Name KEY Period Date Score 25pts

Chapter 6: Dihybrid Cross Worksheet

In rabbits, gray hair is dominant to white hair. Also in rabbits, black eyes are dominant to red eyes. These letters represent the genotypes of the rabbits:

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 Gray hair red eyes ggBB white hair black eyes

ggbb white hair red eyes GgBb gray hair black eyes

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	GgBb	GgBb	GgBb	GgBb
gB	GgBb	GgBb	GgBb	GgBb
gb	Ggbb	Ggbb	Ggbb	Ggbb
gb	Ggbb	Ggbb	Ggbb	Ggbb

How many out of 16 have gray fur and black eyes? 8

How many out of 16 have gray fur and red eyes? 8

How many out of 16 have white fur and black eyes? 0

How many out of 16 have white fur and red eyes 0

3. 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 of offspring

	GB	Gb	gB	gb
GB	GGBB	GGBb	GgBB	GgBb
Gb	GGBb	GGbb	GgBb	Ggbb
gB	GgBB	GgBb	ggBB	ggBb
gb	GgBb	Ggbb	ggBb	ggbb

How many out of 16 have gray fur and black eyes? 9

How many out of 16 have gray fur and red eyes? 3

How many out of 16 have white fur and black eyes? 3

How many out of 16 have white fur and red eyes? 1

To determine the gametes, use arrows to find all possible combinations. Then label one side of the P. square with the gametes

Parent 1: g g B b → gB gB gb gb

Parent 2: G G B b → GB Gb GB Gb

4. Show the cross between a ggBb and a GGBb. You'll have to set this one up yourself:

Punnett Square:

Parent 2

Parent 1	GB	Gb	GB	Gb
gB	GgBB	GgBb	GgBB	GgBb
gb	GgBb	Ggbb	GgBb	Ggbb
gB	GgBB	GgBb	GgBB	GgBb
gb	GgBb	Ggbb	GgBb	Ggbb

5. An aquatic arthropod called a Cyclops has antennae that are either smooth or barbed. The allele for barbs (B) is dominant over smooth (bb). In the same organism Non-resistance to pesticides (N) is dominant over resistance to pesticides (nn). Make a "key" to show all the possible genotypes (and phenotypes) of this organism.

Genotype (List all the possible combinations of the 2 traits)	Phenotype (identify what those combinations look like.)
BB, Bb, Bb, NN, Nn, nn — BBNN, BBNn, BbNN, BbNn	barbed & non-resistant
BBnn, Bbnn	barbed & resistant
bbNN, bbNn	smooth & non-resistant
bbnn	smooth & resistant

6. A Cyclops that is resistant to pesticides and has smooth antennae is crossed with one that is heterozygous for both traits. Show the genotypes of the parents.

bbnn x BbNn

bbnn → bn bn / bn bn } all gametes are the same

7. Set up a punnett square for the cross.

BbNn → BN, Bn, bN, bn

	BN	Bn	bN	bn
bn	BbNn	Bbnn	bbNn	bbnn
bn	SAME AS	ABOVE		
bn	SAME AS	ABOVE		
bn	SAME AS	ABOVE		

9. What are the phenotypic ratios of the offspring?

1 - barbed - non resistant : 1 barbed resistant : 1 smooth nonresistant : 1 smooth resistant.