

Name _____

Genetic Crosses that Involve 2 Traits – Dihybrid Practice

In rabbits, grey hair is dominant to white hair. Also in rabbits, black eyes are dominant to red eyes.

GG = gray hair
 Gg = gray hair
 gg = white hair

BB = black eyes
 Bb = black eyes
 bb = red eyes



1. What are the phenotypes (descriptions) of rabbits that have the following genotypes:

Ggbb _____ ggBB _____
 ggbb _____ GgBb _____

2. A male rabbit with the genotype GGbb is crossed with a female rabbit with the genotype ggBb. The square is set up below. Fill it out and determine the phenotypes and proportions in the offspring.

	Gb	Gb	Gb	Gb
gB				
gB				
gb				
gb				

What percent have grey fur and black eyes?

What percent have grey fur and red eyes?

What percent have white fur and black eyes?

What percent have white fur and red eyes?

3. Determine the gametes produced by a male rabbit with the genotype GgBb (the sperm would have these combinations of alleles) Hint there are 4 combinations.

4. Determine the gametes produced by a female rabbit with the genotype GGBb (the eggs would have these combinations of alleles) Hint there are 4 combinations.

5. Use the gametes from #3 and #4 to set up the Punnett square below. Put the male's gametes on the top and the female's gametes down the side. Then fill out the square and determine what proportion of offspring would be produced from this cross and in what proportion.

- _____ Gray with black eyes
- _____ Gray with red eyes
- _____ White with black eyes
- _____ White with red eyes

6. An aquatic arthropod called a Cyclops has antennae that are either smooth or barbed. The allele for barbs is dominant. In the same organism, resistance to pesticides is a recessive trait. Make a "key" below to show all the possible genotypes (and phenotypes) of this organism. Use the rabbit key to help you if you're lost.



7. Two Cyclops heterozygous for both traits breed. Show the genotypes of the parents. _____ x _____

8. Set up a Punnett square for the cross and show the phenotypic ratios.

- _____ Barbs and not resistant to pesticide
- _____ Barbs with pesticide resistance
- _____ Smooth and not resistant to pesticide
- _____ Smooth with pesticide resistance