

Module 1: Biology — The Study of Life — Keys to Success

Learning Objectives

By the end of this module, you should be able to:

1. List the seven characteristics of life
2. Describe the levels of biological organization
3. Use the taxonomic classification system
4. Apply the scientific method
5. Define homeostasis and explain its importance
6. Distinguish between autotrophs and heterotrophs
7. Compare the three domains of life

Key Terms to Know

- **Biology** — The study of life
- **Cell** — The basic unit of life
- **Homeostasis** — Maintaining internal balance
- **Metabolism** — All chemical reactions in an organism
- **Taxonomy** — The science of classifying organisms
- **Binomial Nomenclature** — Two-name scientific naming system (Genus species)
- **Hypothesis** — Testable explanation for an observation
- **Theory** — Well-supported explanation based on repeated testing
- **Scientific Law** — Description of a consistent pattern in nature
- **Independent Variable** — What the experimenter changes
- **Dependent Variable** — What is measured in response
- **Control Group** — The group not receiving treatment
- **Autotroph** — Makes its own food (producers)
- **Heterotroph** — Consumes other organisms (consumers)

Study Tips

1. **Memorize the levels of organization** — Atom, molecule, organelle, cell, tissue, organ, organ system, organism, population, community, ecosystem, biosphere
2. **Use a mnemonic for taxonomy** — Dear King Philip Came Over For Good Soup
(Domain, Kingdom, Phylum, Class, Order, Family, Genus, Species)
3. **Practice designing experiments** — Identify variables and controls
4. **Know the characteristics of life** — Growth, reproduction, response to stimuli, energy use, homeostasis, cells, adaptation