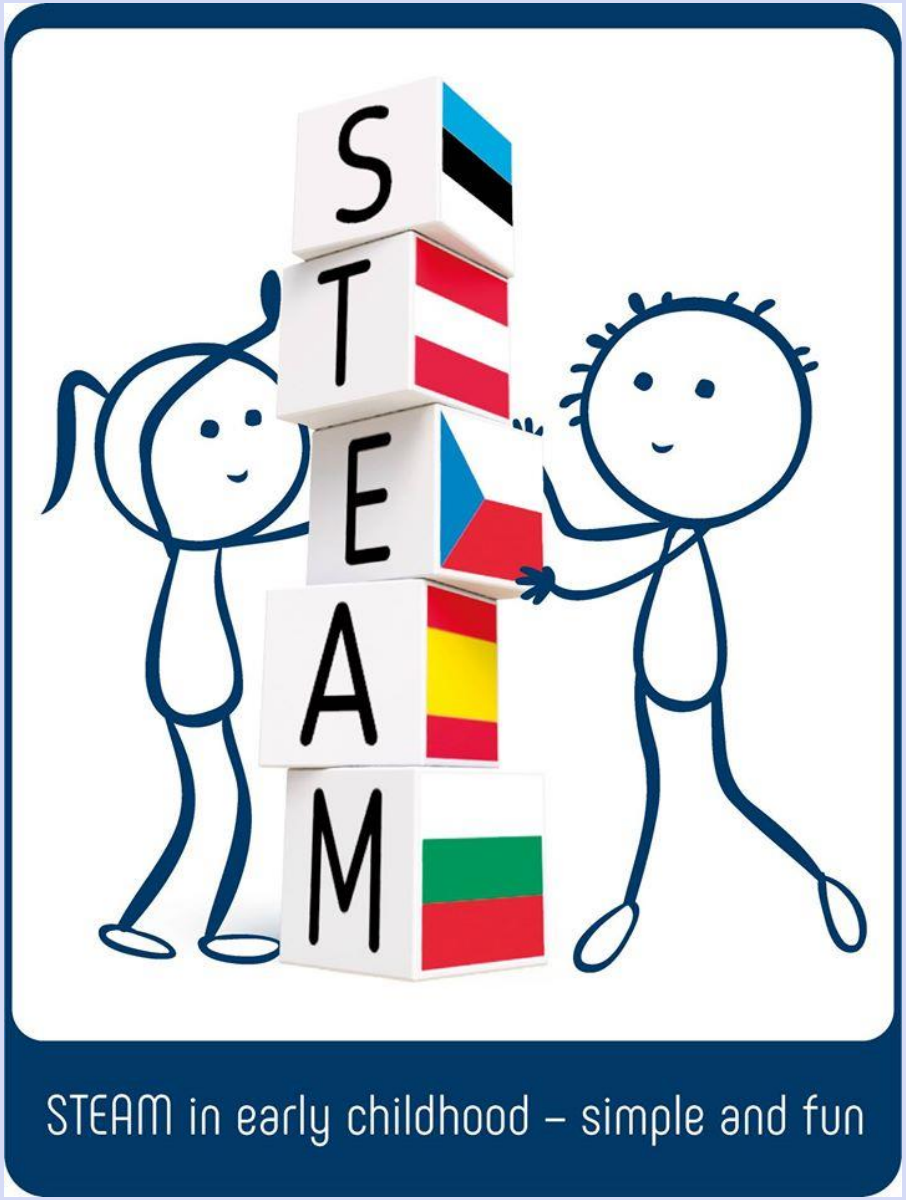

STEAM ACTIVITY BOOK FOR TEACHERS

Exchange of good ideas when supporting STEAM skills in early childhood – in co-operation with teachers from Bulgaria, Czech Republic, Estonia, Latvia and Spain.

STEAM in early childhood – simple and fun! (2019-1-EE01-KA229-051723)

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Dear colleagues from Europe and all over the world!

Early childhood education is an educational field that is most relevant for child's development. Nowadays, when we talk about teaching children's skills that they will need in future occupations that are not even existing at the moment, we have to carefully take into consideration how we see childhood and its aspects at the moment but also think ahead what we can do to prepare children for their future. This is the reason why five kindergartens, from Bulgaria (CDG Pinokio - Ruse), Czech Republic (Mateřská škola a školní jídelna Chotětov), Estonia (Tallinna Virmalise Lasteaed), Latvia (Rezeknes pirmsskolas izglitibas iestade "Vinnijs Puks") and Spain (Francisco Grangel Mascarós) decided to focus on enhancing children's STEAM (science, technological, engineering, arts and math) skills by using outdoor learning environment. In every learning situation child can explore his skills and knowledge to solve problems, develop critical thinking and real communication with peers.

Strategical partnership project **"STEAM in early childhood – simple and fun!"** involves five kindergartens from different European countries, with almost 70 teachers and nearly 600 children and their parents.

On behalf of our international team:
Kerli Stein (Estonia), Inta Ozolniece (Latvia), Tzenka Todorova (Bulgaria),
Markéta Vosyková (Czech Republic) and Maria Noel Manzanares (Spain)

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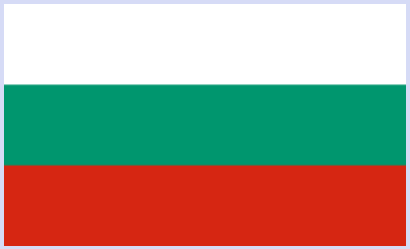

IDEAS FROM BULGARIA

Age of children: 3 years	**Theme: "Autumn Magic"**
Learning activities objectives	
General- and playing skills (thinking skills): 1. Skills for joint play.	*Social skills:* 1. Gaining of basic ecological culture.
Environment, science: 1. Awareness of the significant changes in nature in the autumn.	*Language skills:* 1. Recognize and name the "gifts of autumn" - leaves, cones, fruits, vegetables. 2. Interact with children from other groups.
Maths and engineering: 1. Group autumn leaves by colour and size. 2. Count and recognize autumn fruits and vegetables.	*Technological and digital skills:* 1.Introduction to an interactive toy - the bee "Bee - Bot".
Music and movement: 1. Coordinate body movements according to music. 2. Perform imitative movements - a bear, a rabbit, a squirrel.	*Art skills:* 1. Make objects from natural materials. 2. Arrange an exhibition of objects made together with parents at home.

	First day	**Second day**	**Third day**	**Fourth day**	**Fifth day**
STEAM areas that are specific for a concrete day	Assimilation of knowledge for the autumn season.	Practically examine the shape and size of objects - leaves, fruits, acorns and more.	Perform rhythmic movements in a circle and in a row. Produce imitative sounds of birds and animals with children's musical instruments.	Introduction to an interactive toy - the bee "Bee - Bot".	They create objects from different natural materials. String, with the help of the teacher, elements.

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Preparatory activities by teacher	Preparatory activities by teacher Development of didactic and interactive materials on the topic - boards, presentations.	Providing natural and didactic materials.	Musical instruments provided. Selected thematic music.	Drawing a diagram of the movement of the bee.	Creating samples of different objects.
Necessary materials for the activities	Necessary materials for the activities from natural materials - leaves, cones, acorns, fruits, vegetables.	Leaves, fruits, acorns, vegetables, fruits.	Musical instruments.	A bee.	Natural materials - leaves, cones, acorns.
Learning activity (what did you do during this concrete activity- games etc.)	Realize the difference between fruits and vegetables through different receptors - taste, smell, tactile sensations.	Count up to 3. Distinguish one and many objects. They compare two subject groups and name them.	Recognize auditory sounds of different birds. Development of musical - rhythmic feeling.	They get acquainted with the functions of the bee. Learn basic digital skills.	Development of fine motor skills and coordination of movements. Reproduce the sequence shown by the teacher to create the model.
How did children analyse what they did in the activity? In their own words, what did they learn?	The children participate with desire, interest and enthusiasm in the activity.	They have strong-willed attention and elementary mathematical thinking.	They experience emotional satisfaction from the activity.	They experience happy feelings. They show a desire to handle it.	They include the made objects in their game activity.

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Age of children: 4 years old	**Theme: „Teddy bear's birthday "**
Learning activities objectives	
General- and playing skills (thinking skills): 1. Describing s toy by provided supporting words.	*Social skills:* 1. Makes friends. 2. Emotionally involved in the celebration of the holiday.
Environment, science: 1. Perceives knowledge about the importance of personal celebration - birthday.	*Language skills:* 1. Participates in dialogue. Uses extended sentences.
Math and engineering: 1. Finds the order of an object in a line of three subjects.	*Technological and digital skills:* 1. Strengthening programming skills – using „Bee – Bot".
Music and movement: 1. Participate in musical game and imitates movements.	*Art skills:* 1. Makes toys from recycled materials.

	First day Science	**Second day – Math**	**Third day Music**	**Fourth day- Technology**	**Fifth day Art**
STEAM areas that are specific for a concrete day	Participate actively in a conversation about the description of a toy and its characteristics.	Compare two groups of objects, up to 5 in a group, and name them correctly.	Participate in musical game through imitative movements and send a musical birthday greeting.	Strengthen and expand programming skills with an interactive bee "Bee - Bot"	Making toys from recycled and natural materials.

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Preparatory activities by teacher	Provides didactic materials and soft toys for description. Preparing a presentation.	Providing didactic materials, boards, presentation, numbers.	Music recording.	Drawing a diagram for the movement of an interactive bee "Bee - Bot".	Sample models.
Necessary materials for the activities	Soft toys, interactive whiteboard.	Provided digits of numbers. Magnetic board. Backgammon.	Music recording, birthday celebration accessories.	Provided interactive bee "Bee - Bot".	Wooden sticks, cones, wooden spoons, paper elements - eyes, ears.
Learning activity (what did you do during this concrete activity-games etc.)	Meaning of the personal holiday - Birthday. Proper pronunciation of specific sounds and words.	They develop visual and mathematical thinking. They work in a team.	They play a melody according to their individual abilities. Shows empathy.	Development of digital skills.	Development of fine motor skills and coordination of movements. Join elements by gluing. They work in a team.
How did children analyse what they did in the activity? In their own words, what did they learn?	The children participate with desire, interest and enthusiasm in the activity.	They have strong-willed attention and elementary mathematical thinking.	Experiencing emotional satisfaction from participating in the activity.	They experience happy feelings. They are willing to deal with new technologies.	Include newly created toys in the games.

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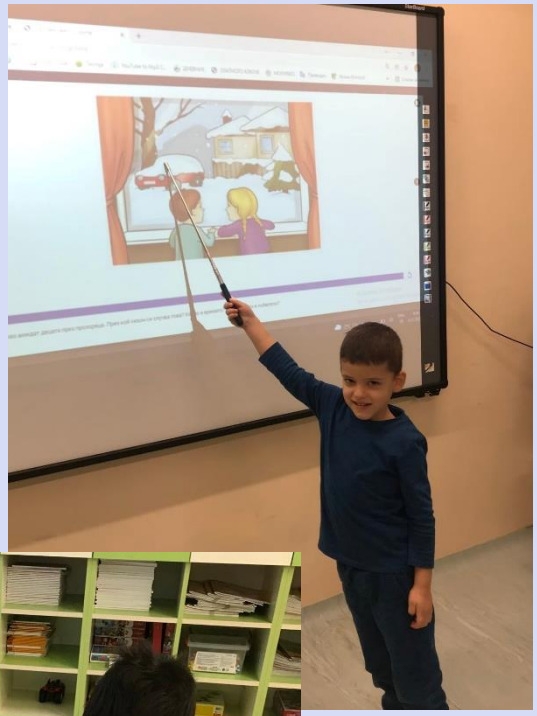

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Age of children: 5 years old	**Theme: “Rights and Obligations’’**
Learning activities objectives	
General- and playing skills (thinking skills): 1. Systematization of knowledge, creating values and mastering patterns of behaviour	*Social skills:* 1. Expressing attachment to kids and adults in the family and their surroundings. 2. Knowledge of content of the national symbols. Recognizing, naming some European countries.
Environment, science: 1. Outlining obligations they have towards their relatives and themselves.	*Language skills:* 1. Naming the country, city and street they live on. 2. Pointing out qualities, characteristics and disadvantages in people.
Math and engineering: 1. Following established patterns of communication with adults. 2. Awareness of family relations and being a member of the family.	*Technological and digital skills:* 1. Consolidating knowledge using interactive displays to express their rights and obligations towards their country and their families. 2. Gaining knowledge and getting skilled at working with “Envision” software product.
Music and movement: 1. Performing the national anthem of Bulgaria and the anthem of the kindergarten. Recognizing the anthem of the European Union.	*Art skills:* 1. Children and families together create an exhibition with drawings on the topic “My rights and obligations”.

	First day	**Second day**	**Third day**	**Fourth day**	**Fifth day**
STEAM areas that are specific for a concrete day	Developing knowledge, skills and relationships in connection with the execution of civil rights and obligations in society.	Determine the number of members of their own families and applying it to the figure of the actual number, dividing members into males and females.	Learning and performing the national anthem of Bulgaria and the anthem of the kindergarten. Recognize the anthem of the European Union.	Introduction to the software’’Envision’’- multiple mice on a PC.	Children and their families together create drawings depicting rights and obligations in the family.

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Preparatory activities by teacher	Providing didactic materials, digital devices, interactive board, interactive table, software product “Envision”.	Providing didactic materials, digital devices – interactive board.	Records of the anthems.	Creating content that will be used in exercises with “Envision”.	Providing guidance during exercises.
Necessary materials for the activities	Creating a presentation on the topic.	Providing the figures of numbers, a magnet board and a table.	Theoretical knowledge about the author and composer of the anthems.	Providing devices for individual exercises to each of the children.	Motivating parents to support their children.
Learning activity (what did you do during this concrete activity- games etc.)	Take an active part in exercises, being positive and playful.	Developing logic thinking. Work in a team.	Displaying a sense of patriotism and nationality.	Developing digital skills.	Developing fine motor skills and coordination of movement. Creating a productive relationship with parents.
How did children analyse what they did in the activity? In their own words, what did they learn?	Children taking part in exercises with interest and enthusiasm.	Children have developed volitional attention and basic mathematical thinking.	Children experience emotional satisfaction while performing exercises.	Children experience feelings of joy. They express desire to use technology and devices.	Children create an exhibition of drawings.

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Age of children: 6	**Theme: The song of the birds**
Learning activities objectives	
General- and playing skills (thinking skills): 1.Learning through play.	*Social skills:* 1. Care to protect birds during the winter. 2. Teamwork. 3. Getting acquainted with the work of environmental organizations. 4. Strengthening the child-parent relationship by sharing interesting experiences organized by the kindergarten.
Environment, science: 1. Observation of permanent bird species. 2. Awareness the way in which the change of living conditions in winter affects the birds. 3. General introduction to the science of Ornithology.	*Language skills:* 1.Names of permanent bird species. 2. Names of environmental organizations. 3. Names of terms in Ornithology- Burt Guide, Bird Watching Journal, permanent species, binoculars.
Math and engineering: 1. Graphic modelling of the bird song. 2. Introduction to keeping a Bird Watching Journal. Record the observations made.	*Technological and digital skills:* 1.Making a bird feeder. 2. Working with an interactive whiteboard. 3. Working with binoculars.
Music and movement: 1. Singing the song of the birds. 2. Performers of „Song of the Sparrow" with typical characteristics movements. 3. Mobile games – "Bird on a wire", "Every bird in its nest", "Catch the sparrow", "Bird on a tree". 4. Development of fine motor skills.	*Art skills:* 1. Artistic performance of the songs. 2. Artistic reproduction of the song and the movements of the birds.

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	First day	Second day	Third day	Fourth day	Fifth day
STEAM areas that are specific for a concrete day	Language skills *General- and playing skills (thinking skills)* *Social skills* *Environment, science* Technological and digital skills	Language skills *General- and playing skills (thinking skills)* *Social skills* *Music and movement* *Art skills*	Language skills *General- and playing skills (thinking skills)* *Social skills* *Environment, science* *Technological and digital skills*	Language skills *General- and playing skills (thinking skills)* *Social skills* *Math and engineering* *Music and movement.*	*Social skills* *Environment, science* *Math and engineering* *Music and movement*
Preparatory activities of the teacher	Preparation of a presentation on the permanent bird species observed in the city.	Organizing of the yard for the games.	Providing materials for making a bird feeder. Preparation of a presentation showing the algorithm for making a bird feeder.	Introducing children to the way of using Bird Guide.	Preparation of the Bird Watching Journal for children. Introducing children to the activities of environmental organizations.
Necessary materials for the actvities	Cards with images of bird species White magnetic board. Interactive whiteboard.	Cards with images of bird species White magnetic board	Plastic bottle, twine, stick, lighter, candle, scissors, row sunflower seeds.	Cards with images of bird species. Bird Guide.	A Bird Watching Journal – sheet for every child, stickers with images of different species of birds, binoculars, Bird Guide
Learning activity (what did you do during this concrete activity-games ect)	Getting acquainted with the species, characterizing their song – high, low. Graphic modeling of the bird song. Guessing the birds from their song – showing cards,	Singing „Song of the Sparrow “. Mobile games - – “Bird on a wire”, “Every bird in its nest”, “Catch the sparrow”. Bird watching in the yard of the kindergarten. Marking the results of the observation with the cards on the	The algorithm for making the bird feeder is projected on the interactive board. The necessary materials for making the feeders are distributed in the yard. The children are divided into groups	The children are in the yard and are divided into teams. Each team is given a card with a picture of a bird to find in the Bird Guide. The team that first finds his bird sings its	The children are at the city park with their parents. Each child receives a Bird Watching sheet, bird stickers to put in the sheet if they see them. Observation with binoculars, comparison in the Bird Guide.

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	marking them on the interactive whiteboard	board. Getting acquainted with the binoculars and how to handle it.	and elaborate bird feeders. Together with the teacher they choose suitable places for their placement.	song and wins the game.	Mobile games with parents: “Bird on a tree”, „Catch the sparrow“. Quiz with prizes provided by environmental organizations.
How did children analyse what they did in the activity? In their own words, what did they learn?	I learned which birds I can see during the winter. I recognize their songs. I use the interactive whiteboard.	I learned a song about the sparrow. I played interesting games and found out where the birds live. I understood what binoculars are and how to handle them.	I understood how I can protect the birds in the winter. I learned how to make a bird feeder, where it is appropriate to place it. I worked in a team and I liked it.	I learned how to use a Bird Guide. I worked in a team and I liked it.	I made my first Birdwatching. I played interesting games with mom and dad. I know a lot about birds and I learned how to recognize them by their song. I found out which organizations take care of the protection of birds.

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IDEAS FROM CZECH REPUBLIC

Dragons and squirrels

12 children, Age 3-4 years

Aids - ribbons, cones, circles, arrows, benches, ropes

Aim - development of physical and mental fitness, orientation in space, breaking the fear of failure, strengthening locomotor skills

Processing
Welcome rhyme with movement “Hello”.
First, the children played on dragons with a long tail, which was replaced by coloured ribbons. Running alternated with walking in a circle with a ribbon over his head. A warm-up session followed. The children went through the “Dragon Track” - climbing the bench on their knees, slalom between the cones, crossing the stone wall, and finally walking from circle to circle using the arrows.

“Squirrels” - the children were divided into two teams (each had its own house). The principle of the game is collecting cones (always one at a time) and orientation in space. The team with more cones wins. At the end, there was a relaxation, during which the children again played squirrels, which were hiding from the dragon. They squatted their eyes and ears.

Conclusion - The children enjoyed the outdoor activity a lot, everyone got involved in the activity. Exercising in the fresh air is beneficial for the child’s body.

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My friend

10 children, Age 4 - 5 years

Objective and description of the activity

The aim of the activity was to create a friend from nature. First, the children in the kindergarten garden collected natural products, which they decided to create. Then they chose two friends from the team - a boy and a girl. They lay down on the grass and the task of the other children was to line their characters with chestnuts and pine cones. Then, with the help of the teacher, the mannequins rose and the children completed the figures according to their imagination. They trained fine motor skills and visual orientation. An important point was collective work and the involvement of imagination.

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Autumn decorations

Children 17, Age 5 – 6 years

The aim of the outdoor activity was to create autumn decorations from nature. First, the teacher introduced the children to the task. Then the children picked leaves in the garden, picked up small apples and chestnuts. The children then brought the nature material to the pergola and the first group of children tied a bouquet of leaves and the second group of children put small apples and chestnuts in a large glass. The result was an amazing autumn decoration and happy children and the teacher. We all just enjoyed a pleasant morning in the kindergarten garden.

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IDEAS FROM ESTONIA

Age of children: 3-5 years	**Theme: Group "Explorers" searching for clouds!**
Learning activities objectives	
General- and playing skills (thinking skills etc) 1. Children build a cloud plane out of Legos.	*Social skills*: 1. Children walk in a line behind each other on the street.
Environment, science: 1. Children observed clouds outside every day: colour, speed, shape. 2. Viewing a book about the cloud.	*Language skills:* 1. Children use complete sentences to explain concepts. 2. Children describe clouds using adjectives.
Math and engineering: 1. Children distinguish between circle, square and triangle. 2. Children sort geometric shapes in pairs.	*Technological and digital skills:* 1. Bluebot educational game "Move to the right cloud". 2. Outdoor activities with the Bluebot robot.
Music and movement: 1. A walk in the surroundings - "Cloud hunting"	*Art skills:* 1. Fantasy drawing in the sandbox "Cloud plane" 2. The child cuts a cloud out of paper according to the line.

	First day	**Second day**	**Third day**	**Fourth day**	**Fifth day**
STEAM areas that are specific for a concrete day	Technology	Language skills	Art	Environment and science, also music and movement	General- and playing skills
Preparatory activities by teacher	Prepare Bluebot	Take a book outside.	Searching for natural materials with children.	Talking to children about how to navigate traffic.	Making Legos for children. Sitting together on the carpet.

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Necessary materials for the activities	Bluebot and stand.	Listening to and watching the book "On the Clouds" in the room.	Drawing a "cloud plane" in the sand	Reflective vests	Legos and fantasy
Learning activity (what did you do during this concrete activity- games etc)		Sitting together and watching pictures.		Holding hands and moving in a line behind each other.	The child imagines a plane to fly on a cloud.
How did children analyse what they did in the activity? In their own words, what did they learn?	With questions	With daily observations.	Children themselves looked for resources from nature.	A conversation about safe movement on the street.	By stacking Legos, using shapes.

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Age of children: 6-7 years	**Theme: Wild animals live in Estonian forests and the habitat of animals is the forest.**
Learning activities objectives	
General- and playing skills (thinking skills etc.): 1. The child has a positive attitude towards learning, wants to learn, explore, ask questions, discover and experiment. 2. The child creatively applies his experiences and knowledge in games.	*Social skills*: 1. The child can consider others and cooperate. 2. Shows help to a companion and asks for it himself if necessary.
Environment, science: 1. The child knows and describes the nature of his home place, the most famous trees, plants, animals. 2. Can explain why light, temperature, water, soil and air are important for plants, trees and animals.	*Language skills:* 1. The child understands the content of what he heard and can react appropriately to it. 2. The child knows the letters and adds 1-2 syllable words and can write them.
Math and engineering: 1. The child knows the length measurements cm, m and km used in everyday life and measures the length with the agreed measuring device. 2. The child can create a mathematical game using length measurements.	*Technological and digital skills:* 1. The child can orient himself on a paper. 2. The child knows how to use and run the educational robot Ozobot.
Music and movement: 1. Forest sounds. 2. Move like a forest animal.	*Art skills:* 1. The child prepares himself or chooses suitable motifs or tools for designing objects based on the work. 2. The child concentrates on the activity he has started and creates his own work of art.

	First day	**Second day**	**Third day**	**Fourth day**	**Fifth day**
STEAM areas that are specific for a concrete day	I and the environment, science and digital skills - observation of a plant, plant parts, find the right word or plant part with a digital tool.	Mathematics - measuring lengths, widths (indoors and outdoors).	Art - Designing wildlife using natural means.	Experiments - Skittles with candies (a rainbow of colours), milk, colours and soap (soap repels bacteria). Walking water,	Engineering - designing a group name tag, from natural material.

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				an experiment with coloured water and household paper.	
Preparatory activities by teacher	The teachers went to collect plants with the children and guided the children in cleaning the roots and making the herbarium.	The teachers provided different measuring tools with which the children measure different lengths and widths.	The teachers provided various natural materials with which the children could design wild animals.	The teachers provided only the necessary tools and guided the children based on the given instructions.	The teachers provided the necessary tools and helped in applying the hot glue.
Necessary materials for the activities	Plants, words (plant parts), educational robot.	Measuring tools (tapes, rulers, measuring tape).	Image of wild animals, natural material (different moss, pine needles, cones).	Skittles candies + warm water. Milk + food colours, soap. Cups with coloured water + paper towel.	Recycling - bed end (as a base) + washers/wheels made of dried branches of an old birch tree.
Learning activity (what did you do during this concrete activity- games etc)	Each child picked a few different plants from nature, together with their roots, during the group walk. Arriving at the kindergarten, the child cleaned the roots of the plants he had picked and placed the plant on a piece of paper, which he secured with tape. After confirming the plant, the children received a piece of paper on which the names of plant parts (flower, leaf, stem, fruit, root) were written correctly and incorrectly, in five different variants. Children find the correctly written option and	We discover with the children that there are different measuring tools, you can measure with a step, a string, a ruler or a measuring tape. We divide the children into pairs using different measuring tools (for example: string + measuring tape), the children measure different objects in their pairs and in the group room. The measurement continues outside as well, where the children determine the lengths and widths of various objects. Later, the	Children freely design the image of a wild animal of their choice, using their own creativity and various natural materials. Later, the children completed their work with gouaches (painting the background and adding colour to the fox). After counting, the children were divided into groups. One group made a large format image of a wild animal and the others did the	The children were divided into two groups by counting consecutively. The first group started the experiment with Skittles candies and the second group started the experiment with milk, after which there was an exchange. Then a joint experiment with coloured water and paper.	The children test and try, design and stack the pre-determined wooden discs on the base, the group name is "Travellers". Later, with the help of the teacher, the wooden discs are laid out on a wooden base and glued with hot glue.

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	guide the robot to the correct answer, then also write the correct answer to the part of the plant. This continues with all five titles.	children prepare the mathematical problem "How long is the wild animal's path to the nest" on paper and exchange the problem with their partner, who also solves it.	same thing individually.		
How did children analyse what they did in the activity? In their own words, what did they learn?	We directed the children to notice the different plants around us and experience through observation that each plant has a root system, which is also very different in size. Children learned about plant parts (root, stem, leaf, flower, fruit). We also instructed the children to find the correct word (plant part) among the misspelled words. We confirmed what we had learned with Ozobot, where the educational robot had to follow a predetermined path to the correct word.	We guided the children to notice when measuring that you always need to know the start and end point of the measurement. If you start measuring from the wrong point, you will get a completely different measurement. The children also had a new experience, to solve a mathematical measurement task prepared by another child (how far does the fox have to walk to reach its den).	We allowed the children to design a fox with several different natural materials. We directed the children to notice different forest materials so that the children could get an idea in which environment is the actual habitat of the fox.	We directed the children to notice the movement of water and colour and relate it to what happens in nature (water consumption of trees and plants and movement from the roots to different parts of the plant).	We guided and taught the children to notice the different sizes of discs cut from birch tree branches and use them to form letters on a given basis. We drew the children's attention to notice the size and placement of the letters on the given base.

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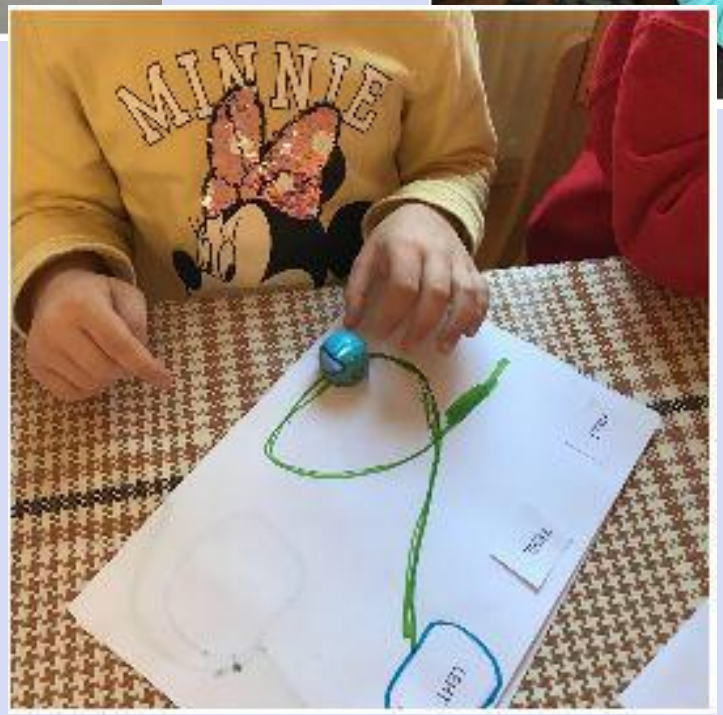

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IDEAS FROM LATVIA

Age of children/ bērnu vecums: 5 – 6	**Theme/ tēma: STEAM week**
Learning activities objectives/ Aktivitātes mērķis/ sasniedzmais rezultāts	
General- and playing skills (thinking skills/ visparīgās/rotaļāšanās prasmes): 1. Cooperation skills. 2. Reflection of imagination in creative works.	*Social skills/sociālās prasmes:* 1. Work in pairs. 2. Group work.
Environment, science/vide/ zinātne: 1. What is the zodiac constellation. 2. Personal constellation.	*Language skills/valodas prasmes:* 1. Letters and their meaning. 2. Country names.
Math and engineering/matemātik/inženierzinātnes: 1. Subject comparison. 2. Construction.	*Technological and digital skills/tehnoloģiju un digitālās prasmes:* 1. Folding technique. 2. Work with natural materials.
Music and movement/ mūzika/kustības: 1. Listening to music of other nations. 2. Watching and trying to repeat other nations dances.	*Art skills/mākslas prasmes:* 1. Drawing diversity. 2. Drawing technique under the table.

	First day/ pirmā diena	**Second day/ 2 diena**	**Third day/3 diena**	**Fourth day/4 diena**	**Fifth day/5 diena**
STEAM areas that are specific for a concrete day/ STEAM	S – science.	T – technology.	E – engineering.	A – art	M – math

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jomas, kas ir raksturīgas katrai konkrētai dienai					
Preparatory activities by teacher/ Sagatavošanās aktivitātes skolotāja vadībā	Setting project tasks. Explored the map with flags. Took white A4 pages. Took color pencils. Explored the zodiac constellation map. Took a black cardboard sheet. Took a white chalk.	As Latvia's birthday approached, the children had to create decorations for the group. Took a pencil case. Took white and red A4 pages. Took a sample "Auseklītis". Took natural materials – chestnuts, cones, acorns.	Took different types of constructors. Took plastic containers. Took animal figurines.	Free up space around table. Took wax crayons. Took drawing A4 pages. Lie on your back under the table.	Took a chair and place it so that it is comfortable. Took A4 pages. Took a ruler. Took a pencil. Took the buttons. Took a scissors. Took a glue. Took the color pencils.
Necessary materials for the activities/ Nepieciešamie materiāli aktivitātes īstenošanai.	Map with national flags. White A4 pages. Color pencils. Page with zodiac constellations. Black cardboard sheets. White crayons. Page with rocket image.	Pencil case. Red and white A4 pages. Sample “Auseklītis”. White and red crepe paper. Natural materials - chestnuts, cones, acorns.	Different types of constructors. Plastic containers. Animal figurines.	Wax crayons. Drawing A4 pages. Table	Chair. White A4 pages. Ruler. Pencil. Buttons. Scissors. Glue. Color pencils.
Learning activity (what did you do during this concrete	Spell what symbolizes each letter of the word. Create schematic image.	Task 1 – origami hearts using a folding technique. The children, learning from the teacher, each folded their hearts with interest and joy.	Task of the day – create your own amusement park for the zoo animals.	Task of the day – picture drawing while lying on back.	Task 1 - Divide the page into 10 parts using a ruler. Type a number from 1 to 10 in each

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activity- games etc.) Mācību aktivitātē- ko jūs darījāt šīs konkrētās aktivitātes laikā- spēles utt.?	Make the plan of the week with different activities. Make an inter – subject connection. All about the stars: 1. What stars are; 2. How constellation is created; 3. What is my personal constellation? Driving personal constellation.	Task 2 – "Auseklītis", a symbol of Latvian culture. Each child had to decorate their own "Auseklīti", choosing the technique in which to do it. Some children chose the tearing technique, others the rolling. The "Auseklīši" were beautifully filled. To improve the understanding of the meaning of STEAM letters, the 3rd task was to create the word STEAM from natural materials.			box. Take the buttons and group them by number, shape, color. Task 2 - to create a pet cat from geometric shapes rectangle, quadrangle, circle, triangle. Think of a name for a cat.
How did children analyze what they did in the activity? In their own words, what did they learn? /Kā bērni analizēja paveikto? Pēc viņu pašu vārdiem, ko viņi uzzināja?	The children learned what the flags of other countries look like. Everyone learned their zodiac sign and constellation. Also compared it with them friends. With pleasure painted a rocket image.	The children learned to fold a paper heart. They watched with pleasure how hearts beautiful looks like own group decorations.	The children themselves figured out what the animal home would look like. They understood that constructors can be used for a different purpose.	The children learned a new drawing technique. This activity was full of joy.	Working with the buttons was something new for the children. The buttons aroused interest and wish to work more. It was interesting for the children that from geometric shapes they can make a cat.

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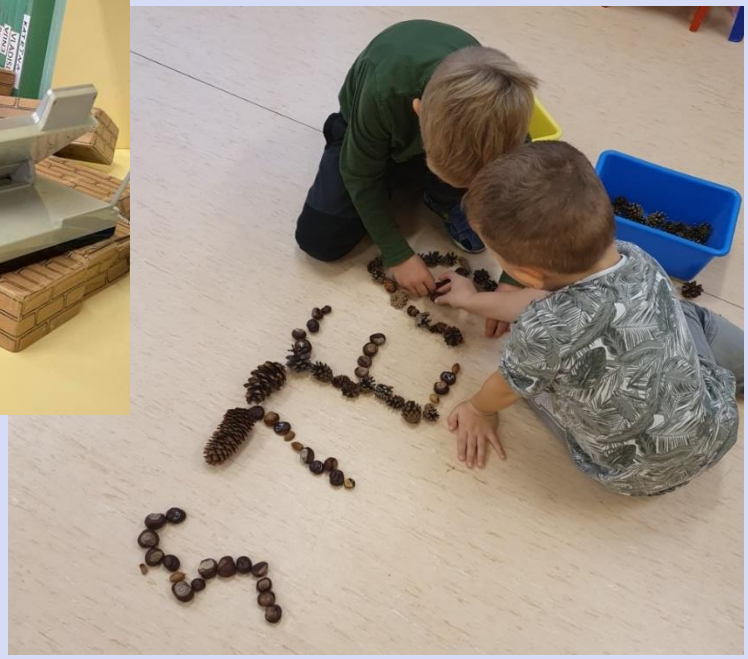

STEAM in early childhood – simple and fun! (2019-1-EE01-KA229-051723)

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IDEAS FROM SPAIN

Age of children: 2 years old	**Theme: Autumn elements**
Learning activities objectives	
General- and playing skills (thinking skills): 1. Learn playing 2. know the elements of autumn	*Social skills:* 1. Respect to others 2. Help the other children if they need
Environment, science: 1. Observe changes in the environment	*Language skills:* 1. Talk about autumn elements
Math and engineering: 1. Start counting 2. conducting and exploring transfers with different measures	*Technological and digital skills:* 1.Get started in computational thinking
Music and movement: 1. Develop fine motor skills	*Art skills:* 1. Value autumn creations 2. artistic techniques with autumn colors.

	First day	**Second day**	**Third day**	**Fourth day**	**Fifth day**
STEAM areas that are specific for a concrete day	Language skills and social skills	Language skills and social skills	Art skills	Music and movement	Math and engineering

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Preparatory activities by teacher	Show the different elements	We collect those elements that we have found in nature.	Manipulate the different elements and they dye rice in the colors of autumn with relaxing music	We work fine motor, using pliers and hand holders to explore the elements of nature.	we work transfers offering different measures with which to explore
Necessary materials for the activities	Autumn elements	Autumn elements	Music, the autumn element, rice and paints.	Autumn elements.	autumn materials and glasses, cups, bowls
Learning activity (what did you do during this concrete activity- games etc.)	Direct observation of nature.	We name, dialogue, describe and discuss the collected items.	Cooperative activity. Mediator and observing teacher.	Cooperative activity and individual activity. Mediator and observing teacher.	Cooperative activity and individual. Mediator and observing teacher.
How did children analyze what they did in the activity? In their own words, what did they learn?	Observing, experimenting and dialogue, create moments of learning.	Children develop many skills believe it or not, as they are dialogue and explore.	Children develop many skills believe it or not, as they are playing. They learn without realizing it.	Children develop many skills believe it or not, as they are playing. They learn without realizing it.	Children develop many skills believe it or not, as they are playing. They learn without realizing it.

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Age of children: 3 years old	**Theme: Build a town**
Learning activities objectives	
General- and playing skills (thinking skills): 1. Finding the real part by looking at a drawing 2. Discover the pieces that are part of a town 3. Learn how to build a step-by-step	*Social skills:* 1. Respect to others 2. Help the other children if they need
Environment, science: 1. Observe changes in the environment	*Language skills:* 1. Talk about town elements 2. Communicate with the colleagues
Math and engineering: 1. Start counting 2. Start in the series	*Technological and digital skills:* 1.Get started in computational thinking
Music and movement: 1. Control body movements 2. Develop fine motor skills	*Art skills:* 1. Value DIY creations

	First day	**Second day**	**Third day**	**Fourth day**	**Fifth day**
STEAM areas that are specific for a concrete day	Language skills and social skills	Language skills and social skills	Music and movement	Art skills	Arts skills
Preparatory activities by teacher	Show the different elements	Ride the town corner	Manipulate the different elements with relaxing music	We work the art skills building the town	We work the art skills building the town

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Necessary materials for the activities	Town elements	Town elements	Music and the corner materials	The corner town materials and logs to build	The corner town materials and logs to build
Learning activity (what did you do during this concrete activity- games etc.)	Cooperative activity. Teacher like a mediator.	Cooperative activity. Teacher like a mediator.	Cooperative activity. Mediator and observing teacher.	Cooperative activity and individual activity. Mediator and observing teacher.	Cooperative activity and pair activity. Mediator and observing teacher.
How did children analyze what they did in the activity? In their own words, what did they learn?	Children develop many skills believe it or not, as they are playing. They learn without realizing it.	Children develop many skills believe it or not, as they are playing. They learn without realizing it.	Children develop many skills believe it or not, as they are playing. They learn without realizing it.	Children develop many skills believe it or not, as they are playing. They learn without realizing it.	Children develop many skills believe it or not, as they are playing. They learn without realizing it.

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Age of children: 4 years old	**Theme: WE PLAY WITH THE BEEBOT**
Learning activities objectives	
General- and playing skills (thinking skills): 1. Learn through play	*Social skills:* 1. Save the turn to speak. 2. Save the turn to robot manipulation. 3. Respect your partners 4. Help your partners.
Environment, science: 1. Relate the activities done through the robots with natural elements of the known environment.	*Language skills:* 1. Verbalize the movements that the robot must make to move to the proposed place.
Math and engineering: 1. Use the counting to do the robots programing. 2. Use language through symbols to write the movements.	*Technological and digital skills:* 1. Learn to use a ground robot by programming your movements through the movement button. 2. Get started in computational thinking through the anticipation of movements.
Music and movement: 1. Experiment the movements of the robot through its own.	*Art skills:* 1. Make Beebot boards or panels with student productions (drawings ...).

	First day	**Second day**	**Third day**	**Fourth day**	**Fifth**
STEAM areas that are specific for a concrete day	Language skills Social skills Technological and digital skills	Technological and digital skills Social skills	Music and movement skills Social skills	Math Technological and digital skills Social skills	Math Technological and digital

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					Language skills
Preparatory activities by teacher	Introduce the robot and explain its use.	Teach students to learn how to use the robot by knowing the various buttons and what they are used for	Do preparatory activities so that students can experience the robot's movements through their own body (movement activities)	Symbolize movements through graphic signs. Learn to interpret and / or generate them.	Move the Beebot from the image of an insect to the initial of its name. In this way, they connect programming and robotics with simple reading and writing activities. So students must first think about the route that the robot will have to take, verbalize this route and program the robot with the keypad.
Necessary materials for the activities	Robot (Beebot) Movement cards	Robot (Beebot)	Paper, blackboard, pencil, movement cards	Paper, blackboard, pencil, movement cards	Robot (Beebot)
Learning activity (what did you do during this	Teacher as motivator and facilitator of materials	Teacher as a motivator and facilitator of student experimentation	Teacher as facilitator, observer and mediator	Teacher as facilitator, observer and mediator	Teacher as facilitator, observer and mediator

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concrete activity-games etc.)					
How did children analyze what they did in the activity? In their own words, what did they learn?	The kids don't think they are learning, they are really very motivated and think they are playing with the robot. But they are really developing various skills (language, movements, computational thinking, programming, anticipation ...).	The kids don't think they are learning, they are really very motivated and think they are playing with the robot. But they are really developing various skills (language, movements, computational thinking, programming, anticipation ...).	The kids don't think they are learning, they are really very motivated and think they are playing with the robot. But they are really developing various skills (language, movements, computational thinking, programming, anticipation ...).	The kids don't think they are learning, they are really very motivated and think they are playing with the robot. But they are really developing various skills (language, movements, computational thinking, programming, anticipation ...).	The kids don't think they are learning, they are really very motivated and think they are playing with the robot. But they are really developing various skills (language, movements, computational thinking, programming, anticipation ...).

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Age of children: 5 years old	**Theme: Paint autumn leaves**
Learning activities objectives	
General- and playing skills (thinking skills): 1. Learn playing	*Social skills:* 1. Respect to others 2. Help the other children if they need
Environment, science: 1. Observe changes in the environment	*Language skills:* 1. Talk about autumn elements 2. Communicate with the colleagues
Math and engineering: 1. Paint autumn leaves 2. Work the perspective	*Technological and digital skills:* 1.Get started in computational thinking
Music and movement: 1. Control body movements 2. Develop fine motor skills	*Art skills:* 1. Value autumn creations

	First day	**Second day**	**Third day**	**Fourth day**	**Fifth day**
STEAM areas that are specific for a concrete day	Language skills and social skills	Language skills and social skills	Language skills and social skills	Art skills	Arts skills
Preparatory activities by teacher	Show the different elements	Show the different elements	Catch the autumn elements with closed eyes and guess which one is.	Paint autumn elements	Paint autumn elements
Necessary materials for the activities	The corner autumn fruits	The corner autumn fruits	Autumn fruits	Autumn fruits	Autumn fruits

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Learning activity (what did you do during this concrete activity- games etc.)	Cooperative activity. Teacher like a mediator.	Cooperative activity. Teacher like a mediator.	Cooperative activity. Mediator and observing teacher.	Cooperative activity and individual activity. Mediator and observing teacher.	Cooperative activity and individual activity. Mediator and observing teacher.
How did children analyze what they did in the activity? In their own words, what did they learn?	Children develop many skills believe it or not, as they are playing. They learn without realizing it.	Children develop many skills believe it or not, as they are playing. They learn without realizing it.	Children develop many skills believe it or not, as they are playing. They learn without realizing it.	Children develop many skills believe it or not, as they are playing. They learn without realizing it.	Children develop many skills believe it or not, as they are playing. They learn without realizing it.

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