

Worksheet 3**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. 25%
b. 75%
c. 50%
- d. 10%
e. 0%
2. Dog eye color is controlled by two separate genes with 2 alleles each. A dog's eye is red with large wings (RrWw) mate a white-eyed 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
- b. How many types of gametes will be possible resulting offspring? Write combinations (genotype) from parental gametes (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, say what the numbers indicate)
- 1:1:1:1**
50% red w/ large wings, 50% red w/ small wings
50% white w/ large wings, 50% white w/ small wings
- b. What color is red eye controlled by a single gene locus with two alleles. (Homozygous dominant - red eye, heterozygous dominant - red eye, heterozygous recessive - white eye, homozygous recessive - white eye)
- a. What is the expected percentage ratio of the offspring?
50:50
- b. Describe the phenotype ratio expected from the cross assuming the orange-eyed offspring is the orange-eyed parent.

	R	r
R	RR	Rr
r	Rr	rr