

## IMPROVING THE ORGANIZATION OF A MODERN CHEMISTRY LESSON IN HIGH SCHOOL USING GAMING TECHNOLOGIES

**Kairatkyzy Nurbakyt**

Master's student, Al-Farabi Kazakh National University, Kazakhstan, Almaty

**Abisheva Aigul**

научный руководитель, Scientific supervisor, PhD, Associate Professor, Al-Farabi Kazakh National University, Kazakhstan, Almaty

## СОВЕРШЕНСТВОВАНИЕ ОРГАНИЗАЦИИ СОВРЕМЕННОГО УРОКА ХИМИИ В СРЕДНЕЙ ШКОЛЕ С ИСПОЛЬЗОВАНИЕМ ИГРОВЫХ ТЕХНОЛОГИЙ

**Қайратқызы Нұрбақыт**

магистрант, Казахский Национальный Университет имени Аль-Фараби, Казахстан, г. Алматы

**Абишева Айгул Кадирбекқызы**

научный руководитель, канд. хим. наук, доцент, Казахский Национальный Университет имени Аль-Фараби, Казахстан, г. Алматы

**Abstract.** This article explores the effectiveness of incorporating modern game-based technologies into chemistry lessons in secondary schools. Game elements introduced into the educational process enhance students' interest in the subject, increase engagement, and develop both creative and critical thinking skills. The author describes several types of educational games and provides practical examples of their implementation during chemistry lessons.

**Keywords:** game-based learning, chemistry education, teaching methods, student motivation, active learning, modern pedagogy.

**Introduction.** Chemistry is a complex science that requires both theoretical knowledge and practical skills. In the current educational environment, increasing students' interest and motivation toward chemistry is one of the key challenges. Among modern pedagogical approaches, game-based learning plays a significant role, as it stimulates cognitive activity and facilitates easier comprehension of abstract concepts. This study examines the role of game elements in improving the quality and engagement of chemistry lessons in secondary education.

**Research Purpose and Objectives**

**Purpose:**

To investigate how game-based teaching strategies can enhance the effectiveness of chemistry lessons.

#### Objectives:

- To analyze the types of game-based technologies used in education;
- To identify specific approaches for applying them in chemistry lessons;
- To assess the outcomes of using educational games through real classroom practice.

#### Theoretical Background of Game-Based Learning

In pedagogical science, games are recognized as effective tools that increase students' motivation and facilitate the assimilation of educational material. During games, students experience reduced stress and increased freedom of expression. This fosters higher participation and encourages open communication. These factors are particularly important for complex subjects such as chemistry.

#### Examples of Game-Based Techniques in Chemistry Lessons

##### 1. «The Longest Word» game (grade 7)

Objective: to introduce a new topic in a fun and engaging way. Students are given a set of letters and must form the longest chemical substance name possible. This helps develop logical and linguistic skills.

##### 2. «Synonyms» game (grade 8)

Objective: to memorize the trivial (common) names of chemical substances. The teacher shows cards with scientific names, and students respond with their simpler equivalents. This boosts memory retention and recall.

##### 3. «Who wants to be a millionaire?» game (grade 11)

Objective: to review and assess knowledge through competitive quiz-based questions modeled after standardized test formats (e.g., national exams). Students answer increasingly difficult questions for points, simulating a game show environment.

#### Results and Discussion

- The use of game-based methods led to the following outcomes;
- Increased student interest and motivation toward chemistry;
- Easier understanding and retention of complex topics;
- Development of teamwork, discussion, and communication skills;
- Integration of theoretical knowledge with practical competencies;

Student feedback indicated a noticeable improvement in engagement, subject comprehension, and classroom dynamics. Game elements turned the learning process into an interactive and enjoyable experience.

**Conclusion.** Game-based learning technologies are effective tools that significantly enhance the quality of chemistry education in secondary schools. By increasing engagement and stimulating cognitive and creative processes, these methods contribute to deeper learning outcomes. This approach also supports the modernization of the educational process by aligning with the needs of contemporary learners. The study demonstrates that game-based methods can be a powerful addition to traditional teaching strategies, especially in science education.

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