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Generalist Teachers' Guide for Planning Ecological and Physical Activities Aiming at Improving Students' Competences and Key Competences for Lifelong Learning

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Electronic version of this Guide with supplemental materials (links, photos, video tutorials for teachers, students, and parents) you can find at:

- 1) *Project website: www.compasseu.rs*
- 2) *“Educational center Cloud Giraffe”, Belgrade (Serbia), website: www.oblakzirafa.rs*
- 3) *Zakladni skola Travnik, Prerov, Czech Republic, website: www.zstravnik.cz*
- 4) *Primary school “Branko Radičević” Batajnica (Serbia), website: www.osbrankoradicevic.edu.rs*



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Mission and vision of the project

The **mission** of this project is to develop children's competences of ecological awareness and competence for being physically active, and for the teachers to gain competences for developing such competences in children. **Vision** of the project is to build educational systems which would educate new generations according to the highest moral standards and the key competences for lifelong learning ([„Council recommendation on key competences for lifelong learning“ 2018](#)).

Specifically, **our project** has two important goals: 1) children aged 7 to 11 to become environmentally aware and acquire specific skills to protect their environment and 2) to become aware of the importance of physical activity for their health and acquire knowledge how to exercise and monitor the effects of such exercise on their own body. The coordinator of the project is [Educational Centre Cloud Giraffe](#) from Serbia, which organizes educational work in the day care centre for children aged 7 to 11 "Cloud Giraffe" in Zemun (Serbia). Partners in the project are two eco-schools: [Elementary school "Branko Radičević" from Batajnica](#) (Serbia) and ["Zakladni skola" from Prerov](#) (Czech Republic).

Why is physical exercising important? First, proper physical activity uses the energy we take in with food and practically cleans our body. Because of that and a hormonal response organism is more resistant to numerous diseases. There is agreement of the world's leading health and scientific organizations that physical activity can replace any medicine (as a prevention), but no medicine can replace physical activity. Exercise aimed at improving physical abilities, such as strength and endurance, has a positive effect on indicators of the child's current and future health: lower risk of obesity, cardiovascular and metabolic diseases, and better status of the muscles and bones (["Cardiorespiratory Fitness in Childhood and Adolescence Affects Future Cardiovascular Risk Factors: A Systematic Review of Longitudinal Studies"](#), Mintjens et al., 2018; ["The Health Benefits of Muscular Fitness for Children and Adolescents: A Systematic Review and Meta-Analysis"](#), Smith et al., 2014). Through a program of physical activities adapted to children of younger school age, each child should find some enjoyable physical activities, and then, through these physical activities, become competent to engage in physical exercising in general. The first step towards this goal is children's enjoyment in various games and interesting physical activities, but also the acquisition of basic motor skills that will contribute in making them feel more competent and confident in exercising.

Why environmental activities are important? In recent years, environmental topics have become increasingly important. Global phenomena such as the greenhouse effect affect the quality of life on planet Earth. What can people do? We can fight against these negative phenomena by acquiring ecological knowledge and ecologically conscious

lifestyle (["Development of Secondary School Students' Green Skills for Sustainable Development"](#), Thirupathy & Mustapha, 2020). From rational use of water, food and energy sources, to responsible use of materials and products, as well as waste management. From the earliest childhood, children should spend their time in nature and have pleasant experiences in it, in order to love nature and create a relationship of respectfulness for it, as for the place where we all live in. After that, the child will know the value of the nature, be aware of the risk of irresponsible human behaviour towards the nature, as well as of the importance of environmentally conscious behaviour for the well-being of the Earth and the whole life on the Earth. In addition to getting to know the nature, children should learn "green skills" such as waste separation, recycling, making compost from a kitchen waste, etc. In this way, beside awareness of the preciousness of nature, they will also have specific skills (competencies) on how to live and act in an ecologically sustainable way.

Building ecological competences in children aged 7 to 11

By conducting project activities, we wanted students aged 7 to 11 to improve their competences for being aware of and solving global environmental problems on a local level. For building competences, children must have *theoretical knowledge* of the problems and ways of coping with them, *practical skills* how to solve them in their own reality, and **attitudes** that their environmental actions are important and highly needed in the contemporary world.

Procedures and strategies for building ecological competences in children

The means to fulfil the goals of the project is the long-term support of pupils' education focused on the development of sub-areas that support the pupils' active involvement in environmental activities.

Through the specific activities and means listed below, the following will be developed:

1. *SENSITIVITY*
2. *PERCEPTION OF REGULARITIES (LAWS OF NATURE)*
3. *ENVIRONMENTAL ISSUES AND CONFLICTS*
4. *RESEARCH KNOWLEDGE AND SKILLS*
5. *ACTION STRATEGY TO SOLVE ENVIRONMENTAL ISSUES*

1. SENSITIVITY

Pupils express a positive attitude towards nature and the environment, describe how they feel outdoors, in the countryside, keep it clean, do not leave a mess outside, do not harm nature and at least some of them help protect it, take care of the environment.

Activities for pupils:

1) Under the guidance of an adult, the pupil takes regular and long-term care of the plants in the classroom and in the garden.

Means to achieve outputs: working in the garden; growing your plant from a seed (in class).

Method of evaluation: Observation of cultivated plants, competition for the best flower decoration in the class.

2) Tells (writes) the story of a selected plant or animal living in the school garden.

Means to achieve outputs: pantomime the behaviour of his animal; creative story writing; mutual listening to the story

Method of evaluation: Finding commonalities in individual stories, mutual evaluation.

3) Expresses his experience of sensory (visual, auditory, tactile, olfactory and gustatory) contact with nature in poetry or art.

Means to achieve outputs: landscape painting; walking barefoot and blindly along a tactile path and describing sensations from individual natural phenomena; creative writing; preparation of herbal tea from the Herb Garden; blindfolded taste recognition; sound, smell, hearing game searching for pairs of the same nature.

Method of evaluation: Commented presentation of artistic works and poems, assessment of the correctness of the learned natural objects.

4) Describes the observed changes of the selected herb or tree from the school garden in individual seasons.

Means to achieve outputs: draws a tree in 4 seasons, notices important changes; describe the pictures and explain the changes in annual, biennial, perennial herbs; dramatization of the story

Method of evaluation: Exhibition of the best works on a board, evaluation of the correctness of assigning individual periods to a person's life and explanation of changes.

2. PERCEPTION OF LAWS

Pupils describe basic laws in nature (food relations, cycle of substances and energy, relations between organisms and the environment). He observes the manifestations of these laws in nature. He looks for practical examples in his surroundings and connects them practically with his everyday life.

Activities for pupils:

1) Pupils give simple examples of food links between organisms - build examples of food chains.

Means to achieve outputs: Dramatization on the topic of the food chain; creative processing of the food chain; group work with pictures on the topic of the food chain.

Method of evaluation: Evaluation of the correctness of the assignment of images, annotated presentation of artistic processing of food chains.

2) Distinguish between basic biotopes (pond, field, forest, garden, housing estate) and match to them the organisms found in them.

Means to achieve outputs: matches the presented plants and animals to the environment in which they live (water, soil ...); uses the SEV BIOS program; field exercise – slipping in water, grass, observation of soil, collection of wood material.

Method of evaluation: Evaluation of the correctness of classification (using keys), comparison of samples.

3) Explain the principle of the carbon and water cycle in nature.

Means to achieve outputs: A film about photosynthesis, growth, decomposition; game on the interactive board - Life in the forest; working with images – the cycle of life.

Method of evaluation: The correctness of the arrangement of images from the cycle of life in nature.

3. ENVIRONMENTAL ISSUES AND CONFLICTS

Pupils analyse a selected specific environmental problem, discuss the problem, explain whether it is becoming a conflict and critically examine it, look for and propose possible solutions.

Activities for pupils:

1) Pupil reveals an environmental problem in his immediate surroundings and describes whether it is affected in a certain way, who is involved in it or whether he himself is involved in it.

Means to achieve outputs: Walk around the school and observe. Everyone finds at least 3 problems by themselves; joint sharing of problems, choosing the most serious; searching for possible culprits who are involved in the problem – brainstorming.

Method of evaluation: Artistic, literary processing of the situation.

2) Discusses with classmates about possible solutions to a given problem, respects the opinion of others and is able to adapt to the way of solving the majority.

Means to achieve outputs: Brainstorming possible solutions to the problem and deriving the solution according to the majority, group work, finding a common solution, presentation of proposals.

Method of evaluation: They evaluate how they discussed and looked for a common solution, present their proposals for solving the problem.

3) After an agreement, the classmates formulate how to solve the problems that he observed during the normal operation of the school.

Means to achieve outputs: During the interview, he discusses a problem he noticed at school, formulates possible problems associated with the normal operation of the school and a solution is derived from the joint discussion.

Method of evaluation: Ability to participate, engage or even lead a discussion. Ability to agree in a class on a common solution procedure.

4. RESEARCH KNOWLEDGE AND SKILLS

Activities for pupils:

Pupils formulate basic research questions, propose a research procedure, design, collect, organize and evaluate the necessary data. They organize, evaluate and interpret them and based on them formulate conclusions and propose solutions.

1) Pupil observes nature, draws and describes his observations.

Means to achieve outputs: Field exercise + entries and drawing in the researcher's diary.

Method of evaluation: Comparing the plant with the drawing, checking the correctness of the description.

2) Observes and investigates events using simple aids and tools (works with a magnifying glass, telescope, rain gauge, and thermometer).

Means to achieve outputs: Work in the garden; observation of various organisms using a magnifying glass, microscope + make a drawing; work with a thermometer and a rain gauge – phonological observations.

Method of evaluation: Practical skills associated with the use of simple tools for student observation.

3) Records observations in tables, simple graphs, searches for information in the literature

Means to achieve outputs: Work with the data obtained in mathematics lessons - recording in graphs; work with worksheets in the field - supplementing the table, graph; work with an encyclopaedia.

Method of evaluation: Ability to record data in a chart, read data from the professional literature.

4) Performs a simple experiment (e.g., on plants → sufficient vs. insufficient light, sufficient vs. insufficient moisture ...) and draws a conclusion from his observation.

Means to achieve outputs: Long-term observation of 4 pieces of the same plants under different conditions - in the classroom - work in groups; discussion and drawing a conclusion, why the same plant has different growth (different conditions).

Method of evaluation: The procedure, description and conclusion of the experiment are recorded in the laboratory work, observation diary.

5) Searches for information on the researched questions in professional literature and on the Internet, and compares with their observations.

Means to achieve outputs: Searching for information on the Internet; searching for information in encyclopaedias and magazines; selection of essential information; comparing the searched information with one's own observation.

Method of evaluation: Search and extracts of information on the researched topic, evaluation of the results and comparison with the results of own observation.

5. ACTION STRATEGY

Pupils acquire knowledge and skills that lead them to responsible environmental behaviour that has as little negative impact on the environment as possible. Their attitudes influence the actions of other people. Pupils are able to analyse a certain problem in their surroundings, plan a solution, implement it and present it in public.

Activities for pupils:

1) Pupil chooses from ordinary daily activities those in which his behaviour can reduce their impact on the environment (e.g., saving water during hygiene, drinking school tea from a mug rather than buying drinks in plastic bottles from a machine...).

Means to achieve outputs: discussion of everyday activities as they affect the environment; brainstorming ideas on how to reduce the impact of your behaviour; proposals for possible savings; drawing on the topic: Environmentally unfriendly behaviour versus environmentally friendly behaviour.

Method of evaluation: Commented presentation of artistic works.

2) With his ecological behaviour, he sets an example for others, possibly draws attention to the correct handling of waste, etc., and can justify his position.

Means to achieve outputs: separate waste at school; separate waste at home; participation in cleaning around the school in work activities; composting bio-waste while working in the school garden.

Method of evaluation: regular inspection of waste sorting in classrooms, inspection of cleaning around the school - eco patrol.

Building key competences within ecological activities in the COMPASS project

A detailed example of planning one project activity oriented to outcomes (students' key competences)

Our first action on the project was an action of cleaning garbage in a nearby park. [Using this example](#), we can explain how just one extracurricular activity can contribute to various students' key competencies. In this way, we will formally satisfy the need for outcome-oriented planning, but more importantly we will get an activity of high educational value.

The first phase of the action

We started the cleaning action by watching documentaries about the problems of excessive waste generation. After obtaining information from these sources, we used the Internet and searched safe sites for information that would deepen our knowledge of the excessive waste issues. After that, the teacher led a discussion about the information we received and tried to direct the students' thinking to the recognition of global problems to the local environment in which we live, as well as to the initial proposals of possible solutions. The students were also asked to convey the information they had found to their immediate and extended family members, but also to ask them for some more information about local waste issues. Also, joint proposals for possible solutions to these problems are welcome at this stage.

Question for teachers: What key competencies did we contribute to through the first phase of our project activity?

We have contributed to literacy competence, because it is based on the understanding of information (and its context) obtained in different ways and from different sources, as well as the ability to express one's own thoughts and ideas and communicate effectively with the social environment.

We also contributed to digital competences, as we used different digital devices and media to acquire information about the problem we were researching.

With this phase of our project activity, we contributed to the achievement of personal, social and learning competence, because students, by accessing information in different

ways, become aware of their capacities for different ways of learning information, understanding it and exchanging it with the social environment. In addition, students adopt different strategies (implicit and explicit) to reach information and solutions, which increases their adaptive capacities for active participation in social life.

The second phase of the action

The second phase of the action was related to communication with project partners regarding global and local waste problems and possible solutions to these problems. An online meeting was organized with the project partners (day care centre for children Cloud Giraffe from Serbia and elementary school from the Czech Republic). Our department had to prepare a presentation to the partners about the conclusions we reached in the first phase of the activity, and then listen to the partners' presentation at the online meeting, hear and understand their local problems with waste and their proposals for possible solutions. This was followed by a discussion about the problems and potential solutions to the problems presented.

Question for teachers: What key competencies did we contribute to through the second phase of our project activity?

We contributed to multilingual competence, because students understood English, in order to exchange information and opinions with foreign partners (multilingual competence would be also "tickled" just by encountering sources of information in English, for example).

Also, we contributed to the achievement of cultural awareness and expression competencies, by children becoming aware of the specificities of different peoples, cultures and traditions, but also of common civilizational and cultural values.

The third phase of the action

In the third phase of the action, we started planning the implementation of specific actions aimed at the problem of waste. For the action, we chose parks, as places where children play, which are the most vulnerable population (the most susceptible to health hazards of waste: they can be stabbed by something sharp, they can get infected more easily by playing in a dirty environment, etc.). We needed to see how many children's parks there are in our area and find out which park has the most children, which has the most garbage, which has the most dangerous type of garbage, etc., in order to decide which park to clean. After researching this information about the parks, we compared the data for the different parks and voted on which park to clean. Everyone had the opportunity to justify their choice, in accordance with the data we obtained and their personal opinion (some justified their choice by the largest number of children coming to the park, some by the largest amount of garbage in the park, some by the danger of certain garbage (e.g., a lot of glass) for children's health). When we decided by majority vote which park will be cleaned, we started thinking about what we need for the cleaning action. The teacher directed the action plan, and the students gave their

suggestions. Regarding the safety of collecting waste, the teacher focused the story on tools that would make it easier for us to collect garbage, so the children suggested possible solutions (gloves made of different materials, sticks with a sharp tip or a clip on the top, etc.).

Question for teachers: What key competencies did we contribute to through the third phase of our project activity?

We contributed to civic and entrepreneurial competence, because the students were put in a situation to organize a specific action and demonstrate civic activism, in order to achieve the general social good.

Also, it contributed to the achievement of competence in science and mathematics, because a mini-research was used that led to the decision on the choice of the park for cleaning based on facts and comparing exact data, numbers.

Possibly, in relation to the proposals of aids that are needed during the implementation of the action, it could also contribute to the achievement of competence in technology and engineering. In this way, students could come up with different conceptual solutions for tools for collecting or temporarily storing garbage, as well as methods for their later processing, recycling, transportation...

An example of a one-year plan for ecological activities oriented on outcomes

1) A cleaning and recycling action (explained above)

2) The action of creating animal shelters during the winter

Description of the activity: After cleaning action during September and October, the second action was focused on making animal shelters for winter. During November and December, children from the day care centre Cloud Giraffe, together with their teachers, [made a dog house](#), while the pupils of Elementary School "Branko Radičević" Batajnica and "Zakladni skola" Prerov [made birdhouses](#). We set up shelters near our schools, so that we could visit them and bring food to the animals (see photos and videos on the links in this paragraph).

The key competences which were tapped:

a) Firstly, we tapped literacy competence in children, because they needed to inform themselves about the way different animals live and feed during winter (information acquired via teachers, books, Internet, discussing with biology teachers) and children discuss upon this topic within the class, but also within their families and broader social environment.

b) Personal, social, and learning to learn competences were also tapped through the acquiring different personal and social strategies for gaining information about the topic.

c) We were developing digital competence, due to the proper usage of computers, tablets, phones in acquiring information from the web. The teachers were also informing pupils about importance of using only safe websites and a need to be sure in validity and reliability of the information from Internet.

d) Mathematical, scientific, technological, and engineering competences were being developed during measuring and comparing wooden material for making animal shelters. Also, children were using and handling various tools (saw, ruler...) in order to make the final product.

e) Citizenship competence was tapped because the pupils become aware of the importance of environmental topics and their role in analysing and solving various ecological issues.

3) The action of giving away bags and informing neighbours about risks of using plastic

Description of the activity: At the beginning of February 2023, the day care centre Cloud Giraffe from Zemun prepared an action of [giving away bags](#) to people in front of stores. At first, we collected plastic bags that most families have in their households, and then we washed and dried them. During two days, the bags were distributed in front of the supermarket to customers who did not have their own bags, so that they would not take new bags from the supermarket. On that occasion, the children from the Cloud Giraffe informed customers about harmfulness of plastic and the very slow decomposition of plastic bags in nature. In addition, children shared information related to the use of the textile and other bags instead of plastic bags, as well as about good substitutes for products in plastic packaging (see photos on the link in this paragraph).

The key competences which were tapped:

a) Literacy competence was developing by discussing how to use plastic in our homes and what the responsible behaviour is. We used different sources of information (Internet, books) in order to obtain broader perspective upon this topic.

b) Personal and social competences were also developing by integrating knowledge regarding responsible plastic usage into the personal and social context of household managing.

c) We also tapped citizenship competence by children becoming aware of their everyday responsible behaviour toward using plastic, but also their role in spreading the knowledge to their social environment.

4) Making board games from recycled materials

Description of the activity: Teachers and students of Elementary school "Branko Radičević" started this action by talking about the purpose of recycling. In addition to help the planet Earth to deal with human-made waste. We can reuse the materials we use for another purposes. After discussing what the children would like to make from various used materials, we came up with the idea of making toys. We agreed that it would be great to make some games for both children and adults, so we decided to make Don't get Angry, Man and Chess. The students had to collect recyclable material (cardboard boxes, bottle caps, towel rolls). The [created board games](#) were donated to the Society of Pensioners and students of the Day care centre in our school (see video on the link in this paragraph).

The key competences which were tapped:

a) In this action we were working on the literacy competence, as well as personal, social and learning competence. The students communicated with each other, agreeing on the best idea for reusing already used materials. In relation to the criteria set by the teachers (usefulness of the games and the widest possible use of the final products), the students came up with the idea of making games that will be used by both children and adults.

b) Realizing the importance of recycling and the multiple possibilities of using already used materials, the students empowered themselves to play an active role in our society through their actions and to make positive changes on a personal and social level. This action was also developing citizenship competence and active participation in the decisions of a democratic society.

c) Mathematical, scientific, technological and engineering competences were being developed during planning how to make board games and during technical part of making those. Children prepared how the games should look like, and then make the final product by using different tools (scissors, ruler...).

5) Creation and positioning of the recycle bins for paper, metal, and plastic

Description of the activity: After the action of collecting waste and the topics which covered rational usage of materials and recycling them, we made a good introduction for making recycle bins in our local areas. We made a home version of the recycle bin, but we also order a regular recycle bins to be [positioned](#) in [our neighbourhood](#). Since then, children have been checking the amount of the collected waste on a regular basis and build competences to separate and recycle waste, but also to reduce the waste they produce. Further, they are more motivated to spread their knowledge regarding rational material usage to their neighbours in the parks where the recycle bins are positioned (see photos on the links in this paragraph).

The key competences which were tapped:

a) Students were developing personal, social and learning competence, by learning about recycling and discussing about each step in moving waste from the recycle bins to actually recycling it.

b) We were developing mathematical, scientific, technological and engineering competences in students while making home version of the recycle bins, but also when making informed decision where the bins should end up, according to different criteria (area without bins, area most visited by people, area closest to recycle centres etc.).

c) By participating in this action students became aware of the importance of their active role in solving real-world problems. This action added to their citizenship competence and their responsibility for the shared social values.

6) Making compost

Description of the activity: Parallel with the actions of recycling waste we have introduced an important topic of reducing waste. One of the ways we can reduce waste is composting. We used a kitchen waste in our institutions in order to [make compost](#) for our garden (see photos on the link in this paragraph).

The key competences which were tapped:

a) We were developing personal and social competence, by using different sources of information about composting, and also by proposing ideas for using compost we produced.

b) Students had an important role in each phase of making compost, so they acquired an important competence for reducing waste and fertilizing plants. The citizenship competence was mostly tapped by this project activity.

Building competences for physical exercising in children aged 7 to 11

Importance of children's physical activity

Children's competences for physical activity must not be seen only as their ability to become athletes. Every single child has a need for physical activity, as a basic hygiene of human body from inside. It is scientifically established that a lack of this hygiene can produce adverse health consequences: 20 to 30 % higher risk for noncommunicable diseases ("[The pandemic of physical inactivity: global action for public health](#)", Kohl et al., 2012; "[Physical inactivity: the biggest public health problem of the 21st century](#)", Blair, 2009). Parents and teachers should be aware of those consequences and children need to have at least 60 minutes of moderate to vigorous physical activity which will make them breathe faster and to have at least 3 times a week some strength exercises (according to [HEPA recommendations of the Council of the European Union, 2013](#)). This daily minimum will not only reduce probability of adverse health outcomes, but

also produce important health benefits ([“Systematic review of the health benefits of physical activity and fitness in school-aged children and youth”](#), Janssen & LeBlanc, 2010). Of course, beyond this daily minimum for avoiding health dangers and acquiring health benefits, physical activity should also be a pleasant experience for everyday feeling. In order to be physically active on a regular basis, every person should become competent for physical exercising as early as in his childhood. How teachers can help all their students to accomplish this aim?

Principles of building competences in children to be physically active

1) Firstly, it is important to teach your students about good effects of everyday physical activity and bad effects of lacking physical activity. A good way of keeping in mind the need for everyday physical activity is to arrange exercises every day. For example, as little as one minute a day of a simple physical activity ([running in one place](#) or [doing squats](#)) will bring not only every day activity but more important every day reminding of the importance of being physically active. If we want this healthy habit to be built, we need to offer everyday activity to our students.

2) Secondly, we need to offer as many activities as we can in order each child can find his or her favourite activity. Walking and playing in nature, cycling, rollerblading, skating, running, playing basketball, football, handball, dodgeball, tag games, hopscotch, climbing a tree, jumping rope are just some of the activities you can work on with your students. Besides enjoying physical activities, you should always emphasize that physical activity was not only a pleasure but very important job and homework the children had done.

3) Thirdly, no matter which physical activity they like (activity without any skills needed, e.g., running, or skilful activity, e.g., traditional taekwondo) it would be great for each child to be competent in a special skill. It is important because it develops both body and brain, has great potential for improving and reinforcing child's motivation and striving to be better in that skill, and maybe some others. There are a lot of skills which are pretty simple to teach and learn, even for those children who are not too skilful. For example, [jumping over rope](#) can be learned pretty quickly, but it also has great potential for long-term-learning complex variations of this skill. Learning a special skill can take place not only at physical education class, but also outside the school (e.g., rollerblading, skating, cycling, jogging in nature etc.). Those experiences along with the knowledge of physical activity importance should be firm basis for building positive attitudes toward physical exercising, as an important element for being competent.

What is the least you can do for the current and future health of your students?

In recent years, physical education classes have become for a large number of children the only time when they have systematic physical activity of prolonged duration. If we connect this information with the information about the serious health problems of people who do not have a sufficient amount of physical activity, it becomes clear that a

physical education class is sometimes the only way to create a habit of regular physical exercise, which will preserve the health of some of your students in the future. Is there anything more important than that? We know that not all teachers are competent to teach physical education classes at the highest level. What is the minimum activity that every teacher should organize in the physical education class? The minimum is that all children should be physically active in every physical education lesson.

Firstly, you should choose those activities that will keep the children breathless for most of the lesson. For example, if the game is between two fires, and the children hide in the corners of the field or are immediately hit and stand behind the line for the whole class, such a physical education class is not good. It is better to give some extra breathing activity to the child who is out of the game (e.g., run 5 laps around the court or 20 times back and forth the length of the hall) and then return to the game. Students need to be constantly reminded that the purpose of all these activities is to make them breathe faster (it's great if you can teach them to [measure their pulse](#), because it's very interesting for every child).

Secondly, in addition to these physical activities with fast breathing, you should do at least some strength exercises for legs (e.g., how many squats you can do), arms and torso (e.g., hold the starting [push-up position](#) for as long as possible). For these exercises, you can count the seconds to see which student will succeed in breaking his or her personal best and always praise them for breaking records and not for being better than other students).

Thirdly, at the end of activity you should do some stretching exercises.

What is the most you can do for the current and future health of your students?

If you want to be a great teacher in the implementation of physical education, you have to put in a lot more effort, but the competence of your students to engage in physical activity in the future will be much greater.

Firstly, when thinking about teaching physical education, the first requirement is that the students enjoy the physical activity you have planned for them. This is not always easy, because more often physically fit children are more motivated and enjoy different types of physical activity more. Think about which games will satisfy the condition that all children have the opportunity to enjoy and be good at the game. For example, if you are playing a game where the faster students always have an advantage, you can modify the rules so that the slower students also have a chance to win (e.g., there is a chance for them to use a protective move like crossing their arms three times, and then the students are safe, i.e., they cannot be frozen). If they are frozen, [they must run in place](#) even when they reach a heart rate of 130 or more (if you have taught them [how to measure their heart rate](#) while looking at a clock placed in the hall), that is, when they cannot say more than 4-5 words in a sentence before they have to take a breath (if you have taught them to), the students return to the game. In this way, you teach them that

the physical activity in which they are out of breath is exactly the one that is the most important for their health.

Secondly, when students experience physical activity as enjoyable and safe, it is easier to teach them new physical activities and skills, some of which may become their favourites (once learned). That's why it is important to teach students that the most important thing is learning new skills. The skills that you should keep in mind when planning your lessons and extracurricular activities are: 1) skills with your own body (forward roll, handstand, bridge, dance, playing hopscotch, barbell, jumping over obstacles, crawling, etc.), 2) skills with a prop (jumping the ball, guiding the ball with the hand/foot and passing, playing tennis, darts, juggling and pimping the ball, etc.). Apart from these activities that you can do in the gym or outside, take your students on a trip to nature and teach them the skill to climb a tree, take them skating with the help of parents who know how to skate, or just organize a hidden object search for them in nature with "signs on the side of the road", which will follow... These beautiful experiences associated with physical activity remain permanently etched in the children's memory and allow them to strive to repeat such experiences, when they have the opportunity to independently choose activities that they consider important, good, pleasant and fulfilling.

If you want a concrete example of a possible organization of a physical education lesson that will meet all the criteria above, it could look like this: at the beginning of the lesson, for at least 5 minutes, the students should be allowed to walk quickly in a smaller circle around the hall or to run slowly in a larger circle around the hall (they can alternate the two activities, if they like). They should learn to walk or run at a pace that will allow them to walk fast or run slowly for 5 minutes without stopping, with a desirable pulse measurement or the already explained determination of the number of words in a sentence that the students manage to say between two breaths. In the next, preparatory phase of a class exercises do not always have to be the same (sometimes stretching exercises can be done, and sometimes strength exercises), and sometimes they can be done with music. After that, you should teach the students a skill (skipping a rope, dribbling, passing the ball, handling the hoop, etc.). Skills include everything that students have to try for a long time to succeed in performing. At the end of class, do some stretching.

Building key competences within physical exercising in the COMPASS project

Initial and final measuring of weekly physical activity and physical fitness

At the beginning and at the end of the project, we measured on each day during one week how many steps and minutes of moderate to vigorous physical activity each child had. This is important to acquire information about current state of each child, but more

important for children to be able to follow their own improvement thru the time. Besides fitness watches and phone applications which you can use for information about children's activity (i.e., number of steps), for measuring physical fitness (e.g., aerobic and muscular fitness) you can use simple ALPHA battery fitness tests (video tutorials you can find [here](#)).

Everyday physical activities in a classroom

Bearing in mind that all students aged 7 to 11 have 4 to 5 academic lessons every day, we have introduced [2 minutes of physical exercise](#) for our students at the beginning of each lesson. In those 2 minutes, the students in one class do exercises that will make them out of breath (running/low jumping on their toes), and at the beginning of the next class they do strength exercises ([squats](#) and standing with their hands resting on the table, [alternately raising bent leg to the chest](#)). Just 2 minutes of these activities give children 8 to 10 minutes of additional physical activity per day. In addition, students will be reminded 4 to 5 times a day what types of physical activity are important, and they will monitor indicators of their physical engagement (number of steps, heart rate, time spent in moderate to vigorous activity) on their fitness watches obtained in the project.

Physical activities in physical education classes

In physical education classes students warm up for 5 minutes by jogging or brisk walking in order to reach a pulse of 130 or more heart beats per minute. They will monitor it on their fitness bracelets. Another activity in the class is [learning different ways to skip a rope](#) for 10 minutes. The third activity is strength exercises: [squat with your back against a wall](#) and [holding on your hands while your feet are on an elevated surface](#). In these two exercises, students should maintain the given position for as long as possible, and in the following period they have the opportunity to break their own record. The fourth activity is a tag game, in which two students chase by different ways of moving, and the others run away in the same way. When someone is caught, that person must do exercises for at least 30 seconds in place, which will increase his heart rate to at least 130 beats per minute. If he fails to do so in 30 seconds, he continues to practice until he achieves it, after which he can participate in the game again. At the end of the lesson, students do the fifth activity: stretching all the muscles that were active. The teacher reminds them to try to fulfil targeted daily physical activity (i.e., 10.000 steps and 60 minutes of moderate to vigorous physical activity) in the rest of the day and to try to break their personal best in the exercises they had done at today's class.

Children create games for fulfilling daily recommendations for physical activity

One of the tasks within our project was to empower children to use the knowledge regarding recommendations for daily volume and intensity of physical activity for creating physical activities which will be enjoyable for them, but at the same time will fulfil criteria of daily quantity and quality. Hopscotch with different movement patterns, modified tag games, jumping rope in pairs have been some of the activities which children have come up with.

Children present themselves to others

All partners in this project have presented themselves at the beginning of the project. Children introduce themselves by saying what do they like to do or by presenting some skills they are good at (singing and playing some instrument, dancing, doing some exercises, etc.). Further, at the end of the project children presented what project skills/activities they have mastered and liked the most (e.g., [jumping rope](#), [hand-to-hand moving while hanging on a bar](#), [persevering in a squat](#), playing [modified tag games](#), hopscotch etc.). Also, children from all three partners presented their national dance at the end of the project.

The key competences which were tapped:

- a) Personal and social competence: Through these activities a child gradually becomes aware of a need for being active every day and being socially responsible for his or her health behaviour. He or she will be able to plan the daily physical activity according to the feedback on his or her fitness watch.
- b) Digital competence: A child will be able to use various options on a fitness watch including various applications. Further, making, editing, and uploading videos from partners' institutions as well as for the followers on social networks was a step toward responsible producing and sharing multimedia content.
- c) Literacy competence: By using different data from watches, under the teachers' guidance, children become able to compare and analyse their steps, heart rate and other variables available, during and after physical exercising. They are able to explain why they have more steps on one day than on another, why they have more minutes of moderate to vigorous intensity in one physical activity compared to another, etc.
- d) Multilingual competence: The importance of English as a foreign language is often misunderstood by children and masked by a need to learn just to be graded / assessed by a teacher. By presenting themselves in a foreign language (in English) children were able to understand and explain the importance of English language for a communication between people who speak different maternal languages.

e) Cultural awareness and expression competence: By communicating with partners' institutions (e.g., by presenting themselves, presenting games for increasing activity time, dancing national dances) the children become aware of differences in language, tradition, culture between nations, but also similarities of people's needs, wishes, problems in different societies. Students become able to explain these differences and similarities.

