BASIC FORMS AND METHODS OF IMPLEMENTATION OF INTERSUBJECT COMMUNICATION AND MATHEMATICS TRAINING

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Annotation: In this article, the teaching of technical school students in technical schools consists in the establishment of mutual relations between general education and professional training, in which the most important factor is the connection of educational content with practice, the strengthening of the professional content of general education subjects, and the inclusion of connections between general and professional education in the content, forms and means of teaching. the issue of the main methodological condition of implementation was considered.

Keywords: mathematics, general education subjects, interdisciplinarity, career orientation in teaching subjects.

ОСНОВНЫЕ ФОРМЫ И МЕТОДЫ РЕАЛИЗАЦИИ МЕЖПРЕДМЕТНОЙ СВЯЗИ И ОБУЧЕНИЯ МАТЕМАТИКИ

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Аннотация: В данной статье обучение студентов техникумов в техникумах заключается в установлении взаимоотношений между общим образованием и профессиональной подготовкой, в которой важнейшим фактором является связь содержания образования с практикой, усиление профессионального содержания. рассмотрен вопрос об основных методических условиях реализации общеобразовательных предметов, а также включении связей между общим и профессиональным образованием в содержание, формы и средства обучения.

Ключевые слова: математика, общеобразовательные предметы, междисциплинарность, профориентация в преподавании предметов.

The work of a teacher has always been and will be creative work. At the same time, it is well known that any creativity consists of learning, summarizing and

analyzing experiences, teaching and promoting the best results, because creative achievement cannot be achieved without relying on previous works, without relying on colleagues and friends.

In addition to the duties of school teachers, mathematics teachers at technical schools have several additional tasks. This requires time, great responsibility and effort from the teacher. The main task of technical school teachers is to provide a solid foundation of knowledge in general education subjects that are interconnected with professional training.

It is important not only to separate and select the ones related to mathematics from among the materials of professional science, but also to determine the most effective forms and methodical methods of using them in the process of teaching [2,3].

Pedagogical science and teaching practice offer several didactic ways of interdisciplinary communication. In recent years, they talk about the graphic structures of the level of mastery in science, but as early as 1979, RS Gurevich proposed the following classification [4]. The author distinguishes three levels of interrelated knowledge acquisition:

First level (remembering and understanding). The learner readily assimilates some information offered and can articulate related knowledge in his own language.

The second level (implementation based on the sample). The student will be able to apply the knowledge of interrelationships between academic subjects to solve example-problems based on the given sample.

The third level (synthesized) The student can independently connect the knowledge obtained from various subjects and apply this knowledge to the concepts and problems offered to him.

The didactic method corresponding to the second level of knowledge acquisition is called the instructive (instruction, demanding) method. This method

is used in solving problems, performing laboratory and practical work. For example:

a) in the geometry lesson, it is necessary to require students to follow the rules of technical graphics when drawing drawings (drawing invisible lines with dashed lines, etc.);

b) "Bilateral angle" of the geometry lesson. When passing the topic "Measurement of two-sided angles", students can be told that the angle of sharpness of the cutting tool when processing different metals is selected depending on the hardness of the metal: for a hard metal, this angle is - 70^o, for a metal of medium hardness - 60^o, for a soft metal -40^o. After the students understand the importance of measuring dihedral angles, they are invited to measure the dihedral angles of zubilo (kreitsmeiselp, keskich) with a universal protractor. In this case, it is appropriate to explain the geometric basis of the rules for working with protractor tools.

As you know, measuring a dihedral angle means measuring its linear angle. A linear angle of a two-sided angle is a right angle, the vertex of which is the edge of the two-sided angle, and the sides belong to the sides and are perpendicular to the edge. The size of a dihedral angle does not depend on the choice of the end of its linear angle, therefore, when working with a protractor, the head of a fixed ruler can be placed at an arbitrary point of the edge of a dihedral angle. Then moveable and fixed lines should be placed on the sides of the two-sided angle, perpendicular to its edge.

The didactic method corresponding to the third level of mastering is called by R.S. Gurevich as a guide. This method includes the use of problem questions, assignments and problems in the course of the lesson.

For example, after the teacher shows examples of drawing a straight line perpendicular to the plane, he invites the students to determine which of these problems can be used to circle the side surface of the part and to cut the part perpendicular to its axis. To find the answer to this question, they should

remember that the planes of the side surface and the cutting surface of the part must pass through the corresponding mark (point). Orientation of the side surface and perpendicular cutting of the detail relative to its axis is carried out by pushing the cutter transversely in the required order. Push refers to the path of the tip of the cutting tool in the direction of longitudinal or transverse push movements relative to the part when it rotates once [4,5]. So, the transverse thrust is the path of the cutter perpendicular to the axis of the part. Thus, the cutting plane is a plane perpendicular to a straight line (axis of rotation of the part) through its given point (mark on the surface of the part). The above considerations lead to the fact that the orientation of the side surface of the detail and the cutting of the detail perpendicular to its axis are related to the following geometric problem: "From a given point of the plane, draw a straight line perpendicular to it."

Didactic methods such as information and instruction enrich students' knowledge, skills and abilities. The use of these methods in the teaching process does not cause great difficulty, because the teacher only summarizes the previously known information. The third - the guiding method forces the students to search independently. In this case, they should not only remember previously known information, but also compare and process this knowledge with new ones. Therefore, it is advisable to use not just one of these methods, but all of them.

Orientation of mathematical education to the profession and its impact on the level of professional training of students is one of the ways to improve the teaching of mathematics in technical schools. Methodological requirements and conditions should be revealed to implement vocational orientation of education.

When making a plan for each topic of the educational material, it is advisable to strictly determine the volume and content of the production education material related to this topic, to develop the forms of connections between the production education and the teaching of mathematics. In our opinion, the most effective forms of professionalization of mathematics education using interdisciplinary communication are:

- to solve practical meaningful career-oriented issues;

- explanation of mathematical concepts and laws on the example of production and technical science materials;

- use of production and technical materials known to students to strengthen mathematical concepts;

- use of educational and visual aids (tables, schemes, graphs, various models, layouts, tools, manuals and their electronic samples) in mathematics lessons, which are also used in professional subjects;

- conducting practical laboratory and practical work related to students' professional activities;

- performance of complex tasks related to mathematics production and intersubject relations;

- organizing mathematical and complex excursions to production enterprises;

- organization of lectures and discussions about the use of mathematics in production and life;

- starting mathematics circle activities;

- to reflect the professional orientation of teaching in equipping the mathematics room.

It is not appropriate to artificially select the numerical values of the quantities given in the problems when creating practical meaningful problems, the values of these quantities should be natural, that is, obtained from production activities. Sometimes teachers round these values in order to make calculations easier, which is impossible, because in production all values are measured in millimeters.

Литература:

1.Останов, К., Тураев, У. Я., & Рахимов, Б. Ш. (2020). Об обучении учащихся основным методам решения квадратных неравенств. *European science*, (1 (50)), 57-59.

2. Turaev, U. (2022). Олий таълим муассасаларида математикани ўқитиш жараёнида ахборот технологияларини қўллаш усуллари. *Science and innovation*, *1*(B4), 330-336.

3. Turaev, U. Y. (2018). The problem of teaching mathematics. *УЧЕНЫЙ XXI ВЕКА*, 23.