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## Role in The Forming Student's Scientific Mind

**Key words:** *scientific outlook, physical research, temperature, mass, energy, micro-, macro- and mega-worlds.*

**Annotation:** *this paper is devoted to the problem of the formation of student's scientific minds with use the methods of physical study. Physical picture of the universe throughout terms of micro-, macro- and mega- processes.*

Forming competitiveness specialists who have modern, scientific knowledge and modern scientific environment that meet the requirements of the time, and the effectiveness of this process implies the necessity of improving the content of continuing education and renewal in society, the development and prospects of our life, the formation of a social-economic policy that meets the Republic's independence and market economy.

Within the process of formation of young people's minds in society the role of natural sciences, especially physics is very important, which the subject of this study.

The physics is the basics of modern science and technology, which determines the technical achievements of society. The importance of physics in society, as well as its scientific value, plays an important role in forming of the young people minds. The knowledge of physical methods and properties is very important in formation students' minds. It is desirable to attract the attention of students to some of the most important issues of world peace (the method of scientific research, the essence of scientific thought in the world, and the practical application of scientific knowledge) in teaching of physics. For example, the theme of the universe picture's is that the teacher should focus on worldly problems and philosophical conclusions from the point of scientific knowledge and methods. It is important to focus particularly on the issues that lead to improving of scientific minds of students (how the universe came into being, what is the essence of life, what are the principles of world affairs, and what is really true?).

A well-known American physicist W.W. Weiscopeer thinks that the development of science begins with the immediate response to global questions in today's world and at first glance with the facts that are insignificant: how do the free falling stones occur? How much water is heated to a degree if we throw out iron heated iron? And others ... These facts were determined very strictly, quantitatively. Any student can be sure of their authenticity and self-examination. Instead of giving private answers and answering specific questions, scientists began to find common answers to their own questions.

In the process of teaching physics, it is very important to use the historical sources. Quantum mechanics discovered in the 20<sup>th</sup> of twentieth century led to the rise of human consciousness. The quantum mechanics first dictated the possibility for scientists to understand the structure of molecules and atoms, the structure of matter. It has discovered the new universe of

microscopic objects. These objects have contradictory attributes. So, they can't have simultaneously both definite position and impulse at the same time. These important facts would enhance students' interest in physics and form their scientific minds.

By explaining the results achieved in the past it is possible to provide students with a deep knowledge of the scientific research on physics.

Today, the internal structure of elementary particles has been continuously studied. Therefore, the most magical things in nature have begun to obey to human intelligence. What is the universe as to the "Big Bang" and how it is going to be made in the future, how the structure of elementary particles is based on their traits and their true number.

We can now explain the evolution of the Solar System from the gas cloud to the planetary formation and the emergence of life on Earth. A science-based approach is the only straight way to justify the authenticity of the obtained knowledge, but it is linked to the slow and difficult way of achieving truth.

Physics studies the phenomena that occur in nature, its purpose is to search for the general laws of nature and to explain concrete processes based on these fundamental laws. A careful explanation of the processes is based on a clear understanding of the structure of various substances. Determining the structure of matter is also a matter of physics.

Although there are not many fundamental theories of physics (Newton's classic mechanics, thermodynamics, statistical mechanics, electrodynamics, quantum mechanics, and field theory), each of them has a large set of events, and is a basic support for students' fundamental knowledge.

The purpose of physics is to define the characteristics of its research method. Physics is an experimental science. The laws of physics are based on experimental facts. So, the facts are collected as a result of observations. Occasionally random inventions (observed by A.Bekkerel's observation of uranium's radioactive decay).

The experimental physics explains whole characteristics of the matter. According to L.E. Mandelshtam, the human keeps all basic and important information. It is possible to be able to do what's best in the way of the Buddhism. In the future, quantitative characteristics will be settled on the human rights defenders.

In explaining the phenomenon and revealing the essence, the teacher introduces a number of quantitative concepts - physical magnitudes (speed, power, pressure, temperature, electric charge, etc.). Then the specific instructions will be given to get the quantitative value of each size and how it should be measured (which requires the required experiment).

When determining the physical magnitude, quantitative forms (power, temperature) are given to objects that are accepted directly by sensory organs. When physical quantities are not accepted by sensory organs (eg, electrical charge), they are explained by other sizes of the human body controlled by the sensory organs (the charge value is determined by the influence of charge cells) in the process of learning fundamental knowledge to students.

To make general conclusions from observations the quantitative dependencies must be established between events and reasons which cause it. If this connection is established, it means that this physical law is found. If a physical law is known, adequate calculations are sufficient avoiding the experiments.

There is a need to move from physical observation to physical experiments, creating special conditions for the connection between the physical quantities. If all conditions suddenly change, it will be hard to keep a certain law.

Therefore, it is possible to describe the relationships between physical quantities by explaining to students the importance of keeping one quantity may be different from each other in physical experience. For example, to investigate the dependence on the mass, volume, and temperature of the gas, first you need to learn how the volume change affects the pressure when the temperature and mass are constant, and then the pressure and temperature dependence of the mass and volume are unchanged.

Usually, we use the experimental techniques to describe the realistic phenomena. But we can't say from theoretical point of view that the simplified model can explain the real physical phenomena. For the theoretical assessment of the effect of various factors on the event, it is important to consider their size, then define each one's place and compare them. This is not possible because of the complexity and intensity of events that make up the real process.

The accuracy of one or more of these events is convinced only in experiments. One of the important factors in understanding the essence of the physical method as the following: the choice of a simplified model is determined not only by the nature of the subject being investigated, but also by the character of the expected processes.

In the chapter of molecular kinetic theory, when attention will be given to the mechanical and thermal properties of the gas we must take into account that its molecules are arbitrarily moving and are small elastic cylinders that interact with one another and with the walls of the container. The pressure on the walls is based on these interactions. This model of gas can be experimentally applied to the bean pea, but the optical properties of the gas must be addressed with other models as well. All the events in the nature are bound to each other by the infinite number of "ropes", so to explain each event we can't do without addressing the environment. The world that surrounds us is a monumental whole. It is desirable to take into account mechanical, heat, electromagnetic events. To draw closer to the understanding of the universe, we divide the fragment into fragments and learn parts thereof.

When it comes to the topic of the emergence of the subject given to the course "Contemporary Physics Universe", which is included in the curriculum of the teaching curriculum of pedagogical higher education institutions it is necessary to provide a deep and reliable information. An important feature of matter is its structural and systematic organization, which is structurally linked with one another, which is a systematic presence of matter in the form of a huge diversity of material objects at various magnifications and levels. In the modern natural science the material systems consist of micro-, macro and mega universes. The material systems of micro-, macro- and mega-universes differ in size, the nature of their processes and laws.

1. The micro universe consists of molecule, atomic and elemental particles.

2. Material objects consisting of a large number of atoms and molecules is called as the macro universe.
3. The mega universe is the huge system of material objects - planets, stars, galaxies.

An important aspect of modern natural science is the material unit of all systems - micro-, macro- and mega-universes.

The revolutionary changes in the classical representation of the physical phenomenon of the universe has occurred after the quantum characteristics of the matter were discovered. With the advent of the quantum physics of the micro particles movement, new elements of the physical phenomenon of the universe began to emerge. After learning this information, students will only be able to form their scientific outlook because they know the natural science of the universe. The natural scientific view of the universe is a system of important principles and laws that can be written around the world during certain developmental periods of science.

In the path of theoretical generalization of the nature, science has reached striking results, and most importantly, the infinite diversity of matter has convinced the infinite scope of the universe.

We hope that all the natural sciences have a great role in forming the scientific outlook of students, but the importance of physics and astronomy is of particular importance.

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