Adapted from: S. Pipke-Painchaud & TSD 2004

|  |  |
| --- | --- |
| **MITOSIS—Occurs in all cells for growth and repair** | |
| PROPHASE | Notes |
|  | **Showing \_\_\_ sample chromosomes.**  **A real human cell would have \_\_\_ chromosomes.** |
| METAPHASE | Notes |
|  |  |
| ANAPHASE | Notes |
|  |  |
| TELOPHASE | Notes |
|  |  |
| Sketch in Cytokinesis (technically just after mitosis) | Notes |
|  | **Showing \_\_\_ sample chromosomes in each cell.**  **Real human cell would have \_\_\_ chromosomes in each cell.**  **One cell becomes \_\_\_\_ cells.** |
| What happened to the final number of chromosomes in each cell compared to the beginning? | |

**Part 1:** Mitosis and Meiosis Drawing

|  |  |
| --- | --- |
| **MEIOSIS—Occurs in ovaries/testes to make egg/sperm cells** | |
| PROPHASE I | Notes |
|  | **Showing \_\_\_ sample chromosomes.**  **A real human cell would have \_\_\_ chromosomes.**  **Same size chromosomes \_\_\_\_\_\_\_** |
| METAPHASE I | Notes |
|  |  |
| ANAPHASE I | Notes |
|  |  |
| TELOPHASE I | Notes |
|  |  |
| Sketch in Cytokinesis (technically just after meiosis) | Notes |
|  |  |
| This is only the end of the first cycle, continue on to meiosis II. | |

|  |  |
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| **MEIOSIS II** | |
| PROPHASE II | Notes |
|  |  |
| METAPHASE II | Notes |
|  |  |
| ANAPHASE II | Notes |
|  |  |
| TELOPHASE II | Notes |
|  |  |
| Sketch in Cytokinesis (technically just after meiosis) | Notes |
|  | **Showing \_\_\_ sample chromosomes in each cell.**  **Real human cell would have \_\_\_ chromosomes in each cell.**  **One cell becomes \_\_\_\_ cells.** |
| What happened to the final number of chromosomes in each cell compared to the beginning? | |

**Part 2:** Comparing Mitosis and Meiosis

|  |  |  |
| --- | --- | --- |
| **Mitosis** | **Characteristic**  (choices) | **Meiosis** |
|  | **Types of cells that undergo the process**  (testes/ovaries, all cells) |  |
|  | **Number of cells produced**  (regular cells, sperm/egg) |  |
|  | **Do the chromosomes pair up during prophase?**  (yes, no) |  |
|  | **How do the chromosomes line up during metaphase?**  (single file, as pairs) |  |
|  | **Number of nuclear divisions**  (1, 2) |  |
|  | **Number of cells at end**  (4,2) |  |
|  | **Number of chromosomes in new cells compared to original cell**  (half, same) |  |
| Explain why it is important that regular cells go through mitosis. | | |

Mitosis and Meiosis Drawing KEY

**Part 1:** Refer to the Drawing Mitosis and Drawing Meiosis presentations for answers (see S-7-4-2\_Drawing Mitosis and S-7-4-3\_Drawing Meiosis in the Resources folder)

|  |  |  |
| --- | --- | --- |
| **Mitosis** | **Characteristic**  (choices) | **Meiosis** |
| regular cells | **Types of cells that undergo the process**  (testes/ovaries, all cells) | Testes/ovaries |
| 2 | **Number of cells produced**  (regular cells, sperm/egg) | 4 |
| no | **Do the chromosomes pair up during prophase?**  (yes, no) | yes |
| single file | **How do the chromosomes line up during metaphase?**  (single file, as pairs) | as pairs |
| a | **Number of nuclear divisions**  (1, 2) | 2 |
| 2 | **Number of cells at end**  (4,2) | 4 |
| same | **Number of chromosomes in new cells compared to original cell**  (half, same) | half |
| Explain why it is important that regular cells go through mitosis.  *Answer will vary*.  e.g., Regular cells need to make identical copies of one another to add to tissue growth and repairs in the body. | | |