Chapter 10 Objectives

OBJECTIVES

The Structure of Genetic Material
Introduction Explain how a herpesvirus invades a cell and forces the cell to reproduce the virus.
10.1 Describe the experiments of Griffith and Hershey and Chase which demonstrated that DNA is the genetic material.
10.2-10.3 Compare the structure of DNA and RNA.

DNA Replication
10.4 Explain how the structure of DNA facilitates its replication.
10.5 Describe the process of DNA replication.

The Flow of Genetic Information from DNA to RNA to Protein
10.6 Describe the locations, reactants, and products of transcription and translation.
10.7-10.8 Explain the "languages" of DNA and RNA that are used to produce polypeptides.
10.9 Explain how RNA is produced.
10.10 Explain how eukaryotic RNA is processed before leaving the nucleus.
10.11 Explain how tRNA functions in the process of translation.
10.12 Describe the structure and function of ribosomes.
10.13 Explain how translation begins.
10.14 Describe the step by step process by which amino acids are added to a growing polypeptide chain.
10.15 Diagram the overall process of transcription and translation.
10.16 Describe the major types of mutations and their possible consequences.

Viruses: Genes in Packages
10.17 Compare the lytic and lysogenic reproductive cycles of a phage.
10.18 Describe the reproductive cycle of an enveloped virus. Explain how the herpes virus is different from this cycle.
10.19 Describe the most common characteristics of plant viruses.
10.20 Explain how new viruses evolve and why certain viruses emerge as major threats.
10.21 Explain how the AIDS virus enters a host cell and reproduces.
10.22 Explain what the authors mean when they say that molecular geneticists have "a love-hate relationship" with viruses.