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USE OF INTERACTIVE EDUCATIONAL TECHNOLOGIES IN TEACHING THE SUBJECT OF "ALKALI METALS" IN CHEMISTRY LESSONS.

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Abstract: This article describes the methodology of teaching the topic of "Alkali metals" in the chemistry class of general secondary schools based on interactive educational technologies.

Key words: Pedagogical technology, information technology, theory of alkali metals, most important compounds, biological importance, soda production, cases.

Introduction: Classes using modern pedagogical technologies are aimed at helping students find the knowledge they are acquiring, independently study and analyze it, and even draw their own conclusions. In this process, the teacher creates conditions for the development, formation, education and upbringing of individuals and teams, and also performs the role of management and guidance. Students become the main figure in such an educational process. In modern conditions, it is appropriate for every mature pedagogue to use the innovative forms of education in order to strengthen the learning activities of students, increase the quality of teaching and improve their effectiveness. Therefore, it is necessary for teachers working in educational institutions to know how to properly use modern interactive educational technologies in their training in their fields. The following modern technologies can be used in teaching the topic of alkali metals[1].

Methodology of working in small groups. Working in small groups allows all students (even the shyest) to practice interpersonal and collaborative skills. In particular, it forms the ability to listen and resolve any disagreements that arise. Dividing students into groups is done by the teacher. The students in the class are divided into several groups and each of them is given separate questions. Questions are asked taking into account the scope of students' knowledge.

Assignment to groups:

To group 1: Give information about alkali metals and their atomic structure.

To group 2: Provide information about the occurrence and biological importance of sodium in the human body.

To group 3: Potassium occurrence and biological importance in the human body. What foods contain potassium?

To group 4: Tell the areas where soda is used. Do you know what soda is used for in the household?

Assignment solution:

Group 1 answer: The elements that make up the main group of Group I of Mendeleev's periodic system are: lithium, sodium, potassium, rubidium, cesium and fernium. They are S-elements. Atoms have one electron in their outer energy level. Oxidation level in chemical compounds is equal to +1.

All alkali metals are base metals, strong reducing agents. They are chemically active and directly combine with almost all non-metals. In compounds, mainly ionic bonds are formed. As the order number increases and the ionization energy decreases, the metallic

properties of Each period of the periodic system (except the first) begins with these elements. These elements combine with oxygen to form R2O oxides. Its oxides react violently with water and form ROH alkalis. The hydrogen compounds of alkali metals are hydrides and correspond to the formula RH.

Answer of the 2nd group: It exists in the form of compounds in human and animal bodies. For example, sodium ions are 0.320% in human blood plasma, 0.6% in bone, 0.6-1.5% in muscle tissue. A person should consume 4-5 g of table salt per day to replace the sodium used in the body. Not poisonous. The human body contains an average of 70 g. Sodium chloride NaCl is known as table salt and is a very necessary substance for the living organism. It is widely used in medicine (physiological solution), food and chemical industry.

Group 3 answer: Potassium is 1.6% in muscle tissue, 0.21% in marrow, and 1620 mg/l in blood. Daily food should contain 1.4-3.4 g. The toxic dose is 6 g. The human body contains an average of 250 g. Potassium element participates in the necessary processes for important vital biochemical activities (normalization of blood pressure, work of heart muscles).

Answer of group 4: Soda is used in many industries, in particular, in the production of glass, in the production of paper from cellulose, in the production of textile materials, in the extraction of soap from oils, in the extraction of oil, in the lightening of drilling operations, and other salts of sodium. used in synthesis.

Household soda is a crystal hydrate salt in the form of Na2CO3*10H2O and is directly used as a detergent under the name of "washing soda". In the case of NaHCO3, it is called drinking soda and is used for various purposes in everyday life.

"Five-minute essay" method. The purpose of the technology: This technology is conducted in 5 minutes at the end of the training session in order to generalize and observe the knowledge on the subject being studied. This type of written task helps students to express their independent thoughts on the topic and allows the teacher to think about what aspects his students pay more attention to when they get acquainted with the educational material [2].

In this type of written assignment, students are asked to complete two tasks: what they have learned about the given topic and to ask one question that they still do not have an answer to. At the end of the time, the teacher can select and check 4-5 essays, students will comment on their written concepts out loud, discuss with the rest of the students and come to a general conclusion.

The "Problematic situation" method is a method aimed at developing students' skills in analyzing the causes and consequences of problematic situations and finding their solutions.

The complexity of the problem chosen for the "Problem Situation" method should correspond to the level of knowledge of the learners. They must be able to find a solution to the given problem, otherwise, when they cannot find a solution, it will lead to the loss of interest and self-confidence of the learners. When using the "problematic situation" method, students learn to think independently, analyze the causes and consequences of a problem, and find a solution [3]. We used the following problematic situations related to the topic during the teaching of the topic "Alkali metals" at school:

1. Pay attention: to make "raspberry water" by heating ordinary water.

A flaskwith aclosed mouth filled with salt is placed on atripod, the mouth of the flask is opened and 5-6 drops of liquid are dripped into it, and it is slowly heated on agas burner. After a while, the substance becomes raspberry in color. It turns pale again when cooled.

Questions:

1.What is the name of the salt in the flask? What about the liquid?

2.Why does the substance become colorless when cooled?

3.What are the suggestions for solving the problem

Source: Organic Chemistry Resources

Instructions for listeners:

1.Understand the essence of the case sufficiently.

2.Determine the factors that serve to find a solution to the problem.

3.Identify the factor (or two factors) most likely to contribute to the problem among the identified factors.

4.Try to justify the solution based on these factors.

5.Express your opinion.

Case resolution process:

1.Listeners discuss the essence of the case in a small group by getting to know it.

2.The listener, in cooperation with the members of the small group, determines the factors that prepare the ground for solving the problem.

3.The most important factors that allow solving the problem are distinguished.

4.The members of the small group state the most important factors based on a common opinion.

5.The opinions of small groups are analyzed and a general conclusion is made.

Teacher's solution:

Sodium acetate salt is placed in the flask, and 5-6 drops of phenolphthalein solution are added to it. When heated, the sodium acetate salt decomposes and becomes raspberry color due to the sodium alkali formed. When cooled, it turns into sodium acetate salt and the solution turns colorless.

2.Pay attention: Why did the candles go out?

Husnia took a long glass and poured about 100 ml of liquid into it. Then she lit one candle on each step of the tin staircase and lowered it into the glass. All the candles were burning. Husnia took 2-3 small stones in her hand and slowly threw them into the glass. Immediately, the liquid in the glass began to boil. A few seconds later, the candle on the lowest step went out by itself. After a few minutes, the candles in the glass went out one by one from the bottom to the top.

Questions:

1.What was the liquid in the glass?

2.What kind of stone did Husnia put in the liquid?

3.Why did the candles go out from the bottom to the top?

4.What are the suggestions for solving the problem

Source: Resources on Inorganic Chemistry Instructions for listeners:

1.Understand the essence of the case sufficiently.

2.Determine the factors that serve to find a solution to the problem.

3.Identify the factor (or two factors) most likely to contribute to the problem among the identified factors.

4.Try to justify the solution based on these factors.

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Case resolution process:

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Teacher's solution:

The liquid in the beaker is dilute hydrochloric acid (HCl) solution, and the rock in the beaker is sodium carbonate (Na2CO3). The carbon dioxide (CO2) gas formed as a result of the interaction of the two substances extinguishes the burning candles from the bottom up.

HCl + Na2CO3 = NaCl + H2O + CO2

In short, the above-mentioned methods serve as a basis for the students to analyze the theoretical knowledge they have acquired in teaching the subject "Alkali metals", to connect it with practice, and also to form the independent thinking skills of the students. does. The use of interactive educational technologies in the teaching of the topic "Alkali metals" increases the effectiveness of education, allows to develop the interests and needs of students to learn the basics of science. Providing the necessary information about the theory of alkali metals, the most important compounds, their biological significance, and the production of soda with the help of interactive technologies will help students master the subject at an excellent level and increase the effectiveness of education.

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