

Mitosis

Name: _____

Background Concepts

*What organelle contains the genetic information in a cell?

--- _____

*What are chromosomes? How many chromosomes are found in human cells?

---structures in a nucleus made out of _____, which contain genes

---_____ chromosomes are found in each nucleus in your cells

*Can we see chromosomes with our light microscopes? If so, when?

---we can see chromosomes, if a cell is going through _____

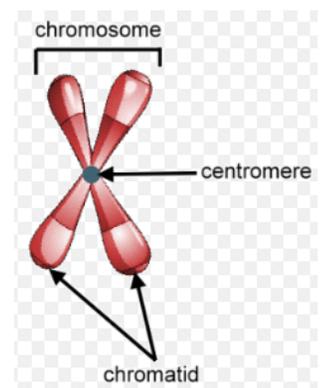
*What are chromatids, and the centromere?

---chromatids are the _____ of a chromosome held together at the _____

*Why is it important to copy each chromosome before cell division?

---this ensures that each of the two new cells that are produced during cell division get a

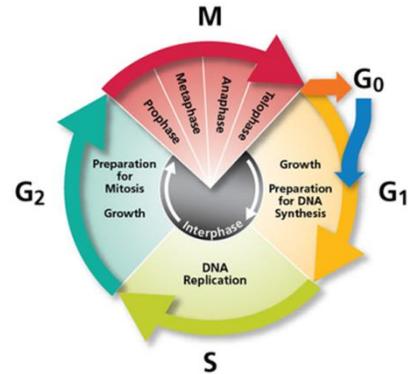
_____ set of 46 chromosomes



The Cell Cycle

*What is the definition of the cell cycle?

---the repeating sequence of _____ during the life of an organism



*Identify the main parts of the cell cycle. Also, describe the key events for each component.

---Interphase: preparation for cell division

- ❶ Growth 1 / G₁: _____
- ❷ Synthesis / S: the cell _____
- ❸ Growth 2 / G₂: the cell _____

---Cell Division

❶ Mitosis: division of the nucleus

☞ Prophase: nuclear envelope _____

chromosomes _____

_____ forms (moves chromosomes)

☞ Metaphase: chromosomes are at the _____ of the cell

☞ Anaphase: chromosomes are _____ and moved to the poles

☞ Telophase: _____ forms

chromosomes _____

_____ breaks down

❷ Cytokinesis: division of the _____

*Why must a cell grow and copy its DNA before it divides?

---cell growth ensures both daughter cells will receive large amounts of _____

---copying DNA ensures both daughter cells will receive a complete set of _____

*What is responsible for moving chromosomes during cell division?

---the _____ moves the chromosomes

*What is the result of mitosis + cytokinesis, or cell division?

---two genetically _____

*How is cytokinesis different in plant and animal cells?

---a _____ forms, and splits the cytoplasm in **plant cells**

---the cytoplasm is pinched in half in animal cells

Purpose of Cell Division Associated With Mitosis

*Why is cell division, mitosis, important for organisms?

---cell division allows organisms to _____; ex: _____

---cell division allows organisms to _____ tissues; ex: wound healing

---cell division allows organisms to replace _____; ex: _____