

Anwendung der THIPS-methode in den klassen über allgemeine astronomie

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Abstrakt. Der Artikel diskutiert die Frage der Notwendigkeit und der Möglichkeit, bei Studenten einer pädagogischen Universität ungewöhnliches Denken zu entwickeln, indem die THIPS-Methodik auf das Wissen der allgemeinen Astronomie angewendet wird. Die Entwicklung des astronomisch-wissenschaftlichen Weltbildes der Studierenden wird durch die Anwendung der THIPS-Methodik im Unterricht des Faches "Allgemeine Astronomie" bestimmt; ihre Bildungs-, Bildungs- und Entwicklungsziele werden gesondert ausgewiesen.

Der Artikel implementiert einen kompetenzbasierten Ansatz, der eine Neuorientierung der Tätigkeit eines Hochschullehrers von der Information zur Organisation voraussetzt: das Management der eigenständigen pädagogischen und kognitiven Aktivitäten der Studierenden in den Vorlesungen.

Schlüsselwörter: THIPS, Querdenken, Allgemeine Astronomie, Schüler, Lehrer, Lernen, Problem, Methode, Motivation, Kreativität, Sonne.

Application of the THIPS method in the classes on general astronomy

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Abstract. The article discusses the issues of the need and the possibility of developing non-standard thinking among students of a pedagogical university by applying the THIPS methodology to the knowledge of general astronomy. The development of the astronomical scientific worldview of students is determined by applying the THIPS methodology in teaching the subject "General Astronomy"; their educational, educational and developmental goals are shown separately.

The article implements a competence-based approach, which presupposes a reorientation of the activities of a higher school teacher from informational to organizational: the management of independent educational and cognitive activities of students at lectures.

Keywords: THIPS, thinking outside the box, general astronomy, student, teacher, learning, problem, method, motivation, creativity, Sun.

In our republic, a regulatory framework has been created for increasing the practical significance of educational ideas in the development of the education system, creating distance education systems, accelerating the strengthening of regulatory, scientific, methodological and material and technical support. In the concept of development of the public education system of the Republic of Uzbekistan until 2030, the priority task is to improve the teaching methods, the phased introduction of the principles of individualization of the educational process [1]. At the same time, it is of particular importance to create guidelines for the effective use of interactive and information technologies in the titles of "General Astronomy".

It has already become a truism to say that many professions quickly become obsolete and become unclaimed. And now, as never before, when progress is rapidly cutting off all the threads that connect us with yesterday, the cornerstone is the question of what to do next. After four years of study at the university, graduates are faced with the problem of finding a job. A common reason for this is a change in priorities in society itself. That which was relevant, important and in demand yesterday, today is already on its way. Students who graduated from the university are in discomfort. This means that everything that they have studied over the course of several years is no longer needed. But they are on the verge of life. It is necessary and extremely important for them to find application for their strengths and skills. If this does not happen, there is a threat to society as a whole, and to a particular person in particular. Occupation, hobby and passion are necessary.

Astronomy is one of the sciences that contributed to the great inventions of our century, the development of modern technology and technology. For the same reason, teaching it should correspond to the status of this discipline, take into account all ideas and opinions aimed at increasing the effectiveness of training, pay sufficient attention to the quality of training of educational personnel, is one of the factors justifying the relevance of the problem of the chosen topic.

The methodology of organizing and conducting classes in astronomy in the system of higher education has been studied in the scientific works of researchers of our republic M. Mamadazimov, B. Sattarova and others.

In the CIS countries B. Vorontsov-Velyaminov, E. Levitan, N. Gomulina, E. Straut and others investigated the issues of improving methods of teaching astronomy, proceeding from its peculiar features.

M. Mamadazimov in his scientific and methodological works highlighted the ideas of astronomy and other natural sciences in the formation of humanity, the development of worldview, humanitarian opportunities for education in the upbringing of positive personality traits of a harmoniously developed person [4, p. 5].

It follows from the analysis that, although scientific research was carried out on the organization and conduct of classes in "General Astronomy" in the higher education system, they were not selected as an object of special research, and made it possible to determine the need to improve the theoretical and practical foundations of methodological support, interactive developments, electronic software in the training of future teaching staff in the field of astronomy.

One of the important tasks that a teacher must set himself is to educate a thinking person, thinking, in the end, creative. This means that the learning process should not only be a transfer of knowledge, but, on the contrary, a search for them, even a kind of prey. It will not work just to give a list of recommended literature for obtaining that very knowledge. Simple transmission of knowledge in astronomy should not be an end in itself, just as the processing of individual knowledge should not prevail. In our opinion, it is important to create a problem, to knock off the rail of standard, stereotypical thinking, to show that what we are accustomed to in our minds is just a prejudiced attitude. There should be no typical tasks. Of course, their solution is a kind of stuffing your hands, gaining experience. Standards are working tools, wrote G. Altshuller. Their effectiveness depends on the ability to use them. But experience is valuable if it is based on independent and non-standard solutions [2, p. 48]. The most adequate methods that allow not only to diversify the teaching process, but also to arouse students' interest in astronomy, so to speak to provoke them, are active methods, which include round tables, debates, brainstorming, the project method, the "Drudla" technique, reception "Compilation of riddles by prizniks. Etc.

Around the middle of the twentieth century, such a direction as the theory of inventive problem solving (THIPS) emerged. G. Altshuller became its founder. the history of both the author and his child is complex and ambiguous. For quite a long time, few people knew about this method. It was used mainly in the field of physics and technical activity. It was there that he gave impressive results. Attempts to apply THIPS in other sciences: biology, psychology, economics, etc. have also been successful. The essence of the THIPS method is to overcome psychological prohibitions caused by the usual ideas about the possible and the impossible. It is important to turn the familiar into the familiar and vice versa. And most importantly, it is necessary to create conditions for a breakthrough (motivation) [3, p. 72].

The problem of motivation is probably one of the most controversial, controversial and therefore difficult. The question of whether it is necessary to motivate a student (that is, a person who presumably deliberately makes a choice of a profession and prefers this particular pedagogical activity) is decided by each teacher for himself personally. This decision comes from his beliefs about the role and tasks of the teacher. It is believed that students are people who have decided in their profession, and therefore do not need additional motivation. They may be motivated solely by their desire to become experts in their field. Along with this approach, there is also the opinion that

it is the teacher's enthusiasm for his subject that can awaken the student's interest in his studies. Suddenly, other facets will be revealed, something that the student did not even suspect before, if only because no one told him about it, there was no way to learn such aspects of this subject.

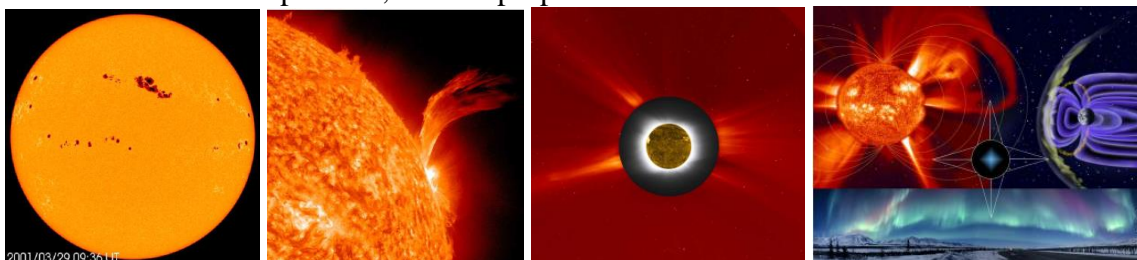
Now let's take an example of organizing a lesson on "General Astronomy" using THIPS technology.

Lesson topic: "The sun is the closest star to us."

Process educational information, relying on the pedagogical support of the lecturer.

I. Call stage.

Task 1. Based on the pictures, make a proposal for the content of the lecture.



Task 2. Think and formulate questions to which you can find answers in the knowledge.

✍ ...

II. The stage of comprehension.

In a joint conversation, students express the following ideas about the importance of studying the sun:

- to analyze the features of other stars;
- understanding of the processes and phenomena occurring in the solar system;
- observation of processes and phenomena that are inaccessible for study in laboratory conditions on Earth;
- studies of energy processes that determine all energy transformations on Earth.

In the process of discussion, they come to the methods of visual observation by means of space and space laboratories, the use of physical methods of theoretical research, followed by the construction of a physical model of the Sun.

Task 3. Reception "Drudla".

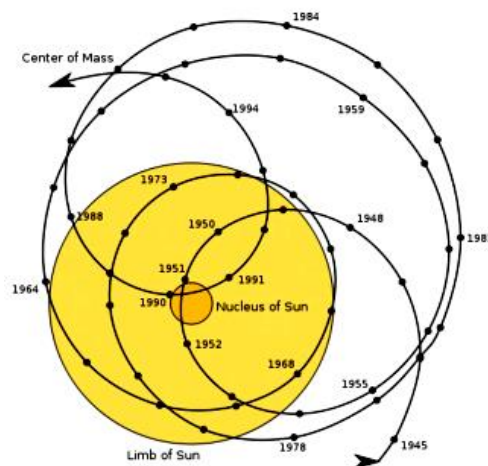
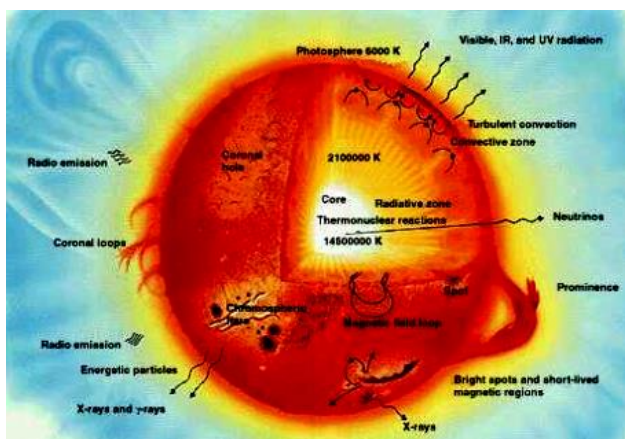
Droodle is a picture-puzzle with many answers.

The name "drudl" comes from two words - "doodle" (scribbles, dashes) and "riddle" (riddle).

Drudles were invented by writer Roger Price in the United States in the 1950s. Drudles are mainly used:

- for the purposeful development of imagination, creativity and the ability to get out of the ordinary perception of the surrounding world;
- in the research and testing of cognitive abilities;
- for a pleasant pastime.

For the drudla, we use the following images of the Sun:



III. Reflection stage.

Task 4. Technique "Composing riddles by signs."

Purpose: to teach how to use the algorithm for composing riddles based on prizes.

Essence: on the board - a model that is filled in as you compose the riddle:

Which?	What is it?
☞ ...	☞ ...

The sequence of composing the riddle:

1. Select an object (for example, the Sun).
2. Fill in the left part of the table, answer the question: "Which one?" (for example: What is the sun? - Dangerous, huge, ...).
3. Fill in the right side of the table: "What is the same?" (for example: fire can be dangerous, the sky can be huge, ...).
4. Insert words - bundles "... but not ...".
5. Read the finished riddle (for example: dangerous, but not fire; huge, but not the sky. What is it?).

When filling out the table, preference is given to more original, unexpected options, it is advisable to name the characteristic features of the object, with the help of the table you can come up with many different riddles.

Application of THIPS methods will allow:

1. Learn to recreate non-stereotypical ideas by overcoming psychological inertia.
2. To develop heuristic, independence in judgments.
3. Quickly find the optimal word, concept for expressing thoughts.
4. Democratization of education (creation of conditions for self-expression by the student's personality, demonstration of their abilities, as well as the manifestation of initiative and creativity).
5. A differentiated approach to education (creating conditions for effective teaching, upbringing and development, taking into account the identified personality characteristics of the student).

Thus, the use of THIPS, aimed not at translating knowledge and intellectual skills, but at conscious word creation, enrichment of vocabulary, tied not to personal experience, but to the comprehension of a word outside oneself, makes it possible to work on the development of non-stereotypical thinking of a future professional. The general educational goal of the development of the astronomical scientific worldview of students through the application of the THIPS methodology in teaching the subject "General Astronomy" is determined, their educational, educational and developmental goals are shown separately.

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