INTEGRATION TRAINING IN PHYSICS

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Annotation. *The role and significance of interdisciplinary connections between disciplines is discussed naturally - mathematical cycle and the method of their implementation through an integrated training.*

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Currently, in the methods of teaching subjects, it is natural - mathematical cycle has accumulated many problems that require immediate solution. Among them we can highlight a low level of interest students to the subject, dissociation of stages of formation of general concepts among students subjects of the natural and mathematical cycle, insufficient development of thinking students. In relation to rural schools, one more significant problem is that classes are poorly staffed, which leads to inappropriateness, and sometimes to the impossibility of using traditional teaching methods.

One of the main tasks of the school and each teacher in particular is not only equipping the student with certain knowledge in the subjects of the school curriculum, but and the formation of a holistic picture of the world in students. In light of these problems, the role and importance of interdisciplinary connections is increasing disciplines of the natural - mathematical cycle. Establishing interdisciplinary connections in school hysics course contributes to a deeper assimilation of knowledge, the formation scientific worldview, the unity of the material world, the relationship of phenomena in nature, development of logical thinking and creative abilities of students [1,5].

One of the effective ways to implement interdisciplinary connections is integrated learning. The idea of integration has now become a subject intensive theoretical and practical research in connection with ongoing processes

differentiation in teaching. Integration makes it possible to show students the world in in general, overcoming the disciplinary disunity of scientific knowledge. Moreover, integrated learning can be used not only as an interconnection knowledge in various subjects, but also how to integrate various technologies, methods and forms of teaching used in one lesson. A. N. Kolmagorov points out, that integration can be approached from the following positions:

Integration: in appearance it is an interdisciplinary connection, which at the initial stages of inclusion of students in cognitive activity plays the role of stimulating

incentive;

Integration: in form – this is a new technology that allows

- solve the problem of dissociation of objects, which makes it possible to establish connections between concepts and determine their practical orientation;

- exclude repetitions in these academic disciplines;

- deepen the study of the material without additional time expenditure;

-increase the creative potential of students;

-expand the information capacity of the lesson and intensity.

Integration: in terms of level, this is an innovative technology, as it represents represents a high form of embodiment of interdisciplinary communication at a qualitatively new level training.

In connection with the above, the following integration goals can be identified:

- expansion of the subject of knowledge;

- combination of theoretical training with practical training;

- increasing the authority of the theory in the minds of students;

- creating favorable conditions for the development of the child's personality.

When preparing lessons, the following stages can be distinguished:

- diagnostic;

- planning;

- performing;

- lesson analysis.

Experience has shown that the first thing that needs to be done is to carry out diagnostics of the most interesting subjects for students. This will allow you to compose approximate calendar and thematic plan for the near future using those items that are most popular.

Carrying out such diagnostics mandatory, since the development of integrated lessons made up of subjects not popular can only lead to a deterioration in interest students to the subject. Naturally, in this case, there are no positive results are out of the question. The first lessons should be aimed at increasing students' interest in the subject.

While working on calendar-thematic planning, it is necessary determine the number of integrated lessons, their topics and timing. This will allow you to determine the role and place of integrated lessons, and will also help systematically prepare for an integrated lesson. Number of integrated lessons determined from their necessity and sufficiency to achieve the goals educational purposes.

The next task is to identify related topics in the area of science of interest. To do this you must first analyze programs of related subjects, since the logic of formation educational material creates conditions for integration with other subjects.

When performing the performing stage, you can adhere to the following recommendations.

At the stage of updating knowledge, various forms should be used frontal work, which allows not only to update students' knowledge, but also motivate students for learning activities. In the lesson you need to use various forms of educational organization activities. For example, a cooperative – group form of work [2.39 – 69] in combination with a competitive form. Work in heterogeneous groups pushes weak students up to average levels and at the same time stimulates educational progress of average and strong. When working in homogeneous groups, it is necessary use the principle of success. The use of individual forms of

work allows regulate the pace of progress of each student's learning, in accordance with his preparation and opportunities.

When solving problems, students should be given different types of problems. (graphical, experimental, computational, concept development tasks, qualitative tasks), which helps prevent them from getting tired during the lesson, by activating interest. Also when solving problems during the lesson, in order to implement the principles individualization of learning, students should be provided with measured assistance (the idea described by I.I. Kulibaba [3,16]).

Students are offered tasks with the opportunity receiving tips. When solving a problem without asking the student for help it is necessary to determine the direction of searching for a solution to the problem, select the necessary solution algorithm, carry out calculations using the rational method. First the hint aims the student at a specific solution method and contains only the general direction of searching for a solution to the problem, i.e. in this case we can consider manifestation of a partially search level of problem solving.

Next clue contains a solution algorithm and recommendations for converting units of measurement, because with this Students often have problems. The last clue leads the student to reproductive level - a detailed consideration of such a problem is proposed and solving the required problem by analogy. Using this technique allows work in the zone of proximal development of each student.

At the end of the lesson, students should be given a quality problem because it provides an opportunity to check and analyze student understanding corresponding physical concept or phenomenon.

Homework is given on the condition that it arouses interest and encourages independent cognitive activity, and can also be propaedeutic task.

At the last stage, an analysis of the lesson is carried out, at which it is necessary to take into account everything its advantages and disadvantages. The desire to underestimate or conceal shortcomings, as well as exaggerate its positive aspects have a harmful effect on development teacher's pedagogical skill. Without good analysis there can be no development and improving the professional

competence of teachers.

Thus, the use of integrated training allows increasing students' interest in the subject, opens up the opportunity for students to demonstrate only knowledge of physics, but also your erudition, skills and abilities to work independently on related subjects.

Literature

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