

Incomplete Dominance

1. In Japanese four-o'clocks, the gene controlling flower colour has alleles that are neither dominant nor recessive. Plants that have two red alleles ($C^R C^R$) have red flowers. Plants with two white alleles ($C^W C^W$) have white flowers. However, plants with one red allele and one white allele ($C^R C^W$) have pink flowers. This condition is called incomplete dominance.

For each of the following, use a Punnett square to determine the genotype and phenotype ratios of a cross between:

- a) a red plant and a white plant
- b) a white plant and a pink plant
- c) a red plant and a pink plant
- d) two pink plants

2. In some cats the gene for tail length shows incomplete dominance. Cats with long tails (T^L) and those with no tails (T^N) are homozygous for the respective alleles. Cats with one long-tail allele and one no-tail allele have short tails. Use a Punnett squares to determine the genotype and phenotype ratios of a cross between:

- a) a long-tail cat and a cat with no tail
- b) a long-tail cat and a short-tail cat
- c) a short-tail cat and a cat with no tail
- d) two short-tail cats