- Foreword (p. ix)
- Preface (p. xi)
- Acknowledgments (p. xv)
- Part I Perspective (p. 1)
- 1 Science, Technology, and Society (p. 3)
- Part II The Foundational Science (p. 33)
- From Atoms to Organisms
- 2 The Cell: The Basic Unit of Life (p. 35)
- 3 Molecular Components of Cells (p. 51)
- 4 Expression of Genetic Information (p. 71)
- 5 Protein Structure and Function (p. 89)
- 6 Cell Metabolism (p. 111)
- 7 Cells Maintain Their Internal Environments (p. 137)
- 8 Cells Respond to Their External Environments (p. 157)
- 9 Cells Grow and Reproduce (p. 183)
- **10 Cells Differentiate** (p. 205)
- From Organisms to Ecosystems
- 11 Patterns of Genetic Inheritance (p. 233)
- 12 From Genotype to Phenotype (p. 257)
- 13 Evolutionary Mechanisms (p. 287)
- 14 Ecological Interactions (p. 319)
- Part III Biotechnology Applications and Issues (p. 357)
- Research Applications
- 15 The Biotechnology Toolbox (p. 359)
- 16 Biotechnology in the Research Laboratory (p. 385)
- Commercial Applications
- 17 Moving Science from the Laboratory into Society (p. 419)
- 18 Risks and Regulations (p. 443)
- 22 Ecology and Evolution in Agriculture (p. 569)
- 19 Health Care Applications (p. 475)
- 20 Medical Biotechnology in Society (p. 509)
- 21 Biotechnology in the Food Industry (p. 535)
- 23 Biotechnology and Sustainable Agriculture (p. 591)
- 24 Environmental Sustainability and Biotechnology (p. 627)
- **Index** (p. 651)