General issues of teaching methods of informatics and ICT in school

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Computer science as a science and as an academic subject

The object of informatics (an object is a part of objective reality to be studied) is that common thing that is characteristic of all numerous varieties of specific information processes (technologies), i.e. the object of informatics is information processes in nature and society and information technology.

The subject of informatics is the general properties and patterns of information processes in nature and society. In a narrower sense, these are general patterns of specific information technologies.

The structure of the subject area of computer science includes 4 sections:

- theoretical informatics,
- means of informatization,
- Information Technology,
- social informatics.

There are 4 sections in the structure of school computer science:

1) Software or mathematical software, which includes software tools for the design and maintenance of information, teaching and control systems of a secondary school.

2) Technical support, which includes the determination of the parameters of the equipment of typical school classrooms of computer technology, the justification of the economically feasible choice of computer tools to support the educational process.

3) Teaching and methodological support includes the development of curricula, teaching aids, textbooks for the school course of computer science, as well as in related subjects using information and communication technologies.

4) Organizational support considers the issues of introducing new information and communication technologies of the educational process, preparing pedagogical software, training and retraining of teaching staff in modern conditions of informatization of education.

Goals and objectives of the school computer science course

• mastering the knowledge that forms the basis of scientific ideas about information, information processes, systems, technologies and models;

• mastering the skills to work with various types of information using a computer and other means of information and communication technologies (ICT);

• development of cognitive interests, intellectual and creative abilities by means of ICT;

• fostering a responsible attitude to information, taking into account the legal and ethical aspects of its dissemination; selective attitude to the information received;

• development of skills in the use of ICT tools in everyday life, in the implementation of individual and collective projects, in educational activities, further development of professions in demand on the labor market.

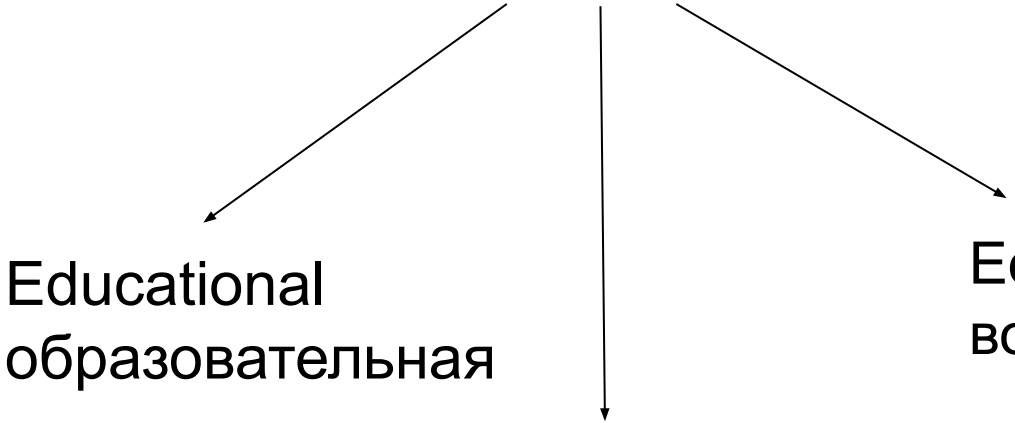
In high school, at a *basic level*, goals are set:

- mastering the system of basic knowledge
- mastering the skills
- development of cognitive interests
- fostering a responsible attitude
- gaining experience in the use of information technology

In high school, at a *profile level*, goals are set:

- mastering and systematization of knowledge
- mastering the skills
- development of algorithmic thinking
- fostering a sense of responsibility for the results of one's work
- gaining experience in project activities, creation, editing, design, saving, transfer of information

Goals



Educational
образовательная

Practical
практическая

Educative
воспитательная

The main objectives of the course then were:

- formation of students' ideas about the basic rules and methods of solving problems on a computer;
- mastering elementary skills to use microcomputers to solve problems;
- familiarization with the role of computers in modern production.

- the concept of an algorithm, its properties, means and methods of description, the concept of a program as a form of representation of an algorithm for a computer;
- the basics of programming in one of the languages;
- practical skills in handling computers;
- the principle of operation and the structure of the computer;
- use and role of computers in production and other areas of human activity.

AC--->CL

communication, programming, device, application.

AC--->CL---->IC---> ?