Name _____ Class _____ Date _____

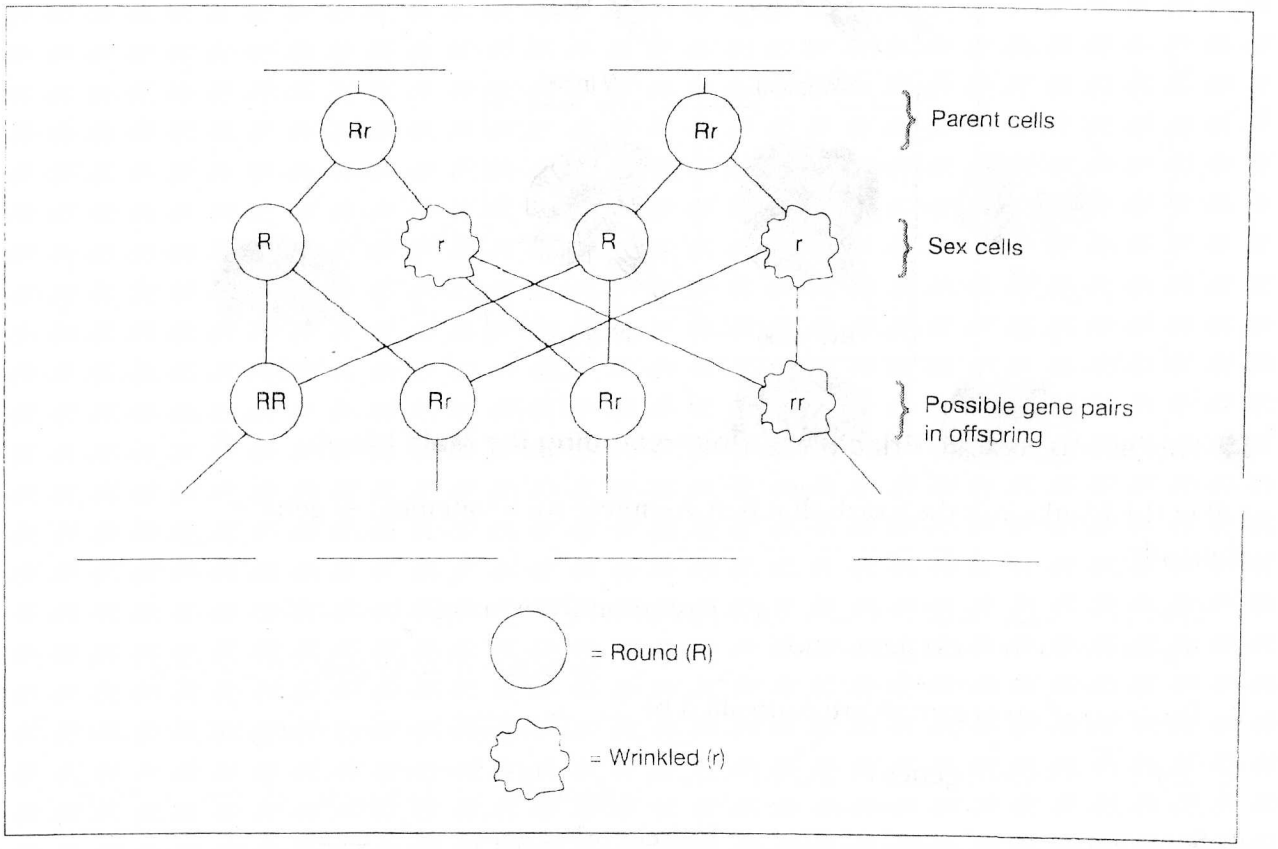
SECTION 1-2 **Principles of Genetics** *(pages 19–23)*

KEY CONCEPTS

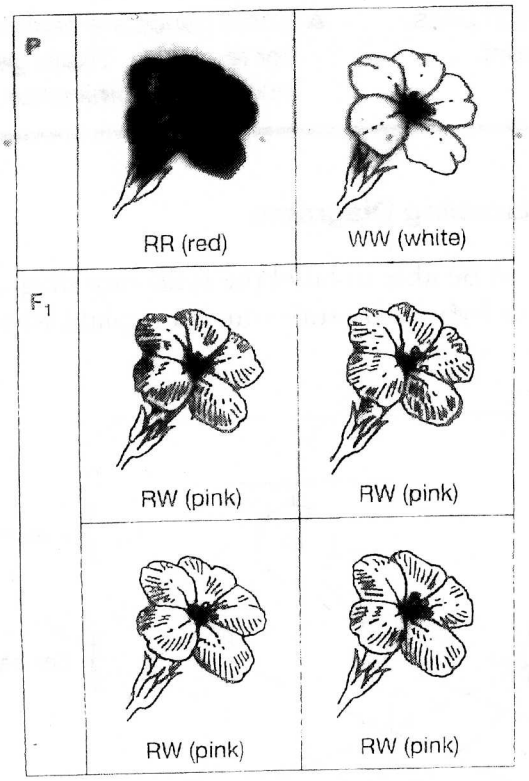
- Traits, or characteristics, are passed on from one generation of organisms to the next generation.
- The traits of an organism are controlled by genes.
- Organisms inherit genes in pairs, one gene from each parent.
- Some genes are dominant, whereas other genes are recessive.
- Dominant genes hide recessive genes when both are inherited by an organism.
- Some genes are neither dominant nor recessive. These genes show incomplete dominance.

Building Vocabulary Skills: Labeling Diagrams

After reading Section 1-2, you should be able to label the following diagram with the correct terms—**purebred** or **hybrid**. Be sure you can explain what each term means.



Examine the illustration below. Pictured is an example of **incomplete dominance**. In your own words, explain this principle of genetics.



Reviewing Genetic Principles: Understanding the Main Ideas

Fill in the blanks with the words that best complete each statement of genetic principle.

1. Traits, or _____, are passed on from one generation of organisms to the next generation.
2. The traits of an organism are controlled by _____.
3. Organisms inherit genes in _____, one from each _____.
4. Some genes are _____, whereas other genes are _____.
5. _____ genes hide _____ genes when both are inherited by an organism.
6. Some genes are neither dominant nor recessive. These genes show _____.

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SECTION 1-3 **Genetics and Probability** *(pages 24–2*

KEY CONCEPTS

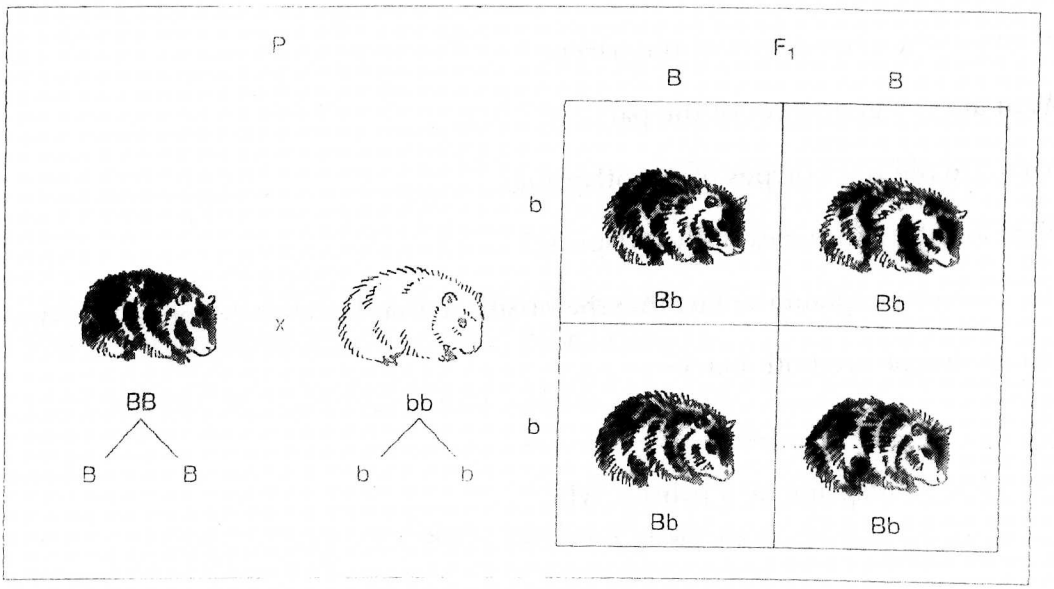
- Probability can be used to predict the results of genetic crosses.
- In addition to probability, a special chart called a Punnett square is used to show the possible gene combinations in a cross between two organisms.

Building Vocabulary Skills: Analyzing Information

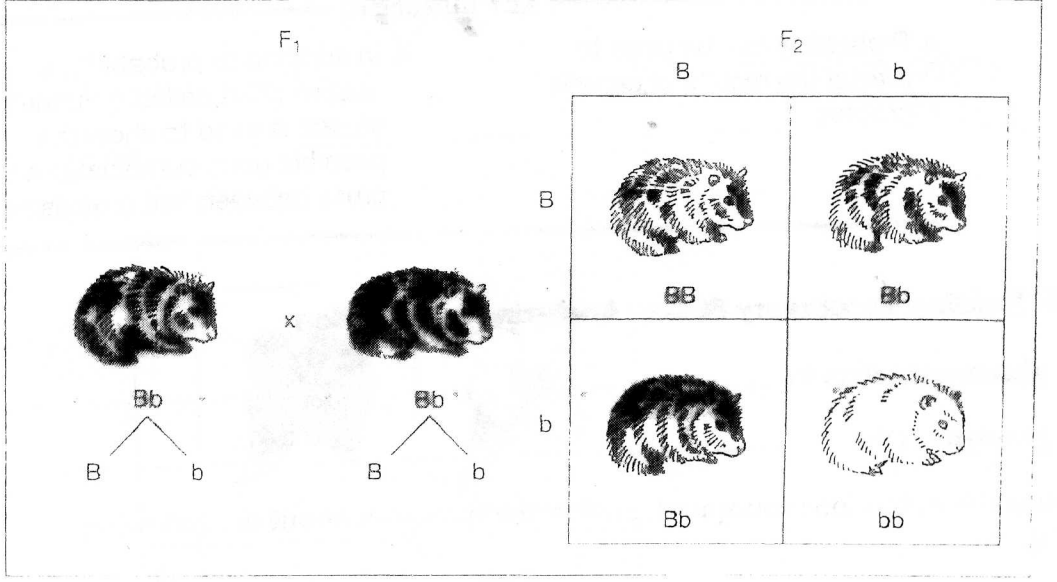
A **phenotype** refers to _____.

A **genotype** is the _____.

Using the definitions you stated, answer the questions about the following diagram.



1. What are the phenotypes of the parents? _____
2. What are the genotypes of the parents? _____
3. What are the phenotypes of the offspring? _____
4. What are the genotypes of the offspring? _____



1. What are the phenotypes of the parents? _____

2. What are the genotypes of the parents? _____

3. What are the phenotypes of the offspring? _____

4. What are the genotypes of the offspring? _____

5. How can you explain the fact that the offspring that has a BB genotype and one that has a Bb genotype are both black? _____

_____

6. Can a white offspring be a hybrid? Why? _____

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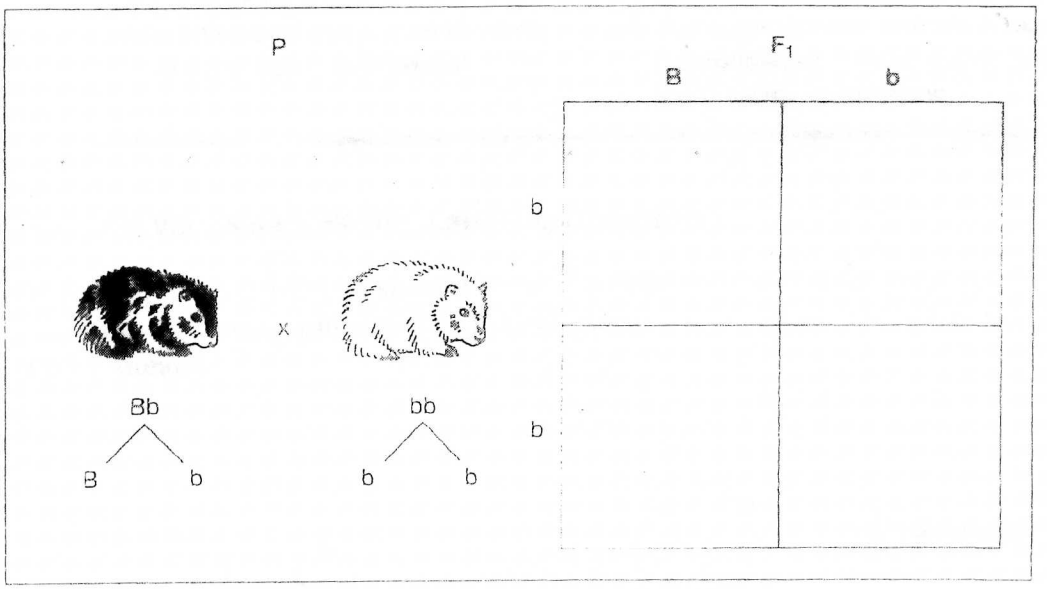
Putting It Together: Applying the Main Ideas

Demonstrate your understanding of Punnett squares and probability by completing the test cross in the Punnett square and answering the questions.



After completing the Punnett square show the relationship between the Punnett square and probability by answering these questions.

1. What is the probability of getting a white offspring from this cross?

2. What is the probability of getting a black purebred offspring from this cross? Note: Read this question carefully and think about it.

3. Can you explain your answer?