

# **Module 01: Exploring Life Science — Keys to Success**

## **Key Learning Objectives**

### **1. Define and Describe Life**

- Define what constitutes a living organism
- Identify the characteristics shared by all living things (organization, metabolism, homeostasis, growth, reproduction, response to stimuli, adaptation)
- Distinguish between living and non-living matter

### **2. Understand the Scientific Method**

- Describe the steps of the scientific method
- Differentiate between hypothesis, theory, and scientific law
- Design simple experiments with appropriate controls and variables
- Analyze and interpret experimental data

### **3. Levels of Biological Organization**

- Identify and order the hierarchical levels of life (atom → molecule → organelle → cell → tissue → organ → organ system → organism → population → community → ecosystem → biosphere)
- Explain the relationship between structure and function at each level

### **4. Basic Principles of Evolution**

- Define evolution and natural selection
- Explain how adaptations arise in populations
- Understand why biodiversity is important for ecosystem health

## **5. Core Themes in Biology**

- Recognize the interconnection between organisms and their environment
  - Appreciate the unity and diversity of life
  - Understand energy flow and matter cycling in biological systems
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## **Study Tips**

1. **Create a visual hierarchy** of the levels of organization with examples at each level
2. **Practice designing experiments** with clear hypotheses, variables, and controls
3. **Connect concepts** to everyday observations in nature
4. **Use flashcards** for key terminology and definitions