

Worksheet 2

 Name

1. Suppose that flower color is determined by a single gene locus and that red flowers are dominant to white flowers. If a heterozygous dominant individual is crossed with a heterozygous dominant individual, what is the probability of obtaining a pure offspring?
- a. 100%
 - b. 75%
 - c. 50%
 - d. 25%
 - e. 0%

2. Dog eye color is controlled by two separate genes with 2 alleles each. A dog's hair is red with large wings (RrWw) mate a white dog with small wings (rrww).
- a. What are the genotypes of the 16 puppies and each parent? How will be used to determine the fraction offspring from the cross?
RrWw, RrWw, Rrww, Rrww, rrWw, rrWw, rrww, rrww
 - b. How many types of gametes will be possible from the offspring? What combinations (genotype) from parents having genotypes RrWw and rrww?

	rW	RW	rW	RW
Rw	RrWw	RrWw	rrWw	RrWw
Rw	RrWw	RrWw	rrWw	RrWw
rw	Rrww	Rrww	rrww	Rrww
rw	Rrww	Rrww	rrww	Rrww

- a. What is the resulting genotype ratio? phenotype ratio?
 - i. (the ratio you indicate when you're part of the cross indicates, i.e. don't just say 4 of 16 they want the numbers written)**1:1:1:1**
50% red w/ large wings, 50% red w/ small wings
50% white w/ large wings, 50% white w/ small wings

3. Fruit color in watermelon is controlled by a single gene locus with two alleles. Green is dominant to red. A red watermelon (rr) is crossed with a heterozygous green watermelon (Rr).
- a. What is the expected percentage ratio of the offspring?
50:50
 - b. Describe the phenotypic ratio expected from this cross including the average colored offspring to the average colored percentage.

	R	r	R	r
R	RR	Rr	RR	Rr
r	Rr	rr	Rr	rr