

## **Review Sheet: The Working Cell**

### **Chapter 5**

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#### **I. Energy and the Cell**

- Define and compare kinetic energy, potential energy, chemical energy, and heat.
- Define the first and second laws of thermodynamics. Explain how these laws of thermodynamics guide energy transformations.
- Define and compare endergonic and exergonic reactions. Explain how cells use cellular respiration and energy coupling to survive.
- Explain how ATP functions as an energy shuttle

#### **II. How Enzymes Function**

- Explain how enzymes speed up chemical reactions.
- Explain how the cellular environment affects enzyme activity.

#### **III. Membrane Structure and Function**

- Explain how membranes help organize the chemical activities of a cell.
- Relate the structure of phospholipid molecules to the structure and properties of cell membranes.
- Describe the fluid mosaic structure of cell membranes.
- Describe the diverse functions of membrane proteins.
- Define diffusion and describe the process of passive transport.
- Explain how transport proteins facilitate diffusion.
- Explain how osmosis can be considered to be the diffusion of water across a membrane.
- Distinguish among hypertonic, hypotonic, and isotonic solutions.
- Explain how plant and animal cells change when placed into hypertonic or hypotonic solutions.
- Compare the processes of facilitated diffusion and active transport.
- Distinguish among exocytosis, endocytosis, phagocytosis, pinocytosis, and receptor-mediated endocytosis.