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**Chapter 16 Reading Guide – Short Version**

Campbell & Reece, 7th Edition

Concept 16.1

1. What were the two candidates for genetic material?
2. Why did scientists once think that protein holds our genetic material?
3. What did **Griffith’s** experiment discover?
4. What is **transformation**?
5. What did the **Hershey-Chase** experiment discover?

Concept 16.2

1. What did the **Meselson-Stahl** experiment discover?
2. What is an **origin of replication**?
3. How are the origins of replication in eukaryotes different from prokaryotes?
4. What is the **replication for**k?
5. What does **DNA polymerase** do?
6. How many DNA polymerases are in prokaryotes?
7. How many DNA polymerases are in eukaryotes?
8. What powers the DNA polymerization reaction (aka DNA replication)?
9. What does it mean to say that the strands of DNA are **antiparallel**?
10. How does the antiparallel structure of the double helix affect DNA replication?
11. Sketch Figure 16.14 and label the parental DNA, Okazaki fragments, DNA polymerase, leading strand, lagging strand, template strand, and DNA ligase. Use a full sheet of paper and attach.
12. What initiates the synthesis of a polynucleotide (DNA or RNA strand)?
13. Explain the difference in function of **DNA polymerase I** and **DNA polymerase III**.
14. What is **topoisomerase**?
15. What is **ssbp** (single-strand binding protein)?
16. What is **mismatch** **repair**?
17. What are **telomeres** and why are they important?
18. What is telomerase?

Concept 16.3

1. Describe OR draw the formation of a tightly coiled chromosome starting from double stranded DNA. Label or discuss the difference between **euchromatin** and **heterochromatin**.