USING INNOVATIVE METHODS IN TEACHING THE THEME OF DIFFUSION IN VARIOUS MEDIA

R.R. Sultanov, U.M. Isomaddinova
Kokand State University, lecturer

Annotation. *This article presents the use of interactive methods in the teaching of the topic "Diffusion phenomenon in different media" from the 6th grade physics in general secondary schools.*

Keywords: *Interactive method, modern pedagogical technologies, diffusion phenomenon, brainstorming method, research and project method.*

In recent years, a number of works have been carried out in our country to raise the quality of educational processes in schools to a higher level. It is no exaggeration to say that the real goal of reforms in this area is to ensure that young people grow up to be mature individuals in the future and become direct participants in new discoveries and research in the field of science taking place all over the world. The increased interest of young people in a certain science, field, and the desire to learn this science in depth during their school years are of great importance in achieving the above goals.

To increase students' interest in science, it is important how the teacher organizes the lesson processes, that is, the teacher's use of modern pedagogical technologies, innovative computer technologies, and interactive methods. In particular, one of the main directions in the field of improving teaching methods is the widespread introduction of interactive teaching and learning methods.

Interactive method - serves to activate students' knowledge acquisition and develop their personal qualities by increasing the activity between students and the teacher in the educational process. The use of interactive methods helps to increase the effectiveness of the lesson.

As a result of using interactive methods, students' skills in independent thinking, analysis, drawing conclusions, expressing their opinions, defending them with justification, and conducting healthy communication, discussion, and debate are formed and developed.

Below we will consider the use of interactive methods in teaching the topic “Diffusion phenomena in different environments” in physics in general secondary schools.In the organizational part of the lesson, it is effective to divide students into small groups. When dividing into groups, students are shown several pictures with pictures and names of physical phenomena known so far. Each student tells the physical phenomenon he likes. Students who choose similar phenomena are grouped into one group. For example: Students who like the phenomenon of a solar eclipse are

in group 1, and students who like a lunar eclipse are in group 2. In this case, it is also possible to increase the number of groups by increasing the number of phenomena.

This method of grouping helps students to concentrate their thoughts at the beginning of the lesson and, as a result, to increase their interest in the lesson process as they think about physical phenomena.

Through the brainstorming method, the knowledge gained is recalled and thus the students of the class are adapted to the environment.

Brainstorming is a method used in working with groups, which allows you to develop many ideas.

When reviewing the lesson, students are asked a general question: "Tell me, what is Brownian motion?" In this way, questions are asked and the teacher listens to the answers. All students participate in the discussion on the solution to the questions and express their opinions. In this, students' opinions, whatever they may be, are also listened to, without criticism and justification.

Using this method develops students' ability to express their opinions freely and plays an important role in preventing them from relying on one particular idea.

Examples of diffusion in gases include the spread of perfume in a room, the dissolution of sugar in tea and salt in food in liquids, and the partial fusion of different colored metals over many years of contact with each other in solids, and the impermeability of water between the stones of memorial monuments that have been in contact with each other for many years.

Based on all the experiments, students will learn that diffusion occurs faster in gases, slower in liquids, and very slowly in solids.

The rate of diffusion also depends on temperature. As the temperature increases, the diffusion process also accelerates. To explain this to students, we recommend that you conduct the following experiment

a) To carry out the experiment, you will need 2 transparent glass containers, cold water, hot water, a dropper, and colored paints. First, one container is filled with cold water, the other with hot water. Then, 1 drop of color is dropped into both containers.

b) What processes are occurring in the containers is observed. This experiment is carried out, and students draw their own conclusions from the experiment and share their opinions with other students. After listening to all the opinions, the teacher summarizes them.

c) We recommend using the “Research and Project” method to consolidate a new topic.

d) When using this method, students conduct research on a small problematic issue based on their knowledge, individually or together.

e) • pose a problematic question in the lesson that arouses the interest of all students,

f) The teacher can present the following problematic issues or questions to students:

g) Pour hot tea into a cup, add a teaspoon of sugar to it and stir. Gradually add more sugar little by little and watch it dissolve in the tea. After a certain amount of sugar, the sugar will not dissolve. Think about the reason.

h) Do you know any immiscible liquids?

• collect data to study and research it,

• make assumptions and comments about solving a problem or question,

• analyze and prove the correctness of each prediction based on the collected data,

• make a presentation in front of the class.

The assumption made about the solution to the problem is checked based on the evidence found.

At the end of the lesson, students are evaluated based on their activity. The most active and weak students in each group are also evaluated separately. The following assignment is given as homework.

Examples of diffusion phenomena: In gases - , In liquids - , In solids -Of course, in lessons where interactive methods are used, it is necessary to take into account the fact that a lot of time is spent on independent work of students and the situation of students who are less capable than other students. In conclusion, lesson processes where interactive methods are used form the skills of communication between the teacher and the student, the ability of students to express their own opinions and at the same time listen respectfully to the opinions of other classmates, and their upbringing. Regular use of interactive methods causes students to increase their interest in learning science and educational efficiency.

References:

1. O.U.Avlayev, S.N. Jo'rayeva, S.P.Mirzayeva, Teaching Methods Methodological Guide, Navroz Publishing House, Tashkent - 2017

2. Babansky Y.K. "Teaching Methods in a Modern General Educational School".

3. N.Sh.Turdiyev, Physics: a textbook for the 6th grade of general secondary schools, Niso Poligraf, Tashkent-2017.