Genetics Practice:

**A: In hamsters the gene for hair length has two alleles:**

**L - long hair**

**l - short hair**

1. What is the phenotype of a hamster with the genotype LL?

2. What is the phenotype of a hamster with the genotype Ll?

3. Draw a Punnett square showing the possible offspring of an LL male mating with an Ll female.

4. Write the phenotype of each offspring.

5. What is the probability of an offspring with each of the following genotypes:

LL

Ll

ll

6. What is the probability of an offspring with each of the following phenotypes:

Long hair

Short hair

7. How would the results change if it were an LL female and an Ll male?

**B: In hamsters the gene for hair length has two alleles:**

**L - long hair**

**l - short hair**

1. What is the phenotype of a hamster with the genotype ll?

2. What is the phenotype of a hamster with the genotype Ll?

3. Draw a Punnett square showing the possible offspring of an ll female mating with an Ll male.

4. Write the phenotype of each offspring.

5. What is the probability of an offspring with each of the following genotypes:

LL

Ll

ll

6. What is the probability of an offspring with each of the following phenotypes:

Long hair

Short hair

7. How would the results change if it were an ll male and an Ll female?

**C: In dogs rough hair allele (R) is dominant over the smooth hair allele (r).**

1. Draw a Punnett square showing the cross of an Rr male and an Rr female.

2. What is the probability of each of the following genotypes in the offspring?

RR

Rr

rr

3. What is the probability of each of the following phenotypes in the offspring?

Rough hair

Smooth hair

**D: In rabbits the floppy ear allele (F) is dominant over the erect ear allele (f).**

1. Draw a Punnett square showing the cross of an erect ear female with a heterozygous floppy eared male.

2. What is the probability of each of the following genotypes in the offspring?

FF

Ff

ff

3. What is the probability of each of the following phenotypes in the offspring?

Erect ears

Floppy ears

**E: In tulips the allele for red flowers is dominant over the allele for white flowers.**

1. Draw a Punnett square showing two red flowered plants producing a white flowered offspring.

**F: In tulips the allele for red flowers is dominant over the allele for white flowers.**

1. Draw a Punnett square for a cross that results in a 50% chance of red flowered offspring and a 50% of white flowered offspring.

**G: In zucchini plants when pure breeding red flowered plants are crossed with pure breeding yellow flowered plants 100% of the offspring (F1 generation) have orange flowers.**

1. Draw a Punnett square showing this cross.

2. Draw a Punnett square showing the cross of two F1 generation plants.

3. What is the genotype and phenotype ratio of the F2 generation?