



From a Cell to an Organism

Lesson 1 The Cell Cycle and Cell Division

Grade Seven Science Content Standard. 1.e. Students know cells divide to increase their numbers through a process of mitosis, which results in two daughter cells with identical sets of chromosomes. **Also covers:** 1.e, 1.f, 5.a.

Before You Read

You are made of millions of cells. Cells are the smallest unit of life. On the lines below, name the types of cells that you think exist in your body. Then read the lesson to learn about the life of a cell.

MAIN Idea

The life of a cell usually includes periods of growth and reproduction.

What You'll Learn

- to recognize the stages of mitosis
- the difference among the cell cycle, mitosis, and cell division

Read to Learn

The Cell Cycle

Growth and development and reproduction are essential characteristics of life. You have gone through many phases of growth and development as a part of your life cycle. Cells have a life cycle, as well. The plant life cycle, called the **cell cycle**, usually includes phases of growth and development and reproduction.

What are the phases of a cell cycle?

Interphase is the phase of a cell cycle when a cell is preparing to reproduce. Interphase lasts longer than other phases of a cell's cycle. The phase when a eukaryotic cell reproduces is called the mitotic (mi TOH tik) phase. The mitotic phase of a cell cycle has two stages—mitosis, when the cell's nucleus divides, and cytokinesis, when the cell's cytoplasm divides. The mitotic phase produces two new cells.

What is the length of a cell cycle?

The length of a cell cycle is different for different organisms and cells. For some animals, the cell cycle can repeat quickly. For example, a zebra fish grows from a fertilized egg (one cell) to 256 cells in just 2.5 hours. Some forms of bacteria can reproduce every 1 to 3 hours.

Study Coach

Create Two-Column Notes

Notes Draw a line down the center of your paper. As you come to a new section, write the title of the section on the left side of your paper and write the most important fact from that section on the right side of your paper.

FOLDABLES

Describe Make a three-tab Foldable. Label the front tabs as illustrated. Describe the three phases of the cell cycle: interphase, mitosis, and cytokinesis.

