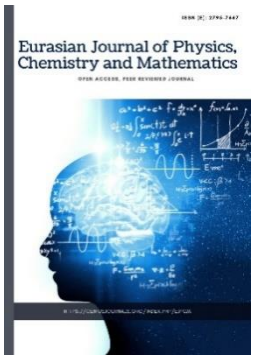

Methodology Of Teachıng Isoprocesses Through Educatıonal Integratıon

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ABSTRACT

The article shows the process and result of achieving the integrity of the educational content through the establishment of integration between disciplines and inter-disciplinary connections, interactions between different educational programs.

Keywords: Gases, gas laws, integration, methodology

With the development of science, the complexity of the material studied in the educational system increases, and the amount of information increases. Current science programs offer students the opportunity to study many concepts that, due to the subject-centrism of our education, sometimes function as separate elements of knowledge. This creates difficulties in forming a holistic view of the world, prevents the organic perception of culture, and becomes one of the reasons for the disintegration of the school graduate's worldview.

This problem is of special importance today in the conditions of the society's demand, the construction of a new educational system is focused on the development goals of education. An integrative approach is one of the educational resources that develop and improve the quality of the educational process at school. The idea of integrated education is one of the conceptual ideas of the modern school [2].

Integration is the process and result of achieving the integrity of the educational content by establishing inter-disciplinary and inter-disciplinary relations, interactions between different educational programs.

Deep changes taking place in world science and technology have affected all spheres of society's life, including the education system. In this regard, the need to improve the physical education system, which is fundamental in the training of personnel solving the problems of scientific and technical development, became evident. Physical science, like other natural sciences, should include a system of knowledge necessary and sufficient to form a scientific picture of the world, and knowledge of certain practical importance. Education should be the real prerequisite for success in life. There is a growing interest in the quality of education all over the world. Countries are joining forces to develop new approaches to assessing and managing the quality of education. The main goal of modern education is to equip students with the knowledge and skills necessary to successfully adapt to a changing world, knowledge that circulates in a constantly developing society. Having knowledge of the school curriculum, but not the ability to apply it

in life, indicates the need to change the content of school programs. Secondary education should minimize the gap between the "content" of life and the content of what we teach. Living and educational knowledge cannot be separated. In this regard, the most relevant questions are: - In general, what motivates you to study? How involved are students in learning? - the extent to which young people are preparing for real life and are able to effectively analyze the happenings, reason, and express their thoughts and ideas. In order to somehow bring our education closer to international standards, to reduce the gap between theory and practice, it is necessary to change and supplement the content of school education. The high school physics standard assumes the mastery of the system of knowledge about gases as basic knowledge about one of the important aggregate states of matter, as well as fundamental historical ideas about the development of chemistry as a science. Students should systematically study material on gases through the integration of physics and chemistry to understand the discreteness of matter [1]. An analysis of middle and high school curricula and textbooks revealed a lack of integration between knowledge of gases and gas laws in physics and chemistry courses and their use as a reference in biology. Many natural phenomena are explained in physical geography on the basis of knowledge about gases. Yes, knowledge of the molecular-kinetic theory is an element of the system of concepts about gases, but students get it only in a physics course, and knowledge of other gas laws and properties of gases in a chemistry course. The inconsistency of the program material in chemistry and physics on the formation of the system of concepts about gases, the lack of specific questions in general or the vague definition of specific concepts significantly worsens the students' theoretical base for the scientific understanding of physiological processes, osmotic processes. pressure and turgor in plants, constitute a quasi-expression of the processes of gas exchange in the lungs or dialysis and the mechanisms of these processes. Therefore, it is appropriate to form a comprehensive system of concepts about gases in order to achieve the following goals: - formation of students' scientific outlook; - implementation of interdisciplinary communication, i.e. build a logical chain of studying gases from the course of chemistry, physics and biology; - understanding the practical importance of knowledge in chemistry; In the field of chemistry teaching methodology, V.N. Verkhovsky, I.N. Borisov, D.M. Kiryushkin, Smirnov and others. They proposed methodological approaches to solving calculation problems in gas chemistry, developed techniques for conducting technical experiments with gases, but at the same time did not solve the problem of formation and development of a system of concepts about gases and gases. gas laws, they did not raise the issue of composition and filling in the chemistry of gases. V.N. Verkhovsky suggests that students learn Boyle-Mariot and Gay-Lussac's laws before organic chemistry, building on their physics coursework. V.N. Verkhovsky considers the mathematical expression of these laws. 1936 in the book of chemistry teaching methodology in high school. V.N. According to Verkhovsky, there is no need to dwell on the Boyle-Marriott and Gay-Lussac laws for a long time, because students are familiar with them from the physics course. It should be noted that all gases obey these laws, and it can be concluded that there are many commonalities in the structure of gases.

D.M. Kiryushkin wrote in his "Methodology of Chemistry Teaching" in 1958 that students do not understand gas laws well enough. For example, students construct Avogadro's law but fail to answer the following questions: Does Avogadro's law hold at all gas pressures? Why does Avogadro's law not apply to liquids? and. and others [9]. Students should distinguish between "real" and "ideal" gases. Then mastering Avogadro's law is not difficult. The concept of gas was formed for the first time in the 8th grade chemistry course in the "Simple substances" section. Avogadro's law in this section is the basis for studying various properties of gases and performing calculations related to them. The chemistry program considers many gaseous substances (oxygen, hydrogen, nitrogen oxides, carbon, ammonia,

etc.), but at the same time it is limited to Avogadro's law and does not allow them to obey specific gas laws. The Molecular Physics section of the 10th grade physics course provides extensive material on gases, gas laws, and related calculations. The program in chemistry does not allow to generalize all the studied material about gases and form an integrated system of concepts about gases, connecting with physics and biology. A limited understanding of the properties of gases and gas laws from a school chemistry course does not provide sufficient conditions for consideration of gases in higher educational institutions of chemistry faculties. It is important to remember and understand that everything that exists on Earth is in a gaseous environment. It is important to distinguish the concepts of ideal and real gases, normal conditions, to be able to explain the life processes related to the gaseous environment and to be able to submit them to the gas laws.

Literature.

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