

**Portable Assisted Study Sequence**  
**Biology B**

**SCOPE**

This course is divided into two semesters of study (A & B) comprised of five units each. The second half of the course (B) provides a comprehensive exploration of reproduction, genetics, classification of various organisms, evolution, and ecology. Laboratory activities embedded within each unit allow for hands-on, practical applications of various concepts and the interrelationships that exist at different levels within the living world.

**SEQUENCE**

**UNIT 1 – Reproduction**

1. Introduction
2. Asexual vs. Sexual Reproduction
3. Asexual Reproduction
4. Sexual Reproduction in Plants
5. Investigating a Typical Flower
6. Plant Growth and Development
7. Investigating Seed and Plant Development
8. Sexual Reproduction
9. Male Reproductive System
10. Female Reproductive System
11. Development and Embryology
12. Reproductive Technology

**UNIT 2 – Genetics**

1. Genetics – What Makes Us Each Unique?
2. Determining Phenotypes
3. Asexual Reproduction
4. Sexual Reproduction
5. Meiosis and Sexual Reproduction
6. Laboratories:
  - Meiosis
  - DNA Separation Simulation
  - Karyotyping
7. Components of DNA – The Stuff We Are Made Of
8. Constructing a DNA Model
9. Genes to Proteins
10. DNA Mutations
11. Genetic Engineering

**UNIT 3 – Classification**

1. The Need for Classification
2. What is Biological Classification?
3. Naming Organisms: The Principles of Taxonomy
4. How to Classify: Use a Classification Key
5. Classifying Trees by Using Their Leaves
6. Laboratory: Animal Classification
7. More Applications of the Animal Classification Lab
8. Modern Taxonomy: Biosystematics
9. Biosystematics Today
10. A Species Problem: Are the wolf and dog members of the same species?
11. The Science of Biosystematics: Evidences of Relationship
12. Modern Classification: Problem Solving

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**UNIT 4 – Evolution**

1. Where It All Began
2. Evidence of Evolution From Fossils
3. Evolution: Change Over Time
4. Evidence of Evolution In the Fossil Record
5. Laboratories:
  - Finch
  - Comparative Similarities
  - Constructing a Cladogram
6. Modern Evolution
7. Natural Selection of Alleles
8. Mechanisms of Change
9. The Peppered Moth - Survival of the Fittest
10. Comparative Similarities of Evolution
11. Path of Humans

**UNIT 5 – Ecology**

1. Levels of Organization
2. Laboratories:
  - Biodiversity
  - Foreign Invaders: Ecological Succession
  - Saving a Habitat
  - Ecosystem in a Bottle
  - Ecosystem Damage
3. Energy Systems
4. Competition Shapes Communities
5. Cycling of Ecosystem Materials
6. Limits to Growth
7. Human Impact
8. Dangers to the Ecosystem