

# **Module 09: Tissues and the Animal Body — Keys to Success**

## **Key Learning Objectives**

### **1. Homeostasis and Osmoregulation**

- Define homeostasis and describe its role in maintaining a stable internal environment
- Explain negative and positive feedback loops using biological examples
- Define osmoregulation and explain how the body balances water and salt

### **2. Digestive System**

- Describe the primary function of the digestive system
- Identify the main organs of the digestive tract and their specific roles (mouth, stomach, small intestine, large intestine)
- Explain the difference between mechanical and chemical digestion
- Describe the role of accessory organs (liver, pancreas, gallbladder)

### **3. Circulatory and Respiratory Systems**

- Explain the function of the circulatory system in transporting nutrients and waste
- Describe the pathway of blood through the human heart and lungs
- Differentiate between arteries, veins, and capillaries
- Explain how the respiratory system facilitates gas exchange (oxygen and carbon dioxide)

### **4. Endocrine System**

- Define hormones and describe how the endocrine system uses them to communicate
- Identify major endocrine glands (pituitary, thyroid, adrenal, pancreas) and their primary functions

- Explain how the endocrine system works with the nervous system to maintain homeostasis

## 5. Musculoskeletal System

- Describe the primary functions of the skeletal system (support, protection, movement, blood cell production)
- Differentiate between the axial and appendicular skeleton
- Differentiate between skeletal, smooth, and cardiac muscle tissue
- Explain how muscles and bones work together to create movement

## 6. Nervous System

- Describe the primary function of the nervous system in processing information
  - Differentiate between the central nervous system (CNS) and peripheral nervous system (PNS)
  - Identify the basic structure of a neuron and describe how signals are transmitted
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## Study Tips

1. **Focus on Function:** For each organ system, always ask yourself: "What is the primary job of this system?"
2. **Connect the Systems:** Think about how the respiratory system connects to the circulatory system, or how the nervous system controls the musculoskeletal system.
3. **Use Analogies:** Think of the circulatory system as a delivery network or the nervous system as a computer's wiring.
4. **Draw Diagrams:** Sketching the path of food through the digestive tract or blood through the heart is highly effective.