Teaching Methodology of Computer Science in General Education Schools

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Annotation: This article examines the methods and science of informatics and explains the nature of the subject to students. Up to now, informatics is taught as the main subject in the higher education system.

Key words: IT educational programs, modern computers, information technologies, methodological experiences.

INTRODUCTION

Organizational forms of teaching occupy one of the central places in computer science didactics and teaching methodology. Organizational forms of teaching mean the ways of organizing the interaction between the teacher and the student. Organizational forms of education are classified according to a number of criteria: number of students, place of study, etc. Let's consider the classification according to the first criterion. Student activity is part of the interaction between the participants of the educational process. There are also forms that provide for individual activity of students. Other forms, for example, practical training in EHM, require group work. Most organizational forms of teaching are frontal.

TEACHING METHODOLOGY OF COMPUTER AND INFORMATION TECHNOLOGY COURSES IN SECONDARY SCHOOLS

In our republic, the necessary conditions are being created for the young generation to have skills such as planning their activities, finding information necessary to solve the problem, building an informational model of the studied object or process, and using new technologies effectively. .

Modern computer skills are essential for every young generation. Therefore, one of the first and most important tasks of high school Informatics is to form a clear way of thinking in students.

The form and method of teaching should be aimed at developing the thinking and creative abilities of young students. The difficult part of the matter is, on the one hand, to develop the student's thinking and creative abilities, and on the other hand, to give them knowledge about the world of modern computers in an interesting and harmonious way.

The relevance aspects of computer science at the youth level are reflected in the following:

➢ Formation of students' thinking processes during information processing, including logical and abstract thinking.

➢ In order to ensure the use of the computer as an educational tool, to carry out practical work on information with its help, to get acquainted with modern software.

➢ Forming the skills of using a computer, students will have the experience of using it as a tool for calculating, describing, and editing work in the process being studied.

➢ Forms positive attitudes towards computer technology in young people as an effective tool.

➢ It forms the ability of young people to comprehensively study the information and data they receive in various educational courses and to ensure their coherence.

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The computer allows students to better understand the level of creative and abstract thinking, and in turn, to develop it broadly and deeply. It is known that such a harmony of thinking has a great influence on mastering mathematics and other subjects.

The uniqueness of computer science leaves students feeling like a fun game, while also motivating them to discover their creative abilities.

Students become computer scientists and researchers. Based on their experience, they learn to draw conclusions and generalize.

The goals and objectives of teaching computer science and information technology courses

➢ Pedagogical tasks of "informatics" science are determined by its unique contribution to solving the main tasks of a person in general education.

➢ Formation of students' knowledge about informatics and development of their thinking.

➢ Forming a scientific outlook. In solving this important task, the entire pedagogical team participates in the process of teaching all subjects.

➢ Education in the spirit of national ideology.

➢ Preparing students for practical activities, work, continuing education.

None of the above issues should be solved in isolation. They should be implemented as a whole and closely related to each other. It is possible to train students' thinking and create a scientific worldview only on the basis of solid mastery of the basics of informatics. On the other hand, it is possible to achieve a deep understanding of computer science as a science by teaching students to think logically. In addition, in order to achieve the correct solution of the task of preparation for practical activities in the process of teaching informatics, it is necessary to increase the scientificity of the informatics course. Only if they can make correct and deep conclusions, students will be able to approach each problem critically and creatively,

The rapid penetration of computers and computer technologies in schools, as well as other educational institutions, libraries and households forces to revise the previously prepared curricula and educational standards. It is necessary to take appropriate measures to allow inclusion in the possible stages. The comparative study of ICT development in schools proposed by UNESCO also shows that Uzbek schools are in the transition stage between the applied and implemented approaches. The first one is related to schools that have developed a new understanding of the contribution of ICT.

One of the main tasks defined in the strategy of introduction of ICT in general education schools of Uzbekistan is to teach children of primary school age to use ICT. This task is of natural and important importance in the improvement and modernization of all education.

The use of the Internet and mobile communication has become a daily tool. It is important to create conditions for students to meet the needs of modern education and self-education.

It is necessary for teachers to advise what and how to use, to develop children's information skills and to be able to find materials suitable for multifaceted reading in order to be related to the interests and social needs of students.

Studying the computer science course at the school is designed to equip students with the basic skills and skills necessary for the continuous and conscious acquisition of this knowledge, the basics of other subjects organized in the school. The acquisition of knowledge in the field of computer science, as well as the acquisition of relevant knowledge and skills, the general mental development of students, their thinking and It is intended to have a significant impact on the formation of personality traits, such as the development of creative abilities. This means that the school computer science course should not only introduce the basic concepts of computer science, they will certainly develop the mind and enrich the inner world of the child.but also to teach a practically-oriented student to work with a computer and use new information technology tools. Informatics course to guide students to the profession, to

inform students about the various applications of the subjects studied at school using computers and professions related to computer science. need

The study of computer science, in particular, the creation of algorithms and programs, their implementation on the computer, demands mental and voluntary actions from students, concentration of attention, consistency and developed imagination, which should contribute to the development of valuable personality traits. in contrast, it imposes special requirements for accuracy and conciseness of thinking and action, because accuracy of thinking and writing is an integral part of working with a computer.

The educational and developmental goal of teaching informatics at school is to provide each student with the basic knowledge of informatics, including information about the processes of changing, transferring and using information, and on this basis, to teach students the importance of information processes in the formation of a modern scientific picture of the world, as well as the role of information technology in the development of modern technologies.

Understanding of the methodological system of teaching informatics and information technology courses

In the field of teaching-methodical support, the computer science teaching methodology aims to create interesting textbooks and training manuals for students, and methodological developments for teachers.

Educational and methodological support includes educational programs, textbooks, educational and methodological manuals. The main place is allocated to textbooks and training manuals. The rest of the educational and methodological support is closely connected with the main textbook and should serve to explain and develop the ideas in the textbook.

It is possible to include methodical materials and regulatory documents in periodicals, publications of higher and secondary special education and public education ministries.

Electronic educational materials are an important part of educational-methodical support in the current period.

The main goal of the computer science course is to teach the growing generation to think independently with the help of a computer, to develop their imagination and to implement their creative plans in life.

The content of informatics and information technology courses in general secondary schools.

As an example, we will consider the content of the subject "Basics of Informatics and Computing Techniques" intended for grades 5-9.

CLASS 5

(1 hour every two weeks, 17 hours in total, including 1 hour for supervision)

Introduction to computer (16 hours)

Content. Technical safety rules and sanitary-hygiene requirements for the computer room. The main devices of the computer, their functions. Computer management software. Some additional devices, tasks of the computer. Basic keyboard lessons. Mouse skills. Computer as a computing tool. Creating simple pictures on the computer. Familiarity with computer games aimed at developing thinking and deepening the skills of working with computer devices (keyboard, mouse).

CLASS 6

(1 hour every two weeks, 17 hours in total, including 1 hour for supervision)

Document processing technologies (16 hours).

Content: Text editor and its functions. Information processing technologies in the form of text. Basic parameters of documents. Concept of character, word, line, paragraph, text, block and document.

Creation of documents. Editing documents. Work with pictures, shapes and drawings in documents. Tables. Working with tables in documents. Writing formulas in the text. Print the document.

6th grade thematic planning of computer science (0.5 hours per week, 17 hours in total)

CLASS 7

(0.5 hours per week, 17 hours in total)

I.   Information (8 hours)

Content: Information and processes performed with it. Information types and features. About the views of our great compatriots on working with information. Tools related to working with information. About the number system. Units of measurement of the amount of information and the speed of transmission. About computer representation and coding of data

II.   Basics of working on the Internet (8 hours + 1 hour supervision)

III.   Content:: Information technology. Problems of the information world and the Internet. About programs that provide work on the Internet and the capabilities of the program. Functions of Internet Explorer; Methods of obtaining information using the Internet. About information protection and antiviruses.

CLASS 8

(1 hour per week, 34 hours in total)

1.   Modern computers (7 hours)

   Content: Periods of development of computing techniques. Generations of exposure. Personal computer and its main devices. Logical operations and logical elements.

2.   Software (10 hours + 1 hour supervision work)

   Content: Understanding of software and its types. Operating system and its functions. Understanding files and directories. Types and features of external computer memory. Interface and its types.

3.   Spreadsheets (15 hours + 1 hour of supervision)

   Content: Spreadsheet and its functions. Elements of a spreadsheet. Working with formulas. Create charts and graphs. Data sorting. Application of logical elements in electronic table.

9th grade

(2 hours per week, 68 hours in total, 4 hours for supervision)

1.   Algorithm basics (10 hours + 1 hour of supervision)

   Content: Steps of computer problem solving. The model and its views. Algorithm, its properties, description methods, types.

2.   Programming (36 hours + 2 hours of supervision) Content: Programming languages and their tasks. Basic elements of a programming language. Basic operators of programming language. Quantities. Linear, branching and repetitive programs. Form builder and file operators. Partial programs.

3.   Web page (18 hours + 1 hour of supervision)

Content: Understanding HTML and Web browsers. Placing text on a web page. Placing a table and a list on a web page. A hyperlink on a web page. Placing an image on a web page. Scroll through a web page using an image. Communication with other Web pages and content Web pages. Forms on the web page. Interactive web page.

Organizational forms of computer science education

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Organizational forms of education are classified according to a number of criteria: number of students, place of study, etc. Let's consider the classification according to the first criterion.

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In elementary grades, the "Informatics" course is used as an auxiliary tool in the teaching of connecting subjects, that is, computer mathematics, Uzbek and Russian language courses.

In addition, questions related to computer science:

➢ learning the keyboard; getting to know the devices of personal computers; information concept; Algorithm concepts are given, and attention is mainly paid to working with ready-made educational programs.

The purpose of introducing this course in elementary grades is to teach students how to use computers in their work.

Familiarity with computers begins at preschool age, when children play computer games and acquire basic communication skills with EHM. Nowadays, in many schools, propaedeutics of "Informatics" science is starting from primary grades.

It is known that in general education schools of our country, a special subject has been introduced for students to study information technologies, mainly in the 5th-7th grade, that is, at the age of 12-16. In this regard, the Decree of the President of the Republic of Uzbekistan on May 30, 2002 "On further development of computerization and introduction of information and communication technologies" set new tasks for the field of education.

In particular, computerization of education does not consist only of providing the school with the necessary equipment and computers, but first of all, it is intended to increase the work productivity of teachers and students, and the effectiveness of education.

Currently, the importance of finding new psychological-pedagogical approaches to intellectual education is increasing. The development of children's mental activity in the educational process is directly related to the use of various forms and methods of education.

Computerization of school teaching

Computerization of school teaching is being implemented in two directions. Studying the subject of informatics (computer - learning object) and using a computer in learning other educational subjects (computer - educational tool). Undoubtedly, the computer increases the student's motivation to study. Also, the ability to track the presentation of educational tasks according to the level of complexity increases, and an increase in motivation can be achieved by providing incentives for correctly completed tasks.

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