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GENERAL SECONDARY EDUCATION IS A METHODOLOGY FOR EXPLAINING THE TOPIC OF "ELECTROLYTIC DISSOCIATION" TO SCHOOLCHILDREN USING MODERN TECHNOLOGIES

Mamadaliyeva Nodira Isakovna[1]
Tashkent State Pedagogical University named after Nizami, Associate professor

[1]ORCID ID: https://orcid.org/0000-0001-7074-4126

n.mamadaliyeva@yandex.ru

Abdullayeva Muslimaxon Abdurashid qizi[2]

Tashkent State Pedagogical University named after Nizami, 2nd year student
abdullayevamuslima2004@gmail.com

ABSTRACT

Science, industry and production cannot be imagined without information and communication technologies at a time when technology and technology are rapidly developing. In particular, the use of information and communication technologies in teaching any subject will not only increase students' interest in science, but will also be the basis for deep learning of topics and the formation of new ideas. In the science of chemistry, the possibilities of involving ICT in the education system and applying new methods of teaching are highlighted.

Key words

Virtual chemical laboratories, electrolytes, weak electrolyte, strong electrolyte, degree of dissociation, dissociation constant.

The high intellectual potential of Science and high-tech developments are the basis for the development of an innovative economy. The reform of the management system of Science in Uzbekistan made it possible to carry out fundamental and Applied Research, introduce new developments and create a practical mechanism for the development of innovative works aimed at their use in practice. Scientific pedagogical studies on the influence of information and innovative technologies on the effectiveness of the lesson show that not only is it an important factor in the acquisition of knowledge by students, but it is also becoming an important tool in the development of students. In the development of students, it is important that chemical experiments are independently carried out by them, issues are solved, skills and competencies are formed, generalizations such as genetic linkages between inorganic and organic classes are taught to the required extent.

Currently, most students have theoretical knowledge of chemistry and can obtain their information from smart as well as from innovative technologies. In order to further develop students ' knowledge during the course, it is considered necessary to use vertebrate chemistry laboratories. But an example of the topic is the fact that preparing solutions to questions and test questions and studying them will make students a long challenge. Therefore, it was on this topic that the topic "methodology for

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solving problems related to electrolytic dissociation" was chosen in order to teach students algorithms for generating concepts, solving examples and problems. It was through the topic of electrolytic dissociation that it was decided for students to learn theoretical knowledge along with the methodology of solving issues, in connection with the science of physics of chemistry (in explaining electrolyte processes). The relevance of this topic is also such that students can have a lot of information at the same time through this very topic and also understand the integration of Sciences. One of the most important methodological principles that makes it possible to effectively use information and communication technologies (ICT) in explaining the topic is the integration of computer technologies with traditional forms and methods.

The lesson uses modern electronic textbooks, virtual chemical labaratoriums, the internet, new educational tools. The task of the teacher is obliged to choose these funds in accordance with the content of educational materials, the age and psychological characteristics of the school students. The use of ICT in the lesson should be goal-oriented and methodical. So, since our life today has become inseparable from technology, which provides information and communication processes, there has been a need to create ICT-based education. As you know, using only traditional educational methods, it is impossible to solve this problem, it is necessary and conditions are being created in the school to create the following opportunities, which will ensure:

involvement of each student in an active cognitive process;

working together to solve various problems;

foiling from the necessary information in information centers around the world to create an independent opinion on various issues[1].

Solutions or liquefaction in water conductive substances are called electrolytes. Acids, bases and salts are electrolytes. Substances whose solutions in water do not conduct electricity are called noelectrolytes. In 1897, Svante Arrenius believes that "electric current has no value for the separation of molecules into ions". Electrolytes dissociate into ions during water solubility.

$H_3PO_4 \leftrightarrow H^+ + H_2PO_4^-$

$H_2PO_4^- \leftrightarrow H^{++} HPO_4^{2-}$

$HPO_4^{2-} \leftrightarrow H^+ + PO_4^{3-}$

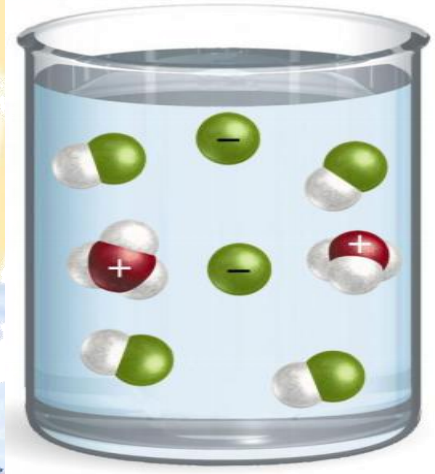
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Electrolytes (salts, acids and alkalis) — decompose into ions when dissolved or liquefied in water:

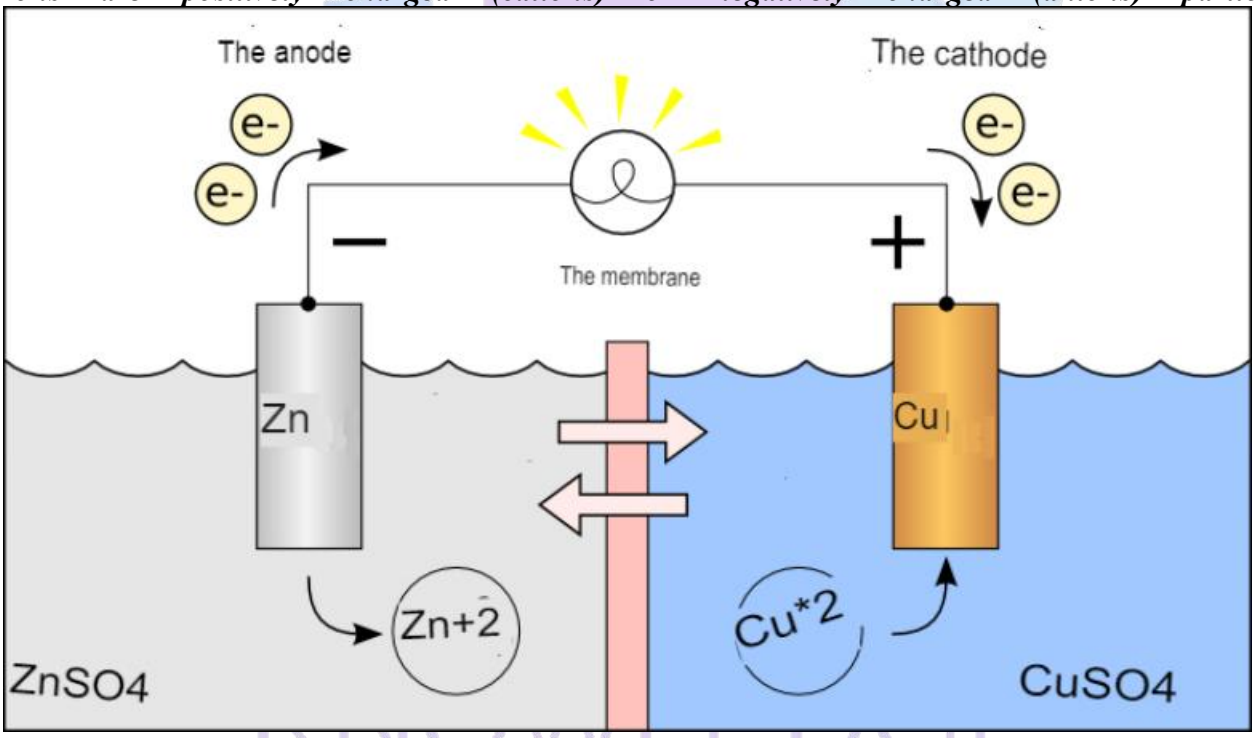
$KCl \quad K^+ + Cl^-$

or

$NaOH \rightarrow Na^+ + OH^-$



Ions are positively charged (cations) or negatively charged (anions) particles.

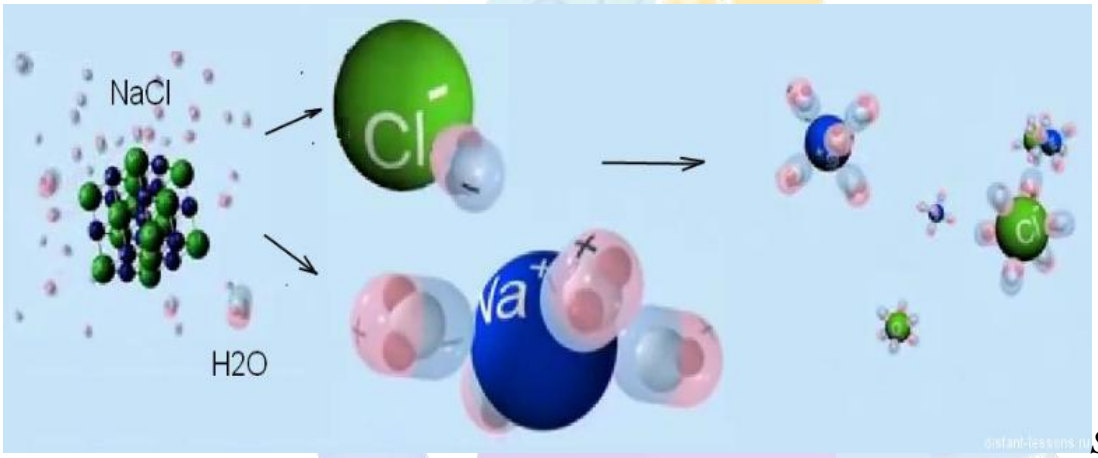


Solubility of electrolytes poorly soluble in water is characterized by their solubility product. Electrolytes whose molecules dissociate to a lesser extent even in liquefied solutions are said to be weak electrolytes. For example, CH_3COOH, H_2CO_3 acids, NH_4OH, organic bases, $Hg(CN)_2$, $HgCI_2$, $Fe(SCN)_3$, FeF_3 salts include [2].

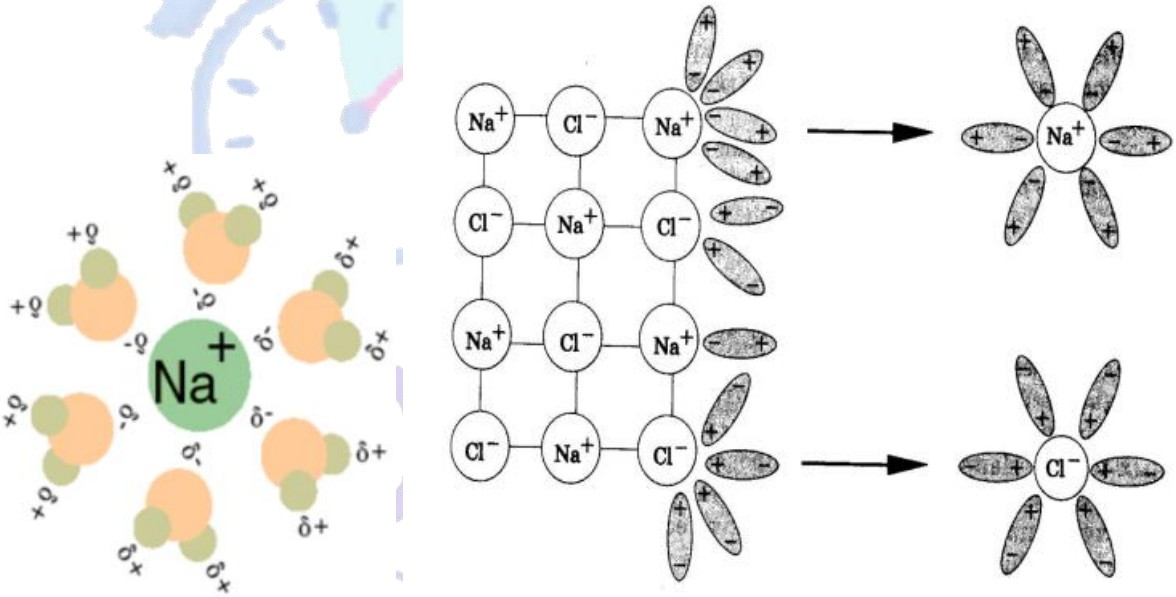
Compounds that dissociate significantly better even in solutions of different concentrations are called strong electrolytes. Their dissociation rates can approach 100%. To strong electrolytes are almost all salts, strong acid and strong bases.

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The separation of Ion-binding compounds into ions when dissolved in water is called dissociation.



So, in solution, table salt crystals dissolve under the action of polarized molecules of water, forming hydrated ions.



The ratio of the number of molecules dissociated into ions to the number of all molecules of a dissolved substance is called the degree of dissociation of the electrolyte.

$CH_3COOH \leftrightarrow H^+ + CH_3COO^-$

Equilibrium moment H^+andCH_3COO^- the ratio of the product of ion concentrations to the concentration of acetic acid is the dissociation constant of acetic acid: $[H^+] + [CH_3COO^-]$

$$K_{diss} = \frac{}{[CH_3COOH]}$$

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K_{diss}- dissociation constant;

$[H^+]$- molar concentration of hydrogen ions;

$[CH_3COO^-]$ – molar concentration of acetate ions;

$[CH_3COOH]$- concentration of acetic acid molecules.

The dissociation constant of electrolytes does not depend on the nature of the electrolyte and solvent and the temperature-dependent concentration. It is a quantitative characteristic of the dissociation of compounds. The larger the dissociation constant, the stronger the electrolyte is dissociated[3].

Teaching students all the above processes using modern technologies will well shape students with cognitive potential as well as skill skills. Therefore, explaining each lesson to students using modern technologies will give students the opportunity to develop their minds well, to fully understand the processes in the subjects. During the course, students were taught to work in the vertual laboratory. As a result, Multimedia is also used in order to develop the knowledge and potential of students.In order to develop students knowledge on the topic, during the course of the lesson, chemistry is explained its place in life.

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