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IMPLEMENTATION OF STEM-EDUCATION AT A NEW SCHOOL OF UKRAINE

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ВПРОВАДЖЕННЯ STEM-ОСВІТИ В НОВІЙ УКРАЇНСЬКІЙ ШКОЛІ

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Анотація. Розглядаються особливості навчання інформатики в Новій українській школі. Розкриваються можливості використання STEM-підходу в освітньому процесі закладів загальної освіти. Показано способи організації співпраці вчителя з учнями, подано обґрунтування розвитку окремих аспектів STEM-освіти.

Ключові слова: Нова українська школа, міжпредметна інтеграція, STEM-освіта, компетентісний підхід.

Abstract. The peculiarities of computer science education at the New Ukrainian School are considered. The possibilities of using the STEM-approach in the educational process of general educational institutions are revealed. The ways of organizing the cooperation of the teacher with the students are shown, the justification of the development of certain aspects of STEM-education is presented.

Key words: New Ukrainian School, Interdisciplinary Integration, STEM-Education, Competent Approach.

Stem-technology is one of the ways to introduce the concept of the "New Ukrainian School" into the educational process at the New School in Ukraine. STEM (from English S — Natural Sciences, T — Technology, E — Engineering, M – Mathematics). Stem-education provides the opportunity to put into practice integrated training in elementary school. This approach to learning contributes to the implementation of key competences: communication in the state and foreign languages, mathematical literacy, competence in natural sciences and technologies, information and digital literacy, lifelong learning, social and civic competences, entrepreneurship, general cultural, environmental literacy and healthy life.

STEM-technologies are actively explored in the school educational system, the rationale behind the development of certain aspects of STEM-education in elementary school is gradually underway.

At the present stage of modernization of the educational process, the introduction of STEM is undertaken by teachers on their own initiative in the form of additional, extracurricular education. A department of STEM-education was created, which is engaged in the development of legal documents, scientific and methodological materials for the implementation of STEM-education; the coordination of the activities of individual working groups, the provision of scientific and methodological basis for experimental innovation activities for general educational institutions that implement STEM-education [1].

The main principles of STEM-education are integration and research and project activities. At this stage, for beginners, experimental programs have been presented, the urgent task of which was the need to create a new educational model

that will help the child from the first year of study at school to realize that everything in life is interconnected and interconnected. This program, in accordance with its approaches, principles, methods, forms of work is very consistent with STEM-education. The introduction of STEM-technologies involves an integrated approach to learning, combining the content of various subjects taught from the first to the fourth grade around a specific topic that both teachers and students can choose. Integrated learning uses a new concept of education so that students see the connection between different subjects, can realize the knowledge gained, have an opportunity for the practical application of this knowledge in life. The process of thematic training begins with the selection of a topic that will be handled by the children. Parents are invited to participate in the discussion, set goals and objectives, and share experiences. Next, the teacher, along with his parents, plans a period of time devoted to studying the topic. For elementary students, the introduction of elements of STEM-training involves the formation of a positive attitude to scientific creativity, research skills, the development of creativity thinking, creative abilities and, first of all, the ability to inventory, familiarization with STEM-industries and professions; stimulating the interest of students to further mastering the courses associated with STEM. Studying according to the principles of STEM-education involves students passing the following stages: setting problem, discussion of the tasks, design, structure, testing and improvement. These stages are the basis of a systematic project approach [2].

Implementation of STEM-learning in New Ukrainian School is extremely topical. Interdisciplinary integration as a didactic means must be realized in educational subjects in the form of their integration and representation into a single whole, that is to construct integrated training courses, on the basis of which the learning process should be deployed. This approach is aimed at informational and emotional enrichment of perception, thinking and feelings of students through the use of interesting material that provides children with the opportunity to know a phenomenon, a concept, to achieve the integrity of knowledge, the formation of educational competencies.

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