

USE OF LAPBOOKING DURING STUDY PARASITIC ORGANISMS

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In the list of human diseases, parasitic diseases occupy one of the first places and cause significant damage to the population. They believe that every resident is bound to be infected many times during his life by parasitic organisms. Mortality due to infectious and invasive diseases is equated with mortality from oncological diseases and cardiovascular vascular pathology [1, p. 406]. Therefore, familiarization with the features of the structure parasites, their life cycles, and distribution is a necessary prerequisite study of measures to prevent invasive diseases. Basic knowledge and the formation of appropriate hygiene skills is the key to maintaining one's health and the health of the surrounding people.

The purpose of the study was to find out the specifics of the use lapbooking during the study of parasitic organisms.

The idea of using folded sheets of paper for better memorization of educational material belongs to Dina Zayk. Later, Tammy Dabi tried to put individual small elements into one decorated folder properly. Such a self-made book was convenient to use and received the name – lapbook (lapbook). Book or thematic folder of various I liked the forms on any topic with originally designed elements of children, parents, educators, and teachers [3, p. 7]. Therefore, it is quite natural that this idea gradually turned into a separate learning technology – lapbooking.

Using lapbooks while studying biology has several advantages. Children learn to independently choose, arrange and systematize information, analyze it and draw conclusions. Students understand better thanks to the visualization of the material and remember it faster. In addition, this technology forms the active position of the student, because each lapbook is unique and is based on the individual vision of educational information by each child.

Educational, game, autobiographical, and greeting lapbooks are allocated according to the purpose of their application. Most often in biology lessons, they use educational lapbooks that are interest-oriented and the capabilities of each child. Lapbooking contributes to the formation of an individual educational trajectory and develops curiosity, creativity, and initiative in schoolchildren. This technology contributes both to the study of new material and to the generalization and systematization of students' knowledge on a certain topic.

In biology lessons, lapbooking can be used for individual and group work students. In the first case, the development of each child's independence is positive responsibility for the obtained result. Under the condition of group work, communication and team interaction skills are formed, friendliness, initiative, mutual support, organization, etc.

Information about the morphological features of parasites, the main ways human infection, and measures to prevent invasive diseases are enough specific and difficult for children to perceive [2, p. 191]. However, this knowledge should be received by everyone as early as possible, to form a caring attitude to their health. To visualize educational material about parasitic animals, we suggest using lapbooking technology. Creation lapbook is a rather troublesome activity for the teacher, but the interest of the children in an unusual way of presenting information inspires him to create new projects. In turn, ready-made lapbooks can be used repeatedly to repeat the studied material.

You can create individual and group classes with children of different ages lapbooks. In the first case, it allows you to take into account the peculiarities, the level of knowledge, and preferences of each child. Working on a lapbook motivates children to deepen their knowledge, and carry out an independent information search. If necessary, the teacher corrects the children's activities, encourages their creativity and originality, and contributes to creative solutions [4, p. 73]. However, all recommendations should be provided only as a partner. Interpersonal communication by adults and peers has a positive effect on the development of the psyche and personality in general and is worth commenting on, discussing the process of creating lapbook and performance results. Sometimes the discussion leads to further development of the topic and contributes to the creation of new lapbooks.

While working on courses to improve the pedagogical qualifications of employees, we conducted both classes on creating a group lapbook and lessons on studying material about parasitic animals based on a lapbook, by modifying it into a card game. Yes, the participants took an active part in making logical pairs (parasitic organism and its systematic provisions) and were able to solve tasks with several answer options (parasite and its localization in the human body). Playing the role of students, teachers of biology participated in the compilation of generalizing reference schemes dedicated to studying ways of infection by parasites and prevention of invasive diseases.

Working with a large number of children of different ages, we have our own experience convinced that lapbooking is of interest to schoolchildren of any age and can become the basis for studying any biological topic. It is a universal technology, which promotes the development of the cognitive activity, creativity, and independence.

It is worth noting that this technology has minor disadvantages, first of all for the teacher. In particular, creating a lapbook requires a

significant preparatory stage – thinking through the plan, searching for materials, creating components for manufacturing, etc. To save the teacher's time and rational organization project, we recommend following the sequential steps.

Step 1. Choosing a topic, discussing it, and drawing up an action algorithm.

Step 2. Creating a lapbook layout (choosing a basis that will be appropriate for the selected topic).

Step 3. Selection of lapbook filling options (mini-books, accordions, pockets, mini-puzzles, envelopes, book fans, etc. according to the volume information) and color scheme to focus attention on the main concepts and aesthetic appearance of the project.

Step 4. Making a lapbook (combination of the base and all components).

Step 5. Discussion of the project and its presentation.

Note that lapbooking also requires certain financial costs, considering on the need to manufacture project details. To avoid these inconveniences, we recommend when manufacturing at least part of the parts ensure multiple uses of them. Yes, when studying parasites, we used lamination for cards depicting animal species. Thanks to, therefore, they can be used for different purposes – when studying systematics belonging, during the division into groups of parasites, determination of localization in the body of the host, etc.

We suggest planning to use the components of the laptop for others as well as forms of presentation of educational material. Yes, when studying parasitic species of animals we used laminated cards with the image of species for group work of students when finding out the ways of human infection ectoparasites and endoparasites. Such universal elements allow it is easy and dynamic for the teacher to explain new material, check the level of assimilation of information and, if necessary, correct the knowledge of students.

Conclusions. Lapbooking requires the teacher to constantly improve his/her professional skill. Children of the new generation need constant creativity and harmony between learning new things and entertainment. It is lapbooking that can provide this combination and is an effective innovative form of work that is advisable to use during the study of biology. It is especially useful will become when studying complex and information-rich topics. A laptop is an opportunity to combine learning, knowledge of the world, and creativity, that's why exists universal technology, which is appropriate to use in the educational process.

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**ОВОЛОДІННЯ ОСНОВНИМИ МЕТОДИЧНИМИ
ПРИЙОМАМИ РОБОТИ ІЗ УМОВНО-ПАТОГЕННИМИ
ШТАМАМИ БАКТЕРІЙ НА ПРИКЛАДІ
МЕТИЦИЛІНРЕЗИСТЕНТНИХ СТАФІЛОКОКІВ
ЯК ПЕРШОРЯДНА ПРАКТИЧНА НАВИЧКА МАЙБУТНІХ
СПЕЦІАЛІСТІВ СФЕРИ МІКРОБІОЛОГІЧНОЇ
ЛАБОРАТОРНОЇ ДІАГНОСТИКИ**

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Золотистий стафілокок є одним із найпоширеніших мікроорганізмів, що викликає широкий спектр захворювань людини. Він здатний вражати майже всі органи та тканини, демонструючи при цьому широкий діапазон адаптаційних можливостей. Однак, проблема полягає не лише у значному ступені розповсюдження і високій частоті виділення *Staphylococcus aureus*, але й у високому рівні його антибіотикорезистентності. Найбільшу небезпеку у медичній практиці становлять метицилінрезистентні штами *S. aureus* (MRSA). У більшості країн (США, Латинська Америка, ПАР, Індія і Китай) частота їх виявлення становить 25% від загальної кількості штамів *S. aureus* [2, с. 457]. MRSA характеризуються високим рівнем стійкості до антибіотиків різних фармакологічних груп – макролідів, аміноглікозидів, фторхінолонів, а особливо до групи β-лактамів, включаючи пеніциліни і цефалоспорини всіх поколінь [3, с. 266]. Через це моніторинг рівня чутливості як до традиційних препаратів, так і до нових, є важливим елементом у формуванні стратегії раціональної антибактеріальної терапії