A grasp of the logic and practice of science is essential to understand the rest of the world around us. To that end, this text remains focused on experimental support for what we know about cell and molecular biology, and on showing students the relationship of cell structure and function. Rather than trying to be a comprehensive reference book, this text selectively details investigative questions, methods and experiments that lead to our understanding of cell biology. This focus is nowhere more obvious than in the chapter learning objectives and in external links to supplementary material.
1: Cell Tour, Life’s Properties and Evolution, Studying Cells

2: Basic Chemistry, Organic Chemistry and Biochemistry

3: Details of Protein Structure

4: Bioenergetics

5: Enzyme Catalysis and Kinetics
6: Glycolysis, the Krebs Cycle and the Atkins Diet

7: Electron Transport, Oxidative Phosphorylation, and Photosynthesis

8: DNA, Chromosomes and Chromatin

9: Details of DNA Replication and Repair
10: Transcription and RNA Processing

11: The Genetic Code and Translation

12: Regulation of Transcription and Epigenetic Inheritance

13: Post Transcriptional Regulation of Gene Expression
14: Repetitive DNA - A Eukaryotic Genomic Phenomenon

15: DNA Technologies

16: Membrane Structure

17: Membrane Function
18: The Cytoskeleton and Cell Motility

- 19: Cell Division and the Cell Cycle

- 20: The Origins of Life

- Back Matter

Thumbnail: A diagram of a typical prokaryotic cell. (Public Domain; Mariana Ruiz Villarreal, LadyofHats).