

Skills Worksheet

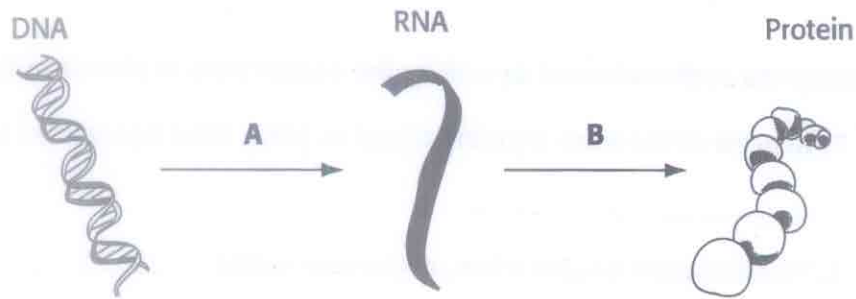
Test Prep Pretest

Complete each statement by writing the correct term or phrase in the space provided.

1. Instead of the base thymine found in DNA, RNA has a base called _____.
2. Transcription begins when an enzyme called _____ binds to the beginning of a gene on a region of DNA called a promoter.
3. The instructions for building a protein are written as a series of three-nucleotide sequences called _____.
4. During translation, the area of the ribosome called the _____ site receives the next tRNA molecule.
5. Because of its position on the operon, the _____ is able to control RNA polymerase's access to the structural genes.
6. The *lac* operon is switched off when a protein called a(n) _____ is bound to the operator.
7. In eukaryotic gene regulation, proteins called _____ help arrange RNA polymerases in the correct position on the promoter.
8. In eukaryotes, long segments of nucleotides with no coding information are called _____.
9. In eukaryotes, the portions of a gene that are actually translated into proteins are called _____.
10. Insertions, deletions and point mutations are types of _____.

Test Prep Pretest *continued*

Questions 11–13 refer to the figure below.



11. The processing of information from DNA into proteins, as shown above, is referred to as _____.
12. Stage *A* is called _____.
13. Stage *B* is called _____.

In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.

- _____ 14. In what kinds of cells do mutations occur?
- body cells
 - gametes
 - reproductive cells
 - All of the above
- _____ 15. A mutation that moves a gene to a new location is called a(n)
- point mutation.
 - insertion.
 - transposon.
 - deletion.
- _____ 16. Which of the following represents the codons that correspond to this segment of DNA: TATCAGGAT?
- AUA—GUC—CUA
 - ATA—GTC—CTA
 - AUAGU—CCUA
 - ACA—CUC—GUA
- _____ 17. Which of the following are the anticodons that correspond to the mRNA codons CAG—ACU—UUU?
- GTC—TGA—AAA
 - GUC—UGA—AAA
 - glutamine—threonine—phenylalanine
 - GAC—UCA—AAA
- _____ 18. Because the genetic code is the same in all organisms, it appears that
- the genetic code evolved more than once.
 - the codon GUC codes for different proteins in different organisms.
 - thymine will soon replace uracil in RNA.
 - all life-forms have a common ancestor.

Test Prep Pretest *continued*

Read each question, and write your answer in the space provided.

19. Explain how RNA differs from DNA.

20. Summarize the process of translation.

21. Describe the functions of RNA.

22. What is the *lac* operon?

23. Explain why gene regulation in eukaryotic cells is more complex than in prokaryotic cells.

Test Prep Pretest *continued*

24. Why do scientists think that introns and exons contribute to evolutionary flexibility?

25. Describe the three ways that mutation can alter genetic material.
