



COMMENTS ON THE USE OF DIDACTIC GAMES IN CHEMISTRY LESSONS

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Article history:	Abstract:
Received: 11 th February 2023 Accepted: 11 th March 2023 Published: 17 th April 2023	The article presents information about the use of interactively didactic games in teaching chemistry, the impact of didactic games on the effectiveness of the lesson, and also that didactic games can be used at different stages of the chemistry teaching process based on their description. Examples of didactic games, for example, information about such games as the game "Find the mistake", the game "Fill in the square", the game "Find the mistake", the game "Paint the square", are given in the summary questions. The use of didactic games in chemistry lessons facilitates the study of the subject, makes it interesting and meaningful, ultimately leads to better assimilation of the material, contributes to the formation and development of interest in chemistry.

Keywords: didactic game, relay race, scheme, genetics, business, marathon, component, acid, genetic connection.

It is known that today the attention to increase the effectiveness of education by using modern technologies-interactive methods in the educational process is increasing day by day. Until now, in traditional education, students were taught only to acquire ready-made knowledge. Such a traditional method extinguished independent thinking, creative research, and initiative in students.

Appropriate use of modern computer technologies in the educational process is based on certain laws. New pedagogic technologies "National Personnel Training Program" have made great strides in the field of education. This imposes on each pedagogue the following basic requirements - the ability to teach, educate and objectively evaluate the knowledge of the learner, as well as to develop control skills. The teacher of the new century should fulfill the above and have the qualities of forming new views on the educational process [1,2].

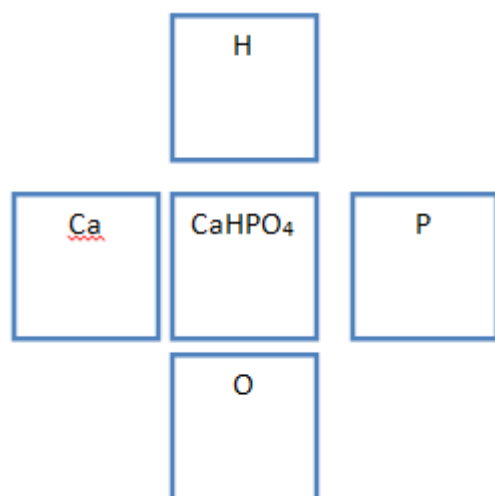
Achieving great success in education can be done only by being able to arouse interest in one's subject [3]. As one of the reasons for the loss of interest among students, it is shown that some traditional teaching methods are ineffective. Therefore, we aimed to consider some aspects of using didactic games in chemistry classes.

Based on their description, didactic games can be used at various stages of the chemistry teaching process. The chemical relay game is of great importance in learning a new material. A diagram of the changes is shown on the screen or on the board. For example, in the study of the genetic connection

between inorganic compounds, students are given a tabular task:

Me	A basic oxide	Basis	Salt	Acid	Acid oxide	Non- metallic
Ca →	CaO →	Ca(OH) ₂ →	CaCO ₃	←H ₂ CO ₃	←CO ₂	←C

Using the table, construct the genetic series of calcium and carbon and describe the chemical reactions in equations. The game is played on the principle of relay. In the formation of skills, for example, the game of chemical steps can be used. Students are presented with an empty square, in the center of which a chemical element is written. The entire square is filled by writing the symbols of the elements from the left, right, top and bottom to the symbol of the element in the center of the square (can be combined with an index).



In this case, a new formula should come out as a result of the correspondence. The more chemical elements are included in the substance, the higher the value of this formula. As an example of returning and strengthening knowledge, we give a game on the classification of inorganic compounds. The purpose of the game is to strengthen the skills of recognizing and classifying inorganic substances. To play the game, students prepare colored cards: a red card is an acid, a blue card is a base, a yellow card is an oxide, and a green card is salt.



Acid basis oxide salt

The leader says the name of the substance, and the students hold up a card of the corresponding color.

As an example of summarizing questions, we will consider a court game over chemical compounds of non-metallic elements. Its purpose is to summarize and systematize specific materials about nonmetals. The lesson is conducted as a role-playing game, which requires advance preparation and separates the roles (arbitration court, defense, prosecution and secretary). Students prepare their speech in consultation with the teacher. During the game, the case of sulfur (IV) oxide, nitrogen (IV) oxide is considered, and the connection of oxygen and ozone to it is checked. The issue will be considered from all sides, that is, from chemical, ecological, economic and medical points of view. All students are maximally involved in the work process. Any game is an activity aimed at teaching a person a certain skill.

And the game in the teaching process is a model of collective search for the optimal solution to

the given task in the objective conditions of mutual personal enmity and opposition. In most cases, business games are also used in the teaching process, their purpose is to implement effective cooperation of theoretical knowledge with practical application. There is no clear definition of a business game, because such games can be used in many fields. But its common feature is that in order to find the necessary solution, students will have an imitation of professional teaching.

The components of the didactic game and the activities of each component can be shown in the table.

1. Symbols of chemical elements are written in the cells of the playing field, some of them are missing.

Al ? Na

? Zn Ca

K Sr ?

answer:

1. In the upper and lower rows, the number of electrons in the external energy level of element atoms changes regularly;

2. in the middle row - signs of elements of group II;

3. The symbols of elements that form amphoteric oxides and hydroxides are written diagonally from left to right.

Al Mg Na

Ba Zn Ca

K Sr Ga

2. Along the parameter of the square there are only the elements of the main subgroups and only the symbols of the metals; Continue the row.

Several terms of the series are given. It is necessary to determine the alternating appearance of objects and continue the sequence:

a) Li, Al, As, ...

b) F⁻, : , Na⁺, S²⁻, Ar, :

Answer options:

a) Li, Al, As, Ts

b) F⁻, Ne, Na⁺, S²⁻, Ar, As²⁻, Kr, In³⁻

In the upper and lower rows, the number of electrons in the outer energy level of the element atoms varies regularly;

3. Remove "extra" formulas.

There are "additional" formulas in the suggested rows below. Find them:

a) NaCl; AgNO₃; KCl; KNO₃;

b) H₂S; CaSO₄; HI; (NH₄)₂S.

Answer options: a) KNO₃ va AgNO₃; 6) CaSO₄.

You can find many such simulator games, for example, here is another option:

4. "Find the mistake"

The purpose of the lesson: to strengthen the concepts of "simple substance", "complex substance", to



develop students' attention, to develop the ability to quickly find correct and reject incorrect solutions. Names of simple and complex substances are given. 5-6 rows of cards.

Assignment. Students are divided into three teams (according to the number of rows of tables in the classroom). Each team receives one card from the teacher. With the teacher's signal, the players sitting at the first tables find the wrong names of simple and complex substances in the first row of the card and cut them out, pass them to the students at the second table, they correct the mistakes. The game is continued on the second line of the card and so on. The first team to find and correct all the mistakes wins. After the game, the results will be discussed.

Card sample

Simple substances	Complex substances
• Hydrogen, silver, sulfur oxide	1. Aluminum, oxygen, iron oxide
• Iron sulfide, oxygen, sulfur	2. Silver oxide, copper, iodine
• Hydrogen chloride, water, nitrogen	3. Fluorine, nickel, carbon monoxide
• Calcium oxide, carbon, zinc	4. Sodium chloride, water, sulfur
• Vanadium, aluminum, barium oxide	5. Silicon, iron sulfide, sulfur carbon

In each line, cross out the formula of the substance that does not belong to the class. Explain why?

5. Playing cards-tasks "Fill in the square"

Fill in the playing field below with the relative molecular weights of the corresponding substances.

№	Substance formula			Σ Mr
1	KOH	(CuOH) ₂ CO ₃	H ₂ SO ₄	
2	KNO ₂	Na ₂ CO ₃	MgCl ₂	
3	KMnO ₄	H ₃ BO ₃	Ca(OH) ₂	

Fill in the sub-game area of the playing cards-tasks on the topic "The main class of inorganic compounds" with the names of the corresponding substances.

NaOH (CuOH)₂CO₃ H₂SO₄

KNO₂ Na₂CO₃ MgCl₂

KMnO₄ H₃BO₃ Ca(OH)₂

Game requirements.

1. The game should be based on free creativity and amateur activity of students.
2. The game should be open, the goal of the game can be achieved, the design should be colorful.
3. A mandatory element of every game is its emotionality. Students should enjoy the game, have a

cheerful mood, and be satisfied with a successful answer.

4. In games, moments of competition between teams or individual participants of the game are mandatory. Many didactic games do not seem to bring anything new to the knowledge of schoolchildren, but they bring great benefits to students by teaching them to apply knowledge in new situations or to set a mental task, the solution of which shows activity. requires to be. The use of didactic games in chemistry classes facilitates the learning process, makes it interesting and meaningful, and this ultimately leads to better learning of the material, helps to form and develop interest in chemistry.

In practical work, we often use game technologies. We think that didactic games do not completely replace traditional forms of education, but complement them, and such a combination allows for the proper organization of the educational process at school. Thus, in this work, "games on objects" or "didactic games" have an important place. This explains the increasing interest of students in chemistry classes.

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