

Chapter 12: Section 1

Match the scientist with their corresponding research in the study of DNA.

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| _____ 1. Frederick Griffith | A. Determined that genes are composed of DNA |
| _____ 2. Oswald Avery | B. Captured an x-ray diffraction image of DNA |
| _____ 3. Alfred Hershey & Martha Chase | C. Developed the double helix 3-D model of DNA |
| _____ 4. Rosalind Franklin | D. Developed the base pairing rules for DNA |
| _____ 5. Erwin Chargoff | E. Concluded that genetic material of bacteriophages was DNA |
| _____ 6. James Watson & Frances Crick | F. Discovered that heat killed bacteria could transform harmless bacteria and make it harmful. |

7. What are the four bases of a DNA molecule? _____

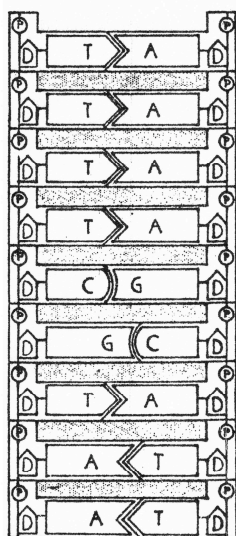
8. What are the base pairing rules- (How do the four bases of DNA pair with each other)?

Chapter 12: Section 2

9. Define: DNA replication
DNA polymerase

10. For the DNA molecule below, explain how replication would occur. Write 3 complete steps and draw what the final product of DNA replication would be from the original strand.

MODEL OF DNA MOLECULE



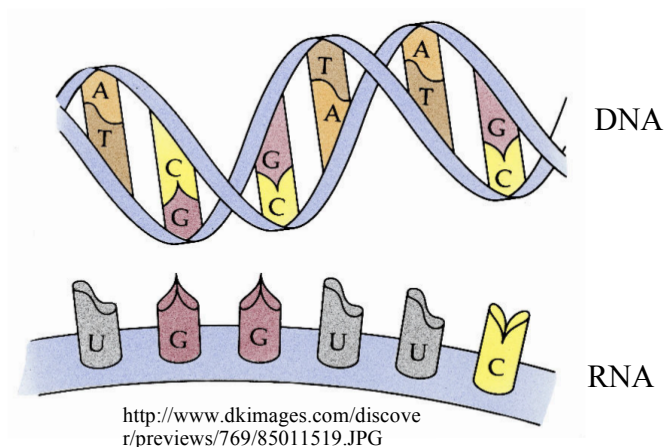
Steps of Replication

Final Product

11. Name the three types of RNA. _____

12. Define: Transcription
Translation
RNA polymerase

13. Look at the DNA and RNA and give three ways that they are different from each other.



Differences

1. _____
2. _____
3. _____

14. What are the four bases in an RNA molecule? _____

15. How do the four bases in an RNA molecule pair with one another? _____

16. Refer to the following sequence of DNA bases to answer questions 1-3 that follow.

CGA GTG TAC GGG ATC GCT AAG CCC

1. How many amino acids does the sequence code for? _____

2. Transcribe the sequence above. What would the corresponding mRNA be?

3. Use the amino acid codon table on page 103 of your text and write the amino acids that correspond to the mRNA in #2.

17. What is the difference between introns and exons? _____

Original DNA Sequence: T A C A C C T T G G C G A C G A C T

Mutated DNA sequence T A C A C T T G G C G A C G A C T

18. Circle the location of the mutation.

19. Which type of mutation is this? _____

Original DNA Sequence: T A C A C C T T G G C G A C G A C T

Mutated DNA sequence T A C A C C T T G G A G A C G A C T

20. Circle the location of the mutation.

21. Which type of mutation is this? _____

22. Define: polyploidy
mutation