

Chapter 12.1-12.3 Notes on DNA

12.1 – DNA: The Genetic Material

1. After Mendel's work, scientists tried to determine if _____ or _____ was the source of genetic information.
2. What is a nucleic acid?
3. What did Frederick Griffith find out about the two strains of bacteria that he studied?
4. Explain why the mouse in fig. 12.2 (D) dies if the heat killed the s strain before it was injected?
5. What did Oswald Avery and his colleagues find? Did other scientists believe him?
6. Explain how Hershey and Chase used _____ _____ to prove that DNA, not protein, is the genetic material that is passed on from generation to generation.
7. What is DNA made up of?
8. What are nucleotides and what do they consist of?
9. What are the 4 nitrogenous bases in DNA?
10. What are the 4 nitrogenous bases in RNA?
11. What is Chargaff's rule?
12. What does the structure of DNA look like? The specific structure of DNA was determined by Watson and _____.
13. Why is the orientation, or direction, of the two strands of DNA unique?

12.2 – Replication of DNA

14. What is semiconservative replication? What are the three main stages?
15. What is the difference between Eukaryotic and Prokaryotic replication? Why does it happen this way?

12.3 – DNA, RNA, and Protein

16. What are the three types of RNA and how are they different?
17. What is transcription?
18. What is RNA polymerase?
19. What are introns and exons?
20. What is a codon?
21. What is translation?
22. Describe the process of transcription and translation (DNA - mRNA - Protein). Use a diagram in your explanation (use fig. 12.15 to help with your diagram)
23. What is the role of a ribosome?