

# Study Guide

*From DNA to protein*

## ANSWER KEY

### SECTION 1

#### IDENTIFYING DNA AS THE GENETIC MATERIAL

1. Mice lived
2. Mice died
3. Mice lived
4. Mice died
5. S
6. bacteria
7. DNA; DNA; DNA
8. protein
9. radioactive
10. radioactive
11. DNA 12. virus
14. errors
15. nucleotides

### SECTION 2

#### STRUCTURE OF DNA

1. Refer to Visual Vocab in Section 2 for a visual answer.
2. four
3. the phosphate group; the nitrogen-containing base
4. uniform
5. building models
6. outside; one
7. A; G
8. Refer to Figure 2.4 for a visual answer.
9. sugar-phosphate backbone; nitrogen containing bases
10. c; c

### SECTION 3

#### DNA REPLICATION

1. copied
2. nucleus
3. S stage
4. cell
5. pattern
6. ATCCATG
7. a, b, e
8. hydrogen
9. old; new
10. a; Refer to Figure 3.1 for a visual answer.
11. c
12. b
13. hundreds of

### SECTION 4

#### TRANSCRIPTION

1. replication; nucleus
2. transcription; nucleus
3. translation; cytoplasm
4. deoxyribose; ribose
5. T; U
6. double; single
7. RNA polymerase
8. i. gene, DNA; ii. RNA polymerase; iii. detaches from
9. tRNA; rRNA; mRNA
10. All five statements: Both
11. i. Replication; ii. Transcription; iii. Replication; iv. Transcription
12. protein; ribosomes; amino acids
13. DNA, RNA

### SECTION 5

#### TRANSLATION

1. polypeptide (or protein)
2. three
3. RNA
4. nucleotides
5. arginine (Arg)
6. stop codon
7. UGG
8. glycine (Gly)
9. Ribosomes; tRNA molecules
10. small
11. large
12. amino acid; anticodon
13. A, iii; B, ii; C, I
14. codons
15. anticodon
16. stop codon

### SECTION 6

#### GENE EXPRESSION AND REGULATION

1. b, d
2. transcription
3. promoter
4. operon; genes
5. d
6. e
7. a
8. C
9. b
10. genes
11. starts
12. eukaryotic
13. protein
14. exon; tail; cap; intron
15. exon; intron
16. transcribed