



ORGANIZING LABORATORY WORK IN THE VIEW OF A DIDACTIC GAME

Kuchkarov Mekhridin Asamovich

Teacher Of Tashkent State Pedagogical University Named After Nizami, Uzbekistan

ABSTRACT: - This article is devoted to the possibilities of organizing laboratory work in the educational system in the form of didactic games, approaches based on a new didactic purpose. Organizing laboratory exercises in the form of a didactic game will increase students' interest in science and help to form creative, critical and creative thinking skills.

KEYWORDS: Didactic games, creative thinking, laboratory work, educational task, educational task, developmental task.

INTRODUCTION

A didactic game is a method of organizing the educational process aimed at activating the cognitive activity of students by affecting their senses and understanding in order to achieve comprehensive personal development.

The purpose of the laboratory exercise is to organize a laboratory exercise using interactive teaching methods to strengthen theoretical knowledge on the topic "Oxygen production and properties".

Tasks of laboratory training:

Educational task: strengthening of theoretical knowledge on obtaining oxygen, studying its properties, forming practical skills and abilities.

Educational mission: To develop interest in learning science. Organization (choosing a place, creating an environment, preparing the necessary equipment and reagents), technical (following the rules for working with reagents and equipment), hard work, being patient, forming an aesthetic taste, following the rules of cleanliness and order, following the

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established plan and general rules to do, to be alert and careful, to overcome stress and excitement, to demonstrate one's capabilities, to behave in a team and to form skills to communicate with them.

The role of the developer is to apply, analyze and compare the knowledge acquired by students during laboratory work (identify problems, propose hypotheses, choose optimal options), draw necessary conclusions, and develop creative skills.

Using game technologies, especially visual games, the process of conducting an interactive lesson on the topic "Oxygen" consists of the following stages:

1. Preparation stage . The "scenario" of the game is developed, in which the goals, the composition of the teams, groups and the content of the activities of each participant are determined.

2. The introduction of the game . At this stage, the participants get acquainted with the goals and tasks of the game, they are given the necessary advice and instructions by the teacher.

3. Start the game . In this part, the participants receive a "game task" from the teacher, and laboratory work is performed in the form of a didactic game.

4. Calculating the results of the game . Reflection. This is an important stage of the training, in which the opinions of the participants are established. Opinions are monitored to determine the level of satisfaction, loss and appropriation.

We offer 2 different versions of the didactic game to organize laboratory work as a didactic game.

The first version of the pictorial game for laboratory exercises on the theme "Oxygens".

Preparation stage . Suggested scenario of the game: In order to meet the oxygen needs of the crew of a spaceship stranded on an unknown planet, it is required to synthesize oxygen in various ways. For this purpose, two groups are formed, and the first group of "Traditionalists" is required to obtain potassium permanganate, potassium nitrate, sodium nitrate in 2 different ways.

The second group of "Creatives" is required to create oxygen using water, hydrogen peroxide, sodium peroxide.

The introduction of the game . At this stage, the participants get acquainted with the goals and tasks. The "Traditional" group performs laboratory experiments 1 and 2, and the "Creative" group performs laboratory experiments 3 and 4.

Start the game . The groups draw up a work plan within their teams and define the tasks of each participant based on the plan. The teacher acts as a guide and a guide.

Game process. Laboratory work is carried out.

Laboratory experiment 1

Obtaining oxygen by thermal decomposition of potassium permanganate

Put potassium permanganate in a dry test tube and put a cotton ball on the neck of the test tube (to catch the dust formed during disintegration). The mouth of the test tube is closed with a gas-permeable stopper and the test tube is heated. The decomposition of potassium permanganate goes around 240 ° C.



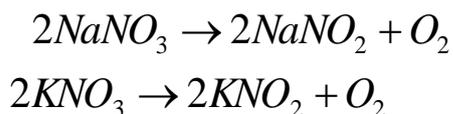
Laboratory experiment 2

Obtaining oxygen by thermal decomposition of sodium or potassium nitrate

Sodium nitrate or potassium nitrate is placed in a test tube, closed with a gas-tight stopper

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and heated. Sodium nitrate liquefies at 314 °C, potassium at 339 °C. When heated strongly, the salts decompose and oxygen is released.



If manganese (IV) oxide or soda lime is added to nitrates, decomposition will be much easier. Sodium nitrate decomposes at 550-600 °C, potassium nitrate at such a high temperature, and NO₂ is formed when mixed with oxygen. Most laboratories do not have the ability to heat to such high temperatures. It is recommended to use a mixture of potassium and sodium nitrate salts to carry out the process at 300-500 °C.

Laboratory experiment 3

Obtaining oxygen by thermal decomposition of hydrogen peroxide

A 3% hydrogen peroxide solution is put into the test tube, and a little manganese (IV)

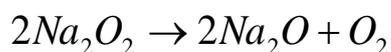


The reaction between potassium permanganate and hydrogen peroxide proceeds with the release of oxygen in both neutral and alkaline environments. But in an acidic environment, oxygen is released in relatively large quantities.

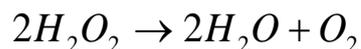
Laboratory experiment 4

Obtaining oxygen by thermal decomposition of sodium peroxide

When sodium peroxide is placed in a test tube and heated, the following reaction occurs:



oxide powder is added to it. Oxygen begins to be released rapidly.



Hydrogen peroxide solution can also be found in pharmacies.

Obtaining oxygen by oxidizing hydrogen peroxide with potassium permanganate (in an acidic environment)

In this way, a constant flow of oxygen can be easily controlled. A 3-5% hydrogen peroxide solution is placed in a Wurtz flask and a sulfuric acid solution is added to it. The mouth of the flask is closed with a stopper fitted with a dropping funnel. A 10% solution of potassium permanganate is placed in a dropper funnel. Potassium permanganate solution is added dropwise to the mixture in the flask.

The evolved oxygen can be collected by displacing the water through a gas tube.

Summarizing the results of the game .

Based on the results of the experiment, the conclusions will be discussed between the two groups. The groups are required to provide information about the advantages of the experiments they performed and the disadvantages of the second group of experiment options.

Didactic games perform educational, educational, developmental, motivational, problematic, explanatory functions.

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