




## **Mitosis/Meiosis Drawing Practice Questions (Science 9 Pathways)**

Please copy down and answer the following questions onto a separate sheet of paper.

Note: chromosome drawings:

- Each chromosome has its own centromere
- Unique (i.e. non-homologous chromosomes) can differ in length and/or centromere placement

Non-replicated chromosome:	Replicated chromosome (two sister chromatids):	Homologous chromosomes (recommend using different colours for each 'set' of chromosomes):
		

- 1) Draw each of the following cells:
  - a. Haploid cell with 3 chromosomes ( $n=3$ )
  - b. Diploid cell with 6 chromosomes ( $2n=6$ )
  - c. Haploid cell with 4 chromosomes ( $n=4$ )
  - d. Diploid cell with 4 chromosomes ( $2n=4$ )
  
- 2) Draw a diploid cell with 4 chromosomes ( $2n=4$ ) undergoing mitosis. Show prophase, metaphase, anaphase, final daughter cells.
  
- 3) Draw a diploid cell with 4 chromosomes undergoing meiosis. Show prophase I, metaphase I, anaphase I, daughter cells after meiosis I, metaphase II, anaphase II, daughter cells after meiosis II.
  
- 4) Draw each of the following cells in the specified stage of mitosis or meiosis. Make sure to show: centriole, spindle fibers, centromeres where relevant.
  - a. Diploid cell with 8 chromosomes in metaphase I
  - b. Diploid cell with 4 chromosomes in metaphase of mitosis
  - c. Haploid cell with 4 chromosomes after meiosis II
  - d. Diploid cell with 6 chromosomes in prophase I
  - e. Diploid cell with 6 chromosomes in prophase of mitosis
  - f. Diploid cell with 4 chromosomes undergoing anaphase I
  - g.  $n=3$  cell with 3 chromosomes in metaphase II