



"Difficult topics with fun"

European solutions in the process of organizing activities that develop logical thinking



# POLAND



„Education Through Movement”  
„Fundamental games”

# SPAIN



„The Montessori method”  
„Mathematical and educational games”

# GREECE



„Ozobots in education”  
„Lego Education and Lego Robotic in education”

## IN COOPERATION WITH



„Magic carpet in education”

## HOW TO DEVELOP LOGICAL THINKING IN A CHILD AGED 5-6 ???

IT'S DIFFICULT ?  
WE KNOW HOW !!!



### WE START BY DEVELOPING:

- creativity,
- ability to work in a team,
- critical thinking,
- asking questions,
- logical actions,
- decision-making,
- organizing a place to play



# FUNDAMENTAL GAMES

**Short description:** Learning fundamentals is an education support program for children ages 3 to 6 by Colin Rose and Gordon Dryden. The program is based primarily on Howard Gardner's theories of multiple intelligences. It is proposal for children with a various range of developmental and educational needs and abilities, and can provide optimal preparation for life in the modern world. The premise of the program is to combine fun with stimulation so that the child develops comprehensively in an easy way. The teacher's and parent's role is primarily to organize the children's tasks and guide their actions to complete them with success and satisfaction. The main task in implementing the program is to prepare the child to use his/her mental potential in the most optimal way. The basis for the results is a close collaboration between the teacher and parents.

**Key competences developed through best practice:** 1. Competence in understanding and producing information. 2. Multilingual competences. 3. Mathematical competence and competency in science, technology, and engineering. 4. Digital Competences. 5. Personal, Social, and Learning Competences. 6. Civic Competences. 7. Entrepreneurial Competences. 8. Competence in cultural awareness and expression.

**Methods and forms of work used:** activating methods (didactic games, pantomime, visualization, KLANZA play pedagogy), Carl Orff's method, Rudolf Laban's method of creative movement expression, Veronica Sherborne's Developmental Movement Method, Josef Gotfryd Tulin's movement story method, Kniess' method, Batia Strauss' method of active music listening, involving the senses (polysensory or multisensory), practical (demonstration, experiments, research games, project method), software-based (using computer, magic carpet, interactive whiteboard), expository (film, art, display, demonstration combined with experience).

**Teaching aids needed for a good practice:** anything we have on hand, materials available at home and in the preschool (e. g. porridge, flour, rice, peas, water, utensils, nature materials, music, crayons, cards, pictures, books), coupon for effort.

**How does it help in learning? (effects):** acquisition of intrapersonal and interpersonal skills, the ability to take responsibility for the task, using accumulated experience in problem situations, using situational learning and nonverbal messages, ability to learn new things quickly (good memory and concentration), problem solving and creative thinking skills, achieving success by being able to handle various life situations independently.

**Literary sources:** Preschool education program with a guide "Fundamental education in kindergarten" - Katarzyna Lotkowska, Set of games and activities for teachers. "Fundamental education in kindergarten" - K. Lotkowska, C. Rose



**Short description:** Educational system and therapy Education Through Movement (ETM) is a collection of techniques and methods of work based on natural, optimal, rhythmic human movement. Moving according to a certain rhythmic procedure, activating the senses, supports the increase of the level of sensory integration in order to prepare the body and mind for the learning process. The system was built on the basis of many experiments and observations carried out both in school classes and in groups of preschoolers. The main assumption of the ETM system is to plan movement as the basis for cognitive activity of a child. The ETM teacher uses certain simple or more complex forms of movement in accordance with the physiology and psychomotor abilities of the learning children, basing the play on the so-called „measured strikes competence”. Each activity of the ETM system is made up of many techniques - exercises that perform specific functions supporting the overall, i. e. holistic development.

**Key competences developed using best practice:** Key competences are a combination of knowledge, skills, and attitudes appropriate to the situation. Eight key competences: 1 competence in understanding and producing information, 2 competence in multilingualism, 3 competence in mathematics and competence in science, technology and engineering 4 digital competence, 5 personal, social and learning competences, 6 civic competence, 7 entrepreneurial competence, 8 competence in cultural awareness and expression.

**Methods and forms of work:** Active, verbal, practical action . System image method of The Education Through Movement

**Teaching aids necessary for a good practice:**

Thematic pictures, subtitles, pastels, crayons, pencils, music on CD, sheets of paper on which the work will be created, colored paper, ready-made elements to finish the picture, a coupon for effort - such as a smiley emoticon picture.

**How does this help children learn? ( effects):** The rhythm accompanying the exercises makes it easier to perform activities and increases overall motor coordination which affects the integration of the sensory system. The alternating movement improves the work of both cerebral hemispheres providing the possibility of better perception and interpreting knowledge-building stimuli, exercises orientation in space. Activity generates joy which creates optimal conditions for learning in a group. -A small artwork is created and each child is successful.

**Literary sources:** Dziamska, Education Trought Movement: Dots dashes ovals, Reprinted publication from 2005; Waves, spirals, herringbones, zigzags Reprinted, publication from 2005; Playing with a paper fan. Reprinted publication from 2008; Goleman D. Emotional Intelligence, Reprinted publication from 1997; <https://docplayer.pl/105540338-Edukacja-przez-ruch-system-edukacji-doroty-dziamskiej.html>

**Good practice author:** mgr Ewa Filipiak

**Location of good practice:** Elementary School No. 2 Polish Olympia, Pila, Poland







# THE MONTESSORI METHOD

**Short description (characteristics):** Montessori method revolutionized the existing educational parameters, placing the child as the protagonist of his learning. It is based on the child's initiative and ability to respond through teaching material specifically designed to encourage independent learning so that the child learns largely independently and at his own pace through his own discoveries. Montessori believed that the most important thing was to motivate children to learn and allow them to satisfy their own curiosity and experiment with the pleasure of discovering their own ideas, instead of receiving knowledge from another person.

**Key competences developed using good practices:**

Concentration, will and memory development. Moving from being controlled by to the environment to control the environment. The learning is spontaneous, using opportunities that offers the environment. acquiring attitudes and behavioral habits across the board as well as mental skills, self-knowledge, self-control, empathy and assertiveness.

**Methods and forms of work:** The Montessori methodology is based on:

- concentrating on the child's learning;
- promote respect for the natural development of each child by working in an integrated manner, acquiring all your skills with the help of the environment;
- promoting more personalized learning as everyone creates their own learning according to their preferences and skills;
- providing children with the necessary tools and an appropriate environment that fosters and supports learning.

**Teaching aids necessary for the implementation of good practice:**

Material for exercises in practical life - related to self-service, care for the environment, customs and social norms; sensory - developing sensory cognition, serves to stimulate mental activity; for learning language, math, culture and other fields of knowledge; for artistic- related to the musical, artistic and dexterity expression of a child and religious- such as those depicting Bible parables.

**How does it help children learn? (effects):**

Montessori pedagogy helps in developing individual personality traits, in forming the correct character, acquiring knowledge, school skills and cooperation, and gives the child a chance for comprehensive development: physical, spiritual, cultural and social; supports his spontaneous and creative activity.

**Literary sources :** The Montessori Method- Montessori Maria

**Good practice author:** Ester Magrià Masgrau

**Location of good practice:** Escola Pla de Girona, Spain



## *MATHEMATICAL AND EDUCATIONAL GAMES*

**Short description (characteristic):** Mathematical and educational games based on "dynamic" geometry. How do we do it? Think, create, develop explanations and start with basic math skills - that's essential. At school we have the opportunity to do logic activities in learning all subjects, and especially in language, physical sciences, music and art (for geometry), but at the same time we believe that it is also appropriate to create situations, often with a playful character, whose sole aim is a better development of all logical abilities. Logic activities are sometimes embodied in real experiences, in problems or simply in work proposed by teachers, and other times they are presented as playful situations, which by their very nature are of interest to children. Maybe that's why we often call them "logic games".

**Key competences developed using good practices:** personal initiative and entrepreneurship; mathematics as developing the ability to reason and abstract by providing a set of models and procedures for analysis, calculations and estimation, which when used in various contexts of reality, must enable understanding concepts and their fields of competence to solve situations and problems; digital for as who wants to interact normally in today's society - they are can be for used to solve problems and situations that affect any area of learning.

**Methods and forms of work:** tasks for children, creative activity, problem solving; work with the whole group, in teams and individualized.

**Teaching aids necessary for the implementation of good practice:** various types of numerals, blocks, natural materials: stones, sticks, leaves, fruit of trees and shrubs, geometric figures of various sizes Everything that surrounds us and is within reach and eye. Everyday materials: plastic boxes and logs, marbles and ramps, balls, bowls, wool and rings, cars and trampolines, pendulums made of bottles.

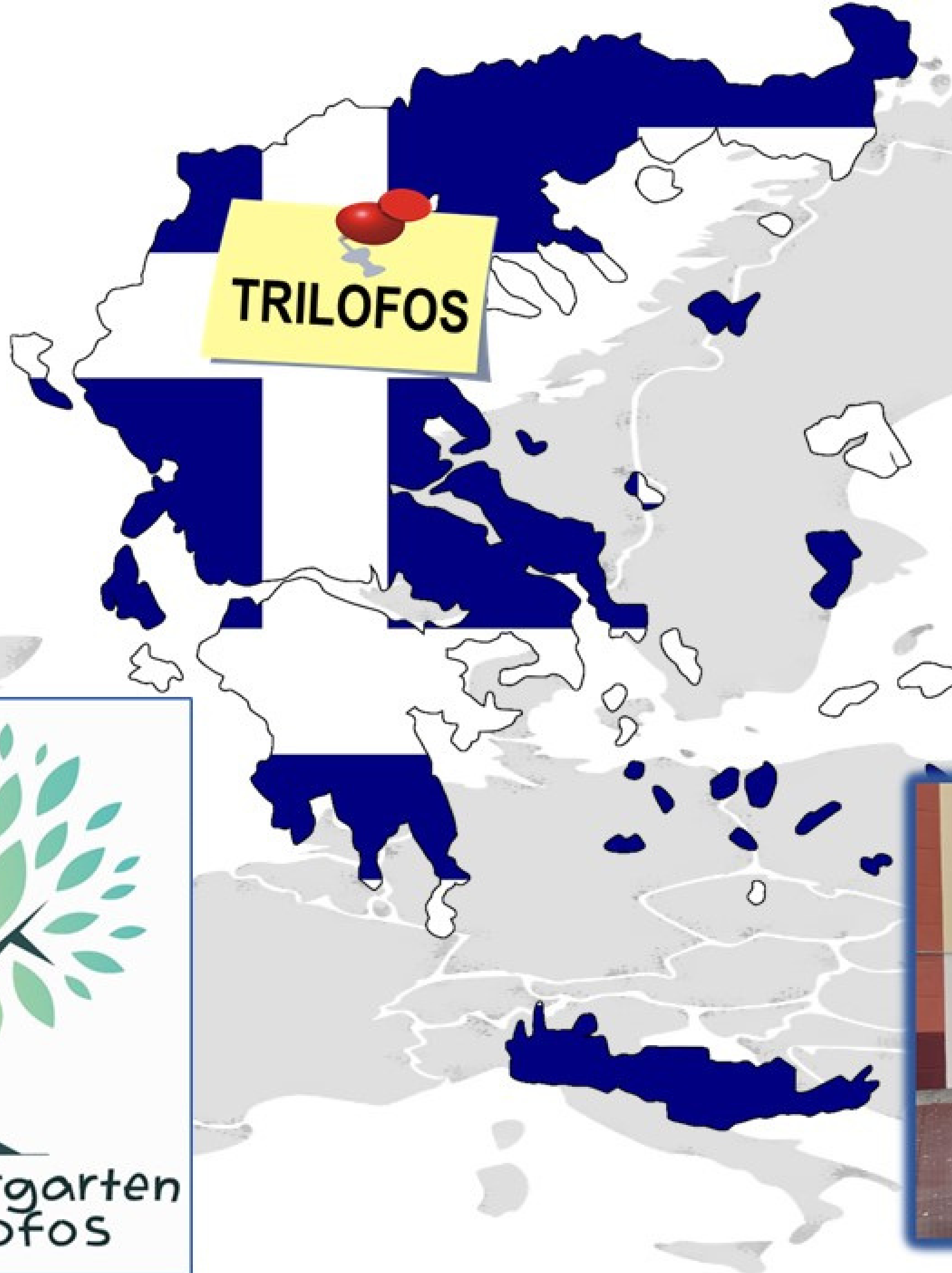
**How does it help children learn? (effects)** Based on the experience with materials and their recognition in everyday life, children observe and discover the geometric properties of figures, which change or not when transformation occurs. We use transformation to study different categories of characters and bodies, thus broadening the vision and knowledge of children, whether or not they have been previously modified. It is important to reflect on how each type of transformation works, ie its internal laws, as a comparison of the actions, if any, with the properties of other operations, arithmetic or geometric.

**Literaty sources:** <http://www2.udg.edu/projectesbiblioteca/GAMAR>

**Autor good practice:** Ester Magrià Masgrau

**Location of good practice :** Escola Pla de Girona, Spain





## **LEGO EDUCATION AND LEGO ROBOTICS IN EDUCATION**

**Short description (characteristic):** Among the methods we use is learning through play, which is a well-established method of developing holistic skills in the early years of learning. To this end, we include lego education and robotics in their activities. Children make full use of the material as they learn how to build what they see in the picture, and how to act and give accurate instructions. With the help of Lego Education and Lego Robotics, the kindergarten introduces children to the basic principles of programming in a fun, interactive and experimental way. In this way, through fun activities, they learn to issue and follow precise and accurate instructions and to use code, which is the "language" that computers and robots understand.

**Key competences developed using good practices:** By playing with Lego, let's develop an understanding of cause-effect relationships and early coding concepts such as sequencing, loops, and conditional sentences. We support children's learning by helping them practice early computational thinking skills such as coding, problem solving, and using digital tools to design and express ideas. At the same time, literacy, communication and language skills develop early.

**Methods and forms of work:** The basis is fun in the full sense of the word. We start with directional games. Children use their bodies as a reference point for understanding front-back and right-left concepts. These concepts of direction, movement, and instruction are the basis of computational thinking. Then creative activity and experimenting, applying computational thinking - problem solving.

**Teaching aids necessary for the implementation of good practice:** Lego Education and Lego Robotics blocks, tablet, Lego application.

**How does it help children learn? (effects):** Through these activities, children developed orientation skills by using their body first, then objects, and learned how to use coding and robotics to create their own codes, scenarios, and scale models. They also developed the use of language and logical and computational thinking. In addition, their DIY, persistence and cooperation skills were improved. They acquire the ability to use the algorithm. It is part of a computer program that is used to solve a given problem by means of a sequence of calculations or steps. An algorithm is a step-by-step way to solve a problem. The actions that follow are proposed in a progressive sequence from easy to more demanding. As the children acquire the knowledge required for the next level, the teacher guides them to the next step. In a natural way, children learn to organize their work and focus on what is important.

**Literaty sources:**

**Good practice author:** Partaliou Triadafyllia

**Location of good practice:** 3rd kindergarten Trilofou, GREECE





## *OZOBOTS IN EDUCATION*

**Short description (characteristic):** Ozobots are miniature robots that integrate intelligence and sophistication to simplify the learning process of programming for children. They combine the digital and physical worlds to provide a learning process for coding and programming in a simple and efficient way. They are coded to follow the blue, black, red and green paths that control their speed and movement in several directions. They work well on tablets and traditional surfaces such as paper. These are educational robots for children, designed to help them learn coding or imaginative deductive reasoning.

**Key competences developed using best practice:** Cooperation, description of sequences, oral, writing and construction skills. Use of digital tools, coding and the basics of programming. Imagination, creativity, making assumptions and predictions.

**Methods and forms of work:** tasks for children, experiences, creative activity, active problem solving, teamwork,

**Teaching aids necessary for the implementation of good practice:** 4 ozobot markers, ozobots, large format drawing paper,

**How does it help children learn? (effects):** Children get to know Ozobots related to the simplest form of communication that helps teach children to learn.

They will learn the steps of programming and moving robots through various circuits, labyrinths and maps using the colors of the Ozobot language. They create mazes, paths, crossings to discover a place to play, learn and create your own creativity. Color programming is an attractive game that is fun and draws you into the problem-solving process while having fun and group problems.

**Literaty sources:** 1. Patrinoopoulos M. (2017). Education of robotics in primary education. Review of long term applications in the school environment through differential approaches. 5<sup>th</sup> Panhellenic Conference "Implementation and use of TCC (Technology, Computers and Communication) in the educational process, Athens; 2. Fesakis G. Gouli, E & Mavroudi E. (2010) Problem Solving in Programming Environment by preschool children. In M. Gregoriadou: Practices of the 5<sup>th</sup> Panhellenic Conference/ Computer Education, EPKA Athens;

**Best practice author:** Partaliou Triadafyllia

**Location of best practice:** 3rd kindergarten Trilofou, GREECE



## Common good practice „Magic carpet in education”

**Short description (characteristics):** An interactive floor is a motion-sensor-equipped projector that projects educational exercises, games and activities onto the floor. Through play, children learn logical thinking, math, coding and languages. Playing on the interactive floor gives children a lot of movement and joy, stimulates imagination. Through fun and movement games, it allows for the discharge of excess energy. It is designed for school and preschool children as well as adults, because there is a child inside each one of us.

**Key competences developed by use of best practice:**

- mathematical competence mastery of numeracy;
- social competences preparation for teamwork, cooperation and competition;
- linguistic competence communicating in Polish and English.

**Methods and forms of work:**

Used methods based on the practical activity of the child, activating, active, verbal, demonstration. Forms of work: individual, in small groups.

**Teaching aids necessary for the implementation of good practice:**

Teaching aids adapted to the child's needs and abilities, needed for activities e. g. broom, ball, music.

**How does it help children learn? ( effects)**

- developing: a child's eye-hand-auditory coordination; perceptiveness and quick reaction to a specific signal; imagination and concentration of attention;
- develops: spatial and body orientations; self-relaxation skills;
- teaches foreign languages and teamwork through play;

**Literaty sources:** information leaflet Fun Floor. <https://www.funfloor.pl/en/>

**Best practice's authors:** Kamila Olechnowicz i Monika Drajem. **Location of best practice:** Elementary School No. 2 Polish Olympia, Pila- Poland.





*this is our  
education for the future*

