

5.2 Probability and Genetics

Last Name _____, First _____

Date _____
period ____

1. What is meant by the term probability?

2. How are two ways probability can be expressed? _____ and _____
 - a. What is the probability that you will pick the right key if the keychain had 7 keys?

 - b. If a million people, including you bought a lottery ticket, What is the probability that you bought the winning ticket?

3. Suppose you toss a coin 20 times and it lands 15 heads and 5 tails. On the 21st toss is it more likely to land on heads or tails? Explain

4. Who was the first scientist to recognize that the principles of probability could be used to predict the outcome of genetic crosses?

5. 3 out of 4 times a cross between 2 tall hybrid pea plants produces tall plants. What is the probability that a short pea plant will be produced?

6. How are Punnett squares used?

7. Fill in the following punnett square representing a cross between two stem height hybrid pea plants. Tt x Tt

	T	t
T		
t		

8. What is the difference between phenotype and genotype?

9. What are 2 phenotypes for stem height in pea plants?

10. What are 3 genotypes for stem height in pea plants?

11. How can an organism have 3 genotypes but only 2 phenotypes for a particular trait?

12. Compare and contrast homozygous vs. heterozygous.

13. A black chicken is crossed with a white rooster. All the offspring have black and white feathers. Explain how this could happen.

REVIEW QUIZ

14. In pea plants the allele for round seeds(R) is dominant over the allele for wrinkled seeds (r). Construct a punnet square that shows a cross between a heterozygous plant with round seeds and a homozygous plant with wrinkled seeds.

15. What is the probability that the offspring will have wrinkled seeds?

16. Have a partner think of a number between 1 and 5, then try to guess the number. Repeat the guessing activity 4 more times.
 - a. What is the probability that you will guess correctly?

 - b. How did your success rate compare to the probability?

 - c. How do you account for any difference between your success rate and the result predicted by probability?