Breeding Bunnies Worksheet

- 1. The black beans represent the allele for fur (F) and the white beans represent the allele for no fur (f). The cup represents the English countryside, where the rabbits randomly mate.
- 2. Place your hand over the cup and shake it (the rabbits are mating).
- 3. Without looking at the beans, select two at a time.

 (Two white beans = ff, two black beans = FF, one black and one white bean = Ff.)
- 4. Place the pairs of beans in the appropriate spot on the counting area worksheet.

 Two white beans go on the white bunny marked ff. Two black beans go on the gray bunny marked FF and one black bean and one white bean go on the gray bunny marked Ff.
- 5. When you have selected all individuals, count the number of each genotype: ff, FF, and Ff. Write these totals in the first three columns of the data table.
- The furless bunnies, genotype ff, are susceptible to cold weather.
 The cold weather kills them before they reach reproductive age.
 Make an X over the number of individuals in the ff column to show that they have died.
- 7. Place the alleles (beans) from the ff bunnies aside since they did not survive to reproduce.
- 8. Count the alleles from the FF and Ff bunnies and record it on your data sheet. (You can't count the alleles of the ff bunnies because they have died.)
- 9. Place the alleles of the surviving rabbits (which have grown, survived, and reached reproductive age) back into the cup and mate them again to get the next generation.
- 10. Repeat steps 2-9 to obtain information about subsequent generations.
- 11. Determine the allele frequencies of F and f for each generation and record them in the chart. How long do you think the allele for furlessness will persist in the rabbit population? Why?

| Generation | Individuals | | | Alleles | | | Allele Frequencies | |
|------------|--------------|----|----|---------|----|-----|--------------------|-------------|
| | ~~#\ ~~#\ | A | A | F | f | F+f | F ÷ (F+f) | f ÷ (F+f) |
| SAMPLE | | | | | | | | |
| 1 | X | 28 | 11 | 50 | 28 | 78 | 50/78 = .64 | 28/78 = .36 |
| 2 | X | 14 | 18 | 50 | 14 | 64 | 50/64 = .78 | 14/64 = .22 |
| 1 | | | | | | | | |
| 2 | | | | | | | | |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |
| 7 | | | | | | | | |
| 8 | | | | | | | | |
| 9 | | | | | | | | |
| 10 | | | | | | | | |