ALGORITHM - METHODOLOGICAL TRAINING OF FUTURE PRIMARY SCHOOL TEACHERS IN TEACHING PRIMARY SCIENCE

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Abstract. *The modern scientific picture of the world is based on the reality of the subject of science. The scientific picture of the world is a kind of photographic portrait of what actually exists in the objective world. In other words, the scientific picture of the world is an image of the world that is created on the basis of natural scientific knowledge about its structure and laws. The most important principle of creating a natural scientific picture of the world is the principle of explaining the laws of nature from the study of nature itself, without resorting to unobservable causes and facts. Below is a brief summary of the scientific ideas and teachings, the development of which led to the creation of the natural scientific method and modern natural science.*

Keywords: *natural sciences, methodological preparation, pedagogy, didactics, algorithm, overcoming, life activity.*

Natural science is the most important branch of modern science, the development of which in modern conditions is inextricably linked with the development of other branches of science,

The introduction of a course on the concept of modern natural science into the curricula of humanitarian universities reflects the objectively growing role of natural science both in the development of the material living conditions of people and in the creation of an integral system of scientific knowledge about man, the world around him and the strategy for his development in the future.

Modern humanity has a detrimental effect on its existence on the environment and nature. This circumstance makes the issues of developing strategies for human development in the 21st century relevant. Among these issues, a large role is given to the creation of legal systems to ensure the development of humanity in the future. To solve this problem, future lawyers need to have deep, meaningful knowledge about the achievements and problems modern natural science and its basic concepts.

The term “concept” (lat. conceptiö) means a certain way of understanding, analyzing and describing the object of research. The concepts of modern natural science present ideas, hypotheses, theories, models, research methods for a whole range of issues relevant to modern man problems: the laws of the evolution of the world, methods for studying complex developing systems, the role of science in the development of civilization and culture in the future, as well as a number of other problems. The purpose of this textbook is to provide information and methodological assistance to law students in studying the basic concepts of modern natural science.

Priority in understanding science as a theoretical and methodological basis for the practical activities of people and the development of material production belongs to the English philosopher F. Bacon (1561-1626).

In his work “New Organon” (1620), the idea of a project for a new science, an experimental science related to the material production of people, was developed. Science of the last century using the example of the scientific and technological revolution (STR),

Convincingly proved the correct understanding of the purpose of science, formulated by philosophers and scientists of the 17th century. However, this does not mean that scientific achievements directly influence the growth of people’s well-being in modern times.

Society (more than 1 billion people in the modern world live on $1 a day) and that science has abandoned its purely cognitive function or “science for science’s sake.” The use of scientific achievements and its further development depend today on political and other factors.

The development of science is associated with the search for solutions to certain problems. For example, scientists of the 17th century. set themselves the task of discovering the laws of mechanical motion, the knowledge of which contributed to the development of practical mechanics.

Today science performs the following functions in the development of society:

— cognitive function (expanding knowledge about the world around us, society and people);

— practical function (development of new technologies in the productive forces of society);

— educational function (creation of new teaching technologies);

— ideological function (systematization of knowledge about the world around us, society and man himself).

An important concept for scientific activity is the concept of a model, an ideal, which one should strive for in understanding the surrounding world (nature, Universe), society and man. In all periods of the development of science, scientists have strived to create true knowledge.

True knowledge is, roughly speaking, information that adequately reflects the state of affairs in the reality itself, in the world in which a person lives.

The ideal of science, according to most scientists, is truth. Another thing is what is meant by truth and how it can be achieved. There are different points of view here. Some scientists believe that science will eventually discover all the laws governing the Universe, and that will be the end of it.

A. Einstein's famous phrase that no matter how complex nature is, nevertheless it reveals its secrets to the scientist, rewarding him for incredible efforts and a monotonous lifestyle.

Others argue that nature is an inexhaustible source of knowledge and therefore science will never end. This point of view recognizes the infinite number of laws that prevail in the world. In fact, as they say representatives of the first point of view, this does not correspond to the observed facts: nature acts economically, prudently, with enviable simplicity.

The concept of truth as a scientific ideal makes strict demands on the method of achieving it and on the results of scientific activity. Back in the 17th century.

French philosopher, mathematician, physicist R. Descartes (1594-1650) put forward the following requirements for the scientific method of cognition:

- do not accept anything as true that is not clear and obvious;

- divide difficult questions into as many components as necessary to resolve them;

- start with the study of simple, easy-to-know things and gradually ascend to the knowledge of difficult and complex ones;

- dwell on all the details, pay attention to everything, to be sure that nothing is missed.

R. Descartes' requirements for the scientific method had a great influence on the understanding of science as an active creative activity. Subsequently, the method of scientific knowledge began to be understood as a set of intellectual and material methods of achieving true knowledge in the process of developing scientific activity.

Intellectual methods include methods for creating theories, hypotheses and models of objects under study, as well as developing technologies for creating measuring instruments, installations for conducting experiments and observations. Material methods include the instruments themselves, installations for conducting experiments and observations. This understanding of the scientific method is reflected in the modern interpretation of the main features of scientific knowledge as the result of scientific knowledge.

The humanities are sciences that study the laws of development of society and man as a social, spiritual being. These include history, law, economics and other similar sciences. Unlike, for example, biology, where a person is considered as a biological species; in the humanities we are talking about a person as a creative, spiritual being. Technical sciences are the knowledge that a person needs to create the so-called “second nature", the world of buildings, structures, communications, artificial energy sources, etc. Technical sciences include astronautics, electronics, energy and a number of other similar sciences. In technical sciences, the interrelation between natural sciences and the humanities is more evident.

Systems created on the basis of knowledge of technical sciences take into account knowledge from the field of humanities and natural sciences. In all the sciences mentioned above, specialization and integration are observed. Specialization characterizes an in-depth study of individual aspects, properties of the object, phenomenon, or process under study. For example, a lawyer can devote his entire life to researching problems in the development of criminal law. Integration characterizes the process of combining specialized knowledge from various scientific disciplines.

Today there is a general process of integration of natural sciences, humanities and technical sciences in solving a number of pressing problems, among which of particular importance have global problems in the development of the world community. Along with the integration of scientific knowledge, the process of education of scientific disciplines at the intersection of individual sciences is developing. For example, in the twentieth century. such sciences as geochemistry (geological and chemical evolution of the Earth), biochemistry arose (chemical interactions in living organisms) and others. The processes of integration and specialization eloquently emphasize the unity of science and the interconnection of its sections. The division of all sciences according to the subject of study into natural, humanitarian and technical faces a certain difficulty: what sciences include mathematics, logic, psychology, philosophy, cybernetics, general systems theory and some others? This question is not trivial. This is especially true for mathematics. Math like noted one of the founders of quantum mechanics, the English physicist P. Dirac (1902-1984), “this is a tool specially adapted to deal with abstract concepts of any kind, and in this area, there is no limit to its power.

The famous German philosopher I. Kant (1724-1804) made the following statement: there is as much science in science as there is mathematics in it. The peculiarity of modern science is manifested in the widespread use of logical and mathematical methods in it. Currently underway discussions about the so-called interdisciplinary and general methodological sciences.

The former can present their knowledge about the laws of the objects under study in many other sciences, but as additional information. The latter develop general methods of scientific knowledge; they are called general methodological sciences. The question of interdisciplinary and general methodological sciences is debatable, open, and philosophical.

Fundamental sciences explore the deepest elements, structures, and laws of the universe. In the 19th century It was customary to call such sciences “purely scientific research,” emphasizing their focus exclusively on understanding the world and changing our way of thinking. We were talking about such sciences as physics, chemistry and other natural sciences. Some scientists of the 19th century. argued that “physics is the salt, and everything else is zero.” Today it's like that belief is a fallacy: it cannot be argued that the natural sciences are fundamental, and the humanities and technical sciences are indirect, depending on the level of development of the former. Therefore, it is advisable to replace the term “fundamental sciences” with the term “fundamental scientific research,” which is developing in all sciences. For example, in the field of law, fundamental research includes the theory of state and law, in which the basic concepts of law are developed.

Applied sciences, or applied scientific research, aim to use knowledge from the field of fundamental research to solve specific problems in the practical life of people, i.e. they influence our Lifestyle. For example, applied mathematics develops mathematical methods for solving problems in the design and construction of specific technical objects. It should be emphasized that the modern classification of sciences also takes into account the target function of a particular science. Taking this into account, we talk about exploratory scientific research to solve a specific problem and task. Exploratory scientific research makes a connection between fundamental and applied research in solving a specific task and problem. The concept of fundamentality includes the following features: the depth of research, the scale of application of research results in other sciences and the functions of these results in the development of scientific knowledge as a whole. The modern scientific picture of the world is based on the reality of the subject of science. “For the scientist,” wrote V. I. Vernadsky (1863-1945), “Obviously, since he works and thinks like a scientist, there is and cannot be any doubt about the reality of the subject of scientific research.” The scientific picture of the world is a kind of photographic portrait of what actually exists in objective world. In other words, the scientific picture of the world is an image of the world which is created on the basis of natural scientific knowledge about its structure and laws The most important principle of creating a natural scientific picture of the world is the principle of explaining the laws of nature from the study of nature itself, without resorting to unobservable causes and facts.

Below is a brief summary of scientific ideas and teachings, the development of which led to the creation of the natural scientific method and modern natural science.

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