Concept 6: The Cell Cycle Name_____Date_____

Cell cycle	The Life cycle of the cell.
Chromosomes	A coiled Structure of DNA and Protein that forms in the cell nucleus during cell division.
Prokaryotic Cell Division Binary Fission	The simple cell division in which once cell splits into two; used by bacteria.
Eukaryotic Cell Division	Cell Division begins in the Nucleus of the Cell.
Homologous Chromosomes	Chromosomes with Matching Information
Eukaryotic Cell Cycle	
Three Stages	Interphase, Mitosis, Cytokinesis
Stage 1 Interphase	Chromosomes and centrioles are copied and the Chromosomes consist of two Chromatids.
Chromatids	Identical Chromosome Copies
Centromere	The region that holds chromatids together when a chromosome is duplicated.

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Stage 2 Mitosis	Nuclear division in eukaryotic cells which each cell receives a copy of the original chromosomes.
Mitosis Phase 1 Prophase	The Nuclear membrane breaks apart and the chromosomes condense into rodlike structures. The centrioles move to opposite sides of the cell and attach fibers to the centromeres.
Mitosis Phase 2 Metaphase	The Chromosomes line up along the equator of the Cell.
Mitosis Phase 3 Anaphase	Chromatids separate and pulled to opposite sides of the cell by the centriole fibers.
Mitosis Phase 4 Telophase	The Nuclear membrane form around two sets of chromosomes and they unwind. The fibers disappear. Mitosis is complete.
Stage 3 Cytokinesis	The cytoplasm splits, resulting in two identical cells.
What are the results of the cell cycle?	Two identical daughter cells each with a full set of chromosomes.

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Section Review Questions: **Answer in complete sentences.**

1. How are binary fission and mitosis similar? How are they different?

2. Why is it important for chromosomes to be copied before cell division?

3. How does cytokinesis differ in plants and animals?

4. What would happen if cytokinesis occurred without mitosis?

5. Draw a picture of a chromosome, label the chromatids, centromere, and chromosome.