

## Practical Biology

- Skipping around in your book may occur often – this is a guide to help you stay organized. The breakdown also give you an idea where you will be tested.

### Introduction to Biology (Sections 1.1, 1.2, 1.3, 2.1)

- What is Biology?
- Biological Relations (Parasite, Mutualism, Symbiosis)
- Tools of Biology. (Microscopes)
- Measurements in Biology & science
- Scientific Method
- Technology
- Traits of Life

### Chemicals of Life (photosynthesis & Cell Respiration) (Notes – Minimal Book)

- Periodic Table
- Atoms – Elements – Molecules – Compounds
- Biogeochemical Cycles (**Standard 12.5.2**)
- Photosynthesis
- Cell Respiration
  - **Standard 12.4.4**

### Cells Structure & Function (Section 2.2 & 2.3)

- Cell Theory
- Cell Structure
- Organelles
- Cell Function
- Diffusion & Osmosis
  - (**Standard 12.4.1**)

### DNA Structure, Mitosis & Protein Synthesis (Sections 22.1, 28.1, 28.2)

- Mitosis (Typical Cell Division)
- DNA Structure & History
- Protein Synthesis
- Genetic Engineering

### Genetics & Meiosis (Sections 22.2, 22.3, 26.1, 26.2, 27.1, 27.2, 27.3)

- Meiosis (Sex Cell Division – Significant to Genetics)
- Mendel's Genetics
- Genetics Problems
- Genetic Disorders
  - (**Standard 12.4.2**)

### Evolution (Sections 29.1, 29.2) (**Standard 12.4.3**)

- Adaptations
- Darwin's Natural Selection
- Speciation (Divergent & Convergent Evolution)
- Evidence of Evolution
- Analogous, Homologous & Vestigial Structures
- Human Evolution

Nutrition & Digestion (Sections 9.1, 9.2, 10.1 & 10.2)

- Goal of Digestion
- Nutrients, Vitamins & Minerals
- Calories
- Digestion of Nutrients
- Absorption of Nutrients
  - **Standard 12.4.5**

Circulation & Blood (Sections 11.1, 11.2, 11.3, 11.4, 12.1, 12.2, 12.3 & 12.4)

- Goal of Circulation
- Heart Pathway
- Blood Vessels
- Circulation Disorders
- Blood Parts & Function
- Blood Types
- Immunity

Respiration & Excretion (Sections 13.1, 13.2, 13.3 & 13.4)

- Goal of Respiration
- Pathway of Respiration
- Mechanics of Breathing
- Respiratory Disorders
- Excretion – Kidneys, Skin & Breathing

Skeletal & Muscular System (Sections 14.1, 14.2 & 14.3)

- Goal of Skeletal System
- Bone Structure & Function
- Goal of Muscles
- Muscle Structure & Function
- Skeletal & Muscular Disorders

Nervous System & Senses (Sections 15.1, 15.2, 15.3, 15.4, 16.1, 16.2 & 16.3)

- Goal of Nerves
- Neurons
- Central Nervous System
- Endocrine System
- Nervous System & Endocrine System Disorders
- Senses
  - **Standard 12.4.6**

Classification of Living Things (Sections 3.1, 3.2, & 3.3)

- Benefits of Classification (Not Perfect)
- Classification Table
- Aristotle & Linnaeus
- Taxonomy
- Scientific Names

Virus & Bacteria (Sections 4.1 & 4.2)

- Traits of Viruses
- Viral Diseases
- Traits of Bacteria
- Bacterial Diseases

Protist & Fungus (Sections 5.1 & 5.2)

- Traits of Protist
- Protozoa (Animal-like Protist)
- Algae (Plant-like Protist)
- Fungus-like Protist
- Traits of Fungus

Simple Plants (Sections 6.1 & 6.2)

- Traits of Plants
- Simple Plants – Nonvascular Plants (Mosses & Liverworts)

Vascular Plants (Sections 6.3 & 6.4)

- Vascular Plants
- Ferns – Spore Producing
- Gymnosperms – Naked Seeds
- Angiosperms – Flowering Plants
- Roots, Stems, Leaves & Flowers

Simple Invertebrates (Section 7.1, 7.2 & 7.3)

- Traits of Animals (Invertebrate vs. Vertebrate)
- Porifera
- Cnidaria
- Platyhelminthes
- Nematoda
- Annelida

Complex Invertebrates (Section 7.4 & 8.1)

- Mollusca
- Arthropoda
- Echinodermata

Vertebrates (Section 8.2)

- Classification of Fish
- Amphibia
- Reptilia
- Aves
- Mammalia