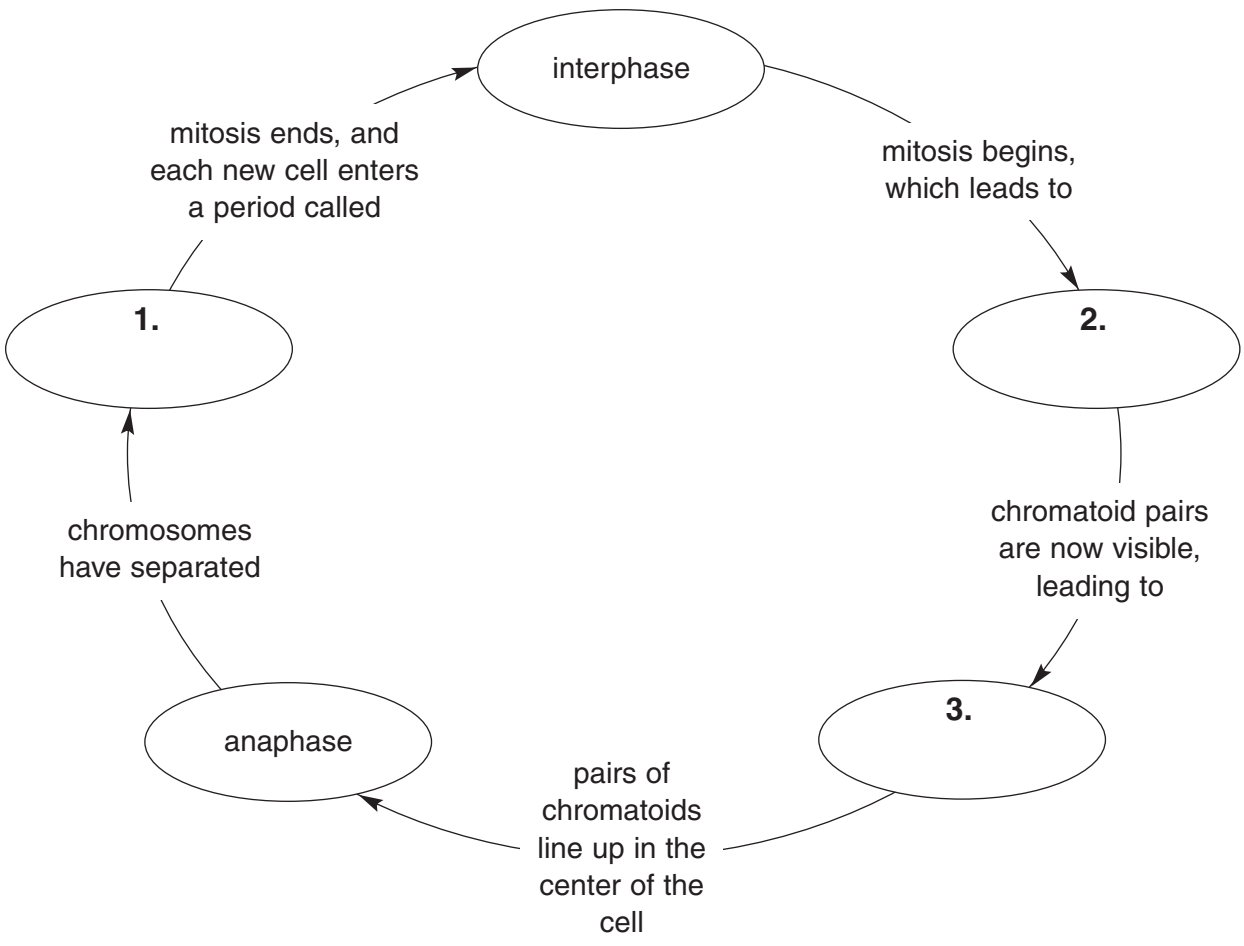
Directed Reading for Content Mastery

Overview Cell Reproduction

Directions: *Complete the concept map using the terms in the list below.*

metaphase **telophase** **prophase**



Directions: *Use the five terms in the concept map to identify the steps of mitosis below.*

Description	Step of Mitosis
4. Spindle fibers start to disappear, nuclear membrane forms, and cytoplasm begins to divide.	_____
5. Chromatid pairs are fully visible, the nucleolus and the nuclear membrane disintegrate, and spindle fibers begin to form.	_____
6. Chromatid pairs line up across center of cell, the centromere of each pair attaches to spindle fibers.	_____
7. Each chromatid pair splits at the centromere and separates to opposite ends of the cell, where they become identical chromosomes.	_____
8. Cell grows and makes copies of its hereditary material.	_____

Meeting Individual Needs

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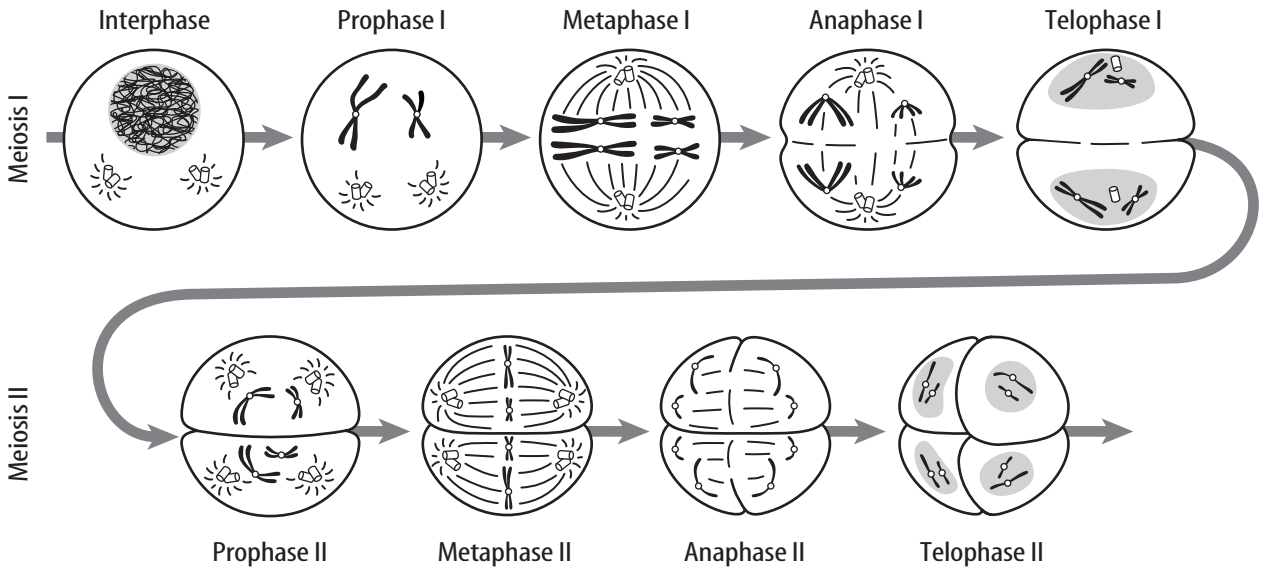
Section 1 ▪ Cell Division and Mitosis
Section 2 ▪ Sexual Reproduction and Meiosis

Directions: *Study the diagram. Then answer the following questions.*



1. Mitosis begins with one cell. How many cells are formed by the end of mitosis? _____

2. What happens to the chromosomes of a cell in order for mitosis to begin? During what part of the cell cycle does this occur?

_____

3. Meiosis I is the same as what other reproductive process?

_____

4. Meiosis I begins with one cell. How many cells are formed by the end of meiosis II?

_____

5. At the end of meiosis II, each of the haploid sex cells has only half the number of chromosomes as the original diploid cell. Why is this important?

_____

_____

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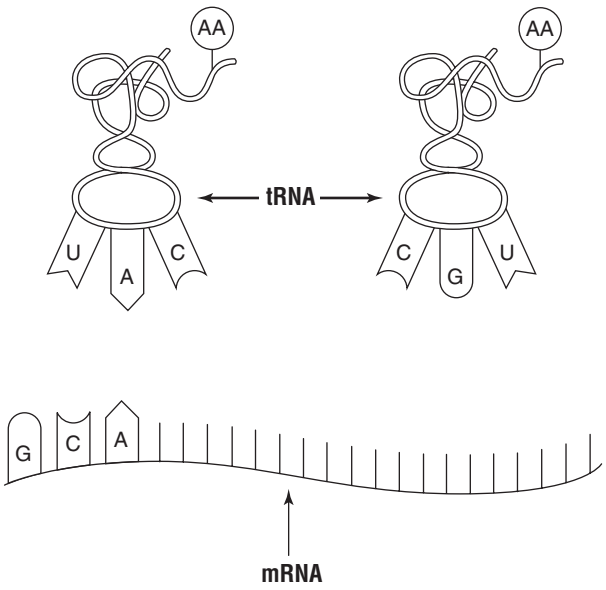
Section 3 ▪ DNA

Directions: *The mRNA strand shown below is preparing to make proteins from amino acids. tRNA molecules bring the amino acids to the mRNA strand for the rRNA to use in making proteins. Circle the tRNA molecule that will attach to the mRNA strand. Remember that cytosine (C) pairs with guanine (G), and adenine (A) pairs with uracil (U).*



Directions: *Study the above diagram. Then answer the following questions.*

1. How did you know which tRNA molecule would attach to the mRNA strand?

_____

_____

2. Suppose that one of the bases on the mRNA was changed. Would the same tRNA molecule still attach to the strand? Explain your answer.

_____

_____

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Key Terms
Cell Reproduction

Directions: *Select the term from the following list that matches each description.*

asexual	**chromosome**	**diploid**	**DNA**	**eggs**
genes	**haploid**	**meiosis**	**mitosis**	**mutation**
RNA	**sexual**	**sperm**	**zygote**	**fertilization**

_____ **1.** Many cells in your body grow and divide every day by what process?

_____ **2.** What structure in a cell's nucleus holds the hereditary information?

_____ **3.** term for the joining of an egg and sperm

_____ **4.** the sections of DNA that contain instructions for producing specific proteins

_____ **5.** What are male sex cells called?

_____ **6.** What cell forms when an egg and a sperm join?

_____ **7.** the term for any permanent change in a gene or chromosome

_____ **8.** the type of reproduction that produces a new organism; with identical chromosomes to those of the parent organism.

_____ **9.** the process that produces haploid sex cells

_____ **10.** an organism grows and functions by following the information in this code

_____ **11.** the term for female sex cells

_____ **12.** Cells with pairs of chromosomes are this.

_____ **13.** type of reproduction that requires the joining of two sex cells

_____ **14.** This type of nucleic acid carries the information needed to make proteins.

_____ **15.** cells that do not have pairs of chromosomes (sex cells)

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