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RELEVANCE OF ROBOTICS TRAINING

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Annotation: The article describes the importance and relevance of studying the introduction of robotics in the school curriculum. Also, the differentiation of constructors which are used according to the age of students.

Key words: educational robotics, studying, the basics of robotics.

In the modern world, the scope of robotics in various fields of human activity is very wide and does not stop growing. The use of robots can significantly reduce human participation in hard and dangerous work. For example, work in the defense, chemical, nuclear fields, extinguishing fires without the help of an operator, performing rescue operations, or moving through an unknown area in advance. Gradually, robots enter into ordinary human life. The use of mobile robots allows us to satisfy everyday needs: robots - nurses, robots - nannies, robots - housekeepers, etc. As a result, modern society is in great need of competent specialists in this field.

In addition, according to the national educational initiative "Our New School", approved by D. Medvedev, modern education should provide:

- studying not only the achievements of the past, but also technologies that will be useful in the future;
- training focused on both knowledge and activity aspects of the content of education.

In this regard, teaching robotics to children is becoming an increasingly relevant and significant task.

The study of robotics allows students to develop communication skills, since basically the design of robots takes place in a group, learn to make independent and non-standard decisions, develop creative thinking.

Also, robotics can act not only as an independent subject, but also be introduced into other school disciplines. Robotic designers can be used to demonstrate educational experiments in physics, mathematics, physics and biology, which allows you to see a picture of the real world. The use of robots makes the learning process more interesting and understandable. The student is better versed in what he created and saw himself. Therefore, the need to apply the basics of robotics throughout the school curriculum is obvious.

The basics of robotics can be studied from elementary school, as well as in high school.

The cycle of research and technical activities covering students from grades 1 to 11 according to G. R. Shamsneva may be as follows.

ЗАМОНАВИЙ ТИЛШУНОСЛИК ВА ТАРЖИМАШУНОСИЛИКНИНГ ДОЛЗАРБ МУАММОЛАРИ

- Grade 1-2 - LEGO - creativity development of attention, ingenuity, memory, fine motor skills;
- Grade 3-4 - LEGO - design study of simple machines - levers, gearboxes; simple programming;
- Grades 5-9 - LEGO - robotics assembly and programming of robots, robot competitions;
- Grades 8-11 - programming studying the theory of algorithms, classical programming languages;
- Grades 8-11 - robot competitions preparation and participation in competitions, study of alternative programming languages for robots.

For teaching robotics in elementary school, Lego WeDo constructor can be used, consisting of standard Lego parts, as well as a set of sensors and actuators connected to USB. This kit comes with software that contains a simple, intuitive programming environment. In addition, along with the set comes a set of tasks, which are 12 separate projects with a detailed step-by-step description of their implementation. This allows the student to independently assemble and program working models, and then use them to perform practical tasks. For teaching robotics in high school, the Lego Mindstorms constructor can be used, also consisting of standard Lego parts bars, axles, wheels, gears, sensors, motors and the NXT programmable block.

The presence of a separate programmable block in combination with a high-level programming environment makes this set a serious tool that allows you to create robots that solve quite complex problems. An important advantage of Lego Mindstorms is its simplicity and flexibility. The set allows you to choose the necessary parts for almost any task or combine several sets to solve complex problems. For teaching robotics in high school, the TETRIX constructor, which is the main constructor of the international FIRST Tech Challenge competitions, can be used. This constructor consists of a set of metal parts, sensors, servo drives and a programmable NXT block. Programming of robots assembled from this set is carried out in the Robot language.

Involving schoolchildren in research in the field of robotics, the exchange of technical information and initial engineering knowledge, the development of new scientific and technical ideas will create the necessary conditions for high quality education, through the use of new pedagogical approaches in the educational process and the use of new information and communication technologies. Understanding the phenomenon of technology, knowledge of the laws of technology, will allow the graduate of the school to meet the demands of the time and find his place in modern life.

Currently, educational robotics is developing very actively and is being included in the educational program of an increasing number of schools, and there are a lot of competitions among school teams. But, despite all the advantages, robotics mainly appears as part of extracurricular activities. There are several reasons for this. The first is that the introduction of robots into the main educational process requires a lot of time spent on teacher training. There are also not enough teaching aids for students and methodological recommendations for teachers. And secondly, the production of constructors is not developed in Russia, and therefore the price is quite high and not all schools can purchase sets of robots for each subject.

REFERENCE

ЗАМОНАВИЙ ТИЛШУНОСЛИК ВА ТАРЖИМАШУНОСИЛИКНИНГ ДОЛЗАРБ МУАММОЛАРИ

1. Daniel L. Ryan "Robotic Simulation is designed for introductory courses in simulation. For short courses or seminars" 2003. P. 85.
2. Busova S. Yu. "Features of the introduction of educational robotics in an educational institution from the experience of the MOU secondary school". 2013, pp. 218-220.
3. James. G.H. National educational initiative "Our new school", February 04, 2010. P. 89
4. Shamsievna G. R. "Development of scientific and technical creativity of students by means of robotics at school" Electronic resource. 04.11.2015. P. 105.
5. Stefano Nolfi, Dario Floreano. "An overview of the basic concepts and methodologies" 2000. P. 211.
6. Wagner K. A. "Implementation of the basics of robotics in modern school" 2013. 74-2. pp. 17-19.
7. Najmiddinova, M. R., & Jalolova, S. M. (2021). CONTRASTIVE STUDY OF ENGLISH AND UZBEK PUNCTUATION RULES. *CURRENT RESEARCH JOURNAL OF PEDAGOGICS*, 2(06), 1-5.
8. BALANCES, O. S. W. O. C. ROOTABLE LAYER IN EXPERIMENTAL PRODUCTION SECTIONS. *Ozatboy Bazarovich Imamnazarov, Tokhirjon Olimjonovich Qosimov, Makhammadali Rustamjonovich Abdullaev ISSN*, 2349-0721.
9. IMAMNAZAROV, O. B., QOSIMOV, T. O., & ABDULLAEV, M. R. (2020). Balances Of Soil Waters Of Cotton Rootable Layer In Experimental Production Sections. *International Journal of Innovations in Engineering Research and Technology*, 7(05), 318-321.
10. Jalolova, S. M., Otakulov, N. B., Urmonova, N. M., & Nazarova, D. O. (2022). MODERN METHODS AND TECHNOLOGIES IN ENGLISH LANGUAGE TEACHING. *International Journal of Early Childhood Special Education*, 14(4).
11. Odilov, B., & Karimov, N. (2022). COVERAGE OF ECONOMIC AND CULTURAL TRADITIONS IN THE YEARS OF INDEPENDENCE IN ETHNOLOGICAL RESEARCH (ON THE EXAMPLE OF THE FERGANA VALLEY). *International Journal of Early Childhood Special Education*, 14(3).
12. Имамназаров, О. Б. (1993). Регулирование мелиоративного режима при близком залегании слабоминерализованных грунтовых вод.
13. АГЗАМОВА, Д. Б. (2018). COGNITIVE ANALYSIS OF METAPHORIC PHRASES OF THE CONCEPT "MEMORY" IN THE ENGLISH AND UZBEK BELLES-LETTRES TEXTS. *Иностранные языки в Узбекистане*, (2), 94-100.
14. Odilov, B., & Karimov, N. Archaeological Research is an Important Source in the Study of Traditional Economic Activities of the Uzbek People (On the Example of Some Researchers of the Twentieth Century).
15. Makhammadovna, M. F., & Agzamova, D. B. (2021). Psycholinguistic studies of pre-wedding and wedding traditions (on the basis of English and Uzbek phraseological units). *Turkish Online Journal of Qualitative Inquiry*, 12(7).
16. Shodmonov, A. (2022). Coverage of titles in Central Asian Hellenistic Sources. *Eurasian Journal of History, Geography and Economics*, 11, 24-26.
17. Abdullaeva, M., Jalolova, S., Kengboyeva, M., & Davlatova, K. (2021). Universal Human Values as Axiological Values. *REVISTA GEINTEC-GESTAO INOVACAO E TECNOLOGIAS*, 11(2), 802-816.
18. Davlatova, K., & Nematov, O. (2021, November). Traditional jeweleries and decorations. In *International Scientific and Current Research Conferences* (pp. 26-28).
19. Shodmonov, A. A. (2021). THE FORMATION OF PRIMITIVE CONSCIOUSNESS AND THE PROCESSES BY WHICH HUMANS ADAPT TO NATURE. *Scientific progress*, 2(6), 1571-1574.