

## Study Guide 6.5: Traits and Probability

### KEY CONCEPT

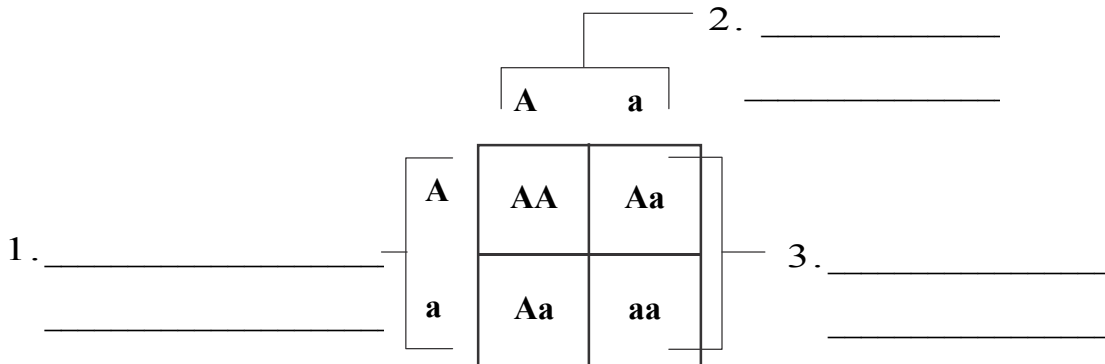
The inheritance of traits follows the rules of probability.

### VOCABULARY

Punnett square	testcross	law of independent assortment
monohybrid cross	dihybrid cross	probability

**MAIN IDEA:** Punnett squares illustrate genetic crosses.

Identify what each of the numbered parts represents in the Punnett square below. Then draw lines from each of the parents' alleles to the corresponding alleles in the offspring.



4. Why does each parent contribute only one allele to the offspring?

\_\_\_\_\_

**MAIN IDEA:** A monohybrid cross involves one trait.

5. You know a ratio is a comparison that tells how two or more things relate. What is a genotypic ratio? a phenotypic ratio?

\_\_\_\_\_  
\_\_\_\_\_

6. What is the genotypic ratio of the offspring in Figure 5.3?

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7. What is the phenotypic ratio of the offspring in Figure 5.3?

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**MAIN IDEA:** A dihybrid cross involves two traits.

8. What is a dihybrid cross?

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9. Why does each parent organism in the F<sub>1</sub> generation have four alleles listed in Figure 5.5?

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10. Suppose an organism had the genotype AABb. What two types of gametes could result from this allele combination?

\_\_\_\_\_

11. What is the phenotypic ratio that results from a dihybrid cross between two organisms that are heterozygous for both traits? See Figure 5.5 for help.

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**MAIN IDEA:** Heredity patterns can be calculated with probability.

12. Probability predicts the \_\_\_\_\_ number of occurrences, not the \_\_\_\_\_ number of occurrences.

13. To calculate the probability that two independent events will happen together, \_\_\_\_\_ the probability of each individual event.

14. In Figure 5.6, the probability of getting one coin that is heads up and one coin that is tails up is \_\_\_\_\_.

## Vocabulary Check

15. What is a testcross?

\_\_\_\_\_

16. What is independent in the law of independent assortment?

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