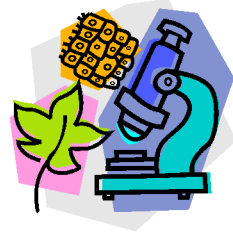


Roland-Story Biology Class
Chapter 6 Study Guide
Chromosomes and Cell Reproduction



Name _____

1. Chromosomes from _____ determine the sex of humans.
2. Every human cell contains 46 _____.
3. Healthy cells cannot become _____ cells.
4. Identify four examples of cell division in eukaryotes and one example in prokaryotes.
5. Explain the difference between (a) a gene, (b) a DNA molecule, (c) a chromosome, and (d) a chromatid.

6. Differentiate between (a) homologous chromosomes, (b) autosomes, and (c) sex chromosomes.

7. Construct a Venn diagram to compare and contrast haploid and diploid cells.

8. What is so unique about the bacteria *E. coli*?

9. Explain the origin of the word 'chromosome'.

10. Explain what takes place in the process of prenatal testing.

11. Summarize how prokaryotic cells divide by binary fission.

12. Identify the point in a eukaryotic cell cycle at which DNA coils up to form chromosomes.

13. Do you agree or disagree that homologous chromosomes are found in gametes?
Explain your answer.

14. Differentiate between the G_1 , G_2 , and S phases of the eukaryotic cell cycle.

15. Why are individual chromosomes more difficult to see during interphase than during mitosis?

16. Summarize the reading on Cancer from page 127.

17. Describe the structure and function of the spindle during mitosis.

18. List and explain the events of the four stages of mitosis.

19. Explain the differences of cytokinesis between animal and plant cells.

20. Describe the function of the microtubules during anaphase.

21. Explain the mechanism of sex determination in humans.

22. Describe Down syndrome and its cause.

23. Discuss how a karyotype can be used to diagnose Down syndrome.

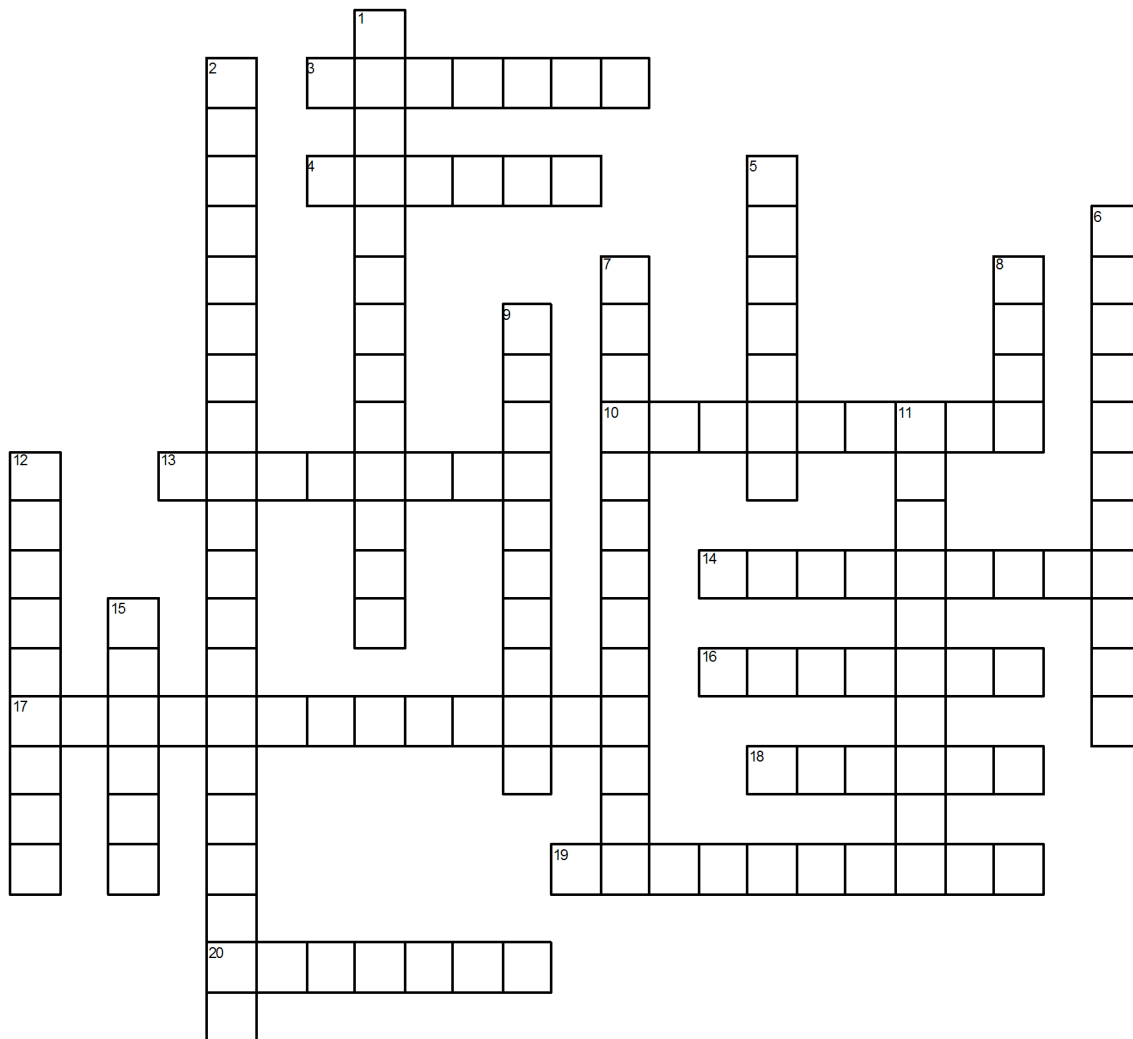
24. What would happen if the chromosome number were not reduced before sexual reproduction?

25. Briefly describe the five stages of the cell cycle.

26. Refer to the illustration to the side. Identify the structure in the drawing and discuss its importance during eukaryotic cell division.



27. Crossword puzzle of vocabulary terms.



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Clues on next page

ACROSS

- 3 this refers to a somatic cell that contains two sets of chromosomes
- 4 this refers to the reproductive cells of an organism
- 10 this refers to a repeating sequence of cellular growth and division
- 13 these are chromosomes that are not directly involved with determining the sex of an individual
- 14 this refers to a photo of chromosomes in a dividing cell
- 16 this is when a gamete contains 1 set of chromosomes
- 17 the process of removing amniotic fluid that surrounds the fetus
- 18 this is a fertilized egg cell
- 19 this is the region of the chromosome that holds the two sister chromatids together during mitosis
- 20 this is the process of cell division where the nucleus divides

DOWN

- 1 this refers to a form of asexual reproduction that produces identical offspring
- 2 this pertains to chromosomes that are similar in size, shape, and genetic code
- 5 these are cell structures that are made up of both centrioles and individual microtubule fibers
- 6 this is the process during cell division in which the cytoplasm divides
- 7 this is one of the pair of chromosomes that determines the sex of the individual
- 8 this refers to a segment of the DNA code for a protein or RNA molecule
- 9 this refers to the first three cycles of the cell cycle
- 11 these refer to one of the structures in a eukaryotic cell in which the nucleus is made up of DNA and a protein
- 12 these are one of the two strands of a chromosome that becomes visible during mitosis or meiosis
- 15 this is the uncontrolled growth of cells