

Predicting Genetics Traits

The Punnett Square

Genetics for Kids

Organs

Genes

Function

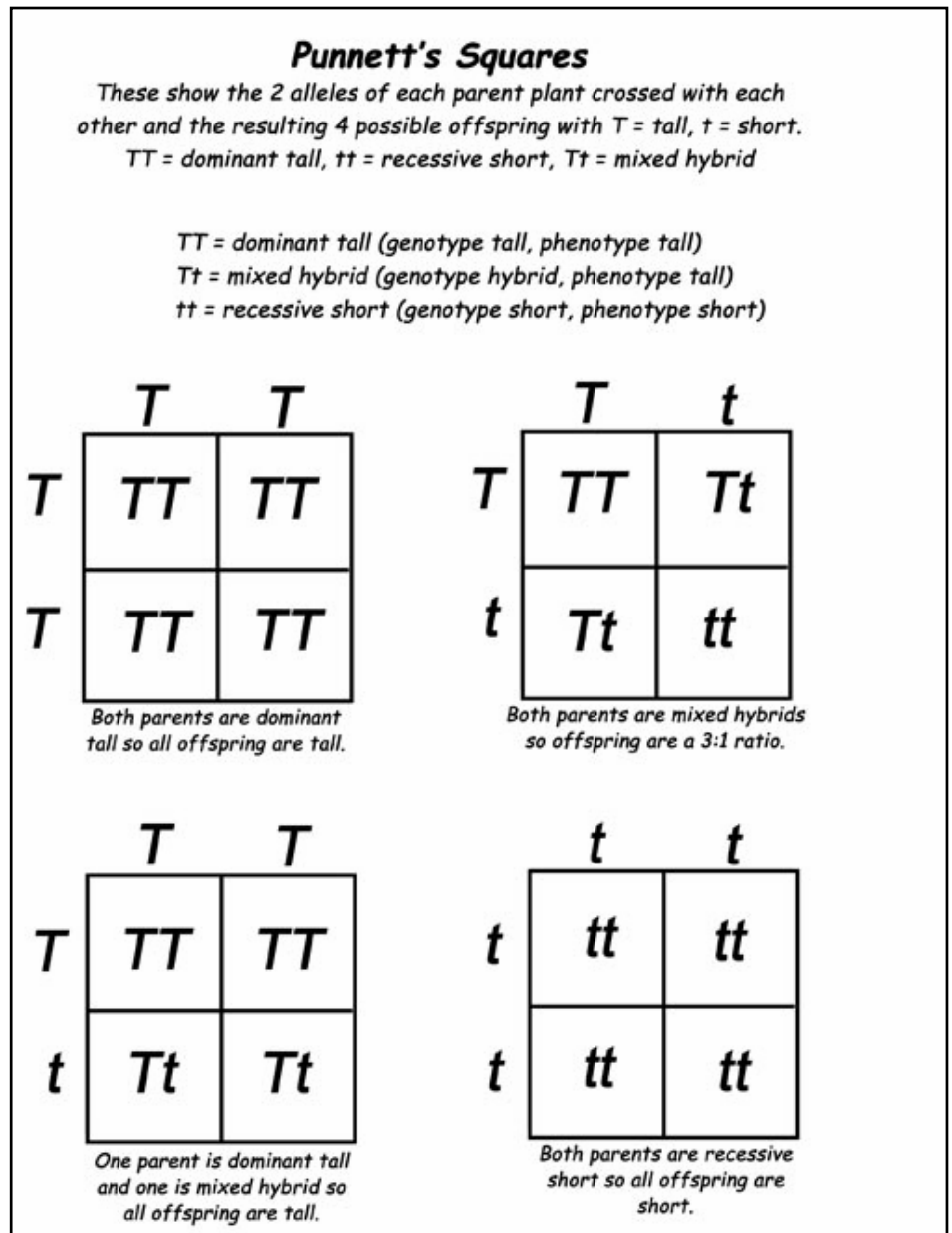
How an individual looks compared to their genetic code is sometimes different. This is the difference between genotype and phenotype. The genotype is the actual genetic make up of an individual. The phenotype is what that individual looks like.

Traits that show up more often are called dominant traits. Traits that show up less often are called recessive traits. If an individual with dominant traits breeds with an individual with recessive traits, this can result in a hybrid offspring.

Hybrid individuals can look like they have dominant traits (phenotype), but actually be hybrid (genotype).

Hybrid plants are different from dominant plants even if they looked the same. Each gene has two chances at a trait (two copies) or two alleles. So a hybrid plant could be carrying the allele for a recessive trait even if you can't see it. So, for example, a hybrid plant might be tall like its dominant parent, but it still could have an allele for shortness that you don't see. This is the difference between genotype and phenotype. The genotype is the actual genetic make up of an individual. The phenotype is what that individual looks like.

This can be illustrated with a simple chart. It's called a Punnett's Square. We'll use the example of tall pea plants verses short pea plants. When two tall dominant plants breed, all the offspring are tall dominant. When two hybrid plants breed, one in four of the offspring are short. This is a 3:1 ratio. Look at the Punnett's Square to see what kind of offspring you would get from a dominant and hybrid parent mix and two recessive parents.



CITING RESEARCH REFERENCES

Amsel, Sheri. "Genetics for Kids." Predicting Genetics Traits - The Punnett Square. Exploring Nature Educational Resource. © 2005 - 2009. November 20, 2009. <<http://exploringnature.org/db/detail.php?dbID=22&detID=55>>