

Genetics Practice – Mixed Punnett Squares
Integrated Science 2

Name:

Period:

1. In humans, tongue rolling is a dominant trait (R), those with the recessive condition cannot roll their tongues. Bob can roll his tongue, but his mother could not. He is married to Sally, who cannot roll her tongue. What is the probability that their first born child will not be able to roll his tongue?
2. In goats, a recessive gene causes the goats to “faint” when they are startled. A farmer breeds two goats (that have never fainted) and their first offspring faints two days after its birth. What must the parent’s genotypes have been? Show the cross to prove it.
3. Located on the X chromosome of a cat is a gene that codes for deafness. This gene is recessive. A deaf female cat is crossed with a male cat that is not deaf. Show this cross.
4. In humans, the gene for brown eyes (B) is dominant to the gene for blue eyes and the gene for right handedness (R) is dominant to the gene for left handedness. Two individuals heterozygous for both of these characteristics marry. Complete a Punnett square to show the expected genotypes and phenotypes of the offspring and summarize the ratios.
5. In chimpanzees, straight fingers are dominant to bent fingers. Complete a Punnett square to show the genotypes and phenotypes expected for the following cross: heterozygous straight x homozygous bent.
6. Muscular dystrophy is a sex-linked recessive disorder. A man with muscular dystrophy marries a woman who does not have this disease. Half of their daughters and half of their sons develop this disease. What is the genotype of the father? The mother? Document how you arrived at your answer.
7. Colorblindness is a sex-linked recessive character. A color blind woman marries a male with normal color vision (C). Complete a Punnett square to show what the expected average phenotypes and genotypes of their offspring will be.
8. In Mendel’s pea plants, purple flower (P) color is dominant to white. Yellow seed color (Y) is dominant to green. A plant that is homozygous for purple flower and yellow seeds is crossed with a white plant with green seeds. What would be the ratios for genotype and phenotype of the F1 generation?