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USING THE "LOGICAL TANGLE CHAIN" METHOD, COVERING THE TOPIC APPLICATION OF ACCELERATORS IN INDUSTRY AND MEDICINEINCREASE CREATIVITY

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ABSTRACT:This article covers the application of accelerators in industry and medicine, and uses the "logical tangle chain" method in order to increase the creativeness of students. It consists in the fact that with the help of this method, students can determine and correct the logically incorrect expression of the information illuminating the topic of training, correctly placing thoughts in a certain sequence and connecting a disconnected "chain".

Keywords: accelerators, creative, industrial, medical, therapy, intraoperative therapy, chemical processing, cyclotron, positron, waste neutralization, experimental accelerator, antiseptic, diagnostics.

INTRODUCTION

The engine — driving force of the fourth industrial civilization, which is happening in the world today, is creativeness. Innovations create comfort in our daily life, make our weight light, our reach close. In this way, creativity has become an integral part of progress. A book, music, a building, an airplane, even lamps that seemed normal to us today, when they were in dreams and imagination, were later created as the result of common sense. the formation, development of unusual thinking abilities of Students-Students in the educational process is an urgent task. Creativity as a personality-developing category is an integral part of human thinking, spirituality, it is manifested not in the versatility of the knowledge that a person possesses, but in the desire for new ideas, reform and change established stereotypes, in the process of solving life problems, making unexpected and unusual decisions. That is, creativity cannot be achieved through the repetition of the given knowledge, the emergence of a new thought, a new idea in the process of creative thinking is the main condition. For example, taking formulas from

physics by heart, all cancel if the matter cannot be used. Therefore, imagination plays an important role in the process of creative thinking.

Therefore, in the process of classes in the field of education today, the subject is subject to the need to use modern pedagogical technologies in order to instill in the minds of students on a wider scale and in a short period of time.

Research methodology. Skip the lesson on the innovative method of" logical confusing chain".

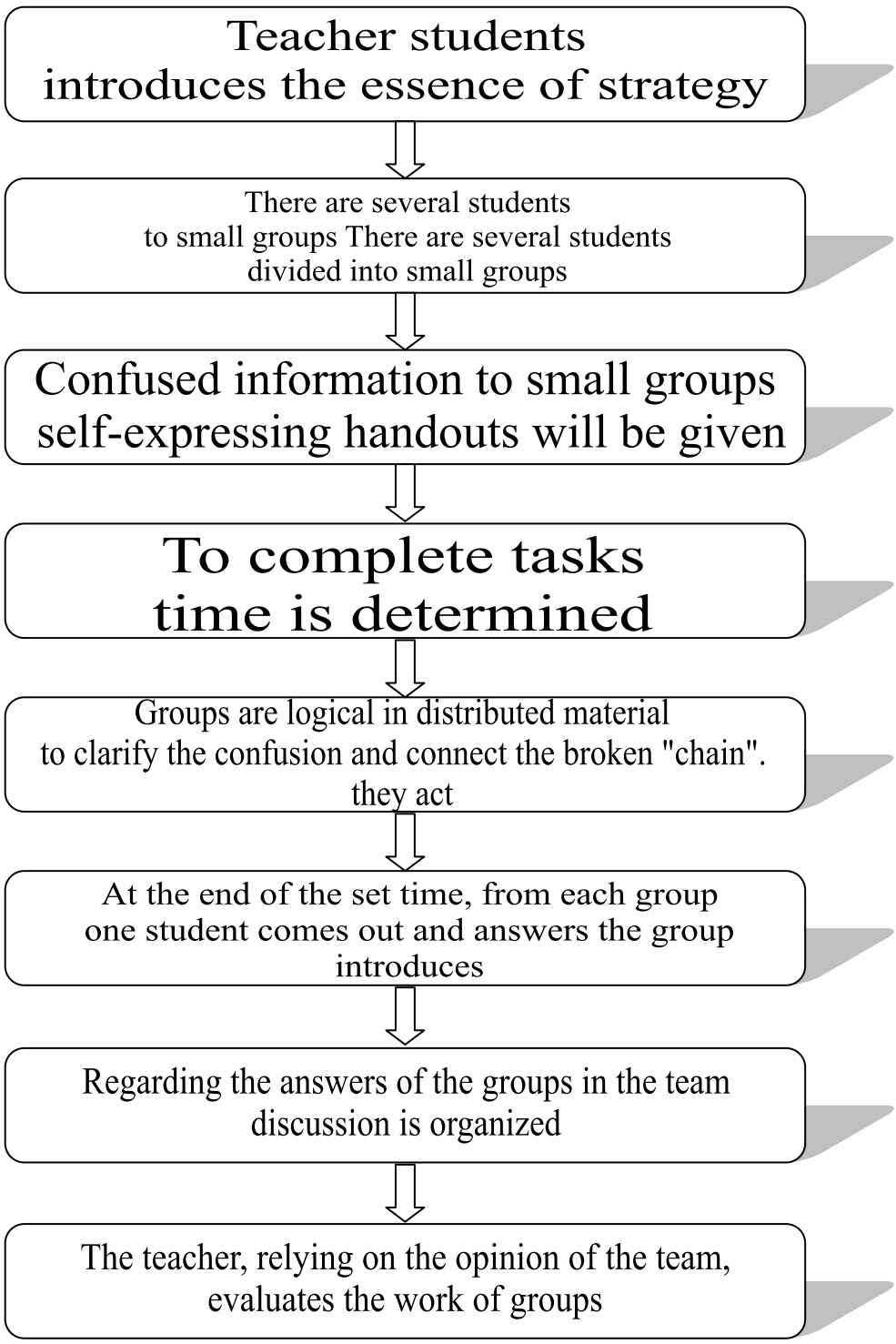
Purpose: to generate understanding and skills in students in the main area of application of accelerators.

Tasks: to determine the attitude of students to the topics discussed; to see the advantages and disadvantages of organizing and conducting classes, to evaluate the result; to form a general idea of the level of acquisition of knowledge relevant to the lesson in students; to develop thinking, imagination, communication skills; to develop the skills of conducting a discussion.

Implementation methodology: this method consists of an educational strategy that helps to create a connection between concepts, expressed thoughts, to correctly express them logically in sequence.

When applying this method, the teacher describes the information covering the topic of the training in the correct as well as in the wrong order in a specific confusion. The task of students is to turn logically incorrectly expressed data into correct evidence, correct the logical confusion that has arisen, correctly place thoughts in a certain sequence and connect the interrupted "chain".

“Scheme of application of the method” logical confusing chain " in practice:



Topic: application of accelerators in industry and medicine

The main areas of application of accelerators:

In medicine: - therapy (primarily oncology cassals).

In sterilization: - disinfection of medical waste, production of antiseptics.

In diagnostics: - is the production of Applied isotopes.

Radiation generated in accelerators: - remote light therapy, intraoperational therapy, mechanical methods are used in the elimination of cancerous tumors on fronts that are weak.

The largest experimental accelerator device in the world is installed near Geneva, on the border of Switzerland and France. It is also not for nothing that this device is called - the Large Hadron Collider.

Sterilization.

Thanks to accelerators, there was an opportunity to carry out the radiation sterilization process several times more efficiently and quickly. Also, with this method, it is possible to carry out large-scale packaged products in conveyor mode, without negative changes in the properties of the material that occur in thermal and chemical processing.

Production of isotopes.

Although cyclotrons (cyclotron - a type of particle accelerator) are not directly involved in medical technologies, but the production of medical isotopes cannot be imagined without their participation. In positron-emission tomography using accelerators – extremely important nonstabil isotopes used in PET (^{18}F, ^{15}O, ^{13}N, ^{11}C) and in one - photon emission computed tomography-isotopes used in BFEKT (^{81}rb, ^{123}I, ^{87}Y, ^{201}TL, ^{111}IN, 67GA) are formed.

Treatment devices such as these need to have radionuclides with a half-life measured in minutes, short and ultrashort. For this reason, it is desirable that such isotopes are located in the immediate vicinity of the application site to the isotope production industry. A number of countries (primarily the United States) are implementing promising programs in this area, namely, the production of the most

widely used radioisotope technetium-99 (99mTc) in large quantities in the world using accelerators.

Currently, the production of technetium-235 (98mtc)in radionuclide generators molybdenum-98 (Mo-99), which is formed from the division of U-98 in nuclear reactors, has been established at the industrial level. Also, the production of technetium-99 using this method is also generated in the vvr-SM reactor located in the FA Department of the Republic of Uzbekistan.

In 1991, an OOO "accelerator" was created on the basis of the cyclotron U-150 II, with the help of which the production and export of high-quality radioisotopes, in particular So-57, was established.

It is worth mentioning that accelerators are widely used not only in medicine, but also in Physical Research and industry. According to the results of the analysis: 44% of the total accelerators are used in cancer therapy, 41%-in the production of microelectronics products using the ion implantation method, 9%-in industrial technologies, 4%-in medical-biological and other studies using a set of low-energy rays.

Scientists of the FA of the Republic of Uzbekistan are conducting many significant experiments on particle accelerators. The institute has created a single radiation processing site of materials and products in our country. On the basis of the electron accelerator" electronics U-003", radiation sterilization of tibbyot equipment and pharmaceutical drugs, radiation processing of polymer tubes, reinforcement of solid alloys, etc.are carried out. The composition of light nuclei was studied using cyclotrons. Also of great importance for the development of Science and technology is the fact that large-scale research has been carried out in the fields of radiation materials science, Radiochemistry, radiobiology and medicine.

The teacher introduces students to a new topic. After the topic is explained, in order to further strengthen the topic, the teacher can work out students in several groups or individually with each student, either individually, when applying the “logical chain of confusion” method.

The course process is organized according to the “logical confusing chain” scheme presented above. For example, small groups were formed. The following handouts were distributed to the groups:

1-group
Therapy, intraoperative therapy, chemical processing, cyclotron, positron, waste disinfection, experimental accelerator, antiseptic, diagnostics, oncology, sterilization, isotopes, radiation, light therapy, Collider, cancer tumor, accelerator, tomography, photon, emmission, radionuclide, radioisotope, generator, reactor, ion, implation, Microelectronics, electrons, pharmaceutical, polymer tubes, nuclear, radiation, Radiochemistry.
Medical information:

2-group
Therapy, intraoperative therapy, chemical processing, cyclotron, positron, waste disinfection, experimental accelerator, antiseptic, diagnostics, oncology, sterilization, isotopes, radiation, light therapy, Collider, cancer tumor, accelerator, tomography, photon, emmission, radionuclide, radioisotope, generator, reactor, ion, implation, Microelectronics, electrons, pharmaceutical, polymer tubes, nuclear, radiation, Radiochemistry.
Information on isotopes

3-group
Therapy, intraoperative therapy, chemical processing, cyclotron, positron, waste disinfection, experimental accelerator, antiseptic, diagnostics, oncology, sterilization, isotopes, radiation, light therapy, Collider, cancer tumor, accelerator, tomography, photon, emmission, radionuclide, radioisotope, generator, reactor, ion, implation, Microelectronics, electrons, pharmaceutical, polymer tubes, nuclear, radiation, Radiochemistry.
Information on sterilization

Research results. Aprobation of the concept of the proposed method of teaching was conducted among students studying at the Department of “Medicine” of Bukhara State

Medical Institute. In this they used educational and methodological instructions and materials prepared by the professors and teachers of the Department.

Summary and recommendations: The creation of such a method forms in students concentration of attention, creative thinking skills, a thirst for knowledge, self-confidence, a new worldview. At the same time, it activates the educational process, makes it possible for students to achieve a high level of assimilation of educational material.

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REFERENCES:

1. D.Ro’ziyeva, M.Usmonboyeva, Z.Xoliqova. Interfaol metodlar: mohiyati va qo’llanilishi. Metodikqo’llanma. Toshkent, 2013. –b.136.

2. O.U. Avlayev, C.N. Jo’rayeva, C.R. Mirzayeva. Ta’limmetodlari. O’quv-uslubiyqo’llanma. Toshkent: -“Navro’z” nashriyoti, 2017 y. –b.210.

3. J.A. Toshxonova, X.M. Maxmudova, B.Nurillayev. Umumiyfizikakursi. Yadrovaelementerzarralarfizikasi. Kvarklar. Toshkent, “Fan” nashriyoti, 2004 y. –b.204.

4. A.P. Chernyaev. "Zamonaviy dunyoda tezlatgichlar". Taqdimot. Moskva davlat universiteti M.V.Lomonosov. 1-38 s.

5. A.P. Chernyaev, S.M. Varzar, P.Yu. Borshchegovskaya, A.V. Belousov. Jahon iqtisodiyotidagi akseleratorlar. Fizika va texnologiya. Moskva-2016, 1-5s.