

Chapter 1 :

Mitosis and Cellular Reproduction

TB - Chapter 10 (p. 240)

Sep 5-2:00 PM

The cell theory states that all cells come from living cells.

If human beings reproduce to create other human beings, then a cell reproduces to create another cell. This process is called mitosis.

Why do cells reproduce?



1. To create new cells that allow the organism to grow and develop specialized functions.
2. To replace dead or damaged cells so the organism can continue to function appropriately.
3. In the case of unicellular organisms, the creation of a new cell creates a whole new organism.

Analyzing data activity, page. 249

Sep 5-2:02 PM

Cell growth

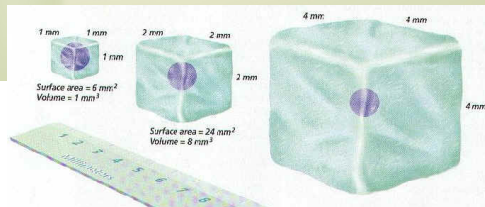
Like organisms, cells have the ability to grow. However, the larger a cell becomes, the harder it is for its DNA to continue having control over the processes that take place.

DNA is responsible for moving nutrients and wastes across the cell membrane, but cannot continue to do so if the cell grows indefinitely.

Surface Area to Volume Ratio: See figure 10.2, p. 243

Ratio analogy:

- 6 nutrients for 1 organelle
- 3 nutrients for 1 organelle
- 2 nutrients for 1 organelle



Sep 5-2:22 PM

Assignment:

Answer the following questions using your textbook (p. 241 - 243).

1. What are two reasons why cells divide rather than continue to grow indefinitely?

2. In the following sentence true or false?

As a cell increases in size, it usually makes extra copies of its DNA.

3. What determines the rate at which food and oxygen in a cell are used up and waste products are produced.

4. Is the following sentence true or false?

As a cell grows in size, its volume increases much more rapidly than its surface area.

Sep 8-1:20 PM

5. What is cell division?

6. How does cell division solve the problem of increasing size?

Correction:

1. a) The larger a cell becomes, the more demands it places on the DNA.
b) The volume increases too quickly in size and it become difficult to control the entrance and exit of materials through the cell membrane.

2. False

3. The cell's volume.

4. True.

5. Cell division is the act of separating a cell into 2 daughter cells.

6. Cell division reduces the volume of a cell.

Sep 8-1:24 PM