

Genetics Review Worksheet

1. Define the following: a) Genetics, b) heredity, c) Probability, d) dominance, e) recessive, f) punnett square, g) genotype, h) phenotype, i) genotypic ratio, j) phenotypic ratio, k) homozygous dominant, l) heterozygous, m) homozygous recessive, n) hybrid, o) pure bred, p) monohybrid cross, q) allele, r) incomplete dominance, s) codominance
2. If you were to create a test cross, what would you mate the unknown genotype with? (homozygous dominant, heterozygous, homozygous recessive)
 - a. If all the offspring of a large sample showed the dominant phenotype what type of genotype would the unknown have?
 - b. If half of the offspring showed dominant phenotype and half recessive phenotype, what would the unknown genotype be?
3. Problem: In fruit flies, the gene for normal wings is dominant over the gene for stubby wings. A heterozygous male fly is mated with a stubby winged female, and 200 offspring were counted about two weeks later.
 - a. According to the laws of probability and inheritance, what would the expected ratio be of normal to stubby winged flies?
 - b. Of the 200 offspring counted, 95 had normal wings and 105 had stubby wings. How far off from the expected is your data?
 - c. What is the genotypic ratio for the above cross? What is the phenotypic ratio?
 - d. What are the chances of obtaining a fly with stubby wings?
 - e. What are the chances of obtaining two flies in a row with stubby wings?
 - f. If the first two flies had stubby wings what are the chances of the third fly having stubby wings?
4. In a special breed of mice called Magnificent Mice, a cross between a Blue and Yellow Magnificent Mouse produces Green Offspring. Use the letters "B" and "Y."
 - a. What type of dominance is shown? How do you know?
 - b. What are the genotypes of the Blue mice? Green? Yellow?
 - c. If you cross 2 Green Magnificent Mice, how many Blue mice would you expect? Green? Yellow?

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