INNOVATIVE STEPS

Funded by the European Union

Project: Innovative STEPS **(Innovative SusTainability Education for Prosperous Schools)**
Project Agreement Number: 2022-1-SK01-KA220-SCH-000085417

Healthy nutrition

Training for teachers

Authors:
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NUTRIENTS

Chapter 1

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The topic of food concerns all of us, because we have to eat and drink. Thanks to food, we have enough nutrients to survive and enough energy for everyday activities. But food also has a direct impact on our physical, mental and emotional health.

"We don't live to eat, we eat to live."

Foods are substances that contain nutrients. They are of plant or animal origin. They are intended for human consumption in an unaltered, modified or processed state. Each food has a specific energy and nutritional value.

A diet is an assembly of food and dishes for the nourishment of people.

A meal is an assembly of food eaten at a particular time. E.g. breakfast, lunch, dinner.

Food is food prepared for immediate consumption. E.g. mashed potatoes, soup.

Nutrition is the process of processing food in the human digestive (gastrointestinal) tract to utilize individual nutrients for the proper functioning of the body.

Nutrients (nutrients) are the nourishing substances present in food. Nutrients are essential for development, growth and all functions of the body.

Macronutrients (macronutrients) are a source of energy and are used to build body mass. They are proteins (proteins), carbohydrates and fats (lipids). Their daily intake is in grams.

Micronutrients are not a source of energy, but they are essential for the body. They are vitamins, minerals, trace elements and other substances. Their daily intake is in milligrams.

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Proteins

Proteins are the basic building material of tissues and organs, components of hormones, enzymes and antibodies. A total of **20 amino acids** make up the structures of different proteins. Sources of protein are animal foods (meat, poultry, fish, milk and dairy products, eggs) and plant foods (legumes, including soy, tofu and other soy products, cereals, nuts and seeds).

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Carbohydrates

Carbohydrates are the main source of glucose, which is the most readily available and important source of energy for our bodies. **Simple sugars** have a simple structure, are soluble in water, taste sweet. They are a quick source of energy and raise blood glucose levels very quickly. They occur naturally in food, e.g. in fruit and unsweetened milk. This includes table sugar, which we use to sweeten our food and which is obtained from sugar beet and sugar cane. Most simple sugars are ingested through the consumption of a variety of industrially processed foods and sweetened beverages. This increases the risk of obesity, cardiovascular disease, diabetes, cancer and tooth decay. Their intake should therefore be limited.

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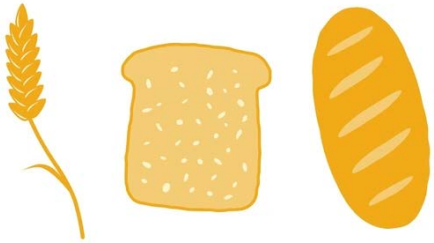
Starches

Starches (polysaccharides) are complex carbohydrates, have a complex structure and do not have a sweet taste. They supply energy gradually and maintain a balanced blood glucose level. Their sources are plant foods such as cereals and cereal products (bread, pastries, pasta, porridge, cereal flakes), pseudo-cereals (buckwheat, quinoa), potatoes, rice, legumes, vegetables and fruit. Preference should be given to **whole-grain starchy foods** in the diet, which also contain fibre, vitamins, minerals and other beneficial components.



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Fibre

Dietary fibre is a collection of various carbohydrates that are difficult or indigestible in the digestive tract and are found only in plant foods.
Insoluble fibre promotes bowel movement and improves bowel emptying.
The soluble fibre forms a gel-like consistency on contact with water. Beneficial bacteria in the large intestine can digest (ferment) it, thus maintaining a healthy intestinal environment. Such fibre therefore has **prebiotic** effects.

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Fats

Fats are the main source of energy for our body. They accumulate in adipose tissue, which serves as an energy store. However, excessive storage leads to obesity and is harmful to health. Fats also perform other tasks such as thermoregulation, vitamin absorption, hormone production and are a source of essential fatty acids. The essential components of fats are **fatty acids** and glycerol.

Saturated fatty acids are mainly found in animal fats, coconut and palm fat. They have a solid consistency. When consumed in excess, they are a health hazard and increase the risk of cardiovascular disease.

Unsaturated fatty acids are mainly found in vegetable oils, nuts, seeds and fish. They promote health and reduce the risk of cardiovascular disease.

The body cannot make **essential fatty acids** on its own and relies on dietary intake. The main source of essential **omega-6 fatty acids** is vegetable oils, especially sunflower oil. Rich sources of essential **omega-3 fatty acids** are flaxseeds, walnuts, rapeseed oil and fish oil.

Trans fatty acids are harmful to health. They are mainly found in industrially processed foods.

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Vitamins, minerals and trace elements

Vitamins, minerals and trace elements are micronutrients that the body needs to carry out a range of normal physiological functions. They **are essential substances** that we must take in from food.

Vitamins are fat-soluble (vitamins A, D, E, K) or water-soluble (vitamin C and B vitamins).
Minerals include calcium, magnesium, sodium, potassium and others.
Important **trace elements** are e.g. iron, iodine, zinc, copper and others.

REMEMBER!

***Food** is one of the basic conditions of human existence (like water or air (oxygen)). **The function and purpose of food intake** is to supply energy and nutrients and to support the body's physical and mental tasks in all ways. Food consists of. Each food has its own energy and nutritional value.*

A sufficient and constant intake of dietary protein is essential for the body.
A deficiency, but also an excessive intake of animal protein in particular, is not beneficial to health.
Up to two-thirds of the protein you eat should be plant-based

Complex carbohydrates should predominate in a healthy diet, and the intake of simple sugars should be minimised.
All types of fibre are beneficial to health. The recommended daily intake of fibre is 30 grams for both men and women, for children it is equal to their age + 5 grams per day.

The impact of fats on our health depends on their composition and the amount consumed.
In a healthy diet, fats with unsaturated fatty acids should predominate.

***Vitamins, minerals and trace elements** are essential for the functioning of the body. The body must receive them from food.*

Objectives:

- Pupils use correct terminology to describe processes and phenomena associated with human nutrition
- explain why the human body needs nutrients
- Pupils plan and carry out simple nutrition projects
- pupils present and defend the results of their work

SOURCE: https://www.statpedu.sk/sk/metodicky-portal/volitelne-predmety/viem-co-zjem/

Skills: communication, presence, social
Methods and forms: group work, project teaching
Recommended age: 10-14 years
Time: 45 - 90 min.
Key terms: food, Food, Foodstuff, Nutrition, Nutrients
Key competences: group work develops pupils' communication and organisational skills. After the lesson: Have the pupils changed their diet?

Activity 1 : Carousel of concepts - group brainstorming

Materials: A4 papers with the key terms Food, Food, Food, Diet, Nutrients

1. Divide the pupils into five groups.
2. Each group will be given one colour of pen or marker.
3. Post sheets of paper around the perimeter of the classroom with key terms.
4. Each group will stand by one of the sheets.
5. After starting, the group members write everything they can think of about the concept they have written on the paper.
6. After a time interval (2 min), move the group clockwise to the next sheet of paper.
7. The group writes on the sheet what the previous group did not write. The information should not be repeated.
8. When all the sheets have been passed, the group returns to its original sheet.
9. Together, check the information written on the sheet. You can tell which group wrote what by the different colours.
10. Cross out information that is listed twice on the paper.
11. Count the facts on each paper to see which group wrote how much. Evaluate the best group.

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Activity 2 : Colour menu - homework or classwork

1. Your task will be to complete the table according to how you eat during the week:

Date	Breakfast	Snack	Lunch	Snack	Dinner
Monday					
Tuesday					
Wednesday					
Thursday					
Friday					
Saturday					
Sunday					

2. In the chart, mark following: food in red, food in green, food in yellow.
3. Discuss the colours you used and why.
3. Which day of the week do you think you eat healthy and which one is unhealthy? Discuss this with your classmates.
4. ***Homework :*** Choose one day of your week that you think you eat healthy that day. Prepare a short presentation in the form of a poster on A3 paper. Present your poster to your classmates in the next class and discuss whether your food is really healthy.

Final question (from students questionnaire) – correct answer

Macronutrients (macronutrients) include

a. Proteins, carbohydrates, fats

b. Amino acids, glucose, fatty acids

c. Fibre

d. Vitamins and minerals

e. Do not know

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Thank you for your attention!

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Healthy nutrition

Teacher´s training

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FOOD AS A SOURCE OF ENERGY

Chapter 2

INNOVATIVE STEPS

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People need instant intake of energy for its existence . **The source of energy is nutrients** in animal and plant foods and drinks. For health, it is necessary that **energy intake is in balance with expenditure.**

To express energy intake and expenditure, as well as the energy content of food, we use the term "calories" and the units kilocalories (kcal) or kilojoules (kJ).

1 kcal = 4.2 kJ (more precisely 4.184)

Energy balance is the relationship between total energy intake (calories taken in from food and drink) and total energy expenditure (calories used to meet the body's energy needs). This relationship determines whether our body weight decreases, increases, or stays the same.

Energy intake is the amount of energy that the body receives from food and drinks. **The only source of energy is macronutrients** . **About half of the daily energy should come from whole grain starchy foods** , a maximum of a third from foods containing fat, and the rest from foods rich in protein.

The energy value of macronutrients varies:

Proteins	**1 gram = 4 kcal (17 kJ)**
Carbohydrates	1 gram = 4 kcal (17 kJ)
Fats	1 gram = 9 kcal (37 kJ)

Water (pure, unflavored) contains no calories.

Alcohol also contains energy (1 gram = 7 kcal/29 kJ). is a harmful and addictive substance.

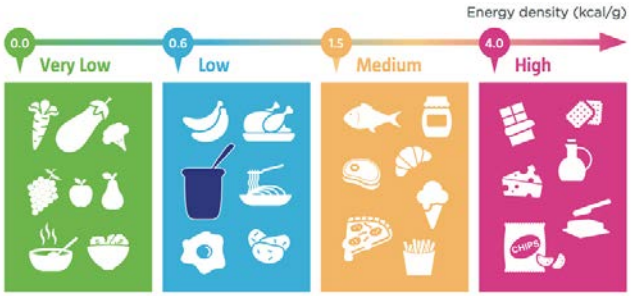

Figure 9. Energy density of food. Adapted from British Nutrition Foundation Feed Yourself Fuller Chart 2009.

Every food and drink has its own energy and nutritional value. Energy value expresses the energy content, nutritional value refers to the amount of nutrients in the food and drink. Foods and drinks with **a high energy value** (density) usually contain a lot of saturated fat, added sugars and salt (e.g. sweets, chips, French fries, mayonnaise, whipped cream, sweetened drinks, etc.), while foods with **a lower energy value** are usually rich in water, fiber, vitamins, minerals and trace elements (e.g. fruits, vegetables, milk and dairy products, etc.).

Image source https://www.coachdannymatranga.com/blog/2020/3/11/the-best-kept-fat-loss-tool-eat-lots-and-still-lose-fat

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The energy value of a food or drink is most affected by the proportion of water and fat. For example, 100 ml of whole milk contains 65 kcal (271 kJ), while 100 ml of low-fat milk contains 38 kcal (161 kJ).

Výživové údaje na 100 g	
Energetická hodnota / Energetická hodnota:	905 kJ / 216 kcal
Tuky / Tuky:	3,8 g
Z toho nasycené / nasýtené mastné kyseliny:	1,9 g
Sacharidy / Sacharidy:	37 g
Z toho cukry / Z toho cukry:	6,6 g
Bílkoviny / Bielkoviny:	6,8 g
Sůl / Soľ:	1,1 g

The energy content of packaged foods and drinks can be found on their packaging. It is always stated per 100 g of food or per 100 ml of drink or per serving. However, the serving that we usually consume may be larger and we will take in more calories than stated on the packaging.

NUTRIČNÍ HODNOTY
OBSAH ŽIVÍN

	100 g müsli obsahuje průměrně/ priemerne	1 porce/porcia (40 g müsli + 60 ml plnotučného mléka/mlieka)
Energetická hodnota Energia	1800 kJ 430 kcal	880 kJ 210 kcal
Bílkoviny / Bielkoviny	8,6 g	5,4 g
Sacharidy z toho cukry/cukor	65 g 25 g	29 g 13 g
Tuky z toho nasycené/nas. mastné kyseliny	15 g 5 g	8 g 3 g
Vláknina	6 g	2,5 g
Sodík	0,4 g	0,2 g
Vitamín B_1	0,3 mg (20%*)	0,1 mg (7%*)
Železo	3 mg (20%*)	1 mg (7%*)
Hořčík Magnézium	94 mg (30%*)	45 mg (15%*)

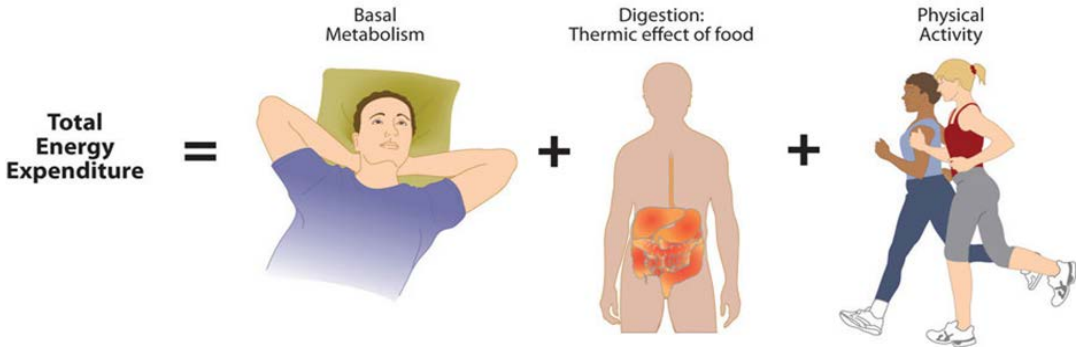
*) procenta doporučené denní dávky.
*) percentá odporúčanej dennej dávky. Prepočítané podľa Souci-Fachmann-Kraut, 6. vydanie.

Energy expenditure is the amount of energy that our body uses when performing various physical activities and body functions during the day. Energy expenditure consists of:

Basal metabolism (60-75%). This is the energy needed to maintain basic body functions such as heart rate, breathing, body temperature, etc. It is the minimum amount of energy the body needs to survive.

Physical activity and movement (10-30%). The more active an individual is, the more energy they need.

Thermic effect (about 10%). It is the energy required to digest food and nutrients. More energy is used to digest proteins, the least to digest fats. More energy is used if we eat food divided into several meals a day, not all at once.



source : https://pressbooks.calstate.edu/nutritionandfitness/chapter/estimating-energy-expenditure/

Energy needs are individual and depend on several factors :

- Gender (more men than women).
- Age (more during periods of growth and development).
- Pregnancy and breastfeeding.
- Physical activity (work and sports).
- Body weight and body composition (more with a higher proportion of muscle).
- Health status (special requirements for certain diseases).
- Weight control (targeted weight loss, weight gain, maintenance).

The estimated average daily energy requirement is approximately:

Adults	**Women 1,800 – 2,800 kcal** **Pregnant and lactating 2,600 - 2,900 kcal** **Men 2,000 – 3,200 kcal**
Children	1,200 – 1,800 calories
Teenagers	Boys 1,600 – 2,600 kcal Girls 1,400 – 2,200 kcal
Older adults	Men 1,800 – 2,400 kcal Women 1,600 – 2,200 kcal

The values given depend on age and level of physical activity.

For a more accurate calculation, various formulas, online calculators or calorie tables are used.

REMEMBER !

If we consume more energy from food than we need, the unused energy is stored as fat and leads to obesity and other related diseases.
For health, it is necessary to have a balanced energy intake and expenditure, which contributes to a stable body weight.
Foods that are high in nutrients can also be energy-dense, such as vegetable oils, nuts, seeds, some dairy products, and grain products, can have a high energy density and high nutritional value. Conversely, some low-energy foods, such as diet sodas, may be low in calories but usually contain no nutrients. They provide "empty" calories.
If the goal is weight loss, energy intake should be reduced and energy expenditure increased. This should be done under the supervision of a weight specialist, especially in children and adolescents.

Food should provide an adequate amount of energy (calories).

You should consume foods rich in nutrients, not energy.

Regular food intake provides a regular energy intake.

Attention should be paid to portion size and its energy value.

Objectives:

- compare essential nutrients as sources of energy for the human body,
- simply differentiate the amount of energy consumed by the human body depending on gender, weight, age,
- explain at an age-appropriate level the impact of unused energy on human health,
- justify the importance of movement in relation to storing unused energy in the human body.

SOURCE: https://www.statpedu.sk/sk/metodicky-portal/volitelne-predmety/viem-co-zjem /

Skills: Communication, attendance, social.
Methods and forms : group work, project-based learning
Recommended age group : Energy in my food 12 -14 years old **,**
Energy shopping 10-14 years
Time: 45 - 90 minutes
Key terms: *Energy intake and expenditure*, *Food digestion*, *Energy density*, *Energy content of food*
Key competencies: Group work develops students' communication and organizational skills. After the lesson: Did students change their diet or add physical activities to burn energy?

Activity 1: Carousel of Terms – Group Brainstorming

Materials : A4 papers with key terms: Food, Food, Meal, Diet, Nutrients

1. Divide the students into five groups.
2. Each group gets one color of pen or marker.
3. Hang sheets of paper with key concepts around the perimeter of the classroom.
4. Each group will stand next to one of the sheets.
5. Once started, group members write everything they can think of about the concept they have written on paper.
6. After a time interval (2 min), the group moves clockwise to the next sheet of paper.
7. The group writes on the sheet what the previous group did not write. The information should not be repeated.
8. After going through all the sheets, the group returns to their original sheet.
9. Together, review the information written on the sheet. You can tell which group wrote what by the different colors.
10. Cross out information that appears twice on the paper.
11. Count the facts on each paper, which group wrote how many. Evaluate the best group.

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Activity 2 : Colorful menu - homework or class work

1. Your task will be to complete the table according to how you eat throughout the week:

Date	Breakfast	Snack	Lunch	Snack	Dinner
Monday					
Tuesday					
Wednesday					
Thursday					
Friday					
Saturday					
Sunday					

2. In the chart, mark following: food in red, food in green, diet in yellow.
3. Discuss the colors you used and why.
3. Which day of the week do you think you eat healthily and which day is unhealthy? Discuss this with your classmates.
4. ***Homework:*** Choose one day of your week when you think you eat healthily. Prepare a short poster presentation on A3 paper. Present your poster in the next class in front of your classmates and discuss whether your food is really healthy.

Closing question (from students´ questionnaire) – correct answer

They have the highest energy value of all nutrients

a. Proteins

b. Carbohydrates

c. Fats

d. Water

e. Do not know

Thank you for your attention!

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Foods and food groups

Chapter 3

Foods , snacks (e.g. coffee, tea, spices) and beverages are **edibles** , i.e. substances intended for consumption – eating and drinking in an unaltered, modified or processed state. They contain different nutrients and have different energy (calorie) contents.

Food groups are groups of foods and beverages that have similar nutrient profiles and common ways of consuming them.
They are depicted in the form of **food plates** or **pyramids** .

Food pyramid is a visual tool used to illustrate a balanced diet for a healthy lifestyle. It shows which foods should be prioritized in the diet, how much of them should be consumed, and how often.

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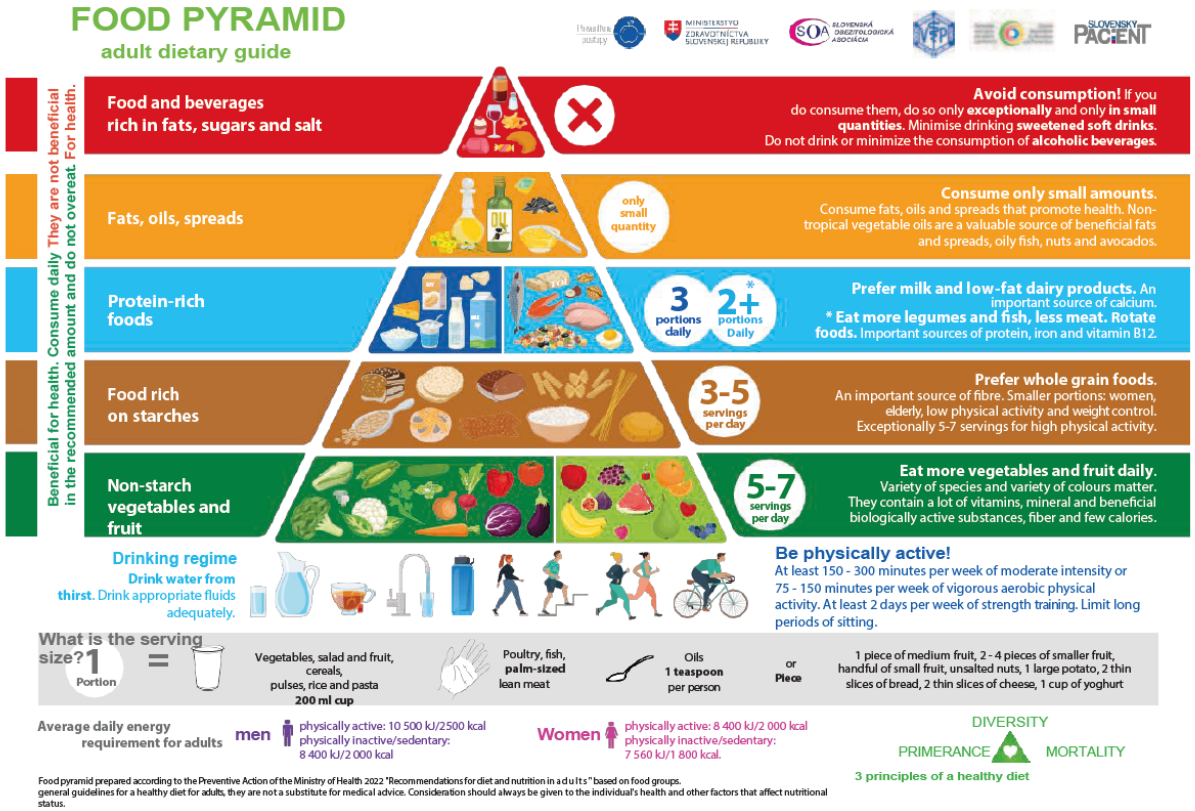
In this chapter, we will introduce the food pyramid and its groups, which was prepared by experts in Slovakia. The next chapter discusses the quantity and frequency of their consumption .



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Vegetables and fruits

Vegetables and fruits form the basis of the food pyramid . They are a rich source of vitamins, minerals, trace elements, fiber and other beneficial substances. They contain few calories, fruits slightly more than vegetables. They add color and variety to the meal.
This group includes **non-starchy vegetables** (except potatoes, sweet potatoes, and corn) and **fruits**.

One standard serving of vegetables is 80 grams.

- **One standard serving of fruit** is 150 grams.
- **The recommended daily consumption of vegetables** is 400 grams.
- **Recommended daily fruit consumption** is 300 grams.
- **A maximum of one of the recommended 5 servings of vegetables and 2 servings of fruit per day** can be in the form of :

– ¾ cup (150 ml) unsweetened fruit juice or 100% juice
– ⅔ cup (130 ml) of fruit or vegetable smoothie
– ½ cup (30 g) of dried fruit

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Foods rich in starches

Foods rich in starches (plant polysaccharides) are the main source of energy. They have a good satiating effect. **Whole grain starchy foods** contain **fiber** , plant proteins, vitamins, minerals and trace elements. Fiber improves digestion, prevents constipation and various diseases of the colon.

This group includes **cereals** and **products made from them** (bread, bakery products, pasta, breakfast cereals without added sugar, oatmeal, cereal porridge) **, rice, buckwheat, quinoa** and **starchy vegetables** (potatoes, sweet potatoes and corn).

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Protein-rich foods

Milk and dairy products

They are **a rich source of calcium** . In addition to proteins, they also contain fats, carbohydrates, various vitamins and other minerals and trace elements. This group includes **drinking milk** (cow's, goat's, sheep's), **milk products** (yogurt, buttermilk, acidophilus milk, sourdough, kefir, kefir milk, cottage cheese, cottage, soft and hard cheeses) and **plant-based milk substitutes** (they are analogues of milk drinks or yogurts and cheeses made from plant sources, mainly soy. Their composition differs from milk and dairy products of animal origin. If they are enriched with calcium, they are a good source of it for people who cannot or do not want to consume milk and dairy products of animal origin).

Number of recommended servings for children and adolescents (5-18 years) are up to 5 servings per day.

One standard serving means:

- Milk (drinking milk, sour milk, fortified soy drink): 1 serving/1 cup (200 ml-250 ml)
- Yogurt: 1 portion/ 1 jar (125 g – 150 g)
- Cottage cheese: 1 serving/1 cup (75 – 125 g)
- Cheese: 1 serving/2 thumbs up (25 g)
- Hard cheeses should be consumed rarely and in small quantities due to their high fat and salt content.
- **Consume dairy products with high fat and sugar content rarely** – for example, as a dessert.

Meat, poultry, fish, eggs, legumes, nuts and seeds

All foods from this group, like milk and dairy products, are rich in high-quality protein and other beneficial substances, such as iron, iodine, and vitamin B_{12}. You don't need to eat a lot of these foods, and they will fill you up nicely.

This food group includes :

Legumes

Legumes (beans, lentils, peas, chickpeas) provide high-quality plant-based protein and non-heme iron. They are low in fat and high in fiber. They also include soybean products (fermented, such as tempeh, natto, yogurt-like products, and non-fermented, such as tofu).

Fish

They are rich in protein and iodine. Fatty marine fish, containing about 10% fat and are a good source of vitamin D and omega-3 fatty acids. It is important to eat a variety of fish, marine, freshwater and small fish (sardines with bones).

This food group includes :

Poultry

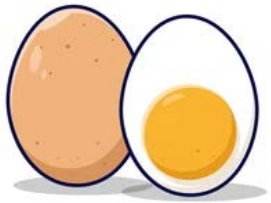
It provides easily digestible protein and a smaller amount of iron. Prefer lean meat with low fat content.

Lean unprocessed red meat

It includes pork, beef, lamb, goat, game and rabbit meat. It is a good source of protein, heme iron and B vitamins, especially B_{12}. Prefer lean meats with low fat content.

Eggs

They are a quality source of valuable protein. Egg whites do not contain fat. Egg yolks also contain fat, fat-soluble vitamins, minerals and trace elements, carotenoids with antioxidant effects, and cholesterol.



Nuts and seeds

They are high in protein, fiber, and beneficial unsaturated fats, but they are high in calories.

Fats, oils, spreads

They are an important source of energy, essential fatty acids and fat-soluble vitamins. They can be of plant or animal origin and have a solid or liquid consistency (oils). Other foods are also rich in fats, such as nuts, seeds, oily fish and avocados.

All foods in this group contain a lot of energy (calories) and their excessive intake **contributes to obesity. Therefore, they should only be consumed in small quantities.**
Their composition (fatty acids) affects the effect they have on our health.
Vegetable oils (olive, rapeseed, sunflower, and others) and fish oil contain unsaturated fatty acids and are beneficial for health.

Animal fats (e.g. butter, lard) and tropical vegetable fats (coconut fat, palm oil, palm kernel fat and coconut butter) contain predominantly saturated fatty acids and their consumption should be kept to a minimum.

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WARNING !

The top of the pyramid is separated and shows foods and drinks that do not belong to a healthy diet.

These are mostly various **processed foods** that **contain a lot of energy (calories), fat (saturated fatty acids and trans fatty acids), added sugars and salt.**

They are low in fiber, vitamins, minerals, and trace elements. Foods and drinks in this group contribute to obesity, tooth decay, and other diseases.
This group includes, for example, packaged soups, sauces, frozen pizza, ready-made meals, sausages, salami, French fries, sodas, cookies, cakes, sweets and many others.

REMEMBER !

You need to eat a varied and balanced diet to avoid any deficiency or excess of nutrients and energy. Don't overeat!

The food pyramid is a guide to healthy eating.

A varied selection of foods from the first four floors with appropriate frequency and appropriate portion size provides enough nutrients and other important substances for the healthy functioning of the body. Together with physical activity, it maintains optimal body weight and thus reduces the risk of various diseases.

Eating according to the food pyramid is also beneficial for the planet.

Eat vegetables and fruits every day . They should make up at least a third of your daily diet.

Eat a variety of colorful, fresh vegetables and fruits.

Prefer seasonal and locally grown vegetables and fruits.

Eat starchy foods daily, but in moderation.

At least half of starchy foods should be whole grains.

Milk and dairy products are an important source of calcium and protein.

Prefer low-fat milk and dairy products.

Consume low-fat dairy products with no added sugar. Eat cheese in smaller quantities.

REMEMBER !

You need to eat more legumes, fish, nuts and less meat.
It is recommended to eat 350-500 g of cooked red meat per week. Consuming processed meat should be avoided completely or eaten only exceptionally and in small quantities.
Eating a mostly plant-based diet, supplemented with animal-based foods, is beneficial for health. Plant-based foods also have a lower environmental impact.
Fats, oils, and spreads should only be consumed in small quantities.
Preference should be given to those that contain unsaturated fatty acids.
Foods and drinks that are high in calories, fat, added sugars, and salt are not good for your health. This group includes many popular processed foods, such as desserts, cakes, cookies, waffles, crackers, potato chips, hamburgers, fried meat products, sweetened beverages, and many others.
If you do eat them, do so only occasionally and in small amounts. Replace them with healthier options.

Objectives:

- apply knowledge about a balanced diet when shopping and eating,
- Create a simple menu that accepts the requirement of a balanced diet.

SOURCE: https://www.statpedu.sk/sk/metodicky-portal/volitelne-predmety/viem-co-zjem /

Skills: Communication, attendance, social.
Methods and forms : group work, project-based learning, role-playing
Recommended age category : Food pyramid plate 10-14 years,
Menu for a party for 12-14 years old
Time: 45 - 90 minutes.
Key terms: *Food, Food Pyramid, Fruit, Vegetables, Cereals, Rice, Potatoes, Milk, Dairy products, Meat, Fats, oils*

Key competencies: Group work develops students' communication and organizational skills. After the lesson : Have students changed their eating habits? Have they reconsidered the preparation of food at their celebrations?

Activity 1: Food Pyramid Plate

Supplies: drawing/cardboard, glue, scissors, markers, food flyers

1. Divide into groups.
2. In your group, talk about what the food pyramid is, what levels it has, what foods belong in it, and why.
3. On the drawing/cardboard, draw a large circle to represent the plate and cut it out.
4. Divide your plate into as many parts as the food pyramid has.
5. Cut out different types of foods from each food group from the food flyers.
6. Stick the pictures of food onto the food plate so that foods that belong together are together.

(The food plate serves as a good visual of how much of each food group children should try to eat.)
eat.)

7. After filling your plate, check that you have assigned the foods to the correct group.
8. Present your work to your classmates and discuss whether you filled the plate correctly.

Are there foods that are unhealthy?

Activity 2: Party menu

What you need: pen, paper

1. Divide into two groups.
2. In each group, choose a captain, a spokesperson, and a recorder.
3. The task of each group will be to design a menu for a children's birthday party.
4. Students in each group exchange opinions and review whether their menu is composed correctly and whether it contains foods from the food pyramid and in what quantities. Does their menu also contain unhealthy foods? How much? They exchange their arguments and opinions about why they composed their menu the way they did. They have 5 minutes to do this.
5. The group chooses one or two speakers to represent them in the discussion. They agree on the arguments that the speakers will use to defend their point of view in the discussion.
6. In the discussion, the groups explain their opinions and present the most important arguments in support of them. After the group spokespersons have expressed their opinion, the other group members can join in the discussion. The teacher ensures that each group has the same amount of time.
7. The teacher asks the groups to summarize their opinions and arguments.
8. Next, we discuss with the students:

Did you find arguments to support your position easy or difficult?

Closing question (from students questionnaire) – correct answer

How many times a week should we eat fish?

a. Once a week
b. At least twice a week
c. Once a month
d. Fish should not be consumed
e. Do not know

Thank you for your attention!

INNOVATIVE STEPS

Funded by the European Union

Project: Innovative STEPS **(Innovative Sustainability Education for Prosperous Schools**
Project Agreement Number : 2022-1-SK01-KA220-SCH-000085417

Healthy nutrition

Training for teachers

Authors:
Martina Kliestikova, Peter Minarik, Daniela Minarikova, Jana Sremanakova

Project: Innovative STEPS **(Innovative Sustainability Education for Prosperous Schools**
Project Agreement Number : 2022-1-SK01-KA220-SCH-000085417

Fluids, drinks and drinking regimen

Chapter 4

Project: Innovative STEPS **(Innovative Sustainability Education for Prosperous Schools**
Project Agreement Number : 2022-1-SK01-KA220-SCH-000085417

Water in the human body

Water is an important component of the human body and performs various functions in it. The body maintains a balance between water intake and output. Water is constantly excreted from the body, so we must constantly consume it. We excrete water in the form of urine, feces, breathing and sweating. We consume water in the form of liquids/ drinks, less in a diet rich in water , and a small part of the water is formed in the body itself.

Lack of fluids

Lack of water in the body (dehydration) is manifested by various symptoms. It is necessary to drink enough fluids to prevent it.

Daily drinking regimen

Daily fluid intake is referred to as drinking regimen. It is important to have sufficient fluid intake daily, but it is equally important to consume appropriate fluids. Daily fluid intake should cover the body's needs in order to replenish water losses and prevent dehydration. The daily water requirement for adolescents and adults is usually around **2 liters for girls and women and around 2.5 liters for boys and men.** This amount is higher in high outdoor temperatures, during sports or physical work, or in the case of certain illnesses. It is advisable to consume fluids at regular intervals evenly throughout the day.

Suitable and unsuitable drinks

The basis of a proper daily drinking regimen should be non-caloric fluids.

Suitable drinks for a proper drinking regimen are:

- **Drinking tap water is the most suitable drink for a proper drinking regimen.**
- A supplement to a proper drinking regimen is weakly mineralized natural spring water or non-carbonated or lightly carbonated non-alcoholic drinks without sugar, unsweetened fruit, herbal, green or white tea. Drink 100% fruit or vegetable juices occasionally, maximum 100 -150 ml and best diluted with water.

Drinks should be at room temperature; drinks that are too cold, carbonated (bubbly) or too hot are not suitable.

As part of a proper drinking regimen, it is necessary to minimize the consumption of beverages that **are not suitable** for a proper drinking regimen:

• Drinks with added sugar, such as soft drinks and sodas, fruit drinks, vitamin waters, energy and sports drinks. Their consumption increases the risk of obesity, tooth decay and other health problems.

• Alcohol and any alcoholic beverages, beverages containing caffeine, quinine and highly mineralized beverages are unsuitable for children and adolescents.

REMEMBER !

Water is an important component of the human body and performs various functions in it. Lack of water in the body (dehydration) is manifested by various symptoms. It is necessary to drink enough fluids to prevent it. The daily water requirement for adolescents and adults is usually around 2 liters for girls and women and around 2.5 liters for boys and men.

Drinking tap water is the most suitable beverage for a proper drinking regimen. Drinks with added sugar such as soft drinks and lemonades, fruit drinks, vitamin waters, energy and sports drinks. Their consumption increases the risk of obesity, tooth decay and other health problems.

Objectives:

- explain the importance and functions of water in the human body,
- identify the conditions on which the necessary daily amount of fluid intake depends,
- calculate how much fluid he should consume in a day,
- plan your daily drinking regimen,
- observe possible signs of fluid deficiency at an age-appropriate level,
- choose appropriate drinks for your drinking regimen,
- distinguish foods with a higher/lower water content,
- with the help of a teacher, plan, implement and evaluate a survey on the drinking habits of students/siblings/parents.

SOURCE: https://www.statpedu.sk/sk/metodicky-portal/volitelne-predmety/viem-co-zjem /

Skills: Communication, attendance, social.
Methods and forms : group work, project-based learning
Recommended age category : Drinking regime! Are you following it? 10-14 years, Water challenge 10 -14 years
Time: 45 - 90 minutes.
Key terms: *Water in the human body, Lack of fluids, Drinking regimen, suitable and unsuitable drinks.*
Key competencies: Group work develops students' communication and organizational skills.
After the lesson: Did the students change their drinking habits? Did they change sweet water for clean water?

Activity 1 Drinking regimen! Are you following it?

Supplies : drawing/cardboard, glue, scissors, markers, food flyers

1. Divide into groups.
2. In the group, talk about what a drinking regimen is and answer the questions: “When do you drink? How much do you drink? What do you drink?” Write your answers on paper.
3. Think about it: Is it difficult for you to stick to your drinking regimen and “not forget” to drink? How do you feel when you lack fluids ?
4. Prepare a short presentation for your classmates about what is/is not appropriate for their drinking regimen and why. The presentation should be no longer than 3 minutes.

Activity 2 : Water challenge

What you need: pen, paper, poster

1. Stick the attached poster with adhesive tape in a visible place (on the wall, refrigerator door, etc.)
2. Everyone chooses the color they will use, cuts out their drops and colors them with their color.
3. Every time you drink a glass of water corresponding to the situation described in one of the squares on the poster, place one of your drops on it. You can stick them with glue.
4. At the end of the day, count each student's drops. The student with the most drops wins.
"Water Challenge"
5. Who will win tomorrow?
6. Discussion with the teacher after completing several days of the water challenge: “How did you feel before you
"Have you started doing the water challenge? Do you feel better during the day at school? Are you less tired?" and so on.

Closing question (from students questionnaire)

Which drink is best for a proper drinking regimen?

a. Drinking water
b. Herbal tea
c. Milk
d. Juice
e. I don't know

Thank you for your attention!

Project: Innovative STEPS (Innovative Sustainability Education for Prosperous Schools
Project Agreement Number : 2022-1-SK01-KA220-SCH-000085417

Healthy nutrition

Teacher education

Authors:
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Project: Innovative STEPS **(Innovative Sustainability Education for Prosperous Schools**
Project Agreement Number : 2022-1-SK01-KA220-SCH-000085417

Food and drink portions

Chapter 5

Project: Innovative STEPS **(Innovative Sustainability Education for Prosperous Schools**
Project Agreement Number : 2022-1-SK01-KA220-SCH-000085417

Guide and recommendations on proper portion sizes

Foods and beverages that belong to individual food groups **should be consumed in appropriate quantities** to provide the body with enough necessary nutrients and energy so that we have neither an excess nor a deficiency.

standard portions are used, which are suitable for daily or weekly consumption.

servings are defined.

Portion size is expressed in various ways, such as a bowl, a cup, a tablespoon, a teaspoon, or pieces, units of measurement (grams, milliliters).

Very simple and practical are the hands, palms, fingers.

The size and number of servings are designed for a healthy adult and a **daily energy intake of 8,400 kJ/2,000 kcal.**

They may vary slightly depending on people's gender, age, or physical activity.

The size and number of servings of foods and beverages for food groups is shown in the Food Pyramid.

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How to eat fruits, vegetables and salads

Consume daily. They should make up at least a third of the daily diet. Vegetables should make up a larger proportion. You should eat a variety of types, the variety of types and colors matters. Local and seasonal types are suitable. Vegetables and fruits should be eaten mainly fresh and whole or prepared in a gentle way (boiling, stewing).

5 servings of vegetables and 2 servings of fruit a day.

One serving **of vegetables** can be : 1 cup (200 ml) of leafy greens or half a cup of other vegetables (e.g. carrots, peas) or a piece (e.g. tomato, half a pepper, small cucumber).

One serving **of fruit** can be: 1 larger slice of fruit (pineapple, watermelon),
1 piece of medium fruit (apple, pear, banana, orange),
2 pieces of smaller fruit (tangerines, plums), a handful of small fruits (raspberries, st
blueberries).

A maximum of one serving per day can be: ¾ cup of unsweetened fruit juice or 100% juice, 2/3 cup of fruit or vegetable smoothie, ½ cup of dried fruit.

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How to eat whole grain bread, cereals, pasta, rice and potatoes

Consume daily.
At least half should be whole grain.
3-5 servings per day.
Smaller amounts for children, women, the elderly, and those with low physical activity.
For physically active people and young men, up to 6-7 servings per day.
One serving can be: 2 thin slices of bread, ½ cup of dry oatmeal or unsweetened cereal, 1 cup of cooked rice, pasta or grains (bulgur, couscous, plenta, quinoa), 1 cup of cooked porridge or cornflakes, ½ cup of corn (kernels), 2 medium or 4 small potatoes, 1 cup of sweet potatoes.

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How to eat milk, dairy products and cheese

Consume daily. Prefer milk and dairy products (yogurt, sour milk) with lower fat content.
3 servings per day.
Children and adolescents up to 5 servings per day .
One serving can be: 1 glass (200 ml) of milk, sour milk or fortified soy drink, 1 yogurt (125 grams flavored and sweetened, 150 grams natural with no added sugars), a third or half of a package of cottage cheese or curd, 2 thumbs/2 slices of hard cheese.

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How to eat meat, poultry, fish, eggs, legumes and nuts

You should eat more fish and legumes, less meat. You should rotate foods from this group.
2 servings per day.
One serving can be : a palm without fingers of cooked lean meat (beef, lamb, pork) and poultry, a palm with fingers of cooked fish, 2 eggs, a cup of cooked legumes or tofu, 40 g of unsalted nuts or seeds.
This means: 2 servings of fish (one of which is oily sea fish), 2-3 servings of legumes, 2-3 servings of lean meat, 2-3 servings of poultry, 2-4 eggs, 2-3 servings of nuts or seeds per week. 3 Servings of food and drinks.
Consume processed meat and meat products, especially red meat, only occasionally and in small quantities. Limit consumption of poultry meat in the form of nuggets, strips and other fried products.

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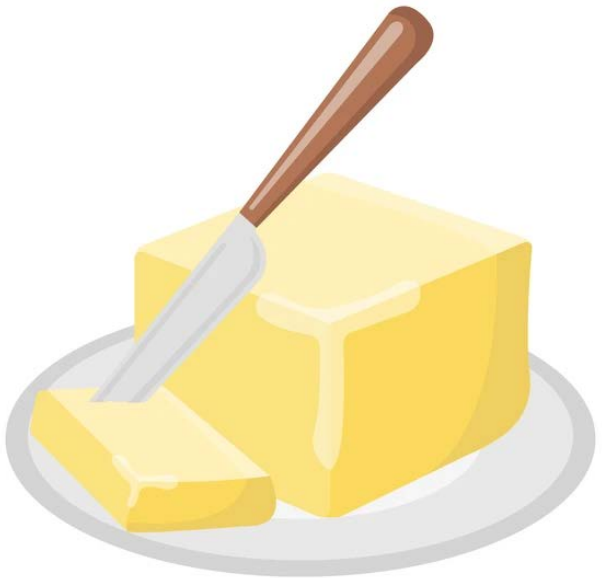
How to eat fats, oils and spreads

Consume only in small quantities.
Choose those whose composition (fatty acids) is beneficial for health.
Limit fats with a predominance of saturated fatty acids (e.g. butter, lard, coconut fat, palm fat, and others).

Prefer vegetable oils (e.g. olive, rapeseed, sunflower, etc.).
The recommended serving is 1 teaspoon per person.

For spreading, **choose low-** fat spreads. The recommended serving size is 10 grams, enough for 2 slices of bread.

Homemade cottage cheese, legume or fish spreads, or avocado are suitable for spreading.



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How to consume foods and drinks rich in fats, sugars and salt

They are not beneficial. It is recommended not to consume them at all, or only in small quantities and only occasionally. It is ideal to replace them with more suitable and healthier foods.

REMEMBER !

Don't forget that your diet should be varied so that you get all the necessary nutrients.

Objectives:

- compare essential nutrients as sources of energy for the human body,
- easily differentiate the amount of energy consumed by the human body depending on gender, weight, age,
- explain at an age-appropriate level the impact of unused energy on human health,
- justify the importance of movement in relation to the storage of unused energy in the human body.

SOURCE: https://www.statpedu.sk/sk/metodicky-portal/volitelne-predmety/viem-co-zjem/

Skills: Communication, attendance, social.

Methods and forms : group work, project-based learning, role-playing

Recommended age group : 10-14 years

Time: 45 - 90 minutes

Key terms: *food portion, fruits, vegetables, fats, sugars, proteins, meat.*

Key competencies: Students will gain knowledge about proper portions of food that they can apply in practical life. Group work develops students' communication and organizational skills.

Activity 1 : Olympic Athlete Post-Workout Smoothie

Materials : paper, pen, crayons, glue, pictures of fruits and vegetables, photo of athlete, internet

a) Students work individually or in pairs.
b) The students' task is to choose an Olympic athlete, stick their picture on a poster and write basic information about them that they find on the Internet. (For example: height, weight, age, sports achievements, country of origin, their favorite food, etc.)
c) Suppose that your chosen athlete loses 1000 g after each intense workout. Athletes should try to replace 150% of the lost mass through sweating.

Make a list of ingredients for a smoothie to replenish lost energy. The list should include fruits, vegetables, as well as carbohydrates and proteins. Use the internet to find out how many grams of each ingredient on the list can be in a smoothie if the athlete is to replenish 2g of protein and 1g of carbohydrates. You can add ice or water so as not to affect the amount of nutrition the athlete is supposed to take in.

Activity 2 : Guess the food

Materials : paper, pen, crayons, tape, pictures of fruits, vegetables, cheeses, meats, etc., internet

a) Cut out, print out or draw pictures of foods from a magazine and place them in a container: vegetables and fruits, whole grains and protein foods, etc.

b) Students take turns choosing a picture from the container with their eyes closed. The other students look at the picture their classmate has chosen. The teacher then tapes the picture to the student's back without the student seeing it.

c) The student will then guess what food is stuck on their back. One by one, their classmates will start to provide information about the food stuck on their back.

For example, if the picture shows a carrot, the student might ask:

Is the food orange colour?

Is the food crispy?

Is the food long ?

d) The student asks questions until they guess the food. The students take turns guessing the food until they have guessed all the foods in the container.

Closing question (from the questionnaire for students) – correct answer

How many times a week should we eat fish?

a. Once a week
b. At least twice a week
c. Once a month
d. Fish should not be consumed
e. I don't know

Thank you for your attention!

INNOVATIVE STEPS

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Healthy nutrition

Training for Teachers

Authors:

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FACULTY OF EDUCATION UNIVERSITY OF WEST BOHEMIA

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РААБЕ Заедно за качество в образованието!

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Healthy eating

Chapter 6

INNOVATIVE STEPS

Project: Innovative STEPS **(Innovative Sustainability Education for Prosperous Schools**
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Why do we eat?

Food is one of the basic conditions of human existence.

Our body needs a constant supply of energy and various nutrients to function. Their source is food. In addition, it needs to consume water every day. Regular food intake is important for all processes in the human body.

Hunger tells us that we need to eat. After eating, we feel full. The feeling of hunger and fullness is regulated by the hypothalamus (part of the brain) and the hormones leptin (hunger hormone) and ghrelin (satiety hormone), as well as other signals.

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What are we eating?

We eat food that consists of various foods of animal or plant origin.

based on their nutrient content, usual consumption method , and origin .

We should eat mainly **basic and minimally processed foods.** We should choose ***nutritionally valuable foods*** that **are rich in nutrients and provide an adequate amount of energy.**

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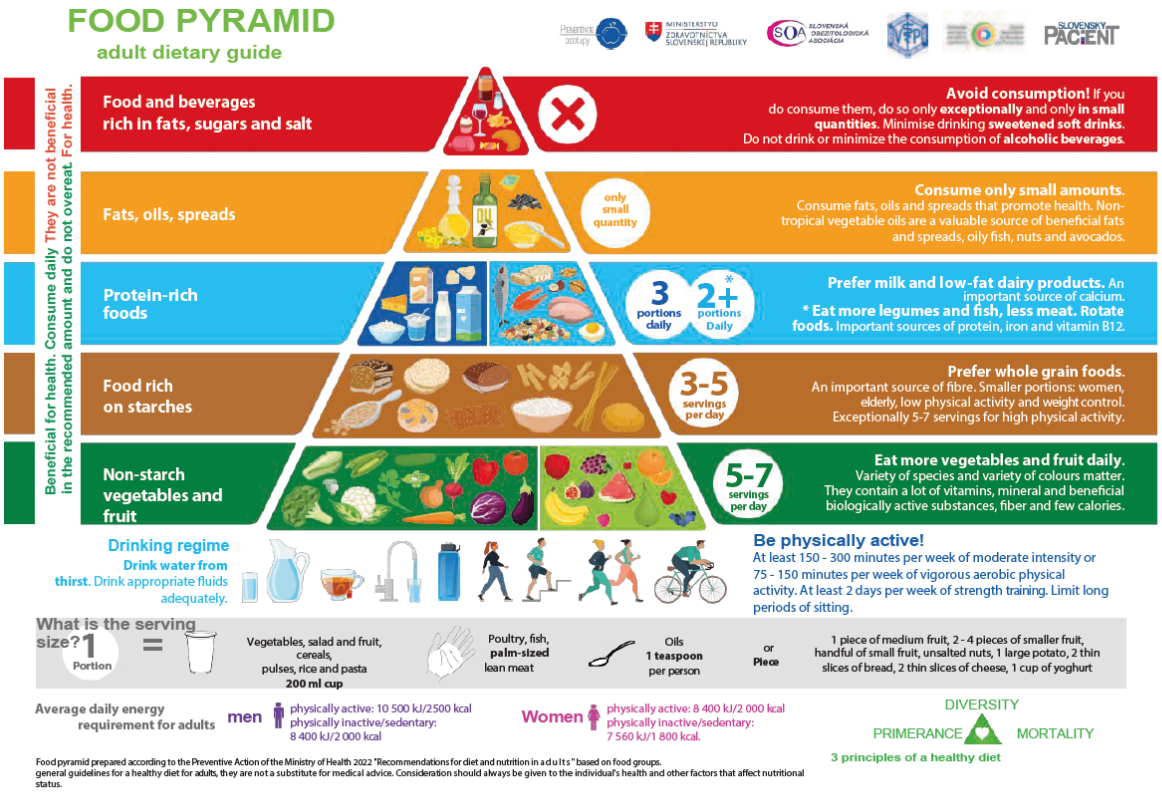
The food pyramid includes food groups:

non-starchy vegetables and fruits,
starchy foods,
protein-rich foods (dairy and other),
fats, oils,
and spreads.



Source : https://www.health.gov.sk/?Postupy-Prevencia

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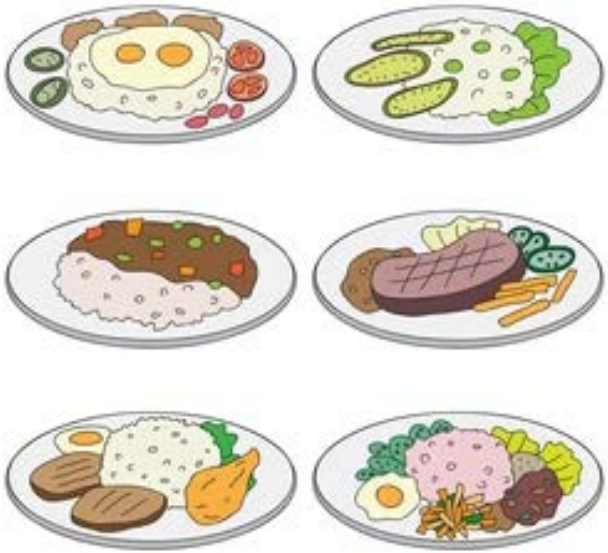
How much do we need to eat?

Our body needs **to consume enough food every day to meet all its nutritional requirements for energy and nutrients.** These requirements vary depending on gender, age, physical activity, health status, and in women, pregnancy and breastfeeding.
Insufficient or excessive intake of energy and nutrients negatively affects the functioning of the body and can lead to damage, which manifests itself in health problems or even diseases.



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How is nutrition related to health?

Diet and nutrition are one of the factors that have a significant impact on the length of human life and the development of various diseases. These include **chronic non-communicable diseases**, such as overweight and obesity, heart and vascular diseases, type 2 diabetes and some cancers. The caloric value of our diet and the representation of individual nutrients in it act on our body through several mechanisms and either support health or, conversely, damage it.

A healthy diet contains a balanced amount of energy, nutrients, and other necessary substances. It ensures the proper functioning of our body and is beneficial to our health.

To help people eat healthily, experts develop dietary recommendations based on scientific research and are represented by **food plates or pyramids** .

For good health it is important to :

- Eat healthy.
- Have sufficient physical activity and limit a sedentary lifestyle.
- Maintain optimal body weight and waist circumference.
- Don't smoke! Avoid alcohol and other addictive and harmful substances.
- Get enough sleep.
- Maintain mental well-being and manage psychological stress.

REMEMBER!

Healthy eating according to the principles of the Food Pyramid is also expressed by the so-called.

"TEN RULES OF HEALTHY EATING".

1. Eat a varied, balanced diet and don't overeat.
2. Eat more vegetables and fruits daily.
3. When it comes to grains, prefer whole grain foods.
4. Prefer low-fat milk and dairy products.
5. Eat more legumes and fish, less meat.
6. Consume fats, oils, and spreads that promote health.
7. Avoid foods and drinks rich in sugars, fats and salt.
8. Drink water when you are thirsty. Do not drink or limit your intake of alcoholic beverages!
9. Shop, prepare, and eat mindfully. Make sure to prepare food carefully and safely.
10. Be physically active every day, maintain optimal body weight and waist circumference.

Objectives:

- apply knowledge about a balanced diet when shopping and eating,
- create a simple menu that accepts the requirement of a balanced diet.

SOURCE: https://www.statpedu.sk/sk/metodicky-portal/volitelne-predmety/viem-co-zjem /

Skills : Communication, presence, social.

Methods and forms : group work, project-based learning

Recommended age group : 12-14 years

Time: 45 - 90 minutes

Key terms: Food, Food pyramid, Balanced diet, Healthy diet, Ten healthy **eating habits**

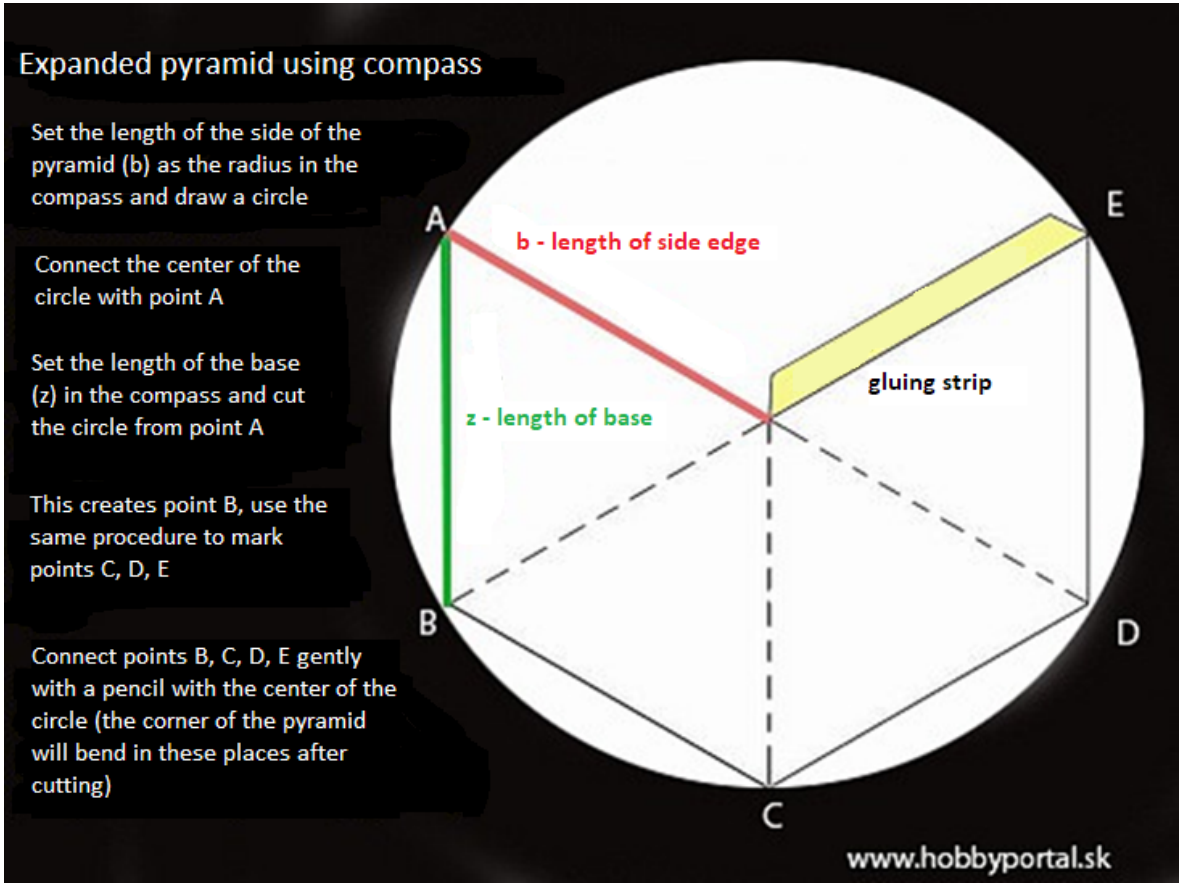
Key competencies: After the lesson: Did the students change their diet? Did they change their lifestyle? Group work develops students' communication and organizational skills.

Activity 1. Make a food pyramid, 12-14 years old, 45 min – 90 min

Tools : drawing/cardboard/cardboard, glue, scissors, markers, food flyers

a) Divide into groups.
b) In your group, talk about what a food pyramid is, what levels it has, what foods belong in it and why.
c) Draw a pyramid on a drawing/cardboard/cardboard using the template and put it together.
d) Divide the pyramid into as many parts as the food pyramid has.
e) Cut out different types of foods from each food group from the food flyers.
f) Stick the pictures of the food on the food tray so that the foods that belong together are together.
g) Present your work to your classmates and discuss whether you have filled in the pyramid correctly.

Are there foods in it that are unhealthy?



Activity 2: Ten healthy eating tips survey, 12-14 years, long-term task, preparation in class: 45min -90min

Supplies: pen, paper

a) Divide into five groups. (The number of groups may vary depending on the number of students in the class)
b) In each group, choose a captain, a spokesperson and a scorekeeper.
c) The task of each group will be to design a survey on healthy eating based on the Ten Healthy Eating Principles. One group will design a survey for classmates, another for teachers, a third for parents, a fourth for grandparents, and a fifth for the general public.
d) The survey will contain at least 5 questions from the Ten Commandments of Healthy Eating. The questions will be adapted to the target group of respondents. Students in each group will have at least 20 respondents complete their survey.
e) They will evaluate the survey and discuss in a group the answers of their respondents. They will try to justify their answers with regard to their age and lifestyle.

f) The group will choose one or two spokespersons. They will prepare a poster with the answers to their survey. They will present the results of their survey and suggest ways in which their respondents could improve/enhance their lifestyle based on the Ten Commandments of Healthy Eating.
g) In the discussion, the groups explain their opinions and present the most important arguments in support of them. After the group spokespersons have expressed their opinion, the other group members can join in the discussion. The teacher ensures that each group has the same amount of time.
h) The teacher asks the groups to summarize their opinions and arguments.
i) Next, we discuss with the students:
j) Did you find arguments to support your position easily or difficult?
k) How was working in the group? Were your arguments respected?
l) Did you follow the principles of discussion – eye contact, paraphrasing, keeping time, not interrupting?
m) What arguments convinced you to change your diet?

Closing question (from the questionnaire for students) – correct answer

Which of the following is not a basic requirement for a healthy diet ?

a. Milk
b. Nuts
c. Salad
d. Walnut bar with topping
e. I don't know

Thank you for your attention!

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Project: Innovative STEPS **(Innovative Sustainability Education for Prosperous Schools**
Project Agreement Number : 2022-1-SK01-KA220-SCH-000085417

Healthy nutrition

Training for Teachers

Authors:

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Dining out

Chapter 7

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Dining out .

Eating out is not just about satisfying hunger. It builds social relationships, social bonds, allows for the experience of diverse cuisines and supports cultural exchange. It is part of social, cultural and religious events, entertainment and business meetings. It contributes to the development of trade and the creation of jobs. Monitoring healthy eating away from home tends to be more challenging because it is subject to multiple influences. It is facilitated by properly formed eating habits.

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School meals

Balanced meals with adequate energy and nutrients ensure a steady release of energy throughout the day, which supports brain function, concentration and attention. A varied diet rich in vitamins, minerals, fiber and quality proteins with the right drinking regimen improves cognitive functions, the ability to learn and remember information. It also affects our mood and emotional resilience. Diet, drinking regimen, exercise ideally in the fresh air, sleep, relaxation and other factors are important for effective learning and achieving better academic results.

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Healthy snack

A healthy snack is an important source of energy and nutrients. Planning your snack in advance allows you to control the nutrient content and energy intake. It also reduces cravings and consumption of unhealthy foods. A healthy snack should include vegetables, fruits, sources of fiber, easily digestible proteins, and a suitable beverage in sufficient quantities.

Examples of suitable snacks: *fresh fruit, vegetable snack with dip, vegetable wrap smoothie with fruit, vegetables and milk or yogurt, whole grain bread with avocado, salmon, egg, cottage cheese or unsweetened yogurt with fruit and nuts, whole grain crackers with cheese*

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Lunch at school

Eating in school cafeterias has its limitations, but even here there are efforts to have a wider selection of dishes, including vegetables, legumes and fish in their preparation. Try to avoid drinking sweetened drinks with lunch - clean water is best. Don't waste food! If you prepare your lunch at home and bring it to school, you have a better chance of preparing it according to the principles of healthy nutrition.

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Dining in a restaurant

The menu in restaurants is very wide and requires our conscious decision-making. Choose mainly dishes made from fresh ingredients and treat yourself to delicacies only occasionally. Prefer dishes that contain vegetables, lean meat, fish, whole grains and are prepared by boiling, stewing, or steaming. Drink clean water, unsweetened mineral water or tea with your meal, not sweetened drinks. Pay attention to the appropriate portion size. An appetizer or soup should not fill you up too much. For desserts, choose less sweet and fatty options. Enjoy your food, eat slowly and with breaks. This helps the brain recognize the fullness of the stomach and regulate the feeling of satiety. Do not succumb to the influence of the environment and stick to the principles of healthy eating. Learn to refuse assertively.

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Eating at a fast food restaurant

Eating healthy at fast food restaurants can be a challenge. While some chains offer healthier options, most of the food they serve is not healthy. **They are high in calories, saturated fat, added sugars, salt, preservatives, and artificial flavors.** Many of these foods are highly processed, which can increase your weight and risk of chronic diseases if you eat them regularly. **If you do eat fast food, do so only occasionally. Choose healthier options, smaller portions, and avoid fried foods, sauces, fries, free extras, sugary drinks, and caffeinated drinks with cream or whipped cream.**

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Food packaging (labels): information about the composition and nutrients in food

Food labeling serves to identify foods, provides basic information about their composition and nutritional content. Food labeling is regulated by law and its aim is to promote transparency in the food industry, ensure food safety and allow consumers to choose. In accordance with the law, the manufacturer must provide some information mandatory, others voluntarily. They are on the front or back of the package.

On the back of the label we find the composition, allergens and nutritional information of the food.

- ***The ingredients*** in a food are listed in descending order and as a percentage. Too many ingredients may mean that it is highly processed. The specific type of fat or source of sugar in the food is also important. Food ingredients also include various additives, e.g. colourings, preservatives and others. They are marked with the letter E with numbers. These substances in permitted quantities are safe for consumption in food.
- ***Allergens*** they must be marked in a different color or font from the other components.
- ***Nutritional information*** is usually provided in a table and is given per 100 g or 100 ml of food, or per portion. The mandatory nutritional information is energy value in kJ/kcal (4.2 kJ = 1 kcal), fat including saturated fatty acids, carbohydrates including sugars, protein and salt. Optional information is fibre, vitamins, minerals and others.

On the front of the food, the manufacturer also voluntarily uses a graphic symbol (usually based on the traffic light principle) that expresses the overall nutritional value of a certain type of food.

Such a symbol significantly helps in purchasing and choosing foods with a more suitable nutritional composition. The front of the food may also include permitted nutritional claims and other symbols that indicate, for example, that it is a gluten-free or vegan product .

The data on the shelf life of food is:

- The best before date means that the food can still be consumed after the specified date.
- The expiration date ("use by...") means that the food is not recommended for consumption after the specified date.

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Advertising and food

Advertising is a communication tool for the purpose of promoting products or services with the aim of achieving their sale. Food advertising is regulated by law. However, it significantly influences our behavior – both the purchase and consumption of food. We should not be subject to it.

For healthy eating, it is important for us to recognize advertising tactics, obtain more information about food, and distinguish between our wants and needs. Food advertising can be useful if it promotes healthy eating.

REMEMBER !

Diet, drinking regimen, exercise, ideally in the fresh air, sleep, relaxation, and other factors are important for effective learning and achieving better academic results.
A healthy snack should contain vegetables, fruits, sources of fiber, easily digestible protein, and a suitable beverage in sufficient quantities.
If you eat fast food, do so only occasionally. Choose healthier options, smaller portions, avoid fried foods, sauces, fries, free extra portions, drinking sugary and cola drinks, and caffeinated drinks with cream or whipped cream.
For healthy eating, it is important for us to recognize advertising tactics, obtain more information about food, and distinguish between our desires.

Objectives:

- observe excessive or very small amounts of food being consumed by oneself/siblings/parents,
- apply knowledge about the risks of an inappropriate drinking regimen in your diet,

SOURCE: https://www.statpedu.sk/sk/metodicky-portal/volitelne-predmety/viem-co-zjem/

Skills: Communication, attendance, social.

Methods and forms : group work, project-based learning

Recommended age group : 10-14 years

Time: 45 - 90 minutes

Key terms: nutrition, healthy lifestyle, unhealthy lifestyle, healthy food

Key competencies: Group work develops students' communication and organizational skills.

Activity 1: Compare recipes
12-14 years, 45 - 90min, /homework, long-term project /

Materials: paper, pen, crayons, glue, pictures of food, internet

a) Divide into groups
b) In each group, choose a captain, a spokesperson and a scorekeeper.
c) The task of each group will be to choose a recipe they know from home and compare it with a recipe in a restaurant or fast food (e.g. Roasted chicken at home and in fast food).
d) Compare the recipes and prepare a presentation in the form of a video like you know from cooking shows. The length of the video should not be more than 3 minutes.
f) Finally, students discuss eating out and eating at home.

Activity 2: Healthy food advertising, 10-14 years, 45 - 90 min

Supplies: paper, pen, crayons,

a) Divide into groups

b) The task of each group will be to come up with an advertisement for healthy food and rehearse a short skit. The skit should last no more than 3 minutes.

c) Students present their skits to the rest of the class. At the end, they discuss which skit they liked and why.

f) The group will choose one or two spokespersons. They will prepare a poster with the answers to their survey. They will present the results of their survey and suggest ways in which their respondents could improve/enhance their lifestyle based on the Ten Commandments of Healthy Eating.

g) In the discussion, the groups explain their opinions and present the most important arguments in support of them. After the group spokespersons have expressed their opinion, the other group members can join in the discussion. The teacher ensures that each group has the same amount of time.

h) The teacher asks the groups to summarize their opinions and arguments.

i) Next, we discuss with the students:

j) Did you find arguments to support your position easily or difficult?

k) How was working in the group? Were your arguments respected?

l) Did you follow the principles of discussion – eye contact, paraphrasing, keeping time, not interrupting?

m) What arguments convinced you to change your diet?

Final question (questionnaire)

What nutritional information must be included on the label of packaged food?

a. Allergen content
b. content, fat content, including saturated fatty acids, carbohydrates, including sugars, protein and salt content.
c. Vitamin and mineral content
d. Sugar and fiber content.
e. I don't know

Thank you for your attention!

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Healthy nutrition

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Risks of improper diet

Chapter 8

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Improper eating can bring certain risks that have various causes, symptoms, and health consequences.

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Dietary patterns and models .

A dietary pattern (model, method, style) represents the combinations of foods and drinks that a person usually consumes over a certain period of time.

A varied diet with adequate intake of energy and all nutrients is most suitable for a healthy person.

Dietary patterns associated with better health and prevention of chronic diseases include high intakes of vegetables, fruits, legumes, nuts, seeds, grains, and olive oil; low to moderate intakes of dairy products, fish, and poultry; infrequent consumption of red and processed meat; and infrequent and moderate alcohol consumption in adults only. The best-known of these is **the Mediterranean diet.**

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“Western style” eating

“ **Western style** ” diet is typical for most people in developed countries. It is characterized by the consumption of highly processed foods, excessive calorie intake, and high intake of saturated fats, sugars, and salt.

Together with low physical activity and a sedentary lifestyle, it causes weight gain and the development of several chronic diseases.

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Vegetarianism and veganism

Common eating styles are also **vegetarianism** (no meat, sometimes fish) and **veganism** (no animal products, including dairy, eggs, and sometimes honey).

Although their benefits outweigh the risks (e.g., lack of certain vitamins and minerals, proteins), practicing them is not just about simply eliminating certain foods from the diet.

In the case of children and adolescents, special attention should be paid to the correct nutritional value of the food consumed.

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Alternative eating styles

Other alternative eating styles are more difficult to practice and carry greater risks of inadequate nutrient intake.

Various ***diets and restrictions on the consumption of food*** or any of its components without a health reason are generally ***inappropriate*** , especially for children and adolescents.
They can lead to growth and development disorders, improper functioning of the immune system, skin problems, fatigue, exhaustion, or dysfunction of the genital organs.

Some diseases or medical conditions (e.g. diabetes, celiac disease) require certain **dietary measures** , but these are part of the treatment and are usually guided by a doctor, nurse or nutritionist.

A diet based on predominantly plant-based foods supplemented with appropriate animal-based foods is now considered the most suitable way of eating a varied and balanced diet, which most people can easily and sustainably follow. It is also reasonably environmentally friendly.

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Unhealthy lifestyle – impact on health and fitness

The most important components of an unhealthy lifestyle are **poor diet and nutrition, excessive alcohol consumption, smoking, lack of physical activity, and a sedentary lifestyle. They increase the risk of various chronic diseases and premature death.**

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Eating disorders

Eating disorders are **serious mental illnesses** that are characterized by **abnormal eating habits that harm the body** . They include **anorexia nervosa, bulimia nervosa, binge eating disorder** , and other, less common, disorders. They can be triggered by various factors, such as the pursuit of fashionable thinness, a perfect figure, , perfectionism, etc. They require timely professional help.

Overeating and obesity

Overeating, i.e. excessive calorie intake, leads to the storage of fat reserves in the body and an increase in body weight (**overweight to obesity).** For health, it is necessary to have an appropriate **body weight** for body height (this is expressed by the body mass index, BMI) and an appropriate **body composition** (the proportion of body fat and muscle mass). **Obesity is a separate disease and also a risk of developing many other diseases.** Age-appropriate body weight and good physical fitness are very important for health.

Triggers for overeating

Overeating or excessive eating is eating without feeling hungry. The most common triggers include emotional states (stress, mood), appearance, smell and portion of food, time of day (evening), social events (visits, parties, holidays). **Overeating leads to weight gain** . Psychological techniques are used to manage uncontrolled eating, which deal with a person's thoughts, feelings and behavior when eating.

Where to seek help for obesity or eating disorders ?

Early professional help is key. You should first contact your treating doctor (**for adults, this is a general practitioner, for children and adolescents, this is a pediatrician**). The doctor will assess the condition and recommend a solution, as specialized healthcare from various experts is often necessary. **Self-help solutions or internet resources may not lead to success and may even worsen the condition.**

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Food allergies and intolerances

These are two different types adverse food reactions .
An allergy is **an exaggerated reaction of** a person's immune system to a normally harmless substance. This substance is called **an allergen** , it is a protein from food, pollen, house dust, animal hair or mold. Most allergies appear during the first year of life and can be hereditary. **Food allergies are most often caused by milk, eggs, fish, shellfish, nuts, peanuts, wheat, soy.** Allergies are manifested by skin or respiratory symptoms and can also be life-threatening. **A person with an allergy must strictly avoid consuming even small amounts of food that contains the allergen.**

Food intolerance It is not an immune reaction . It is caused by a lack of certain digestive enzymes. The symptoms are less severe, more unpleasant. These are digestive and skin symptoms or headaches. The most common food intolerances are **lactose intolerance** (milk sugar), **fructose intolerance** (fruit sugar), **histamine intolerance** (histamine is a substance in proteins) and **gluten intolerance** (gluten is a complex of various proteins found in cereal grains such as wheat, barley and rye). Food intolerance is most often caused by dairy products, some vegetables and fruits, chocolate, eggs (mainly egg white), food additives, alcoholic and non-alcoholic beverages (fruit juices), foods containing histamine (sausages, ripened cheeses, pickled vegetables and others). **A person with an intolerance tolerates these foods individually**, small amounts are usually well tolerated.

REMEMBER !

Improper eating can pose certain risks that have various causes, manifestations, and health consequences. A diet based on predominantly plant-based foods supplemented with appropriate animal-based foods is now considered the most suitable way of eating a varied and balanced diet, which most people can easily and sustainably follow. It is also reasonably environmentally friendly.

The most important components of an unhealthy lifestyle are poor diet and nutrition, excessive alcohol consumption, smoking, lack of physical activity, and a sedentary lifestyle. They increase the risk of various chronic diseases and premature death.

Early professional help is key. The first thing you should do is contact your doctor (for adults, this is a general practitioner, for children and adolescents, this is a pediatrician). The doctor will assess the condition and recommend a solution, as specialized healthcare from various experts is often needed. Self-help solutions or internet resources may not lead to success and may even worsen the condition.

A person with an allergy must strictly avoid consuming even a small amount of food that contains the allergen.

A person with an intolerance tolerates these foods individually, small amounts are usually well tolerated.

Objectives:

- observe consumption of excessive or very small amounts of food in oneself/siblings/parents,
- explain some of the reasons for eating disorders at an age-appropriate level, argue about the importance of regular physical activity in relation to obesity,
- assess the impact of lack of exercise on the human body at an age-appropriate level,
- apply knowledge about the risks of an inappropriate drinking regimen in your diet

SOURCE: https://www.statpedu.sk/sk/metodicky-portal/volitelne-predmety/viem-co-zjem/

Skills: Communication, attendance, social.

Methods and forms : group work, project-based learning

Recommended age group : 10-14 years

Time: 45 - 90 minutes

Key terms: nutrition, healthy lifestyle, unhealthy lifestyle, eating disorders

Key competencies: Group work develops students' communication and organizational skills.

Activity 1: Are dietary trends good or bad?
12-14 years, 45 - 90min, /homework, long-term project/

Materials: paper, pen, crayons, glue, pictures of food, internet

a) Divide into five groups
b) In each group, choose a captain, a spokesperson and a scorekeeper.
c) The task of each group will be to obtain information on the assigned topic:

1. Vegetarianism
2. Veganism
3. Alcoholism
4. Obesity
5. Bulimia/Anorexia

d) They will prepare a video presentation on the assigned topic. The presentation should not be longer than 3 minutes.

e) When presenting their projects, students write information in the table:

	Nutrition principle	Positives	Negative
Vegetarianism			
Veganism			
Alcoholism			
Obesity			
Bulimia / Anorexia			

f) Finally, students discuss and complete the sentences:
I would like to be a vegetarian because ..... .
What I like about vegetarianism is that .....
If I had a friend who drank a lot of alcohol, I would tell him…….
I would advise an obese person to…….
If I had a classmate who I noticed had an eating problem, I would…….

Activity 2: Intolerance Questionnaire, 10-14 years old, 45 min

Supplies : paper, pen, crayons

a) Divide into two groups

b) In each group, choose a captain, a spokesperson and a scorekeeper.

c) Each group will be tasked with designing a questionnaire on food allergies

and intolerances . They will administer the questionnaire to at least 30 people and evaluate it. They will prepare a poster with the results.

d) Students present their posters to their classmates. The presentation should not be longer than 3 minutes.

Closing question (from the questionnaire for students) – correct answer

Inappropriate eating can lead to various risks and health problems. Mark the correct combination

a. Insufficient protein intake can trigger an allergic reaction.
b. A person with an allergy can consume small amounts of food that contains the allergen.
c. The diets are safe and do not cause any nutritional deficiencies.
d. **Excessive and long-term intake of calories (energy) in the diet leads to an increase body weight.**
e. I don't know

Thank you for your attention!

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Healthy nutrition

Training forTeachers

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Food safety and hygiene

Chapter 9

Food contamination

Safe food is a prerequisite for human health.

Food contaminants are harmful substances (pollutants and microorganisms) that can cause infectious diseases caused by bacteria, viruses, and parasites or toxic diseases caused by chemicals such as mycotoxins produced by molds, heavy metals such as lead, cadmium, mercury, radioactive substances, and others.

Infectious diseases can be caused by eating undercooked meat, unpasteurized milk and dairy products, poor hygiene in handling and eating food, or contaminated soil, water, or contact with an infected animal. Symptoms of infection develop quickly and include fever, headache, nausea, vomiting, abdominal pain, and diarrhea.

Chemical contamination usually does not immediately lead to health problems (the exception is poisoning), but it can gradually affect a person's immune or hormonal system and lead to diseases such as cancer.

Food safety is very important for pregnant women, young children, the elderly, and for sick people, especially those with compromised immune systems.
Eating safe food primarily means knowing how to properly purchase, prepare, store, and consume food.

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The basic measures for safe food are:

When purchasing:

- Buy fresh and unspoiled food (vegetables, fruit, meat).
- Fish from verified sources.
- Keep track of food expiration dates.
- Use refrigerated containers when transporting perishable foods home .

When storing:

- Observe storage conditions for individual foods (refrigerated, at room temperature, dry, etc.).
- Store cooked food at room temperature for up to 2 hours, then

in the refrigerator at a temperature of 5°C. At this temperature, the growth bacteria slows down, so food can be stored for longer.

- Store raw foods and food separately from cooked foods.
- Store food in closed containers.

The basic measures for safe food are:

When handling:

- Wash your hands thoroughly before preparing food (with warm water and soap).
- Wash and clean food (fruits, vegetables, meat).
- Keep all areas and items used in food handling clean.
- Use separate utensils (knives, containers, plates) for raw and cooked foods.

The basic measures for safe food are:

When preparing:

- Make sure meat, eggs, and seafood **are cooked thoroughly** . Maintain a temperature of 75°C for at least 15 minutes (including in the center of the meat, check with a meat thermometer). Bacteria are killed at this temperature.
- Never **grill over an open flame** . This creates hazardous substances that are considered to be highly carcinogenic. Such substances are also produced in burnt fats and oils, during frying and smoking.
- **Prefer gentle cooking methods** such as boiling or steaming. High temperatures when grilling, frying, baking or deep-frying, especially meat but also starchy foods (potatoes, bread), lead to the formation of harmful carcinogens. Use these cooking methods only rarely.

The basic measures for safe food are:

When consumed :

- Wash your hands well before every meal!
- Drink and use safe water from safe and known sources (e.g. drinking water, bottled drinking, mineral and spring waters).
- Do not consume food after its use-by date. Once opened, such food should be stored under the conditions stated and consumed within the stated number of days after opening. If a minimum durability date is stated, the food has been stored correctly and its packaging has not been damaged, it is safe to consume after this date.
- heated food immediately, do not reheat it.
- Do not refreeze thawed food. Use it immediately, do not leave it at room temperature for a long time.
- When heating food in the microwave, follow the recommended heating time and temperature.
- Do not consume foods infected with mold, even after it has been removed (bread, pastries, compotes, yogurts, etc.).
- Do not consume burnt and overcooked food.
- If possible, consume organic foods, which may be less contaminated with artificial fertilizers and chemicals.

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Food safety labeling.

From a food safety perspective, the most important information on food packaging is the best-before date or expiration date and ingredients that cause allergies or intolerances.

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Food additives

Food additives are any chemical substances that are added to food to achieve specific desired effects in the food.
used and only in permitted quantities. They must be listed on the product label and **marked with the letter "E",** which means that they have been approved in the European Union as safe. They can be synthetic or obtained from plant, animal or mineral sources. People with allergies or hypersensitivity to certain additives should pay attention to them. Many additives contain highly processed foods.
Fortification is the addition of nutritionally beneficial substances such as vitamins, minerals, fiber, and other nutrients to foods to reduce the effects of their deficiency or to replace substances whose content has decreased during food processing. A well-known example is the enrichment of salt with iodine and thus preventing the development of thyroid disease. A number of fortified foods are available, such as flour, cereals, juice, milk, and dairy products. Adding beneficial substances to these foods is beneficial for health, but it is more important to follow general advice on healthy eating.

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Hygiene habits

For safe eating, follow these guidelines:

- Good hygiene habits. Wash your hands thoroughly before and after preparing food.
- Buy safe and harmless food.
- Store food properly.
- Ensure safe and hygienic food preparation.
- Eat fresh and safe food.
- Use safe water.

REMEMBER !

Food safety is very important for pregnant women, young children, the elderly and sick people, especially with an immune disorder. Eating safe food means, above all, knowing how to buy, prepare, store and consume food correctly.

For safe eating, follow these guidelines:

- Good hygiene habits. Wash your hands thoroughly before and after preparing food.
- Buy safe and harmless food.
- Store food properly.
- Ensure safe and hygienic food preparation.
- Eat fresh and safe food.
- Use safe water.

Objectives:

- follow proper hygiene procedures when handling food,
- store various foods correctly in and outside the refrigerator,
- distinguish between fresh, durable and spoiled foods,
- find the food composition table and additives on the packaging,
- assess the expiration date of specific foods according to its marking on the packaging,
- follow proper hygiene habits in connection with disease prevention.

SOURCE: https://www.statpedu.sk/sk/metodicky-portal/volitelne-predmety/viem-co-zjem/

Skills: Communication, attendance, social.
Methods and forms : group work, project-based learning
Recommended age group : 10-14 years
Time: 45 - 90 minutes
Key terms: food storage, health problems, food contamination
Key competencies: Students gain knowledge about the correct way to store food. They understand that improper food storage causes health problems. Group work develops students' communication and organizational skills.

Activity 1: Forgotten Tenth, 10-14 years, 45 min, /homework, long-term project/

Supplies : paper, pen, crayons, glue, pictures of fruits and vegetables, bread - snacks, plastic bag, camera-mobile phone, internet

a) Students work individually or in pairs.
b) Every student has forgotten their lunch in their school bag at some point. Write what happens to a forgotten lunch.
c) Do an experiment: Put a piece of fruit or bread in a plastic bag . Place it in a warm place and observe what happens. Record your observations with photos or drawings of what happens to the food in the bag . Record your observations in the table:

Type of food	Observation Day	Food appearance	Note

d) Find out what spoiled food does to the human body.) Prepare a poster with your results. Present your poster to your classmates at school. The length of the presentation should not exceed 3 minutes.

Activity 2. How we store food, 10-14 years, 45 min

Materials: paper, pen, crayons, tape, pictures of food, internet

a) Cut out, print out or draw pictures of food from a magazine.

b) Discuss with the students: How do we store food? Where do we store it? Why is it important to keep it in good condition for as long as possible? What does spoiled food do to the human body?

c) Together, create a list of the foods you use most often in your household

d) Students, in pairs or individually, fill in the table with the method of storing food:

Type of food	Storage method

e) Finally, we will review the table and food storage methods together.

Final question (from the questionnaire for students) – correct answer

For safe eating, it is important to avoid foods that:

a. **They are contaminated (microbiologically, chemically).**
b. They have exceeded the expiration date indicated on the food packaging.
c. They are fortified (enriched with some nutrients).
d. They are freshly cooked.
e. I don't know

Thank you for your attention!

INNOVATIVE STEPS

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Project: Innovative STEPS **(Innovative Sustainability Education for Prosperous Schools**
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Healthy nutrition

Training for Teachers

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EXPOL PEDAGOGIKA

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Sustainable eating: food that is healthy for people is healthy for the Earth

Chapter 10

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Food is not only a means of satisfying hunger and gaining energy, but it also has a significant impact on our health and the planet we live on.

Our healthy eating choices contribute to a sustainable lifestyle for us and future generations.

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What does it mean: sustainable eating and sustainable food?

Sustainable eating is defined as a way of consuming food that provides enough food for the current population while minimizing negative impacts on the environment, social justice, health, the economy, and future generations.

Sustainable eating is linked to sustainable agriculture, which promotes ecological and regenerative methods, focusing on growing crops and integrating livestock to mimic natural ecosystems and minimize environmental pollution. Sustainable eating includes foods that are local, nutritionally rich, and minimally processed, produced under fair conditions, and sold at fair prices.

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Climate change, environment and food security

Climate change, the environment and food security are interrelated. **Food security is achieved when all people have access to sufficient, safe and nutritious food . However, this situation is threatened by population growth, economic factors and the negative impacts of food production and consumption, which lead to climate change and environmental degradation.**

Climate change is affecting weather patterns, leading to reduced crop yields and livestock productivity. Extreme weather changes and the overuse of pesticides and other chemicals are harming bees, without which biodiversity would be severely damaged and the food chain would be disrupted. **Promoting sustainable agriculture and ensuring fair food distribution are essential to achieving food security.**

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Food production and consumption and their impact on climate conditions – “from farm to fork”

"Farm to Fork" (F2F) is a European strategy that aims to achieve a healthy, fair and environmentally friendly food system. It aims to deliver healthier food, reduce the environmental footprint of agriculture and ensure food security and fair remuneration for farmers .

All human activities have an impact on the environment. Mass production and globalization make this situation even worse. Environmental impact is most often expressed as a carbon and water footprint.

The carbon footprint is the total amount of greenhouse gases produced by human activity .

Greenhouse gases are gases in the atmosphere, such as carbon dioxide, methane, and water vapor. They absorb some of the heat that warms the planet, creating the greenhouse effect that raises the temperature of the Earth's surface.

The water footprint indicates the volume of freshwater in liters or cubic meters that is used in the production of a consumer good or service.

The entire food chain – food production, its processing and transport, sales and our consumption – has a significant negative impact on the environment and climate.

- **Conventional agriculture** produces about **20% of total greenhouse gas emissions** and is **the largest consumer of water (up to 80% of total water)** for crop irrigation.
- **Growing a single crop over a large area** (monoculture agriculture) and **intensive livestock farming** leads to deforestation, damage to the soil and the network of microorganisms living in the soil, and thus disrupting forest ecosystems.
- **Overfishing and illegal fishing** contribute to the depletion of marine resources and the disruption of aquatic ecosystems.
- **Excessive use of pesticides** endangers organisms for which they are not intended, contaminates soil and water, and affects our health through the food chain.
- **Fossil fuel energy** is used to process and transport food , which also leads to carbon emissions.
- **Excessive food packaging** increases overall waste production, and **food waste** contributes to methane emissions in landfills.

Plant-based foods generally have a lower carbon and water footprint than animal-based foods. Eating a mostly plant-based diet is not only beneficial for our health,
but also more environmentally friendly.

An important step for environmental protection is **to minimize the waste of resources and reduce food waste.** Many people around the world are hungry and paradoxically, a large amount of food is thrown away unnecessarily. Therefore, never throw away food unless it is necessary! On the plate yourself with food and the amount you will definitely eat.

The food waste pyramid also offers options for effectively and environmentally friendly reduction of food waste: reducing the amount of waste is of the greatest importance, then donating food to people in need, feeding livestock, composting, and the last option is getting rid of the waste.

planning , shopping with a prepared list, monitoring expiration dates, serving appropriate portions, storing food properly, using leftovers, and composting are essential practices for minimizing food waste.

In this way, we not only reduce food waste, but also save resources for their food production.

Foods that are healthy for people are also healthy for the Earth

sustainably means choosing and consuming foods that are healthy for both people and the environment.

The double pyramid model is one proposal that helps visualize which foods should form the basis of the diet and which should be consumed less frequently in terms of their environmental impact. It means:

1. **Increasing the proportion of plant foods.**
2. **Support local resources and local producers.**
3. **Preferring organic/bio/eco foods.**
4. **Choosing sustainable fish and seafood.**
5. **Responsible meat consumption.**
6. **Support for fair trade.**
7. **Minimizing processed foods.**
8. **Gardening and home gardening.**

REMEMBER !

Sustainable eating is associated with sustainable agriculture, which promotes ecological and regenerative methods, focuses on growing crops and integrating livestock to mimic natural ecosystems and minimize environmental pollution. Sustainable eating includes foods that are local, nutritionally rich, and minimally processed, produced under fair conditions, and sold at fair prices.

To achieve **food security,** it is essential to promote sustainable agriculture and ensure fair food distribution.

Plant-based foods generally have a lower carbon and water footprint than animal-based foods, making eating a predominantly plant-based diet not only good for our health but also better for the environment.

Basic practices to **minimize food waste** are: meal planning, shopping with a prepared list, monitoring expiration dates, serving appropriate portions , storing food properly , using leftovers, and composting. In this way, we not only reduce food waste, but also save the resources for food production.

Objectives:

- Know the causes of food waste and estimate their consequences on a global scale.
- Make connections between food waste in rich countries and hunger in developing countries.
- Learn to minimize food waste in the household and manage food wisely.
- Be able to discuss solutions to food waste.

Skills: Communication, attendance, social.
Methods and forms : group work, project-based learning
Recommended age group : 10-14 years
Time: 45 - 90 minutes
Key terms: sustainable food, food waste, responsible food consumption
Key competencies: Group work develops students' communication and organizational skills.

Activity 1: Food waste, 10-14 years, 45 - 90min, /homework, long-term project/

Materials: paper, pen, crayons, glue, pictures of food, internet

a) Initial discussion with students: What food have you thrown away in the last week? How much was it? Do you eat everything in the school cafeteria? Do you cancel your lunch if you don't like it? Do you think that children in Africa also throw away food? Etc.

b) Students work individually or in pairs to create a poster about food waste.

c) Second (next) lesson: students present their projects to the rest of the class. The presentation should not be longer than 3 minutes.

d) A selected student writes the information found from the projects on the board or on a flipchart poster.

e) Students together look for the essence of the solution to the problem of food waste. They reflect on the causes and consequences.
f) The task of the students will be to create a chain of causes and consequences of food waste at each stage of the food chain (from farm to table).

g) Teacher-led discussion: finding solutions to minimize food waste. Learn to use up all purchased food. Don't throw away food. Shop according to a list.

Activity 2: Ten tips for not wasting food 10-14 years, 45 min

Supplies: paper, pen, crayons

a) Divide into two groups

b) In each group, choose a captain, a spokesperson and a scorekeeper.

c) The task of each group will be to propose ten ways to avoid food waste. They will prepare a poster with pictures

d) Students present their posters to their classmates. The presentation should not be longer than 3 minutes.

e) Final discussion: How many points from the Ten Commandments were agreed upon between the groups?

Final question (from the questionnaire for students) – correct answer

Which type of diet is considered optimal and beneficial for human health and at the same time environmentally friendly ?

a) Alternative eating styles (vegetarianism, veganism and others).

b) Diet with a predominance of animal foods.

c) A diet with a predominance of plant foods.

d) Eating does not affect the environment.

e) I don't know

Thank you for your attention!

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Methods and organizational forms of teaching

Teacher´s Training

Author: Mgr. Martina Klieštiková

Teaching methods are among the basic elements of teaching.

Teaching methods are

In teaching, there is constant ***interaction between the teacher and the student*** or ***between the students themselves.*** The interaction between the teacher and the student is realized through teaching methods .

It is up to the teacher to choose the most appropriate teaching method to make the subject matter accessible. In the past, classical teaching methods such as lectures or explanations were mostly used.

Today, teachers use many non-traditional teaching methods that involve students in the process of explaining the subject matter, independent work, and problem-solving.

These methods support students' development of analytical, logical and creative thinking, independence and social understanding of others .

Organizational forms of teaching represent organized activities of students and teachers that take place in a certain time, space, and according to a plan.

Classification of organizational forms of teaching :

a) by environment:

- classroom teaching
- teaching in specialized school facilities (computer lab, laboratory)
- teaching outside the classroom (e.g. in nature, in a muse[illegible])

b) according to the number of students

- frontal teaching (the whole class learns at the same time)
- group lessons
- individual tuition

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Group work

The importance of group teaching is that students solve common tasks and problems, exchange opinions, complement each other, help each other, are jointly responsible for the results of their work , etc.

The indicator of the effectiveness of group work is not the results of the groups, but the results of the individuals.

Advantages and disadvantages of group teaching

Advantages	Disadvantages
Increasing interest in the subject, learning	Time required to prepare a lesson
Active learning of the curriculum	Classroom noise
Responsibility for group activities /for one's own work	With a large number of groups, the teacher may lose track of their activities.
They learn to plan their work/use time efficiently	Uneven number of students in a group when students are absent from class
Respecting other group members	Refusal of the activity in case of poor student distribution (I am not in a group with a friend)

The ideal number of students in a group is 4.

Group types :

- Natural groups – voluntary selection of students
- Familiarization groups – getting to know new students
- Short-term groups – most often used for short activities
- Long-term groups – for long-term work, effective
- Homogeneous – if the teacher needs to work with a group of certain students
- Heterogeneous – students with different levels of task m

How to create student groups :

HOW NOT!!! Dividing groups according to friendship creates space for conflict and injustice towards excluded classmates .

HOW YES!!! Random division: we encourage students to take this as a challenge for the future, when in their jobs they will need the ability to get along with different people. The class provides a safe environment where they can practice this.

Examples of random division

- Pens – students put their pens in a cup – pens are randomly drawn and form groups
- Names – tickets with the names of the students that we draw
- Puzzle – we cut the picture into parts, students draw lots and look for who they can put the picture together with
- Heroes – we give out pictures of movie or fairy tale heroes to the students and they then look for their group of characters from the movie/fairy tale (we can use various variations: names of famous people, pictures, geometric shapes, songs, years and events, etc.)

Tip: make lottery tickets that you will use all year round

Comparison of group and cooperative learning

Group lessons	Cooperative teaching
Social skills are not considered	Targeted development of social skills
The teacher does not interfere with group work	The teacher observes the work and intervenes if necessary
The main activity is led by the teacher or a selected student	Joint leadership of the activity by all students
The student is responsible only for himself/herself.	Responsibility for the entire group

Examples of group and cooperative learning techniques

- Controlled discussion
- Step-by-step discussion
- Buzzing groups
- Snowball
- Crossed groups
- Mind map
- Jigsaw/Puzzle or Circle of Experts
- Aquarium

Project-based learning is a teaching method in which we can use some teaching methods such as problem-based learning, cooperative learning, group learning, and discussion.

The aim of project-based teaching is **to actively involve students in the learning process.** The teacher prepares problem tasks that lead students to think about what they are learning. The implementation and outcome of the project depends on the students' creativity, imagination, critical thinking and motivation.

The essence of project-based teaching is **the solution of an emerging or raised problem by students in the form of a specific project** .

The principle of project-based teaching is **to take into account the needs and interests of children.** The choice of topic should contribute to the self-realization of students, allow them to gain new experiences and a perspective on the current situation - to connect school with life. **Interdisciplinarity is also important** , which means going beyond the framework of individual subjects. Self-regulation in project-based teaching helps students learn to plan, implement and evaluate their projects.

A role play is a situation where a solution is implemented through role-playing. We use it to practice communication and social skills when we want students to experience different situations and see them from multiple perspectives. Role-playing helps students express their own opinions, attitudes and thoughts. They will see the consequences of their actions on others or discover the diversity of opinions and attitudes.

The essence of role-playing is playing a story, a situation. The story can be invented or created based on some template. It is essential that the story has its own gradation, educational potential and appeal to the students in the class.

Role-playing, due to the significant psychological burden on the participating students, requires very competent guidance from the teacher.

Role-playing usually takes place in these phases:

a) familiarization with the situation

b) division of roles

c) preparation and practice

d) role-playing the situation by the group

e) evaluation and assessment of the conclusions from the game played

Inquiry-based teaching

IBSE- Inquiry based science education - teaching based on inquiry.
Inquiry-based teaching is not a specific teaching method but contains elements of several teaching methods, e.g. problem-based teaching, project-based teaching. In inquiry-based teaching, the teacher does not present ready-made knowledge and acts only as an advisor/guide to the students in their activities. The student acquires knowledge through his own research, is independent in his work, carries out his own experiments and searches for information. If the student is to understand the natural sciences, he must understand the way scientists think and have the opportunity for independent active research and experimentation. The student becomes a researcher and author of new knowledge.
Observation is a common activity of every human being. A person constantly observes a number of objects, phenomena and processes in their environment. Based on observations, scientists ask questions ("research" questions) to which they seek answers. In the search for answers, they establish hypotheses and plan experiments to confirm or refute their hypotheses.

Types of inquiry-based teaching :

- ***Confirmation inquiry*** – students know in advance the result of the experiment, as well as the question and method by which they will arrive at the answer (result).
- ***Structured inquiry*** – students work independently to draw conclusions from the collected data, the basic question and procedure are presented by the teacher.
- ***Guided inquiry*** – the teacher only poses questions to the students
- ***Open inquiry*** – the highest form of research, which includes both the formulation of questions and the design of an experiment, data collection, analysis, interpretation and communication of results

Advice for teachers on how to implement inquiry-based teaching:

- Thorough preparation before the lesson is important .
- Don't set tasks that are too difficult at the beginning.
- Each student should have their own research journal.
- Consider working in groups.
- Be careful not to interfere with students' research.
- Inform students that they will be assessed for the entire work, not just the result.
- Constantly remind them that every answer they find is valuable, regardless of its correctness.
- Provide assistance to students outside of class.
- Write down your observations from your research activities.
- Dedicate sufficient time to presenting student results.

Procedure for inquiry-based teaching

In inquiry-based teaching, the student is placed in the position of a researcher and author of new knowledge. The discovery of new information is the basis of the student's work.

When conducting inquiry-based teaching, it is important to follow the following procedure:

a) **Asking questions** : raising an interesting question. We ask students questions without expecting an answer, or students ask questions of the teacher.

b) **Choosing a research question** : Students will choose a question to which they will seek answers.

c) **Formulation of a hypothesis** (first together with the teacher, later independently): Students try to think about and create their own hypothesis - a hypothesis for the answer to the question asked.

d) **Experiment:** finding answers to questions, confirming or disproving a hypothesis based on information obtained from the Internet or professional literature.

e) **Presentation of results** : next lesson, no more than 3 min./student

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Teacher test "Healthy nutrition"

CHAPTER 1:

1. Macronutrients include
a. proteins, carbohydrates, fats
b. amino acids, glucose, fatty acids
c. fiber

2. A healthy diet should include
a. vitamins and fats
b. fats and minerals
c. unsaturated fatty acids and fats

CHAPTER 2:

3. They have the highest energy value of all nutrients
a. **proteins**
b. carbohydrates
c. fats

4. "Empty calories" are:
a. energy-rich foods but without nutrients
b. low-calorie, nutrient-dense foods
c. low-energy foods with few calories and no nutrients

CHAPTER 3:

5. How often should we eat fish?
a. At least twice a week
b. Once a month
c. Fish should not be consumed

6. The top of the food pyramid contains:
a. foods and drinks that belong to a healthy diet
b. foods and drinks that do not belong to a healthy diet
c. foods and drinks that we should eat daily to avoid obesity

CHAPTER 4:

7. Which drink is most suitable for a proper drinking regimen?

a. Drinking water
b. Herbal tea
c. Milk

8. The daily water requirement is:
a. in adolescents and adults around 3 liters
b. in adolescents and adults around 2 liters
c. in adolescents and adults around 4 liters

CHAPTER 5:

9. How many times a week should we eat fish?
a. At least twice a week
b. Once a month
c. Fish should not be consumed

10. Dairy products should be eaten:
a. once a week
b. once a day
c. at least 3 servings a day

CHAPTER 6:

11. Which of the following is not one of the basics of healthy eating?
a. Milk
b. Salad
c. **Walnut bar with glaze**

12. A healthy diet includes:
a. more nutrient and energy-rich foods
b. less energy-dense foods and fewer calorie-dense foods
c. balanced amount of energy, nutrients and other necessary substances

CHAPTER 7:

13. Which nutritional information is they must to indicate on the label packaged food?
a. Allergen content
b. Energy content, fat content including saturated fatty acids, carbohydrates including sugars, protein content and salt content
c. Sugar and fiber content

14. What should a healthy snack contain?
a. Vegetables, fruits, a source of fiber, easily digestible proteins and plenty of suitable fluids

b. Fruit, a source of fiber and plenty of appropriate fluids
c. Fruit, easily digestible proteins and plenty of suitable fluids

CHAPTER 8:

15. An improper diet can lead to various risks and health problems. Mark the correct combination.
a. Insufficient protein intake can trigger an allergic reaction
b. A person with an allergy can consume a small amount of a food that contains the allergen
c. Excessive and long-term intake of calories (energy) in the diet leads to weight gain

16. Where to seek help for obesity or eating disorders?
a. At your treating doctor
B. At a dietitian
C. At the fitness trainer's

CHAPTER 9:

17. For safe eating, it is important to avoid foods that:
a. are contaminated (microbiologically, chemically)
b. have exceeded the expiration date stated on the food packaging
c. are fortified (enriched with certain nutrients)

18. The following information is important when labelling food for safety reasons:
a. date of production of the food, ingredients that cause allergies
b. expiration date and ingredients that cause allergies
c. date of minimum durability or use-by date, ingredients causing allergies or intolerances.

CHAPTER 10:

19. Which type of diet is considered optimal and beneficial for human health and at the same time environmentally friendly?
a. Alternative eating styles (vegetarianism, veganism and others)
b. Diet with a predominance of animal foods
c. A diet with a predominance of plant foods

20. Which foods have a lower carbon footprint?
a. Vegetable
b. B. Animals
c. C. Marine

Test for the teacher "Methods and organizational forms of teaching"

21. We divide organizational forms of teaching into:
a. according to the environment and number of students
b. by time
c. by space

22. The types of groups in group work are:
a. small, large
b. even, odd
c. homogeneous, heterogeneous

23. The technique of group and cooperative learning is not:
a. chase
b. snowball
c. aquarium

24. The English abbreviation for inquiry-based learning is:
a. ISBE
b. ESBI
c. IBSE

25. The procedure for inquiry-based teaching is:
a. choosing a research question, asking questions, formulating a hypothesis, experimenting, presenting results
b. asking questions, choosing a research question, formulating a hypothesis, experimenting, presenting results
c. asking questions, formulating a hypothesis, choosing a research question, experiment, presenting results