

Name: _____

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Date: _____

Period: _____

Honors Biology: Cell Cycle (8.1-8.5) Guided Reading
How do cells reproduce?

1. On your own....Read the Chapter 8 Introduction and Sections 8.1 to 8.5

2. Define the following terms:

- Life cycle: The entire sequence of stages in the life of an organism from adult to adult in subsequent generations
- Genome: The complete set of an organism's genes
- Asexual reproduction: creation of genetically identical offspring by a single parent
- Sexual reproduction: the creation of offspring by the fusion of sperm and egg
- Cell division: the reproduction of a cell
- Chromosomes: A gene-carrying structure in the nucleus of eukaryotes consisting of chromatin
- Binary Fission: a means of asexual reproduction in prokaryotes
- Chromatin: the complex of DNA and proteins that make up a chromosome
- Sister chromatids: one of two of the identical parts of a duplicated chromosome
- Centromere: the region of a duplicated chromosome where the sister chromatids are attached
- Cell cycle: an ordered sequence of events from the formation of a eukaryotic cell to its division into two daughter cells
- Interphase: period of the cell cycle where cell is not dividing
- Mitotic Phase: part of the cell cycle where nucleus and cytoplasm divide
- Mitosis: the division of the nucleus
- Cytokinesis: the division of cytoplasm

3. The phrase "like begets like" technically applies only to asexual reproduction. Why?

only asexual reproduction produces genetically identical cells

4. Why must cells divide?

- continuation of life requires cell division
- repair/replace cells that die
- growth of multicellular organisms

5. Describe the structure of a chromosome. For most of the cell cycle chromosomes are not visible. Why?

- coiled mass of DNA and proteins
- DNA is being used to make proteins... not coiled

6. How does a chromatid differ from a chromosome?

- is a replicated (copied) chromosome together with its "sister" → individual chromatid that is separated from its "sister"

7. Describe the following stages of the cell cycle:

- Interphase: - high metabolic activity

Growth₁ → synthesis of DNA → Growth₂
90% of cell's life

- Mitotic phase:

Division of the nucleus (mitosis)
and cytoplasm (cytokinesis) 10% of cell's life

8. Cytokinesis:

the part of the mitotic phase
where the cytoplasm divides