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Methodical model for organizing health education on the topic: „What do foods contain?”

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Abstract: *The article presents a methodological model on „What do foods contain?” for organizing health education in the framework of extracurricular activities in biology for students of 5th grade. The pedagogical design includes specific pedagogical activities, modern methods, and approaches integrated with the module „Man and Nature“ - 5th grade, part of the degree of primary education, part of the cycle of natural sciences. The normative framework for conducting and monitoring health education in the school education system is analyzed.*

Keywords: *health education, healthy nutrition, pedagogical model "What do foods contain?"*

Introduction

The culture of modern man places a strong emphasis on health. The quality, lifespan, and standard of living of a society are all determined by its level of development. Healthy nutrition is an important component, along with maintaining hygienic standards, preventing sexually transmitted diseases, and avoiding unwanted pregnancies.

According to the European Association for the Study of Obesity, 1.5 million Bulgarians are overweight, and our country ranks quite high among EU countries in terms of childhood obesity. In recent decades, there has been a rapid increase in the relative share of overweight children. The World Health Organization identifies childhood obesity as one of the most serious public health challenges.

Solving the problem of the consequences of an unbalanced diet is the responsibility of the school, the family, and society as a whole. Because no other public institution has such long-term and intensive contact with children, the school's function is critical (Reniskow, 1993; Cale, 1997; Centres for Disease Control, 1997) [3]. For the successful acquisition of knowledge and skills for healthy eating at the school stage it is essential to use innovative methods of training. The process of assimilation occurs only if the student is engaged in active reflective and transformative activities with appropriate focus and (during the learning process) communicates with others [1].

School health education takes place both inside and outside the classroom. The policies that a school adopts, the physical and social environment it provides, the curriculum it chooses, and the quality and methods of instruction all have the potential to significantly affect the health of students and others at school [2].

In the methodological model, special attention is paid to the „involvement“ of parents in education as an important factor. The inclusion of the family and school environment aims to achieve lasting knowledge, skills, and commitment to the problem.

II. Analysis of the National Legal Framework for Conducting and Monitoring Health Education in the School Education System

Regulation № 13 of 21 September 2016 on civic, health, environmental and intercultural education (Promulgated - SG, issue 80 of 11.10.2016, in force since 11.10.2016. Promulgated - SG, Iss. 80 of 28.09.2018, in force since 28.09.2018., issued by the Minister of Education and Science) determines the state educational standard for civic, health, environmental and intercultural education [4].

Article (1). Defines The standard, which includes: the nature and objectives, methods and forms of implementation, framework requirements for learning outcomes, and institutional policies to support civic, health, environmental and intercultural education.

Article (2). Civic, health, ecological and intercultural education shall be carried out in schools, kindergartens, and centers to support personal development in the system of preschool and school education.

Article (3). Nature of the goals:

(1) Civic, health, environmental and intercultural education are interconnected and form an interdisciplinary complex aimed at acquiring social, civic, and intercultural competencies and competencies related to health and maintaining a sustainable environment.

(3) Health education is aimed at developing skills for creating or maintaining a healthy lifestyle and living conditions and for voluntary adaptation to health-promoting behavior.

Article (6). (1) In school education civic, health, ecological and intercultural education shall be carried out in the process of acquiring all types of school preparation.

(2) In school education civil, health, ecological and intercultural education shall be carried out also:

1. in the form of "tutor session", including through the student self-government;
2. in the activities of interests within the framework of the all-day organization of the school day;
3. within the activities for general support for personal development by the order and under the conditions of the state educational standard for inclusive education.

(Ordinance: https://www.mon.bg/naredba_13_21.09.2016_grazhdansko_eko_obr.pdf)

III. School programs

Article (7). (1) The training for acquisition of the general educational preparation in each of the subjects under art. 3, para. 1 shall be carried out according to curricula, on the basis of the respective requirements under art. 6, para. 1 specifies the competencies of students as expected learning outcomes for the class.

Article (8). Each curriculum contains

1. a short presentation of the curriculum;
2. expected results from the training in the subject at the end of the class to achieve the competencies specified in the respective requirements under Art. 6, para. 1, and for the curricula for more than one class in the innovative schools - at the end of the classes;

Table 1. Curricula by classes (general education)

Curricula by classes	Areas of competence
Grade I Surrounding world Grade II Surrounding world Grade III Surrounding world	The man and the healthy lifestyle
Grade IV Man and nature	The man and the healthy lifestyle
Grade V Man and nature	The human body (health prevention)
Grade VI Man and nature	The human body (health protection) The human body - structure, life processes, health are focused on cell and experiment
Grade VII Biology and Health Education	Sustainable development and health lifestyle They are not related to health education.
Grade VIII Biology and health education	The human body - structure, life processes, health

Curricula by classes	Areas of competence
Grade IX Biology and Health Education (36 teaching hours course)	The focus is cell and experiment They are not related to health education.
Grade IX Biology and Health Education (90 teaching hours course)	The human body - structure, life processes, health protection
Grade X Biology and health education The subject of biology and health education in X grade is the final of the general education training in biology and health education in high school.	They focus on a multicellular organism, the biosphere, biological evolution, and experiment. They are not related to health education.
Grade XI Biology and health education - not studied.	In the subject Civic Education the topic of healthy nutrition and health education is not covered.
Grade XII Biology and health education- not studied. The topic of healthy nutrition and health education is addressed in the subject Civic Education.	Nature and culture in the context of globalization discover modern trends in health culture.

IV. Pedagogical design on the topic „Healthy nutrition“ 5th grade. General presentation

The model is part of the overall development of healthy nutrition for primary school students - 5th grade. The manual includes the following topics:

- What does the food contain? The topic is divided into several study units and includes information on essential nutrients (proteins, fats, carbohydrates, vitamins, water, and mineral salts);
- What is our anatomy?
- Organs through which energy and nutrients enter our body;
- What are these numbers? information on the content of the labels;
- The hunt for advertising - how to be less susceptible to the influence of advertising;
- Small tips of great importance - practical tips for healthy nutrition.

A manual for the teacher has been developed for the manual, in which sample methodological developments for each lesson unit are indicated. Parents are involved by involving them in learning activities.

V. General structure of the pedagogical design „Healthy nutrition“

- A textbook for students in the target group 5th grade.
- Methodical guide for the teacher.
- Information for parents.

VI. The thematic content of the manual for students

- What does the food contain?
- What is our anatomy?
- Organs through which energy and nutrients enter our body
- What are these numbers?
- On the hunt for ads
- Small tips of great importance - practical tips for healthy eating

VII. Structure and content of the methodological manual for teachers

1. Structure:

The manual contains sample methodological developments of lesson units, provided:

- Tasks;
- The answers to the question
- Necessary materials for conducting the classes;
- Additional literature;
- Glossary.

2. Contents:

- Introduction;
- Nutrients;
- Human anatomy;
- Glossary;
- Applications.

VIII. Design of learning activities

The learning activities are structured according to a single algorithm, which includes:

- the name of the specific type of activity;
- a short description;
- necessary materials and equipment, and steps for the implementation of the activity;

Some of the activities include a summary and commentary on the importance of human health and nature.

IX. Modern pedagogical methods and approach integrated with a module „Health education“

- Project-based training.
- Educational comics as a means of forming knowledge and skills in the field of health education.
- Applications for health education.
- Method of specific situations.
- Role-playing games, etc.

X. Methodical model for organizing health education on the topic: „What does food contain?“ 5th grade**What does the food contain?**

The food we eat should contain the following nutrients: proteins; fats; carbohydrates; vitamins; water and mineral salts.

In some foods these substances are more, in others, are less, or they may even be absent.

Proteins, fats, and carbohydrates supply energy to the body, and build it, mineral salts are also involved in its construction, along with vitamins, they help the consumption (use) of energy by us. Water is necessary for the normal functioning of the organs.

Proteins

Our body is made of proteins just as bricks build brick houses. Proteins give us energy so we can study, play, and play sports.

Table 2. Which Foods Contain The Most Proteins?

Animal origin	Plant origin
milk	cottage cheese
beans	lentils
cheese	eggs
green beans	nuts

Optional:

- *Draw the products that contain the most protein.*

Fat

Fats also build our body. They envelop it, forming a fatty tissue that protects it from cooling or overheating, just as people insulate their homes.

Fats contain twice as energy as proteins.

This energy is used only when we are not eating foods that contain fat for a long time.

‡Therefore, people who want to lose weight should reduce fat-rich foods and do more exercise.

Table 3. Which Foods Contain The Most Fat?

Animal origin	Plant origin
butter	oil

Animal origin	Plant origin
nuts	olive oil
fat	sausages
cream	chips

Optional:

- Look for pictures or photos of products from newspapers or magazines that contain the most fat and paste them on the table.

Carbohydrates

Carbohydrates are nutrients that provide us with energy. They are divided into fast and slow. The energy of fast carbohydrates passes into our body in a few minutes and can be used for 30 minutes to 1 hour. The energy of slow carbohydrates passes into our body gradually (in portions) and is consumed in about 6 hours.

If we eat foods rich in carbohydrates but do not use their energy (do not solve problems, do not study or move and do sports), carbohydrates become fat.

‡ So before you eat fast carbs, think about how you will use this energy.

Table 4: Which Foods Contain The Most Carbohydrates?

Slow carbohydrates	Fast carbohydrates
whole-grain bread	white bread
oatmeal	sugar
corn	chocolate
potatoes	waffles

Optional:

- Look for pictures or photos of products from newspapers or magazines that contain carbohydrates and paste them on the table
- Draw the products that contain the most protein
- Look for information on other products that contain carbohydrates

Tasks

1. Jim and Jack are classmates and friends. They are 12 years old and are studying in the 5th grade.

Jim	Jack
height:	height:
weight:	weight:

The condition of the task is placed in the teacher's book.

1. Jim and Jack are classmates and friends. Both are 12 years old and are in the 5th grade. Jim is 1.65 cm tall and weighs 35 kg. Jack is 130 cm tall and weighs 45 kg. What food would you recommend to your two friends?

Students should complete:

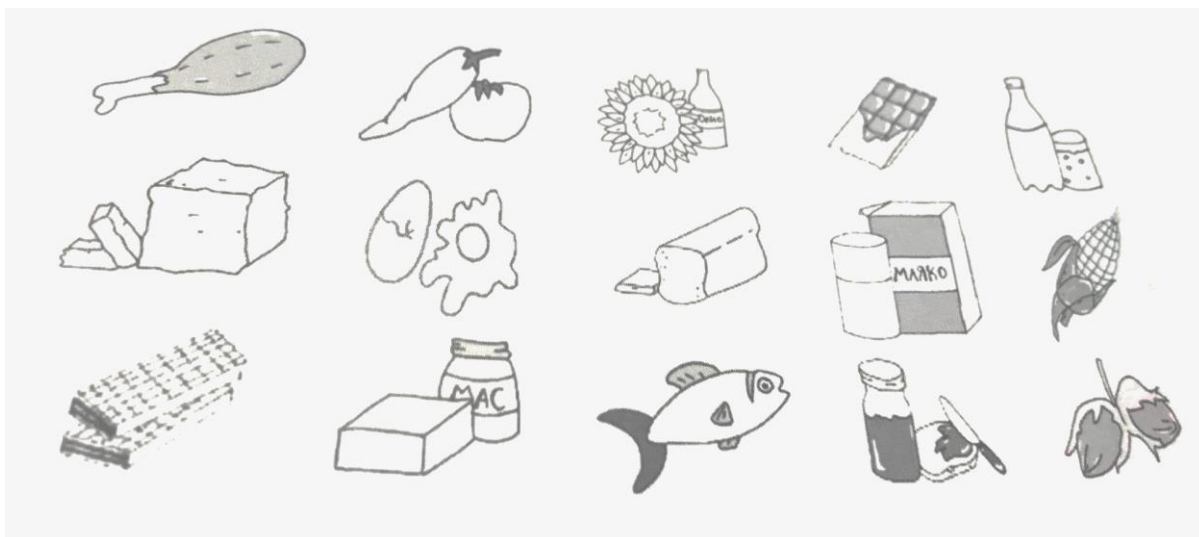
- the weight and height of Jim and Jack;
- make a menu that looks appetizing;
- draw the foodstuffs on one of the meals or stick the foodstuffs of which it is composed on the depicted plates;
- to draw Jim and Jack.

2. John is a football player. Today at 14:30 he has an important football match. Please, help John to compile a menu so that he can feel good and have energy for the upcoming race. The menu should include breakfast, lunch, afternoon breakfast, and dinner.

Breakfast time: ...	Lunchtime: ...	Afternoon breakfast time:...	Dinner time:...

3. Different food products are painted on the picture. Color different foods. Color with the colors of proteins, fats, and carbohydrates the foods that contain the most.

Proteins -red color; Fat-green color; Carbohydrates-orange color.



Conclusion

The pedagogical design on „Healthy nutrition“ and in particular the model „What does food contain?“ Can be applied as a supplement to the mandatory preparation in the tutor session, „Man and Nature“, for independent or homework and to consolidate the acquired knowledge. The model can also be applied in „tutor sessions“. A guide for the teacher and parents has been developed for the proposed model, „What does food contain?“ as well as for the pedagogical design. In the teacher's manual, the lesson units are developed by presenting intermediate and final goals, as well as the necessary materials for presenting the lesson.

Modern teaching methods are presented in which the leading role is played by the students. These methods reveal the potential opportunities for students, form their leadership qualities, create social skills, teamwork skills, and more.

Healthy nutrition training enables students to use their knowledge and skills in other educational subjects. By acquiring knowledge and skills students become teachers for their parents themselves. In this way, they gain confidence and self-confidence for their social significance and responsibility.

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