Worksheet 5 **Name:**

1. Suppose that flower color is inherited by simple dominance and that red flowers are dominant to white flowers. If a heterozygous 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 genes (so 2 alleles each). A dragon that is red with large wings (RrBb) mates with another that is silver with small wings (ssbb).
   a. Write out the genotypes of the 4 gametes out each parent that will be used to determine the possible offspring from the cross:
      RrBb or : rB, Rb, rb, Rb
      ssbb : sb
   b. On a Punnett Square to demonstrate all the possible resultant offspring's allele combinations (genotype). Note: parents having genotypes RrBb and ssbb.

   c. What is the resultant genotypic ratio? phenotypic ratio?
      i. (Be sure you indicate what each part of the ratio refers to, i.e. don't just say 4:3:2:1 Say what the numbers refer to)
      (4:4:4:4)
      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 genotypic ratio of the offspring?
      Ss, ss
   b. Predict the phenotypic ratio expected from Ss snails crossing the orange shelled offspring to the orange shelled parent type.
