Mitosis and Meiosis Test Outline (Topic 1.2 and 1.3) (Science 9 Pathways)

Summary of Testable Topics

* Topic 1.2 Concept 2:
  + Cell cycle (interphase, mitosis, cytokinesis)
  + Identifying onion root tip cells based on the stage of the cell cycle
  + What is the purpose of mitosis? Which cells does it occur in? What does it start and end with?
* Topic 1.3 Concept 1: (slides approx. 1-8)
  + Gametes
  + Fertilization (do not need to know details in figure 1.17)
* Topic 1.3 Concept 2:
  + Haploid and diploid
  + Homologous chromosomes
  + Karyotype
  + Meiosis

**Learning Map Criteria:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Relevance | Extending | Proficient | Developing | Emerging |
| ☑ | Given the diagram of a cell at a stage of mitosis or meiosis, draw the next stage.  Evaluate the implications of an error at a given step of mitosis, meiosis, or the cell cycle. | Identify the stages of mitosis and meiosis from diagrams and from onion root tip slides.  Match the stages of mitosis and meiosis to key events occurring at each stage.  Explain homologous pairs (where they come from, how they are similar). Given a chromosome, draw its homologous chromosome. | Describe key events that occur in each stage of the cell cycle (interphase, mitosis, cytokinesis).  Complete a simple comparison of mitosis, meiosis, and fertilization (purpose, number and ploidy of cells produced, location).  Define haploid and diploid. Given the number of chromosomes in a haploid or diploid cell in an organism, determine the number of chromosomes in a haploid or diploid cell.  Label the following cell structures: nucleus, nuclear envelope, spindle fiber, cell membrane.  Label the following: chromosome, sister chromatid, centromere.  Identify non-replicated and replicated chromosomes.  Count the number of chromosomes in a diagram. |  |

**Vocabulary:**   
*(Disclaimer: This is not meant to be an exhaustive list. Vocabulary words may appear on the test that are not in this list.)*

1.2

* Cell cycle
* Growth and development
* DNA replication
* Mitosis
* Cytokinesis
* Nucleus
* Cytoplasm
* Cell membrane
* Chromosome
* Centromere
* Chromatid
* Sister chromatid
* Interphase
* Chromatin
* Nuclear envelope
* Prophase
* Spindle fiber
* Metaphase
* Anaphase
* Telophase

1.3

* Zygote
* Gamete
* Sperm
* Egg
* Fertilization
* Haploid
* Diploid
* Homologous chromosome
* Meiosis
* Meiosis I
* Prophase I
* Metaphase I
* Anaphase I
* Telophase I
* Meiosis II
* Prophase II
* Metaphase II
* Anaphase II
* Telophase II

**Primary Study Material:**

* Topic 1.2 Powerpoint (slides 9-27)
* Topic 1.3 Powerpoint (slides 1-32)
* Science Connections 9 Textbook
* Science Connections 9 Workbook
* In-class worksheets and activities