, can be used interchangeably with the terms line and stock
Wildtype	Term often used when the reference strain was collected in the wild as opposed to having been generated in a laboratory

ANATOMY

Term/Concept	Definition
Anther	The part of a flower's male reproductive structure that produces pollen, located on top of the filament
Carpel	The female reproductive structure of a flower made up of the stigma, style, and ovary
Chlorophyll	Green pigment responsible for light capture in photosynthesis
Cotyledon	Embryonic leaf of a germinating seedling, also called a seed leaf
Filament	The stalk of the stamen (male reproductive structure) that supports the anther
Hypocotyl	Stem of a germinating seedling
Inflorescence	The flowering structure of the plant that includes the stem, stalk and flowers
Petal	Modified leaves that are part of a plant's reproductive system
Photoreceptor	Plant and animal proteins that allow an organism to detect light and transmit a message that light has been detected to a network of molecules involved in producing a response to the light
Phytochrome	Red and far-red photoreceptors
Radicle	Root tip of a developing seedling that is the first to emerge from the seed coat upon germination
Rosette	Arrangements of leaves at the base of a plant. The rosette stage is the leafy stage of development that occurs before flowering.
Sepal	The leaf-like structures that surround an unopened flower, and are positioned outside the petals near where the petals meet the stem on an open flower
Silique	Seed pod
Stamen	The male reproductive structure of a flower that is made up of a filament and anther.
Trichome	A hair-like structure on a plant, often found on the leaves and stems

PROCESSES & MISCELLANEOUS TERMS

Term/Concept	Definition
Aliquot	The process of taking a portion of material out of a primary container and placing it into a separate container
Bolting	The process of a plant beginning to grow the flower stem and slowing the growth of leafy vegetation
Dormancy	The temporary inability of an intact viable seed to germinate despite the presence of favorable growth conditions
Germination	The process by which a seed begins to sprout and grow into a seedling under favorable growth conditions
Gibberellic acid (GA)	A hormone that influences many aspects of plant growth and development including germination, flowering, and fruit development
Habitat	The environment in which an organism lives. An organism's habitat provides nutrients, water, shelter, and space.
Hypothesis	An educated guess or prediction about the results of an experiment
Photomorphogenesis	Growth and development that results from exposure to light
Photosynthesis	The process of a plant utilizing light energy to produce sugars
Resistant	Term used to describe an organism's ability to survive in spite of adverse conditions (pest, pathogen, environmental changes)
Susceptible	Term used to describe an organism's tendency to succumb to adverse conditions (pest, pathogen, environmental changes)
Senescence	The process of degrading with age
Stratification	The process of subjecting seeds to both short-term cold and moist conditions to simulate natural winter that a seed commonly endures before germination in non-tropical climates
Synthesize	To make
Variable	A condition or quantity that can change in an experiment