

Honors Study Guide: Cell Growth & Division

1. What is the difference between a chromosome, chromatin and a chromatid?
2. What is the relationship between a chromosome and a gene?
3. Draw and label a chromosome with: sister chromatids, centromere, DNA and a gene.
4. How many chromosomes do human somatic cells contain? How many homologous pairs of chromosomes do they contain?
5. What is the overall result of mitosis?
6. In what stage do cells “spend” most of their time – interphase or mitosis?
7. What are the sub phases of interphase and what happens during these sub phases?

8. M Phase: In one sentence or less describe what happens AND draw each phase:
 - a. Prophase
 - b. Metaphase
 - c. Anaphase
 - d. Telophase
 - e. Cytokinesis
9. What are centrioles and spindle fibers? What are their roll in mitosis?
10. What is the overall result of meiosis?
11. How many chromosomes do human gametes contain?
12. What is oogenesis and spermatogenesis? How many viable daughter cells are produced by each?
13. How many cells divisions happen during meiosis? What is the result of each? Draw the divisions.
14. How does meiosis cause genetic variation?
15. What is the difference between crossing over and independent assortment?
16. What happens if chromosomes fail to segregate properly during meiosis ?
17. What are some major differences between mitosis and meiosis?