

USING INFOGRAPHICS AND INFOGRAPHIC RESOURCES IN PHYSICS LESSONS

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Abstract. *The paper presents the experience of using infographics in physics lessons. It is shown that visualization of complex physical phenomena and processes increases the effectiveness of learning.*

Keywords: *educational process, infographic resource, logical thinking.*

Various forms of conducting training sessions not only diversify the learning process, but also cause students to be satisfied with the work itself. The lesson may not be interesting if the student engages in activities that are monotonous in structure and methodology. If students are not actively involved, then any meaningful material will arouse their contemplative interest in the subject, which will not be cognitive. Therefore, when forming cognitive interest, a special place belongs to such a pedagogical tool as a variety of methods and forms of conducting training sessions. /1/

Most teachers go to the solution of the problem of choosing the forms of education through self-education. In these conditions, a very important factor for the development of professionalism is the exchange of existing experience: opinions, thoughts, methods of activity. This paper highlights the experience of developing and using infographic resources in the educational process. Although the term infographics is very rare in the educational field, its concept has long been used in the development of websites, advertising and applications based on the principle of communication. The fact is that infographics are a graphical way of presenting complex information to facilitate its understanding, which is of great importance for effective assimilation of the material. Teachers, when explaining new material, mostly use the text written in the textbook, and most often use it irrationally, showering students with incomprehensible terms, complex examples, without thinking about whether the student is able to process such a huge amount of information and whether he will be able to save it in memory in the long term. This problem can be solved by using various types of infographics in the classroom.

Infographics are divided into different types depending on the tasks, techniques used, and communication channels. But, as a rule, they all use common tools for visual representation:

- images.
- icons.
- charts.
- charts.
- flowcharts.
- tables.
- maps.
- headers.

- lists

It should be understood that dividing infographics by type can help students form a clear concept for studying a particular topic. In order to understand the pedagogical meaning of infographics in education, we will consider several main types of infographics that can be used in the formation of infographic resources in physics:

* Chronological infographics: created to demonstrate the stages of development of a particular concept or to depict time sequences associated with a particular physical phenomenon.

* Comparison Infographics: Created to compare two or more physical phenomena, theories, ideas, or any other concepts related to physics.

* Statistical infographics: used to visually present the results of any scientific research, laboratory or practical work in physics.

* Historical infographics: helps you get an idea of the scale of historical events in physics, remember their sequence, and track their relationships.

* Processes in infographics: used when you need to explain the operation of a complex physical system and demonstrate the sequence of actions.

* Infographic instructions: Used to provide any sequential actions for solving a particular physical problem. [1]

Why is the use of infographics in physics lessons useful for developing logical thinking? The development of logical thinking in physics lessons directly depends on the parameters of information delivery. Students need to be able to organize their thoughts into a logically interconnected text, which can later help in solving the problem. Infographics solve the problem of "gigantism" of the received knowledge. With its help, it becomes possible to build a sequence and relationships of information, without resorting to the need to absorb a large amount of material. In order to master the topic of physics, students are asked to memorize only a few simple phrases connected by a graphic sequence, and then build a full-fledged text based on the data obtained. The teacher also plays a huge role in this process, providing students with instructions on how to reveal the physical scheme. It should be understood that each infographic resource needs to be disclosed, but is easy to remember in the long run, which generally simplifies the learning process for both students and teachers.

As an example, we will give an infographic resource that we use in physics lessons and look at how it can be used to teach students to understand the material. Figure 1 shows an infographic created by us to understand the Physics Lab paper "Determining the acceleration of free fall of bodies". (Figure 1)

This design of the laboratory work helps students focus on the main points and sets the order of actions that need to be performed to solve the task or achieve the goal of the laboratory work. They should remember that in order to start working with devices and conduct an experiment, it is necessary to master the basic knowledge on the topic. The second item will be the thread, the main tool of laboratory work. The thread must be suspended, which means we need a tripod, and a weight is needed to observe the vibrations. These are the main conclusions that need to be disclosed to the teacher on the second point. The next step is to calculate the number of total vibrations per time – 30, 40, 50 seconds. Next, you need to calculate the period for each of the cases, calculate the acceleration of gravity using the formula and enter the data in the table for analysis.

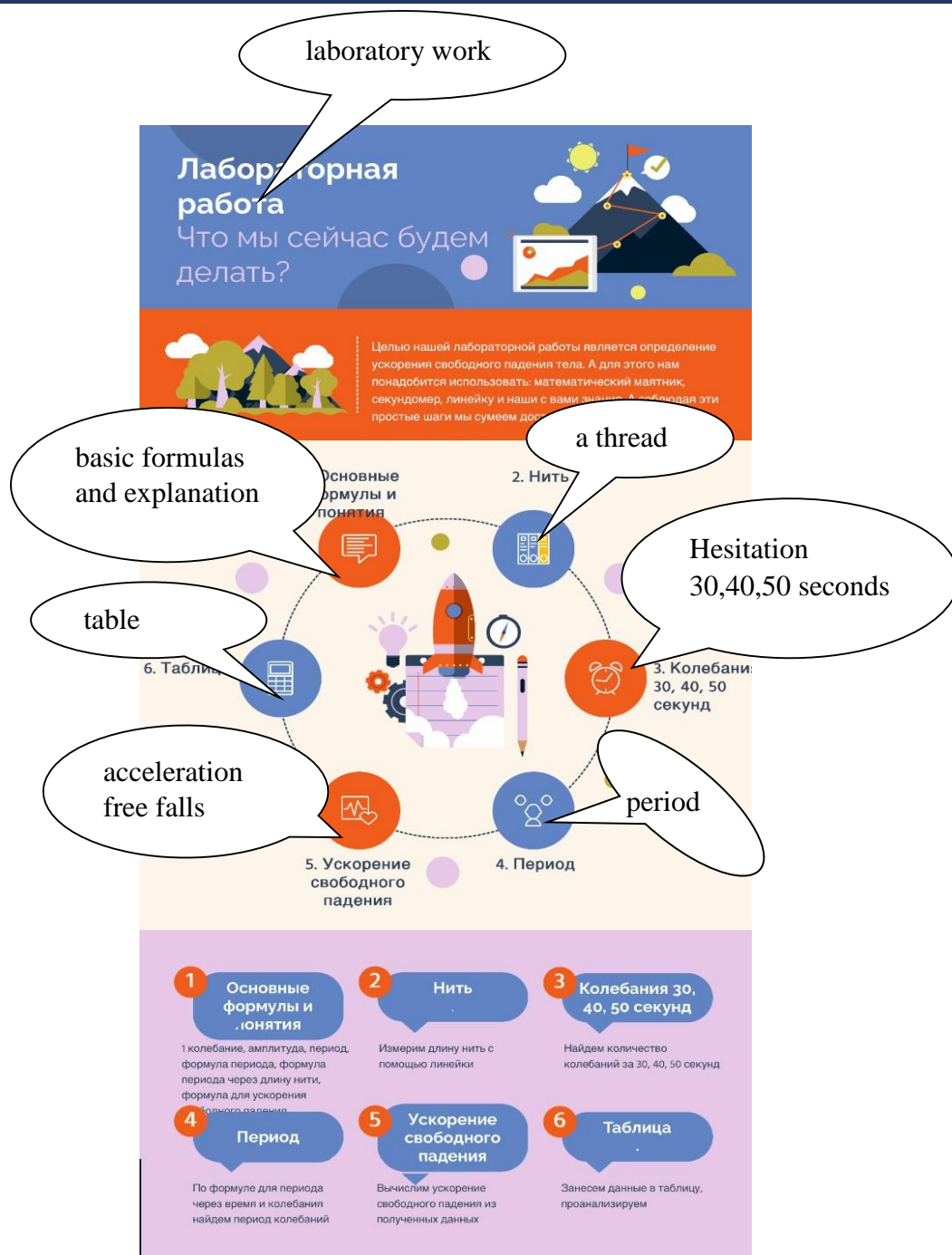


Figure 1.

How can a teacher learn how to create infographics and use them in physics lessons? Creating infographic resources is a very important aspect of using infographics. There are a large number of ways to present infographics in physics classes:

- * Projection technology. Using a projector and a screen allows you to display infographic images created by the teacher directly via the Internet or third-party programs on a PC.

- * Use interactive whiteboards. Interactive whiteboards allow teachers and students to work with graphs, diagrams, and other graphical elements in real time. It allows you to create interactive lessons, and provide information keeping up with the times.

- * Work with a regular whiteboard. Not every educational institution can allow the use of two higher-level methods of transmitting infographics, so the teacher can only use a blackboard and chalk.

* Use of printed materials. Printed materials such as posters, booklets, and books can be used to convey information about physical phenomena and processes. They can be used as additional material for students or as illustrations for teacher's lectures.

Currently, a teacher can create an infographic even on a simple piece of paper, but there are various services on the Internet that can help in its formation on an electronic medium. So, to create infographics in the information network, you can use sites where you can create an infographic resource online or through offline applications.

Thus, experience shows that the use of infographics in physics lessons has many advantages. It allows you to visualize complex physical phenomena and processes, making them more accessible for students to understand. In addition, infographics stimulate interest in physics, helping students memorize the material better and improving learning efficiency. In general, using infographics in physics classes is an effective tool to help teachers make lessons more interactive, interesting, and understandable for students.

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