

TECHNOLOGY OF CREATING ELECTRONIC LEARNING CONTENTS IN THE FORM OF DISTRIBUTION MATERIALS USING TARSIA SOFTWARE.

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Abstract. This article presents the technology for creating electronic educational content in the form of handouts using the Tarsia program.

Keywords: *content, e-learning content, handouts, Tarsia program.*

Introduction. Today, a number of scientific studies are being conducted in the world on the formation of information culture among schoolchildren and students, the formation of ideas about modern computers and Internet technologies as a universal information processing device also applying information technologies in order to find solutions for cognitive and communication problems in compliance with ergonomic requirements. It is especially important to improve the didactic system in the development of computational thinking, which serves self-development in the modern digital world. For this reason, based on the rich intellectual heritage and universal human values of our nation, modern culture, economics, science, technology and technology, a system for training mature specialists has been developed and is being quickly implemented. The widespread development of computer technology and communication means has made it possible to collect, store, process and transmit information in an unimaginable volume and speed, that is, to process it automatically.

This is evidenced by the fact that graduates of every professional education and higher educational institution grow into mature specialists who are able to widely use modern computers in their practical work process. The rapid introduction of new pedagogical technologies, modern and innovative information technologies into the educational process leads to independent learning of students, expansion of their worldview, enrichment of creative abilities and imagination, acquisition of personal opinions, gaining recognition among society at the same time it helps to create broad conditions for him to be raised as ambitious, inquisitive and hardworking. In addition, one of the urgent tasks remains the creation of a unified information network between higher educational institutions and vocational education, the production of computer programs and electronic developments for use in the educational process, and the creation of virtual libraries.

The main goal of teaching science based on modern technologies is to make members of our society, especially schoolchildren and students, owners of modern information and algorithmic culture. In this case, the educational process should be carried out using software available on modern computers. For this reason, it is advisable to widely using advanced, modern information and pedagogical technologies when teaching various subjects in all educational institutions and apply them directly in the educational process.

Issues of developing electronic educational content arise in the process of teaching each subject. The use of modern software in the development of electronic content and the discovery of the capabilities of these software is one of the pressing issues of the educational process.

Literary analysis. Research on the use of information and communication technologies in the educational process has accelerated since the 90s of the 20th century. The following scientists and researchers have published works in this direction: Ronald G.Ragsdale, Skinner B.F., Zayseva L., Jon D.Zakis, Voronsova O.R., Katerjina S.F., Korshunova S.V., Guznenkova V.N., Mazurina A.M., Savin A.N., Solovyov A.V. In this direction our republic academicians M.M.Komilov, T.F. Bekmurodov, professors Aripov M., Nishonov A.Kh., Khamdamov R.Kh., Nazirov Sh.A., Abdukodirov A.A., Zokirova F.M. Radjabov B.Sh., Begalov B. and others have various scientific works. In their work, these researchers focus on the role of computer technology in organizing the educational process and modeling the interaction of student, teacher and software tools, necessity of their usage, automation of test and control systems. In the early 90s of the last century, electronic forms of electronic lectures, practical and laboratory classes and educational literature appeared.

Later, electronic textbooks, electronic educational content and educational systems based on the principles of corporatism were developed in a number of general and special subjects. At the next stages of ICT development, issues of complete virtualization of the educational process and their connection with information and resource centers of higher educational institutions arose. As a result, many automated training systems have appeared on the Internet. Research at the following stage was devoted to the study of the pedagogical and psychological characteristics of students during virtual learning, which require mathematical, semantic and other types of modeling during virtualization of the educational process. However, the virtual system created for each academic subject will have a certain content and appearance, based on the characteristics of the subject. Therefore, software for virtualizing the educational process must provide the ability to monitor all of the above functions. Over the past ten years, indicators of the quality of the educational process in the world's leading higher education institutions have changed

dramatically due to the use of ICT. It is based on web-based educational systems with a strong base of electronic educational content.

Research methodology. It is known that the introduction of modern information and communication technologies, in particular computer technologies, into various areas of human activity has led to the acceleration and improvement of the quality of achievements in almost all areas [2]. One such area, of course, is the field of education.

One of the factors for the effective use of these technologies in the field of education is the creation of an electronic information base on subjects taught in educational institutions and a system for its use.

It is known that every higher education institution strives to create its own virtual information learning environment based on modern technologies for organizing and managing its educational process. Currently, when creating a virtual information and educational environment in collaboration with programmers working in this field and employees working in the field of education, as well as in a result of support from educational funds. Free and open source software is provided for users.

As a result of the development of modern Internet technologies, the term “**content**” has recently been widely used. **Content** is the components (organizer) of web pages, social networks, messenger channels and other various programs [1]. We come across content every day: videos on YouTube, news, posts on author’s Telegram channels, articles on corporate blogs, etc. So, the content of the organizer of electronic resources is provided in various forms electronically.

According to purpose, four types of content can be distinguished: commercial, informative, interesting and entertaining. Each content type has its own function. Content can be divided into classes based on content. Essentially, they contain textual, audio and graphical content and are in the form of text files, audio recordings or graphic files respectively.

E-learning content is content that is focused on learning objectives and is an organizer of e-learning resources for the courses being taught. E-learning resources are a relatively broad concept. For example, if an electronic textbook is considered an electronic educational resource, then the text, audio and video works posted in it are considered electronic content. The basis for dividing electronic educational content into classes is usually the uniqueness of educational activities.

Therefore, electronic educational content is successfully used in the remote organization of the educational process itself. It should be noted that at present, elements of distance education have become an integral part of traditional education. An analysis of a set of free and open programs that provide the opportunity to organize the process of distance education is presented.

The process of distance education and training can be realized in the following stages:

Step 1: Analysis.

Step 2: Design.

Step 3: Update.

Step 4: Create educational content.

Step 5: Launch.

Step 6: Development.

The fourth of the above stages is the stage of creating electronic educational content on subjects taught in educational institutions. This stage includes the main work. Because the content, design, structure and many other aspects of electronic educational content posted in any electronic virtual educational system must be able to attract the attention of users. To do this, of course, it is necessary to correctly select computer software used in the preparation of educational content, depending on their capabilities, and master how to use them.

Teachers of all disciplines often have to prepare visual electronic educational materials in their work. Below we will present one of such programs. Pedagogical software tools are usually used to design the educational process. One such program is Tarsia.

When we download the Tarsia program to the computer, the following window will appear.

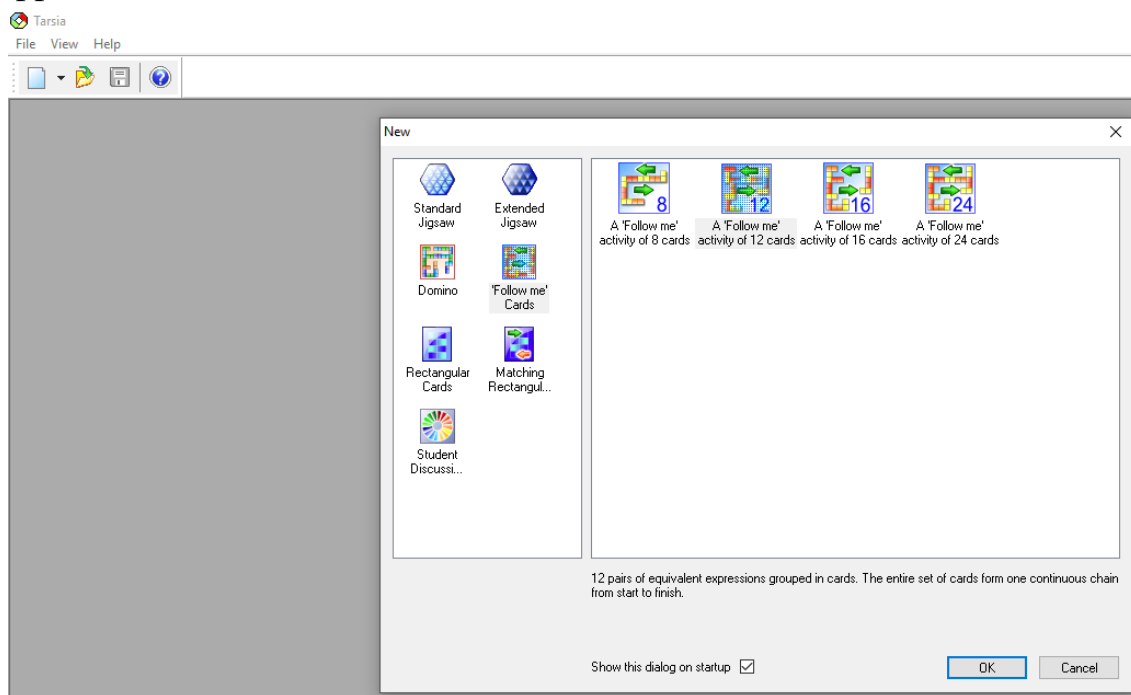


Figure 1. Tarsia main window.

Based on the ready-made templates shown in this window, we can prepare materials for e-learning.

The templates below have their own sections. When we select the template we want, several different options are created. All we have to do is select the number of options we like and click OK.

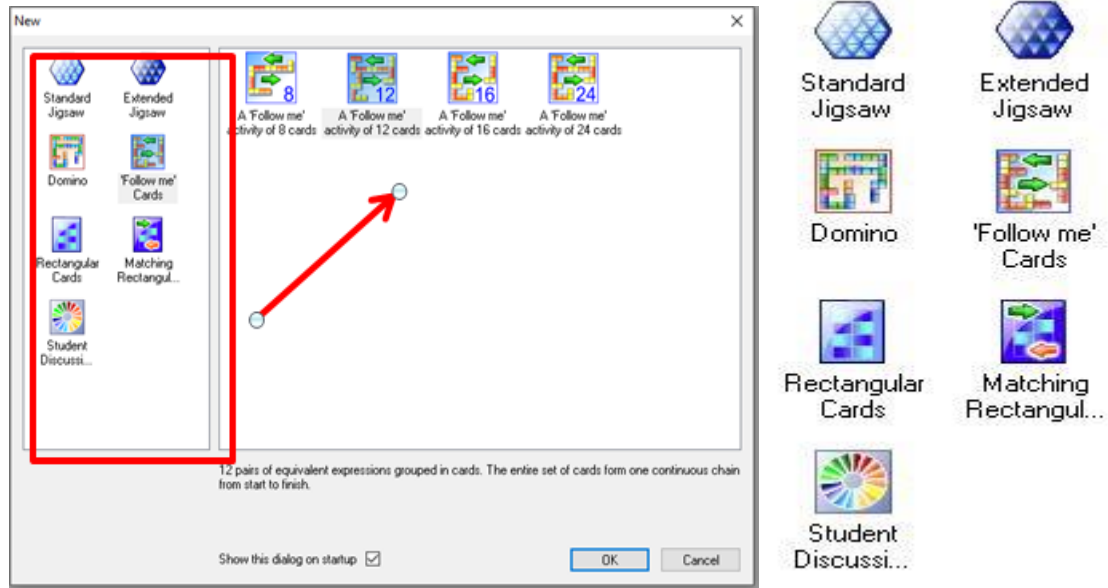
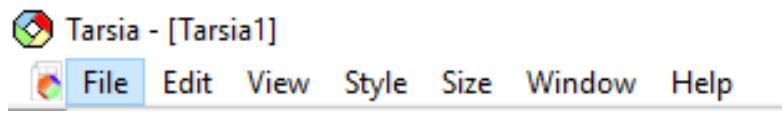


Fig. 2, 3. Template selection window. Basic template types.

These forms differ from each other only in appearance (shape). Handouts can be prepared in the form specified in the templates.

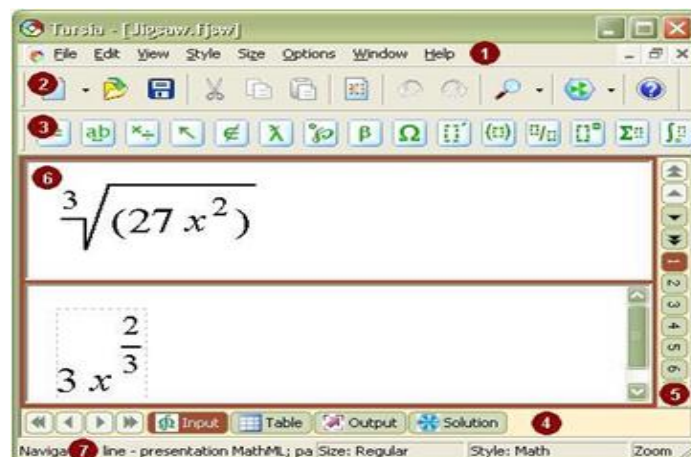
Tarsia menu items



The Insert Image... command is used to insert Windows Bitmap Format (*.bmp), Graphics Interchange Format (*.gif), JPEG File Interchange Format (*.jpg), Portable Network Graphics Format (*.png) into a file. clipboard. You can place files.

- **Math** – used to introduce elements of mathematics.

Tarsia automatically determines the style of the specified type of symbols and the basis of mathematical calculations and rules for the text.

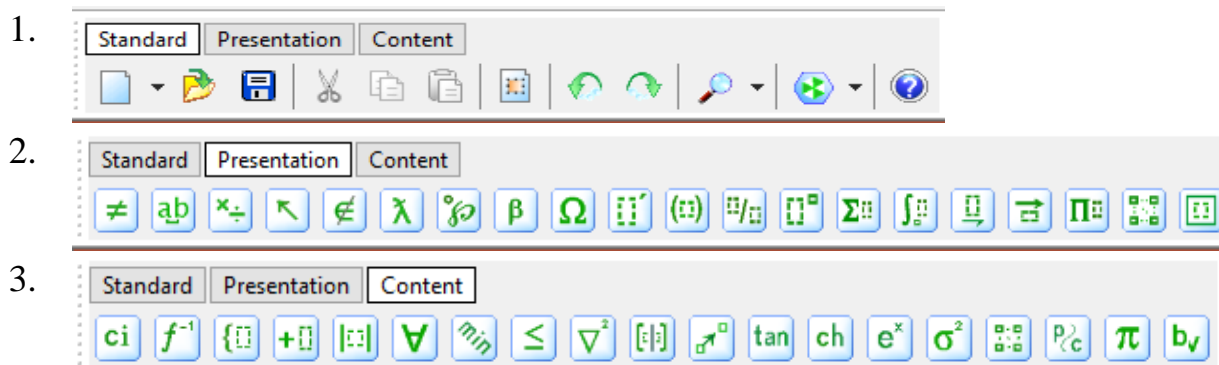


For example, if Tarsia recognizes a sequence of alphanumeric characters as a default operator (from the MathML operator dictionary), then it uses the Operator method.

Toolbar

The Tarsia dashboard is divided into top and bottom panels.

1) The top panel consists of three parts:



2) Bottom panel:



Analysis and results. Nowadays, with virtual learning taking center stage in education, teachers are also thinking about effective ways to use educational materials in online learning. Tarsia was created for the preparation and teaching of mathematics handouts, has been used in schools in the UK and has become an effective method for teaching other subjects. Teachers can adapt and integrate specific lesson objectives, create lesson content, and create resources for their groups.

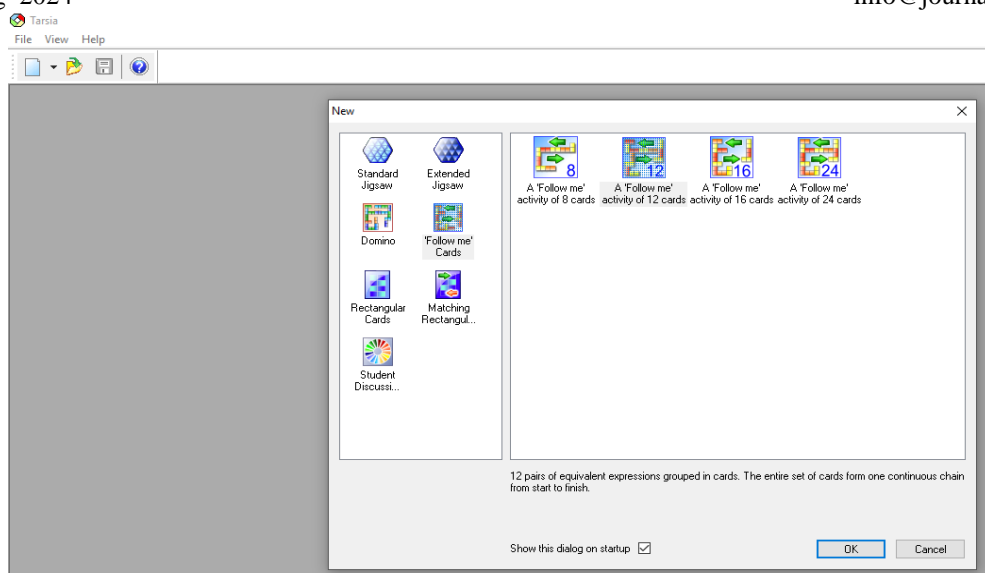
Instructions for preparing educational content in the form of electronic handouts in the Tarsia program

Execution technology:

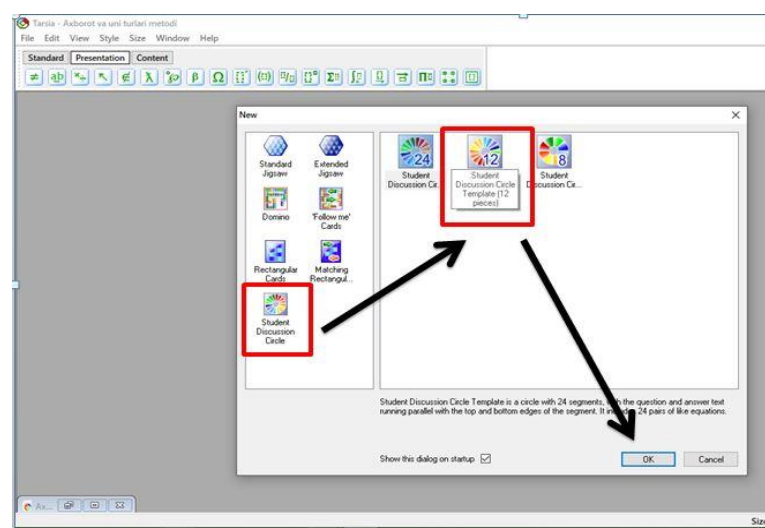
1) The Tarsia program is launched via START->All Programs->Hermitech Laboratory->Tarsia Command:



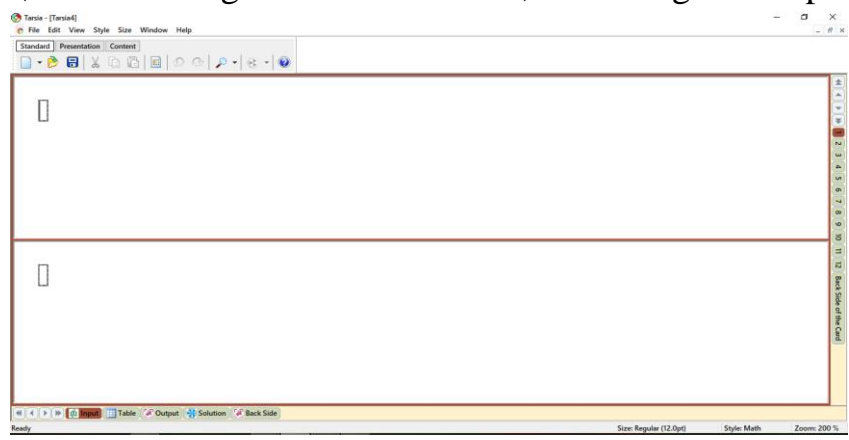
The program will start as shown in the above window, and the following window will appear:



2) In the window that appears, select the section "**Student discussion circle**" and select the option "Student discussion circle" (12 pieces) and click the OK button.

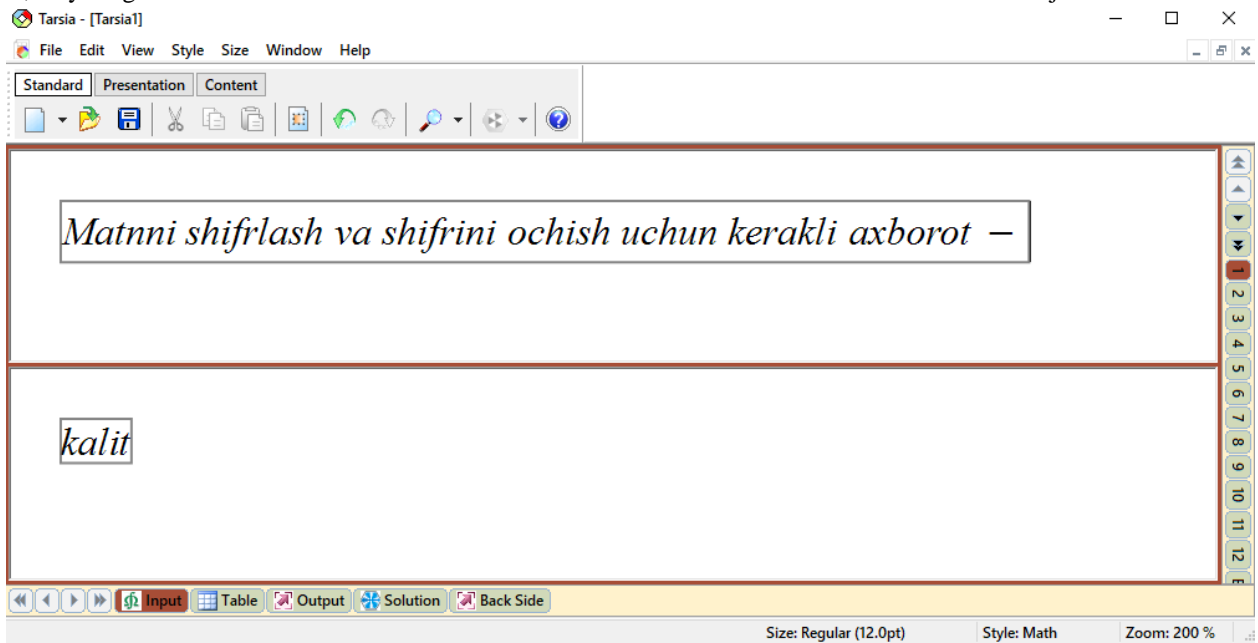


3) As a result, the following window is created, consisting of two parts:

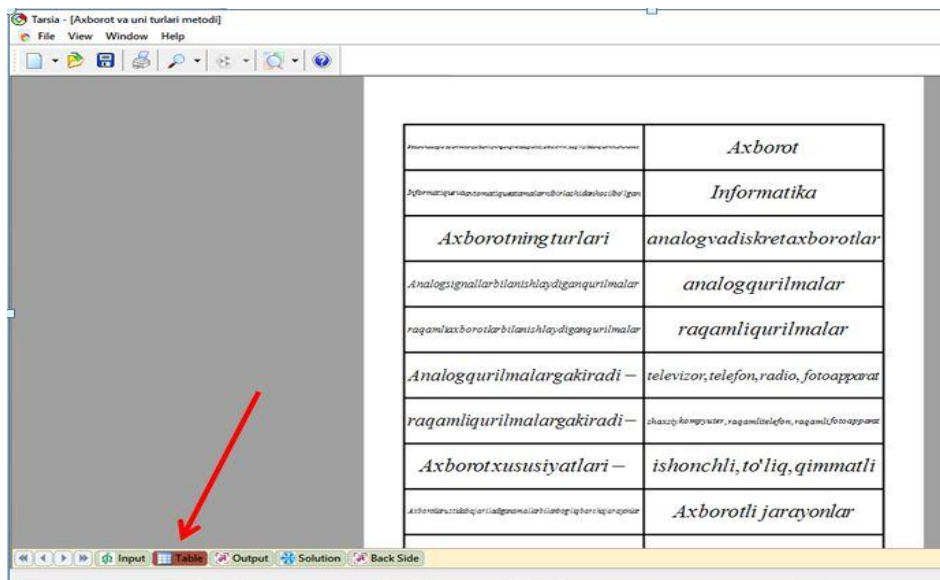


We write the question at the top of this window, and the answer in the bottom line.

4) So we can write 12 questions and answers and view the generated results through the bottom navigation bar of the following window:

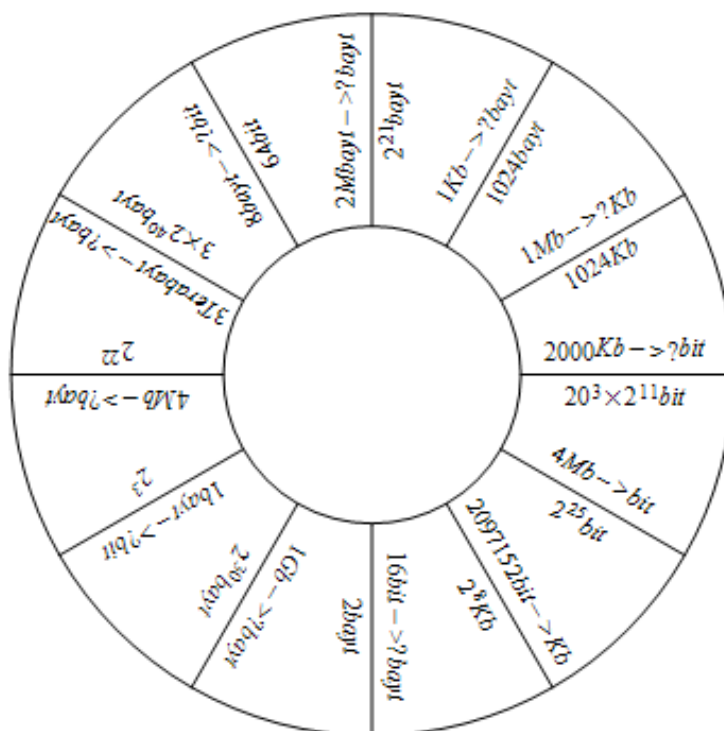


5) **Table** – in this section we can see written questions and answers in the form of a table:



6) **Conclusion** - in this section we see questions and answers in a mixed order:
Click on the right navigation panel to point to the My Mojem window, and place the form in the list:

- ❖ **Standard** – one form fits entirely into the list;
- ❖ **Middle** – in the list two forms are located next to each other;



Conclusions and offers. This article discusses the process of developing e-learning content in the form of handouts using the Tarsia program. Such programs are many and varied, but depending on the characteristics of the subjects are taught, it is important to understand what electronic content is suitable for development. The Tarsia program, designed for creating electronic developments in the form of handouts for all subjects, uses specific examples to show the possibility of creating projects of various patterns. Disclosure of the program's capabilities allows users to get an idea of their use. Examples of creating electronic educational content in the form of handouts using the Tarsia program have also been developed. Analyzing the capabilities of such programs helps save users time and create experience in working with them.

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