Cells alive.com

Name _____

The Cell Cycle (p. 119; 125 – 132)

I. Eukaryotic Cell Reproduction *(p. 119)*

p. 119

1. Match the terms with the correct definitions.

: Found in nucleus
: 46 chromosomes = Human

1. D.	Genes	A. DNA and protein associated with DNA
2. A.	Chromosomes	B. Point where two chromatids are attached
3. C.	Chromatids	C. Two exact copies of DNA that make up a chromosome
4. B.	Centromere	D. Segment of DNA that codes for a protein or RNA

II. The Life Of A Eukaryotic Cell

p. 125

1. Define the term cell cycle.

Cell Cycle – repeating sequence of cellular growth + division during the life of an organism

2. Define the term interphase.

Interphase – first three phases of the cell cycle

3. What percentage of the cell cycle occurs during Interphase? 90 %

4. Identify what events occur during each stage of Interphase.

G_1 (1st Growth) : Cell grows + prepares for division
(Non-dividing cells remain in G_1)

S (Synthesis) : Cell's DNA is copied
) → X (chromatid → chromosome)

G_2 (2nd Growth) : Microtubules are rearranged
(Cell organelles replicated)

5. Define the term mitosis.

Mitosis – process during cell division in which the nucleus of a cell is divided into two nuclei

6. Define the term cytokinesis.

Cytokinesis – process during cell division in which the cytoplasm divides

Name _____

III. Chromatid Separation In Mitosis

1. **What is the end result of mitosis?**

p. 128

Nucleus divides to form two nuclei (same # of chromosomes)

2. **Define the term spindles.**

Spindles – cell structures made up of both centrioles + individual microtubule fibers (assist with cell division)

3. **What are centrioles, and where are they located within a cell?**

"Anchors"

Microtubule structures found in centrosomes

Location : Poles of the cell

Plants use cell wall

4. **What type of cell possesses centrioles?**

Circle One : (Animal) Plant

5. **What two structures do spindle fibers (made of microtubules) attach to during mitosis?**

1. Centrosomes 2. Chromatids

IV. Mitosis & Cytokinesis

p. 130 - 131

1. **What events occur during each stage of mitosis?**

I. Prophase (1) Chromatids coil up (condense); (2) Nuclear membrane dissolves (3) Spindle fibers radiate from poles

II. Metaphase (1) Chromosomes line up at cell center

(2) Spindle fibers link chromatids to centrosomes

Chromosomes most visible!

Karyotypes

III. Anaphase (1) Chromatids move to opposite poles

(2) Spindle fibers shorten

IV. Telophase (1) Chromatids uncoil (2) Nuclear membrane reform

(3) Spindle fibers not visible

2. **What cellular event occurs during cytokinesis?**

Cytoplasm of the cell is divided in half

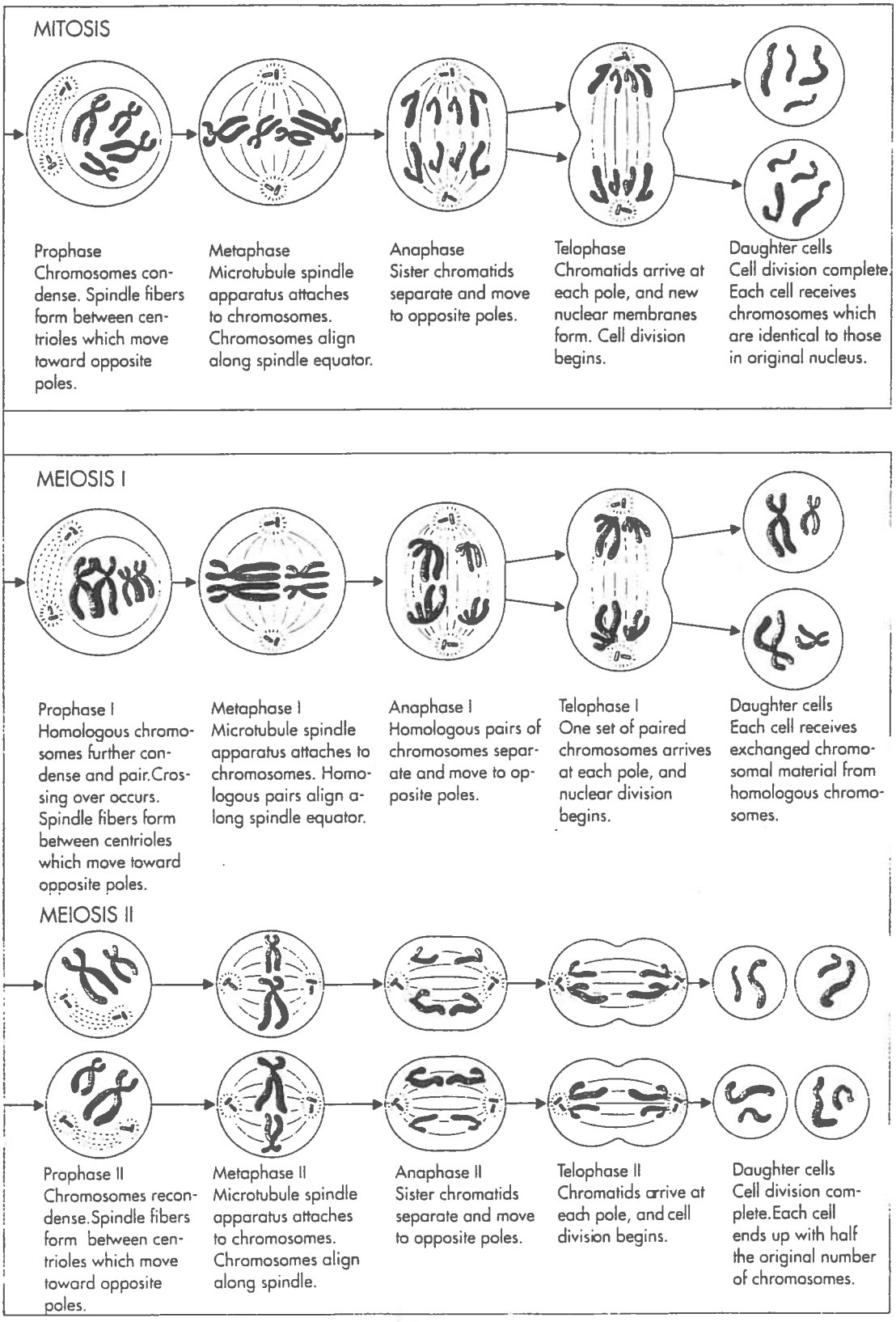
3. **What is the end product after cytokinesis occurs?**

Two genetically identical cells

4. **How is cytoplasm division different in plant cells?**

p. 132

- A cell plate (membrane-bound cell wall) forms across the middle of the plant cell.



Comparison of Meiosis and Mitosis
Figure 11–11