INFORMATIKA FANINI O‘QITISHDA INTERNET RESURSLARIDAN FOYDALANISH

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Annotatsiya: Ushbu maqolada informatika fanini o’qitishda va o’quvchilarda dasturlash ko’nikmalarini shakllantirishda internet platformalarining imkoniyatlari va ushbu internet resurslaridan foydalangan holda bolalarda dasturlash ko’nikmalarini shakllantirishning zamonaviy innovatsion usullari haqida fikrlar bayon etilgan.

Kalit so‘zlar: Innovatsiya, innovatsion texnologiyalar, dasturlash, informatika, dastur, Scratch, Microsoft MakeCode, tinkercad, code.org, Pencil Code

ИСПОЛЬЗОВАНИЕ ИНТЕРНЕТ-РЕСУРСОВ В ОБУЧЕНИИ ИНФОРМАТИКЕ

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Аннотация: В данной статье рассматриваются возможности интернет-платформ в обучении информатике и развитию навыков программирования у учащихся, а также идеи современных инновационных способов развития навыков программирования у детей с использованием этих интернет-ресурсов.

Ключевые слова: Инновации, инновационные технологии, программирование, информатика, программное обеспечение, Scratch, Microsoft MakeCode, tinkercad, code.org, Pencil Code

USE OF INTERNET RESOURCES IN TEACHING COMPUTER SCIENCE

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Abstract: This article discusses the possibilities of Internet platforms in teaching computer science and developing programming skills in students, and ideas for modern innovative ways to develop programming skills in children using these Internet resources.

Keywords: Innovation, innovative technologies, programming, informatics, software, Scratch, Microsoft MakeCode, tinkercad, code.org, Pencil Code

The Internet has entered our lives and is firmly entrenched in it. The Internet has opened up great opportunities for modern school teachers. Teachers who have improved their professional skills and supplemented their methodological pigs are increasingly in need of methodological assistance to conduct lessons using Internet technologies.

In connection with the significant restructuring of educational content, now, with the introduction of new innovative technologies, the approach to the organization of educational activities has changed and the need to activate student learning activities has increased. The introduction of new innovative technologies will allow more effective organization of the educational process, providing students with new tools, methods and resources for obtaining educational materials.

Innovative technologies have a unifying feature compared to all other technologies, it is the development of new technologies, teaching methods, so that the student can succeed in life using all the opportunities. In connection with scientific and technical progress and the development of information and communication technologies, more attention is now paid to the problems of teaching computer science. Technical sciences such as information technology, electronics, etc. are developing rapidly and are of great practical importance. A modern computer science teacher needs not only to demonstrate interesting lessons, but also powerful tools for designing such classes, as well as modern tools for monitoring student knowledge, tracking academic achievement and problems.

In the context of informatization of the education system, the information learning environment is expanding and the teacher faces a very difficult task - to find the answer to the question: which Internet resources will be most effective in the educational process?

There are the following aspects of the use of pedagogical technologies in the classroom using Internet resources:

• Internet resources should facilitate the type of teacher activity in the classroom.

• Students should be able to navigate freely through Internet resources.

• The teacher can select Internet resources with methodological support to achieve and analyze the effectiveness of the learning process.

Didactic tools are all educational resources that are involved in the learning process and intended for use by the teacher and the student.

In the process of studying computer science using innovative technologies, the computer works not only as a source of information, but also as an educational tool that allows you to activate the learning process.

Significant changes are taking place in the modern education system to modernize the educational process. There is a growing interest among teachers to continue their education and implement projects using digital technologies. Schools are modernizing classrooms equipped with modern teaching equipment (technologies) so that teachers can support digital technologies in the teaching of various subjects.

The use of technology interactions allows for research in all disciplines and at all levels of education. However, technology alone is not enough. Nowadays, there is a need for high quality digital content, especially available over the Internet. Therefore, a computer science teacher should set himself the goal of activating students' cognitive activity on the basis of a creative approach.

At present, modern innovative technologies are used in the teaching of computer science to develop the knowledge and creative activity of students, improving the quality of education, effective use of study time and reducing part of the reproductive activity of students by reducing time. Innovative technologies in the study of computer science are focused on the individualization, distance and mobility of the learning process, regardless of the age and level of knowledge of students, and offer many innovative technologies that can be applied.

There are several Internet platforms and application applications available today that provide practical assistance to students in developing programming, design, robotics, and engineering skills.

We can provide the following Internet resources for such platforms:

1. The Uzbek platform of the Khan Academy. https://uz.khanacademy.org/- The platform has more than 9,000 video lessons in mathematics, computer science, chemistry, physics, economics, biology and astronomy. In addition, the platform has more than 100,000 interactive examples and issues. Khan Academy classes are used in more than 190 countries around the world, and now translated into 29 languages, the platform is used by more than 74 million people.

2. Code.org is a non-profit organization dedicated to expanding access to computer science in schools. The main goal of this platform is that every student in every school has the opportunity to study computer science just like biology, chemistry or algebra. Provides the most widely used curriculum for teaching computer science in primary and secondary schools, as well as organizes the “Hour of Codes” campaign, which covers 10 percent of all students in the world each year. Code.org is supported by Amazon, Facebook, Google, the Infosys Foundation, Microsoft and many other generous sponsors

3. Pencil Code (https://pencilcode.net/) is a collaborative software site for drawing, playing music and creating games. It is also a place to experiment with mathematical functions, geometry, graphics, web pages, simulations and algorithms. The software is open to all viewing and copying.

4. You can learn professional programming languages by creating art, music, games, and stories using an editor that allows you to work in blocks or text. The main language is coffee. Professional software engineers use Coffee script to create complex websites, but Coffee script codes can also be very simple.

5. Pencil Code supports Coffee Script, JavaScript, CSS and HTML. Everything contained in the pen code is open and free to view.

Blackly Games (https://blockly.games/)-Blockly Games is a series of educational games that teach programming. It is designed for children who have no prior experience in computer programming. By the end of these games, players are prepared to use simple text-based languages.

Blackly Games help students develop computer science skills and develop tomorrow’s programmers. Designed to work independently, Block Games can be downloaded for offline use, making it accessible to all students and technology.

6. Make block (https://Make block.makeblock.com/)-Early learning program uses basic techniques of game coding to develop curiosity, imagination, cognitive skills and stimulate social and emotional development. Lessons allow you to explore the topic in a collaborative and communicative environment.

Make block 5 is a coding platform dedicated to coding education, trusted by 20 million teachers and students. The best coding tool designed to teach STEAM.

Make block 5 is designed for science, technology, engineering, art and mathematics (STEAM). Inspired by Scratch 3.0, it supports graphic and text programming languages. Currently, more than 20 million people use it to learn programming, create their own projects, and share their creations. With Make block 5, you can design interesting stories, games and animations, and program devices such as Makeblock robots and microbits. In Make block 5 you can switch to Python mode with a single click. In addition, Make block 5 combines advanced technologies, including Artificial Intelligence (AI) and Internet resources.

7. Microsoft Make Code (http://makecode.com) is a free, open-source platform for creating fun computer-based learning experiences that support the transition to real-world software.

Microsoft Make Code is the foundation for creating interactive and fun programming experiences for newcomers to the programming world. The platform provides the basis for a customized coding experience to create and run user applications for real hardware or simulated purposes.

The main goal of Make Code is to introduce programming in a convenient and enjoyable way. To do this, Make Code uses a block programming method to allow the user to learn coding concepts more accurately. Once the user is comfortable with the coding elements and structure, they can continue to create more complex applications. The blocks correspond directly to the actual lines of code in the programming language. Thus, once the user is familiar with reliability and how blocks work, they can move on to coding more complex programs in the programming language itself.

Whether at home or in the classroom, Make Code provides engaging experiences for children to learn computer concepts at their own pace through personal meaningful projects.

6. Tinkercad (https://www.tinkercad.com/) is an online collection of software tools from Autodesk that allows beginners to create 3D models. This CAD software is based on Structural Solid Geometry (CSG), which allows users to create complex models by combining simpler objects. As a result, this 3D modeling software is user-friendly and is now enjoyed by many, especially teachers, children, enthusiasts and designers. Plus, it's free.

Tinkercad is a graphics editor designed to create and print three-dimensional models. Tinkercad (Tinkercad Circuit Arduino) is a surprisingly simple and at the same time powerful Arduino emulator, with which you can start learning electronics and robotics. This creates a very comfortable environment for writing your projects. There is no need to buy anything, download - everything is available on the Internet. All you are required to do is register.

This opens a desktop where you can assemble the chains. To the right of the table is the Components panel, where you can get your electronic components.

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