

# Lesson 4.4

# The Cell Cycle

Name

Date

Period

### Key Terms

cell cycle

chromosome

interphase

mitosis



### Explore I Cell Cycle Lecture

Complete the table below using the information your instructor provides.

Stage #	Name of Stage	What is happening?	Picture
1			
2			
3			
4			
5			
6			
Chromosome definition:		Chromosome picture:	



### Explain I Cell Cycle Lecture

Complete the questions below.

- 1) At one time interphase was considered the 'resting phase'. Why do you think this description is no longer used?
- 2) Chromosomes are made of \_\_\_\_\_.  
a) cytoplasm                      b) DNA                              c) plasma membrane                      d) mitochondria
- 3) Chromosomes are replicated during which stage of the cell cycle?
- 4) Most of the cell's growth occurs during which phase?  
a) G0                      b) G1                              c) S                              d) Mitosis

- 5) When a cell undergoes mitosis
  - a) the daughter cells have different genes
  - b) the amount of cytoplasm in the new cell is five times as much as in the old cells
  - c) it dies
  - d) the daughter cells have identical genes and their genes are identical to the cell that produced them
  
- 6) In your own words, describe a chromosome.
  
- 7) In your own words, explain the difference between mitosis and cytokinesis.
  
- 8) Cancerous cells are often described as cells that have 'uncontrolled' cell division. From your understanding of the cell cycle explain why scientists think this is true?



**Explore II – Cells Alive!**

This will be done as a class activity. Your instructor will go to the following website about the cell cycle: [http://cellsalive.com/cell\\_cycle.htm](http://cellsalive.com/cell_cycle.htm). Listen as your instructor reads the text on the page and answer the questions below.

- 9) Draw and label the cell cycle as it appears on the screen.

- 10) What are the four stages of interphase?

- 11) In which step of interphase does each of the following occur?

DNA replication.	_____	Checkpoint before DNA synthesis.	_____
Cell increases in size, produces RNA, and synthesizes protein.	_____	Checkpoint to see if cell can enter into mitosis.	_____
Cell continues to grow and synthesize new proteins.	_____	Cell quits dividing.	_____



**Explore III – Control of the Cell Cycle**

Your instructor will go to the following website: [http://nobelprize.org/educational\\_games/medicine/2001/cellcycle.html](http://nobelprize.org/educational_games/medicine/2001/cellcycle.html). Answer the questions below as you play the game as a class.

- 12) Why do cells divide (3 reasons)?
  
- 13) Which kinds of cells divide most frequently? Least frequently?
  
- 14) What are the six stages of the cell cycle? Which two are missing from the cell cycle introduction?
  
- 15) Now that you have played the game, what happens if the phases of the cell cycle do not proceed in the correct order?