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PEDAGOGICAL POSSIBILITIES OF TEACHING NATURAL SCIENCES BASED ON STEAM TECHNOLOGY

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Abstract:

The possibilities of STEAM technology in elementary school contribute to the expansion of students' knowledge about being and the world around them. Today, the development of continuous education in our country is being improved, the introduction of international technologies in public education. This article focuses on the importance of STEAM technology in teaching elementary grades.

Keywords: STEAM technology, heuristic teaching method, creativity, science, technology.

INTRODUCTION. At a time when our country is rapidly developing on the path of innovative development, it is necessary to comprehensively support the creative ideas and creativity of young people, who are the successors of our future, to develop their creative qualities, to form their knowledge, skills and qualifications, and to improve the evaluation system based on advanced foreign experiences, international criteria and requirements. on the way, it is important to study international experiences, do a comprehensive comparative analysis of the existing system, and closely cooperate with international and foreign organizations, agencies, scientific research institutions in the relevant direction[6].

Teaching on the basis of STEAM education in the field of natural and economic sciences, conducting educational research in lessons and extracurricular activities to demonstrate the relevance of the acquired knowledge, skills and abilities of students to everyday life, It is aimed at carrying out experiments, educating creativity and developing interests [2].

ANALYSIS AND RESULTS. Education, in a word, is educating and making the young generation literate, which will ensure the country's future prospects[18]. The use of various scientific research methods in the educational process increases the effectiveness of education, forms the process of independent thinking of students, increases enthusiasm and interest in studying the subject, strengthens the acquired knowledge, mastery, and free use of it in practice. forms skills and qualifications [3].

STEAM educational technology is a new method of teaching schoolchildren, which is different from traditional teaching methods. It is designed to teach students simultaneously in five subjects: Science, Technology, Engineering, Art, and Math.

In a STEAM learning environment, students acquire knowledge and learn to use it immediately. Therefore, when they grow up and face life's problems, whether it is environmental pollution or global climate change, they understand that such complex issues can only be solved by relying on knowledge from different fields and working together. Here, it is not enough to rely on knowledge on only one subject[7].

By focusing on practical skills, students develop their will, creativity, flexibility and learn to cooperate with others. These skills and knowledge constitute the main educational task, that is, what this entire educational system strives for[8]. This is the logical result of combining theory and practice. STEAM was developed in America. Some schools took into account the careers of graduates and decided to combine subjects such as science, technology, engineering and mathematics, and this is how the[17] STEM system was formed. (Science, Technology, Engineering and Mathematics). Later, Art was added here, and now STEAM was finally formed. Teachers believe that knowledge of these subjects, or more precisely, these subjects, will help students become highly qualified specialists in the future. After all, students seek to acquire good knowledge and apply it immediately [4].

STEAM is an integrated system of learning by subject rather than by subject. STEAM education means the application of scientific and technical knowledge in real life with the help of practical training. Do not forget that these directions are becoming the most popular in the modern world. Therefore, today the STEAM system is developing as one of the main trends[10]. STEAM education is based

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on the application of a practical approach and the integration of all five areas into a single educational system. Its main idea is that practice is as important as theoretical knowledge. That is, during learning, we need to work not only with our brain, but also with our hands. Learning only in the classroom is not keeping pace with the rapidly changing world[9].

The main difference between the STEAM approach is that students use both their brains and hands to successfully learn a variety of subjects. They "read" the knowledge they received.

Implementation of STEAM technologies at different levels of education should have its own characteristics. Special emphasis is placed on project work, small research, and game activities aimed at developing primary school students' ability to analyze life situations and develop their independent creative thinking in search of solutions.

World education experts say that STEAM education helps students develop the following skills: Think and take risks; Engage in meaningful learning activities; Become creative problem solvers; Prefer and value cooperation; Show your virtue; Discover and work in a creative mental environment[11].

Today, raising a mature generation is one of the most important tasks. Fulfillment of this task mainly depends on pedagogues. For this purpose, great attention should be paid to the education of young people. In this regard, STEAM technology comes in handy. STEAM is a method of teaching natural sciences, technology, engineering, art and mathematics in harmony. STEAM technology focuses on the combination of theoretical and practical knowledge. In the STEAM educational environment, children acquire knowledge and learn to use it immediately[12]. It is possible to organize lessons based on the STEAM technology to the topics given in the 1-2 grades native language and reading literacy, natural sciences, and mathematics textbooks developed on the basis of the national program[16]. In particular, each topic in natural sciences is presented in a theoretical and practical way. In particular, the subject of the planet Earth is given in the 2nd grade natural science. In studying this topic, students will have practical training along with theoretical knowledge. Pupils make models of the globe and the sun. With this, they will learn practically that the earth revolves around the sun, and at the same time, they will come up with measures to eliminate the global problems of the earth[13].

Based on this topic, students can be encouraged to know, think, work independently, and be creative. STEAM technology should be used wisely not only in classes, but also in extracurricular activities[15]. If professionals are invited to organize classes, they will make a good impression on children if they show practical knowledge of their profession along with theory. When choosing a profession in the future, they will find their direction[14].

CONCLUSION. In short, the STEAM approach encourages children to conduct experiments, build models, think independently, and put forward ideas. STEAM education combines interdisciplinary communication and the design method, which is based on the integration of natural sciences with technology, engineering creativity and mathematics. In this, preparation for professions related to engineering is carried out. Application of scientific and technical knowledge in real life In STEAM education, children are shown the use of scientific and technical knowledge in real life with the help of practical exercises[5-22].

In each lesson, students design, build, and develop models of modern industry. Developing Critical Thinking Skills and Problem Solving The STEAM program develops the critical thinking and problem solving skills that children need to overcome the challenges they face in their daily lives.

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