

FORMATION OF COGNITIVE ABILITIES IN STUDENTS THROUGH INTEGRATED INTELLECTUAL GAMES IN LESSONS

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Abstract: This article provides information on the integration of interactive methods in teaching biology in general education schools by linking it with physics and implementing intellectual games to develop students' intellectual and cognitive abilities.

Keywords: interdisciplinary integration, intellectual-cognitive abilities, interactive methods, Froggy Jumps game, teamwork, communication skills, motivation.

Introduction: Uzbekistan's achievements in the field of science and its rising position in global rankings evoke both pride and a sense of responsibility. In recent years, our country has placed great emphasis on developing the science and education system, which has gained global recognition.

The ongoing comprehensive reforms in Uzbekistan, the strengthening spirit of progress and development, and recognition by international experts are of great importance for the country's future.

Modern education methods, scientific research, innovative technologies, and scientific developments are playing a key role in the advancement of science and technology. Initiatives aimed at enhancing Uzbekistan's scientific potential, particularly those focusing on attracting young people to the field of science and developing their abilities, contribute to the country's competitiveness on a global scale.

Objective. The goal is to develop interactive teaching strategies and mechanisms, as well as apply new approaches and innovative pedagogical methods in biology education, making the learning process more effective and engaging. The development of information technology, distance learning, and online resources creates opportunities to enrich the learning process. This, in turn, helps establish interactive and integrated education systems. In natural sciences such as biology, enhancing the quality of education through practical experience, laboratory work, collaboration, and the use of advanced technologies is essential.

From a pedagogical and psychological perspective, engaging students' interest, deepening their knowledge, and ensuring the retention of information are crucial. The application of interactive and technology-based teaching methods in biology education allows students to explore modern scientific directions and can significantly impact their future professional engagement.

Materials and methods. Developing an information-rich educational environment is a key aspect of addressing pedagogical and psychological challenges, as it helps enhance students' independent thinking, analytical skills, and cognitive abilities. This, in turn, stimulates the advancement of new biological disciplines.

Comenius emphasized the systematic organization of the educational process and the interrelation of all sciences. In his work "The Great Didactic," he argued for an interdisciplinary approach to support students' intellectual development. Comenius stressed the importance of logically connecting all knowledge to make learning more comprehensible and systematic for students.

Discussion of results. The use of interactive methods through intellectual games in integrated biology lessons effectively increases student engagement and facilitates interactive and productive learning. Integrating biology with physics not only provides students with theoretical knowledge but also

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introduces practical skills. Intellectual games make biology lessons more engaging and efficient, thereby fostering students' cognitive development.

The benefits of interactive methods in biology lessons through intellectual games include:

Increasing interest: Intellectual games serve as an effective tool for presenting complex biological concepts and processes in a more accessible and engaging manner.

Developing cognitive abilities: Games help students improve their analytical thinking and logical reasoning by understanding biological processes and their interconnections.

Problem-solving skills: Through games, students acquire the ability to solve various challenges within the field of biology.

Creativity and innovation: Encouraging students to develop new approaches and solutions for biological problems enhances their creativity and innovative thinking.

Enhancing teamwork and communication skills: Interactive methods, particularly team-based games, foster students' ability to work collaboratively. Intellectual games in biology encourage students to exchange ideas, integrate experiences, and knowledge, thus strengthening their social and communicative skills.

Reinforcing practical knowledge: Many topics in biology require students to acquire practical skills. Games can effectively demonstrate and explain concepts such as plant and animal studies, ecosystem analysis, and environmental processes. These activities help students better understand biological phenomena and apply their knowledge in real life.

Motivation and self-assessment: Intellectual games actively engage students in the learning process, allowing them to assess their progress and track their achievements. This builds their confidence and motivates them to study more effectively.

The "Froggy Jumps" game is an excellent interactive tool for increasing student engagement in biology lessons. Through this game, students reinforce their knowledge in an entertaining and active way. By controlling the frog character, they answer biological questions and navigate through lily pads. The game provides the following benefits:

1. **Fun and interactive approach:** By controlling the frog character, students actively participate in the game, making the lesson dynamic and interesting. The visually appealing elements of the game enhance students' interest in learning materials.
2. **Reinforcing knowledge:** Answering biological questions within the game framework helps students review and retain previously learned concepts.
3. **Developing cognitive abilities:** The game fosters logical thinking and analytical skills, requiring students to understand biological processes and solve problems.
4. **Motivation and competition:** The game's levels encourage a competitive spirit, motivating students to progress and learn more.
5. **Enhancing teamwork and communication:** If played in groups, the game encourages students to share their thoughts, work together on answers, and explain concepts to each other, promoting teamwork and communication skills.

Game design and application:

- **Start:** The game begins with a visually appealing representation of lily pads, connecting students to the biological world.
- **Questions and tasks:** The frog moves across lily pads by answering biology-related questions, covering key topics in the subject.

THE MULTIDISCIPLINARY JOURNAL OF SCIENCE AND TECHNOLOGY

VOLUME-5, ISSUE-2

- **Navigation:** Correct answers allow the frog to advance to the next lily pad, maintaining student motivation and enthusiasm for learning.

Conclusion: The "Froggy Jumps" game enhances students' interest in biology, reinforces knowledge in a fun and interactive way, and effectively develops cognitive and communication skills.

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