

Overview of Inheritance Patterns

Inheritance Pattern	Genotype	Phenotype	Examples of Traits
Simple Dominant	Can be either HOMOZYGOUS: RR or HETEROZYGOUS: Rr	Can roll tongue Two different genotypes show the same phenotype	Roll tongue Huntington's Disease Achondroplasia (dwarfism)
Simple Recessive	Only one genotype HOMOZYGOUS: aa	Albino, pale skin	Albinism, Cystic Fibrosis Tay Sachs Disease, Galactosemia Nearsighted, PKU
Incomplete Dominance	Found in HETEROZYGOUS only RW	Pink snapdragon flowers The two genes are expressed as a mixture/blend	Snapdragon flower color Ear size Lip size
Co-Dominance	Found in HETEROZYGOUS only NS	Sickle Cell Anemia BOTH genes are expressed in the phenotype Both normal round blood cells and sickle blood cells	Sickle Cell Anemia AB blood type Checkered chickens
Multiple Alleles	More than 2 alleles for a trait Alleles have a hierarchy CC, Cc ^{ch} , Cc ^h , Cc, c ^{ch} c ^{ch} , c ^{ch} c ^h , c ^{ch} c, c ^h c ^h , c ^h c, cc Genotypes for rabbit fur color	Many phenotypes Gray= CC, Cc ^{ch} , Cc ^h , Cc Chinchilla= c ^{ch} c ^{ch} , c ^{ch} c ^h , c ^{ch} c Himalayan= c ^h c ^h , c ^h c Albino/white= cc	ABO-Blood types Coat color for rabbits
Sex-linked	Alleles are on the X chromosome XX=Female XY=Male Use superscript to show alleles	Normal Female=X ^N X ^N , X ^N X ⁿ Colorblind Female= X ⁿ X ⁿ Normal Male= X ^N Y Colorblind Male= X ⁿ Y	Red Green Colorblindness Hemophilia Eye Color in Fruit Flies
Polygenic	Many gene pairs for a trait AaBBCC	Many phenotypes Light skin, beige, tan, dark, etc	Skin color Height
Epistasis	One pair of alleles controls the expression of another pair eeBB, eeBb, eebb EeBB, EeBb, Eebb, EEbb, EEbb, EEbb	Phenotypes are based on both pairs. Those with E will express the color, those with ee genotype will NOT express the dark coat. E_B_ Black, eeB_ Yellow E bb Brown, eebb Red Fox	Coat Color in Labs

