

**PCB BIO 4 ASSIGNMENT SHEET 6: SEPTEMBER 29-OCTOBER 2, 2009**

Reading, Preparation, Study Questions, Practice Essays, Labs.

ASSIGNMENT	DESCRIPTION
Monday	no school - Yom Kippur
Tuesday	<p>This week, our focus will be on chapter 5. Cell membranes, Cell energy, metabolism and enzymes. We will also be doing a lab on diffusion, an important concept to understand in biology.</p> <p>Tonight: Make sure that you understand all of the cell organelles, both structure and function.</p> <p>Also read 5.1-5.5 in chapter 5. Then do this:</p> <p>Membrane Structure and Function</p> <ul style="list-style-type: none"><li><b>5.1</b> Describe the fluid mosaic structure of cell membranes.</li><li><b>5.1</b> Describe the diverse functions of membrane proteins.</li><li><b>5.1</b> Relate the structure of phospholipid molecules to the structure and properties of cell membranes.</li><li><b>5.2</b> Explain how the properties of phospholipids spontaneously form membranes.</li><li><b>5.3</b> Define diffusion and describe the process of passive transport.</li><li><b>5.4</b> Explain how osmosis can be defined as the diffusion of water across a membrane.</li><li><b>5.5</b> Distinguish between hypertonic, hypotonic, and isotonic solutions.</li><li><b>5.5</b> Explain how animal and plants cells change when placed into hypertonic or hypotonic solutions.</li><li><b>5.6</b> Explain how transport proteins facilitate diffusion.</li><li><b>5.6-5.8</b> Compare the processes of facilitated diffusion and active transport.</li><li><b>5.7</b> Describe the function of aquaporins in cell membranes.</li><li><b>5.9</b> Distinguish between exocytosis, endocytosis, phagocytosis, pinocytosis, and receptor-mediated endocytosis.</li></ul>
Wednesday	<p>Finish the cell size lab if you have not. Turn it in tomorrow after we go over it.</p> <p>Energy and the Cell</p> <ul style="list-style-type: none"><li><b>5.10</b> Define and compare kinetic energy, potential energy, chemical energy, and heat.</li><li><b>5.11</b> Define the first and second laws of thermodynamics. Explain how these laws of thermodynamics relate to energy use in a cell.</li><li><b>5.12</b> Define and compare endergonic and exergonic reactions. Explain how cells use cellular respiration and energy coupling to survive.</li><li><b>5.13</b> Describe the three main types of cellular work.</li><li><b>5.13</b> Explain how ATP functions as an energy shuttle.</li></ul>
Thursday	<p>How Enzymes Function</p> <ul style="list-style-type: none"><li><b>5.14</b> Explain how enzymes speed up chemical reactions.</li><li><b>5.15</b> Describe the structure of an enzyme-substrate interaction.</li><li><b>5.15</b> Explain how the cellular environment affects enzyme activity.</li><li><b>5.16</b> Explain how competitive and noncompetitive inhibitors alter an enzyme's activity.</li><li><b>5.16</b> Explain how certain poisons, pesticides, and drugs inhibit enzymes.</li><li><b>5.16</b> Describe the process of feedback inhibition.</li></ul>
Friday	