

2018 Biology Entrance Exam

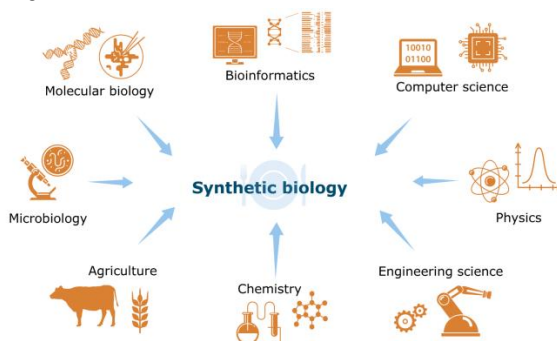
Grade 9 & 10 / Common
Grade 11 & 12 / New



እንኳን ለ 2018 አመተ ምህረት የትምህርት ዘመን አደረሳችሁ እያልን ከዚህ በታች እንዴት ከዘጠኝ እስከ አስራ ሁለተኛ ክፍል ያሉ ትምህርቶችን በአንድ እንዴት አገናኝታችሁ ማንበብ እንደምትችሉ እንዲሁም እኛ የምንሰጠው የ **Entrance Tricks Class** በዚሁ መልኩ ይሄን መሠረት በማድረግ እንደ ሚሆን ጭምር ልናሳውቃችሁ እንወዳለን።

BIOLOGY Related Content for 2018 Entrance

◆ Chapter 1; **Concept of biology, biotechnology and application of biology** = from grade 11 unit 1, and grade 12 unit 1



1.1 Learning from nature

1.2 Biology and technology

1.2.1 The benefits of biology to technology

1.2.2 Uses of technology in biology

1.3 Impacts of biology and technology on society and the natural world

1.3.1 Impacts of biology on the society and the natural world

1.3.2 Impacts of technology on the society and the natural world

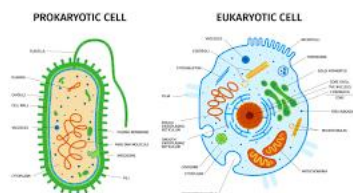
1.4 Ethical issues in biology

1.4.1 Ethical treatment of plants and animals during biological studies

Contents

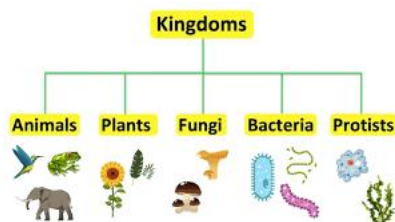
- 1.5. Application in conservation of natural resource
- 1.6. Food and nutrition security
- 1.7. Creating in conscious and ensuring sustainable development
- 1.8. Applications in biotechnology

◆Chapter 2; **Cell biology** = from grade 9 unit 3 (new) or grade 9 unit 2(old)



- 2.1. What is a cell?
- 2.2. Cell theory
- 2.3. Cell structure and function
- 2.4. Types of cells
- 2.5. Animal and plant cells
- 2.6. Observing cells under a microscope
- 2.7. The cell and its environment
 - 2.7.1. Passive transport
 - 2.7.2. Active transport
- 2.8. Levels of Biological Organization

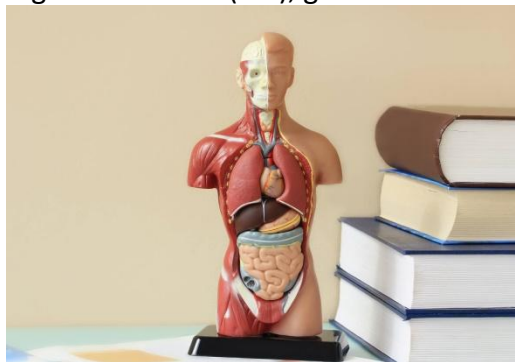
◆Chapter 3; **Classification, plants and Animals** = from grade 9 unit 2 (new) or grade 9 unit 5 (old), grade 10 unit 2(new) or grade 10 unit 4(old) and grade 11 unit 2



- 3.1. Characteristics of living things
- 3.2. Taxonomy of living things
 - 3.2.1. Principles of classification
 - 3.2.2. Taxonomic hierarchies in biological classification
- 3.3. Relevance of classification
- 3.4. Linnaean system of nomenclature
- 3.5. Common Ethiopian animals and plants
- 3.6. The five-kingdom system of classification
- 3.7. Characteristics of plants
- 3.8. Non-flowering and flowering plants
- 3.9. Structure and function of plant parts
- 3.10. Reproduction in plants
 - 3.10.1. Non-flowering

- 3.10.2. Flowering
- 3.10.3. Pollination
- 3.11. Seeds (monocots, dicots)
- 3.12. Seed Dispersal and Germination
- 3.13. Photosynthesis
- 3.14. Transport in plants
- 3.15. Response in plants
- 3.16. Characteristics of animals
- 3.17. Invertebrates and Vertebrates
 - 3.17.1 Invertebrate Animals
 - 3.17.2 Vertebrate Animals
- 3.18 Reproduction in Animals
 - 3.18.1. Asexual reproduction in animals
 - 3.18.2 Sexual reproduction in animals
 - 3.18.3 Reproduction in insects (complete and incomplete metamorphosis)
 - 3.18.4 Reproduction in Frog
 - 3.18.5 Reproduction in Crocodiles
 - 3.18.6 Reproduction in Birds
 - 3.18.7 Reproduction in rat
- 3.19 The economic importance of animals (insects)
 - 3.19.1 Beneficial aspects of insects
 - 3.19.2 Harmful aspects of insects
- 3.20 Animal Behavior
 - 3.20.1 Types of Animal Behavior
 - 3.20.2 Patterns of Behavior
- 3.21 Homeostasis in animals
 - 3.21.1 Thermoregulation
 - 3.21.2 Osmoregulation
 - 3.21.3 Blood Sugar Regulation
 - 3.21.4 Control of homeostasis

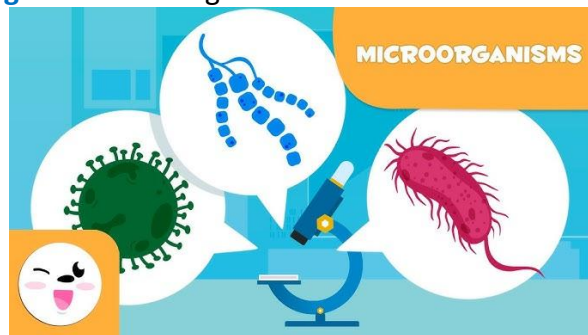
◆ **Chapter 4; Human biology and health** = from grade 9 unit 5(new) or grade 9 unit 3(old), grade 10 unit 5(new) or grade 10 unit 3(old), grade 11 unit 5 and grade 12 unit 5



- 4.1. Food and nutrition
 - 4.1.1 What is food?
 - 4.1.2 Nutrition

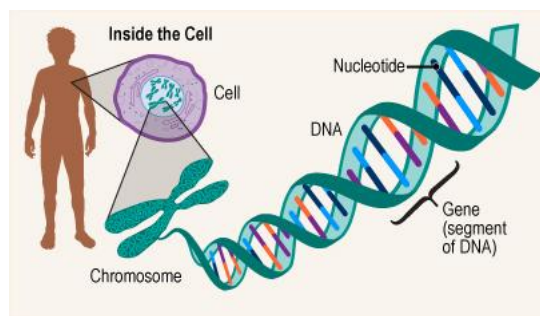
- 4.1.3 Nutrients
- 4.1.4 Balanced diet
- 4.1.5 Deficiency diseases
- 4.1.6 Malnutrition
- 4.1.7 Substance abuse
- 4.1.8 Types of diseases
 - 4.1.8.1. Infectious diseases
 - 4.1.8.2. Non-infectious diseases
- 4.2. The digestive system
- 4.3. The respiratory system
- 4.4. The circulatory system
- 4.5. The nervous system
 - 4.5.1. Neurons and their functions
 - 4.5.2. The Nerve Impulse and transmission
 - 4.5.3. Neurotransmitters
 - 4.5.4. Types of the nervous system
 - 4.5.6. Reflex action
 - 4.5.7. Drug abuse
- 4.6. The endocrine system
- 4.7. The reproductive system
- 4.8. Sense organs
 - 4.8.1. Skin
 - 4.8.2. The Tongue
 - 4.8.3. The Nose
 - 4.8.4. The Eye
 - 4.8.5. The Ear

◆ **Chapter 5; Microorganisms** =from grade 12 unit 2



- 5.1. EUBACTERIA
 - 5.1.1. Structure of Bacterial Cell
 - 5.1.2. Bacterial Shapes
 - 5.1.3. Nutritional types of bacteria
 - 5.1.4. Reproduction of bacteria
 - 5.1.4.1. Asexual reproduction
 - 5.1.4.2. Sexual reproduction in bacteria
- 5.2. ARCHAEA

- 5.2.1. Beneficial aspects of Archaea
- 5.2.2. Physical factors that affecting microbial growths
- 5.3. FUNGI
 - 5.3.1. General Characteristics of True Fungi
 - 5.3.2. Ecology of Fungi
 - 5.3.3. Classification of Fungi
 - 5.3.4. Reproduction in fungi
 - 5.3.5. Economic importance of fungi
- 5.4. PROTOZOA
 - 5.4.1. Common diseases caused by protozoa
- 5.5. VIRUSES
 - 5.5.1. Characteristics of virus
 - 5.5.2. Viral symmetry
 - 5.5.3. Classification of Viruses
- 5.6. NORMAL MICROBIONTA
- 5.7. MODES OF DISEASE TRANSMISSION AND WAYS OF PREVENTION
- 5.8. USES OF MICROORGANISMS
- 5.9. CONTROLLING MICROORGANISMS
- 5.10. RENOWNED MICROBIOLOGISTS IN ETHIOPIA
- ◆ **Chapter 6; Heredity and genetics** = from grade 10 unit 4(new) or grade 10 (old) and grade 11 unit 4



- 6.1. The genetic materials
- 6.2. The structure and function of DNA and RNA
 - 6.2.1. The Structure and function of DNA
 - 6.2.2. DNA replication
 - 6.2.3. The structure and function of RNA
- 6.3. The process of cell division
 - 6.3.1. Cell Division
- 6.4. Protein synthesis
- 6.5. Mendelian inheritance
 - 6.5.1. Mendelian crosses
 - 6.5.2. Monohybrid cross
 - 6.5.3. Dihybrid Cross
 - 6.5.4. Test Crosses
- 6.6. Sex determination
- 6.7. Non-Mendelian inheritance

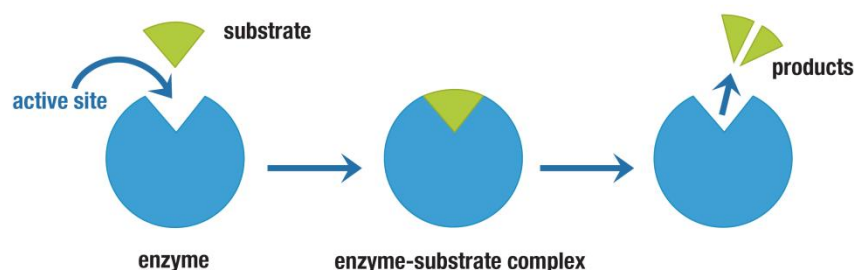
- 6.7.1 Co-dominance, Incomplete dominance and Multiple alleles
- 6.7.2 Rh factor inheritance in humans and its medical importance
- 6.7.3 Sex-linked inheritance in humans
- 6.7.4 Environmental effects on phenotype
- 6.8 Human pedigree analysis and its importance
- 6.9 Genetic disorders
- 6.10 Genetic testing and counseling
- 6.11 Gene therapy
- 6.12 Breeding
 - 6.12.1 Indigenous knowledge of Ethiopian farmers
- 6.13 Bioinformatics introduction
- ◆ **Chapter 7; Environment, climate change, natural resources and ecology** = from grade 9 unit 6(new) or grade 9 unit 6 (old), grade 10 unit 5(new) or grade 10 unit 5(old), grade 11 unit 6 and grade 12 unit 6



- 7.1. Ecological terms: Definition and concepts
- 7.2. Ecological hierarchy: Organism to biosphere approach
- 7.3. Food chains and webs
- 7.4. Nutrient recycling and energy transfer within ecosystem
- 7.5. Ecological succession
- 7.6 Population
 - 7.6.1 Population size, density and dispersal
 - 7.6.2 Exponential and logistic growth in populations
 - 7.6.3 Demographic structure
 - 7.6.4 Population regulation
- 7.7 Natural resources
 - 7.7.1 Renewable
 - 7.7.2 Non-renewable
- 7.8 Conservation of natural resources in Ethiopia
- 7.9 Impact of traffic accident on wild and domestic animals
- 7.10 Impact of human activities on the environment
 - 7.10.2 Climate change
 - 7.10.3 Global warming
 - 7.10.4 Ozone layer depletion
 - 7.10.5 Acid rain
 - 7.10.6 Loss of Biodiversity
 - 7.10.7 Toxic bioaccumulation
 - 7.10.8 Resource depletion

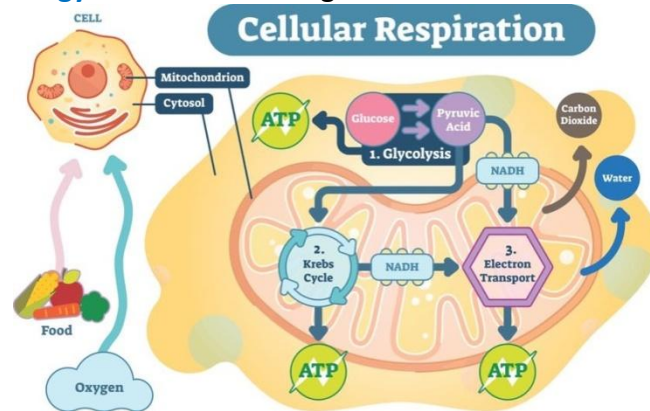
- 7.11. Biodiversity and conservation
- 7.12. CLIMATE CHANGE: CAUSES AND EFFECTS
 - 7.12.1. Definition of Climate Change
 - 7.12.2. Causes of climate change
- 7.13. EFFECTS OF CLIMATE CHANGE
 - 7.13.1. Effects of climate change on biodiversity
 - 7.13.2. Effects of climate change on Agriculture
 - 7.13.3. Effect of climate change on forest productivity
 - 7.13.4. Climate change and natural disasters
- 7.14. INTERNATIONAL CONVENTIONS
 - 7.14.1. The United Nations Framework Convention
 - 7.14.2. Kyoto Protocol on Climate Change
 - 7.14.3. International and national practices of Implementation of conventions

◆ Chapter 8; **Enzymes** =from grade 11 unit 3



- 8.1. What are enzymes?
 - 8.2 Properties and functions of enzymes
 - 8.2.1 General properties of an enzyme
 - 8.2.2 The function of enzymes
- 8.3 Protein structures
- 8.4 Enzyme substrate models
 - 8.4.1 Enzyme-substrate binding models
 - 8.4.2 Enzymatic transition state
- 8.5 Enzyme regulation
- 8.6 Types of enzymes
 - 8.6.1 Enzyme structural classification
 - 8.6.2 Basic classification of enzymes
- 8.7 Factors affecting enzyme action
 - 8.7.1 Description on factors affecting enzymatic actions
- 8.8 Enzyme kinetics
- 8.9 Application of enzymes in industries and their benefits
 - 8.9.1 Uses of enzyme application
- 8.10 Malting in Ethiopian tradition
 - 8.10.1 Steps of modern malting
 - 8.10.2 Why is malting for?
 - 8.10.3 Traditional malting for local alcohol production
- 8.11 Renowned Biochemists in Ethiopia

◆Chapter 9; **Energy transformation** =grade 12 unit 3



9.1 Cellular metabolism

9.2 Photosynthesis

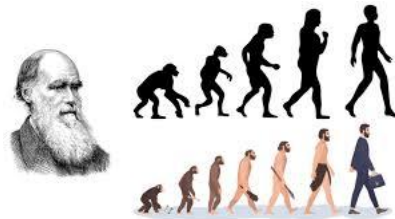
9.2.1 Photosynthetic pigments

9.2.5 Light-independent reactions (Calvin cycle)

9.3 Contributions of photosynthesis for the continuity of life, for O₂ and CO₂ balance and global warming

9.4 Cellular respiration

◆Chapter 10; **Evolution** =from grade 12 unit 5



9.1. Evolution

9.1.1. Definition

9.1.2. Theories of evolution

9.1.3. The evidence for evolution

9.1.4. Natural selection: definition, types & examples

9.1.5. Human evolution

9.1.6. Mutation

9.1.7. Genetic drift

9.1.8. Gene flow (immigration and emigration)

9.1.9. Causes of species extinction

9.2. Renowned anthropologists in Ethiopia

9.3. Renowned evolutionists in Ethiopia

ENTRANCE TRICKS

ለሚወዱት የሚሠሩት ስራታ !!!