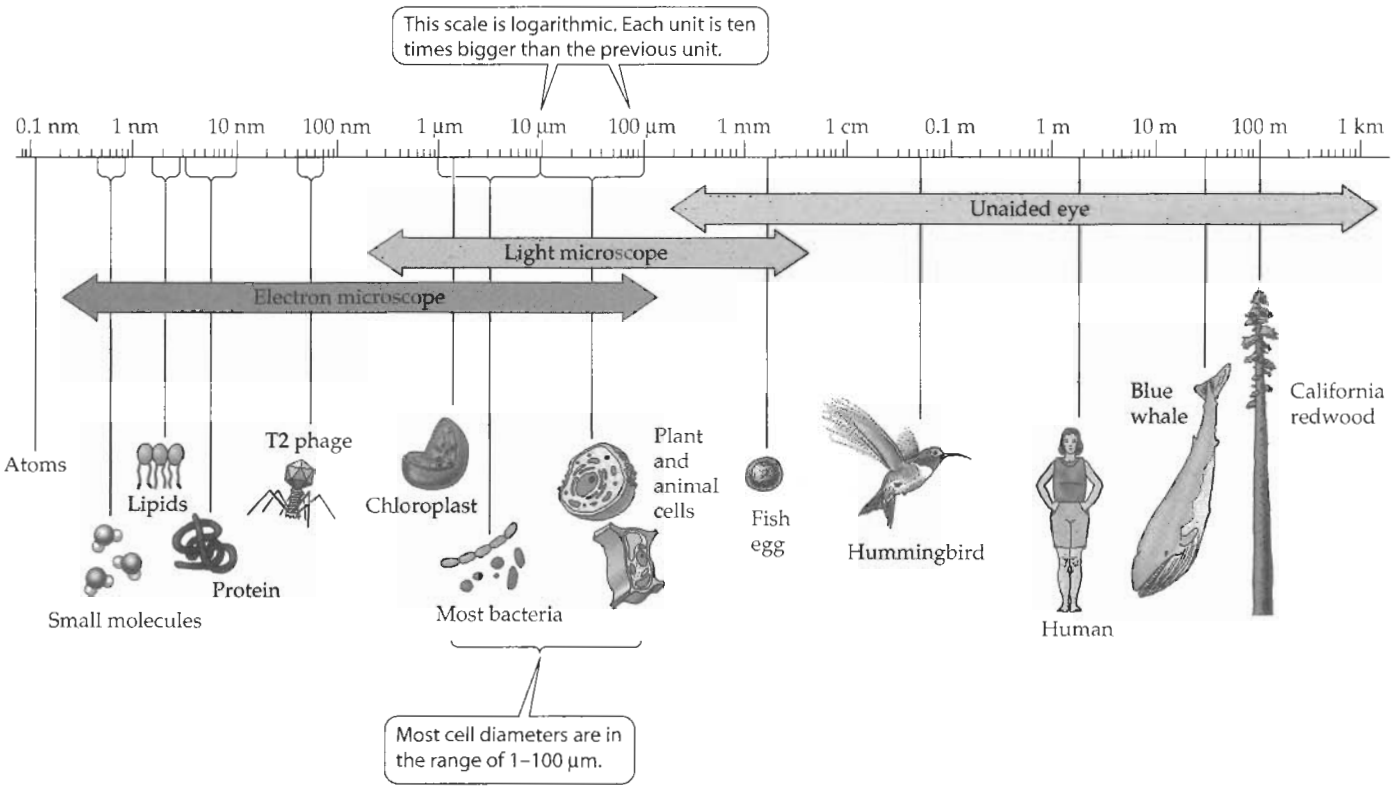
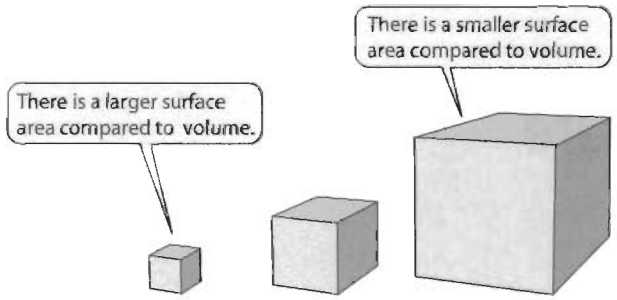
4 Cells: The Basic Units of Life

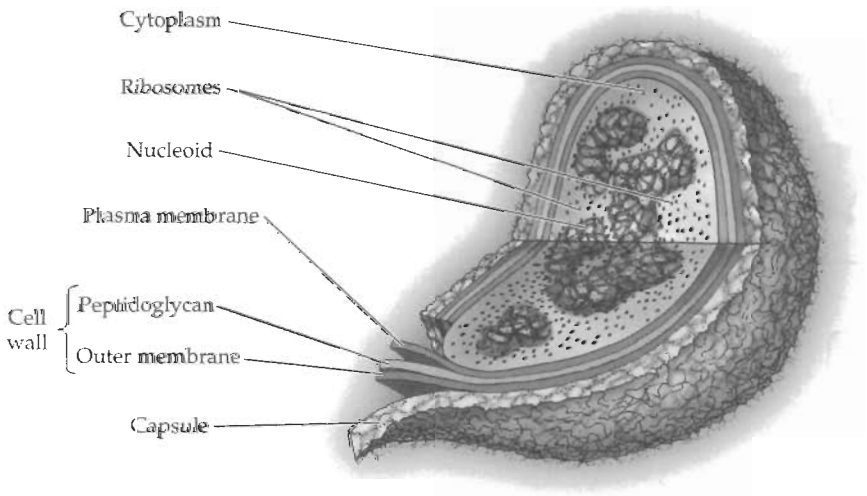


4.2 The Scale of Life *(Page 63)*

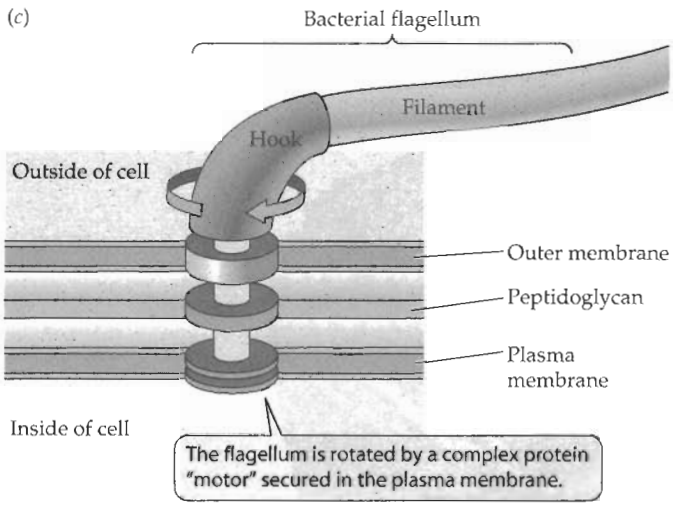


	1-mm cube	2-mm cube	4-mm cube
Surface area	6 sides × 1^2 = 6 mm^2	6 sides × 2^2 = 24 mm^2	6 sides × 4^2 = 96 mm^2
Volume	1^3 = 1 mm^3	2^3 = 8 mm^3	4^3 = 64 mm^3
Surface area-to-volume ratio	6/1	3/1	1.5/1

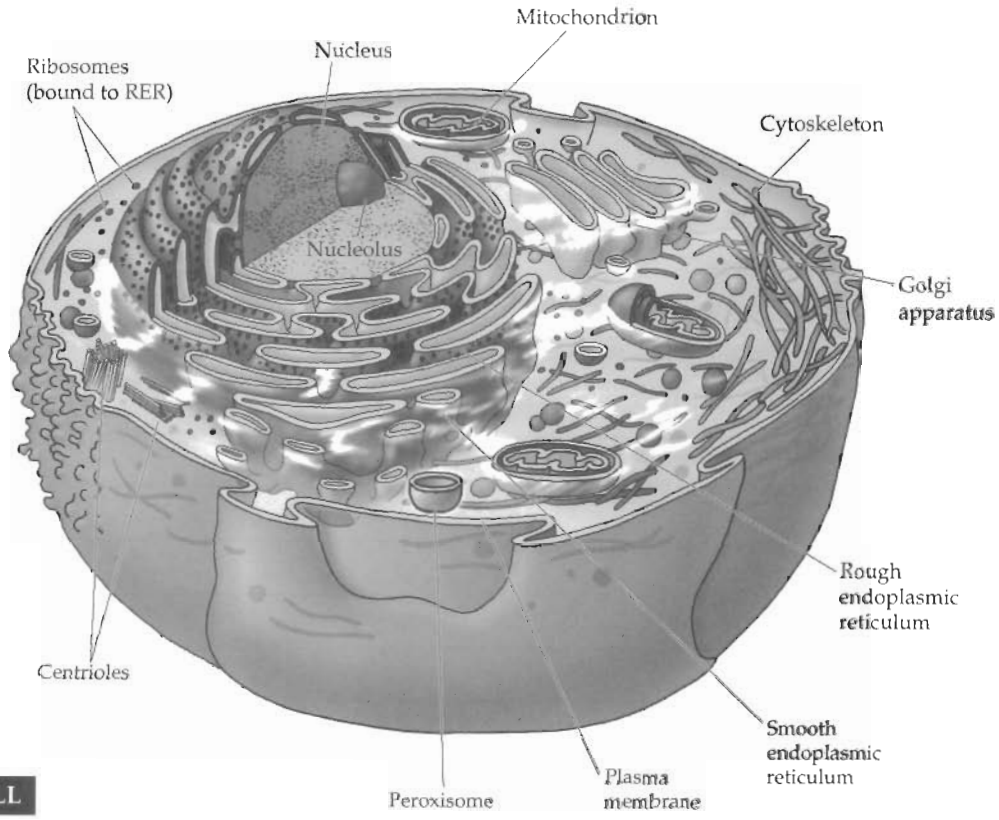
4.3 Why Cells Are Small *(Page 63)*



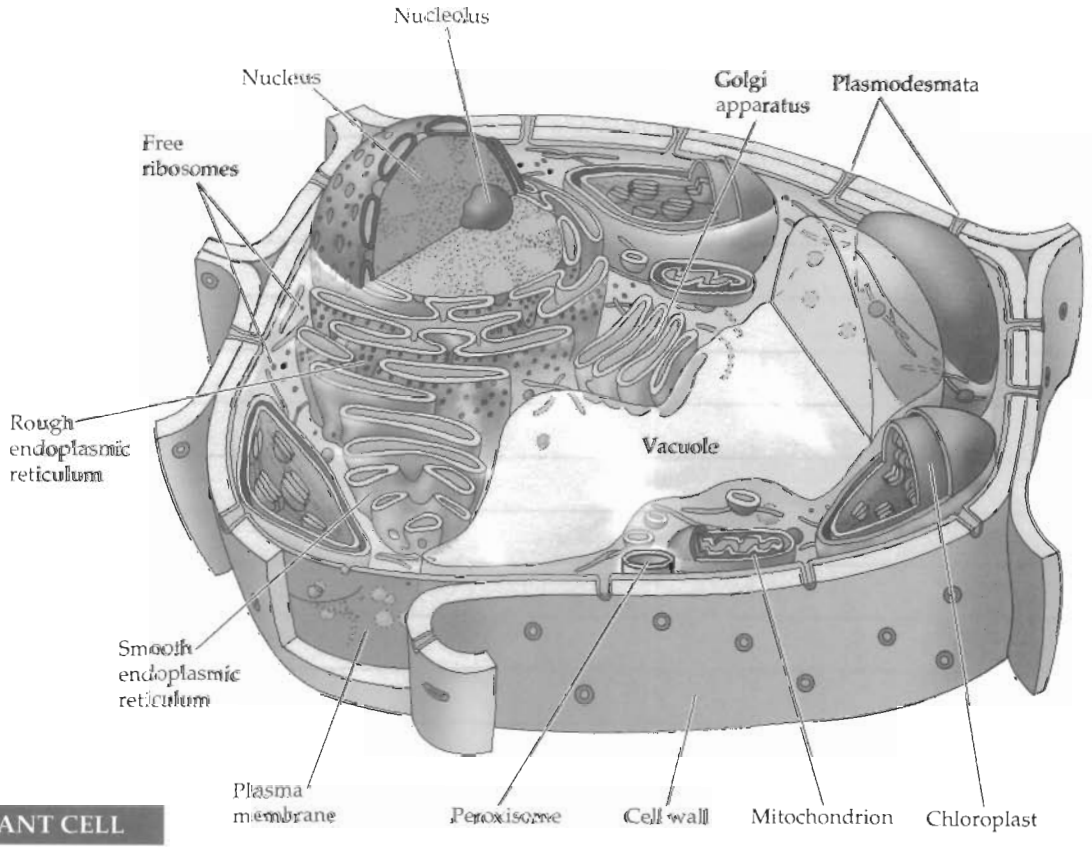
4.5 A Prokaryotic Cell *(Page 66)*



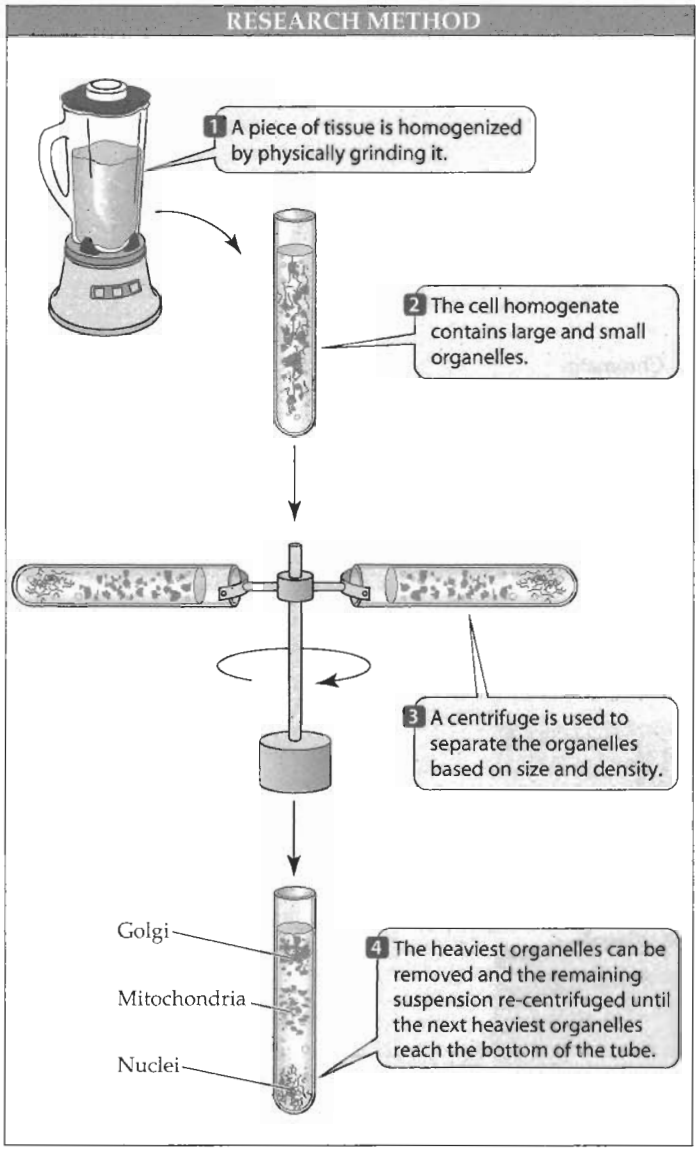
4.6 Prokaryotic Projections *(Page 67)*



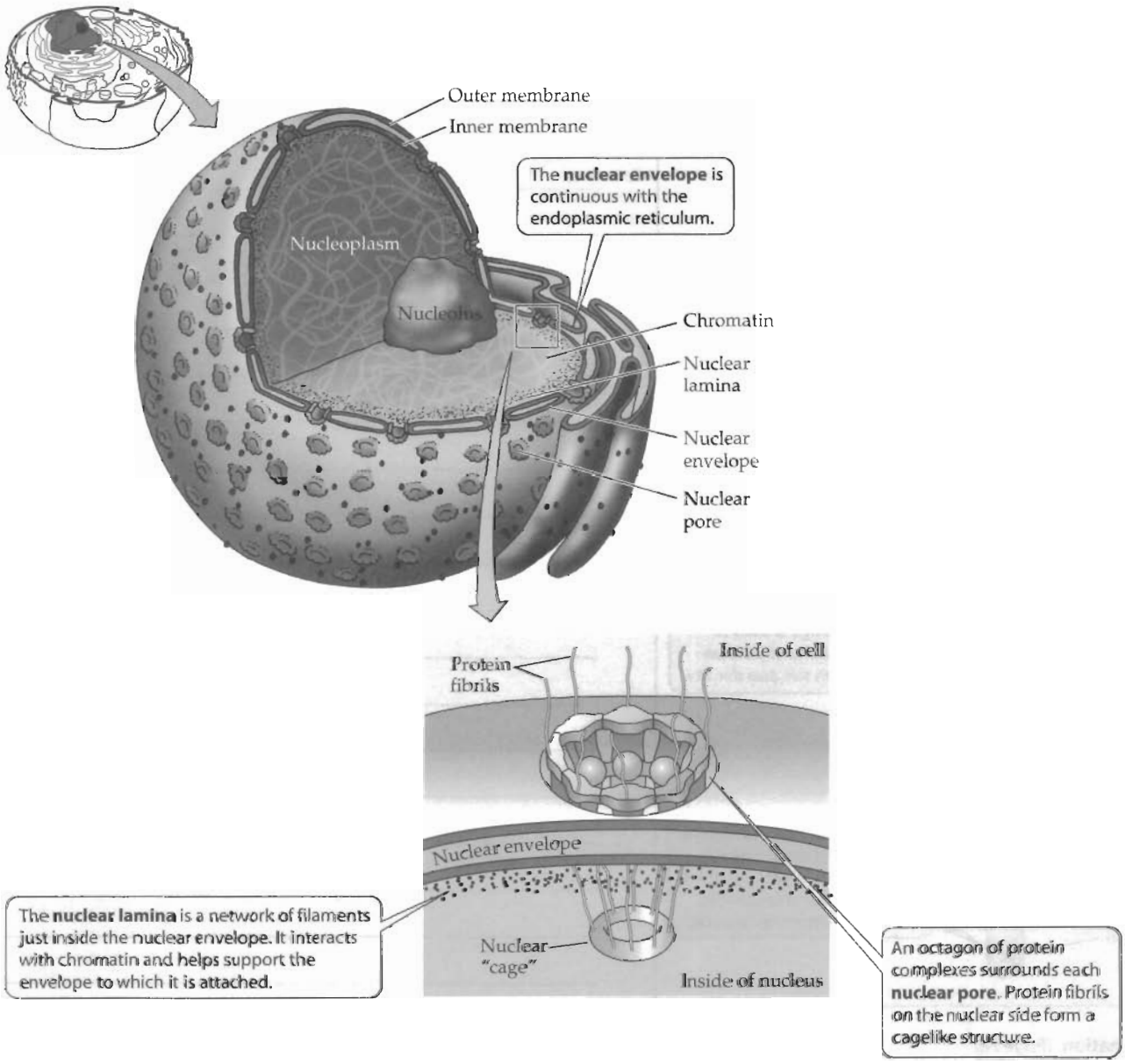
AN ANIMAL CELL



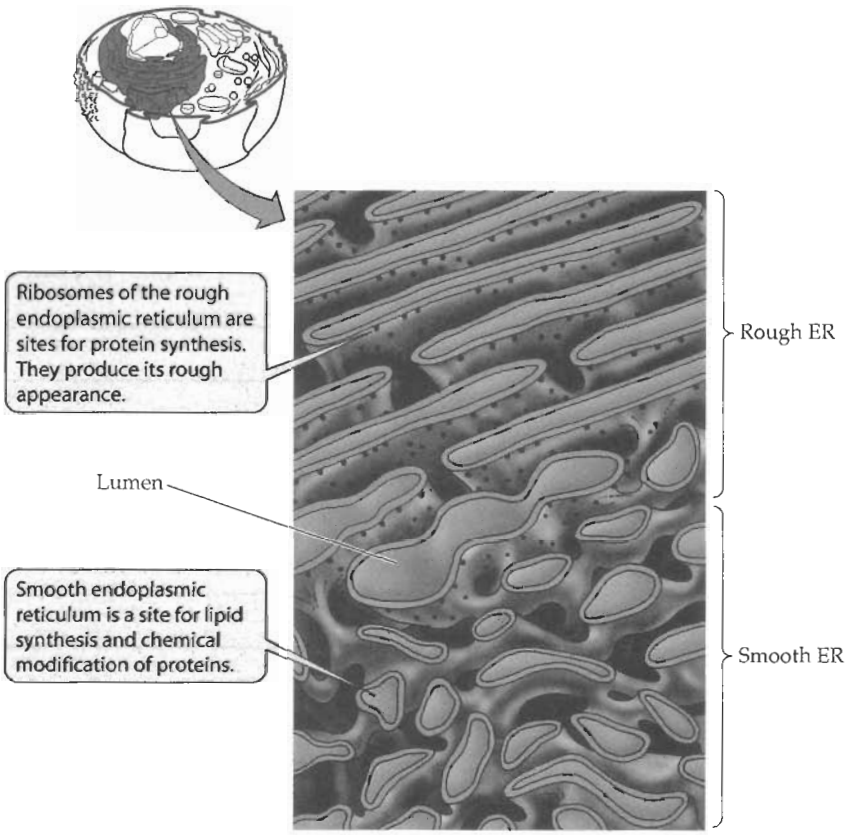
A PLANT CELL



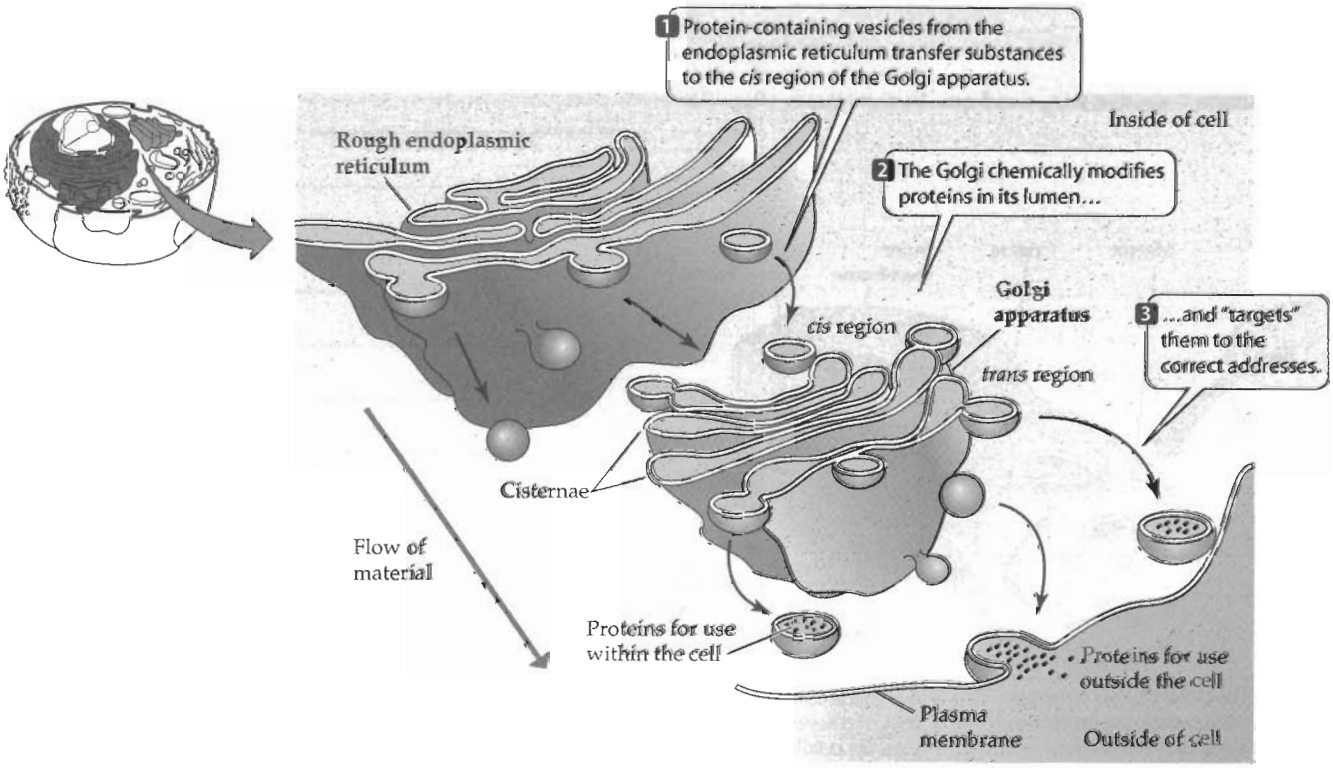
4.8 Cell Fractionation *(Page 70)*



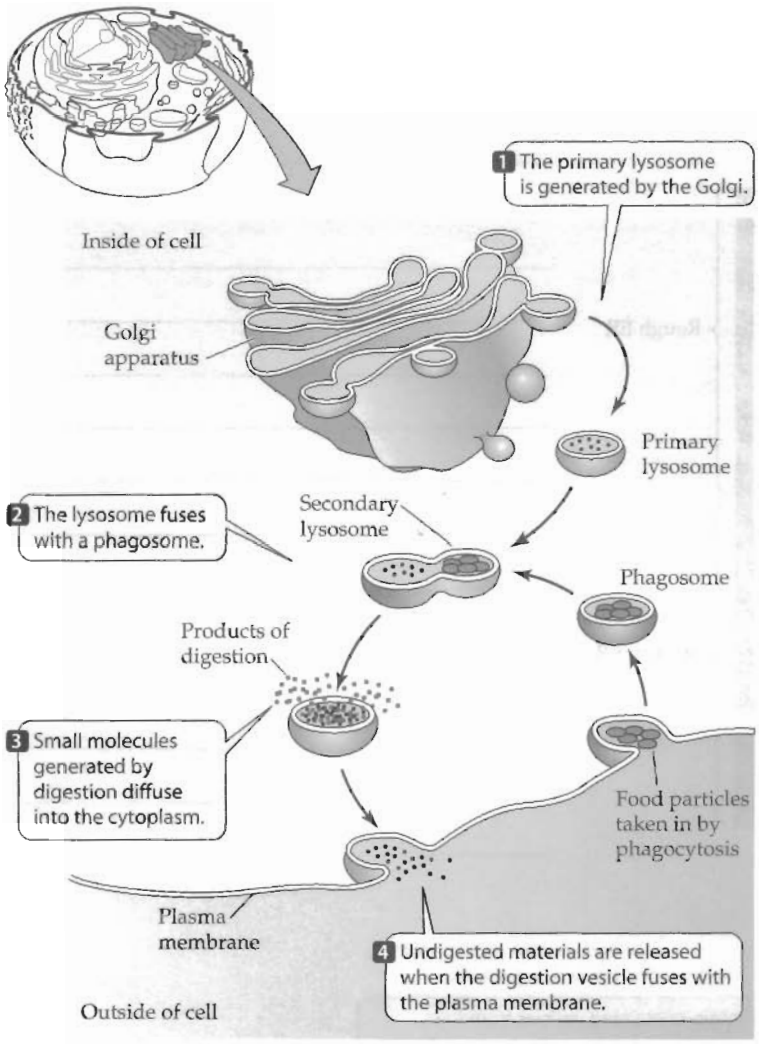
4.9 The Nucleus Is Enclosed by a Double Membrane *(Page 71)*



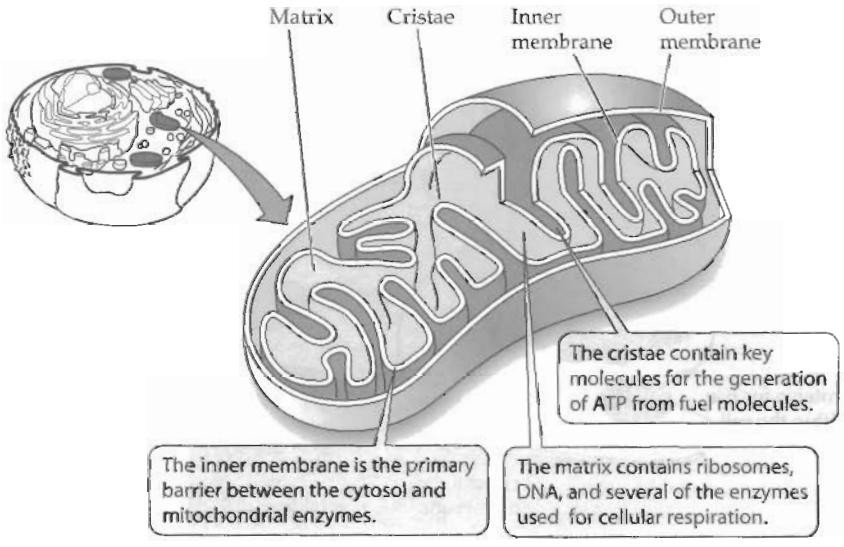
4.11 The Endoplasmic Reticulum *(Page 72)*



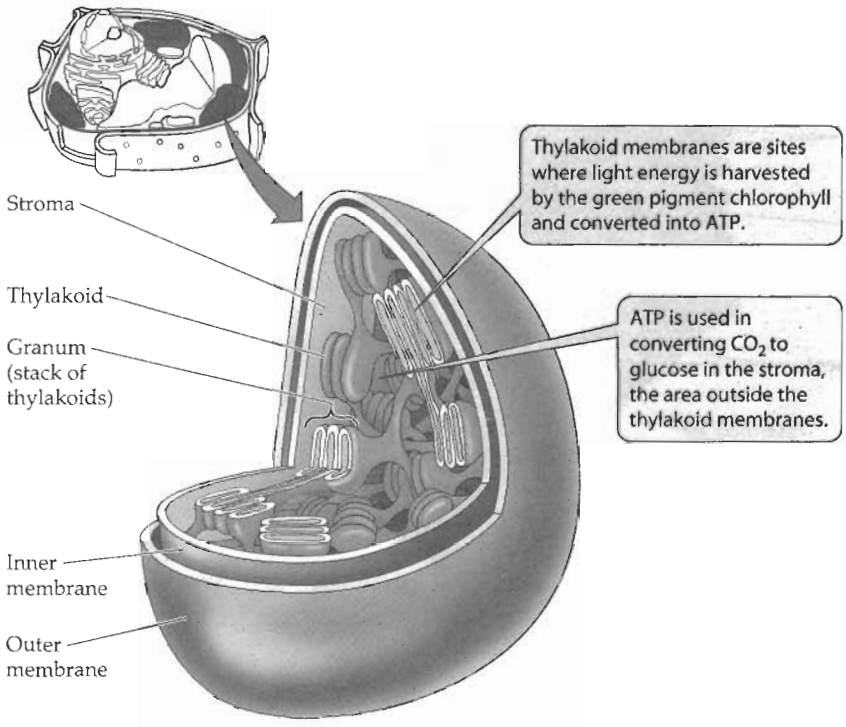
4.12 The Golgi Apparatus *(Page 73)*



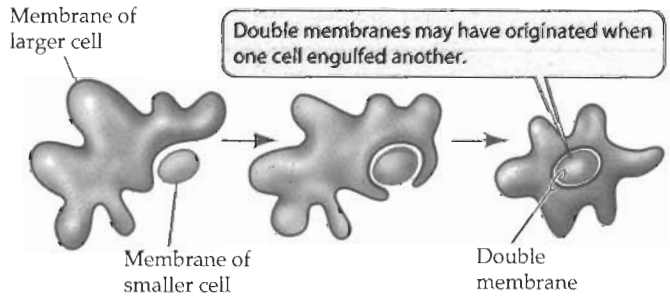
4.13 Lysosomes Isolate Digestive Enzymes from the Cytoplasm *(Page 74)*



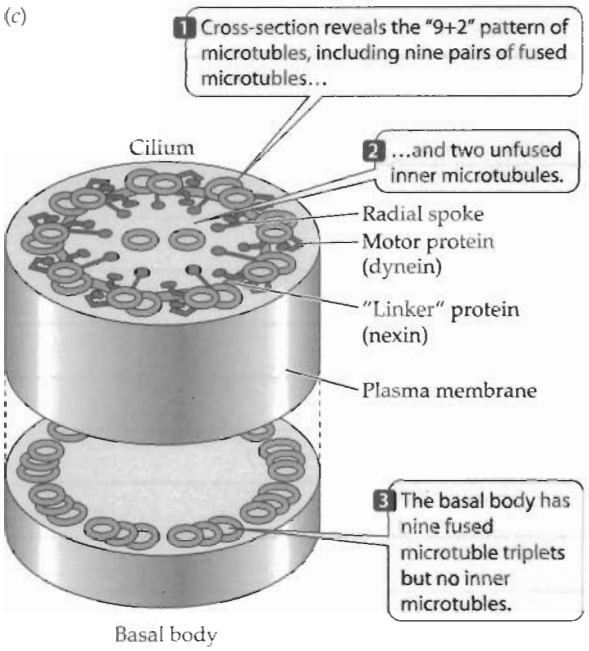
4.14 A Mitochondrion Converts Energy from Fuel Molecules into ATP *(Page 75)*



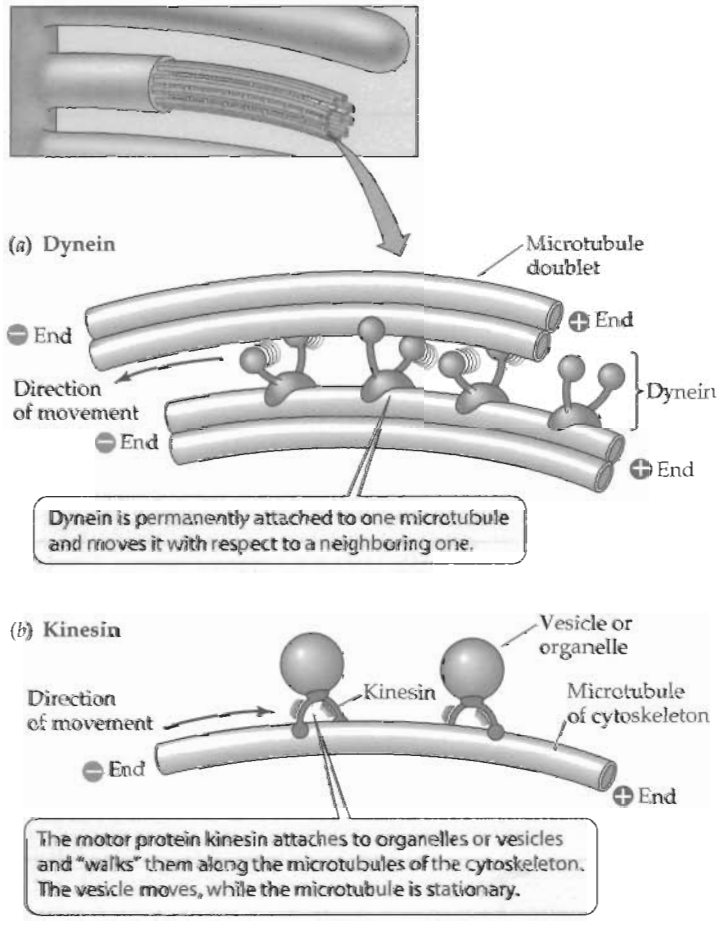
4.15 The Chloroplast: The Organelle That Feeds the World *(Page 76)*



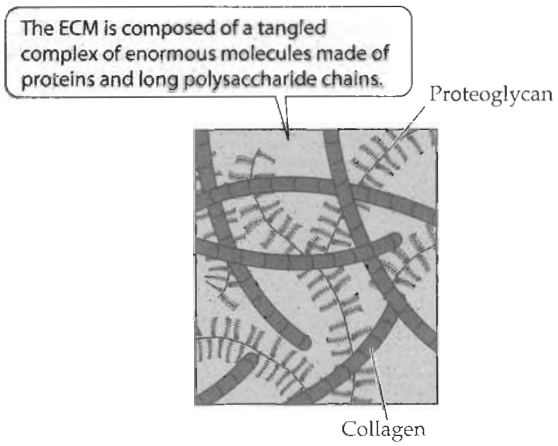
4.18 The Endosymbiosis Theory *(Page 78)*



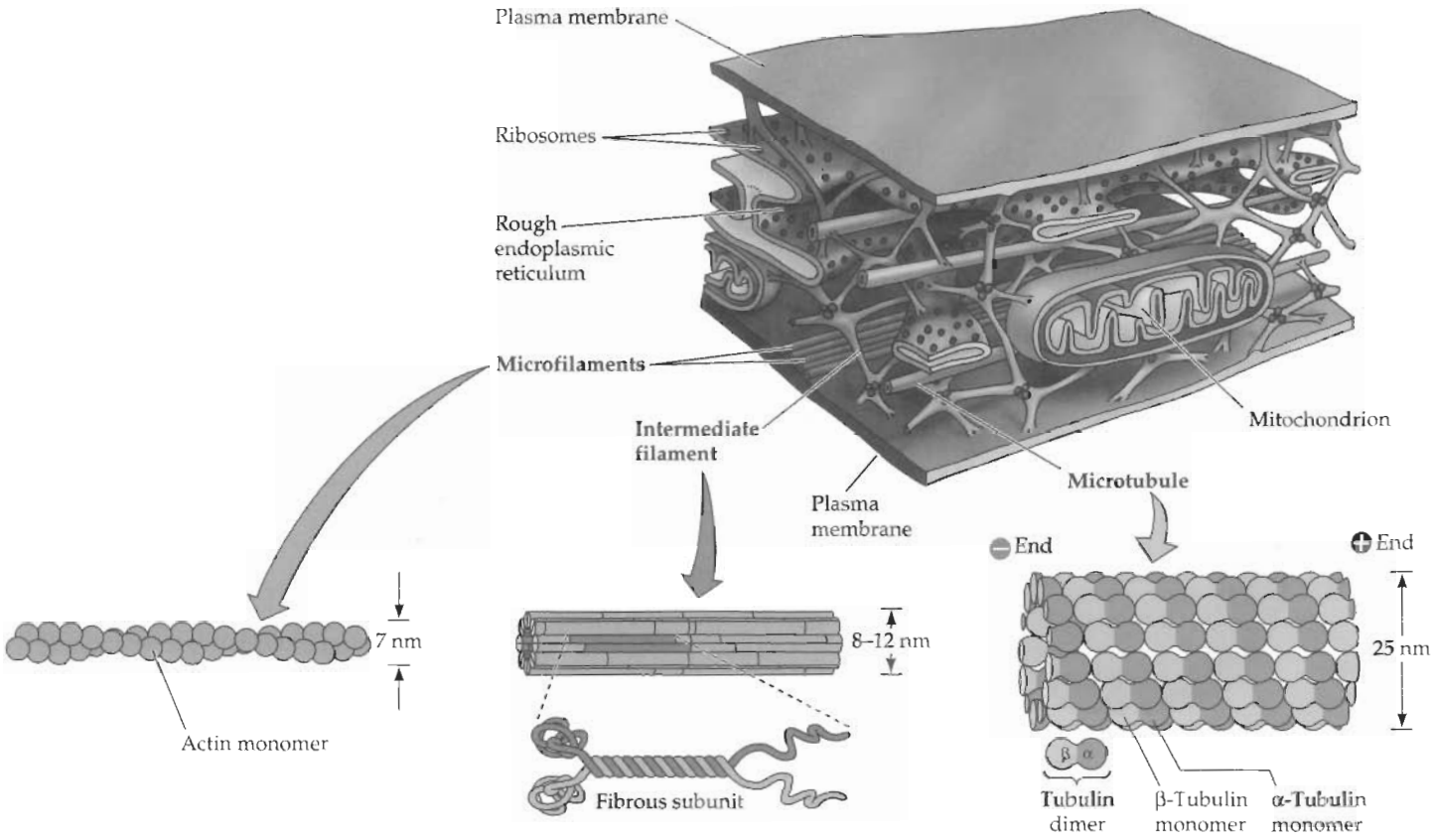
4.23 Cilia are Made up of Microtubules *(Page 82)*



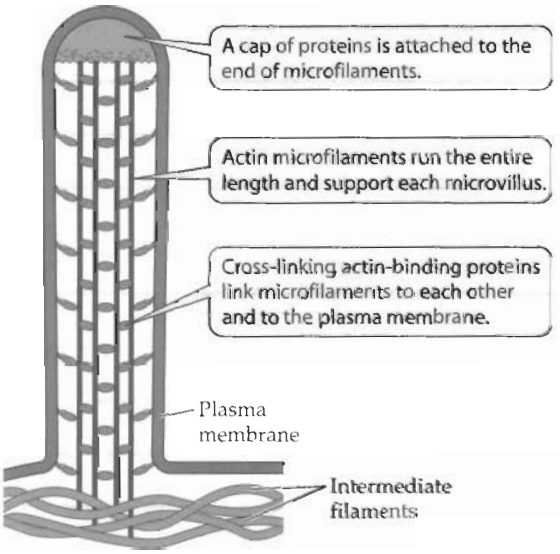
4.24 Motor Proteins Use Energy from ATP to Move Things *(Page 83)*



4.26 An Extracellular Matrix *(Page 84)*



4.21 The Cytoskeleton *(Page 80)*



4.22 Microfilaments for Support *(Page 81)*