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THE IMPORTANCE OF INTERACTIVE METHODS USED IN BIOLOGY LESSONS

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ANNOTATION: This article provides detailed information on the significance, advantages, and disadvantages of using interactive methods in teaching biology, as well as the importance of interdisciplinary teaching approaches. Currently, it is essential to equip the younger generation with skills and knowledge through interactive methods and to be capable of conveying these concepts to school students in accessible ways.
Keywords: Interactive, role-playing games, problem-based learning, didactic games, digital technologies, virtual stands, excursions.

It is well-known that numerous methods exist in the field of general education, each applied in various lesson types, all aiming to facilitate students' learning. The noteworthy aspect of these methods is their contribution to modern education. This model emphasizes the continuous creative interaction between teacher and student, including regular homework assignments. Therefore, the structure of the lesson comprises specific methods and techniques that are elements of the interactive teaching model. These ensure that the lesson is more engaging, meaningful, and spiritually enriching. Utilizing active methods in teaching biology revitalizes the learning process, fostering students' independent thinking and practical skills. Below are some of the main active methods effectively used in biology lessons:

*Role-playing games: These activities allow students to simulate real-life biological scenarios, enhancing their understanding and retention of complex concepts.

*Problem-based learning: Encourages students to develop critical thinking and problem-solving skills by tackling real-world biological issues.

*Didactic games: Incorporating educational games into lessons increases study engagement and motivation, mak..a learning more enjoyable.

*Digital technologies and virtual stands: Utilizing digital tools and virtual simulations provides interactive and immersive learning experiences, aiding in the comprehension of abstract biological processes.

Excursions: Organizing field trips to natural habitats or scientific institutions offers students hands-on experiences, connecting theoretical knowledge with real-world applications.

Implementing these interactive methods in biology education not only enhances students' academic performance but also prepares them for real-life challenges by developing essential skills such as collaboration, communication, and critical thinking. The integration of interactive teaching methods in biology education significantly enhances student engagement, comprehension, and retention. These methods transform traditional classrooms into dynamic learning environments, fostering critical thinking and practical skills essential for scientific inquiry.

1. Active Student Engagement Interactive methods such as group discussions, role-playing, and problem-solving tasks actively involve students in the learning process. This participatory approach encourages students to express their ideas freely and develop collaborative skills. Research indicates that such engagement leads to improved academic performance and a deeper understanding of biological concepts.

2. Problem-Based Learning Presenting students with real-world biological problems stimulates critical thinking and analytical skills. By working through these challenges, students enhance their understanding and ability to apply knowledge practically. This method has been shown to improve long-term retention of information .
3. Hands-On Practical Sessions Laboratory experiments and field observations allow students to apply theoretical knowledge in practical settings. Engaging in hands-on activities reinforces learning and fosters scientific inquiry skills. Studies have demonstrated that practical sessions significantly boost students' comprehension and interest in biology.
4. Educational Games Incorporating didactic games into biology lessons increases student motivation and engagement. Games provide a fun and interactive way to reinforce learning objectives, making complex topics more accessible. Gamification strategies have been effective in enhancing problem-solving abilities and fostering a positive learning environment.
5. Digital Technologies Utilizing digital tools such as multimedia presentations, virtual labs, and online platforms enriches the learning experience. These technologies offer visual and interactive content that aids in the comprehension of intricate biological processes. Interactive simulations, for instance, have been linked to improved student outcomes in biology education.
6. Interdisciplinary Integration Connecting biology with other disciplines like chemistry, physics, and information technology provides a holistic understanding of scientific concepts. This interdisciplinary approach promotes critical thinking and the ability to apply knowledge across various contexts .
In order for students to understand and master the importance of modern technologies in organizing the labor process, it is important to use advanced and modern teaching methods and apply new information and pedagogical technologies. Textbooks, educational and methodological manuals, lecture texts, handouts, electronic materials, virtual stands, as well as production samples and models of machines in working condition are used to master the information. The use of modern teaching methods, pedagogical and information and communication technologies in the lesson process, including: in lecture lessons related to the subject, presentation and electronic-didactic technologies using modern computer technologies, pedagogical technologies such as blitz-survey, insert technique, group work, "B.B.B.", competition, "Venn", problem lesson, "Brainstorming"; in practical lessons on the subject, the use of pedagogical technologies such as oral presentation, "Attack of Ideas", conversation-discussion, "Fish Skeleton", "B.B.B.", "Role Playing", problem lesson, work in small groups and teams is envisaged.
Traditional educational technology is a specific period of time, the educational process is more focused on the teacher, and the goal of education is achieved using traditional forms, methods and a set of educational tools. Non-traditional educational technology is a specific period of time, the focus of the educational process is the student, and the modern form of teaching, active teaching methods and a set of modern didactic tools are directed towards achieving the intended goal and guaranteed result of educational work. Non-traditional educational technology, unlike traditional educational technology, creates conditions for the development of students' cognitive abilities, special attention is paid to their independent work, cognitive activities have a exploratory and creative nature. The structure of the lesson is variable. Non-traditional educational technology, in turn, is divided into three:
1. Collaborative learning
2. Modeling
3. Research (Project)
Collaborative learning is a form of teaching and learning that provides students with reproductive activity in the acquisition, assimilation, and consolidation of knowledge, and is based on the organization of the sequential application of skills and competencies under the direct leadership of

the student. It consists of methods that provide for students to learn through independent work in groups. These include methods such as working with a book, educational discussions, round tables, brainstorming, working in small groups, and discussions.

Modeling is the creation of a condensed and simplified representation of phenomena and processes occurring in real life and society in the classroom and the personal participation of students in them and the acquisition of knowledge through activity. Its main goal is to increase the effectiveness of the educational process by ensuring that students do not just listen, but also participate directly in the acquisition of knowledge. These include methods such as work-based games and role-playing games.

Active methods used in biology

Cluster method Through this method, students write down concepts related to a given topic in a branched manner and understand the connections between them. For example, in the topic "Cell", the connections between parts such as the nucleus, cytoplasm, mitochondria are explained.

"Brainstorming" This method is used to solve problems related to biology together. For example: "What could be the biological consequences of global warming?" Ideas are collected and discussed around questions such as "What could be the biological consequences of global warming?".

Role-playing (imitation and dramatization) Biological processes, the life of organisms or the activities of cell organelles are demonstrated by students in the form of a role-playing game. This helps them develop a vivid imagination and practical knowledge.

"Insert" technology During the lesson, students are given a text of information and they mark what they know, what they have learned, and what they do not understand. This method allows for analysis and in-depth study of the text.

Working with graphs and diagrams Analyzing biological processes through diagrams, tables, and charts visually shapes students' thinking. For example, the functioning of the heart or the circulatory system.

Today, modern technologies play a significant role in interactive teaching of biology lessons. For example, through platforms such as Biology Interactive Simulations, Google Classroom, Khan Academy, students can learn independently. As a result of using interactive methods in biology lessons, the following main results can be achieved: Students' interest in science increases.

* Thanks to interactive lessons, students learn biology with love and their interest in natural phenomena increases. Practical skills are formed.

* Through laboratory exercises, experiments and field studies, students learn biological research methods. Analytical and critical thinking is developed.

* Students have the opportunity to analyze, draw conclusions and apply the knowledge they have gained to real life. A creative approach is formed.

*Students demonstrate their creativity through project work, creating biological models, and putting forward innovative ideas. Teamwork skills increase

*Students develop communication skills through working in groups, solving problems, and conducting experiments. The strength of their subject knowledge increases.

*Students begin to not only memorize, but also deeply understand and analyze topics. Technological literacy increases.

As a result of using virtual laboratories and online resources, students acquire skills in using modern technologies.

Conclusion

The use of interactive methods in teaching biology in modern educational conditions allows us to achieve the following important results:

•The level of students' mastery increases and they understand the subject more deeply.

•Interest in scientific and experimental activities increases, independent research skills are formed.

•Skills for effective use of technology are developed, and the opportunity to use information technologies expands.
•Students' ability to work in a team and clearly express their thoughts increases.
Interest in biology increases, which has a positive impact on students' future professional directions. Through interactive methods, biology is formed not only as a subject that provides theoretical knowledge, but also as an important subject that is focused on practice and develops vital knowledge and skills. Teachers should use modern pedagogical technologies to improve the quality of education and educate students as independent thinkers, creative and active individuals. Therefore, the widespread use of interactive methods in biology not only revitalizes the educational process, but also makes a significant contribution to the formation of the scientific worldview of the future generation.
The use of active methods in teaching biology not only increases students' interest in science, but also prepares them for practice. Modern approaches allow us to teach biology as a living science. Therefore, it is important for every biology teacher to give active methods a wide place in their lessons and use them effectively. This will improve the quality of education and help students gain in-depth knowledge of the subject.

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