



USING OF MODERN INNOVATIVE TECHNOLOGIES IN TEACHING CHEMISTRY AT SCHOOL

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ABSTRACT: - The article discusses the role of graphic organizers in the teaching of chemistry in secondary schools, as well as the development of creative abilities of students on the organization and reorganization of data in the classroom using the technology of "Insert", "Conceptual" and "Classification" which play an important educational and pedagogical role in shaping skills and competencies such as creative research, advancing certain hypotheses, and coming to certain conclusions.

KEYWORDS: Education system, structural thinking, graphic organizer, Insert technology, Conceptual and Classification tables, practical skills.

INTRODUCTION

In order to develop the sciences of chemistry and biology in our country, to increase the quality of education and the effectiveness of science in these areas, on August 12, 2020, President Shavkat Mirziyoyev "On measures to increase the quality of continuous education and the effectiveness of science in the fields of chemistry and biology" He made his decision. As stated in the decision, "It is necessary to

note that the quality of chemistry and biology teaching in general education schools does not meet the requirements of today's era, teaching methodology and laboratories are outdated, mechanisms for the proper promotion of teachers' work have not been introduced" [1, 3].

The main part. Teachers also have a great contribution in transforming the fundamental

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reform of the education system into the most important factor and solid foundation for changing the consciousness, thinking and outlook of our students, increasing their confidence in the future.

Another factor in the successful solution of these tasks is the awareness of the employees of the continuous education system, pedagogues-teachers about the nature of modern educational technologies and their ability to effectively use them in the educational process, as well as in relation to the organization of the educational process. It is important to decide on a creative approach.

Based on this, it is necessary to use graphic organizers that serve to increase the efficiency of the lesson in the educational process [4]. In order for the school to use graphic organizers in chemistry classes, in turn, it is necessary to know the ways and means of organizing and organizing information, establishing connections and connections between the studied concepts (events, events, topics, etc.) [5]. Because in the implementation of these, if work is carried out using the "Insert" table,

"Categorization table" and "Conceptual table", there will be opportunities to form the skills and competencies of students and to achieve the effectiveness of the lesson.

"Insert" table - provides systematization of the information received during independent study, the lectures heard, helps to form the ability to confirm, identify, deviate from, observe, and connect previously acquired information.

In the process of organizing educational activities, students will get acquainted with the rule of filling in the insert table. For this purpose, they systematize the information obtained in the course of reading and "enter" the table columns according to the following symbols defined in the text.

"V" corresponds to the information I know

" - " - contrary to the information I know

" + " – New information for me

"? " – it is not clear to me or the information needs to be clarified or filled.

Insert table

V	+	-	?

Expected result: students get acquainted with a new topic, get information about the scientific-theoretical basis of educational technologies.

In the process of giving students theoretical information about the most important basic mineral fertilizers, the teacher fills out the table by instructing the students to draw the "Insert" table in their notebooks before starting the lesson. At the stage of strengthening the lesson, the "Insert" table

filled by the students is analyzed, in which the teacher on the new topic of the "Insert" table "-" contradicts the information I know and "?" - focuses on the parts that are not clear to me or that require clarification and filling in information.

The "Insert" table can also be used to give homework or to have students complete the table before moving on to a new topic.

A classification table is a (general) symbol that shows the importance of features and

relationships. Provides integration of information obtained on the basis of isolated symptoms. Systematic thinking develops the skills of structuring and systematizing information. In this way, students will get acquainted with the rules of creating a commentary.

Students will formalize the categories in the form of a table. They categorize ideas and information. In the course of work, some names of categories may change and new ones may appear.

At the end of the process, you will see a presentation of the work results.

The classification review rules are as follows :

- there is no single method of distribution of data by category;
- categorization in one mini (small) group may differ from categorization in another group;
- learners cannot be given pre-prepared categories, let them do their own work.

When passing the topic "The most important basic mineral fertilizers" from the 8th grade chemistry of general secondary schools, after providing theoretical information about the most important basic mineral fertilizers, the students are given the task to independently fill in the "Classification Table"

Classification table

<i>Classification of mineral fertilizers</i>				
Fertilizers	Name of fertilizers	Chemical composition	Amount of feed,%	Aggregate status
Nitrogen fertilizers (food element N)	Sodium nitrate (sodium saltpeter)	NaNO_3	15-16	White, gray, hygroscopic substance It dissolves well in water
	Potassium nitrate (potassium nitrate)			
	Ammonium nitrate (ammonium nitrate)			
	Ammonium sulfate			
	urea			

Phosphorous fertilizers (food element P_2O_5)	Simple superphosphate	$Ca(H_2PO_4)_2 \cdot 2H_2O \cdot CaSO_4 \cdot 2H_2O$	20	Gray, fine-grained powder
	Double superphosphate			
Potassium fertilizers (nutrient element K_2O)	Potassium chloride	KCl	52 - 60	Small white crystalline substance
Complicated herbs	Ammonium dihydrophosphate	$NH_4H_2PO_4$	N and P_2O_5	A white crystalline substance
	Ammonium hydrophosphate			

You can also use the "Conceptual" table from the graphic organizers when going through the topic "The most important basic mineral fertilizers". For this, the topic can be given after passing or as homework.

A conceptual table provides a comparison of two or more aspects of the studied phenomenon, concept, and ideas. Develops the skills of systematic thinking, structuring and systematization of information. They get acquainted with the rule of creating a conceptual table. Identify the comparables and distinguish the characteristics of the comparisons to be made. Individually or in

small groups, they complete the conceptual table.

- lengthwise comparable opinion, theories are placed;
- the various descriptions carried out in the vertical comparison are written;
- presentation of work results

It is also possible to divide the students into categories of mineral fertilizers, that is, the students of the group are divided into 3 groups, and each group finds information about individual mineral fertilizers and fills in the following "Conceptual table".

Nitrogen fertilizers	Properties	Effects on plants	use	Graphic structure
$(NH_4)_2SO_4$				
NH_4NO_3				
$Ca(NO_3)_2$				
$CO(NH_2)_2$				

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The role of graphic organizers in the teaching of chemistry in comprehensive secondary schools and the use of "Conceptual" and "Categorization" tables to organize and reorganize information in the course of the lesson, to develop students' creative abilities, creative research, put forward specific hypotheses, and come to certain conclusions. It is shown that it has an important educational and educational value aimed at the formation of skills and qualifications .

When the "Conceptual" and "Categorizing" tables are completed by the students, the teacher completes and reinforces the topic. Then the tasks given by the teacher are checked and evaluated.

CONCLUSION

Thus, for the use of graphic organizers in chemistry lessons in secondary schools of general education, in turn, organizing the lesson through ways and means of structuring and organizing information, establishing connections and connections between studied concepts (events, events, topics, etc.) learning prepares a solid foundation for students' mastery of a new topic and independent thinking.

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