

## **Educational requirements for the IB class exam for students choosing the subject BIOLOGY HL**

### **Material from the implemented program for the pre-IB class.**

#### **Biology – life science**

1. Principles of preparing a good experiment - Golden rules of good experiment
2. Optical and electron microscope – construction and usage.

#### **Basics of the chemical structure of living organisms**

1. Carbohydrates - structure and functions
2. Lipids-structure and functions
3. Proteins-structure and functions
4. Nucleic acids-structure and functions

#### **Cell biology**

1. Prokaryotic cell - structure and functions
2. Eukaryotic cell (plant and animal) - structure and functions

#### **Cell division**

1. Mitosis
2. Meiosis

#### **Basic principles of metabolism**

1. Enzymes
2. Cell respiration
3. Photosynthesis
4. Metabolic pathways

#### **Plant tissues**

- meristematic tissue, ground, dermal, collenchyma, sclerenchyma, parenchyma, vascular, conductive tissues – structure, features and functions

#### **Plant organs**

- flower, leaf, stem and overview of the diversity of organisms

#### **Botany**

- bryophytes, filicinophytes, gymnosperms, angiosperms root - structure and functions

#### **Animal tissues and organs**

- epithelial, connective, muscular, nervous tissues - structure and functions

#### **Review of the diversity of organisms**

- Zoology

**Invertebrates**

- sponges, cnidarians, flatworms, roundworms, annelids, arthropods, mollusks, echinoderms

**Vertebrates**

- fish, amphibians, reptiles, birds, mammals

**Human organism structure and functions**

Skin, skeleton, muscular system, digestive system, respiratory system, circulatory system, immune system, excretory system, nervous system, endocrine system and reproductive system – structure and function