

Biology

Year 8

(70 hrs, 2 hrs/week)

Table of contents	
1.	<p>Human organism as a biological system</p> <p>Human organism as a biological system. Diversity of human organism cells. Tissues. Organs. Physiological systems. Notion of regulation organisms. Nervous regulation. Neuron. Reflex. Reflex arc. Humoral regulation. Concept of hormones. Immune regulation.</p>
2.	<p>Support and movement</p> <p>Importance of a locomotive system, its structure and functions. Bones and gristles. Skeleton composition. Connection of bones. Functions and structure of skeleton muscles. Work of muscles. Muscle fatigue. Main groups of skeletal muscles. Aging of human locomotive system. First aid for injuries of locomotive system. Prevention of injuries of locomotive system.</p>
3.	<p>Metabolism and transformation of energy in human organism</p> <p>Metabolism and transformation of energy in human organism. Nutrition and metabolism. Food and its components. Components of food products. Importance of components of food products. Nutrition and energy needs of a human</p>
4.	<p>Digestion</p> <p>Importance of digestion. Digestion system. Digestion process: swallowing, vermicular motion, and absorption. Digestion regulation. Food dysfunctions and preventing them</p>
5.	<p>Breathing</p> <p>Importance of breathing. Respiratory system. Gas exchange in lungs and tissues. Breathing movement. Breathing movements regulation. Prevention of respiratory system diseases</p>
6.	<p>Transport of substances</p> <p>External environment of an organism. Concept of homeostasis. Blood, its components, and functions. Lymph. Blood clotting. Blood groups and transfusion. Immune system. Immunity. Specific and nonspecific immunity. Immunization. Allergy. AIDS. Blood</p>

	circulatory system. Heart: structure and functions. Work of the heart. Structure and functions of blood vessels. Sanguimotion. Hemorrhages. Cardiovascular diseases and their prevention.
7.	Secretion. Thermal regulation Secretion as an important stage of metabolism. Structure and functions of secretory system. Kidney diseases and their prevention. Importance and structure of skin. Thermal regulation. First aid for thermal injuries (burns, cold burns), heat and sun stroke. Skin diseases and their prevention.
8.	Connection of human organism with the environment. Nervous system Structure of the nervous system. Central and peripheric nervous system. Spinal cord. Brain. Concept of somatic nervous system. Vegetative nervous system. Prevention of nervous system diseases.
9.	Connection of human organism with the environment. Sensor systems. The general characteristics of sensor systems and their structure. Visual sensor system. Eye. Eye hygiene. Acoustic sensor system. Ear. Ear hygiene. Sensor systems of taste, odor, equilibrium, movement, touch, temperature, and pain.
10.	Higher nervous function Concept of higher nervous function and its main types. Acquired and innate reflexes. Instincts. Language. Studying and memory. Thinking and consciousness. Sleep. Biorhythms.
11.	Endocrine system Endocrine system. Vascular and mixed glands. Prevention of endocrine system diseases. Interaction between regulatory systems.
12.	Human reproduction and development Structure and functions of reproductive system. Sex cells. Impregnation. Menstrual cycle. Pregnancy. Embryo period of human development. Placenta and its function. Postembryonal human development. Reproductive health.

Expected results

Pupil characterizes:

Educational programs in use for teaching Ukrainian children



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- human body and human organism cell structure; functions of a locomotive system; tissues: bone, cartilaginous tissue, striated muscle fiber; age and age changes in bone structure;
- components of food products; food as a source of energy; metabolism and energy transformation in human organism; digestion organ functions; teeth structure and functions;
- voice formation process and speech sounds; gas exchange in lungs and tissues; inhale and exhale; pulmonary capacity; and neurohumoral regulation of breathing movements;
- blood plasma; special features of structure and work of a heart muscle; structure and work of heart; structure of blood vessels;
- structure and functions of kidneys; urine formation; urination regulation; and role of kidneys in salt and water metabolism;
- role of skin in secretion of the metabolic products; role of skin in body temperature regulation;
- brain structure, spinal cord structure; nervous regulation of human physical activity; special features and functions of the visual, hearing systems; sensory systems of equilibrium, odor, taste, movement, touch, temperature, and pain;
- impact of hormones on the exchange processes in the organism; impregnation; development of an embryo and a fetus; child development after birth; special features of human higher nervous function; innate and acquired human behavior; types of learning; and types of memory.