

Biology Course Outline

Unit 1 – Introduction to Biology & Living Things

- A. Overview of biology
- B. Characteristics of living things

Unit 2 – Scientific Method

- A. Experiment design
- B. Earthworm research project

Unit 3 – Biochemistry

- A. Basic chemistry
- B. Photosynthesis and cellular respiration
- C. Organic chemistry
- D. Biogeochemical cycles

Unit 4 – Microscopes

- A. Types of microscopes
- B. Proper use and handling of scopes

Unit 5 – Microbiology

- A. Classification of microbes
- B. Bacteriology
- C. Virology

Unit 6 – Cells

- A. Cell structures
- B. Cell membrane: diffusion and osmosis
- C. Cell reproduction

Unit 7 – Genetics

- A. DNA & RNA structure
- B. DNA replication
- C. Protein synthesis

Unit 8 – Evolution

- A. Natural selection
- B. Stickleback minnow evolution

Unit 9 – Mendalian Genetics

- A. Punnett square problems: Monohybrid, dihybrid, multiple allele, test cross, sex linked, incomplete dominance

Unit 10 – Classification

- A. Scientific names
- B. Using dichotomous keys

Unit 11 – Organisms

- A. Producers and consumers
- B. Frog lab/dissection

Unit 12 – Ecology

- A. Energy in an ecosystem
- B. Population studies
- C. Outdoor creek project

Unit 13 – Field Botany

- A. Basic plant structure
- B. Field identification
- C. Specimen collecting