

MONOHYBRID CROSS WORKSHEET

(Single-Trait Inheritance Sample Questions)

1. In humans, albinism is due to a recessive gene. Two normal parents produce an albino child. If they produce another child, what are the chances that it will be an albino? (use the letter **A**)
2. In foxes, silver-black coat colour is governed by a recessive allele (**b**) and red colour by its dominant allele (**B**). Determine the genotypic and phenotypic ratios expected from the mating of a homozygous red fox with a heterozygous red fox.
3. In humans, polydactyly (which causes the formation of extra fingers or toes) is due to a dominant gene, **P**. When one parent is heterozygous for polydactyly and the other is normal, what will be the expected frequency of polydactyly in their children?
4. The gene for tongue rolling is determined by a dominant gene.
 - a. If a father is heterozygous roller and the mother is a homozygous non-roller, what could their children be?
 - b. What is the expected frequency of tongue rollers in the family? (use the letter **R**)
5. Curly hair is dominant over straight hair. Is it possible for a curly haired man to produce curly haired children if his wife has straight hair? Use a Punnett square to determine your answer. (use the letter **C**).
6.
 - a) The ability to taste sodium benzoate is due to a dominant gene, **T**. If everyone in the Smith family of 14 individuals is a taster except for Poncho, does this mean that Poncho is adopted?
 - b) Widow's peak is due to a dominant gene, **W**. If no one in the Smith family has a widow's peak except for Sylvester, does this mean that Sylvester is adopted?
7. Several black guinea pigs of the same genotype were mated and produced 29 black and 9 white offspring. (use the letter **B**)
 - a) What would you predict the genotypes of the parents to be?
 - b) Why?