

The Cell Cycle – Notes Organizer

1. Describe **cellular reproduction** in
 - a. **Unicellular** Organisms:

 - b. **Multicellular** Organisms:

2. What is the *concern* with a cell's volume increasing more rapidly than the surface area?

3. _____ prevents a cell from becoming too large and also helps to heal injuries.

4. Describe the overall purpose and process of **the cell cycle**:

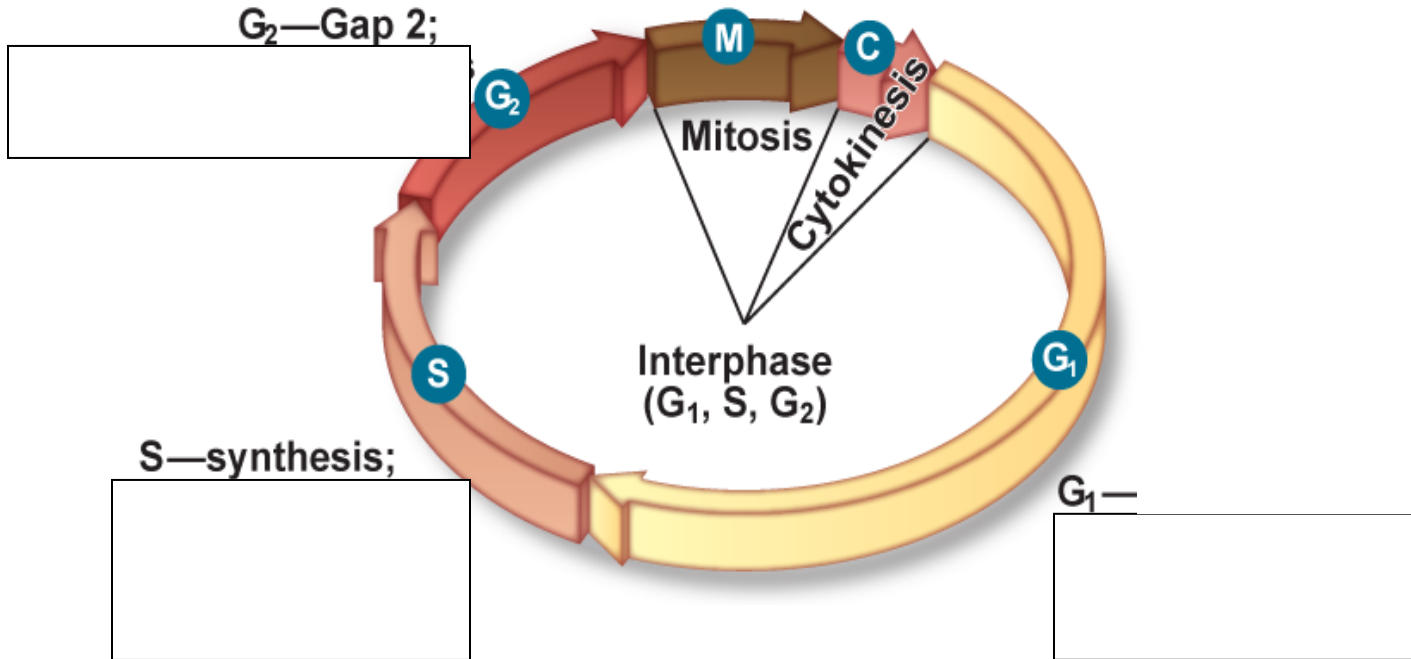
5. Summarize the three main stages of the cell cycle.
 - a. **Interphase**

 - b. **Nucleic Division** (Mitosis or Meiosis)

 - c. **Cytokinesis**

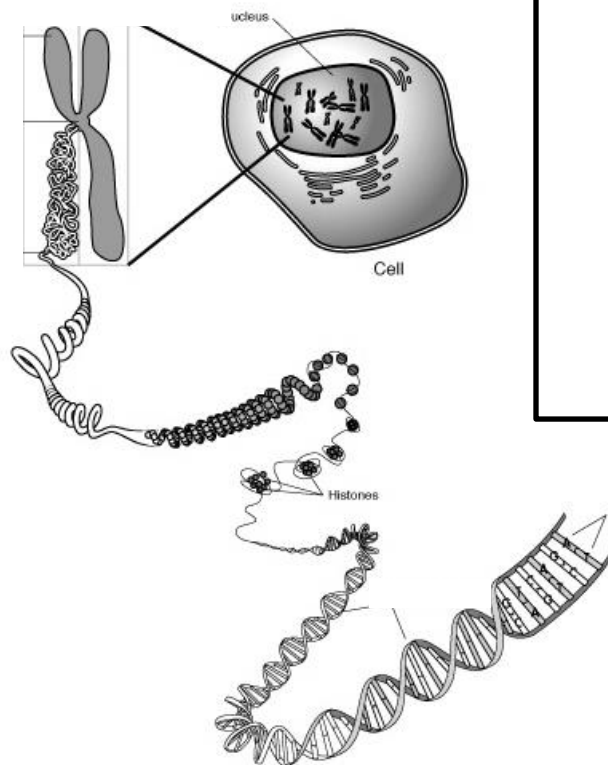
6. Cells spend a *majority of their time* in which phase of the cell cycle?

7. Describe the stages of Interphase using the following diagram:



8. What is a **chromosome**?

9. Genetic material is given different “names” when in different forms. Identify the genetic structures found within a chromosome.



- Label the following structures:**
- Chromosome**
 - Chromatid (2x)**
 - Telomere**
 - Centromere**
 - DNA (Double Helix)**
 - Base Pairs**

10. **Chromosomes** are made up of two _____ which are *held together* by a _____.

11. How many chromosomes are in human **somatic** (body) cells? _____

How many chromosomes are in **gamete** (sex) cells? _____

12. Define the term **sister chromatid**:

13. In a normal cell cycle, what *regulates cell division* to prevent mistakes during cell growth and division?

14. **Big picture**...what are the three main stages of the *mitosis cell cycle*?

15. Outline the order of the phases of **MITOSIS** cell division:

Interphase → _____ → _____ → _____ → _____ → Cytokinesis

16. Outline the phases of **mitosis** by including a simple *picture and a description* of what is occurring in each phase.

Prophase

Metaphase

Anaphase



17. How does cytokinesis differ in **plant** and **animal** cells?

18. _____ is the *uncontrolled* growth and division of cells.

19. Mutations result in changes in the regulation of cell division. _____ are substances and agents that are known to cause cancer.

20. What is **apoptosis**?

21. Use the space below to show the process that follows an error in mitosis.