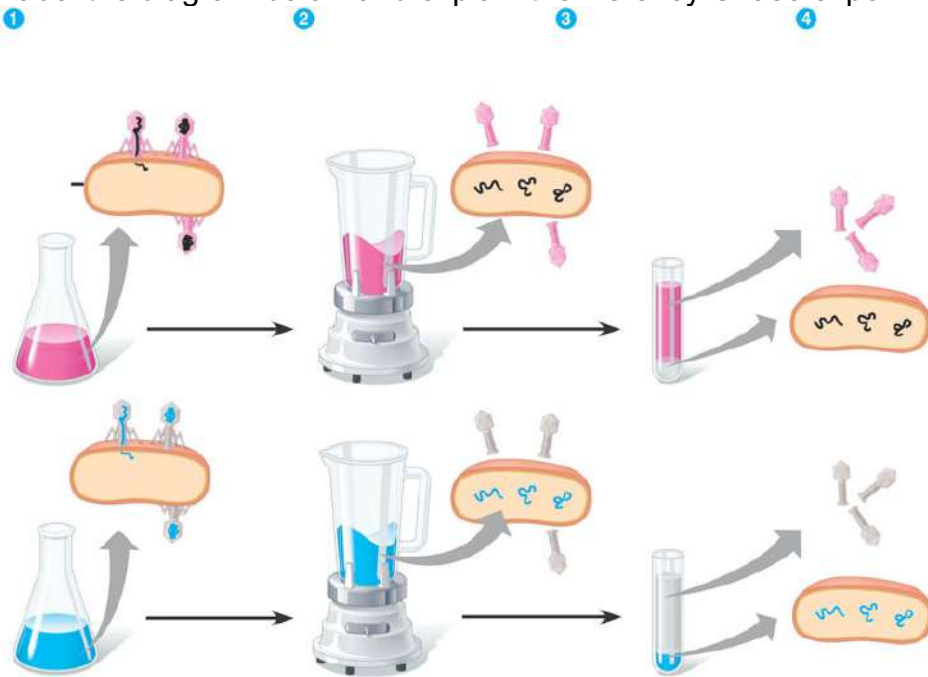


**AP Biology**  
**Chapter 16 Guided Reading Assignment**  
Adapted from L. Miriello by S. Sharp

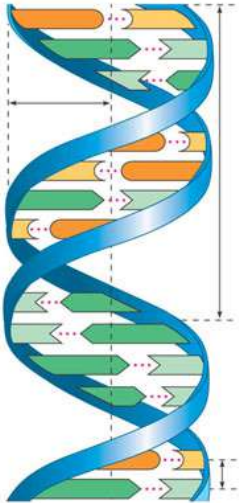
Name \_\_\_\_\_

1. Explain Griffith's experiment and the concept of transformation in detail.
2. What did Avery, MacLeod and McCarty contribute to this line of investigation?
3. What is a bacteriophage?
4. Label the diagram below and explain the Hershey Chase experiment.

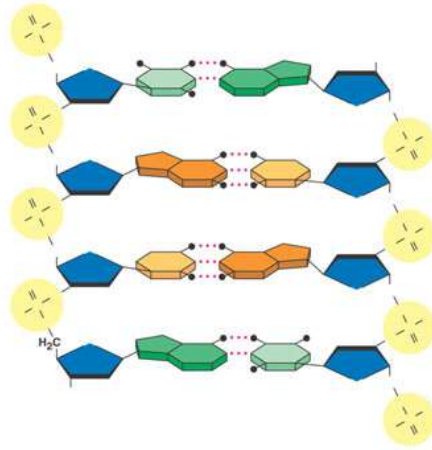


5. How did Chargaff's work contribute to understanding the structure of DNA?
6. Why was Rosalind's Franklin's work essential to the understanding of the structure of DNA?

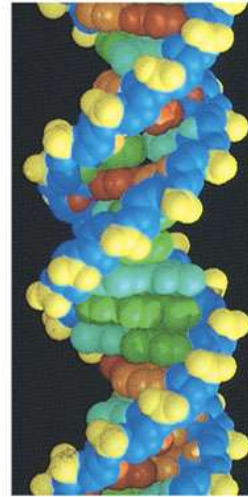
7. Label the structure below:



(a)



(b)



(c)

8. Why does adenine always pair with thymine and guanine with cytosine in DNA?

9. What is meant by the term that DNA replication is semiconservative?

10. Detail the Meselson and Stahl experiment concerning DNA replication.

11. How is bacterial DNA replication accomplished?

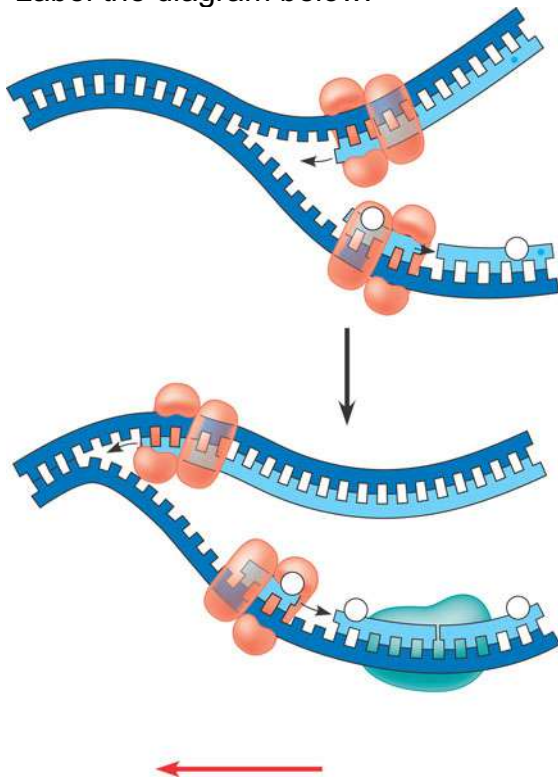
12. What are DNA polymerases?

13. In your own words, what is meant by the term – DNA is antiparallel in arrangement”?

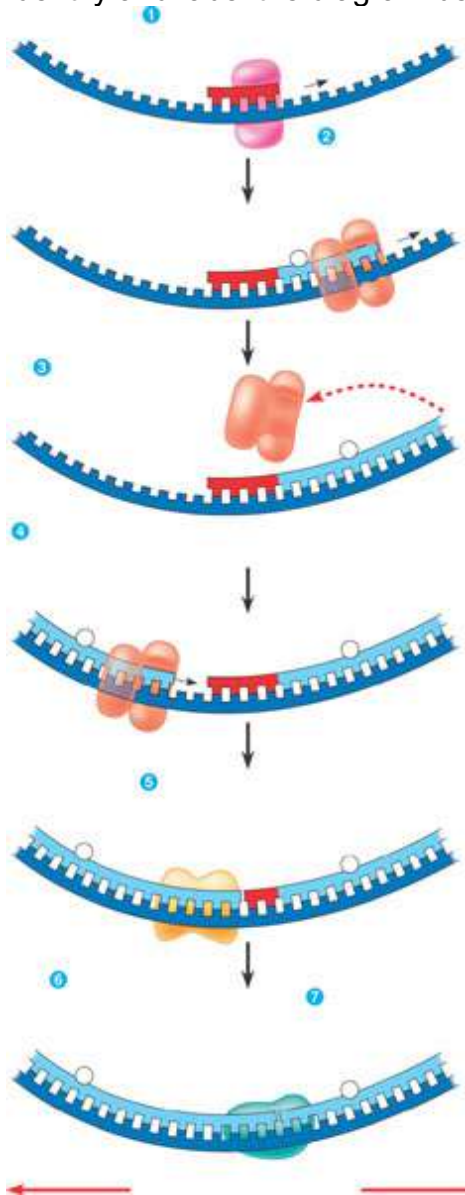
14. Define the following terms:

- a. Leading strand
- b. Lagging strand
- c. Okazaki fragments
- d. DNA ligase
- e. Primer

15. Label the diagram below:



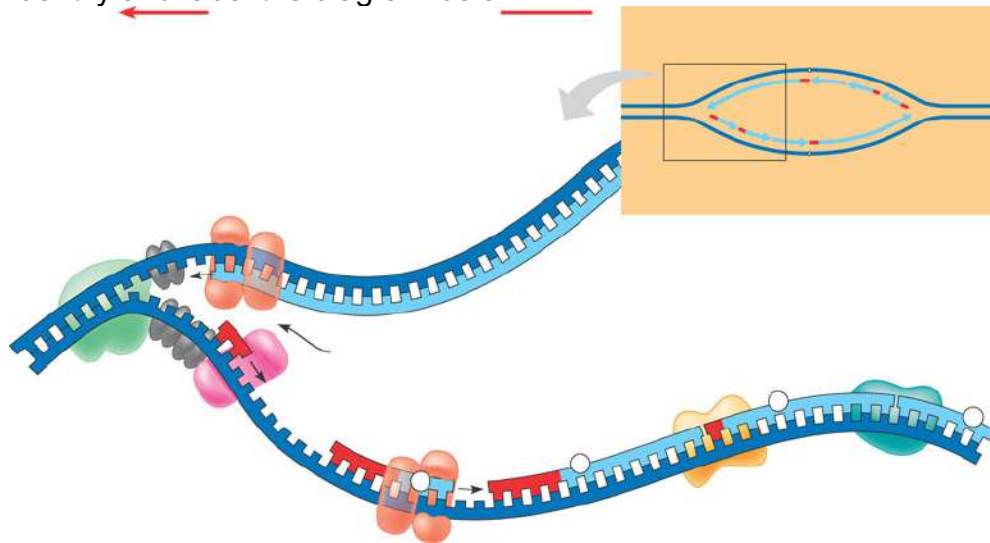
16. Identify and label the diagram below:



17. List the functions of the following enzymes:

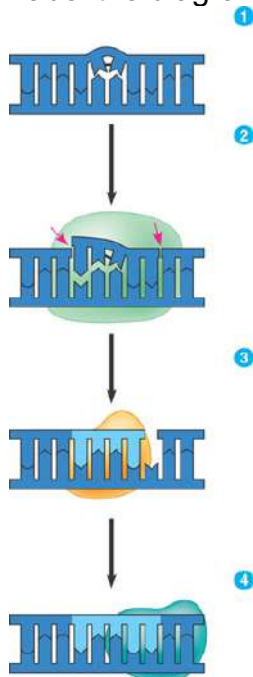
- a. Helicase
- b. Single stranded binding protein
- c. Topoisomerase
- d. Primase
- e. DNA Polymerase III
- f. DNA Polymerase I
- g. DNA Ligase

18. Identify and label the diagram below:



19. What is mismatch repair?

20. Label the diagram below:



21. Why is there a short section of a cell's DNA that cannot be repaired or replaced? Draw your own diagram explaining the problem. It is very important that you understand this conceptually.

22. What are telomeres and why are they important? How does telomerase play a role?

