GIMNAZIJA CELJE – CENTER

Ranko RAJOVIĆ

HOW TO ENCOURAGE A CHILD'S MENTAL DEVELOPMENT THROUGH GAMES AND PLAYING

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SPREMNA BESEDA K ANGLEŠKEMU PREVODU KNJIGE DR. RANKA RAJOVIĆA *KAKO Z IGRO SPODBUJATI MISELNI RAZVOJ OTROKA*

Kot profesorica angleškega jezika in pedagogike na gimnaziji, kjer izobražujemo bodoče vzgojiteljice in vzgojitelje, sem se v svojem delu pogosto srečevala z vprašanjem, kako povezati teoretično znanje o otrokovem razvoju z vsakdanjo prakso v vrtcu. Knjiga dr. Ranka Rajovića *Kako z igro spodbujati miselni razvoj otroka* ponuja prav to – most med znanstvenimi spoznanji in vsakdanjimi dejavnostmi, s katerimi lahko odrasli učinkovito spodbujajo miselni razvoj otrok.

Z mislijo na naše dijake programa Predšolska vzgoja sem se odločila za prevod tega dela v angleščino, ker prevod odpira možnost, da dijaki svoje strokovno znanje uporabijo tudi v mednarodnem okolju – bodisi pri opravljanju praktičnega usposabljanja v tujini bodisi pri vključevanju v različne mednarodne projekte, izmenjave in programe (npr. Erasmus+). V takšnih kontekstih se od njih pričakuje ne le dobro znanje angleščine, temveč tudi sposobnost strokovnega izražanja, razumevanja terminologije s področja zgodnjega otroštva ter predstavitve razvojnih konceptov v tujem jeziku, povezanih v širše znanje, ki so ga pridobili in usvojili v več letih pri več povezanih predmetih.

Rajovićev pristop, ki temelji na povezovanju nevrofiziologije, pedagogike in igre, je univerzalen in presega jezikovne ter kulturne meje. Prav zato je pomembno, da se bodoči vzgojitelji že v času šolanja seznanijo s terminologijo in strokovnim jezikom, s katerim se bodo srečevali tudi v tujini. Angleški prevod knjige jim omogoča, da razumejo in uporabljajo strokovne izraze, ki opisujejo ključne koncepte, kot so spodbujanje kognitivnega razvoja, razvoj sinaps, pomen gibanja za učenje ter vloga igre pri razvoju otrokove ustvarjalnosti in samostojnosti.

Knjiga ponuja številne primere in dejavnosti, ki jih lahko dijaki uporabijo med praktičnim usposabljanjem. Prevod v angleščino jim omogoča, da te dejavnosti predstavijo mentorjem v tujini, jih razložijo in izvedejo v mednarodnem okolju. Tako razvijajo tudi svojo medkulturno kompetenco – sposobnost delovanja v različnih kulturnih in jezikovnih kontekstih, kar je že danes ena ključnih veščin vzgojiteljev in pedagogov prihodnosti.

Prepričana sem, da bo ta prevod prispeval k širjenju znanja, ki presega meje učilnice, ter omogočil dijakom, da bolje razumejo, kako univerzalna je igra kot razvojno in izobraževalno orodje. Hkrati pa odpira priložnost za strokovni dialog med bodočimi vzgojitelji, učitelji in raziskovalci po svetu – dialog, ki ga danes bolj kot kdaj koli prej potrebujemo, če želimo ustvarjati okolje, v katerem otroci rastejo v radovedne, misleče in ustvarjalne posameznike.

Urška Petrič Les, prof.
avtorica strokovnega prevoda

TO THE SLOVENIAN READERS

What is the connection between a cuttlefish and France Prešeren?

Learning, associations, dual associations, motor skills, early brain stimulation - a book or manual that paves the way to a more successful, higher-quality learning and better functional skills. The book is aimed at pre-school educators, teachers at all levels of education and, of course, parents.

Ranko Rajovič offers an excellent training ground that stimulates and develops both the intellectual and motor development of a child; by stimulating the brain early on, it encourages the child to be more attentive, to think divergently and to acquire functional knowledge.

Numerous empirical findings have shown that mental activation in children (according to Nikčević) contributes to an increase in knowledge, the durability and a more efficient use of acquired knowledge, more successful transfer learning, a reduction in errors in thinking, and a better understanding of the essence and laws - causes and consequences, greater capacity for independent learning, development of critical and creative thinking, its fluency and flexibility, development of a spirit of inquiry and research, motivation of children, liveliness of the working atmosphere, satisfaction from successful problem solving etc.

The NTC (=Nikola Tesla Centar) learning system, designed by the author, integrates neurophysiological findings with educational sciences. The NTC method opens the door to creative learning, faster cognition and easier discovery and development of the child's abilities. The number and speed of brain synapse formation is highest during the early period of a child's development; for intellectual, motor, speech and graphomotor development.

The NTC method of teaching is also useful in dealing with the growing proportion of children with developmental disabilities and difficulties. The latest available data from the Guidance Commission (2011) show that they received 6847 requests for expert opinion and issued 6998 of them. 5571 of these were on the basis of a guideline and 1427 of them on the basis of a suitability check. The number of guideline referrals has increased compared to 2012, which calls for new approaches.

The practical part of the NTC method consists of three stages. The first stage, which the author calls **Additional stimulation of the development of neural pathways and connections**, is divided into exercises in motor activities (exercises for dynamic adaptation in the eye, rotation, balance) and exercises for fine motor skills development The second stage, **Stimulating the development of associative thinking**, is divided into exercises for abstract concepts, exercises in mental representations, seriation and classification, exercises in association and analogy, and music The third and final stage

is called **Stimulating the development of functional thinking**; it is divided into enigmatic stories, enigmatic puzzles and questions.

All exercises have a well-defined methodological approach - depending on age, recommendations, duration and method of repetition. They are backed up with tips for daily work with children and methodological guidance for teachers: all this encourages creative approaches and experience in practice has already shown that the NTC learning system is a high-quality and well-received refresher.

I am convinced that when a successful family and kindergarten programme is implemented, the child is better prepared to enter the classroom

The need for a changed approach is urgent. Practice requires change, and the learning system presented by Rajović may be precisely the desired complement to existing practice.

I highly recommend this handbook to parents, pre-school educators, teachers, students and all those who work with children.

Prof. Mitja Krajnčan, PhD

FOREWORD

Cognitive psychology has long been exploring the question of the link between cognition and neurobiology, and a number of authors have been approaching the field from the perspective of the biological basis of cognition. There has been a great deal of interest in the ways in which the anatomy and physiology of the nervous system influence cognition. Cognitive psychology deals with the links between the brain and other aspects of the nervous system and human cognitive processing and behaviour.

Since the time of Hippocrates, we have been aware that the brain has an important influence on cognition. Research on the localisation of functions in the brain (physiologist Johannes Müller) have been well known from the 19th century, as have been the conceptions of many authors on the inability to break down thinking into basic mechanisms (association or structural processes - Gestalt psychology in the 20th century).

The reasons for the late study of the organisation of thinking are seen by some authors in the phenomenological approach to thinking, which states that thinking is an indivisible spiritual act, and thus slows down or hinders the study of the neuropsychological basis and organisation of thinking. Contemporary neuropsychology explores the role of the brain in intellectual activities by examining the relationship between thinking and the brain.

Critics of neuropsychology point out that the directed selective process of the brain cannot be seen as the result of the mechanical action of separate associations. Thus, Johann Friedrich Herbart's attempt to derive the orientation of thought from the highlighting of the strongest and the suppression of the weaker mental representations, following the mathematical model of thought, has also been judged to be a formal scheme. The main criticism of this was that it did not explain how the strength of mental representations was determined and that it did not explain the nature of thinking as a selective plastic process directed towards a particular goal or subordinate situation. Then there was the Würzburg school (Messer, Bühler, Ach, Külpe), which questioned the possibility that thinking arises from the associations of mental representations and that thinking is formed from the direct 'observation of relations'. Therefore, they argued that thinking does not involve in its composition either imagining or a speech association, and that the act of thinking constitutes the same independent function as the act of observation or recollection. This led to the rejection of the simplistic associationist notions of thought. In Luria's estimation, the influence that the Würzburg school had on the psychology of thinking - the separation of thinking as an independent unit of psychological study, the recognition of thinking as an original and undivided experience, which can only be described by subjective methods, closed the way to biological research (Luria, An Introduction to Neuropsychology, Nolit, 1983).

The same observations in the perception of thinking as a complete act, a unique structure, were also made by the Gestalt psychologist (Kohler, Wertheimer, Köffka, Duncker), who rejected the understanding of the structure of thinking, accepting it in terms of the structural laws of "wholeness", which again made it impossible to further study thinking.

A more precise analysis of thinking as a human act began only with a concrete analysis of the basic ideas of thinking and its dynamic structures in the works of Vygotsky, with Piaget's findings on the analysis of the basic stages of the development of the concept, and the research of Bruner and others.

The realisation that the word-denotation is a basic tool of thought is essential for describing psychological structure as a whole. Numerous psychologists in the former USSR, with the help of computers, generated detailed descriptions of the real thinking model structure. The followers of Vygotsky (Leontiev, Galperin, etc.) researched the structure of thought on the basis of a general conception of the structure of active psychological activity, in other countries, however, the psychological analysis of concrete forms of thought was linked to the heuristic theory of thought and, together with it, the human thinking was compared to the functioning of the computer. The findings have helped neuropsychology to search more systematically for the systems of brain mechanisms that enable the basic connections and processes of human thinking. From the point of view of the topics addressed in this book, Luria's observation of the neuropsychological aspects of thought is important, in which the assumption stands out that for thinking to exist there must be a task, a problem, a goal The first stage in understanding a task is not just the understanding of the appropriate responses, on the contrary – withholding impulsive reactions, orientation towards the requirements of the task, the analysis of the components of the situation and those of the task, the perception of the relevant elements and their mutual comparison. The second phase of thinking for the solution of the tasks, according to Luria, consists of the choice between alternatives and the formulated scheme, in which some ways seem to be more acceptable compared to the others. This phase is understood by some as the strategic phase, because it is where the choice is made on the basis of the links behind the meanings of the words. The final codes are at the heart of the analysis process. This is referred to by some as “tactics” to distinguish it from the discovery stage of problem-solving strategy. It is important to stress that the use of appropriate operations is an executive rather than a creative stage of thinking, and is highly complex. The acquired internal codes form the operational basis of the thinking activity, i.e. they form the basis of the thinking operation and are the foundation of the operational phase of thinking. The last stage consists of comparing the solutions with the initial requirements of the task. Such an understanding of the thinking process helps neurologists to study the brain systems involved in the generation of thought processes, on the basis of research on thought disorders. Neuropsychological descriptions of disorders of constructive (concrete-real) and discursive (verbal-logical)

thinking in the cases of brain lesions in different brain regions allow us to gain a small insight into the organisation of intellectual activity in the brain.

Let's look at another detail that is relevant to the issues addressed in this manual. This concerns myelination, which, as a biochemical process, helps to monitor the maturation of nerves to perform their characteristic function. Myelination is the final prerequisite for defining the specific functions of a particular nerve in the nerve bundles. Myelin allows the fibres it envelops to develop completely independent activities, both in biochemical terms and in terms of their function in general. It is important to mention this here, because we believe - as Baumann says - that the process of myelination begins according to a certain genetic programme and lasts until it is finished wrapping the white myelin layer around a certain group of nerves, and after the completion of the programme it leaves behind a permanent, complete and stable formation (Bojanin, S., Ne-uiopsilaologija i opšti readukativni metod, Zavod za udžbenike i nastavna sredstva, Beograd, 1985). We conclude that myelin defence improves the quality of the performance of the functions of the nerves it envelops. This is important because it establishes a link between the myelination process and the stimulating factors of the external environment, which generates appropriate sensory, especially kinaesthetic, stimuli. Myelination of certain structures ends at the age of seven or twelve years, whereas, according to Luria, myelination of some structures is not complete until the third decade of life. For this text it is relevant that environmental factors can influence the amount of myelin, i.e. the structure of the nerves, and that the stimulation of myelination also implies an influence on psychic functions, related to certain nerve entireties. This shows that there is a correlation between environmental factors and genetic potential, not only in the formation of functions, but also the structures that underlie these functions. This is why the exercises presented in this manual are important for the holistic development of the child, because - as Bojanin claims - the biological, psychic and social factors are not the sum of the vectors of forces acting on the child. All these factors intertwine and combine to form the uniqueness of human life.

Many neuropsychologists have sought to answer the question of the importance of brain size for intellectual abilities, and then the importance of the individual parts of the brain and so on. At present, we question the validity of claims about brain localisation for the study of intelligence, because we believe that intelligence is not a function of the major lobes or other parts of the brain. Instead, we conclude that intellectual abilities are greater when the human nervous system is fully developed and functioning well.

Among the several accepted views of intelligence (psychometric, developmental, cognitive), biological approaches are now increasingly common. In this group, too, we find different approaches. One of them deals with the question of what we know about the composition of the human brain; the other takes into account the indexes by which we measure the aspects of brain functioning (intelligence is not static, it is formed in

problem situations). In the same group, a different approach is taken by those who research human genetics and who ask to what extent intelligence is an inherited trait. The fourth group of biological approaches to intelligence investigates the ways in which the nervous system does or does not develop, and the ways in which genes are expressed at different stages of development.

So far, none of the above-mentioned approaches has answered the question of what intelligence is. We believe that researchers of biological orientation accept types of definition of intelligence – intelligence tests, thinking about intelligence etc. Therefore, they have been looking for correlations between the results of intelligence tests and brain size, electrophysiological functioning of the nervous system, inherited genetic conception and other factors. Advocates of a biological orientation hope that one day they will be able to measure intelligence directly by analysing brainwave recordings or genetic conception.

Over the past few decades, we have acquired a huge amount of knowledge about how the brain works. We have developed technology that allows much more precise determination of brain function, but many researchers believe that determining this specificity contains a paradox. It is believed that the nervous system functions as a collection of a few thousand isolated centres, which are "plugged in" at will. The literature shows that the nervous system is magnificently coordinated, so that its reactions very rarely interfere with each other. A billion of nerve cells work together to ensure that we still have a unified experience.

The manual before us gives a practical perspective on the theoretical ideas that were consequences of the cognitive revolution. Some of these ideas relate in particular to the following:

- the developmental aspect,
- universal mental representations,
- different forms of intelligence,
- the reliance on, or opposition to, early ideas,
- the roles of personality, motivation and emotions, etc.

It could be said that the exercises in the manual represent an application of the knowledge we have acquired thanks to neurophysiology, so we approach the questions of learning from the perspective of the findings of neuroscience, which have interesting implications for learning and pedagogy. Thus, the manual provides examples for practical application, which relate to:

- the great importance of early learning experiences,
- the imperative 'use it or lose it',
- the flexibility of children's nervous systems, and how lack of practice reduces the ability to perform and functions,

- the importance of doing activities,
- the specificity of human abilities and talents,
- the potential of an organisational role (in cognitive terms) that music plays in early childhood,
- the key role of emotional coding.

The exercises in this manual can be seen as a good practical expression of Stephen J. Ceci's theory of the intellectual skills, or as examples by which Ceci also demonstrates that individuals or more people act, as if they were not intellectually capable (they do not master the implementation of the abstract rules), but if they are put in an interesting and stimulative context, they show a high level of ability. These exercises are a good confirmation of these views.

Therefore, we can say that the context (task, exercise) is the means by which Ceci interprets the findings of the positive diversity of intelligence tests, which, as some believe, rely on the level of general intelligence. Ceci – similar to Gardner - believes that, aside from what the tests do measure, there is a whole range of things which show a sharp mind in tasks that require knowledge and skills that are not emphasised in schools. The tasks and exercises in this manual aim to do just that. The NTC programme's didactic manual states that the programme is based on the knowledge that the human brain develops extremely fast and that by the age of seven more than 70 % of the connections (synapses) are developed. At the same time, it mentions the findings of modern science that the development of the synapses is also linked to the development of intellectual abilities. This is sufficient reason to start specialised programmes as soon as possible. One of these programmes is the NTC programme, which consists of six different units. In the context of one of the programmes, we use memory training activities based on the system of dual associations and jigsaw puzzles, whose task is to enable a higher level of thinking to be achieved. Early talent detection and stimulating its development are the two goals of the programme, formed after years of studies in the field of creative learning development. The programme is co-designed by a team of experts from different countries (Italy, Slovenia, Switzerland, Czech Republic, Singapore, USA and Serbia) from different fields: Neurophysiology, Pedagogy, Psychology, Paediatrics and Defectology.

The manual offers good practical procedures for dealing with the issue of intellectual activities integration in more comprehensible and interrelated activities. It could be seen as applying Bruner's and Piaget's understanding of multiplicities to overcome the current discord in the dynamics of development (from assimilation to accommodation) through techniques of representation. Thus, this programme demonstrates through exercises how the basic operations of integration can be incorporated into representations by means of conceptions and the perceptual organization, or operation of ostensiveness, which is an expression coined by logicians. Maps and topographical maps, which consist of icons in

nature, are translated into linguistic expression and visual form through images. Exercises are good examples, how through techniques of higher-order information ordering iconic thinking can develop on the basis of a perceptual organization tied to what could be, based on consistent deduction and going beyond what can be demonstrated.

I mention this because I want to emphasise that the programme is a good help in progressive liberation from the immediate in thought, allowing the child to perform productive combinatorial operations without what is labelled speech. The manual is therefore based on the perception of the importance of internal capacities (for symbolisation or conception), but also on Bruner's principle of the importance of the possibilities of the child’s intellectual development through techniques that stimulate their development.

In the modern world, scientists working on the mind, brain and genes have made important discoveries. Much knowledge in these fields has been accumulated, but little of it has been brought to life as a practical pedagogical expression. The path to pedagogical practice is never indirect. Well, the manual before us could significantly shorten the time and the wandering byways, because it offers the opportunity to put these techniques to the test.

Perhaps the best recommendation of this manual is the fact that its programme is being implemented in pre-school institutions in Novi Sad, Beoprad, Niš, Pančevo, as well as outside Serbia (Prague, Brno, Ljubljana, Koper, Basel, Nova Gorica, Velenje, Novo mesto, Polzela, Kranj, Lucija, Veles, Zadar etc.). The results show that it helps to stimulate children's mental development, motor coordination, attention, concentration, divergent thinking, deduction and functional knowledge.

Acad. Grozdanka Gojkov, PhD

INTRODUCTION

Dear parents, pre-school educators and teachers, the manual you are reading was written in the hope that we will encourage our children to realise to the greatest extent their own biological potential. It is true that intelligence does not depend solely on the number of the neural cells (the genetic potential), but also on the amount of the neural pathways. The period by the age of seven is the most valuable one for establishing new neural pathways. How to simulate in the potential of our young ones before they enter school is the question, to which the NTC (Nikola Tesla Centar) learning programme provides an answer. The basic idea of the system is to highlight the importance of neuro-physiological knowledge in the overall child development. The untapped potential of the human mind and the power of childhood, combined with the dedicated and aware parents and pre-school educators, can lead to a more creative learning, faster acquisition of knowledge and easier development of abilities, so that we can prepare our children for new challenges in life in a timely manner.

Why are changes needed?

New discoveries in science hardly find their way to practical application, especially when a multidisciplinary approach is needed. In working with children, we underutilize the best of the neurophysiology, and it takes decades from the scientific discovery to its application in everyday work. In the meantime, generations grow up who have been deprived of valuable help in development, while the possibilities are before us. The question arises: What will become of our children, who are still being educated in an outdated way that gives poor results?

How did it start?

At the beginning of the programme, I did the first exercises with my youngest son, Danilo, from the age of three onwards, through the game and conversations. The results have exceeded all expectations, and by 'results' I mean both his progress and his happiness, accompanying his first steps, and the constant urge for the game to continue. I was particularly encouraged by the positive atmosphere among the children and the pre-school educators, but also by the reactions of the parents who were 'forced' to play new games and to discover the hidden qualities of their children.

Why the age range up to seven or eight years?

In the pre-school years, the rate of connection formation and the number of connections made between neurons are incomparably higher than after the age of seven. In the brain,

there is a struggle for dominance between neurons, with new connections being made between active neurons and new neural pathways. Important centres develop and a whole new set of new connections is formed. Inactive neurons die and inactive pathways gradually fade away. The stimulation of neurons in early childhood determines whether or not the child will later realise their biological potentials.

To what extent can parents and educators help?

The programme puts parents at the centre of responsibility, because their role is daily and essential. Pre-school educators can play an important role during this period, helping to guide the parents in the right activities with their child and thus to foster his or her holistic development. Many parents do not know that by allowing certain activities, they are preventing their child's proper development. Excessive television viewing, playing video games, lack of socio-motor activities and physical inactivity damage and reduce the development of the child's biological potentials. The fact is that the period which forms the basis on which the development of a child's intellectual abilities will depend is still poorly researched and that parents sometimes unwittingly do the wrong things with their children, or they don't know how to optimally stimulate the development of the child. Often, I have had the opportunity to listen to parents who, in an effort to protect the child, banned jumping on the bed, spinning in a circle, bought him sneakers with so that he or she wouldn't have to bother lacing up the shoes. In this way, they made it impossible for the child to carry out some of extremely useful activities.

Children show the ability to recognise complex abstract symbols at a very early age, which most parents do not encourage or develop. It is known that between the ages two and three the child begins to recognise a variety of symbols (these are often car brands or brands of children products). The child is able to recognise dozens of different symbols or learns most of the letters independently before the age of five, which clearly tells us that he or she is ready to start complex forms of learning. It is with the help of such symbolsy that we can introduce the child to the world of abstract classifications and associations, which is an excellent basis for later thinking and learning. Unfortunately, we are mostly content with just the recognition of the symbols of abstract concepts and do not practise with the child until he or she begins to attend school.

It is important to incorporate into daily work in the pre-school period elements that have been shown to stimulate children's mental development, as well as specific exercises that develop motor coordination and motor skills, thus preventing disorders of co-ordination and attention later in life. It is equally important to develop the speed of thinking and deduction (functional knowledge) to monitor the child's talent.

Moreover, research has also confirmed the old wisdom that over-ambitious parents overburden children and make them reluctant to learn. Only through the appropriate use

of the programme can educators and parents contribute to the proper development of children's biological potentials. Dedication and consistency, combined with love and patience, are undoubtedly very important for a child's development. If we take this into account, we cannot go wrong.

DEVELOPMENT OF THE CHILD'S POTENTIALS

Any child who has learnt his mother tongue by the age of three has acquired one of the most difficult mental skills, and therefore certainly has the potential and ability to progress and develop his specific talents. We only have to help him or her to be successful in this and thus to develop his biological potentials If we do not encourage this, we shall be left without talented people at the level of the individual as well as of the nation as a whole, and they are considered to be the greatest asset of any country.

The importance of family and kindergarten for the development of children's potential

The development of potential is a complex and dynamic process, which requires the cooperation, joint and systemic action of a large number of factors, among which the family, the individual and the social environment have a distinctive role and importance. It is often assumed that gifted children have gifted parents and that they come from more educated families or families with a higher socio-economic status. Some researches (Roedell, Jackson, Robinson) have refuted these claims and at the same time confirmed that the active involvement of educators and parents (i.e. people who spend a lot of time with children) is more important for the development of abilities than status or education. This is explained by the fact that people who spend a lot of time engaged in activities with children (reading, looking for information in books, encyclopaedias, maps, talking about what they have read, enriching the child's vocabulary, going to the theatre, paying attention to the environment and nature, sporting events and talking about these topics etc.), help to develop the child's interests, answer his or her questions and provide warmth and support for the child's intellectual discoveries, which encourages the development of his talents. If a child attends kindergarten, it is important to create a stimulating environment in which the development of the child's motivation is fostered in the first place, a positive attitude towards education and knowledge in general. An interest in the child's success (if the parents are supportive of the child's development and results, show respect for the child's efforts, encourage and support the child), high expectations of themselves and the child etc. are also important. Active involvement of educators and parents encompasses not only the amount of time spent with the child, but also a specific style of learning, based on the child's own motivation and activities.

New discoveries in neuroscience and pedagogy

Technological advances and modern equipment have made it possible to better understand the processes in the brain. Nevertheless, many important findings are the result of chance. Dr Roger Sperry, Nobel Prize winner in medicine, described how the

functions of the brain are very specific. During a series of experiments in patients with a severed connection between the left and right cerebellar hemispheres (one of the treatments for epilepsy), he obtained completely unexpected results. When a patient, for example, was looking at the pictures with the left eye, he could choose an object on the table. When he was looking at the pictures with the right eye, he was able to describe the object but could not to choose it with his hand. On this basis, features such as logic, linear information, abstract symbols and mathematics were first attributed to the left hemisphere of the brain. Colours, creativity, music and rhythm, on the other hand, were attributed to the right hemisphere of the brain.

The development of synapses and neural pathways is incredibly rapid in the early stages of life. There are several cases confirming the importance of the early years of life. An Italian boy was blind in one eye, and the reason for his blindness puzzled the medical experts there. It was only by more detailed research that it was discovered that as an infant he had had his eye covered for ten days due to a mild infection, which in his case caused permanent blindness (S. Greenfield, Oxford).

Integrating neuroscience and pedagogy is a Sisyphean task, as new discoveries in neuroscience hardly find their way to practical application in pedagogy. In some countries, experts are trying to make new findings widely available, for example, Brain-based Learning movement in the USA, working with the Committee of the Society for Neuroscience Literacy (CNL) of the Association of Neuroscience. Scientists in the UK are trying to find an answer to whether neuroscience can help in early childhood and education, and Professor Peter Hannon's research (prenatal development, synapse formation, critical periods and neural plasticity) has confirmed that neuroscience is not directly involved enough in the development of pre-school children, and that non-neuroscientists have contributed their suggestions and methods of work for this important period of life. More than 70 per cent of synapses develop during the preschool period, making it arguably the most important time for the formation of the basis and framework for a child's later abilities. The period from the first to the third year is particularly critical for the development of most children, especially those with developmental delays, and most importantly for gifted children. In order to optimise the developmental path of the latter, an adaptation of the system is necessary (L. M. Henderson). Individual studies show that intellectual abilities depend on the number of synapses (M. Diamond, Berkeley, USA), which are formed most by the fifth (50 %), seventh (70 %) and twelfth (95 %) years of age. The process of synapse formation is continuous, being most intensive in the first years of the child's life. Synapse formation maturing of the brain coincides with the length of the REM-phase of sleep, which is the longest in early childhood. If the number of synapses is important for the development of intellectual and social skills, then we need to allow the child to develop their synapses through the intuitive gameplay (spinning around their axis, jumping, skipping, crawling, exploring nature, games for the development of thought processes etc.). Often, however, due to

ignorance, we do not grasp the importance of these games and we prevent children from practicing them. It is time to start appreciating new scientific discoveries and to put our efforts and knowledge into helping pre-school children and lower-grade children to develop their biological potentials. This is illustrated by the results of the EPPE (Effective Provision of Pre-school Education) study carried out in the United Kingdom. The study showed that high-quality pre-school facilities and learning in the home environment promote academic development, and that early learning can be very important for future achievement. The research has provided unique insights into the lasting impact of early experiences, in particular the impact of the home learning environment for children aged three to four years and the quality of the pre-school environment. The results show that development in the early years is very important, especially for children from more deprived backgrounds and those attending lower-quality primary schools. This importance is reflected in the number of cases, but even more so at the level of the population as a whole. For example, the Maori are exceptionally musical and science has long argued that they probably have a special gene for music (S Greenfield, Oxford). However, it was later shown that this was due to early stimulation (prenatal). It is also striking to note that in Mongolia there are more than 50 words just for the horse of a brownish-red colour, and children up to the age of five years use most of these expressions. Eskimo children distinguish between the ten shades of white.

The world's fastest man, Usain Bolt, runs faster than the calculations of sports physiologists, who used the parameters of the human body to determine the time it takes a man to run 100 metres. Bolt is an example of early stimulation, having spent most of his time as a child running around the clearing where he played football. The terrain was rough, and he had to run downhill, mostly because his father wouldn't let him play football for too long. When little Usain noticed his father approaching on his motorbike, he ran as fast as he could down the bank to get home before him. But when he was playing so far from the house that he couldn't see or hear his father whistling, he took the dog with him. He took off at a run as soon as he heard the sound of a motorbike, and Usain followed him. That’s why still today he sometimes says, jokingly, that his first coach was his dog. This way, he sent impulses to his brain that running is an important activity, and the brain dedicated more synapses to it. If somebody started to practise athletics only after the age of ten, it is clear that he or she could never break Bolt’s record, because they have a lesser capacity of forming new synapses. This is where the importance of early stimulation is clearly seen. The basic question arises: Is early stimulation also important for the development of intellectual abilities, knowing that it is important for motor, speech, graphomotor and musical abilities?

Developmental problems

Brain maturation is intense in the earliest period; more than 50 % of the process is completed by the age of five. If the child is not stimulated during this period, the functions do not develop to their full extent. Parents who recognise their child's need can make a great contribution, since by encouraging certain activities they help that a part of the brain, in charge for a specific skill, can develop better. This is a prerequisite for the child to better use his or her capacity for different thought processes in later life.

In the functioning of the brain, all parts of the human body influence the activity of the certain regions of the brain and the establishment of neural pathways that influence the development of intellectual abilities. It is difficult to answer with any precision which part of the cerebral cortex is responsible for the development of a particular ability, but certain areas of the brain need to be sufficiently stimulated (e.g. by childhood play) to establish optimal connections between them. The first two years of life are characterised by rapid neuronal progression, the so-called synaptogenesis, followed by a plateau phase of development (Horska et al, 2002). Although the size of the cerebellum does not change significantly from the age of two to five, myelination and synaptic reorganization are strongly present during this period (Tau, Peterson, 2010). Research has shown that the entire brain metabolism between the ages of four and five is almost twice as high as the human metabolism and remains at this level until the age of ten (Tau, Peterson, 2010). It appears that a significant increase in metabolic activity within the brain is the result of the formation of neurons and glial cells and also the processes of myelinization and remodelling of synapses. The energy expenditure in the brain and the length of the REM sleep phase, which is the most important in the earliest period and has an important influence on the establishment of neuronal connections, show how important the first years of a child's life are for the development of the brain.

Implementation of the programme and working methodology

The programme is implemented in several stages, in small groups (15-25 children), under the guidance of professionals, educators and teachers trained in the NTC system. Periodic tests are carried out in each age group to monitor and direct children's development. Some activities are already present in the work with the pre-school children, so that only minor changes are needed. This manual describes in more detail the exercises and games which, according to our research, are less practised.

Stimulating the development of neural pathways and connections

(Level I of the programme)
• Motor activities, dynamic adaptation of the eye, rotation, balance, running, eye-hand co-ordination
• Fine motor exercises

Stimulating the development of thought processes

(Level II of the programme)
• Abstraction, visualisation
• Mental classification and mental seriation
• Associations and analogies
• Music

Stimulating the development of thought processes

(Level III of the programme)
• Enigmatic stories
• Enigmatic and problem questions

LEVEL I

STIMULATING THE DEVELOPMENT OF NEURAL PATHWAYS AND CONNECTIONS

Motor activities

Motor skills are a child's ability to solve motor problems and are a prerequisite for successful learning. They are manifested in both simple and more complex movements.

Motor information refers to the degree of mastery of individual motor skills at the level of the implementation programme The children in the group should first be shown how to perform each task, and then the technique should be explained. The exercises should be done individually or in groups, and should be supervised. Correct implementation of the exercise allows the functional potentials of each child to be expressed in their entirety, thus achieving the desired effect of the exercise.

The methodology of the work, or the body of knowledge about the methods by which the activity is carried out, is very important for practical work.

Exercise and training methods

The same applies to balance, rotation and dynamic eye-adaptation exercises as to all exercises in sport, i.e. a methodical approach to each activity.

To achieve this, we need to take into account the following principles:

• the principle of training every day,

• the principle of progressive loading (Disterveg principles),

• the principle of repetition (based on several repetitions, more stable motor habits and a rational technique of performing movements are created),

• the principle of awareness (the child must approach each exercise with awareness, being able to critically observe and evaluate his or her own movements during the exercise - in accordance with his or her abilities),

• the principle of clarity (the child must be given a clear idea of the correct performance of each exercise),

• the principle of versatility (use of motorically more complex exercises),

• the principle of educational orientation (the educator plays the role of protector and educator during the exercise)

The methods used for motor activities, which help children to acquire and remember the moves in a rational way, are:

• the synthetic or holistic method (the skill being taught is demonstrated in its entirety from beginning to end and practised in this way);

• the analytical or break-down method (the complex skill being worked on is shown in parts) is the best method for correcting errors in performance, but it is not used for long periods of time;

• the complex method or a combination of synthetic and analytical methods (synthetic method at the beginning, analytical method afterwards, synthetic method again at the end): it is the most effective for training.

In the NTC learning system, we most often use the holistic method.

Training time

Motor skills must first be carefully planned if all their principles and methods are to be properly applied.

The training session must be designed as follows:

• the introductory-preparatory part (group organisation, attention-getting, children preparation with warm-up activities): this part takes a short time and must be carried out without major interruptions or additional explanations;

• the main part (the exercises that make up the main part of the lesson or motor task): the longest part in time, it must be well organized;

• the final part (in this part, using one of the easier exercises, we repeat the basic topic of the lesson, and one less intensive exercise that children know well).

After the introductory exercises or after working on a new topic in a lesson, we carry out games which are thought in the form of a polygon, relay games, stations, and organise them where possible as competition.

Special attention is paid to ensuring that each move is carried out fully and correctly, we closely monitor the performance of the exercise, providing correction during the performance.

Exercises for dynamic eye alignment

Exercise 1 (5 – 7 years)

Arrangement for the exercise and equipment:
Divide the children into groups of three. Skipping rope.

Course and method of performing the exercise:
Each group has a skipping rope. Two children swing the skipping rope and a third child skips it.
The children first skip the skipping rope forward, with both feet at a time (facing the skipping rope).

Notes and suggestions:
It is important that the children do not swing the skipping rope too fast and too high.

Exercise 2 (5 – 7 years)

Arrangement for the exercise and equipment:
Divide the children into groups of three. Skipping rope.

Course and method of performing the exercise:
Children jump over the skipping rope sideways with both feet at a time (perpendicular to the skipping rope).

Notes and suggestions:
It is important that the children do not swing the skipping rope too fast and too high.

Exercise 3 (5 – 7 years)

Arrangement for the exercise and equipment:
The arrangement is the same as for Exercises 1 and 2.

Course and method of performing the exercise:
Children jump over the skipping rope alternating feet as if they were marching.

Notes and suggestions:
It is important that the children do not swing the skipping rope too fast and too high.

Exercise 4 (5 – 7 years)

If there are enough skipping ropes available, the children can carry out the previous exercises individually.

Exercise 5 (5 – 7 years)

Arrangement for the exercise and equipment:

Divide the children into 2 – 3 lines throughout the whole width of the room available. At a distance of 3 – 4 metres place 5 – 6 skipping ropes, spaced 20 - 30 centimetres apart.
At a distance of 4 metres, place one skipping rope on the ground to represent the push-off point, and another one half a metre away from it (adjust the spacing according to the age of the children) to represent the boundary to be jumped over (one long jump).

Course and method of performing the exercise:
The children run from the starting point and skip the first set of skipping ropes (5 - 6) with a series of alternating toe jumps (first one foot and then the other, as if they were marching) and must not touch any of the skipping ropes. When they reach the point where they are going to jump long, they do so with both feet at the same time, with their knees slightly bent, their arms at their sides and slightly bent at the elbow, and they swing them upwards and forwards. They must keep their balance on the rebound. After the exercise, they return to the end of their row.

Notes and suggestions:
Make sure that the children do not touch the skipping ropes while jumping.

Exercise 6 (5 – 7 years)

Arrangement for the exercise and equipment:
Arrange the children in 2 - 3 lines throughout the whole width of the room available. At a distance of 3 - 4 metres, place 5 - 6 skipping ropes, spaced 20 -3 0 centimetres apart, and at a distance of 4 - 5 metres from the last one, place one skipping rope on the floor to represent the push-off point, and 1 metre away from it, place another one (spaced according to the age of the children) to represent the boundary to be jumped over (a kind of long jump).

Course and method of performing the exercise:
The children run from the starting point and jump over the first set of skipping ropes (5 - 6) with toe jumps (with both feet together at the same time); they must not touch any of the skipping ropes. They then walk to the place where they are going to long jump, which they do with their knees slightly bent, with their arms at their sides and the elbows slightly bent, swinging them upwards and forwards They must keep their balance on the rebound. When the exercise is finished, they return to the end of their row.

Notes and suggestions:
Make sure that the children do not touch the skipping ropes while jumping.

Exercise 7 (5 – 7 years)

Arrangement for the exercise and equipment:
Children are arranged in as many lines as the width of the space allows. In front of each row, place a crate (the height of the crate can be adjusted to the age of the children, or a plastic box or other similar object can be used) and a balance beam (these can be two chairs on which a slat or other similar object can be placed to serve the purpose).

Course and method of performing the exercise:
The children first run to a balance beam under which they crouch down, then straighten up, then run to a crate on which they jump by pushing off with one leg (we put cushion crash mats around the crate for safety). They jump off the crate with both feet, trying to keep their balance. After the exercise they return to the end of the line.

Notes and suggestions:
The teacher stands next to the equipment from which the children jump.

Exercise 8 (7 – 9 years)

Arrangement for the exercise and equipment:
The same as in Exercise 7.

Course and method of performing the exercise:
Gradually increase the height of the crate and lower the height of the balance beam (later, two children can hold the stretched-out skipping rope under which the children crawl) until the child has to crawl under it on all fours, without touching the beam (or the skipping rope or similar device) with his or her back.

Notes and suggestions:
The teacher stands next to the equipment from which the children jump.

Exercise 9 (7 – 9 years)

Arrangement for the exercise and equipment:
The arrangement is the same as for the previous exercise, the course is also the same, but instead of a crate, place a balance beam over which they jump with one leg. Gradually increase the height they have to jump (we can place two children who hold a stretched-out skipping rope at a certain height).

Exercise 10 (7 – 9 years)

Arrangement for the exercise and equipment:
Divide the children into pairs, each pair gets a ball. Place them 2 - 3 metres apart.

Course and method of performing the exercise:
In pairs, the children pass the ball to each other with both hands at chest level. The child catching the ball should keep his or her arms slightly bent at chest level and point his palms towards the other in form of a basket. The child passing or throwing the ball should grasp it with both palms so that the fingers are maximally extended. He or she should raise the ball to chest level and pass it with the arms stretched out the hands outwards (the hands touch at the end of the throw with their backs).

Notes and suggestions:
The teacher corrects the throwing technique during the performing of the exercise.

Exercise 11 (5 – 7 years)

Arrangement for the exercise and equipment:
The same as in Exercise 10.

Course and method of performing the exercise:
The children pass the ball to each other, bouncing it from the floor. The procedure and technique are the same, but this time the one who passes the ball steps forward with the

right foot. The ball must bounce at 2/3 of the distance between him- or herself and the catcher.

Notes and suggestions:
The teacher should show the children the drill and then they will identify by themselves where to throw the ball so that it bounces to the catcher at chest height. The teacher corrects the technique of the throw while the exercise is being performed.

Exercise 12 (3 – 5 years)

Arrangement for the exercise and equipment:
Children form a circle or several circles, depending on the number of children. Balls.

Course and method of performing the exercise:
Children stand in a circle and pass the ball with both hands at chest level to the first child on their right.

Notes and suggestions:
First practise passing with both hands directly towards the chest, then with both hands off the ground.

Exercise 13 (3 – 5 years)

Arrangement for the exercise and equipment:
The same as in Exercise 12.

Course and method of performing the exercise:
Children sit in a circle with their legs spread and pass the ball by rolling it around the floor.

Notes and suggestions:
After 2-3 minutes, change direction.

Exercise 14 (5 – 7 years)

Arrangement for the exercise and equipment:
Arrange the children in lines across the width of the room and put the ball in the hands of the first one.

Course and method of performing the exercise:
When the teacher gives the signal, the first child in the line leads the ball to the other side of the room. The ball must not bounce higher than hip height, the hand with which the child leads the ball must face the direction of the movement, and the gaze must be directed forward. The ball must be led by the tips of the fingers. When the child reaches the other side, he rolls the ball on the floor to the next child, who is the first in the line.

Notes and suggestions:
The teacher gives instructions for the correction of the ball guiding technique immediately after each round of the drill.

Exercise 15 (5 – 7 years)

Arrangement for the exercise and equipment:
Arrange the children as in the previous exercise, but this time place 4 - 5 markers along the length of the room.

Course and method of performing the exercise:
This time the children lead the ball between the markers, the move past the first one on the right side. Later on, we can combine leading with the left hand, then leading in a full circle around each marker (we put fewer markers in this case), and in the end leading the ball to the end and back, that is for two lengths.

Notes and suggestions:
The teacher corrects errors in the guiding technique.

Exercise 16 (5 – 7 years)

Arrangement for the exercise and equipment:
The children are arranged in lines across the width of the room, the first child in each line is given a ball.

Course and method of performing the exercise:
As the child moves forward in a straight line, they throw the ball 1–2 metres ahead. The ball must bounce once, and during that time, the child runs the same distance to catch it before it bounces a second time. In this way, the child is essentially passing the ball to themselves, making sure it bounces off the floor. This action is repeated several times along the length of the area. When the child reaches the end, they roll the ball to the next person in line.

Notes and suggestions:
Once they have mastered the exercise, they can repeat it over twice the distance.

Exercise 17 (5 – 7 years)

Arrangement for the exercise and equipment:
The children are arranged in lines across the width of the room, the first child in each line is given a ball.

Course and method of performing the exercise:
The child walks throwing the ball in the air - no more than 2 metres up and no more than 1 - 1.5 metres ahead. The child catches the ball as they walk forward, before it touches the ground, and throw it in the air again. This continues until the child reaches the end of the room, where they roll the ball to the next child in their line.

Notes and suggestions:
Once the children have mastered this exercise, they can repeat it over twice the distance.

Exercise 18 (5 – 7 years)

Arrangement for the exercise and equipment:
Mark some circles on the floor of the room. Divide the children into groups, and have each group stand around one circle. One child from each group stands in the centre of their circle and is given the ball.

Course and method of performing the exercise:
The child in the centre of the circle throws the ball into the air and calls out the name of one of the children standing around them. The called child must run quickly into the circle and catch the ball before it hits the ground. Then, that child throws the ball into the air and calls the next person. Any child who is called but fails to catch the ball before it touches the ground is out of the game.

Notes and suggestions:
At the beginning of the exercise, the child can catch the ball after it has already bounced off the ground (easier version), only later are they given the task of catching the ball before it touches the ground.

Exercise 19 (5 – 7 years)

Arrangement for the exercise and equipment:
The children are arranged in pairs. Hoola Hoop.

Course and method of performing the exercise:
Two children stand facing each other about 1.5 to 2 metres apart. One child holds a set of hula hoops and throws them, aiming to land a hoop around the other child's outstretched arm. The child with the outstretched arm tries to catch the hoop by keeping their arm steady and positioned to receive it.

Exercise 20 (5 – 7 years)

Arrangement for the exercise and equipment:
The children are arranged in lines, standing 2 to 3 metres away from mini baskets, hanging plastic rings, or circles drawn on the wall by the teacher.

Course and method of performing the exercise:
The first child in each line has a ball and tries to throw it into the basket or through the ring. After the ball bounces off the floor, the child catches it and passes it to the next child at the front of the line, then moves to the end of the line.

Notes and suggestions:
This is a good competition exercise.

Exercises for rotation

Exercise 1 (3 – 5 years)

Arrangement for the exercise and equipment:
The children form a single line.

Course and method of performing the exercise:
The children run at a slow pace along the curved lines in the space provided by teacher, or along the lines, drawn or marked out by the teacher.

Notes and suggestions:
It is important that children keep their heads upright and maintain a safe distance so that everyone can run smoothly.

Exercise 2 (3 – 5 years)

Arrangement for the exercise and equipment:
The same as in Exercise 1. Markers.

Course and method of performing the exercise:
The teacher determines the distance between the markers according to the age of the children. Children run to the markers, e.g. to the right marker (if it is stable, they touch it) and then run to the left to the next marker This is repeated along the entire length of the room.

Notes and suggestions:
They take the first step with the foot in the direction they are heading.

Exercise 3 (3 – 5 years)

Arrangement for the exercise and equipment:
The same as in Exercise 1. Markers.

Course and method of performing the exercise:
Children run in a zigzag pattern, this time around the markers. When they reach the marker on the right, they run around it on the right side, then they continue running to the left marker, run around it on the left side and thus "slalom" through the entire length of the course.

Notes and suggestions:
Perform the exercise for 2-3 minutes.

Exercise 4 (5 – 7 years)

Arrangement for the exercise and equipment:
Arrange the children evenly around the room, making sure they are spaced about one arm’s length apart from each other.

Course and method of performing the exercise:
On the teacher’s signal, the children begin to spin to the right (one day they spin in one direction, the next day in the opposite direction) with their eyes open and arms extended away from their bodies. The spinning lasts for 10 to 15 seconds. When the teacher gives the stop signal, the children freeze in place and try to maintain their balance.

Notes and suggestions:
This should be repeated for 1 - 2 minutes. Children should keep their eyes open.

Exercise 5 (5 – 7 years)

Arrangement for the Exercise and Equipment:
Organise the children into pairs.

Course and Method of Performing the Exercise:
The children stand facing each other and hold hands. Each child places their feet together and steps forward so their feet are 5 – 10 cm away from their partner's, with toes almost touching. Then they begin to spin together in one direction like a spinning top. After 15 – 20 seconds, they stop and try to maintain their balance.

Notes and Suggestions:
Repeat the exercise for 2 minutes. Children should keep their eyes open at all times. There are variations of the exercise that are suitable for younger children. For example, if they hold each other by the elbows, they can move sideways, which is easier for younger ones. They can also hold each other by the forearms, or use a scarf, ribbon, or similar object.

Exercise 6 (5 – 7 years)

Arrangement for the Exercise and Equipment:
Divide the children into groups of three and place them in lines. Place a maximum of 2 - 3 markers in a straight line.

Course and Method of Performing the Exercise:
The groups compete against each other. On the teacher's signal, the first child in each line starts running toward the first marker and runs a full circle around it from the right side, then continues to the second marker. They do the same around the second marker, and then run straight to the end of the polygon. Once they reach the finish line, the next child in line begins to run, and so on, until the entire group has crossed to the other side of the course.

Notes and Suggestions:
The children should not move the markers, so as not to disrupt the pace of the exercise.

Exercise 7 (5 – 7 years)

Arrangement for the Exercise and Equipment:
Divide the children into lines. Markers.

Course and Method of Performing the Exercise:
Place a marker at the other end of the space or at a distance determined by the teacher. The children compete in groups. On the teacher's signal, the first child in each line runs toward the marker, runs around it on the left side, and then returns to their group. When they touch the next child in line, that child runs toward the marker and does the same as the previous one.

Notes and Suggestions:
The children should not move the markers, so as not to disrupt the pace of the exercise.

Exercise 8 (3 – 6 years)

Arrangement for the Exercise and Equipment:
Divide the children into groups and assign each group a place in the room. Handkerchief or scarf.

Course and Method of Performing the Exercise:
One child has a scarf tied over their eyes—this child becomes the so called "blind mouse". Another child spins them gently in one direction. The "blind mouse" then tries to keep their balance and catch someone from the group. The child who is touched by the "blind mouse" becomes the next "blind mouse."

Notes and Suggestions:
Be careful that the children do not spin too strongly, to prevent them from falling.

Exercise 9 (5 – 7 years)

Arrangement for the Exercise and Equipment:
Arrange the children evenly throughout the space, making sure they are spaced about an arm's length apart from each other.

Course and Method of Performing the Exercise:
Each child tries to turn 360 degrees in place or attempts to make a full spin around their axis while jumping. The children should bend their knees slightly and jump up with bent knees in the desired direction. Their arms are bent at the elbows and swing upward from

below. During the push-off and while in the air, the hips should be “pushed” in the direction of the turn.

Notes and Suggestions:
They must land on both feet simultaneously and maintain their balance. Repeat the exercise for 2–3 minutes.

Exercise 10 (5 – 7 years)

Arrangement for the Exercise and Equipment:
Divide the children into groups and assign each group a place in the room. Use a hoop.

Course and Method of Performing the Exercise:
Groups of three to four children hold onto a hoop and spin in a circle (like washing clothes), gradually increasing their spinning speed.

Notes and Suggestions:
The children must not lose their balance while spinning.

Exercise 11 (5 – 7 years)

Arrangement for the Exercise and Equipment:
Arrange the children evenly throughout the space, making sure they are spaced about an arm’s length apart. Balls.

Course and Method of Performing the Exercise:
Each child must have a ball. They throw the ball about 1 - 1.5 meters above their head and, while the ball is in the air, spin around their axis on the spot and then catch it. From waist height, they throw the ball into the air using both hands.

Notes and Suggestions:
The children must not lose their balance while spinning.

Exercise 12 (5 – 7 years)

Arrangement for the Exercise and Equipment:
Arrange the children along the wall. If the wall is too short, divide them into lines facing the wall. Balls.

Course and Method of Performing the Exercise:
Each child, or the first child in each line, must have a ball. They hold it with both hands at waist height and throw it against the wall about 1 to 1.5 meters above their own height so that it bounces back toward them. While the ball is in the air, the child spins around their axis quickly enough to catch the bounced ball before it hits the ground.

Notes and Suggestions:
The children must not lose their balance while making a turn.

Exercise 13 (5 – 7 years)

Arrangement for the Exercise and Equipment:
Arrange the children in a single line. Use three markers in three different colours, two small balls, and a basket or box.

Course and Method of Performing the Exercise:
Along the entire length of the room, place three markers in a straight line, each in a different colour. The children run toward the markers without slowing down. When they reach, for example, the red marker, they run once around it and then continue running toward the next marker. At the second marker, they spin twice around their own axis and pick up two small balls. Then they run toward the third marker, where they do three squats and drop the two balls into the basket or box. When the first child finishes the exercise, the next child starts running.

Notes and Suggestions:
The children must not lose their balance while making a turn.

Exercise 14 (5 – 7 years)

Arrangement for the Exercise and Equipment:
Place the children in a single line in the corner of the room.

Course and Method of Performing the Exercise:
In the centre of the room, there is a circle (if there isn't one, the teacher draws it). The children run diagonally toward the circle, run around it from right to left during the first round, and from left to right during the second round. They exit the circle at the same point where they entered it (making a full 360-degree circle) and return to the end of the line.

Notes and Suggestions:
While running, children should keep their heads upright and use their peripheral vision to follow the path they are moving along.

Exercises for balance

Exercise 1 (3 – 5 years)

Arrangement for the exercise and equipment:
Put all the children in one line. If there are no straight lines in the room, draw them, and if this is not possible, place two markers to represent the beginning and the end of the imaginary straight line.

Course and Method of Performing the Exercise:
The first child in the line starts by walking on straight lines in the room or on the lines indicated by the teacher (they must be straight). Children can walk one after the other at a distance of 2 - 3 metres. When they reach the other end of the room or the point indicated by the teacher, the exercise is over. Children can take steps no longer than the width of the shoulders, and at the same time they have to maintain the balance. The pace of the movement should be even.

Notes and Suggestions:
The children can be arranged side by side across the entire width of the room. The exercise should be repeated for 2 – 3 minutes during a single session. It is important that the children keep their heads upright and look straight ahead. They should follow the direction of movement using their peripheral vision.

Exercise 2 (3 – 5 years)

Arrangement for the exercise and equipment:
Put all the children in one line. If there are no straight lines in the room, draw them, and if this is not possible, place three markers to represent the beginning, middle, and end of an imaginary curved line.

Course and Method of Performing the Exercise:
The first child in the line begins walking along the winding lines of the course while maintaining balance. The steps should not be longer than shoulder-width.

Notes and Suggestions:

Same as in the previous exercise. This activity is suitable for the beginning of the lesson. It is important that the children keep their heads upright and look straight ahead. They should follow the direction of movement using their peripheral vision.

Exercise 3 (5 – 7 years)

Arrangement for the exercise and equipment:
The arrangement and method are the same as in the previous exercise. Each child should have a book or notebook on their head (the covers must be hard). Fabric bags filled with sand are also suitable.

Course and Method of Performing the Exercise:
Same as in the previous exercise. While walking, the children must be careful not to let the book fall from their heads. Their arms should be extended to the sides or kept alongside the body.

Notes and Suggestions:
They can walk along straight or winding lines. You can divide the children into several lines. The first child in the line has the book. When the first child reaches the end point, they return to their group and hand the book to the next child in line. The book must not be held with the hands.

Exercise 4 (5 – 7 years)

Arrangement for the exercise and equipment:
The arrangement is the same as in Exercise 3.

Course and method of performing the exercise:
The same as in Exercise 3.

Notes and suggestions:
Now we slowly increase the length of the step while maintaining balance (and the book on the head, if we are doing the exercise with a book). Children perform this exercise both in straight and winding lines.

Exercise 5 (5 – 7 years)

Arrangement for the exercise and equipment:
Arrange the children in a single column. If there are no straight lines in the room, draw them on the floor. If this is not possible, place markers to indicate the start and end points of the straight lines.

Course and method of performing the exercise:
The first child in the column begins with short jumps (feet together) along the marked lines of the course. Once the first child has moved 2–3 metres ahead, the second child begins, following the same movement. The jumps should be small, with the feet kept no wider than shoulder-width apart. Children must maintain balance while jumping.

Notes and suggestions:
Keep a safe distance between children. Emphasize an upright posture and encourage them to look straight ahead. They should follow the direction of movement using their peripheral vision.

Exercise 6 (5 – 7 years)

Arrangement for the exercise and equipment:
Place the children in columns across the width of the room.

Course and method of performing the exercise:
The children move to the end of the room with a series of zigzag jumps—one jump to the left, then one to the right. Each jump should cover no more than shoulder-width distance, and the children should focus on maintaining their balance throughout.

Notes and suggestions:
Ensure there is a safe distance between children. Emphasize the importance of keeping the head upright and looking straight ahead.

Exercise 7 (5 – 7 years)

Arrangement for the exercise and equipment:
The arrangement is the same as in Exercise 6.

Course and method of performing the exercise:
The children must hop on one leg, with hops no wider than shoulder width, until they reach the middle of the course. Then they switch legs and continue hopping on the other leg until they reach the end. With each hop, the children swing their arms upward from below. The arms are slightly bent at the elbows and extended sideways at the same time, helping them to maintain balance.

Notes and suggestions:
The distance between children must be safe. It is important that they look straight ahead, move in a straight line, and maintain their balance at all times.

Exercise 8 (5 – 7 years)

Arrangement for the exercise and equipment:
Arrange the children in a single column. If there are no curved lines marked on the floor, the teacher should indicate the path with markers.

Course and method of performing the exercise:
The children hop on one leg along the curved lines for the entire length of the space. They may switch legs halfway through. Each hop should be no wider than shoulder width. With every hop, the children swing their arms upward from below. The arms remain slightly bent at the elbows and extended outward to help maintain balance.

Notes and suggestions:
Keep a safe distance between children. Remind them to look straight ahead. Emphasize the importance of maintaining balance throughout the exercise.

Exercise 9 (4 – 6 years)

Arrangement for the exercise and equipment:
Space the children evenly around the room, keeping a distance between them equal to their arm span.

Course and method of performing the exercise:
At the teacher's signal, the children begin standing on one leg. On the next signal, they switch legs. Children lift one leg (e.g., the right) by bending it at the knee, while standing on the entire foot of the other leg. The arms should be extended outward, and the head should face forward. They maintain this position, balancing for 3–7 seconds. At the teacher's signal, the children hop to switch to the other leg, again balancing for 3–7 seconds.

Notes and suggestions:
Repeat this exercise for 3–5 minutes. Emphasize looking straight ahead and keeping the head upright. Try variations: extending the lifted leg to the side, bending it at the knee, extending it backward, leaning forward, etc.

Exercise 10 (4 – 6 years)

Arrangement for the exercise and equipment:
The arrangement is the same as in the previous exercise.

Course and method of performing the exercise:

The children perform a forward bend for one minute. They stand with their feet about shoulder-width apart and bend forward, trying to touch their toes with their fingers (keeping the feet together).

Notes and suggestions:
It is important that the children do not move their feet and maintain balance, without bending their knees. At the beginning, children can perform the exercise with feet slightly apart, about the width of one or two feet.

Exercise 11 (4 – 6 years)

Arrangement for the exercise and equipment:
The arrangement is the same as in the previous exercise.

Course and method of performing the exercise:
The children perform backward bend repetitions for one minute. They stand with their feet wider than shoulder-width apart (about the width of two feet) and bend backward, trying to touch the heel of the right foot with their right hand. Complete 2–3 repetitions with one hand, then repeat with the other hand.

Notes and suggestions:
It is important to maintain balance and keep the feet stationary. Only the toes should touch the floor during the exercise. Children should touch the heel in a smooth backward bend, avoiding any swaying.

Exercise 12 (4 – 6 years)

Arrangement for the exercise and equipment:
The arrangement is the same as in Exercise 10.

Course and method of performing the exercise:
The children perform backward bend repetitions for one minute. They stand with their feet wider than shoulder-width apart (about the width of two feet) and bend backward, trying to touch the heel of the opposite foot with their hand (right hand to left heel and vice versa). Perform 2–3 repetitions with one hand, then repeat with the other hand.

Notes and suggestions:
It is important that children maintain balance and keep their feet stationary. Only the toes should touch the floor during the exercise. Children should touch the heel in a smooth backward bend, avoiding any swaying.

Exercise 13 (3 – 5 years)

Arrangement for the exercise and equipment:
Arrange the children in several rows, keeping a distance between them equal to their arm length.

Course and method of performing the exercise:
The children kneel and place their hands on the floor. They must maintain balance using only two points of support: one knee and the opposite hand. In this position, they alternately extend the opposite arm and leg (for example, right hand and left leg, then left hand and right leg). They should hold each position for 2–3 seconds.

Notes and suggestions:
Children should maintain the position on two points of support for a few seconds. As they master the exercise, gradually increase the time they hold the extended arm and leg. The arm and leg should be kept as straight and horizontal as possible.

Exercise 14 (3 – 5 years)

Arrangement for the exercise and equipment:
Arrange the children in several rows, keeping a distance between them equal to their arm length.

Course and method of performing the exercise:
The children kneel and place their hands on the floor. They must maintain balance using only two points of support: one knee and the same-side hand. In this position, they alternately extend the same arm and leg (for example, right hand and right leg, then left hand and left leg). Each extended position should be held for 2–3 seconds.

Notes and suggestions:
Children should maintain the position on two points of support for a few seconds. As they master the exercise, gradually increase the time they hold the extended arm and leg. The arm and leg should be kept as straight and horizontal as possible.

Exercise 15 (3 – 5 years)

Arrangement for the exercise and equipment:
Divide the children into pairs. One child sits on a roller board.

Course and method of performing the exercise:

One child sits on the roller board, hugging their knees, while the other child pushes them across the space. In a more challenging version, set up cones that they must navigate around. The goal is for the pair to reach the designated endpoint as quickly as possible. The child sitting on the roller must maintain balance at all times. If they lose balance, the pair must return to the starting point.

Notes and suggestions:
Ensure that the pushing speed is adjusted to the children's age and the safety conditions of the space.

Exercise 16 (3 – 5 years)

Arrangement for the exercise and equipment:
Divide the children into one or more columns. Use a thick rope.

Course and method of performing the exercise:
Place the rope on the floor. Children walk along the rope from one end to the other, trying to maintain their balance.

Notes and suggestions:
Pay attention to the distance between children who are walking on the rope at the same time.

Exercise 17 (3 – 5 years)

Arrangement for the exercise and equipment:
Arrange the children in a single column. Use a low bench and a low balance beam; a board or similar equipment can also be used.

Course and method of performing the exercise:
All children must cross the low bench and balance beam, which are placed about 2 meters apart. Once one child successfully crosses the first piece of equipment, the next child follows. While crossing, children hold their arms slightly out to the sides to help maintain balance.

Notes and suggestions:
Place mats on both sides of the equipment for safety. Children should keep their heads upright and look forward while walking, using peripheral vision to follow the direction of movement.

Exercise 18 (5 – 7 years)

Arrangement for the exercise and equipment:
Divide the children into columns according to the number of balance beams available. Instead of a low beam, a similar piece of equipment, such as a bench, can be used.

Course and method of performing the exercise:
Children must jump over a low beam while jogging lightly and land on both feet. They push off with one foot, using the running momentum. They assist the jump with an upward swing of their arms. When landing with both feet, the knees should be slightly bent, arms extended to the sides, and feet should not move. They should hold this position for 2–3 seconds before straightening up to maintain balance.

Notes and suggestions:
Place mats on both sides of the beam for safety. Once children have mastered this exercise, progress to two-footed standing jumps: the child runs to the beam, stops with feet together, then jumps over the low beam from a bent-knee position using an arm swing for momentum. For safety, the teacher should stand next to the low beam during the exercise.

Exercise 19 (5 – 7 years)

Arrangement for the exercise and equipment:
Divide the children into groups of three. Use jump ropes, elastic bands, or similar equipment.

Course and method of performing the exercise:
Each group has a jump rope (or elastic band, rope, etc.). Two children hold the rope steadily at a height of 5–10 cm above the floor (depending on the children's age). The third child jumps over the rope forwards and backwards, facing the rope, trying to keep their feet together and maintain balance. Each child performs the jumps for 30 seconds, then they rotate positions.

Notes and suggestions:
Make sure that during the exercise, the children do not raise the height at which the rope is held.

Exercise 20 (5 – 7 years)

Arrangement for the exercise and equipment:

Divide the children into groups of three. Use jump ropes, elastic bands, or similar equipment.

Course and method of performing the exercise:
Each group has a jump rope (or elastic band, rope, etc.). Two children hold the rope steadily at a height of 5–10 cm above the floor (depending on the children's age). The third child jumps sideways over the rope, forwards and backwards, facing the rope, trying to keep their feet together and maintain balance. Each child performs the jumps for 30 seconds, then they rotate positions.

Notes and suggestions:
Make sure that during the exercise, the children do not raise the height at which the rope is held.

Exercise 21 (5 – 7 years)

Arrangement for the exercise and equipment:
Divide the children into groups of three. Use jump ropes, elastic bands, or similar equipment.

Course and method of performing the exercise:
Each group has a jump rope (or elastic band, rope, etc.). Two children hold the rope at a height of 5–10 cm above the floor (depending on the children's age). The third child hops sideways on one leg over the rope, moving left and right relative to the rope, while trying to maintain balance and keeping the other leg raised. Each child performs the jumps for 30 seconds, then they rotate positions.

Notes and suggestions:
Make sure that during the exercise, the children do not raise the height at which the rope is held.

Exercise 22 (5 – 7 years)

Arrangement for the exercise and equipment:
Divide the children into groups of three. Use jump ropes, elastic bands, or similar equipment.

Course and method of performing the exercise:
Each group has a jump rope (or elastic band, rope, etc.). Two children hold the rope at a height of 5–10 cm above the floor (depending on the children's age). The third child hops

on one leg over the rope, forwards and backwards, facing the rope, trying to keep their feet together and maintain balance. Each child performs the jumps for 30 seconds, then they rotate positions.

Notes and suggestions:
Make sure that during the exercise, the children do not raise the height at which the rope is held.

Notes and recommendations

- Classification of exercises by age groups is only recommended; it depends on the individual motor abilities of the children and the motor skills they have already acquired.
- Safety is the most important consideration for every exercise, so ensure that each child can perform the exercise safely.
- When conducting exercises and planning the lesson, follow the methodological principles explained at the beginning of this manual (pp. 27–29).
- At the start of each session, begin with exercises in place.
- During practice, adjust the length of the course, the height of the equipment, the duration of each exercise, the length of breaks between exercises (which should be 1/3 of the time it takes the slowest child to complete the entire exercise), and the intensity.
- Use as many different tools as possible, such as balls, ribbons, scarves, ropes, or “gifts” at the endpoint.
- Most exercises can be turned into small competitions between groups, which increases children’s motivation and develops a competitive spirit. From each exercise or a series of connected exercises, a competition can be organized, and the winning team announced at the end. Try to organize groups so that each child or team wins at least once.
- Each exercise is intended for children of the specified age (plus or minus one year), depending on their motor abilities.
- By combining 2–3 exercises, it is possible to create complex exercises. A complex exercise that could link the previously listed exercises is the “elastic twist” exercise, which can be performed in groups of three.

- A further development of the previous exercises could be a circuit exercise, composed of stations formed by exercises or parts of the previously listed exercises.
- The listed exercises can be combined on a common course: changing rows, stations, or relays. It is useful to combine exercises focused on balance, eye coordination, and rotation.
- If possible, include exercises for fine motor skills, cognitive classification, sequencing, and association (Exercise 13 on p. 51 and the NTC table on p. 102).

Activities to develop fine motor skills

When we talk about motor skills, we must distinguish between gross and fine motor skills. Gross motor skills involve movements of the arms, legs, and body under a certain level of control. Activities that promote the development of gross motor skills in children include various outdoor games, ball games, jumping, dancing, swimming, and running.

Fine motor skills, on the other hand, are the ability to perform precise, small movements of the hands while maintaining good coordination between fingers and eyes. Fine motor skills develop with age—after the initial clumsy attempts by a child to use a spoon independently, hand movements gradually become more precise, until the child is able to hold and control a writing tool. To successfully master the process of writing, which the child will face in school, it is first necessary to develop fine motor skills in the muscles of the hand and fingers.

It is important to use all ten fingers as much as possible every day. Modern children spend one or two hours a day playing video games, using tablets, or using a computer mouse, which reduces stimulation of certain fingers, especially the ring and little fingers. Therefore, it is important to organize activities that may seem trivial or unimportant, such as shelling corn or making mosaics from corn kernels, seeds, wheat, and rice. In this way, we stimulate large areas of the brain daily, which are important for the development of cognitive abilities.

Various everyday activities in early childhood contribute to the development of these skills, such as grasping, holding, and releasing toys; holding a spoon and feeding oneself; grasping small objects to develop the pincer grip; and dressing and undressing oneself, including putting on and taking off shoes. The development of graphomotor skills in early childhood can be further stimulated with appropriate toys or play.

The best exercises for developing flexibility of the hands and fingers include: holding and transferring a block from one hand to the other, pulling a toy on a string, dropping tiles into

an empty box, flipping through picture books, threading a shoelace into a shoe, winding toys, stacking matches in a box, picking up small objects or confetti, opening a box lid, drawing, colouring, cutting, gluing, and dressing small dolls. These activities should be part of a toddler's daily routine because they help strengthen hand muscles, improve dexterity, develop eye-hand coordination, and foster observation and concentration.

A few useful games

Buttoning and unbuttoning buttons and snaps, tying shoelaces, making knots with cords of various thicknesses.

Mixing dough, playdough, and clay, and creating various figures. Children can use playdough to make flags of countries, car logos, and similar items.

Plastic Pegs
During everyday play with plastic pegs, children can create simple flags of different countries.

Folding Paper
Children can practice folding paper to make airplanes, tents, or hats, and cut with safety scissors with rounded tips. After making the airplanes, they can draw flags on them, and then a contest can be organized to see whose airplane flies the farthest.

Building with Blocks and Puzzles
During everyday play with blocks, children can construct simple flags, shapes, or logos (e.g., Adidas, Audi, Fiat, IKEA, etc.). Parents playing with their children can try connecting or taping their index and middle fingers together to make the construction more challenging, and explain that this is only for adults. Children may want to try this as well, or have the fingers gently taped together (e.g., with masking tape), which encourages more use of the ring and little fingers, which are typically less active.

Attach and wrap a 60-centimeter string around a pencil or small stick, tying a light object, such as a paper fish, to the end. Children then compete to see who can first lower the "fish" into the "water" and then rescue it by quickly unwinding and winding the string around the stick. The game engages the fingers of both hands.

Other Activities
Marbles, picture cards, weaving, and similar activities.

LEVEL II

STIMULATING THE DEVELOPMENT OF COGNITIVE PROCESSES

Exercises for Recognizing Abstract Concepts

Exercise 1

In the first months of the programme, we show children the familiar symbols of the abstract concepts practised every day. These can be flags, symbols, emblems of sports clubs (Olimpija, Maribor, Barcelona, Real Madrid), car brands, logotypes of different products (Fruc, Barbie, Milka, Lumpi, etc.). Games with symbols, flags, and brand names are excellent for developing functional thinking, so they can be reused in exercises at later stages of the programme (classification, sequencing, association, analogy, etc.).

Exercise 2

Once children have learned a certain number of flags, we move on to associations. We show the children the flags of different countries, and they come up with associations related to that country. These can include landmarks, lifestyle, sports, music, and other characteristics that define the country.

Exercise 3

Give the child the pieces of a country's flag (for example, for the Canadian flag, provide two red rectangles, one white rectangle, and a red maple leaf). Explain to the child that they need to correctly assemble the pieces to form the complete flag. At the beginning, you can show the finished flag as a model; later, the child assembles it without looking at a reference. Gradually increase the difficulty of the activity: give the child mixed pieces from two or more flags, and they must assemble each complete flag. The teacher can indicate which flags are included, or simply how many, or leave the child to figure it out independently.

Exercise 4

Exercise for Recognizing and Distinguishing Letter Shapes. The child describes the appearance of a letter (for example, the letter H consists of two vertical lines connected by a shorter horizontal line). This exercise can be done in pairs: one child describes the

letter, and the other guesses which letter it is. Once the child is able to recognize multiple letters, they can compare them (for example, P and R differ in that R has a “leg”).

Exercise 5

Scatter cards with pictures of flags or car logos on a table or the floor. Children then pick a card and, with the help of questions (e.g., “Where would you like to travel and with whom?”, “Where have you already been?”, “Which car would you like to drive?”), recognize and learn the symbols representing abstract concepts.

Exercise 6

Traveling. Using chairs indoors or rocks outdoors, create a “car.” Children recall the country they are “traveling” to and describe its capital city, landmarks, and other notable features.

Exercise 7

Twister with Flags. Place flags on the floor and give children spatial movement instructions. Instead of colours, use flags as the reference points.

Exercise 8

Walks. During a walk in the city or on an excursion, observe signs or images on boards, car logos, traffic signs, license plates and the countries they come from, flags on currency exchange boards, and flags on embassy buildings.

Exercise 9

Game with Flags. The teacher attaches flags to the underside of chairs. Children guess which country each flag represents. Once they identify the country, they retrieve a toy car from that country and are asked to share what they know about it (e.g., Italy – pizza, Rome, Venice; France – Eiffel Tower, wine; Germany – beer, Audi, Mercedes, etc.).

Exercises in Mental Representation, Seriation, and Classification

Learned abstract symbols (car brands, flags, company logos, sports club crests, etc.) are a very useful tool for the early development of functional thinking, where solving problems requires not only intelligence but also previously acquired knowledge. For example, children who have learned flags can easily recognize them. The task can be made more challenging if the flags are not visible and they are instead asked questions such as: Which flag has a circle? Which flag has stars? Which flag has a bird?

Exercise 1

Identifying the flags based on their description.

Exercise 2

Finding flags that are similar in some way, e.g. the colour, the symbols on them.

Exercise 3

Game type "odd one out" – for example, two flags have stars, the third one does not.

Exercise 4

Identification, pairing, and distinguishing flags according to specific features.

Exercise 5

Forming groups and subgroups (e.g., car brands and their countries; groups of flags that have stars).

Exercise 6

Children look at a map (or without a map, depending on their age) and compare countries by size, arranging them from the smallest to the largest (*mental seriation*). For example: *"Arrange the countries by size: Andorra, Russia, and Belgium."*

Exercise in Associations and Analogies

Exercise 1

Memory Game (classic game + double association technique). Arrange the cards in 4 rows of 4 cards (for children aged 4–5) or in 4 rows of 5 or 6 cards (for children aged 6–7). The first player turns over two cards and, if they form a pair, takes them from the table and then turns over two more cards. If the two cards do not match, it is the next player's turn. Each player tries to remember the position of individual cards in order to find matching pairs. This process continues until all pairs are collected. The winner is the player with the most cards.

Note: When the cards are turned over, they are not taken away immediately but left in the same position so that the other players can see them as well. After a few seconds, the cards are turned face down again. At a younger age, children do not need any special playing strategy; they just try to remember where the cards are. However, with older children (those who have completed levels I and II of the NTC Learning Programme), the game should be played using the system of *double associations*.

That means each row must carry a specific meaning (e.g., the first row is the house where the child lives; the second row is the path from the house to kindergarten; the third row is the kindergarten; the fourth is grandma's house). The child is told that in the first row—representing their house—each card has a fixed position (the first card is the entrance to the house, the second is the hallway, the third the living room, the fourth the kitchen). The same applies to the second row (the first card is the street in front of the house/building, the second is a shop along the way, the third is some building along the way, the fourth is the kindergarten entrance), and so on.

If, for example, the child turns over the second card in the first row (the hallway) and the card shows the Romanian flag, the child can imagine Dracula in the hallway. If their association with Romania is the Dacia car, they might imagine mom and dad driving a tiny Dacia through the hallway. The stranger and more surreal the association, the easier it is for children to remember.

If, in the second row, the fourth position reveals the Swiss flag, the child may be told to imagine a mountain of chocolate bars at the kindergarten entrance, with all the children waiting in line to take one.

Start with the 16-card game (4 × 4). Once the children master this arrangement, increase the number of cards in each row (for the fifth card in the first row, for example, you can say it is the terrace or courtyard of the house; the fifth card in the second row could be the kindergarten entrance door, and so on).

Exercise 2

NTC Puzzle. A map of Europe with the flags of all countries. Children assemble the pieces to form the whole.
With the help of NTC puzzles and other toys (such as the NTC cube of Africa and Asia), children more easily and quickly acquire the second level of the programme, i.e., mental classification, seriation, and association.

Exercise 3

Analogy. We ask children questions that connect things or concepts based on shared characteristics. For example: The Norwegian flag compared to the Finnish flag is like the Italian flag compared to which flag? (One correct answer is Ireland.)
What do the Italian and Hungarian flags have in common that the French and Russian flags do not?

Music

As part of the NTC learning programme, the auditory dimension is connected with symbols of abstract concepts (primarily flags, later the landmarks of countries) and their spatial representation (on a world map, globe, etc.). In this way, we further develop memory skills and the analytical understanding of the basic elements of musical expression: rhythm, melody, harmony, dynamics, and so on.

Presenting and connecting different types of content through music provides a special way of **enriching children's experience** in acquiring various kinds of knowledge. Research has shown that children who struggle with grasping certain concepts can understand them more easily when these are introduced through singing. In the following section, several methods for stimulating the development of basic musical abilities (auditory, rhythmic, visual-motor, and manual) are described. This is especially relevant for preschool children, who are in a sensitive period for developing these abilities. Some methods for learning specific musical elements, such as dynamics, tempo, and varying note durations, are also explained.

These exercises can help with the **quick and lasting** acquisition of abstract concepts (such as national flags) and their characteristics through appropriate musical content, strengthening the child's overall learning experience across different areas of knowledge. Research has shown that children who struggle with acquiring certain concepts can grasp them more easily when they are presented through singing.

Exercise 1

The educator presents flag symbols or, in the form of "key words," illustrates the basic characteristics of a given country, all through association games and riddles.

Example: the chosen country is JAPAN (key words related to its features are a white rectangle and a red circle for the flag, a pheasant as the national symbol, and ikebana as a traditional art).

The educator creates a chant or song with a suitable melodic and rhythmic pattern that matches the invented text. For example:

A white rectangle,
A red circle in the middle,
Next to ikebana,
A true oriental fiddle.
I saw a pheasant,
With seven tones so fine,
I'd love to fly, my friend,
Across all of Japan's line.

Children follow a made-up melodic-rhythmic piece using Orff instruments that have no specific pitch (drums, cymbals, castanets, sticks, rattles, etc.), thereby learning the desired musical elements, such as rhythm.

Exercise 2

During the presentation of various musical activities, the teacher uses associations to help children learn, understand functionally, and apply musical symbols for dynamics.

Example: Learning the term "forte" (loud) and its meaning in music

The teacher invents a little story that introduces the unfamiliar word *forte*. For example: Matej played his favourite game "Jokes back and forth" with his sister every day. Sometimes he could be quite annoying when he loudly asked, "When will we play *Jokes back and forth*?" This went on day after day, until one day, during all the shouting of the word *forth*, the letter **E** suddenly slipped in, substituting the letter H. Loudly it rang out: "They are starting *Jokes back and forTE*, *Jokes and forTE*!" and all the children on the street laughed at the stuck letter E.

Through this story, children learn the term *forte*. Using a suitable song or rhyme that expresses loudness, they connect it with the musical meaning of *forte* (loud).

Exercise 3

Learning the abstract symbols of a particular country can be reinforced with appropriate music that is characteristic of that country. In this process, composers who incorporated elements of traditional music into their compositions can also be introduced.

Example: Listening to *Swan Lake* by Pyotr Ilyich Tchaikovsky.

During listening, we encourage "active" engagement with the music through questions such as: Who are the performers (which instruments)? Can you distinguish the appearance and tone colour of different instrument groups in the orchestra (strings, winds, etc.)? Analyse the character of the piece: identify different tempos, recognize varying dynamic levels, and reflect on your personal feelings while listening.

Exercise 4

By actively listening to national anthems, we compare them with each other as well as with other musical forms from different periods and cultures (e.g., waltz, lullaby, march). We also connect them to other activities, such as physical activities combined with creative movement or visual arts activities, where children express their visual experiences through drawing, etc.

Exercise 5

The development of visual-motor skills is encouraged through playing melodic instruments, which also develops finger dexterity. This, in turn, has been shown to stimulate the synchronous development of multiple areas in the cerebral cortex and significantly influences the development of intellectual potential. We begin with compositions that, through content combined with appropriate visual-motor skills, also enhance the child's ability to experience and engage with the material.

Example: Children in early preschool can play the game "Mice and Cats," where one child, in the role of a mouse, "runs" with their fingers across the keyboard, trying to "escape" from another child, the cat, who chases them on the keyboard. While performing the game, the tempo is gradually increased up to the limit of feasible, precise, and coordinated movement of all fingers on both hands in a specific rhythmic pattern.

For older children, more complex tasks can be suggested, or the difficulty of the piece can be increased to further stimulate finger dexterity, while ensuring melodic and rhythmic coordination is maintained with the set tempo.

LEVEL II

STIMULATING THE DEVELOPMENT OF FUNCTIONAL THINKING

Recent research shows that logical thinking and quick problem-solving can be trained, and that the brain can develop a certain “state of good form.” This is also encouraged by riddle-based stories, which create a “thinking” situation in which children experience joy while solving them.

Many of these stories cannot be solved by children alone. They are designed so that educators, teachers, parents, or slightly older peers must also participate. They are especially suitable for group work; it is always easier to reach a solution together. One possible rule is that the questioner may answer only with “yes” or “no.” An additional rule: if multiple players are involved, one questioner has the right to ask questions as long as they continue receiving affirmative answers. The number of questions can also be limited.

The purpose of these stories is that solutions are not revealed until children have given their best effort. Some questions require basic knowledge of nature and its laws, but most are logical problem-solving tasks. One thing is certain: by working on these riddles, children will learn and remember many useful things permanently. If a child solves two stories, it is quite likely that they are a potentially gifted individual.

It is very motivating if a correct answer is rewarded: with applause, a small token, or a treat. This encourages a competitive spirit while sending a clear message that creative thinking is positive and valuable. Logical riddles can take various forms, but they share one thing in common: with the right approach, careful study, and proper reasoning, they are solvable.

At first, they may seem overly complex or even unsolvable. Children need to understand that riddles are designed to trick the guesser. The first question they should ask themselves is: *“What is the trick here? Is it related to language, ambiguous words, or is the questioner expecting a thoughtless answer?”*

The key part, sentence, or word must be identified and separated from the rest of the story—this is usually the part that is slightly unusual or oddly constructed. Over time, children begin to master new strategies for solving riddles, which can often be applied to real-life situations. It is therefore important that the educator (or parent or teacher) also provides an explanation after the solution.

The goal of this programme is not just for children to answer questions, but also to start asking them. By answering questions, they develop convergent thinking; by creating questions, they develop divergent thinking, which is essential for fostering creativity and nurturing giftedness.

Riddle stories

Example 1

During the summer holidays, Nik and Nina went to the beach with their parents. It was a beautiful day, and they went early because they knew they had to return to the hotel by noon. Their mother told them that between 11 a.m. and 2 p.m., they had to stay in the shade. Usually, they spent their afternoons having lunch and then playing with pebbles and shells they collected on the beach.

That morning, Nik noticed something and asked Nina an unusual question: *"What is like a mushroom but is always wet?"* Nina guessed it was an umbrella, but Nik explained that an umbrella is sometimes dry and that he had seen people using umbrellas in the sun for shade.

Since Nina still didn't know the answer, Nik gave her a hint: it's a living creature, and she should think about why he said it is always wet. Suddenly, Nina realized that this animal probably lives in water and correctly answered: *a jellyfish*.

Example 2

Mojca was walking along the seashore because it was too cold to swim. She noticed some friends she had met at the hotel and joined them in a game with pebbles.

They played *"froggies"*: throwing flat stones into the sea so that they would skip across the water, competing to see whose stone would skip the most times.

After the game, Mojca asked them a riddle: *"What is always wet when it stands still, but when it moves, it first dries and then is on dry land?"*

One boy guessed a ship, but Mojca explained that a ship is always partially wet, whether it moves or stands still. Another child suggested a seaplane, but Mojca pointed out that a seaplane is wet even when stationary. She then gave a hint: they had seen this object the day before while walking along the shore. It is made by humans and helps some people with their activities.

After a few more guesses, they found the correct answer: *an anchor*.

Example 3

Matjaž visited his grandparents in Podlehnik and helped them with all sorts of chores. He carried water from the spring, helped his grandfather rake hay, collected fresh eggs from

the chicken coop every day, milked the goat successfully, and made cheese with his grandmother, enjoying the work.

One evening, they were all thinking about a problem when their neighbor Mitja passed by. Grandfather wanted to talk to him about it but didn't reveal the problem directly. Instead, he asked a riddle:

"What do we not see when it walks, but it leaves a visible trace on the ground?"

Mitja guessed a shadow, but grandfather explained that a shadow is visible but doesn't leave traces. Then Mitja suggested the wind, but grandfather said the wind doesn't walk. Matjaž thought carefully and realized the riddle was about a living being because it walks. He remembered their recent conversation about the garden and the mole, which makes mounds every day.

Matjaž quickly solved it before Mitja: the answer was a mole.

Example 4

A boy and a girl were riding in a racing car. Ahead of them raced a spaceship, and behind them a fire truck. This wasn't a fictional story; the children were awake and not part of a sci-fi show. How did they end up in such an unusual situation?

Solution: They went to an amusement park and were riding on a carousel, which had a spaceship, a race car, a fire truck, a helicopter, and other vehicles.

Example 4 is taken From *IQ Child – Parental Guidance*, Ljubljana: Mensa Slovenia, 2013.

Riddles and Riddle Questions

We create riddles to encourage children to engage in intensive thinking, connecting ideas, and drawing conclusions. This approach promotes the use of prior knowledge and the retrieval of information that the child has already learned; on this basis, new knowledge or insights are generated.

A question is considered successful if, in a group setting, children take more than sixty seconds to answer it. The question should provoke at least one connection between pieces of information and at least one new conclusion or learned fact.

Good riddle questions are those that can be correctly answered even by a child who doesn't have all the data, but who uses and connects existing knowledge with newly heard information.

Rules for a successful riddle question are:

Rule 1
Formulate a question that has **only one sensible answer**.

Statement: Garlic is good for preventing the flu.

Poor example question: What is helpful in preventing the flu?
Problem: There are multiple correct answers (tea, rest, vaccination, etc.).
Better example question: What is helpful in preventing the flu and grows in bulbs?
Reason: This question narrows it down so that only **garlic** is the correct answer.

Rule 2
Avoid questions that encourage mere listing or guessing.

Problematic examples ("Which day of the week do we usually go on trips?" "What color are most insects?" "Does it rain often here?")

Issue: Children might just guess or quickly list known options, which doesn't encourage real reasoning or problem-solving. Questions that can be answered simply with "yes" or "no" are also inappropriate.

If there are many possible answers, this leads to listing or guessing without genuine attempts at connecting information and reasoning. For example, asking "Which food doesn't spoil over time?" will prompt children to list all the foods they know, but it won't stimulate real thinking or connections. A more suitable question, which emphasizes the fact that the food is non-perishable, would be: "What can we do with honey that was made 100 years ago that we cannot do with any other food?"

Rule 3
We formulate a question that can be answered correctly even by someone who does not have all the information, as long as they correctly use and connect their prior knowledge with what they have just heard.

For example, a question could be: "What is the connection between a chicken and the number 13?" The child knows what a chicken is and begins thinking about why the number 13 might be important for a chicken. Does it lay 13 eggs a day? No. Does it lay eggs for 13 days? No. We remind the child that a chicken is a bird. This may lead them to guess that a chicken can fly 13 meters. That's not correct. The right answer is that a chicken can fly for 13 seconds at most.

The question should provoke intensive thinking and connections and bring joy to the child who finds the correct answer. The actual answer is less important than the path taken to

reach it. In practice, it often happened that we underestimated children's abilities or that the question was too easy. In a few cases, the question was too difficult, meaning the children couldn't find the answer even after several minutes.

The smaller the group of children we work with, the simpler and more concrete the questions need to be. With a large group, we quickly get many possible solutions and ideas, and an answer can come in 1–2 minutes. With a small group, it may take 5–6 minutes, which can be demotivating and slow down the group's dynamic.

Example 1 (6 – 9 years)

Reproductive question: What does a brown bear do in winter?

Fact: Many bears hibernate in winter, which is called winter sleep. They wake up from this sleep in spring.

Thinking question: Why does a brown bear weigh less every spring than it did in autumn?

Example 2 (6 – 9 years)

Reproductive question: Where does the polar bear live and where does the penguin live?

Fact: Polar (white) bears live at the North Pole and are exclusively carnivorous because there are no plants there. Their favourite food is seals, which they trap in the ice and wait for to surface for air. They cannot catch penguins because penguins live at the South Pole.

Thinking question: Why can't a polar bear eat a penguin?

Example 3 (6 – 9 years)

Reproductive question: What does a bee do? or Who produces honey?

Fact: A bee collects all the beneficial substances from plants and then processes them together with many useful substances from its body into honey.

Thinking question: Which natural treasure is protected by more than 1,000 flying guardians?

Example 4 (7 – 10 years)

Reproductive question: Which animal has 3,000 spines? or How many spines does a hedgehog have?

Fact: The forest hedgehog has 3,000 spines.

Thinking question: Which forest warrior carries 3,000 spears?

Example 5 (6 – 9 years)

Reproductive question: Which animals hatch from eggs?

Fact: Most children know about hens laying eggs, but fewer know that turtles also lay eggs. During the mating season, turtles swim to shore and dig a pit near the water, where they lay 8 to 10 eggs, each measuring 15 to 22 millimetres.

Thinking question: What do a turtle and a hen have in common? (The correct answer could also be simply that they are animals, so the question must be expanded to allow for only one correct answer.) What connects the turtle and the hen, but not the rabbit and the bear?

Example 6 (6 – 9 years)

Reproductive question: Where does the polar bear live? or What does the polar bear do in winter?

Fact: Polar bears (also called northern or white bears) live only at the North Pole. They feed on seals, sea cows, other mammals, and eggs, but they never drink water. Polar bears do not hibernate in winter.

Thinking question: If someone sees bear tracks in the snow, they can know the bear's colour. How is that possible?

Example 7 (7 – 10 years)

Reproductive question: What do we use to cultivate the soil?

Fact: A tractor is a machine for cultivating soil. It is also used for transportation.

Thinking question: It has four wheels, works all day long, and cultivates our soil—what is it?

Example 8 (6 – 8 years)

Reproductive question: Who crows at dawn?

Fact: The sound we call crowing is used by the rooster to mark its territory acoustically. It usually crows at dawn, around noon, and at dusk.

Thinking question: After which animal's cry does dawn appear?

Example 9 (6 – 9 years)

Reproductive question: Who protects the crop in the field from birds?

Fact: A scarecrow is an object, most often a human-shaped figure dressed in old clothes, meant to scare birds away so they don't eat the sown seeds.

Thinking question: Who stands in the field without pause but never tires?

Example 10 (6 – 9 years)

Reproductive question: Who waters the soil besides humans?

Fact: The soil can be irrigated artificially or it can be moistened by rain.

Thinking question: Who could water the soil a hundred years ago, if it wasn't humans?

Example 11 (6 – 9 years)

Reproductive question: Which large bird lives at the South Pole and does not fly?

Fact: Penguins cannot fly and live in the Southern Hemisphere. They have black feathers on their back and white on their belly. They feed on krill, fish, squid, and other sea animals that they catch while swimming underwater.

Thinking question: Which bird swims but does not fly? (For younger children, add a hint: imagine a conductor.)

Example 12 (5 – 7 years)

Reproductive question: What is the name of the device that takes people to higher floors when they press a button?

Fact: An elevator is a device for transporting people and objects in multi-story buildings.

Thinking question: Which cabin comes on its own when you call it?

Example 13 (5 – 7 years)

Reproductive question: What else does a snail have besides a shell? Where does a snail live?

Fact: On the snail's body we can distinguish all the parts typical of molluscs: head, foot, and shell. A snail lives in its shell.

Thinking questions: Who has a foot and goes everywhere but has no legs? Who goes everywhere but never without a house?

Example 14 (6 – 8 years)

Reproductive question: Which domestic animal gives wool?

Fact: The word "wool" refers to the soft hair of the fur of some mammals, such as sheep. From sheep's wool we make various clothes, hats, and other accessories.

Thinking question: What is the material that warms your head and is given by the animal that bleats? (woollen cap)

Example 15 (5 – 7 years)

Reproductive question: Which animal looks like a horse and lives in Africa?

Fact: The zebra is an animal belonging to the horse family and lives in central and southern Africa. The types of zebras differ in their stripes. Zebra stripes are wide and alternate black and white.

Thinking question: What do pedestrians cross that has the same name as an African animal?

Example 16 (7 – 10 years)

Reproductive question: Which forest animal has antlers?

Fact: The deer is a forest animal that has antlers, while the doe has antlers only in rare cases. Every year in February or March, the stag's antlers fall off, and five months later new ones grow, more beautiful than the previous ones.

Thinking question: We marvel at the forest fashion; through the woods walks a coat hanger – what is it?

Example 17 (7 – 10 years)

Reproductive question: Which country is named after a gas?

Fact: The Kingdom of Bhutan is a landlocked country in South Asia, between China and India. The country is mountainous, ranging from subtropical plains in the south to glacial Himalayan peaks at 7,000 meters above sea level.

Thinking question: You can live in me, cook with me, and ride with my help – what am I?

Example 18 (6 – 8 years)

Reproductive question: What is the name of a baby cow?

Fact: A baby cow is called a calf. Mammals nurse their young.

Thinking question: It moos, but it isn't a cow, it gives no milk, yet you'd like to drink it – what is it?

Example 19 (5 – 8 years)

Reproductive question: Which animal carries its young in a pouch?

Fact: Kangaroos are marsupials and have a pouch in which they carry their young after birth. Kangaroos are the only large animals that move by hopping.

Thinking question: It jumps, but it isn't a grasshopper; it hides its child in a pouch – what is it?

Example 20 (7 – 10 years)

Reproductive question: Twelve of what are in one year?

Fact: A calendar year is made up of 12 months.

Thinking question: What is like a train with 12 carriages, which most people say goodbye to while at the same time eagerly awaiting? (a year with 12 months)

Example 21 (7 – 10 years)

Reproductive question: What does the bee produce?

Fact: Honey is a product of bees and a very healthy food. It is the only food that does not spoil.

Thinking question: It is produced by flying workers in striped brown-and-yellow suits, and it never spoils – what is it?

Example 22 (7 – 9 years)

Reproductive question: Which insect spins a web?

Fact: Many species of spiders spin webs.

Thinking question: What do an eight-legged insect and a type of wire fence have in common?

Example 23 (7 – 9 years)

Reproductive question: What are computers connected to?

Fact: Computers are connected to a network.

Thinking question: Which concept do we use for something found on a football field that also connects multiple computers?

Example 24 (7 – 9 years)

Reproductive question: What can happen to you if you cut an onion?

Fact: If you cut an onion, your eyes may water.

Thinking question: Because of it you cry, but you are not sad. What is it?

Example 25 (7 – 9 years)

Reproductive question: Which country looks like a boot?

Fact: Italy is shaped like a boot.

Thinking question: What looks like a boot and you can live in it?

Example 26 (7 – 9 years)

Reproductive question: What happens to a stream in winter?

Fact: Water freezes in very cold weather.

Thinking question: Why couldn't the rabbit, who came to the stream in winter, drink water?

Example 27 (5 – 7 years)

Reproductive question: What happens to the leaves in autumn?

Fact: In autumn, leaves fall from the trees.

Thinking question: A man was walking in the forest with his eyes closed, but he knew it was autumn. How?

TIPS FOR EVERYDAY WORK AND RECOMMENDATIONS FOR PRE-SCHOOL EDUCATORS, TEACHERS AND PARENTS

Educators and parents can encourage children's creative thinking in their everyday activities. Every event, even seemingly insignificant details, can be used as a basis for setting tasks. A child's thinking can be stimulated during a walk through the city, on the way to or from kindergarten, in the park, in the car ... Below are just a few examples for inspiration.

Example 1: The Gift

Many children receive gifts almost every day, so sometimes they no longer feel excited about them. A gift or a small treat, such as chocolate or candy, can be given to a child immediately, but it is even better if we hide the gift and give the child a task to find it (similar to a treasure hunt). The joy of knowing that something awaits, without knowing what it is, creates a pleasant feeling. First, the child is happy because he or she is searching for the hidden gift, then delighted when it is found, and finally experiences happiness for having earned the reward through effort and dedication. These feelings are far more intense and rewarding than if we simply handed over the chocolate without requiring any effort. We can also encourage the child to hide a surprise in the same way for their mother, father, or other family members.

Example 2: Traffic signs, car brands, etc.

When walking with the child through the park or along the street, we encourage them to follow cars, e.g., those of a white colour, and to recognize their brands (Fiat, Peugeot, etc.). Even while traveling, we can encourage children to observe traffic signs or guess which country the cars in front of us come from (I – Italy, D – Germany, H – Hungary, FIN – Finland, etc.).

Example 3: Unknown words

If a child asks about the meaning of a less familiar word (heir to the throne, microscope, photocopy, lightning rod, fountain pen, amphibian ...), we explain it in a way that encourages thinking and reasoning. If needed, we can draw a simple sketch to help them understand the meaning. For example: the word *microbiology* is made up of two words: *micro* (small) and *biology* (the science of living things), which means it is the science of small living beings.

Example 4: Flags

When learning flags, we can play with the child by pretending that on a given day we are, for example, Italians—so we greet each other all day with *"Buongiorno"*, imagine living in Rimini by the Adriatic Sea, and eating spaghetti or pizza. Italy can also be found on the map. In this way, within a month, the child can learn many countries or associations, which makes it easier to move to a higher level of the programme (mental classification and seriation).

Example 5: Creative questions

Here are some examples we received from parents and educators who implement the NTC-programme (for children aged 5 to 8). Some questions were created by the children themselves.

1. What factory in nature was not built by humans, where hardworking (help for the youngest: flying) workers in striped brown-yellow suits are busy? *(honey)*
2. It is thin like a stick and has a shirt it sometimes takes off. What is it? *(snake)*
3. What always beats but never measures time? *(heart)*
4. Who uses a fan only for beauty and not to cool down? *(peacock)*
5. What can both sea water and shampoo make? *(foam)*
6. A boy who loved playing with balloons never played with them in the living room. Why not? *(Because there was a cactus in the room.)*
7. It holds a broom in its hand but never sweeps. *(snowman/scarecrow)*
8. It has armour, but it is not a knight, and in trouble it hides its head. *(turtle)*
9. Who gets one ring as a gift on every birthday? *(tree)*
10. You walk on me, step by step you climb higher, I rise towards the sky. *(ladder)*
11. A brother and sister were throwing stones into a boat, which sank almost immediately. How is that possible? *(It was a paper boat.)*

Example 6: Word games

While preparing for school, we can give children more complex questions during learning and letter recognition, which they will soon begin to create themselves. Word games using familiar concepts further motivate children to learn letters and recognize them.

For example: *What is it – it starts with the letter T, hangs around the neck, and my dad wears it?* (tie)

Such questions fall under mental classification and association, which are extremely important for the development of a child's intellectual abilities. The child simultaneously searches mentally for associations with the letter T and the father's neck, thereby stimulating mental classifications.

An analysis of games used in the past and today shows that games children played twenty years ago (jump rope, marbles, hopscotch, skipping over ...) are now rarely played or no longer exist at all. These games were extremely popular and contained elements that have been proven to stimulate the development of comprehensive skills, both motor and cognitive (Rajović, Ković, Berić, 2018). It is clear that formerly dominant games (jump rope and marbles) included important developmental elements, whereas some modern popular leisure activities, such as watching television, do not contain these elements. For this reason, it is important to increase the number of activities that positively influence the child's overall development. In accordance with the abilities of today's children, we are obliged to redesign former games and develop new ones that incorporate the developmental elements listed in the table (rotation, balance, dynamic eye accommodation, fine motor skills, walking, running, hand-eye coordination, mental classifications, mental seriation and associations), and at the same time they are interesting enough for children to perceive them as a game rather than as exercise.

Activities in which children use their fingers more intensively, dynamically adjust their eyes, rotate, maintain balance, and engage in mental classification, seriation, and associations are incorporated into the regular curriculum in kindergartens and schools several times a week, or even daily—but, if possible, for short periods. Within the NTC-programme, we encourage performing these activities multiple times a day, but always within a game!

In the game, we combine three or four activities from the table. For example, if a child is running, it is better if they run over obstacles, because this develops eye adjustment and balance. The more elements a game contains, the better; for example, marbles are a very useful game (fine motor skills, eye adjustment, rotation, balance, mental classifications, mental seriation).

Research conducted in 2014/2015, based on a survey of more than 1,000 parents and educators in Slovenia and five Central European countries (Italy, Czech Republic, Hungary, Croatia, and Serbia), shows that the average 6-year-old child has too few activities that stimulate the development of different parts of the brain. Activities within the NTC-system, however, promote more intensive simultaneous activity in multiple areas of the brain.

ADDITIONAL STIMULATION FOR THE DEVELOPMENT OF NEURAL PATHWAYS AND CONNECTIONS

Exercises for motor activities

(forgotten games such as rubber player, marbles, etc.)

The primary purpose of daily exercise or performing motor activities is to stimulate the development of the neural network. Here, we are mainly referring to exercises that are rarely performed: rotations, balance exercises, and exercises for dynamic visual adjustment.

Rotation exercises. The importance of one of the most demanding movements in space—spinning around one's own axis—becomes clear when we understand which structures are involved (the vestibular apparatus of the inner ear, structures of the brainstem, nuclei of the cerebrum and cerebellum, and cranial nerves III, IV, and VI). It is evident that such a complex physiological process must develop in the early years of life, when neural pathways are forming. This also explains why children need to develop these abilities. This group includes a wide range of exercises, most of which require the child to spin around their axis with arms extended for 10–15 seconds, and then try to maintain balance. After a short break, the cycle is repeated. This group also includes games such as "blind mice," spinning around a hoop (group of 3–4 children), running along zigzag lines in space, twisting while jumping, etc.

Balance exercises. Like rotation exercises, these also develop multiple areas of the cerebral cortex. They include various exercises involving rolling and jumping, walking on a beam, walking in straight and winding lines with a book on the head, jumping over a low beam, hopping on one leg, exercises with an elastic band and skipping rope, where one jumps over obstacles, and so on.

Exercises for dynamic visual adjustment. With watching TV, video games, and computers, we increasingly neglect the development of this extremely important eye function. This can result in suboptimal development of certain areas of the brain. Eye adjustment is almost fully developed by the fifth (or seventh) year through rapid eye movements, tracking objects, running, and jumping over obstacles. Children in technologically advanced countries increasingly replace play with screen time, which negatively affects the development of visual adjustment. A ball is an ideal tool for these exercises because, while tracking it, the eyes are constantly adjusting (e.g., during dodgeball, passing, shooting into a hoop, rolling the ball, etc.). Running, jumping, and crawling exercises also support the development of eye adjustment.

Exercises for fine motor skills

Fine motor skills are the ability to perform precise, small hand movements while maintaining good coordination between the fingers and the eyes. Fine motor skills **develop with age**—after a child's initial clumsy attempts to use a spoon independently, hand movements gradually become more precise, up to the point when the child is able to grasp a writing tool and control it.

To successfully master the process of writing, which the child will encounter at school, it is first necessary to develop the fine motor skills of the hand and finger muscles. Fine motor skills are essential for writing, which is reason enough to start developing this ability at home well before school begins.

Exercises for fine motor development should be performed every day—not only to prepare for writing, but also because finger movements engage a large part of the cerebral cortex and significantly influence the number of synapses and the enhancement of intellectual abilities. Exercises for developing fine motor skills include using building blocks, plastic pegs, modelling clay, clay, marbles, pictures, cutting with scissors, and many others.

STIMULATING THE DEVELOPMENT OF THOUGHT PROCESSES ACCORDING TO AGE

Level I

We encourage children to recognize the symbols of abstract concepts, e.g. flags, car logos, license plates, traffic signs, trademarks of well-known manufacturers, symbols of countries–famous buildings, letters, and numbers.

Level II

(mental classification and seriation, ages 5–6, 6–7)

Once the children are already familiar with the symbols of abstract concepts, we guide them through questions towards classifying (mental classification) and arranging them in order (mental seriation).

Some examples:

1. Which cars come from Italy?
2. Which country is Toyota from?
3. On which flags is there a cross?
4. On which continent is Canada?
5. Which countries do we cross when we go from Slovenia to Poland?
6. Arrange the following countries by size: Andorra, Russia, and Belgium.

Level III

(associations, analogies)

Associations
Children connect certain concepts with information they already have; therefore, it is important that, through play, they acquire new concepts and associations for them. This is of exceptional importance for linking information and for divergent thinking.

Some examples:

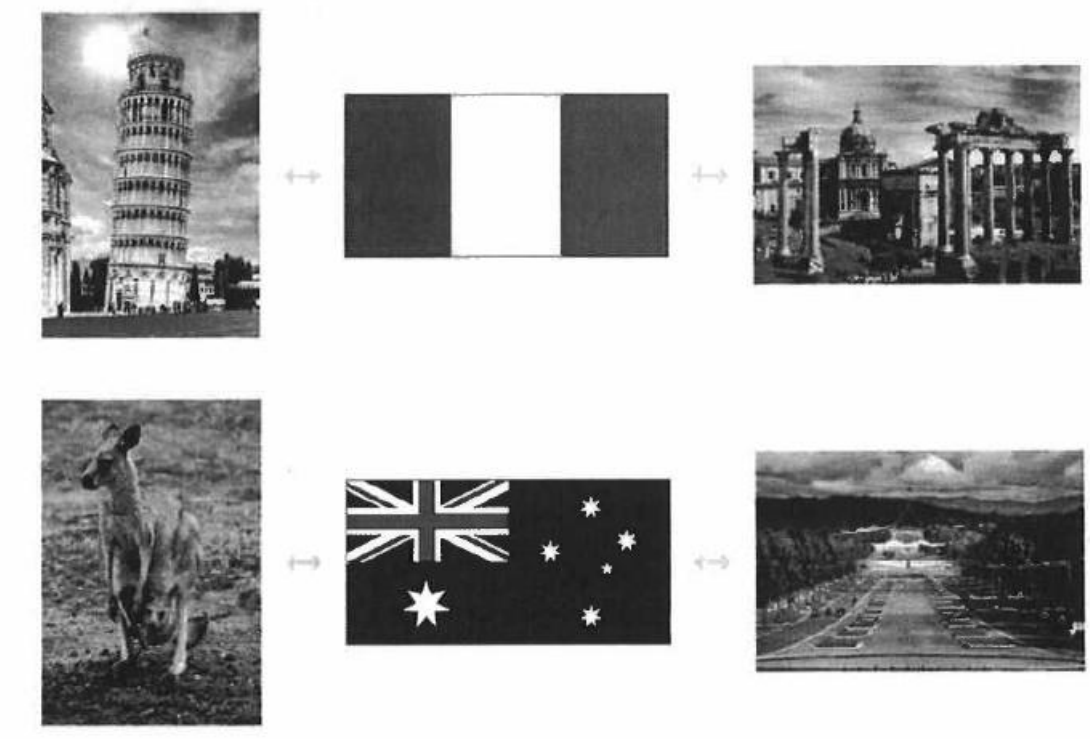
1. Famous Buildings and Landmarks (5–6 years)

- France – Eiffel Tower
- Japan – walkie-talkie
- Italy – Leaning Tower of Pisa or pizza
- Australia – kangaroo

2. Capital Cities (6–7 years)

- Capital of Russia
- Capital of Slovenia
- Capital of Indonesia

3. Memory Games – Double Associations (5-6 years, 6–7 years)



Analogies

In analogies, children look for common characteristics, for example:

- "The Norwegian flag is compared to the Finnish flag as the Italian flag is compared to the flag of ..." (One correct answer is Ireland.)
- What do the flags of Russia and France have in common, that the flags of Italy and Hungary do not?

Symbols of abstract concepts (4-5 years)

FLAGS

Learning Dynamics and Objectives	**Repetition**
Introduce five new flags every two weeks, beginning with the European ones.	For two weeks, the children practice the five learned flags (objective – recognition of flags). **Recommended activities:** drawing, Olympics-style games, puzzles, recognizing flags from descriptions, memory card games. *This part of the programme is also carried out by parents. **Suggested approach:** during trips or walks through the city, observe flags on exchange offices, embassies, or other buildings; watch broadcasts of sports events on TV.

CAR BRANDS

Learning Dynamics and Objectives	**Repetition**
At the same time as learning the flags, introduce the learning of car brands.	For two weeks, the children practice new car brands (objective – recognition of car brands). **Recommended activities:** activities include drawing, Olympics-style games, puzzles, recognizing flags from descriptions, and playing memory card games. *This part of the programme is also carried out by parents. **Suggested approach:** activities include drawing, spotting car logos during trips or city walks, and organizing various competitive games.

BRANDS OF WELL-KNOWN MANUFACTURERS (POPULAR CHILDREN'S PRODUCTS) AND SIGNS/WRITINGS THAT THEY RECOGNISE IN THEIR ENVIRONMENT

Learning Dynamics and Objectives	**Repetition**
About 2–3 months after the children have learned the flags and car brands, we move on to learning the brands of well-known manufacturers (e.g., Fruc, Lumpi, Barbie, Milka, Gorenjka, Maček Muri, Lego, etc.). Every other week, they learn five new symbols.	For two weeks, the children practice five learned brands. *This part of the programme is also carried out by parents.

TRAFFIC SIGNS

Learning Dynamics and Objectives	**Repetition**
After a few months of the programme (after learning flags and car brands), we can move on to learning traffic signs.	*This is already part of everyday activities in kindergarten. At this age, we focus on the traffic light (colours), pedestrian crossings, and some other signs. It is recommended that parents also carry out this part of the programme during walks, bus rides, car trips, etc.

Symbols of abstract concepts (5-6 years)

FLAGS

Learning Dynamics and Objectives	**Repetition**
Every week, the children learn five new flags. Once they have mastered the European flags, we move on to the flags of countries from other continents. If children are in the programme for the first year, we start with the European flags.	Throughout the week, the children practice five previously learned flags and are introduced to five new ones. **Recommended activities:** recognising flags from descriptions, drawing, Olympics-style games, puzzles, memory card games, flag-themed Twister, etc. **We introduce Level II:** classification of flags according to specific characteristics. The flags should not be shown; for example: "On which flags is there a sun?", "On which flags is there a book?", etc. *This part of the programme is also carried out by parents.

COUNTRIES

Learning Dynamics and Objectives	**Repetition**
At the same time as learning the flags, we also teach the children about the countries these flags represent. We can also introduce the landmarks of these countries.	They learn the shape and size of the country. **Recommended activities:** puzzles, memory card games, etc. **We introduce Level II:** seriation by looking at a map: "Arrange the countries by size: Slovenia, Spain, and Russia." **We introduce Level III:** associations **Level I difficulty:** France – Eiffel Tower Norway – Santa Claus Italy – Leaning Tower of Pisa Australia – kangaroo **Level II difficulty:** Memory game with 12 or 16 cards (double associations). *This part of the programme is also carried out by parents.

CAR BRANDS

Learning Dynamics and Objectives	**Repetition**
At the same time as learning flags, we introduce the learning of car brands. Every week, the children learn five new brands.	Throughout the week, the children practice five previously learned car brands and are introduced to five new ones. **We introduce Level II:** classification, forming groups and subgroups of cars according to specific characteristics: “From which country is Toyota?”, “Which cars come from Italy?” *This part of the programme is also carried out by parents.

Symbols of abstract concepts (5-6 years)

VISUAL RECOGNITION OF WORDS AS WHOLE UNITS

Learning Dynamics and Objectives	**Repetition**
A few months after the start of the programme, we move on to word recognition. Children are shown the written word alongside a picture illustrating its meaning (e.g., the word “table” – picture of a table). Every week, they learn to recognize five new words. At this age, we focus on words with three or four letters.	Throughout the week, the children review five previously learned words and are introduced to five new words that start with a different letter. *This part of the programme is only carried out in educational institutions.

BRANDS OF WELL-KNOWN MANUFACTURERS (POPULAR CHILDREN'S PRODUCTS AND SPORTS CLUBS' LOGOS)

Learning Dynamics and Objectives	**Repetition**
After 2–3 months of learning flags, countries, and car brands, we can introduce the learning of new symbols, such as children’s products, sports club logos, etc.	*This part of the programme is carried out by parents, and is optional in kindergarten.

TRANSPORT SYMBOLS

Learning Dynamics and Objectives	**Repetition**
Part of the regular kindergarten program. We introduce games in which children, by assessing traffic situations, learn new traffic signs that they have not yet mastered.	*This part of the programme is already carried out in educational institutions on a daily basis. It is recommended that the parents carry out this part of the programme during walks, taking the bus, driving etc.

SYMBOLS OF ABSTRACT CONCEPTS

FLAGS

Learning Dynamics and Objectives	**Repetition**
Every week, the children learn five new flags. If children are in the first year of the program, they start by learning European flags. If they are in the second year of the program, they continue by learning the flags they did not study the previous year..	Throughout the week, the children practice 5-10 previously learned flags and are introduced to 5-10 new ones. **Recommended activities:** drawing, Olympics, puzzles, memory game cards, flag twister, etc. **We introduce Level II:** Flags are classified according to certain characteristics. The children must not see the flags while classifying them. For example, they should not be asked: “Which flags have the sun?” or “Which flags have a cross?”, etc. **We introduce Level III:** analogy An example question: "The Norwegian flag is, in comparison to the Finnish flag, similar to the Italian flag in comparison to the flag of ..." (One of the correct answers is Ireland.) *This part of the programme is also carried out by parents.

COUNTRIES

Learning Dynamics and Objectives	**Repetition**
At the same time as learning the flags, we also teach the children about the capitals of these countries.	In addition to the shape and size of each country, children also learn about their capitals and landmarks. **We introduce Level II:** classification by looking at the map: “Arrange the countries by size: Andorra, Russia, and Belgium.” **We introduce Level III:** associations **Level I difficulty:** France – Eiffel Tower Norway – Santa Claus Italy – leaning Tower of Pisa Australia – kangaroo

	Level II difficulty: The capital of Russia (cow moss), the capital of Slovenia, the capital of Indonesia (Uncle Jack card → Jakarta). **Level III difficulty:** Memory game with 16 or 20 cards (double associations). *This part of the programme is also carried out by parents.

CAR BRANDS

Learning Dynamics and Objectives	**Repetition**
At the same time as learning flags and countries, we introduce the learning of car brands/logos. Every week, the children learn 5-10 new brands.	Throughout the week, the children practice 5-10 previously learned car brands and are introduced to 5-10 new ones. **We introduce Level II:** classification, forming groups and subgroups of cars according to specific characteristics: “From which country is Toyota?”, “Which cars come from Italy?” “Where is Opel made?”; harder questions: “Which cars are made in France?” (name three) “Which cars are manufactured in Asia?” (name four) *This part of the programme is also carried out by parents.

Symbols of abstract concepts (5-7 years)

VISUAL RECOGNITION OF WORDS AS WHOLE UNITS

Learning Dynamics and Objectives	**Repetition**
Six months after the start of the programme, we move on to learning words. Children are shown the written word alongside a picture illustrating its meaning (e.g., the word "eye" – picture of an eye; the word "cow" – picture of a cow). Each week we learn five new words. During the first month, we learn five words each week that have three or four letters. During the second month, we learn five words each week with five letters. Then we continue with five words that begin with the letter A. The following week, we take five new words. The order of learning should follow the preschool program for learning letters. We choose words that have three to six letters.	Throughout the week, the children review five previously learned words and are introduced to five new words that start with a different letter. *This part of the programme is only carried out in educational institutions.

TRAFFIC SIGNS

Learning Dynamics and Objectives	**Repetition**
Children can learn these symbols either at home with their parents or in kindergarten, if there is enough time left for it.	*This is already part of everyday activities in kindergarten. It is recommended that parents also carry out this part of the programme during walks, bus rides, car trips, etc.

LEARNING AND PRACTICAL EXAMPLES

Reproductive learning involves acquiring knowledge in its final form, which can hinder the understanding of concepts or their content. This results in mere reproduction without connecting facts or developing functional knowledge.

With associative learning, we encourage the development of thinking, memory, reasoning, synthesis, and the application of learned material in new situations. Associative learning is not only important for memorizing a lesson but also forms the basis for later functional knowledge (double associations and mental classifications). By promoting this method of learning, we help children increase their level of functional knowledge.

Learning proceeds in the usual way: the learning material must be read so that the child receives the information and comprehends it. Instead of simple reproduction, children are encouraged to memorize the lesson by processing key words in one of the following ways:

- Hiding words within a sentence (e.g., *"SaLON, DoN't worry about it."* – LONDON)
- Word games
- Creating unusual or illogical stories from key words (short story technique)
- Transforming a rhyme into pictures/associations (linear)
- Presenting learning material as associative diagrams (hieroglyphs, Venn diagrams, mind maps, etc.)
- Creating riddle-like stories and questions (*"We don't see it when it walks, yet it still leaves a visible trace on the ground – who is it?" – Mole*)

Memory techniques

Short story technique (10 nouns)

Create a list of ten unrelated nouns, with every third being an abstract concept. Memorize them by dividing them into three groups: the first group with three nouns, the second with three nouns, and the third with four nouns. From each group, create a story. The more strange and illogical the story, the easier it will be to remember. Abstract concepts are usually harder to memorize, so we often "translate" them into concrete ideas (e.g., love → heart, idea → light bulb, hope → anchor). To make them easier to remember, the stories should be humorous, fantastical, and include elements of the impossible. The suggested time to learn ten nouns is about 90 seconds. Example for a seven-year-old

(nouns: grass, sun, nobility): The grass grew up to the sun, so the knight (association for the word 'nobility') placed a shield on the grass to protect it from the sun's heat.

Double Association Technique (20 nouns)

In this memory system, first assign an image/association to each number from 1 to 20 (based on appearance, phonetic similarity, or symbolism; e.g., 1 → rocket, 2 → swan, 3 → bird, etc.). Then link the written nouns to a specific number. For example, if the first noun is balloon, connect it with the number 1 (rocket) and create a story: The rocket launched but broke down, so it flew to Mars with the help of the balloon. This technique (which can be used during outings or free time) also includes memory games, following the system described in previous chapters for the NTC programme (double associations, mental classifications, and sub-classifications). Within this game (NTC puzzle), mental seriation is also developed alongside mental classification.

Foreign Language Word Learning Technique

By "transforming" unfamiliar foreign words into associations and creating pictures, a child can learn up to 20 new foreign words per day.

All the techniques mentioned above (and others discussed in the seminar) engage a greater number of synapses compared to reproductive learning, which leads to significantly better results. These techniques are covered in detail during the seminars.

Word games (mental classifications)

Hidden words in sentences

In this game, the target word is hidden across two consecutive words in a sentence. For example:
Find the name of an animal in the sentence:
"Please **grab it** from the shelf." → hidden word: **rabbit**

The last and the first word in the sentence

The children in the chain continue the story so that each child starts a new sentence with the last word of the sentence said by the previous child. For example:

In the meadow there was wind. The wind, through the air, carried leaves. The leaves fell onto the wet ground. The ground was full of walkers. (To be continued.)

Learning in motion

The brain is more active during movement, and the processes of learning and memory are more effective at that time. Some children find it easier to learn names, foreign words, new concepts, or songs while they are moving — for example, during a game of hopscotch (naming colours or, for instance, a domestic animal with each jump).

Word game

The children create a "word chain" by saying words one after another without interruption. The rule is that the last two letters of the previous word must form the beginning of the next word. The child who says a word whose last two letters the next child cannot use to make a new word is the winner. For example: **attack** → **acknowledge** → **general** → **album**

The children also create (even nonsensical) sentences using words that begin with the same letter or sound interesting together.
For example: **A man, a plan, a canal — Panama!**

She sells seashells by the seashore.
How much wood would a woodchuck chuck if a woodchuck could chuck wood?
Peter Piper picked a peck of pickled peppers.
Betty Botter bought some butter, but she said the butter's bitter.
If I bake this bitter butter, it would make my batter bitter.

Pictorial representations (mind maps, hieroglyphs, Venn diagram, concept maps, etc.).

Visual representations are a graphic way of presenting memory techniques, that is, associations. This technique helps children remember a poem or study material more easily through the use of pictures, drawings, symbols, and colours. Colours are extremely important because they stimulate certain areas in the cerebral cortex, which has a positive effect on the process of memorization. This technique is not only important for remembering texts but also for activating thought processes and encouraging students to think about how to represent certain concepts or parts of the study material through illustrations, diagrams, or visual materials.

Example 1
The student also recorded the lesson about Greek colonization using pictures, some of which served as associations to help him remember foreign words more easily.

Example 2
The pupils learned Oton Župančič's poem *Winter, Winter White* through associations, not by rote memorization. Four out of ten children, aged three, learned the poem after just a few repetitions. After one month, all the children in the group were able to recite and sing the poem. While looking at the pictures, pointing with their fingers, and reciting the poem, the children enjoyed themselves.

Example 3
Similarly, the children learned the counting rhyme *Baba sede v balon* in the same way.

Example 4
"One, two, buckle my shoe
Three, four, shut the door
Five, six, pick up sticks
Seven, eight, lay them straight
Nine, ten, a big fat hen"

Example 5
In class, the numbers are covered with flags, and then cities and landmarks are added as well. The short hand indicates countries, while the long hand points to cities. The clock can be used in various ways: linking the flag to the number (e.g., guessing which number is hidden under the picture), learning the differences between concepts (city – country, capital city), and connecting it with the digital representation of time.

Riddle questions

When creating riddle questions, it is important to follow certain rules and think about how to pose the question so that it is interesting and makes the child think for at least a minute.
Rule 1: Formulate a question that has only one meaningful answer.
Rule 2: Avoid questions that prompt mere listing.
Rule 3: Create a question that can be answered correctly even by someone who does not have all the information, as long as they have properly used and connected prior knowledge with what they have just heard.
Here are some examples of riddle-type questions, which differ from simple factual questions. For example, instead of asking:
"How big is a baby kangaroo?"
you could ask:
"What is this – you can place it in your palm, and as long as it is this size, it always stays in its pouch?"

Example 6

Why is the hedgehog an excellent swimmer?
Answer: The spines of this mammal are hollow. This question is educational because the child has to connect physics and zoology. After the answer, a discussion can follow about things that float in water.

How does the Turkmenistan flag differ from all other flags in the world?
Answer: It has the most symbols.
(Children often answer that the American flag also has many symbols. While it does have many stars, they all represent the same symbol.)

What is the connection between the number 11 and a giraffe?
Answer: A giraffe's heart weighs 11 kg.

Why didn't Primož Trubar eat potatoes, even though he was born in Raščica, where the soil is fertile?

Answer: Potatoes were brought to Slovenia by Maria Theresa in the 18th century, but Primož Trubar lived from 1508 to 1578.

What is the connection between a seashell and a knight?
Answer: Both have armour.

AUTHOR'S RECOMMENDATION

The NTC-programme is implemented simultaneously with other activities that take place, for example, during walks, trips, at home, in the yard, in the forest, in the park, etc. In educational institutions, schools, and kindergartens, NTC techniques are integrated into regular activities. Questions often arise: *"How can we find 15 extra minutes for the NTC-programme when, following the regular work plan, we have no time for additional activities?"* or *"How can we do extra work according to the NTC-programme when we barely manage to complete the existing program?"*

It is important to understand that NTC methods do not require extra time and do not interfere with the regular schedule or work plan. Instead, they facilitate learning, understanding, and memorization of information and — most importantly — activate the processes of thinking and reasoning.

Everyone involved in raising and educating children must responsibly take on their role, especially parents. It is not enough to have knowledge; one must also have the wisdom and willingness to apply that knowledge. Therefore, as a final piece of advice for parents: devote your time to your children already in early childhood, because in the very next moment, your children will be grown up!

MENSA RECOMMENDATION

Before us is a handbook in which the author presents the problem from a different perspective — from the viewpoint of medicine — and successfully demonstrates how a child's everyday activities, especially forgotten games (like hopscotch, marbles, elastics, rotation exercises, blind bats, hide-and-seek, day and night, etc.), along with conversation, questioning, or curious exploration, contribute to the child's systematic and intellectual development.

Research has shown that a child's intellectual abilities depend on the number of connections (synapses) in the brain. If we stop neglecting this important fact, we can confidently state that parents must take responsibility and help their child reach their potential, especially considering that more than 70 percent of synapses develop by the age of seven. This is a crucial piece of information, showing clearly that we need to engage seriously with children before they start school, as only then can we avoid losing very valuable developmental time. The importance of this period is also emphasized by numerous studies, which clearly show that the time and effort invested in a child's education during the preschool years have a significantly greater impact than in later years.

In the first stage of the program, the author highlights the importance of developing motor and graphomotor skills, which support not only the physical development of children but also their intellectual growth. Through these activities, children discover the best solutions for overcoming obstacles, unconsciously develop coordination and spatial awareness, and thereby increase the number of synapses. In many preschool and school systems, such games — especially rotation exercises, jumping, and graphomotor activities — are unfortunately neglected, to the detriment of children and their holistic development.

For this reason, the author of the book offers very simple and useful motor and graphomotor exercises that stimulate physical development and, according to recent research, also positively influence a child's mental development.

The second stage includes a variety of activities, ranging from recognizing abstract concepts to connecting them and skilfully mastering abstract classifications, seriation, and associations. Most children spontaneously recognize abstract symbols, but they lose interest in them because parents often do not know how to guide them to a higher level, which is extremely stimulating for the creation of new synapses. At this stage, the author presents the transition to more advanced forms of abstract classification and seriation in a new and simple way, forming the basis for the development of mathematical and logical intelligence. Exceptional didactic games, such as the NTC puzzle and memory cards, have even been created for this part of the program.

The third stage focuses on the development of functional thinking, in which, according to all international tests, our children lag behind. Therefore, this part of the program is essential if we want to catch up with the educational systems of developed countries. One solution is the use of riddle-type questions (stories), which children enjoy solving and through which they develop functional thinking. This approach is a novelty in the preschool systems of many European countries.

In summary, we have an exceptional, in many ways new and revolutionary program, which is already producing positive results in numerous countries across Europe (Slovenia, Serbia, Czech Republic, Italy, Switzerland, North Macedonia, Bosnia and Herzegovina, Hungary, Croatia, etc.).

Dušan Šubic, Section for Gifted Children, Mensa Slovenia

ABOUT THE AUTHOR AND THE NTC-LEARNING PROGRAMME

Ranko Rajović, born in 1964 in Belgrade, is a specialist physician, founder of Mensa Yugoslavia (today Serbia) and the Department for Gifted Children at the NTC (Nikola Tesla Center), and a member of the board of the international Mensa organization for the gifted (president 2010–2012). His experiences with some of Mensa's most successful members are connected to personal and social understandings of giftedness, their upbringing, education, and the challenges they faced in achieving their goals. These valuable insights were used by the author when designing the NTC-learning programme.

Since 2015, Rajović has been working at the Faculty of Education in Koper, University of Primorska. Between 2011 and 2015, he was an external expert collaborator at the Centre for Gifted Children, Faculty of Education, University of Ljubljana. He is also an international collaborator with UNICEF in the field of education and has participated in several European Union educational projects. He has integrated numerous experiences into the NTC-programme.

Experience from multiple countries and results with preschool children demonstrate the usefulness and practicality of the program: children show rapid progress, and parents fully support this approach and method of work.

The program is accredited at the national level by ministries of education in Serbia, Slovenia, Croatia, North Macedonia, Bosnia and Herzegovina, Montenegro, and the Czech Republic. In other countries, the program is implemented in collaboration with educational institutions (Italy, Sweden, Poland, Switzerland, Slovakia, Romania, Iceland, Hungary, Bulgaria, Greece).

Ranko Rajović received a prestigious award from the international Mensa organization (MERF – Mensa Education and Research Foundation) for the NTC program, in recognition of contributions to the development of society as a whole. The award acknowledges the entire NTC team, which for many years has been researching contemporary trends in pedagogy and neuroscience. The team collaborates with hundreds of teachers and researchers, has produced more than 20 studies, and in the last five years over 30 papers and research projects on the NTC-learning system have been published.
The NTC program has been implemented in Slovenia since 2010. Training sessions, held at the Faculty of Education in Ljubljana or at the participants' home institutions, have so far been attended by educators and teachers from 30 Slovenian towns, including Brežice, Maribor, Ormož, Miklavž, Podlehnik, Ptuj, Celje, Dobrna, Ajdovščina, Most na Soči, Ilirska Bistrica, Koper, Lucija, Grosuplje, Novo mesto, Ivančna Gorica, Polzela, Piran, Rogaška Slatina, Ljubljana, Nova Gorica, Kranj, Velenje, Dobova, Ruše, Dutovlje, Dol pri Ljubljani, Vodice, Izola, Litija, Škofja Loka, and others.

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Prevod

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