



12-2 DR: Chromosomes and DNA Replication

1. Prokaryotic cells lack what? _____ and _____
2. Where are the DNA molecules located in a prokaryotic cell? _____
3. How many chromosomes do prokaryotic cells usually have? _____
4. About how much 'extra' DNA does a eukaryotic cell have compared to a prokaryotic cell? _____
5. Where is the DNA located in a eukaryotic cell? _____
6. What is the diploid number for humans? _____ *Drosophila*? _____ Sequoia trees? _____
7. How many base pairs does an *E. coli* chromosome contain? _____ Where does it live? _____
8. By how much is the length of a DNA molecule folded to fit inside a typical bacterium? _____
9. How many more base pairs of DNA are in a human cell than in a bacterium? _____
10. The nucleus of a human cell contains what length of DNA? _____
11. What two things are tightly packed together to form chromatin? _____ and _____
12. In chromatin, what is the DNA tightly coiled around? _____
13. What does the histone molecule and DNA together form? _____
14. What forms when nucleosomes pack together? _____ How is it shortened? _____
15. When are chromosomes not visible? _____
16. When are the fibers of each individual drawn together? _____
17. What does evidence suggest about changes in chromatin structure and histone-DNA binding? _____

18. What do nucleosomes do? _____

19. Why have histone proteins changed very little over time? _____

20. DRAW and LABEL figure 12-10 from page 297



21. What remarkable aspect of DNA did Watson and Crick recognize immediately? _____

22. Each strand of DNA in the double helix has what? _____

23. If you could only see one strand of the DNA double helix... could you predict what the other half would look like? _____ Explain why or why not. _____
24. How does DNA replication take place in prokaryotes? _____

25. How does DNA replication take place in eukaryotes? _____

26. What is the name of the site where separation and replication occur? _____
27. What is replication? _____
28. What does the replication process ensure? _____
29. What does each strand the double helix of DNA serve as? _____
30. Guanine is always paired with _____, and thymine is always paired with _____
31. What would the complementary base pairs of TACGTT be? _____
32. What does each DNA molecule resulting from replication have? _____
33. What is responsible for DNA replication? _____
34. How do enzymes "unzip" a molecule of DNA? _____

35. How is an enzyme named? _____

36. What is the principal enzyme involved in DNA replication?

37. What does this enzyme do? _____

38. Why else does this enzyme "proofread" each DNA strand?

39. DRAW and LABEL figure 12-11 from page 298 

