

## Breeding Bunnies: Gene Frequency Data

Name \_\_\_\_\_ Period \_\_\_\_\_ 30

### Introduction:

How does natural selection affect gene frequency over several generations?

Clearly state your hypothesis (a tentative explanation or solution to the problem).

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State what you would predict (if your hypothesis is true) about the frequency of  $F$  alleles and  $f$  alleles in the population of rabbits after 10 generations, where  $ff$  bunnies are selected against (do not survive).

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### Data:

Generation	Number of $FF$ Individuals	Number of $Ff$ Individuals	Number of $ff$ Individuals	Number of $F$ Alleles	Number of $f$ Alleles	Total Number of Alleles	Gene Frequency of $F$	Gene Frequency of $f$
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

**Analysis:**

What was your original hypothesis?

1. Based on your lab data, do you need to change your hypothesis? Explain.
2. How did the number of alleles for the dominant characteristic compare to number of alleles for the recessive characteristic? How did those numbers change over time?
3. How do the frequencies of the dominant allele compare to the frequencies of the recessive allele over time?
4. In a real rabbit habitat new animals often come into the habitat (immigrate), and others leave the area (emigrate). How might emigration and immigration affect the gene frequency of  $F$  and  $f$  in this population of rabbits? How might you simulate this effect if you were to repeat this activity?
5. How do your results compare with the class data? If significantly different, why are they different?
6. How are the results of this simulation an example of evolution?

**Conclusion:** (After the activity answer the question “How does natural selection affect gene frequency over several generations?” again in 2-3 sentences)