10 Sexual Reproduction and Genetics

BIGIDEA

Write the Big Idea for this chapter.

Use the "What I Know" column to list the things you know about the Big Idea. Then list the questions you have about the Big Idea in the "What I Want to Find Out" column. As you read the chapter, fill in the "What I Learned" column.

K *What I Know*	**W** *What I Want to Find Out*	**L** *What I Learned*

10 Sexual Reproduction and Genetics

1 Meiosis

TEKS 4(B), 5(A), 6(A), 6(G)

REVIEW VOCABULARY

chromosome

NEW VOCABULARY

diploid

gamete

gene

haploid

homologous chromosomes

meiosis

fertilization

crossing over

MAIN IDEA

Write the Main Idea for this lesson.

Recall the definition of the Review Vocabulary term.

Chromosome

Use the terms in the left margin to complete the paragraph below.

A segment of DNA on a chromosome that controls the production of a protein is called a _____. A _____ cell contains two copies of each chromosome. A sex cell, or _____, is _____, meaning it contains one copy of each chromosome. _____ are pairs of chromosomes, one from each parent.

Describe three processes that occur during sexual reproduction.

	Meiosis	Fertilization	Crossing Over
What happens?			
What is the product?			

1 Meiosis (continued)

Student Edition, pp. 270–276

Reading Essentials, pp. 103–108

Identify three characteristics that are the same in each member of a pair of homologous chromosomes. Name one thing that is different.

Same	Different
1. **2.** **3.**	**1.**

Compare and contrast the phases of Meiosis I and Meiosis II. Sketch each phase.

Meiosis I	**Prophase I**	**Metaphase I**	**Anaphase I**	**Telophase I**
Description				
Sketch				
Meiosis II	**Prophase II**	**Metaphase II**	**Anaphase II**	**Telophase II**
Description				
Sketch				

Analyze the chart above to determine the phase of meiosis when crossing over can occur. Mark a star on the correct phase.

1 Meiosis (continued)

GET IT? **Infer** Why are the two phases of meiosis important for gamete formation?

Compare meiosis and mitosis by filling in the chart below.

	Mitosis	Meiosis
Number of DNA replications		
Number of cell divisions		
Number of daughter cells		
Chromosome number of daughter cells		

Organize information on how meiosis produces genetic variation.

Meiosis produces

Compare sexual reproduction and asexual reproduction by completing the paragraph with the terms below.

- sexual reproduction
- asexual reproduction
- protists
- mammals
- animals
- plants
- genes
- genetic diversity

In _____ an organism inherits its genetic material from a single parent. The new organism has the same _____ as its parent. In _____, an organism inherits genetic material from two different parents. Sexual reproduction increases _____, whereas asexual reproduction does not. _____, simple _____, and most _____ can reproduce sexually or asexually. _____ only reproduce sexually.

1 Meiosis (continued)

REVIEW IT!

1. **MAIN**IDEA **Analyze** how meiosis produces haploid gametes.

2. **Indicate** how metaphase I is different from metaphase in mitosis.

3. **Describe** how synapsis occurs.

4. **Diagram** a cell with four chromosomes going through meiosis.

5. **Assess** how meiosis contributes to genetic variation, while mitosis does not.

1 Meiosis (continued)

6. **Compare and contrast** mitosis and meiosis, using **Figure 5** and **Table 1,** by creating a Venn diagram.

7. Imagine you are a chromosome going through meiosis. Describe what happens to you and the other chromosomes.