

TABLE OF CONENTS

PART I: THE MOLECULAR BASIS OF LIFE

1	The Science of AP Biology	1
2	The Nature of Molecules and the Properties of Water	8
3	The Chemical Building Blocks of Life	17

PART II: BIOLOGY OF THE CELL

4	Cell Structure	33
5	Membranes	42
6	Energy and Metabolism	55
7	How Cells Harvest Energy	67
8	Photosynthesis	81
9	Cell Communication	91
10	How Cells Divide	101

PART III: GENETICS AND MOLECULAR BIOLOGY

11	Sexual Reproduction and Meiosis	114
12	Patterns of Inheritance	125
13	Chromosomes, Mapping, and the Meiosis–Inheritance Connection	139
14	DNA: The Genetic Material	143
15	Genes and How They Work	153
16	Control of Gene Expression	164
17	Biotechnology	172
18	Genomics	181
19	Cellular Mechanisms of Development	186

PART IV: EVOLUTION

20	Genes Within Populations	196
21	The Evidence for Evolution	211
22	The Origin of Species	219
23	Systematics, Phylogenies, and Comparative Biology	226
24	Genome Evolution	232
25	Evolution of Development	237

PART V: DIVERSITY OF LIFE ON EARTH

26	The Origin and Diversity of Life	238
27	Viruses	245
28	Prokaryotes	251
29	Protists	257
30	Seedless Plants	260
31	Seed Plants	264
32	Fungi	268
33	Animal Diversity and the Evolution of Body Plans	273
34	Protosomes	277
35	Deuterostomes	279

PART VI: PLANT FORM AND FUNCTION

36	Plant Form	283
37	Transport in Plants	290
38	Plant Nutrition and Soils	299
39	Plant Defense Responses	305
40	Sensory Systems in Plants	309
41	Plant Reproduction	317

PART VII: ANIMAL FORM AND FUNCTION

42	The Animal Body and Principles of Regulation	327
43	The Nervous System	332
44	Sensory Systems	344
45	The Endocrine System	347
46	The Musculoskeletal System	356
47	The Digestive System	358
48	The Respiratory System	370
49	The Circulatory System	378
50	Osmotic Regulation and the Urinary System	388
51	The Immune System	398
52	The Reproductive System	408
53	Animal Development	414

PART VIII: ECOLOGY AND BEHAVIOR

54	Behavioral Biology	421
55	Ecology of Individuals and Populations	432
56	Community Ecology	443
57	Dynamics of Ecosystems	455
58	The Biosphere	470
59	Conservation Biology	478