Worksheet 5 **Name:**

1. Suppose that flower color is inherited by simple dominance and that red flowers are dominant to white flowers. If a homozygous recessive individual is crossed with a homozygous dominant individual, what is the probability of obtaining a pink offspring?
   a. 100%
   b. 75%
   c. 50%
   d. 25%
   e. 0%

2. Dragon color and wing size are controlled by two separate gene loci with 2 alleles each. A dragon that is red with large wings (RrWw) mates with another that is silver with small wings (rrww).
   a. Write out the genotypes of the 4 gametes (of each parent) that will be used to determine the resultant offspring from the cross.
   RrWw: rW, RW, rw, Rw
   rrww: rw

   b. Do a Punnett Square to demonstrate all the possible resultant offspring's' allele combinations (genotypes) 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

   c. What is the resultant genotype ratio? phenotype ratio?
      o Be sure you indicate what each part of the ratio refers to, i.e. don't just say 4:3:2. Say what the numbers refer to)
   1:1:1:1
   25% **red w/ large wings**, 25% **red w/ small wings**
   25% **silver w/ large wings**, 25% **silver w/ small wings**

3. Shell color in snails is controlled by a single gene locus with two alleles. Heterozygous orange-shelled (Ss) snails are mated to homozygous recessive white-shelled (ss) snails.
   a. What is the expected genotype ratio of the offspring?
   Ss, ss
   b. Predict the phenotypic ratio expected from back crossing the orange-shelled offspring to the orange-shelled parent type.

	S	s
S	SS	Ss
S	SS	Ss