

## DNA & Proteins Unit Objectives

1. What is the relationship between genes, DNA, proteins, and traits?
2. Define and summarize the function of each of the following: *phosphate*, *sugar*, *base*, *nucleotide*.
3. What are the four bases in DNA? What are complementary bases, and why are bases always found in specific combinations?
4. How is DNA duplicated? What is the role of helicase and DNA polymerase in this process?
5. What is a codon? How do the bases in a gene provide a cell with information about how to assemble a protein?
6. What is RNA? How is it similar to and different from DNA? Why is it needed by the cell?
7. Briefly summarize transcription and translation. What occurs in each process?
8. What is mRNA? Why is it needed? How is a mRNA copy produced by RNA polymerase during transcription?
9. How are proteins assembled during translation?
10. How does tRNA 'know' which amino acid to deliver?
11. What is a start codon? What is a stop codon? How do these help a cell produce a protein?
12. Some antibiotics work by disabling the bacteria's ribosomes. Others prevent RNA polymerase from functioning. Others prevent DNA from being duplicated by DNA polymerase. In each case, explain how and why this would be effective for preventing harmful bacteria from growing and reproducing.

