

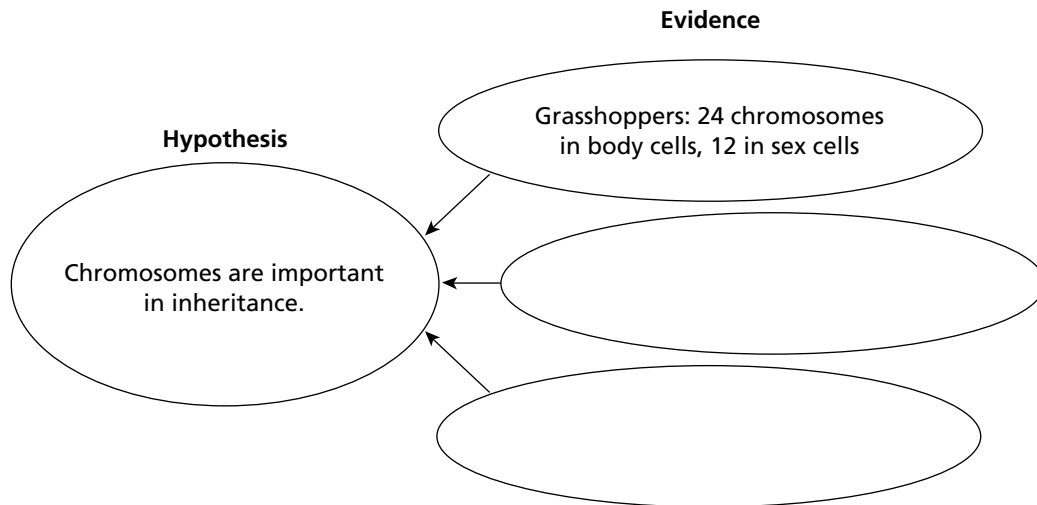
**Genetics: The Science of Heredity** ▪ *Guided Reading and Study*

# The Cell and Inheritance

*This section describes how one set of chromosomes from each parent is passed on to the offspring.*

## Use Target Reading Skills

*As you read, identify the evidence that supports the hypothesis that genes are found on chromosomes. Write the evidence in the graphic organizer below.*



## Chromosomes and Inheritance

1. Circle the letter of each sentence that is true about what Sutton observed about chromosome number.
  - a. Grasshopper sex cells have half the number of chromosomes as body cells.
  - b. Grasshopper body cells have half the number of chromosomes as sex cells.
  - c. Grasshopper body cells and sex cells have the same number of chromosomes.
  - d. When grasshopper sex cells join, the fertilized egg has the same number of chromosomes as the body cells of the parents.

2. What is the chromosome theory of inheritance?

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## Meiosis

3. What is meiosis?

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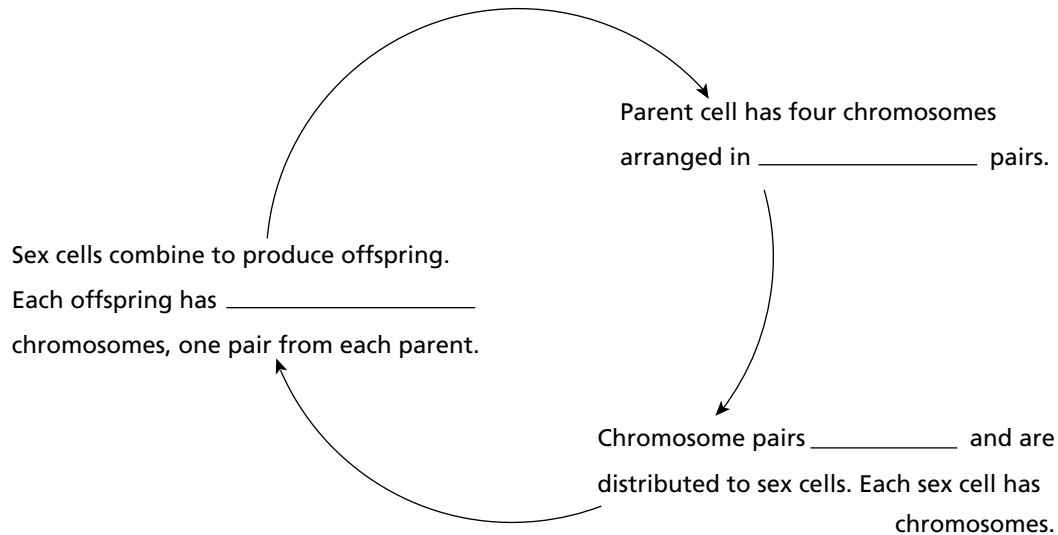
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**The Cell and Inheritance** *(continued)*

4. Complete the cycle diagram, which describes the events that occur during meiosis.



5. A Punnett square is a shorthand way to show the events that occur during \_\_\_\_\_.
6. Is the following sentence true or false? During meiosis, the two alleles for each gene stay together. \_\_\_\_\_
7. If the male parent cell is heterozygous for a trait,  $Tt$ , what alleles could the sperm cells possibly have?

\_\_\_\_\_

\_\_\_\_\_

**A Lineup of Genes**

8. How many pairs of chromosomes do human body cells contain?  
\_\_\_\_\_
9. How are the genes lined up in a pair of chromosomes?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_