

Teacher's Complex Traits

1) Incomplete dominance

Let's assume that dragons show incomplete dominance for fire breathing. The F allele provides lots of fire and the F' allele gives no fire. (a) If a dragon that has very strong fire is crossed with a dragon that has moderate fire, what will their offspring be like? (b) Under what conditions can a baby dragon be born that never has fire? Justify your answer with Punnett Squares.

[Note:

a) Parent dragons with FF (strong) and FF' (moderate) have a 50% chance of having a baby dragon with strong fire (FF) or with moderate fire (FF').

b) A baby dragon with no fire (F'F') can be produced by two dragons with no fire (F'F' X F'F'), both with moderate fire (FF' X FF'), or one with no fire and the other with moderate fire (F'F' X FF').]

2) Codominance

Let's say that the color of merpeople's tail is controlled by a codominant gene and the alleles are blue (B) and green (G). Show a cross between two merpeople who have bluish-green tails (BG). Give the offspring phenotypes with percentages.

[Note: Between parents with BG and BG tail color genotype, their children have 50% chance having blue-green tails and 25% chance having blue or green tails.]