

# BRIEF CONTENTS

- 1 A View of Life 1
- 2 The Scientific Method 13

## Part I

### The Cell 21

- 3 Basic Chemistry 23
- 4 The Chemistry of Life 41
- 5 Cell Structure and Function 61
- 6 Membrane Structure and Function 83
- 7 Cellular Energy 103
- 8 Photosynthesis 119
- 9 Cellular Respiration 137

## Part II

### Genetic Basis of Life 155

- 10 Cell Reproduction: Mitosis 157
- 11 Cell Reproduction: Meiosis 169
- 12 Mendelian Patterns of Inheritance 183
- 13 Chromosomes and Genes 197
- 14 Human Genetics 211
- 15 DNA: The Genetic Material 231
- 16 Gene Activity 245
- 17 Regulation of Gene Activity 259
- 18 Recombinant DNA and Biotechnology 277

## Part III

### Evolution 291

- 19 Darwin and Evolution 293
- 20 Process of Evolution 311
- 21 Origin and History of Life 331
- 22 Human Evolution 355

## Part IV

### Diversity of Life 377

- 23 Classification of Living Things 379
- 24 Viruses and Kingdom Prokaryotae 395
- 25 Kingdom Protocista 411
- 26 Kingdom Fungi 429
- 27 Kingdom Plantae 443
- 28 Kingdom Animalia: Introduction to Invertebrates 465
- 29 Kingdom Animalia: Protostomes 483
- 30 Kingdom Animalia: Deuterostomes 503

## Part V

### Plant Structure and Function 527

- 31 Plant Structure 529
- 32 Nutrition and Transport in Plants 551
- 33 Growth and Development in Plants 567
- 34 Reproduction in Plants 585

## Part VI

### Animal Structure and Function 609

- 35 Animal Organization and Homeostasis 611
- 36 Circulatory System 627
- 37 Lymphatic System and Immunity 649
- 38 Digestive System and Nutrition 667
- 39 Respiratory System 683
- 40 Excretory System 697
- 41 Nervous System 711
- 42 Sense Organs 733
- 43 Musculoskeletal System 749
- 44 Endocrine System 767
- 45 Reproduction in Animals 785
- 46 Development in Animals 803

## Part VII

### Behavior and Ecology 823

- 47 Animal Behavior 825
- 48 Ecology of Populations 839
- 49 Interactions within Communities 849
- 50 Ecosystems: The Flow of Energy and the Cycling of Materials 859
- 51 The Biosphere 875
- 52 Environmental Concerns 891