

Classical Genetics Practice Problems

1. Cross a homozygous black (BB) with a homozygous white (bb) guinea pig using a Punnett square. Be sure to give the phenotypes produced, the phenotypic ratio, the genotypes, and the genotypic ratio.
2. Cross a heterozygous tall (Tt) pea plant (sometimes called a hybrid) with another hybrid tall pea plant. Give all of the same information required in question one.
3. Cross a yellow (yy) pea plant with a hybrid green (Yy) pea plant. Give all necessary data concerning offspring.
4. Cross two of the offspring from question 1 and describe the results.
5. Cross a rough (RR) guinea pig with a smooth (rr) guinea pig. Describe the results in detail.
6. Describe how to determine whether the genotype of a rough guinea pig is RR or Rr. Be careful to show the method you would use clearly.
7. Why can you determine the genotype of a yellow pea plant by knowing the phenotype, but not be able to determine the genotype of a green pea plant through its phenotype.
8. Cross a pure (homozygous) white guinea pig with a pure black (homozygous) guinea pig. Describe the results completely. Why are there no gray pigs???