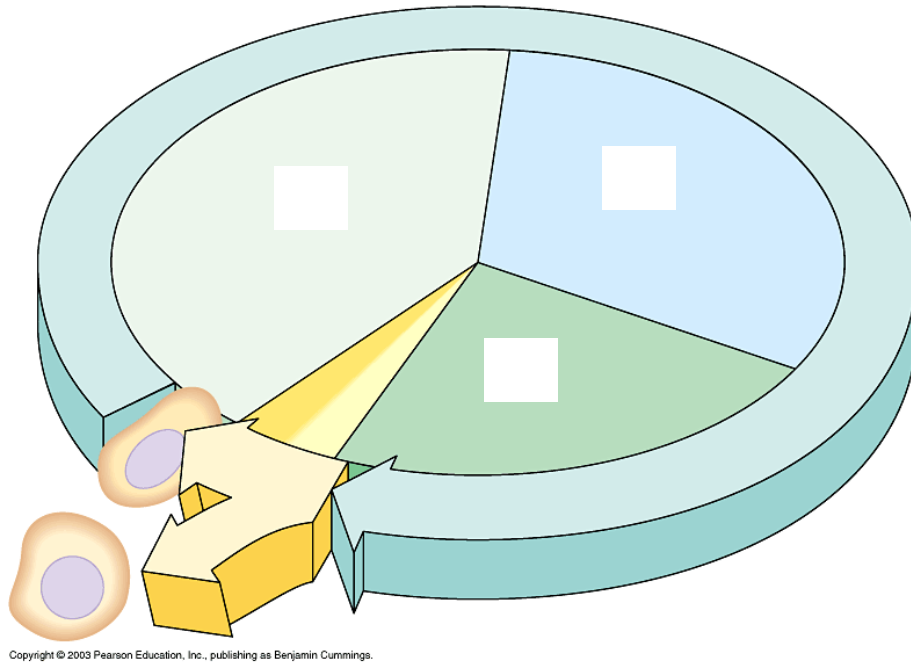


Chapter 8 – *The Cellular Basis of Reproduction*

EXAM REVIEW

Review the cell cycle: First identify the parts of the cycle and place them in order by writing the name of each phase or process on the diagram. Choose from: **S, interphase, mitosis, G₁, mitotic phase, cytokinesis, and G₂**. Then add a brief description of what is happening during that portion of the cycle. Choose from: **DNA synthesis, cell growth, division of cytoplasm, activity between divisions, division of nucleus and chromosomes, activity between DNA synthesis and division, and mitosis plus cytokinesis.** {Web/CD Activity 8A}



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Match the word or phrase on the right with the correct role in mitosis in an animal cell on the left. {Web/CD Activity 8B}

- | | |
|---|-------------------------------|
| A. Where spindle microtubules attach to chromosomes | _____ 1. Metaphase plate |
| B. Move chromosomes | _____ 2. Kinetochores |
| C. Pulled apart by spindle microtubules | _____ 3. Sister chromatids |
| D. Material around centrioles from which mitotic spindle grows | _____ 4. Spindle microtubules |
| E. Chromosomes come to rest here during metaphase | _____ 5. Centrosome |

Summarize mitotic cell division. Briefly describe the appearance and activities of each of these cell parts during interphase and the four stages of mitosis. Include a simple sketch for each phase.
 {Web/CD Activity 8B}

Activities	Interphase	Prophase	Metaphase	Anaphase	Telophase
Nucleus and nuclear envelope					
Mitotic spindle					
Chromosomes					
Cell size and shape					
Sketch					

Describe the relationship between the terms/items in each of the following pairs. {Web/CD Activity 8D}

- _____ a. sex chromosomes and autosomes
- _____ b. the two chromosomes of a homologous pair
- _____ c. the two sister chromatids of a single chromosomes
- _____ d. a diploid cell and a haploid cell
- _____ e. a somatic cell and a gamete
- _____ f. an egg and a zygote
- _____ g. fertilization and meiosis
- _____ h. mitosis and meiosis
- _____ i. X and Y chromosomes

Compare mitosis and meiosis by completing the chart {Module 8.15}

Mitosis

Meiosis

involves one cell division

produces two daughter cells

individual chromosomes line up at metaphase plate

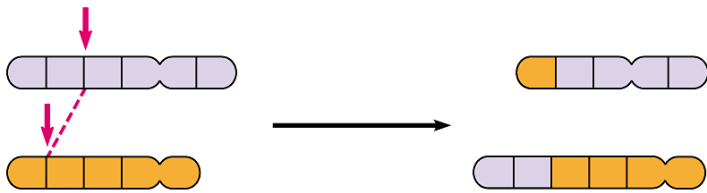
no crossing over occurs

produces haploid daughter cells unlike parent cell

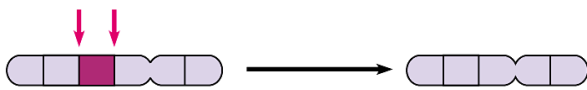
homologous chromosomes pair and then separate

needed for sexual reproduction

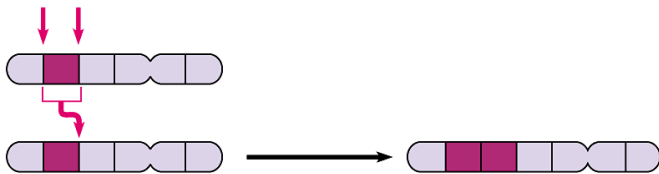
Chromosomes sometimes break, their parts can become scrambled, and abnormalities can result. Identify each of the diagrams of chromosome alterations with its name and a description of its effects.



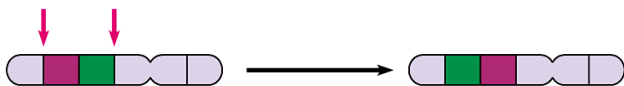
A. _____:



B. _____:



C. _____:



D. _____: