

**EFFECTIVENESS OF INTERDISCIPLINARY INTEGRATION IN THE TEACHING OF
THERMODYNAMIC PROCESSES**

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Abstract:

This article describes one of the important requirements of modern classes to ensure the interrelationship, integration and continuity of disciplines.

Keywords: thermal conductivity (thermodynamic process), heat machines, heater and refrigerant apparatus, etc. devices.

Introduction

Today, the application of innovative pedagogical and information technologies in the educational process is an urgent task. Therefore, one of the most important tasks in front of us when organizing classes is to pay special attention to the interaction, integration and continuity of subjects. Hence, one of the important requirements of modern classes is to ensure interdisciplinary integration (continuity engagement). In such classes, students in turn ensure that they acquire theoretical aspects of the subjects. As a result, students improve the skills of independent thinking, thorough and conscious mastery of knowledge, develop creative thinking, the ability to work independently. To this end, in this article general secondary education in the Molecular Physics section of school physics, we will consider the integration of bodies with chemistry in the activation of the lesson process using the example of thermal conductivity (thermodynamic process).

The content of thermodynamic processes is an influential factor in the formation of the attitude of students to any natural physical phenomena that occur in everyday life. And the attitude to natural phenomena is the formation of a desire to steadily increase their knowledge and make independent conclusions on the account of a careful approach to the physical phenomena under study.

Indeed, in their daily lives of readers, phrases such as hot, cold, warm, boiling are used and met a lot. For example, modern heat machines, heater and refrigeration apparatus, etc. devices are designed and used on the basis of thermodynamic processes. For example General secondary education in the Department of Molecular Physics of school physics, we give a demonstration experiment in Koi to study the "laws of thermodynamics".

Experiment: put water in a kettle and the water boils. Then, for a certain period of time, the boiling water is re-cooled.

If we want to boil the boiling water again, the boiling process will be carried out more slowly than the ratio to the previous boiling process. Then if we add a certain amount of non - boiling water to the boiling water, the boiling process will proceed gradually. But if table salt - sodium chloride (NaCl) salt is placed in boiling water, the boiling process will accelerate even more.

Teacher: interpret this process?

In this, students will be able to reflect on the understanding of atoms and molecules in physics and chemistry in general secondary education school's lower secondary classes, as well as using the

consistency of teaching physics and the correlation of physics and chemistry in general secondary education school's upper secondary classes:

Reader:

In the infusion of non-boiling water, a certain amount of various mineral substances will be present. When the water boils, such a variety of mineral substances as chalk will crumble to the bottom of the boiling water. If we want to boil the boiling water again, in our opinion, the mineral substances contained in the water necessary for boiling in the boiling process will not be processed, the heat transfer will decrease. Because the concentration of various mineral substances in water (the number of particles per unit volume) decreases. Agar qaynagan suvga natriy xlor (NaCl) tuzini aralashtirsak, suv tarkibi o'zgaradi, suvning konsentratsiyasi o'zgaradi. Natijada issiqlik o'tkazuvchanlik ortadi va suv tez qaynaydi.

Teacher: what factors does the time to dissolve salt in water depend on?

Reader: sodium chloride (NaCl) salt dissolves in water over time. This will largely depend on the temperature. The higher the temperature, the faster the solution will be realized, and as a result, the concentration in the volume of the solution will be the same.

The formation of sodium chloride solution when table salt is dissolved in water is known from the science of chemistry, which can be expressed on the basis of the same reaction as:



This reaction is called electrolysis of sodium chloride solution. Using this method, sodium hydroxide (NaOH) is obtained in industry.

Therefore, methodological, educational, educational and developmental factors of interdisciplinary integration form a holistic system of knowledge and a scientific worldview, helping to implement the developing factors necessary for the development of comprehensive full development, interests, motives, cognitive needs of students. The greatest discoveries have been made at the points at which the sciences converge (interdisciplinary integration). These sciences are known from history. Therefore, it is advisable for the sciences to take advantage of the achievements of each other, boxabar with each other.

It can be concluded that such practical actions carried out contribute to the development of educational and cognitive abilities of students, logical thinking, and this contributes to the growth of their creativity abilities.

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