

**Chapter**  
**8**
**Cellular Transport  
and the Cell Cycle, *continued***
**Reinforcement and Study Guide**
**Section 8.2 Cellular Growth  
and Reproduction**

*In your textbook, read about cell size limitations.*

**Determine if the statement is true. If it is not, rewrite the italicized part to make it true.**

1. Most *living cells* are between 2 and 200  $\mu\text{m}$  in diameter. \_\_\_\_\_
2. Diffusion of materials over long distance is *fast*. \_\_\_\_\_
3. If a cell doesn't have enough *DNA* to make all the proteins it needs, the cell cannot live.  
\_\_\_\_\_
4. As a cell's size increases, its volume increases much *slower* than its surface area.  
\_\_\_\_\_
5. If a cell's diameter doubled, the cell would require *two* times more nutrients and would have *two* times more wastes to excrete. \_\_\_\_\_

*In your textbook, read about cell reproduction.*

**Use each of the terms below just once to complete the passage.**

nucleus  
identical

genetic material  
chromatin

chromosomes  
vanish

packed  
cell division

The process by which two cells are produced from one cell is called **(6)** \_\_\_\_\_ .  
The two cells are **(7)** \_\_\_\_\_ to the original cell. Early biologists observed that just before cell division, several short, stringy structures appeared in the **(8)** \_\_\_\_\_ .  
These structures seemed to **(9)** \_\_\_\_\_ soon after cell division. These structures, which contain DNA and became darkly colored when stained, are now called **(10)** \_\_\_\_\_ .  
Scientists eventually learned that chromosomes carry **(11)** \_\_\_\_\_ , which is copied and passed on from generation to generation. Chromosomes normally exist as **(12)** \_\_\_\_\_ , long strands of DNA wrapped around proteins. However, before a cell divides, the chromatin becomes tightly **(13)** \_\_\_\_\_ .

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*In your textbook, read about the cell cycle and interphase.*

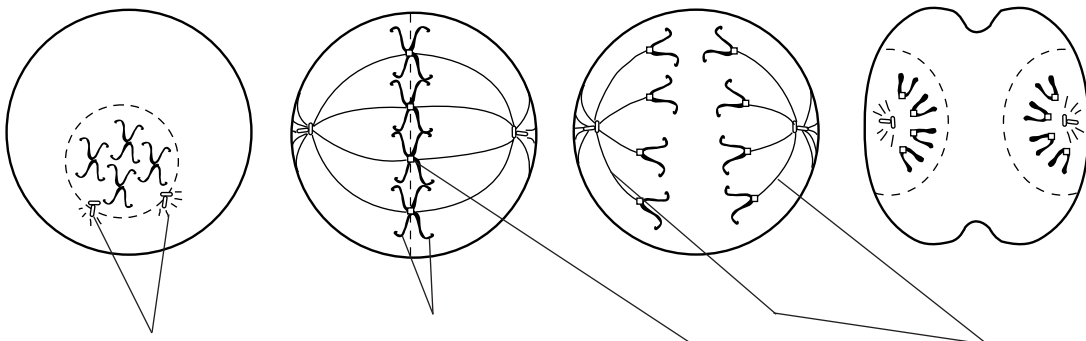
Complete the table by checking the correct column for each statement.

Statement	Interphase	Mitosis
14. Cell growth occurs.		
15. Nuclear division occurs.		
16. Chromosomes are distributed equally to daughter cells.		
17. Protein production is high.		
18. Chromosomes are duplicated.		
19. DNA synthesis occurs.		
20. Cytoplasm divides immediately after this period.		
21. Mitochondria and other organelles are manufactured.		

*In your textbook, read about the phases of mitosis.*

Identify the following phases of mitosis. Use these choices: telophase, metaphase, anaphase, prophase. Then label the diagrams. Use these choices: sister chromatids, centromere, spindle fibers, centrioles.

22. \_\_\_\_\_ 23. \_\_\_\_\_ 24. \_\_\_\_\_ 25. \_\_\_\_\_



26. \_\_\_\_\_ 27. \_\_\_\_\_ 28. \_\_\_\_\_ 29. \_\_\_\_\_

**Answer the question.**

**30.** How does mitosis result in tissues and organs?

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