Brief Contents

1. Understanding Earth: A Dynamic and Evolving Planet 2 2. Plate Tectonics: A Unifying Theory 26 3. Minerals—The Building Blocks of Rocks 58 4. Igneous Rocks and Plutons 84 5. Volcanoes and Volcanism 108 6. Weathering, Erosion, and Soil 134 7. Sediment and Sedimentary Rocks 156 8. Metamorphism and Metamorphic Rocks 9. Earthquakes and Earth's Interior 198 10. Deformation, Mountain Building, and Earth's Crust 232 11. Mass Wasting 258 12. Running Water—Streams and Rivers 284 13. Groundwater 312 14. Glaciers and Glaciation 338 15. The Work of Wind and Deserts 364 16. Oceans, Shorelines, and Shoreline Processes 386 17. Geologic Time: Concepts and Principles 414 18. Organic Evolution—The Theory and Its Supporting Evidence 448 19. Precambrian Earth and Life History 474 20. Paleozoic Earth History 502 21. Paleozoic Life History 540 22. Mesozoic Earth and Life History 574

23. Cenozoic Earth and Life History 612

24. Geology in Perspective 654