

Science 10: Complete Dominance (Mendelian), Codominance, and Incomplete Dominance Class Notes

	Phenotypes	Allele / Genotype Notation	Example
Complete Dominance	2 phenotypes: heterozygote is same as homozygous dominant Require two recessive alleles to show recessive phenotype. Require one (or two) dominant alleles to show dominant phenotype.	Each allele is one letter. Dominant is capital. Recessive is lowercase.	Flower colour in pea plants Purple (B) dominant over white (b). BB: purple Bb: purple bb: white
Incomplete Dominance	3 phenotypes: heterozygote is a mix or average of traits	Each allele is two letters. The big letter indicates the gene; the superscript indicates the allele (e.g. F^W vs F^B)	Wavy hair in humans: curly hair incompletely dominant with straight hair $H^S H^S$: straight $H^S H^C$ or $H^C H^S$: wavy $H^C H^C$: curly
Codominance	3 phenotypes: heterozygote shows both traits	Each allele is two letters. The big letter indicates the gene; the superscript indicates the allele (e.g. F^W vs F^B)	Checkered feathers in chickens F^W (white) codominant with F^B (black). $F^W F^W$: white $F^W F^B$ or $F^B F^W$: checkered $F^B F^B$: black
Special Case: Blood Type	4 phenotypes: is mixed codominance and complete dominance. Blood Type O, A, B, AB	Each allele is two letters. i = recessive I^A and I^B are codominant.	Type O: ii Type A: $I^A i$ or $I^A I^A$ Type B: $I^B i$ or $I^B I^B$ Type AB: $I^A I^B$ or $I^B I^A$
Sex-linkage	2 phenotypes: is complete dominance but gene is on the X or Y sex chromosome (usually X)	Gene is attached to X OR Y chromosome. Allele can be dominant (capital) or recessive (lowercase) superscript.	X^B = normal vision (dominant) X^b = red-green colour-blindness (recessive) Y = Y chromosome $X^B X^B$ = normal female $X^B X^b$ = normal female $X^b X^b$ = colourblind female $X^B Y$ = normal male $X^b Y$ = colourblind male