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PRIMARY CONCEPTS OF ENERGY AND ENERGY SOURCES IN PHYSICS

Abstract: *The article discusses the possibilities of forming concepts related to primary energy and energy sources in school physics education. The article also explores the possibilities for students to gain an initial understanding of the physical landscape of the universe through fundamental and practical concepts of energy.*

Key words: *Energy, the source of energy, the physical view of the universe, space, time and matter, the particle, the body, the circulation and storage of energy.*

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Introduction

One of the most pressing issues in the world is energy and energy resources. The main reason for this is that scientists predict that the amount of basic raw materials used in energy has been declining rapidly in recent years. Indeed, the earth's oil, gas, coal, peat, and other fuel reserves have evolved over hundreds of millions of years, as a result of the decay and chemical reactions of existing organic matter on Earth, at present, the use of these resources is unprecedented. Therefore, humanity is faced with the urgent problem of life and death, which must be met in order to fully meet the needs of the world's population for energy in the future. One of the effective solutions to this is considered to be the development and promotion of alternative and renewable energy sources.

In the best practices of developed countries, large-scale practical programs are being implemented in the field of renewable energy production and the provision of electricity and heat to the population. It is one of the requirements of the time that the knowledge of these innovations and discoveries be incorporated into the educational process. This will play an important role in the future development of students

in this field. The fundamental laws of energy technology, that is, energy production, the processes of transformation into each other are introduced in a physics course. But what is energy?, how does it appear?, what is the connection between the types of energy?, students understand the full answers to the questions, their perception is much more complex. The purpose of this article is to develop students' skills in using these types of energy sources, some suggestions and recommendations are made and analyzed on the possibilities of delivering scientific materials to students in the process of teaching physics on the need to use these types of energy. In the creation of the energy of the future, the protection of human energy sources, the formation of a culture of rational and economical production will play an important role.

Since the fundamental laws and laws of energy and energy formation processes are studied in physics, the course of physics should include modern knowledge and scientific materials on energy sources. At the same time, it is very difficult for schoolchildren to directly understand and imagine the scientific material on the formation of these types of energy

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sources. Therefore, it is necessary to methodologically and didactically process scientific materials on the physical processes of formation of energy sources and turn them into educational material. Although monographs, textbooks, manuals, and guidelines have been developed by Methodist scholars in the field of physics around the world, but to the science of physics these materials, the scientific ideas of the processes of energy formation in the universe, have not yet been fully reflected.

The Republic of Uzbekistan has also conducted scientific research and pedagogical research in this area. In particular, in pedagogical research conducted by H.O. Jo'rayev at Bukhara State University, research was conducted on the possibility of forming the concept of alternative and renewable energy sources in the physics course of professional colleges [1]. Scientific and pedagogical research conducted by U.B. Abdiev at Termez State University includes scientific research on improving the content of physics based on the teaching of materials on alternative and renewable energy sources at all stages of continuous physics education [2]. In our work, we present some suggestions and recommendations for the formation of specific competencies in the teaching of physics in the field of alternative and renewable energy sources.

It is known that in all sections of the physics course, special attention is paid to the amount of energy in the mechanisms of occurrence of physical phenomena and processes related to the concept of energy. Because the existence of a particle shows that it has energy. However, when it comes to students' energy sources, energy production is not about the energy of each particle, but about a set of particles or the energy that is generated in a system. The essence of the recommendations we offer is that the reader should first pay more attention to the elementary states of energy production. For example, let's look at the processes of energy production in the types of energy

sources in the universe, the fundamental laws of physics. Students should first have the following concepts and ideas:

- Every particle has energy, it consumes energy continuously, it constantly replenishes the energy of the particle, that is, it is repeated;

- An energy system is formed when a set of particles participates in the formation of energy, and as a result of the action of this energy system, the energy of other surrounding energy systems either increases or decreases;

- In renewable energy systems, the energy absorption and energy release of substances occur according to the laws of nature;

- The formation and storage of energy from one species to another is a continuous process based on the interdependence of space, time and matter.

- The change, interaction, and continuous rotation of existing matter and their energies in space also lead to the emergence or disappearance of new worlds.

So, it is important to understand that the content of this information is the result of the influence of energy sources on events and processes that occur in nature.

Indeed, given that the universe itself is made up of space, matter, and time, a perfect understanding of the interactions between energy sources in understanding the events and processes that take place in it will help them form a sufficient imagination. Therefore, in the physics course, it is necessary to form a fundamental idea of energy before explaining to students the laws of energy sources, energy circulation and storage. Only then will the student be able to understand energy sources and their physical laws, and be able to observe independently. Table 1 below provides some recommendations for shaping basic energy concepts in physics education.

Table 1

№	Basic physical concepts, imagination, laws	Summary and meaning	Dependence on events and processes in the universe
1	Energy	Every particle has energy.	The energy of all the particles in the universe is constantly changing. Energy sustains the continuous movement of material beings.
2	Energy conservation	Energy is constantly moving and regenerating in matter, in motion, and in interactions with objects.	Represents the conservation of energy in relation to space, time and matter. Namely, existing matter represents this energy, and this energy is never lost. Energy is stored in every particle in the universe.
3	Energy cycle	It is explained by the transformation of energy from one form to another in the occurrence of events and processes in nature. It is replaced by the conversion	Because of the laws of continuous motion of matter, energy is always transformed from one type to another. During the energy cycle, an event or process takes

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	of energy from one form to another. For example, when potential energy is converted into kinetic energy, the body moves. However, due to the presence of the body, the potential energy has a regenerative property.	place in nature. The duration of these events and processes in the universe is characterized by quantitative values of energy. Remember that a normal battery takes a certain amount of time to fully consume and fully convert to another form of energy.
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It can be seen from the table that when students form initial ideas and then give information about a physical event or process and its laws, students can form clear and sufficient ideas. It is also possible to

develop students' ability to understand the universe and its physical landscapes independently through the concept of energy.

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