

IMPORTANCE OF BIOLOGY AND GENETICS IN OUR LIFE TODAY

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Abstract. *This article talks about biological laws that are of equal interest to everyone today and are worrying the whole world.*

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In the past, humanity faced common problems such as health care, food supply, and preservation of the diversity of organisms on our planet. Biology, whose research is aimed at solving these and other problems, could not be worried about medicine, agriculture, industry, especially food, etc. Because mother nature has given all the blessings. However, the active and often ill-conceived economic activity of man has led to significant pollution of the environment with substances harmful to all living beings, destruction of forests, virgin steppes and reservoirs. Over the past centuries, thousands of species of animals, plants and fungi have become extinct, and tens of thousands of species are on the verge of extinction. But the extinction of one species of organisms represents an irreversible loss for the biological diversity of our planet. Therefore, scientists compile a list of plant, animal and mushroom species in need of protection (called Red Books). Thus, biology is a science that, through its research, is called to convince people of the need to respect nature and observe its laws. Therefore, it is considered the science of the future.

It is difficult to overestimate the role of biology and genetics in modern reality, because it studies human life in detail in all its aspects. Today, this science combines important concepts such as evolution, cell theory, genetics, homeostasis, and energy. Its tasks include the study of the development of all living things, that is: the structure of organisms, their behavior, as well as their relationship with themselves and the environment.

The importance of biology and genetics in human life. It is understandable if we draw a parallel between the main problems of human life, for example, health, nutrition and the choice of optimal living conditions. Today, many important and independent sciences separated from biology are known. These include zoology, botany, microbiology and virology. It is difficult to single out the most important of them, they all represent the most valuable set of fundamental knowledge accumulated by civilization.

Claudius Galen, a genius of his time, some famous scientists.

Hippocrates, Carl Linnaeus, Charles Darwin, Alexander Oparin, Ilya Mechnikov enriched the field of biology and genetics with clear evidence. Their discoveries, especially the study of living organisms, gave rise to the science of morphology, as well as the science of physiology, which includes knowledge about the systems of living organisms. Genetics played an invaluable role in the development of hereditary diseases. With the development of the science of genetics, several innovations were created in the history of mankind. You all know that when a person is sick, they take drugs. Many medicinal substances are obtained from plants or products of vital activity of microorganisms. For example, the use of antibiotics (Greek anti - protve - and bios). They are produced by certain types of fungi and bacteria. Antibiotics kill pathogens of many

dangerous diseases of humans and animals. An important role in the field of biology is to provide mankind with food. Scientists are creating new high-yielding plant varieties and animal breeds that provide more nutrition. Maintaining and increasing soil fertility, which ensures high yields, with biological research. Living organisms are widely used. They are also used in industry. For example, a person gets yogurt, kefir, cheese due to the activity of certain types of bacteria and fungi. In baking, yeast fungi are widely used.

Biology has become a solid foundation in medicine, sociology, and ecology. Importantly, this science is not static like other sciences, but is constantly filled with new knowledge and changes in the form of new biological and genetic theories and laws, but this is invaluable in medicine. It was with his help that methods of treating bacteriological and rapidly spreading viral diseases were found. Every time we think about the question of the role of biology in modern society, we remember that thanks to the heroism of medical biologists, terrible epidemics: cholera, typhus, and anthrax have disappeared from the planet Earth. smallpox, etc., there are many diseases that are dangerous for human life. Based on the facts, it can be said with confidence that the role of biology in modern society is constantly growing. Modern life cannot be imagined without breeding, genetic research, production of new food products, as well as sustainable energy sources.

The main importance of biology is that it serves as the foundation and theoretical basis for many promising sciences, for example, genetic engineering and bionics. He has an amazing discovery - decoding the human genome. A field like biotechnology was created on the basis of combined knowledge in biology. Currently, it is this nature of technology that makes it possible to create safe drugs that do not harm the body for prevention and treatment. As a result, it is possible to increase not only the length of life, but also its quality. The science of bionics means creating new techniques based on biological factors. For example, for the first time, airplanes were created based on dragonflies, and cars based on beetles. The role of biology in modern society means that there are fields where its knowledge is simply necessary, for example, the pharmaceutical industry, gerontology, forensic medicine, agriculture, construction and space exploration. Today, it is difficult to imagine our life without the above directions.

Conclusion

In conclusion, biology and genetics play a crucial role in our lives today. Here are some key points highlighting their significance:

1. **Health and Medicine:** Understanding biology and genetics has revolutionized healthcare. It has led to breakthroughs in disease diagnosis, treatment, and prevention. Genetic testing allows for personalized medicine, where treatments are tailored to an individual's genetic makeup. It also enables the identification of genetic disorders and helps in making informed reproductive decisions.

2. **Agriculture and Food Production:** Biology and genetics have transformed agriculture and food production. Through genetic engineering and biotechnology, crops can be modified to enhance nutritional value, increase yields, and improve resistance to pests and diseases. This contributes to food security and addresses global challenges such as malnutrition and hunger.

3. **Conservation and Environmental Protection:** Knowledge of biology and genetics is vital for conserving biodiversity and protecting the environment. It helps in understanding ecosystems, species interactions, and the impact of human activities on the natural world. Genetic techniques are used in conservation genetics to assess population health, genetic diversity, and develop strategies for species preservation.

4. Evolution and Understanding Life: Biology and genetics provide the foundation for understanding the diversity of life on Earth and the processes of evolution. They help us comprehend the complex interactions between organisms, the environment, and the mechanisms that drive evolutionary change. This knowledge enhances our appreciation of the natural world and informs conservation efforts.

5. Personal and Social Implications: Biology and genetics have personal and social implications. They raise ethical, legal, and social questions concerning topics such as genetic testing, gene editing, and cloning. Understanding these areas is crucial for making informed decisions, establishing regulations, and ensuring responsible use of biotechnological advancements.

In summary, biology and genetics have a profound impact on various aspects of our lives today. From healthcare to agriculture, conservation to personal choices, they shape our understanding of life, improve our well-being, and contribute to the sustainable development of our society.

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