

Probability and Heredity

Understanding Main Ideas

Complete the two Punnett squares below, and then answer the questions on a separate sheet of paper.

1. Punnett Square A:
2. Punnett Square B:

	B	b
B		
b		

	Bb	bb
Bb		
bb		

3. In the cross between two black guinea pigs shown in Punnett Square A, what is the probability that an offspring will be black? White?
4. Is it possible that the cross between two black guinea pigs in Punnett Square A would not produce a white guinea pig? Explain.
5. What color are the guinea pig parents in the cross shown in Punnett Square B?
6. Which guinea pig parent(s) in Punnett Square B is homozygous? Which is heterozygous? Explain how you know.
7. Calculate the probability that an offspring will be black in the cross in Punnett Square B. What is the probability that an offspring will be white?

Building Vocabulary

Match each term with its definition by writing the letter of the correct definition on the line beside the term.

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| _____ 8. heterozygous | a. a chart that shows all the possible combinations of alleles that can result from a genetic cross |
| _____ 9. Punnett square | b. a number that describes how likely it is that an event will occur |
| _____ 10. genotype | c. an organism that has two identical alleles for a trait |
| _____ 11. codominance | d. an organism's physical appearance |
| _____ 12. probability | e. an organism's genetic makeup, or allele combinations |
| _____ 13. homozygous | f. an organism that has two different alleles for a trait |
| _____ 14. phenotype | g. inheritance pattern in which the alleles are neither dominant nor recessive |