

The Cell Cycle Guided Reading

1. What is the cell cycle?
2. When does the cell cycle begin?
3. What are the two phases of the cell cycle?
4. What happens during the M phase of the cell cycle?
5. In what phase of the cell cycle do cells spend most of their time?
6. What is inside the cell's nucleus?
7. What are chromosomes made of?
8. What happens during mitosis?
9. What happens during cytokinesis?

Look at the diagram to answer the following:

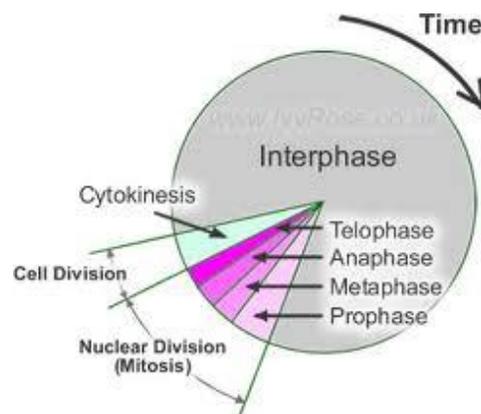
10. What occurs during Interphase?
11. What are the names of the 4 steps of mitosis (nuclear division) **in order**?

All living things have a distinct life cycle- a pattern of growth in which the organism changes over time. Just like living organisms, cells also go through a life cycle, called the cell cycle. A cell cycle is a repeated pattern of cellular growth, preparation for division, and division. The cell cycle begins when a cell forms. The cell cycle ends when the cell divides to produce two new cells. These two new cells then begin the cycle again.

The cell cycle consists of two phases. One phase of the cell cycle is called Interphase. Cells spend most of their time in interphase. The other phase is called the M phase. The M stands for mitosis. Mitosis is the process in which a nucleus divides to form two nuclei (from one nucleus to two nuclei). Mitosis is followed by the division of the cytoplasm, called cytokinesis. Together the divisions of the nucleus and cytoplasm make up the M phase of the cell cycle.

Remember that the cell's nucleus contains the genetic information. This genetic information is stored in structures called chromosomes. The chromosomes are made of deoxyribonucleic acid, DNA. Before a cell can begin mitosis, the DNA (genetic material) must first be copied. The copying of the genetic information (DNA) occurs during Interphase. Once interphase is complete, the cell is ready to begin M phase.

During mitosis, the cell's nucleus divides into two nuclei. First the chromosomes line up in the middle of the cell, each member of the chromosome pair then moves to the opposite end of the cell, and finally the nucleus divides with each nucleus having the same kind and number of chromosomes as the original cell. The last step of the M phase is called cytokinesis. During cytokinesis, the cytoplasm divides.



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Notice most of the cell cycle consists of interphase, where the genetic material (DNA) is duplicated and the cell prepares for division.