Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_ Class\_\_\_\_\_\_\_\_

**Coin Lab**

**Question**: How does chance affect heredity?

**Hypothesis**: When we flip the coin: 1) \_\_\_\_\_ out of 50 will be FF

 2) \_\_\_\_\_ out of 50 will be Ff

 3) \_\_\_\_\_ out of 50 will be ff

**Data Table: Gene Pairs**

|  |  |  |  |
| --- | --- | --- | --- |
| Flip # | FF | Ff | ff |
| 1. |  |  |  | Flip # | FF | Ff | ff |
| 2. |  |  |  | 33 |  |  |  |
| 3 |  |  |  | 34 |  |  |  |
| 4 |  |  |  | 35 |  |  |  |
| 5 |  |  |  | 36 |  |  |  |
| 6 |  |  |  | 37 |  |  |  |
| 7 |  |  |  | 38 |  |  |  |
| 8 |  |  |  | 39 |  |  |  |
| 9 |  |  |  | 40 |  |  |  |
| 10 |  |  |  | 41 |  |  |  |
| 11 |  |  |  | 42 |  |  |  |
| 12 |  |  |  | 43 |  |  |  |
| 13 |  |  |  | 44 |  |  |  |
| 14 |  |  |  | 45 |  |  |  |
| 15 |  |  |  | 46 |  |  |  |
| 16 |  |  |  | 47 |  |  |  |
| 17 |  |  |  | 48 |  |  |  |
| 18 |  |  |  | 49 |  |  |  |
| 19 |  |  |  | 50 |  |  |  |
| 20 |  |  |  | # FF |  | --------- | -------- |
| 21 |  |  |  | # Ff | --------- |  | --------- |
| 22 |  |  |  | Total ff | --------- | --------- |  |
| 23 |  |  |  |
| 24 |  |  |  |
| 25 |  |  |  |
| 26 |  |  |  |
| 27 |  |  |  |
| 28 |  |  |  |
| 29 |  |  |  |
| 30 |  |  |  |
| 31 |  |  |  |
| 32 |  |  |  |

Now graph your results on the back. Remember to include a title (**Gene Pair Graph**) and

 labels (**Genotypes** & **Number of times flipped**).

Data Analysis

1. The genotype type that we saw the most was \_\_\_\_\_\_. Our data shows that out of 50 times, we saw this genotype \_\_\_\_\_\_\_\_\_ times.
2. The genotype type that we saw the least was \_\_\_\_\_\_. Our data shows that out of 50 times, we saw this genotype \_\_\_\_\_\_\_\_\_ times.
3. According to our data, the genotype with the highest probability (chance) is \_\_\_\_\_\_.
4. According to our data, the genotype with the lowest probability (chance) is \_\_\_\_\_\_.

Discussion/Conclusion

A.) **Hypothesis evaluation-were we correct?**

 1. Our 1st hypothesis was: \_\_\_\_\_ out of 50 gene pairs would be FF. Our data for FF was \_\_\_\_\_ out of 50. Our results were \_\_\_\_\_\_\_\_\_\_\_\_ (higher than, less than or the same as) our hypothesis, so our hypothesis was \_\_\_\_\_\_\_\_\_\_\_\_\_ (correct/incorrect).

 2. Our 2nd hypothesis was: \_\_\_\_\_ out of 50 gene pairs would be Ff. Our data for Ff was \_\_\_\_\_ out of 50. Our results were \_\_\_\_\_\_\_\_\_\_\_\_ (higher than, less than or the same as) our hypothesis, so our hypothesis was \_\_\_\_\_\_\_\_\_\_\_\_\_ (correct/incorrect).

 3. Our 3rd hypothesis was: \_\_\_\_\_ out of 50 gene pairs would be ff. Our data for ff was \_\_\_\_\_ out of 50. Our results were \_\_\_\_\_\_\_\_\_\_\_\_ (higher than, less than or the same as) our hypothesis, so our hypothesis was \_\_\_\_\_\_\_\_\_\_\_\_\_ (correct/incorrect).

B.) What do you think scientists do when their hypotheses are wrong after they do an experiment? Why?

C.) How would you describe science as a process- does it ever end?

D.) Using what you learned in this lab, describe how probability (chance) affects heredity. Give a real-life example.

Extension: Compare/Contrast your data with another group. Create a table showing your data and the other group’s data. Write 3 sentences about how they are similar or different.