Advanced Animal Genetics

Heredity
: genetic transmission of characteristics from parent to offspring

Gene
: basic physical unit of heredity consisting of a DNA sequence at a specific location on a chromosome

DNA
: deoxyribonucleic acid; molecule which forms the genetic code

Chromosome
: one of a number of long strands of DNA and associated proteins present in the nucleus of every cell

Centromere
: most condensed and constricted region of a chromosome to which the spindle fiber is attached during cell division

Homologs
: one pair of chromosomes having corresponding loci

Locus
: specific location of a gene on a chromosome

Allele
: alternative form of a gene

Gamete
: sex cell; a sperm or egg

Haploid
: having only one homolog chromosomes and located in sex cells

Diploid
: having a complete pair of chromosomes and located in body cells

Homozygous
: one-locus genotype containing functionally identical genes

Heterozygous
: one-locus genotype containing functionally different genes

STUDENT VOCABULARY HANDOUT

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Nucleotides
: any of various compounds consisting of a nucleoside combined with a phosphate group and forming the basic constituent of DNA and RNA

Mitosis
: process of body cell formation through cell division

Meiosis
: process of sex cell formation through cell division

Chromatids
: either of the two daughter strands of a replicated chromosome that are joined by a single centromere and separate during cell division to become individual chromosomes

Metaphase Plate
: center of the cell, where chromosomes align preparing to split during metaphase

Primordial Germ Cells
: sexual reproductive cell in the first stages of development

Tetrad
: group of four synapsed chromatids that become visible during the meiotic prophase

Phenotype
: expression of a specific trait determined by both genetic makeup and environmental influences

Genotype
: combination of genes at a single loci

Punnett Square
: two-dimensional grid used to determine the possible zygotes obtainable from two parents

Zygote
: cell formed from the union of male and female gametes

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Complete Dominance
: physical expression of the heterozygote is identical to the physical expression of the homozygous dominant genotype

Qualitative Inheritance
: inheritance of a character that differs in its expression amongst individuals of a species

Quantitative Inheritance
: inheritance of a character that depends upon the cumulative action of many genes, each of which produces only a small effect

Heterosis
: marked vigor or capacity for growth often exhibited by crossbred animals; hybrid vigor

Mutations
: any event that changes genetic structure; any alteration in the inherited nucleic acid sequence of the genotype Cell Differentiation process by which a cell becomes a more specialized cell; example is a muscle cell