

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