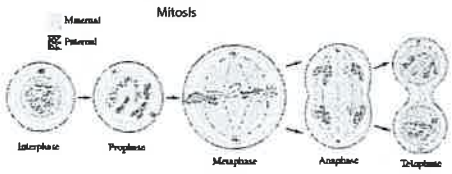
Chapter 10
Cellular Reproduction
Review Guide



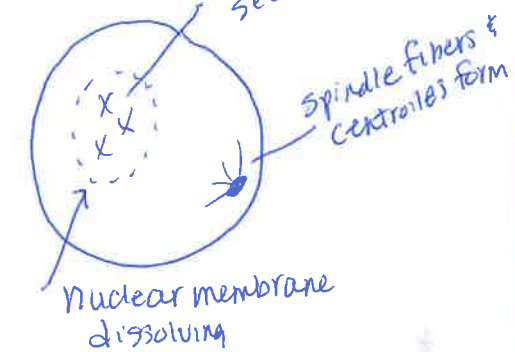
Prokaryote in a ring
No nucleus
eukaryote in chromosomes
in nucleus

1. What are the main reasons for Cell Reproduction? Heal + grow
2. What holds the sister chromatids together? centromere
3. List 2 advantages of asexual reproduction. quick, fast
4. List 2 advantages of sexual reproduction. increase variety, dynamic pop
5. Explain the difference between a prokaryotic and eukaryotic chromosome.
6. Name the 3 main stages of the cell cycle in order. Interphase – Mitosis – Cytokinesis
7. Name the first step of interphase. What happens during this step? G1 - Prepare, double organelles
8. Name the second step of interphase. What happens during this step? S - chromosomes duplicated
9. Name the third step of interphase. What happens during this step? G2 - Prepare for mitosis
10. Name the 2 types of cells that never divide once developed. muscle + nerve
11. List the 4 steps of mitosis in order. Prophase - Metaphase - Anaphase - Telophase
12. Describe the first step of mitosis in detail.
13. Describe the second step of mitosis in detail.
14. Describe the third step of mitosis in detail.
15. Describe the fourth step of mitosis in detail.

over/below

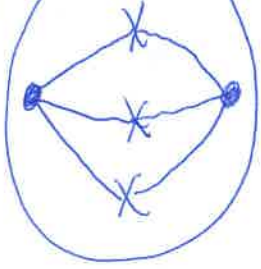
16. Draw a picture of <u>each</u> step of mitosis.
17. What is Cytokinesis? division of the cytoplasm
18. What is the end result of the cell cycle? 2 identical daughter cells
19. How does a plant cell's cytokinesis differ from an animal cell? need to have a cell plate due to cell wall
20. What is cancer? uncontrolled growth of cells
21. What is a tumor? mass of cells
22. What is a benign tumor? non-cancerous mass
23. What is a malignant tumor? cancerous mass
24. If a cell had 20 chromosomes at the beginning of interphase, how many will it have at the end of interphase? 40
25. If a human skin cell needed to reproduce because of a paper cut (humans have 46 chromosomes in their skin cells), how many will the new skin cell have at the end of cytokinesis? 46

Prophase



Metaphase

Chromosomes aligned in middle



Anaphase

Chromosomes split & move to opposite pole

Telophase

nuclear membrane reforms - cell splits

Meiosis
Review Guide

1. What is a gamete? sex cell
2. What type of gametes do females have? egg
3. What type of gametes do males have? sperm
4. Define haploid. 1 set of chromosomes
5. Define diploid. 2 sets of chromosomes
6. What is the end result of meiosis I? 2 cells
7. What is the end result of meiosis II? 4 cells
8. Describe what happens during crossing over. chromosomes exchange parts of chromatids
9. How many chromosomes (total) does a human contain in a somatic cell? 46
10. How many chromosomes (total) does a human contain in a gamete? 23
11. How many pairs of chromosomes are in a human? 23
12. What does it mean to have "n" number of chromosomes? haploid
13. What does it mean to have "2n" number of chromosomes? diploid
14. What is a zygote? fertilized egg cell
15. What is the major difference between prophase I and prophase II? — N
16. What is the major difference between metaphase I and metaphase II? Met I = chromosomes in pairs Met II = not in pairs
17. What is the major difference between anaphase I and anaphase II? Ana I = Pairs split Ana II = not in pairs
18. Compare/contrast mitosis and meiosis using 4 differences.
19. What is the diploid number of a fruit fly if the haploid number is 4? 8
20. A chimpanzee has a total of 38 chromosomes in its hair cells. What is the haploid number? Diploid number? → 38 ↳ 19
21. An earthworm has a diploid number of 36 – what is the somatic number? How many would be in a gamete? → 18 36
22. A pea plant has a haploid number of 7. How many chromosomes are in a diploid cell? 14
23. A female golden retriever dog is bred to a male golden retriever dog. How many chromosomes would be in the zygote if the diploid number is 78? 78

mitosis	meiosis
- asexual	sexual
- identical	different
- 2 cells @ end	- 4 cells @ end
- 1 nuclear division	2 nuclear divisions