

Name _____

Date _____

Mitosis, Meiosis and Cell cycle STUDY GUIDE

1. What are the four chromatids that become visible during Prophase I called? **TETRAD**
2. **Checkpoints** are critical stop and go signals that regulate the cell cycle.
3. Enzymes are internal signals that tell the cell to **stop** and **go**.
4. **Cancer** can grow when cell cycle regulation breaks down.
5. A **benign tumor** forms when abnormal cells stay at the original site.
6. A **malignant tumor** is a mass of cells that impairs function and invades organs.
7. The cell plate turns into a **cell wall** during mitosis of a plant.
8. Haploid **gametes** are the result of Meiosis II.
9. **Homologous chromosomes** line up at the equator of the cell during Metaphase I.
10. Spindle fibers are produced by **centrioles**.
11. What are the stages of Interphase? **G1, S, G2**
12. When DNA **replicates**, each chromosome has 2 **chromatids** attached by a **centromere**.
13. Daughter cells from Meiosis I has only **one chromosome** from each parent. These daughter cells undergo **Meiosis II**.
14. DNA replicates during the **S** stage of **Interphase**.
15. Draw and label a chromosome.

MITOSIS NAME THAT PHASE

16. **PROPHASE** Nuclear envelope disintegrates
17. **TELOPHASE** Nuclear envelope reforms around chromosomes
18. **METAPHASE** Centromeres that join the sister chromatids split
19. **METAPHASE** Chromosomes line up in the middle
20. **PROPHASE** Chromosomes condense and become more visible
21. **ANAPHASE** Separated chromatids move to opposite poles
22. **TELOPHASE** Cytokinesis begins

MEIOSIS I NAME THAT PHASE

23. **PROPHASE I** Homologous chromosome PAIRS exchange genetic information (CROSSING OVER)
24. **PROPHASE I** Chromosomes pair up as a cluster of four chromatids (TETRAD)
25. **METAPHASE I** Chromosomes are pulled to the mid-line
26. **ANAPHASE I** Sister chromatids remain attached to each other
27. **ANAPHASE I** Each daughter cell will receive only ONE CHROMOSOME from each homologous pair
28. **TELOPHASE I** Each of the 2 daughter cells has only 1 chromosome from each parent

MEIOSIS II NAME THAT PHASE

29. **PROPHASE II** Spindle fibers attach to the centromeres of sister chromatids
30. **ANAPHASE II** Chromosomes separate so that one chromatid goes to each pole
31. **TELOPHASE II** 4 haploid daughter cells form with ONE single chromosome from each pair of chromatids
(paternal or maternal)



Identify as MITOSIS, MEIOSIS, or BOTH

32. **BOTH** centromeres hold sister chromatids together
33. **MEIOSIS** tetrads form
34. **MEIOSIS** nuclear envelope reforms around haploid nuclei
35. **MEIOSIS** reduction division
36. **MEIOSIS** homologous chromosomes come together
37. **BOTH** chromosomes replicate
38. **BOTH** cytokinesis occurs
39. **MITOSIS** produces only 2 cells
40. **MEIOSIS** produces 4 cells
41. **BOTH** centrioles move to the poles
42. **MITOSIS** one division
43. **MITOSIS** produces somatic cells
44. **MEIOSIS** produces gametes
45. **MEIOSIS** produces haploid cells
46. **BOTH** nuclear division
47. **BOTH** nuclear envelope disintegrates
48. **BOTH** chromosomes move to the middle
49. **BOTH** cell division
50. **MITOSIS** produces diploid cells
51. **MEIOSIS** two divisions

KNOW YOUR PICTURES OF MITOSIS, MEIOSIS I AND MEIOSIS II!!!