



BIOLOGIYADAN MASALA VA MASHQLARNI YECHISH JARAYONIDA O'QUVCHILARNING BILISH FAOLIYATINI TASHKIL ETISH SHAKLLARI

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Annotation

Insonning bilish faoliyati nihoyatda ko`p qirrali, murakkab va ziddiyatli jarayon bo`lib, bunda tajriba va amaliyotning katta ahamiyati bor. Bilish faoliyatida amaliyot keng ma`noda bo`lib, insonning jamiyatga ta`siri, tabiat hodisalarini o`zgartirishi, yangi narsalar, jamiyatning yashashi uchun zaruriy shart-sharoitlar yaratishi tushuniladi. Kishilarning tabiat qonunlari haqidagi bilimiga asoslangan amaliy faoliyatlari bilish taraqqiyotini, fan va texnika ravnaqini belgilaydi. Biologiya fanidan masala va mashqlarni yechish jarayoni ham ana shunday bilish faoliyati asosida tashkil etilib, o`quvchini muayyan nazariy bilimlarni to`liq egallanganligi masala-mashqlarni to`g`ri yechishiga asos bo`ladi.

Kalit so`zlar: Bilish, idrok, intiutiv bilish, aqliy bilish, hissiy bilish, reproduktiv darajadagi masala-mashqlar, izlanish xarakteridagi masala-mashqlar, tadqiqot xarakteridagi nasala-mashqlar.

FORMS OF ORGANIZING THE COGNITIVE ACTIVITY OF STUDENTS IN THE PROCESS OF SOLVING PROBLEMS AND EXERCISES IN BIOLOGY

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Abstract

Human cognitive activity is an extremely multifaceted, complex and contradictory process in which experience and practice are of great importance. In the activity of



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cognition, practice is understood in a broad sense and means the influence of a person on society, the change in natural phenomena, the creation of new things, the necessary conditions for the existence of society. The practical activity of people, based on knowledge of the laws of nature, determines the development of knowledge, the development of science and technology. On the basis of such cognitive activity, the process of solving problems and exercises in biology is organized, and the basis for the correct solution of problems and exercises is the complete assimilation of certain theoretical knowledge by the student.

Keywords: Knowledge, perception, intuitive knowledge, intellectual knowledge, emotional knowledge, tasks-exercises of the reproductive level, tasks-exercises of an exploratory nature, childbirth-exercises of an exploratory nature.

ФОРМЫ ОРГАНИЗАЦИИ ПОЗНАВАТЕЛЬНОЙ ДЕЯТЕЛЬНОСТИ УЧАЩИХСЯ В ПРОЦЕССЕ РЕШЕНИЯ ЗАДАЧ И УПРАЖНЕНИЙ ПО БИОЛОГИИ

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Аннотация

Познавательная деятельность человека чрезвычайно многогранный, сложный и противоречивый процесс, в котором большое значение имеют опыт и практика. В деятельности познания практика понимается в широком смысле и означает влияние человека на общество, изменение природных явлений, создание новых вещей, необходимых условий существования общества. Практическая деятельность людей, основанная на знании законов природы, определяет развитие знаний, развитие науки и техники. На основе такой познавательной деятельности организуется процесс решения задач и упражнений по биологии, и в основе правильного решения задач и упражнений лежит полное усвоение учащимся определенных теоретических знаний.

Ключевые слова: Знание, восприятие, интуитивное знание, интеллектуальное знание, эмоциональное знание, задачи-упражнения репродуктивного уровня, задачи-упражнения исследовательского характера, роды-упражнения исследовательского характера



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Introduction

Cognition is the process of reflecting the world in the human mind, a type of intellectual and spiritual activity aimed at creating knowledge about nature, society and oneself. And knowledge is the result of the process of cognition of being, confirmed by practice. A special area of philosophy dealing with questions and problems of knowledge is called epistemology (Greek gnosis - knowledge, logos - teaching). Human cognitive activity is a multifaceted, complex and contradictory process that forms the basis of knowledge acquisition.

Material and Methods

European philosophers of the XVII-XVIII centuries. (English philosopher Bacon) believe that human knowledge begins with intuition, the source of knowledge is experience, and the evidence obtained with the help of intuition is processed with the help of human thinking. The activation of cognitive activity should be aimed not only at improving the process of acquiring knowledge, but also at the formation of activity and independence, which are the most important qualities of a person. Forms of knowledge:

1. Everyday knowledge (creation of knowledge through the experience of everyday activities).
2. Scientific knowledge (conducting scientific activities and creating scientific theories).

Knowledge levels:

1. Intuitive knowledge (The highest level of knowledge is intuitive knowledge, knowledge by heart, knowledge by heart. Intuitive knowledge relies on emotional and mental knowledge).
2. Intellectual knowledge (The highest level of knowledge is inherent only to a person and is called intellectual knowledge. At the same time, a person, through his thinking, cognizes the inner essence of things and events).
3. Emotional knowledge (The lower level of knowledge is inherent in all living beings and is called emotional knowledge. Emotional knowledge is knowledge through the senses).

Stages of the Cartesian method of cognition:

1. Nothing is to be taken as truth until it is clearly and vividly presented.
2. Complex questions should be broken down into the required number of parts.
3. Start research from the simplest, gradually moving to the knowledge of complex and complex.





4. To make sure that nothing is missed, it is necessary to dwell on all the details and pay attention to all things. [2., 250 b]

The solution of problems in biology is carried out through the stages of the Cartesian method of cognition. At the same time, students must think systematically in the process of solving problems, i.e., understand that nature, including biological processes, is a self-regulating system, and that certain changes between the components of this system lead to changes in the system itself. to do this, they need to transform their knowledge into beliefs. Systemic thinking is based on the development of students' skills to divide the studied object into parts, to determine its integrity, interdependence and description.

Results

Systematic development of higher educational institutions for the training of pedagogical personnel and improvement of their management, development of modern educational programs with the introduction of advanced foreign experience, raising highly qualified professional personnel to a new level, as well as education in the field of pedagogy, in order to ensure the harmony of science and practice Decree of the President of the Republic of Uzbekistan dated June 21, 2022 "On measures to improve the quality of teacher education and further develop the activities of higher educational institutions that train teachers" No. PQ-289 created opportunities for the creation and implementation of methods aimed at developing students' skills in the educational system of our country independent learning, systematic learning and creative thinking[1.,3b].

Based on this, in order to develop students' systemic thinking, the teacher needs to correctly and effectively use questions designed for students to independently solve on certain topics.

In particular, in order to consolidate knowledge about the characteristics of mountain and forest plants and natural communities of living organisms on the topic "Vegetation cover", it is appropriate to recommend that students solve the following problem.

The old dead trees in the forest have been cut down. After some time, large deciduous trees were eaten by insects, and the forest dried up. Sketch the changes in the forest. Students imagine the connections between the forest natural community and its constituents and realize that changes made to this community may have a scientific justification, otherwise irreparable errors may be made.



Thus, critical thinking embodies analytical, coherent, independent, logical, systemic thinking, between which there are internal and external, specific and relative connections [3., 12b].

In developing students' creative thinking skills, the teacher can use the above-mentioned components of analytical thinking, in particular, independent thinking skills. It should be noted that the formation and development of creative thinking skills among students is impossible without the development of the above-mentioned thinking skills.

Creative thinking skills form the basis of creative experience. Gaining experience in creative activity, students should be able to analyze, compare, divide the studied object into components, synthesize, imagine cause-and-effect relationships, generalize and draw conclusions, which are methods of mental activity. Only then the characteristics that form the basis of the creative activity of students:

- I. Finding new features and functions of familiar objects;
- II. Solve problems independently in familiar situations;
- III. Solving problems by applying knowledge and skills in new unexpected situations;
- IV. He can learn to creatively apply the acquired knowledge and skills in practice.

An important condition for the development of students' skills of independent and creative thinking is to prove and justify their opinion. Therefore, the skills of independent and creative thinking of students are mainly developed through educational discussions and debates.

Discussion

By the level of independence of tasks and exercises:

- At the reproductive level, it is envisaged to consolidate the educational material learned in the lesson by students, to identify and classify objects.
- In research questions and exercises, students independently solve new thematic material by researching it.
- In independent work of a research nature, students are supposed to acquire relevant knowledge, skills and abilities through independent study of educational material, solving problems and exercises.

The three levels of tasks and exercises mentioned above require and complement each other. The successful solution of these tasks and exercises depends on the didactic purpose of the tasks and exercises, the source of knowledge used in the process of their implementation, educational tasks, the clarity of setting instructions for their implementation, the level of mastering the skills of organizing and managing students'





independent work, it also depends on the readiness of students to this activity, the level of their knowledge, the presence of certain interests and needs.

According to the didactic purpose of the tasks and exercises:

- Systematization of previously acquired knowledge by students;
- acquisition of new knowledge and skills using previously acquired knowledge and skills;
- Consolidation of acquired knowledge, skills, practical application;
- Monitoring and evaluation of acquired knowledge and skills;
- Firstly, it is divided into tasks and exercises designed to compare the object under study with the object under study, to identify similarities and differences.

The didactic purpose of the task and exercise determines its content. When creating tasks and exercises, the teacher must take into account the practical, educational and problem-solving skills of students, in addition to determining their explanation, content and state, the mental strength of students, it is necessary to prevent its decay. It is necessary to pay attention to the fact that the cognitive activity of students will not be the same when organizing an independent solution of the above tasks and exercises. Tasks and exercises, like all types of student learning activities, need to be monitored and evaluated. The teacher prepares the ground for student success in solving problems and exercises by his sincere attitude, mutual cooperation, timely help and encouragement.

In the process of learning, the student, under the direct guidance of the teacher, with the help of educational content, methods, means and forms, learns the laws of the organic world, the essence and characteristics of phenomena and events, acquires knowledge, skills and abilities. . It can be seen that the learning process for students is a learning process, and its activity is a learning activity.

In the process of learning, the teacher organizes, directs, controls, evaluates the cognitive activity of students and creates the basis for the comprehensive development of the individual through the implementation of educational, educational and developmental goals.

For the teacher, the educational process is inextricably linked with the activities of students, and it is considered as a work process, a professional pedagogical activity that analyzes this process, generalizes it and, if appropriate, makes changes. Achieving the intended learning goals is possible only with a harmonious organization of the cognitive activity of students and the pedagogical activity of the teacher in the lesson. When organizing the cognitive activity of students, it is necessary to note the need to form the educational process as a whole, in a single system, the integrated formation of knowledge, skills and abilities.





Conclusion

In the process of individual fulfillment of tasks and exercises, the mental activity of students is turned on, confidence in their own knowledge, strengths and capabilities increases, each person develops at the level of his potential. In the cognitive activity organized in this way, time is used rationally, working capacity increases.

In teaching biology, the organization of an individual solution to the cognitive activity of students is mainly used in extracurricular and extracurricular activities. For example, students have the opportunity to approach them in different ways when solving home problems related to the topic being studied. To do this, students can be recommended tasks and exercises of varying complexity.

In the process of learning and training, students must independently solve problems and exercises on the topic studied in the lesson in small groups, organize debates, brainstorming, didactic games, use self-assessment, solve problems and exercises. teacher's attention.

The organization of cognitive activity in small groups includes the following stages:

- Determination of ways to solve problem situations that arise in the lesson;
- Sign with the didactic purpose of the task and management, the tasks to be performed;
- Development of the goal of achieving the goal and success with members of a small group, organizing independent work;
- Comparison of problem solving and exercises with previous problems and exercises;
- Development of solutions to problems and exercises and verification of correctness;

When organizing the cognitive activity of students in small groups, the realization of talent, interest, level of knowledge, level of mastering the knowledge of each student, cooperation between students, educational communication, debates, discussions, mutual support is provided.

Acknowledgement

For the effective organization and rational management of the cognitive activity of students, a biology teacher must perform the following actions:

1. Based on the educational, educational and developmental goals of the subject being studied, determining what questions and exercises to recommend to enhance the cognitive activity of students;
2. Designing the cognitive activity of students in the process of solving problems and exercises;
3. Determination of ways to achieve the goal and criteria for evaluating the solution of problems and exercises;





4. Analysis of the results obtained from the cognitive activity of students in solving problems and exercises, and checking its expediency;
5. In necessary cases, the introduction of appropriate changes in the project of cognitive activity of students.

According to the form of organization of solving problems and exercises:

- Designed for individual work of students;
- Designed for students to work in small groups;
- It is divided into tasks and exercises designed for frontal or closed work of students.

These forms of problem solving and exercises need to complement each other.

Forms of organization of cognitive activity of students in the process of solving problems and exercises

Form of organization	Teacher activity	student activities
Общее решение общественных проблем и упражнения	On the basis of clarity, the purpose, explanation and condition of tasks and exercises are explained, ready-made answers or templates are given, subject-object relations are established	Listens and remembers the purpose of tasks and exercises, ready-made answers or templates are used to solve problems and exercises, activity is slowed down.
Solving individual problems and exercises	Prepares and recommends tasks and exercises for each student. He works with students to solve problems and exercises. Subject-subject relations are established.	They solve problems and exercises related to them, their confidence in their knowledge, strengths and talents increases, they experience the joy of learning.
Solving problems and exercises in small groups	Prepares and recommends appropriate tasks and exercises for each small group. He works with students to solve problems and exercises. Subject-subject relations are established	Performs the solution of tasks and exercises, creates mutual cooperation, mutual control, experiences the joy of learning.

Thus, in the process of solving problems and exercises, it consists of the stages of organizing and managing the cognitive activity of students, organizing this activity according to the goal, designing it, determining ways to achieve the goal, analyzing the result, and monitoring. and evaluation.





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