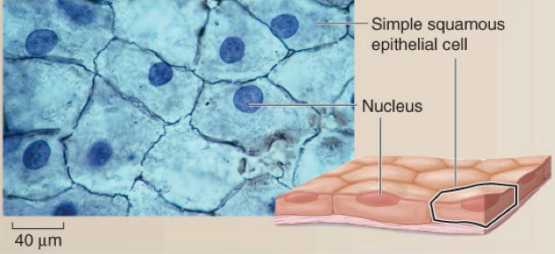



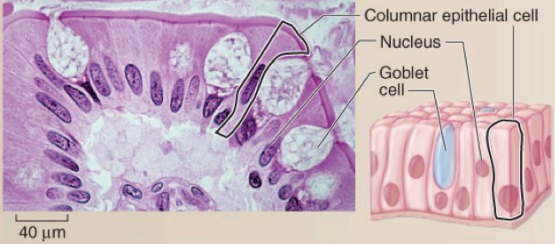

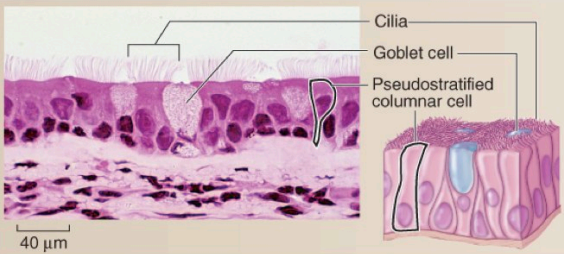

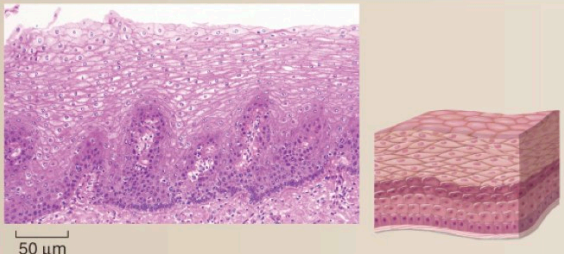

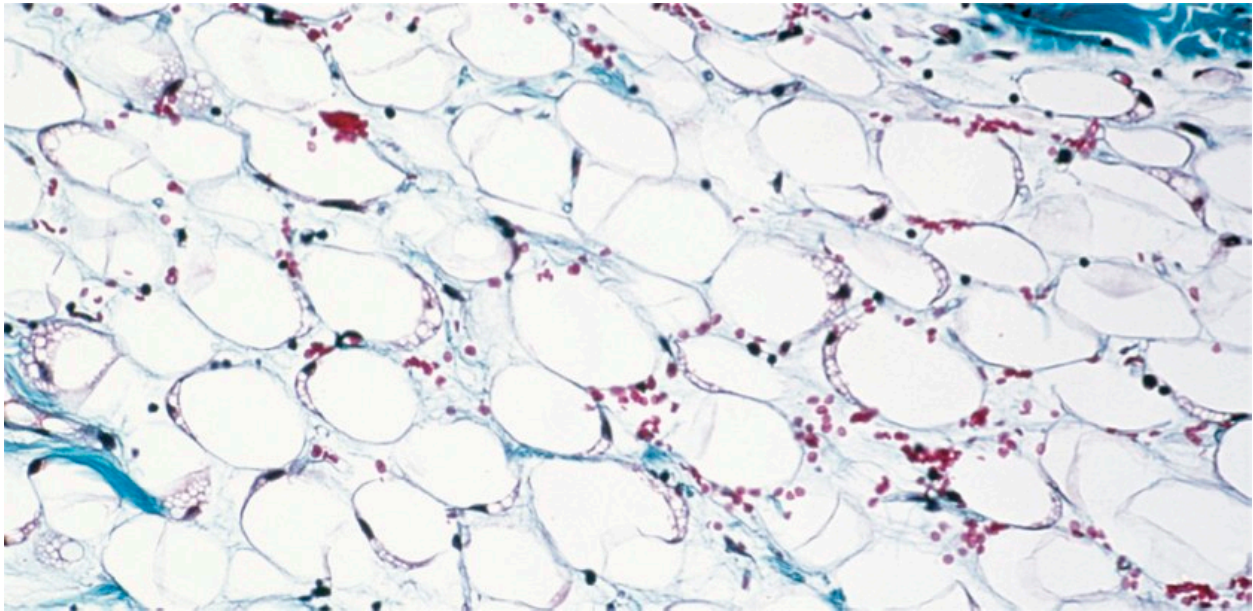


TABLE 42.1 Epithelial Tissue	
SIMPLE EPITHELIUM	
 <p>Simple squamous epithelial cell Nucleus</p> <p>40 µm</p>	 <p>Squamous <i>Typical Location</i> Lining of lungs, capillary walls, and blood vessels <i>Function</i> Cells form thin layer across which diffusion can readily occur <i>Characteristic Cell Types</i> Epithelial cells</p>
 <p>Cuboidal epithelial cell Nucleus</p> <p>50 µm</p>	 <p>Cuboidal <i>Typical Location</i> Lining of some glands and kidney tubules; covering of ovaries <i>Function</i> Cells rich in specific transport channels; functions in secretion and absorption <i>Characteristic Cell Types</i> Gland cells</p>
 <p>Columnar epithelial cell Nucleus Goblet cell</p> <p>40 µm</p>	 <p>Columnar <i>Typical Location</i> Surface lining of stomach, intestines, and parts of respiratory tract <i>Function</i> Thicker cell layer; provides protection and functions in secretion and absorption <i>Characteristic Cell Types</i> Epithelial cells</p>

(top, bottom): © Ed Reschke; (middle): © Arthur Siegelman/Visuals Unlimited

TABLE 42.1 Epithelial Tissue	
SIMPLE EPITHELIUM	
 <p>Cilia Goblet cell Pseudostratified columnar cell</p> <p>40 µm</p>	 <p>Pseudostratified Columnar <i>Typical Location</i> Lining of parts of the respiratory tract <i>Function</i> Secretes mucus; dense with cilia that aid in movement of mucus; provides protection <i>Characteristic Cell Types</i> Gland cells; ciliated epithelial cells</p>
STRATIFIED EPITHELIUM	
 <p>50 µm</p>	 <p>Squamous <i>Typical Location</i> Outer layer of skin; lining of mouth <i>Function</i> Tough layer of cells; provides protection <i>Characteristic Cell Types</i> Epithelial cells</p>

(top): © Gladden Willis, M.D./Visuals Unlimited; (bottom): © Ed Reschke

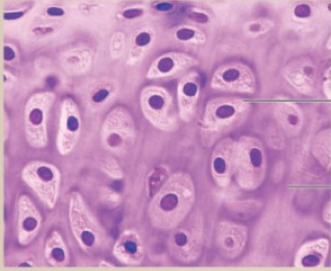
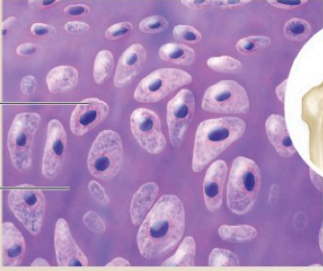

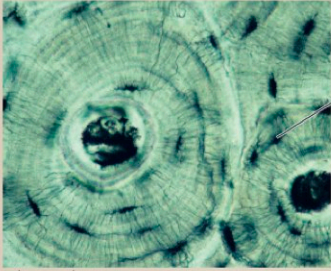


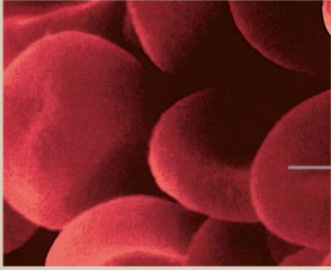
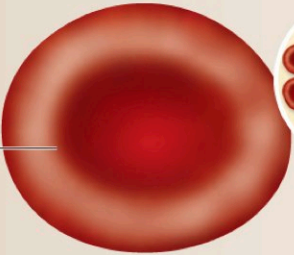
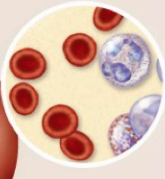


Adipose Tissue

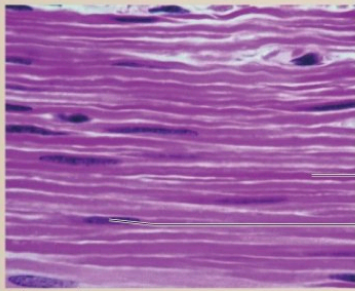
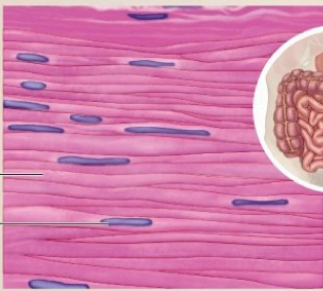
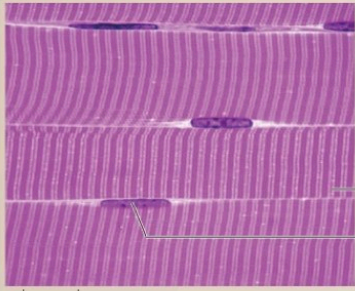

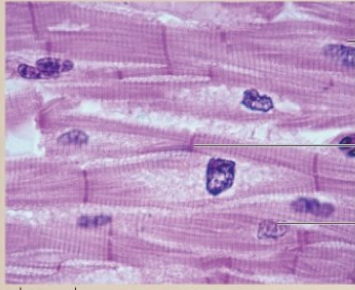
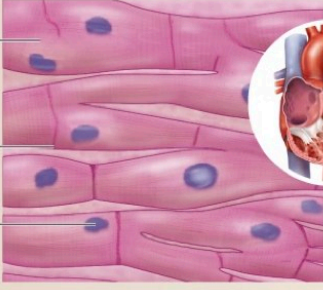
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TABLE 42.2		Connective Tissue	
	<p>Elastin</p> <p>Collagen</p>		<p>Loose Connective Tissue <i>Typical Location</i> Beneath skin; between organs <i>Function</i> Provides support, insulation, food storage, and nourishment for epithelium <i>Characteristic Cell Types</i> Fibroblasts, macrophages, mast cells, fat cells</p>
	<p>Collagen fibers</p> <p>Nuclei of fibroblasts</p>		<p>Dense Connective Tissue <i>Typical Location</i> Tendons; sheath around muscles; kidney; liver; dermis of skin <i>Function</i> Provides flexible, strong connections <i>Characteristic Cell Types</i> Fibroblasts</p>

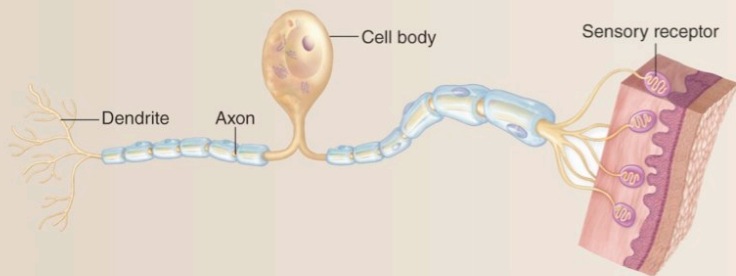
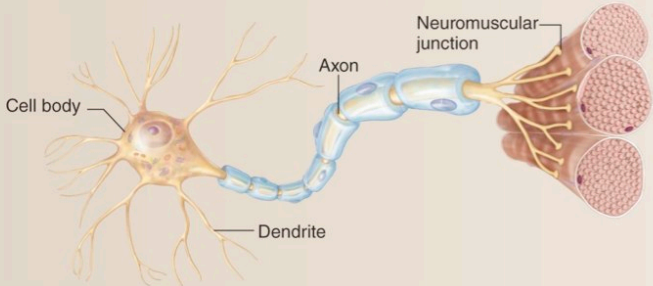
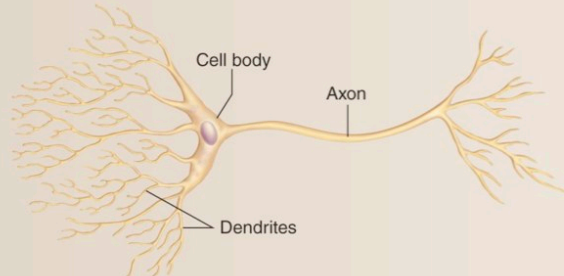
(top): © Ed Reschke; (bottom): © Dr. John D. Cunningham/Visuals Unlimited

TABLE 42.2		Connective Tissue	
 <p>100 μm</p>	<p>Chondrocyte</p> <p>Ground substance</p>	 	<p>Cartilage</p> <p><i>Typical Location</i> Spinal disks; knees and other joints; ear; nose; tracheal rings</p> <p><i>Function</i> Provides flexible support, shock absorption, and reduction of friction on load-bearing surfaces</p> <p><i>Characteristic Cell Types</i> Chondrocytes</p>
 <p>100 μm</p>	<p>Osteocyte</p>	 	<p>Bone</p> <p><i>Typical Location</i> Most of skeleton</p> <p><i>Function</i> Protects internal organs; provides rigid support for muscle attachment</p> <p><i>Characteristic Cell Types</i> Osteocytes</p>
 <p>6 μm</p>	<p>Red blood cell</p>	 	<p>Blood</p> <p><i>Typical Location</i> Circulatory system</p> <p><i>Function</i> Functions as highway of immune system; carries nutrients and waste; and is the primary means of communication between organs</p> <p><i>Characteristic Cell Types</i> Erythrocytes, leukocytes</p>

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TABLE 42.3		Muscle Tissue	
 <p>40 μm</p>		<p>Smooth Muscle <i>Typical Location</i> Walls of blood vessels, stomach, and intestines <i>Function</i> Powers rhythmic, involuntary contractions commanded by the central nervous system <i>Characteristic Cell Types</i> Smooth muscle cells</p>	
 <p>100 μm</p>		<p>Skeletal Muscle <i>Typical Location</i> Voluntary muscles <i>Function</i> Powers walking, lifting, talking, and all other voluntary movement <i>Characteristic Cell Types</i> Skeletal muscle cells</p>	
 <p>40 μm</p>		<p>Cardiac Muscle <i>Typical Location</i> Walls of heart <i>Function</i> Highly interconnected cells; promotes rapid spread of signal initiating contraction <i>Characteristic Cell Types</i> Cardiac muscle cells</p>	

(1-3): © Ed Reschke; pp. 883-884: © Dr. Roger C. Wagner, Professor Emeritus of Biological Sciences, University of Delaware

TABLE 42.4		Nerve Tissue	
		<p>Sensory Neurons <i>Typical Location</i> Eyes; ears; surface of skin <i>Function</i> Receive information about the body's condition and external environment; send impulses from sensory receptors to central nervous system <i>Characteristic Cell Types</i> Rods and cones; muscle stretch receptors</p>	
		<p>Motor Neurons <i>Typical Location</i> Brain and spinal cord, axons extend into the body <i>Function</i> Stimulate muscles and glands; conduct impulses out of central nervous system toward muscles and glands <i>Characteristic Cell Types</i> Motor neurons</p>	
		<p>Interneurons <i>Typical Location</i> Brain and spinal cord <i>Function</i> Integrate information; conduct impulses between neurons within central nervous system <i>Characteristic Cell Types</i> Interneurons</p>	

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