

INTEGRATION OF NATURAL SCIENCES IN SCHOOL CHEMISTRY CLASSES

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ABSTRACT

This article is based on the materials used in the framework of the PISA research on interdisciplinary integration, it contains the content of the international PISA study, the main concepts and tasks related to the direction of literacy assessment in natural sciences, their description and solutions.

Keywords: Integration, PISA, well-rounded person, cycle of natural sciences, innovative methods, literacy, leadership, practical skills.

АННОТАЦИЯ

Данная статья основана на материалах, использованных в рамках исследования PISA по междисциплинарной интеграции, содержит содержание международного исследования PISA, основные понятия и задачи, связанные с направлением оценки грамотности в естественных науках, их описание и решения.

Ключевые слова: Интеграция, PISA, всесторонне развитая личность, цикл естественных наук, инновационные методы, грамотность, лидерство, практические навыки.

The main task of teaching at school is the formation of a harmonious personality in the future. In order for students to form a harmonious personality, it is necessary to create the foundations of a holistic approach in the study of the processes taking place in the world around them in the high school course.

Establishing interdisciplinary integration in the school course will help to more fully assimilate knowledge, improve scientific concepts, laws, educational process and form a worldview, understand the relationship between nature and phenomena in society. It has a great spiritual and educational value. In the current conditions, integration takes on a modern new dimension. Its importance comes from the new requirements for school, the social order of society.

Educational renewal requires the use of non-traditional methods and forms of educational organization, including integrated methods. Thanks to this, students have a holistic picture of the world, and this is a very important approach to education. Integration should be considered not only in terms of interdependence in the sciences, but also as the integration of technology, teaching methods and forms. An integrated lesson it is the study of several subjects at the same time when studying a single concept, subject or phenomenon it is considered a special type of lesson that combines. An integrated lesson is a novelty of modern methods, it is one of the ways

to connect school curricula and, in this way, further strengthen the link between knowledge and the real demands of life.

In the educational system, it is impossible to make a meaningful explanation of any topic without establishing contact with the educational materials of various subjects. For chemistry, these are the subjects of the cycle of Natural Sciences: Physics, Geography, Biology, Ecology, life safety, etc. The content of the chemistry course and the integration of materials from other subjects allows the teacher to effectively solve the problems of teaching subjects at school. Integrated classes are considered to be very important and have advantages. Because they are not only those that allow students to form a holistic picture of the world allows you to solve general educational tasks.

The possibility of effective use of various technologies, methods, forms in integrated lessons makes it possible to solve another important problem in the educational system, together with the formation of creative abilities of students, allows them to also carry out their research activities.

PISA is currently considered one of the most basic innovative methods of the world education system, although it looks very complex, but if we analyze it separately, we can see that it is simple and accurate. The program for International Student Assessment is a program that assesses the literacy of 15 - year – olds (reading, mathematics, natural sciences) and the ability to apply their knowledge in practice in various states.

Main destinations of PISA:

- **Reading literacy:** The ability of a person to understand and react to information given in the form of text, to be able to use the information he has studied in the process of active participation in the life of society in the path of his goals, to increase knowledge and capabilities.

- **Mathematical literacy:** The fact that a person knows the place of mathematics in the world in which he lives is checked by the fact that he is able to correctly and fully substantiate mathematical processes. Ensuring that the individual is able to use mathematics to the extent that the creator, the curler and The Thinker can meet the human need for present and future mathematical knowledge is the main goal of this section.

- **Natural-scientific science literacy:** Competence in determining problems that can be solved scientifically in life situations, making conclusions based on observations and experiments. These conclusions are the main goal of this department to understand the world around us and to realize the changes that occur in it as a result of human activity, to be able to develop the skills of being able to make the necessary decisions accordingly.

It is no secret that in order to achieve great success in many branches of Science, the integration of knowledge in various fields of study is required. But how can we prepare students for this, because it is very complicated to see the connection between school classes. It is PISA that helps in solving such problems. In addition to showing that subjects are related to everyday life, it can also show the creativity of students. This approach provides a number of tasks to the student's activities, the student's creativity in solving them learns to manifest. With the help of such tasks, the reader not only comes up with ideas, but also learns to implement them in

his daily life. Thus, the student learns to solve the tasks that he has set for himself and within the framework of his existing possibilities. Thanks to the PISA approach, students understand nature and regularly study the world, thereby studying their interests, the ability to get out of critical situations of thinking, the development of the working capacity and the basics of leadership, self-expression of their approach, in turn, students provides a fundamentally new level of development. The main idea of the PISA approach is that practice is just as important as theoretical knowledge. At the time of study, we need to work not only with the brain, but also with our hands. PISA is not only a learning method, but also a way of thinking. Is a collaborative activity of a teacher and student based on an interdisciplinary integration approach. In the process, the student and the teacher think creatively. That is, it forces the search to find answers to the problems and questions posed, forms collaborative skills, is a man-made object and it is carried out based on events. This educational approach allows students to effectively combine theoretical and practical skills, and oily makes learning in education even easier, encouraging the transformation of their ideas into reality and the creation of final skills. In the entire educational process, it is desirable to integrate natural and Exact Sciences with other disciplines, that is, to teach as a whole. The use of problematic-creative tasks makes it possible not only to determine the role of chemistry in the formation of individual qualities of the sciences, but also to deepen knowledge not only in chemistry, but also in biology, geography, physics and other sciences.

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