

Contents in Brief

Overview

Part One INTRODUCTION

- 1 Your Study of Biology 3
- 2 Biology As a Science 17

General Principles

Part Two CELL BIOLOGY

- 3 The Chemistry of Life 37
- 4 The Origin of Life 65
- 5 Cells 77
- 6 How Cells Interact With the Environment 105

Part Three ENERGY

- 7 Energy and Metabolism 129
- 8 How Cells Make ATP 145
- 9 Photosynthesis 165

Part Four GENETICS

- 10 How Cells Reproduce 185
- 11 Mendelian Genetics 205
- 12 Human Genetics 223
- 13 The Mechanism of Heredity 243
- 14 Genes and How They Work 263
- 15 How Genes Change 281

Part Five EVOLUTION

- 16 The Evidence for Evolution 305
- 17 How Species Form 329
- 18 The Evolution of Life on Earth 345
- 19 How We Evolved:
Vertebrate Evolution 361

Part Six ECOLOGY

- 20 How Species Interact With Their Environment 387
- 21 How Species Interact With One Another 405
- 22 Communities and Ecosystems 419
- 23 The Future of the Biosphere 445

The Biological World

Part Seven BIOLOGICAL DIVERSITY

- 24 The Five Kingdoms of Life 467
- 25 The Invisible World:
Bacteria and Viruses 483
- 26 The Origins of Multicellularity:
Protists and Fungi 497
- 27 Plants 513
- 28 Animals 531

Part Eight PLANT BIOLOGY

- 29 The Structure of Plants 561
- 30 Flowering Plant Reproduction 577
- 31 How Plants Function 591

Part Nine ANIMAL BIOLOGY

- 32 The Vertebrate Body 607
- 33 How Animals Move 623
- 34 How Animals Digest Food 637
- 35 How Animals Capture Oxygen 653
- 36 Circulation 667
- 37 The Vertebrate Immune System 685
- 38 How Animals Transmit Information 701
- 39 The Nervous System 713
- 40 Hormones 735
- 41 The Control of Water Balance 749
- 42 Sex and Reproduction 761
- 43 Behavior 785

Appendices

- A Classification of Organisms A-1
- B Genetics Problems B-1
- C Answers C-1
- Glossary G-1
- Illustration Credits IC-1
- Index I-1