

## Lesson 7.1 Glossary

### A

**Allele** – The alternative forms of genes having the same place in homologous chromosomes, which influence the development of alternative traits or characters.

**Anaphase** – The phase in mitosis when chromatids separate and move toward opposite poles. In meiosis, the paired chromosomes move apart.

### C

**Chromatid** – One strand of a doubled chromosome seen in the prophase and metaphase of mitosis.

**Chromosome** – A microscopic, dark-staining body, visible in the nucleus of the cell at the time of nuclear division, which carries the genes, arranged in linear order. Its number in any species is usually constant, and it serves as the bridge of inheritance, i.e., the sole connecting link between two succeeding generations.

**Codominance** – A kind of gene action where one allele does not exhibit complete dominance over the other.

**Crossbreeding** – The pollinating or breeding of plants or animals that belong to different species, races, breeds, varieties, etc.

### D

**Dihybrid cross** – A cross between individuals that involves the pairing of contrasting traits.

**Diploid** – Having one genome comprising two sets of chromosomes. Somatic tissues of higher plants and animals are ordinarily diploid in chromosome constitution in contrast with the haploid (monoploid) gametes.

**Dominant gene** – A gene that prevents its allele from having a phenotypic effect.

### E

**Egg** – The reproductive body produced by a female organism: in animals, the ovum; in plants, the germ cell, which after fertilization, develops into the embryo.

### F

**Fertilization** – The union of a sperm and egg.

### G

**Gamete** – A “sex-cell,” capable of uniting with another gamete to produce a cell (e.g., fertilized egg, or zygote) that in turn is capable of developing into a new individual.

**Gene** – The simplest unit of inheritance. Physically, each gene is apparently a nucleic acid with a unique structure. It influences certain traits.

**Genetics** – The science that deals with the laws and processes of inheritance in plants and animals.

**Genotype** – The genetic constitution (i.e., gene makeup), expressed and latent, of an organism. Individuals of the same genotype breed alike.

### H

**Haploid** – In genetics, this is half the number of chromosomes that are usually present in the nucleus; occurs during reduction division.

**Heredity** – Genetic transmission of traits from parents to offspring.

**Heterozygous** – Having two different genes at the same locus on a pair of homologous chromosomes.

**Homozygous** – Possessing identical genes with respect to any given pair or series of alleles.

## I

**Incomplete dominance** – A kind of inheritance where a gene does not completely cover up or modify the expression of its allele.

**Inheritance** – The transmission of genetic factors from parent to offspring.

**Interphase** – The period in the life of a cell between mitotic divisions.

## M

**Meiosis** – Cell division early in the reproductive process, and in the formation of sperm and ova in the testes and ovaries. Each pair of chromosomes in the cell being divided separates, and one member of each pair goes to each of the two new cells formed.

**Metaphase** – The stage of cell division in which the chromosomes are arranged in an equatorial plate or plane. It precedes the anaphase stage.

**Mitosis** – Cell division involving the formation of chromosomes, spindle fibers, and the division of chromosomes by a process of longitudinal splitting. Each of the resulting daughter cells thus has a full set of chromosomes as distinguished from reduction division or meiosis, in which the daughter cells have half the somatic number.

**Monohybrid cross** – A cross between individuals that involves one pair of contrasting traits.

**Mutation** – A variant, differing genetically and often visibly from its parent or parents and arising rather suddenly or abruptly.

## N

**Nucleus** – The central portion of the cell protoplast surrounded by a very thin membrane. It consists of nucleoplasm and includes within itself variously arranged chromatin, nuclear sap, and nutritive substances. It is of crucial significance in metabolism, growth, reproduction, and the transmission of the determiners of heredity characters.

## O

**Oogenesis** – Formation, development, and maturation of an ovum.

**Ovum** – The female sex cell, produced on the ovary, and carrying half of the genes carried by the female in which it was produced.

## P

**Phenotype** – The observed character of an individual without reference to its genetic nature. Individuals of the same phenotype look alike but may not breed alike.

**Prophase** – The first phase of cell division wherein many of the preparatory steps takes place, such as shortening and thickening of the chromosomes, division of the centromeres, disappearance of the nuclear membrane, and formation of the spindle.

**Punnett Square** – A model used to establish the probabilities of the results of a genetic cross.

## **R**

**Recessive** – In genetics, a gene or trait that is masked by a dominant gene.

## **S**

**Sex-linked** – Characters developed from genes located on sex chromosomes. The character may be used to determine the sex of an animal; e.g., barring of Barred Plymouth Rock chickens.

**Spermatogenesis** – Formation and development of sperm by meiosis.

## **T**

**Telophase** – The phase of cell division between anaphase and the complete separation of the two daughter cells; includes the formation of the nuclear membrane and the return of the chromosomes to long, threadlike and indistinguishable structure.

## **Z**

**Zygote** – A fertilized ovum or egg, it is the diploid cell formed from the union of the sperm with an ovum.