

BRIEF CONTENTS

CHAPTER 1: Introduction to Biology 2

UNIT 1: CHEMISTRY 21

CHAPTER 2: Chemistry I: Basic Chemistry 22

CHAPTER 3: Chemistry II: The Chemistry of Life 42

UNIT 2: CELLS 69

CHAPTER 4: Cells 72

CHAPTER 5: Membranes 102

CHAPTER 6: Introduction to Metabolism 122

CHAPTER 7: Cell Energetics 136

CHAPTER 8: Photosynthesis	154
CHAPTER 9: Reproduction of Cells	170
CHAPTER 10: Meiosis	184

UNIT 3: GENETICS **199**

CHAPTER 11: Mendelian Genetics	200
CHAPTER 12: Molecular Genetics	220
CHAPTER 13: From Genotype to Phenotype	236
CHAPTER 14: Regulation of Gene Expression	252
CHAPTER 15: Biotechnology	266

UNIT 4: EVOLUTION **281**

CHAPTER 16: The History and Process of Evolution	282
CHAPTER 17: Population Genetics	300
CHAPTER 18: Speciation and Its History	312
CHAPTER 19: Phylogenetics	332

UNIT 5: AUTOTROPHS 347

CHAPTER 20: Prokaryotes 348

CHAPTER 21: Protists 364

CHAPTER 22: Plant Evolution and Diversity 380

CHAPTER 23: Plant Form and Function 404

CHAPTER 24: Plant Nutrition and Growth 422

UNIT 6: HETEROTROPHS 437

CHAPTER 25: Fungi 438

CHAPTER 26: Invertebrate Animals 454

CHAPTER 27: The Vertebrates 476

CHAPTER 28: Animal Organization and Regulation 496

CHAPTER 29: Animal–Environment Interactions 516

UNIT 7: ECOLOGY **543**

CHAPTER 30: Ecology 544

CHAPTER 31: Population Ecology 568

CHAPTER 32: Community and Ecosystem Ecology 582

CHAPTER 33: Conservation and Human Responsibility 604

Index **625**